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Revision of *Aneflomorpha* Casey and *Neaneflus* Linsley (Coleoptera: Cerambycidae) of the United States with an illustrated key to species

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Abstract. The genera *Aneflomorpha* Casey, 1912 and *Neaneflus* Linsley, 1957 (Coleoptera: Cerambycidae) are revised for the species occurring in the United States. Examination of all primary types has necessitated redefinition of several species that were defined originally and subsequently on erroneous character descriptions. Two new species of *Aneflomorpha* are described from Arizona: *Aneflomorpha crypta* Lingafelter, **new species** and *A. paralinearis* Lingafelter **new species**. One subspecies, *Aneflomorpha rectilinea yumae* Giesbert and Hovore, 1976 is elevated to species, **new status**. Six species are synonymized: *Aneflomorpha citrana* Chemsak, 1960 is a **new synonym** of *A. rectilinea* Casey, 1924; *Aneflomorpha parowana* Casey, 1924 is a **new synonym** of *Aneflomorpha linearis* (LeConte 1859), along with its synonyms *A. testacea* Casey, 1924, *A. elongata* Linsley, 1936, and *A. californica* Linsley, 1936; *Aneflomorpha arizonica* Linsley, 1936 is a **new synonym** of *Aneflomorpha unispinosa* Casey, 1912; *Aneflomorpha parkeri* Knull, 1934 is a **new synonym** of *Aneflomorpha gilana* Casey, 1924; *Aneflomorpha texana* Linsley 1936 is removed from synonymy with *A. seminuda* Casey, 1912 and found to be conspecific with *A. werneri* Chemsak, 1962, **new synonym**. *Aneflomorpha opacicornis* Linsley, 1957 is transferred to *Neaneflus* as *N. opacicornis* (Linsley), **new combination**, and *Neaneflus brevispinus* Chemsak, 1962 is a **new synonym**. With this revision, there are eighteen species of *Aneflomorpha* and two species of *Neaneflus* recognized for the United States. All species are presented with new diagnoses, illustrated characters, updated distributional and host information, and an illustrated identification key.

Key words. Taxonomy, systematics, longhorned woodboring beetles, Nearctic.

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Introduction

Aneflomorpha Casey, 1912 (Fig. 1) is a large genus of small, elongate, narrow-bodied longhorned beetles, light testaceous to dark brown in color, and less than 21 mm in length. There are 43 species distributed mostly in the southwestern United States and Mexico, but also ranging into Central America and the northeastern and northwestern United States (Bezark 2022). Their elongate, narrow morphology follows their larval habits of feeding and developing in (and girdling) small branches (less than one inch diameter) of various trees and shrubs (Craighead 1923; Linsley 1963; Heffern et al. 2018).

The genus was based on the well-developed carina on antennomeres 3–6 becoming obsolete toward the apical antennomeres, the uniform and sparse pubescence over most of the body, and the narrowly sinuate and bidentate elytra in most species. In addition to *Elaphidion subpubescens* LeConte, 1862 (Fig. 1r) which he designated as the type species, Casey (1912) included *Elaphidion lineare* LeConte, 1859 (Fig. 1h), *Elaphidion lengi* Schaeffer, 1908 (now in *Pseudoperiboeum* Linsley, 1935) (Fig. 2j), *Elaphidion levettei* Casey, 1891 (now in *Aneflus* LeConte, 1873) (Fig. 2a), *Elaphidion aculeatum* LeConte, 1873 (Fig. 1a), and three new species when he proposed *Aneflomorpha*: *A. longipennis* Casey, 1912 (now a synonym of *A. linearis* (LeConte, 1859), *A. seminuda* Casey, 1912 (Fig. 1q), and *A. unispinosa* Casey, 1912 (Fig. 1t). In addition, Casey included two species from Mexico that were originally described in *Aneflus* and were subsequently returned there: *Aneflus cylindricollis* Bates, 1892 and *Aneflus calvatus* Horn, 1885. Casey described another genus in that paper, *Anepsyra*, that included *Elaphidion tenue* LeConte, 1854 (Fig. 1s) and *Aneflus volitans* LeConte, 1873, both of which were transferred to *Aneflomorpha* by Linsley (1963) when he synonymized *Anepsyra* with *Aneflomorpha*.

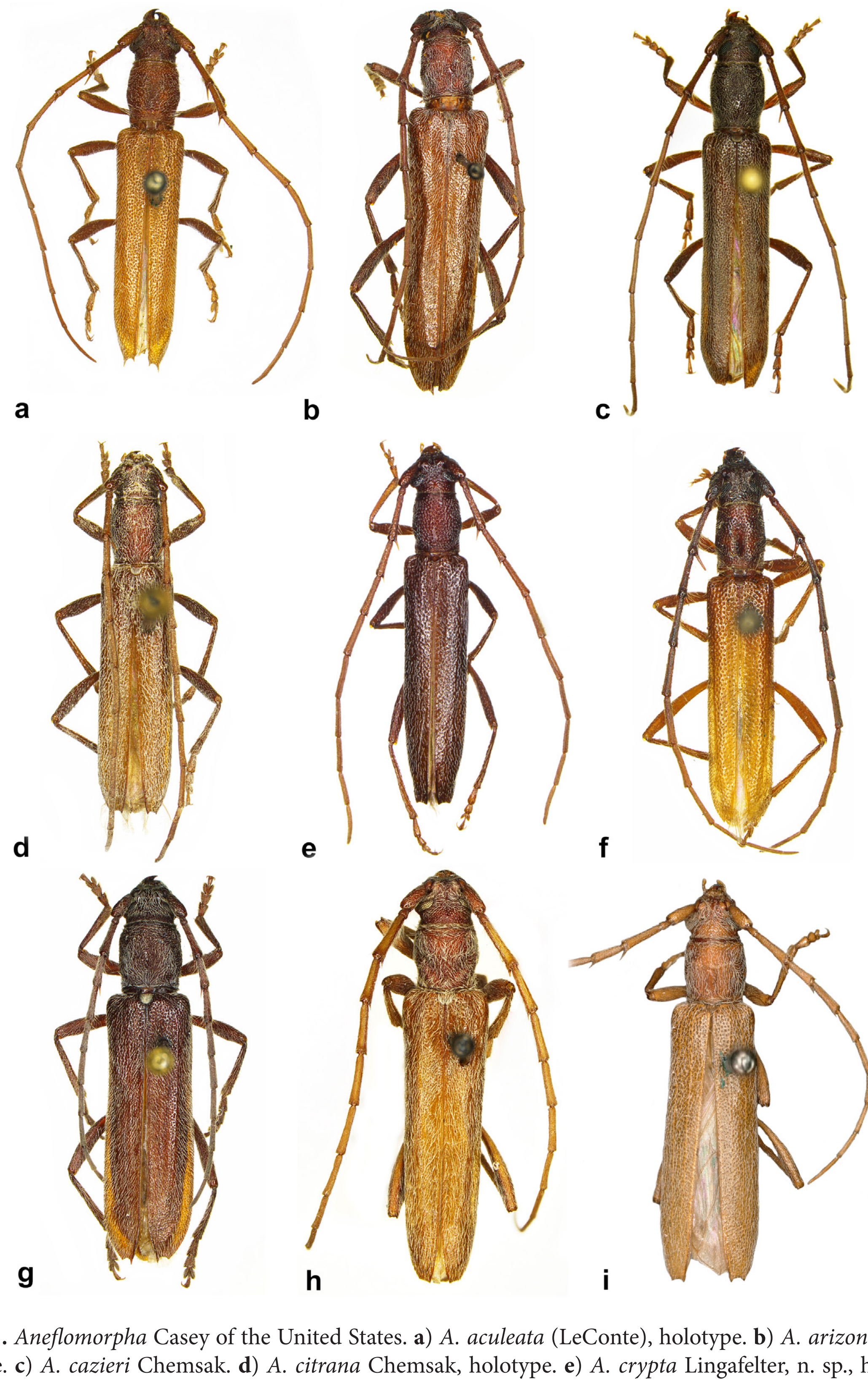

Figure 1. *Aneflomorpha* Casey of the United States. **a**) *A. aculeata* (LeConte), holotype. **b**) *A. arizonica* Linsley, holotype. **c**) *A. cazieri* Chemsak. **d**) *A. citrana* Chemsak, holotype. **e**) *A. crypta* Lingafelter, n. sp., holotype. **f**) *A. delongi* (Champlain and Knull), holotype. **g**) *A. fisheri* Linsley. **h**) *A. gilana* Casey, holotype. **i**) *A. linearis* (LeConte), holotype.

Aneflomorpha has been one of the most taxonomically difficult longhorned beetle genera in the United States because it was defined on character states that vary within the genus and occur in other genera (e.g., antennal carinae, uniform and sparse pubescence, etc.). As documented above, its original composition included species that are currently in three different genera and includes species that do not have some of the original characters attributed by Casey (1912). In the following 50 years, additional species were described, often without illustrating or clearly defining their characters or without accurate comparison to previously described species (presumably without examining the primary types), thus establishing a very vague concept of not only the genus *Aneflomorpha* (as pointed out in Linsley 1963), but also many of the included species (e.g., Chemsak 1960, 1962; Knull 1934; Linsley 1936, 1957). Further contributing to the difficulty in the taxonomy of this genus is the fact that many species are variable in some character states that, while useful for 95% of the specimens within a species, will present unusual variations that lead to great difficulty in making determinations for the other 5%. For example, most specimens of *Aneflomorpha aculeata* (LeConte) (Fig. 1a) have well-developed apical elytral spines, but a few specimens have the apices bidentate. Most specimens of *Aneflomorpha rectilinea* Casey, 1924 (Fig. 1o, p) have completely closed procoxal cavities posteriorly due to a widened prosternal process, but some specimens have the cavities partially open.

Neaneflus Linsley, likewise, was proposed by Linsley (1957) based on some characters found in some species of *Aneflus* and *Aneflomorpha* such as having the procoxal cavities widely open, the outer antennal flagellomeres not or vaguely carinate, and the elytra rounded apicolaterally. Linsley (1963) stated that "the robust form and broadly expanded, not or only vaguely carinate antennae will distinguish [*Neaneflus*] from *Aneflomorpha*." Additional characters from a new species described herein will help to better define *Neaneflus*. Nevertheless, we are left with four genera in particular that overlap in some characters and thus are difficult to define or discriminate in a dichotomous key. These four genera which are presumably more closely related to one another than to other Elaphidiini are: *Aneflomorpha*, *Neaneflus*, *Micraneflus* Linsley, and *Aneflus*.

My objective in this study was to clarify the definition of *Aneflomorpha* and *Neaneflus* and their included species through careful examination of the primary types and material from most major collections. The objective definition and illustration of character states among the included species and the necessary taxonomic changes based on my conclusions will enhance stability and accurate identifications. Despite meeting this objective, the absence of clear synapomorphies for *Aneflomorpha* and *Neaneflus* and the reliance on combinations of characters to define them mean that some challenges remain.

Materials and Methods

Type material was borrowed from the Smithsonian Institution, the Museum of Comparative Zoology at Harvard University, the Field Museum, California Academy of Sciences, Los Angeles County Museum, the Florida State Collection of Arthropods, Arizona State University, and the University of Arizona. In addition, important material was examined from the collections of James Wappes (now at FSCA), Ed Giesbert (now at FSCA), Roy Morris, Fred Skillman, Jr., Dan Heffern, Josef Vlasak, Andrew Johnston, Eric Chapman, John Leavengood, and Bruce Tilden. All collection acronyms are listed below. The online and printed primary type photographic database of the Smithsonian Institution (Lingafelter et al. 2014, 2022), the online catalogues of New World Cerambycidae (Bezark 2022), and the online primary type database of the Museum of Comparative Zoology (2021) were also accessed.

Imaging, measurements, and microscopy were undertaken with a Nikon Digital Sight DS-F12 camera mounted on a Nikon SMZ18 Stereomicroscope equipped with SHR Plan Apo 0.5× and 1× lenses. Image montages were made by Helicon Focus 6.8.0 and enhanced via cropping, color correction, sharpening, and lighting tools in Adobe Photoshop Elements 12.

Label data is only given verbatim for the new species. For other material examined, obvious errors and inconsistencies are corrected, and data sometimes rearranged for clarity. Specimen label data is arranged by state. The state is in bold for the first entry and not repeated for a series of specimens for brevity and clarity. For commonly collected species, such as *A. rectilinea*, only a representative sample of material examined is included to emphasize the breadth of its range and to highlight some novel localities that have not been documented in the

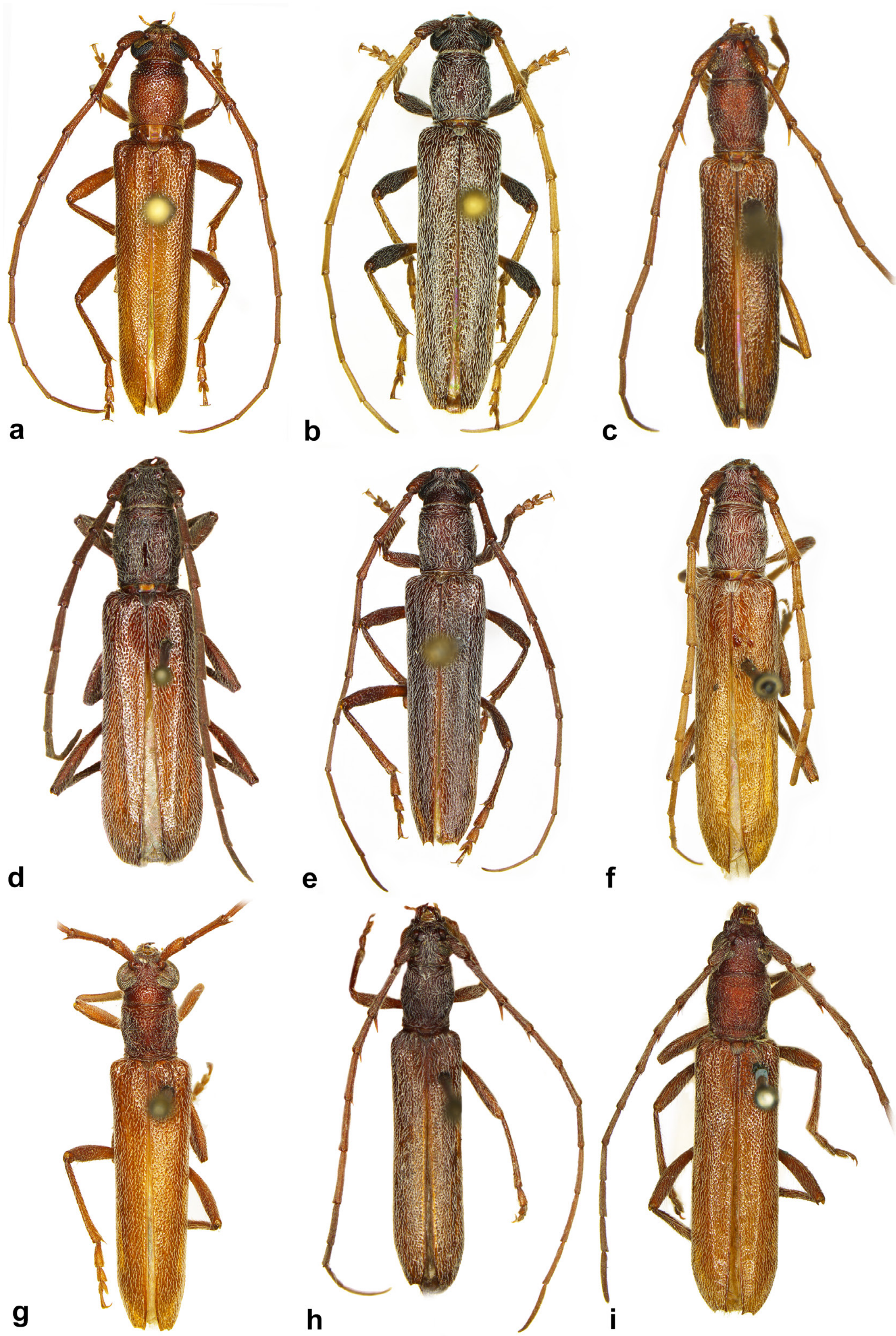

Figure 2. *Aneflomorpha* Casey of the United States. **a**) *A. linsleyae* Chemsak. **b**) *A. luteicornis* Linsley. **c**) *A. minuta* Chemsak, holotype. **d**) *A. opacicornis*, holotype. **e**) *A. paralinearis* Lingafelter, n. sp., holotype. **f**) *A. parkeri* Knull, holotype. **g**) *A. parowana* Casey, lectotype. **h**) *A. rectilinea* Casey, lectotype. **i**) *A. seminuda* Casey, holotype.

literature. The number of specimens precedes the depository acronym. If no number is present, it is assumed to be one for that locality. Gender is indicated only for the holotypes and paratypes of the new species.

ABRC	Austin B. Richards Collection, Magalia, California, USA
ACMT	American Coleoptera Museum (James E. Wappes) (now at FSCA)
ASUC	Arizona State University Collection, Phoenix, Arizona, U.S.A. (N. Franz, S. Lee)
BTC	Bruce Tilden Collection, Yerington, Nevada, U.S.A.
CASC	California Academy of Sciences, San Francisco, California, U.S.A. (C. Grinter)
CMNH	Carnegie Museum of Natural History, Pittsburgh, Pennsylvania, U.S.A. (R. Androw)
CSUC	Colorado State University Collection, Fort Collins, Colorado, U.S.A. (D. Bright)
DJHC	Daniel J. Heffern Collection, Houston, Texas, U.S.A.
EFGC	Edmund Giesbert Collection, now at FSCA
EGCCRC	Eric G. Chapman Coleoptera Research Collection, Lexington, Kentucky, U.S.A. (SCAN-Symbiota)
EGRC	Edward G. Riley Collection, College Station, Texas, U.S.A.
FMNH	Field Museum of Natural History, Chicago, Illinois, U.S.A. (M. Turcatel, J. Wadleigh)
FSCA	Florida State Collection of Arthropods, Gainesville, Florida, U.S.A. (P. Skelley)
FWSC	Frederick W. Skillman Jr., Collection, Phoenix, Arizona, U.S.A.
JGPC	Joe Green Personal Collection, Findlay, Ohio, U.S.A.
JMLC	John M. Leavengood Collection, Florida, U.S.A.
JVCO	Josef Vlasak collection, Schwenksville, Pennsylvania, U.S.A.
KESC	Kyle E. Schnepp Collection, Gainesville, Florida, U.S.A.
LACM	Los Angeles County Museum, Los Angeles, California, U.S.A. (B. Brown, W. Xie)
MAJC	M. Andrew Johnston Research Collection, Tempe, Arizona, U.S.A.
MCZ	Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, U.S.A. (B. Farrell, C. Maier)
NPIC	Nogales Port Insect Collection, Nogales, Arizona, U.S.A. (J. Botz)
PSIC	Pat Sullivan Collection, Hereford, Arizona, U.S.A.
RAAC	Robert A. Androw Collection, Pittsburgh, Pennsylvania, U.S.A.
RFMC	Roy F. Morris Collection, Lakeland, Florida, U.S.A.
SWLC	Steven W. Lingafelter Collection, Hereford, Arizona, U.S.A.
TAMU	Texas A&M University Insect Collection, College Station, Texas, U.S.A. (E. Riley, K. Wright)
UAIC	University of Arizona Insect Collection, Tucson, Arizona, U.S.A. (W. Moore, E. Hall)
USNM	National Museum of Natural History, Smithsonian Institution, Washington, D.C., U.S.A. (F. Shockley, C. Micheli)

Results

***Aneflomorpha* Casey, 1912**

(Fig. 1–3, 5–16)

Aneflomorpha Casey 1912: 293. Type species: *Elaphidion subpubescens* LeConte 1862. Original designation.

Discussion. *Aneflomorpha* species are generally nondescript and varying shades of brown in color, ranging from mostly pale testaceous (as in *A. gilana* Casey and *A. linearis* (LeConte), Fig. 1h, i), rufous (as in *A. aculeata* (LeConte) and *A. linsleyae* Chemsak, Fig. 1a, 2a), brunneous (as in *A. fisheri* Linsley and *A. luteicornis* Linsley, Fig. 1g, 2b), or piceous (as in some *A. cazieri* Chemsak and *A. rectilinea* Casey, Fig. 1c, 2h). Most specimens range between 11–15 mm long, but a few are 7–10 mm (e.g., *A. crypta*, n. sp., Fig. 1e, and *A. minuta* Chemsak, Fig. 2c), and others can be 18–20 mm (e.g., some *A. fisheri*, Fig. 1g, and *A. unispinosa*, Fig. 1b, 3e). Most species are quite narrow bodied with the pronotum nearly always longer than wide, ranging from 0.95 times longer than wide (as in *A. gilana*, Fig. 5h) to 1.3 times longer than wide (as in *A. tenuis* (LeConte), Fig. 6u), with most species having the pronotum 1.1–1.2 times longer than wide. The elytra together range from 3.1 times longer than wide (as in *A. texana* Linsley, Fig. 3c, d) to 3.93 times longer than wide (as in *A. crypta*, n. sp., Fig. 1e) with most species

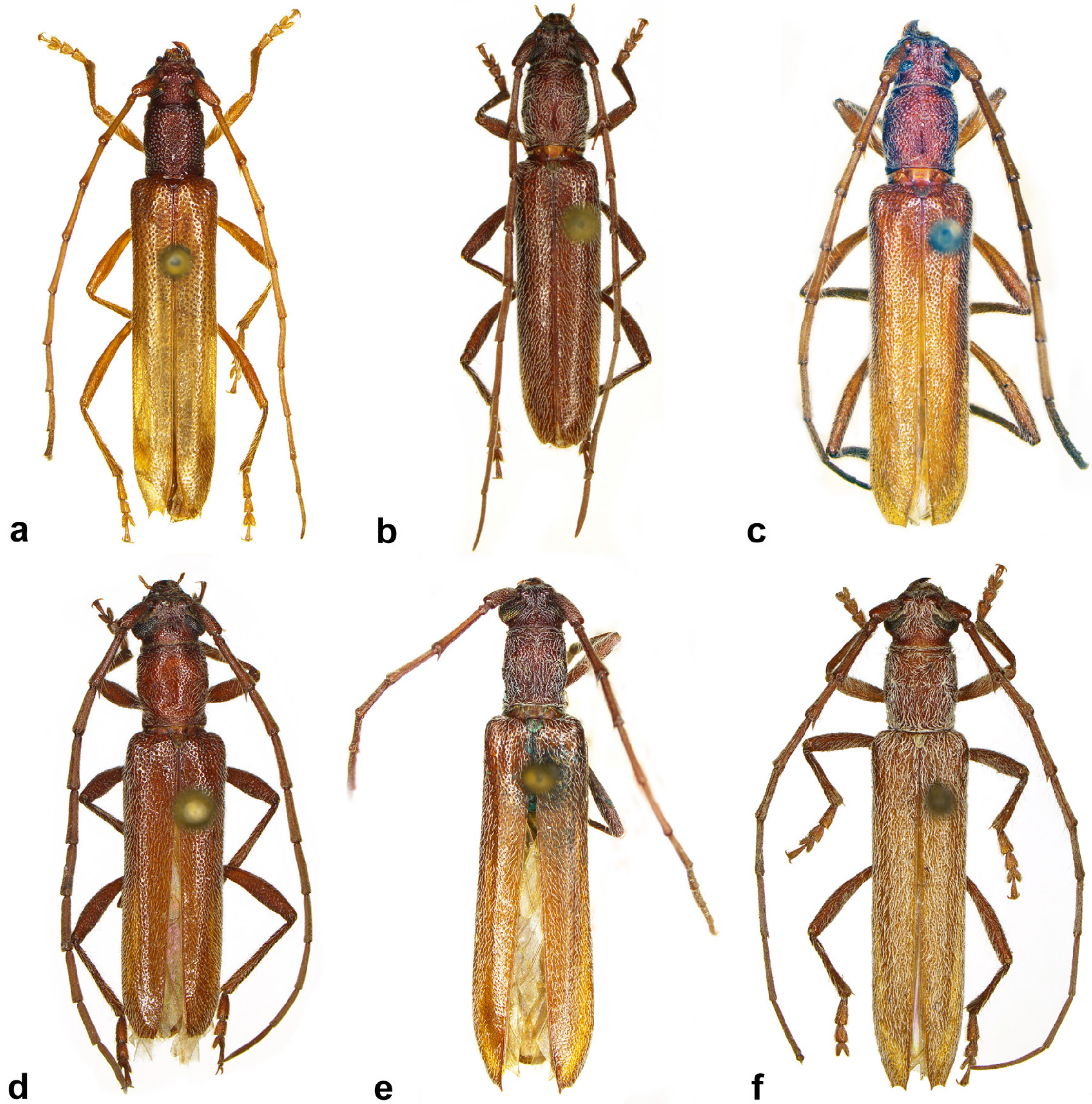

Figure 3. *Aneflomorpha* Casey of the United States. **a**) *A. subpubescens* (LeConte). **b**) *A. tenuis* (LeConte). **c**) *A. texana* Linsley, holotype. **d**). *A. texana* Linsley, Davis Mountains, Texas specimen. **e**) *A. unispinosa* Casey, holotype. **f**) *A. yumae* Giesbert and Hovore, paratype.

having the elytra 3.3–3.5 times longer than wide. This elongate and narrow body form is well adapted to, and a consequence of, the larval habits of developing in small diameter twigs and branches which constrain the adult size and proportions (Craighead 1923; Heffern et al. 2018).

Most species have a well-developed and acute spine on antennomere three that is longer than the second antennomere and successively smaller spines at the apex of antennomeres four and five (Fig. 9), however some species have the spine on antennomere three either blunt (as in *A. tenuis*, Fig. 9r) or shorter than the second antennomere (as in *A. unispinosa*, Fig. 9s) and may have subsequent spines dentiform or absent as in *A. texana* (Fig. 9t). Some species, such as *A. rectilinea* (Fig. 9o), which have well-developed spines that project from the antennal plane, use the spine of the third antennomere, primarily, as a defense against predation by rapidly moving the antennae back toward the elytra and stabbing the offender (pers. obs.). Most species have a variably developed carina on the basal antennomeres that can be quite bold (as in *A. luteicornis*, Fig. 9j, and *A. rectilinea*, Fig. 9o), or absent (as in *A. subpubescens*, Fig. 9q and *A. cazieri* Fig. 9b).

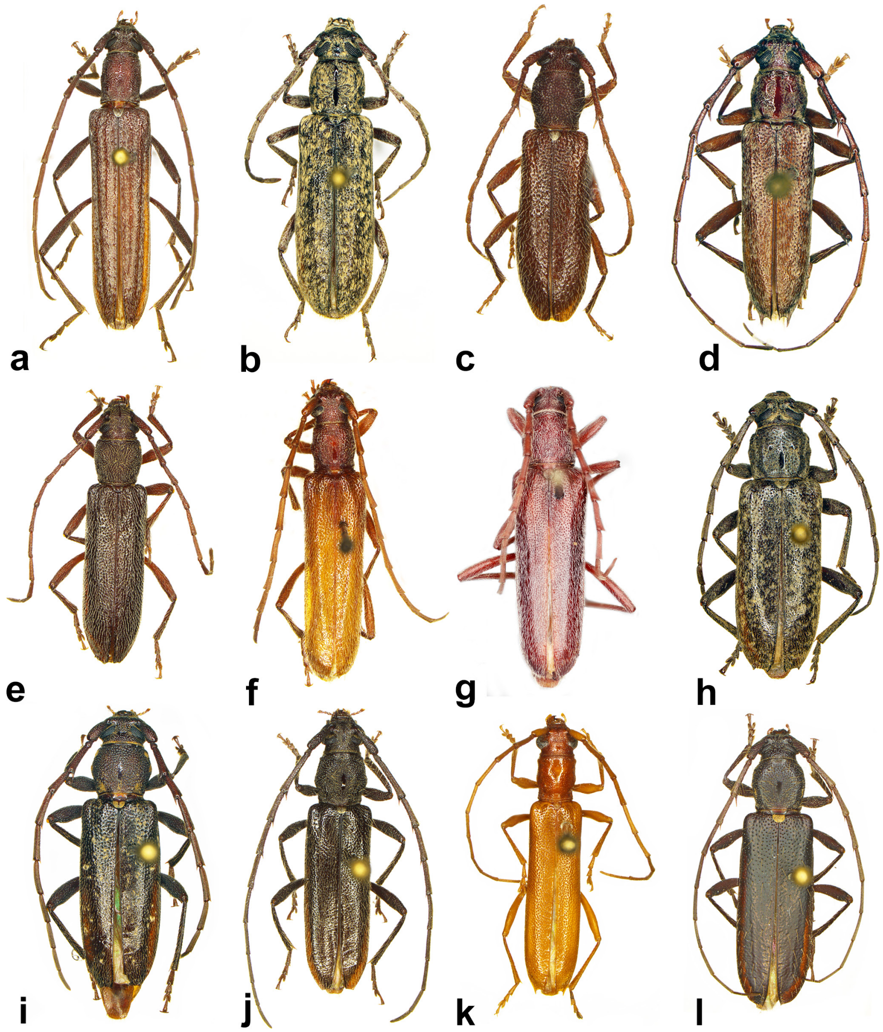

Figure 4. Genera similar to *Aneflomorpha* Casey. **a**) *Aneflus levettei* (Casey). **b**) *Anelaphus brevidens* (Schaeffer). **c**) *Anopliomorpha rinconia* (Casey). **d**) *Elaphidion mucronatum* (Say). **e**) *Micraneflus imbellis* (Casey), holotype. **f**) *Micranoplium unicolor* (Haldeman). **g**) *Neaneflus fuchsii* (Wickham), holotype. **h**) *Orwellion gibbulum arizonense* (Casey). **i**) *Parelaphidion incertum* (Newman). **j**) *Pseudoperiboeum lengi* (Schaeffer). **k**) *Psyrassa unicolor* (Randall). **l**) *Stenelaphus alienus* (LeConte).

All species have the pronotum punctate (Fig. 5, 6), but vary in the density, size, and distribution of those punctures. In most species the punctures are partially hidden by pubescence, but in some species, such as *A. subpubescens* (Fig. 6t) the punctures are nearly completely exposed, and in others, like *A. yumae* Giesbert and Hovore (Fig. 6x), they are nearly completely hidden. *Aneflomorpha* species vary with regard to the presence of a medial, impunctate pronotal callus (Fig. 5, 6). Most species do not have a callus. Some species are variable and have only a small callus in some specimens (e.g., some *A. cazieri* Fig. 5c, *A. delongi* (Champlain and Knull) (Fig. 5f), *A. crypta* (Fig. 5e), *A. minuta* (Fig. 5l), *A. tenuis*, Fig. 6u, and *A. texana*, Fig. 6w). The sides of the pronotum in most *Aneflomorpha* are broadly, gradually rounded, or nearly straight, without tubercles. However, *A. gilana* (Fig. 5h) and *A. linearis* (Fig. 5i, 6o) have weakly produced tubercles at the middle and some specimens of *A. minuta* (Fig. 5l) have the posterior fifth of the pronotum more abruptly constricted than the anterior margin. Most species have the procoxal cavities closed or nearly closed posteriorly by an expanded procoxal process (Fig. 10), but a few have the intercoxal process barely expanded and have widely open cavities (as in *A. linearis*, Fig. 10i, o, *A. subpubescens*, Fig. 10t, and *A. yumae*, Fig. 10x).

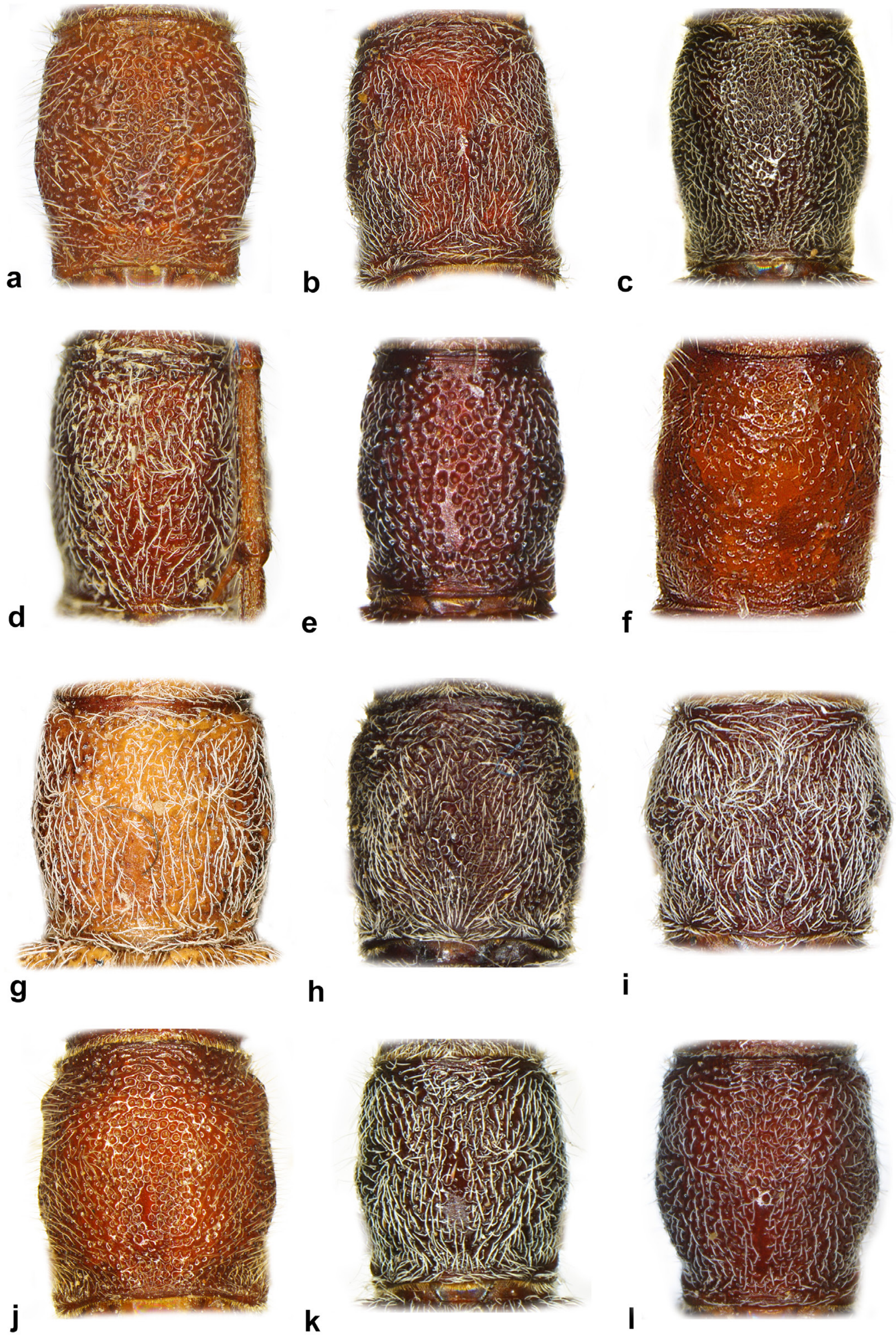

Figure 5. Pronota of *Aneflomorpha* Casey. **a**) *A. aculeata* (LeConte), holotype. **b**) *A. arizonica* Linsley. **c**) *A. cazieri* Chemsak. **d**) *A. citrana* Chemsak, holotype. **e**) *A. crypta* Lingafelter, n. sp. **f**) *A. delongi* (Champlain and Knull). **g**) *A. fisheri* Linsley. **h**) *A. gilana* Casey. **i**) *A. linearis* (LeConte), holotype. **j**) *A. linsleyae* Chemsak. **k**) *A. luteicornis* Linsley. **l**) *A. minuta* Chemsak.

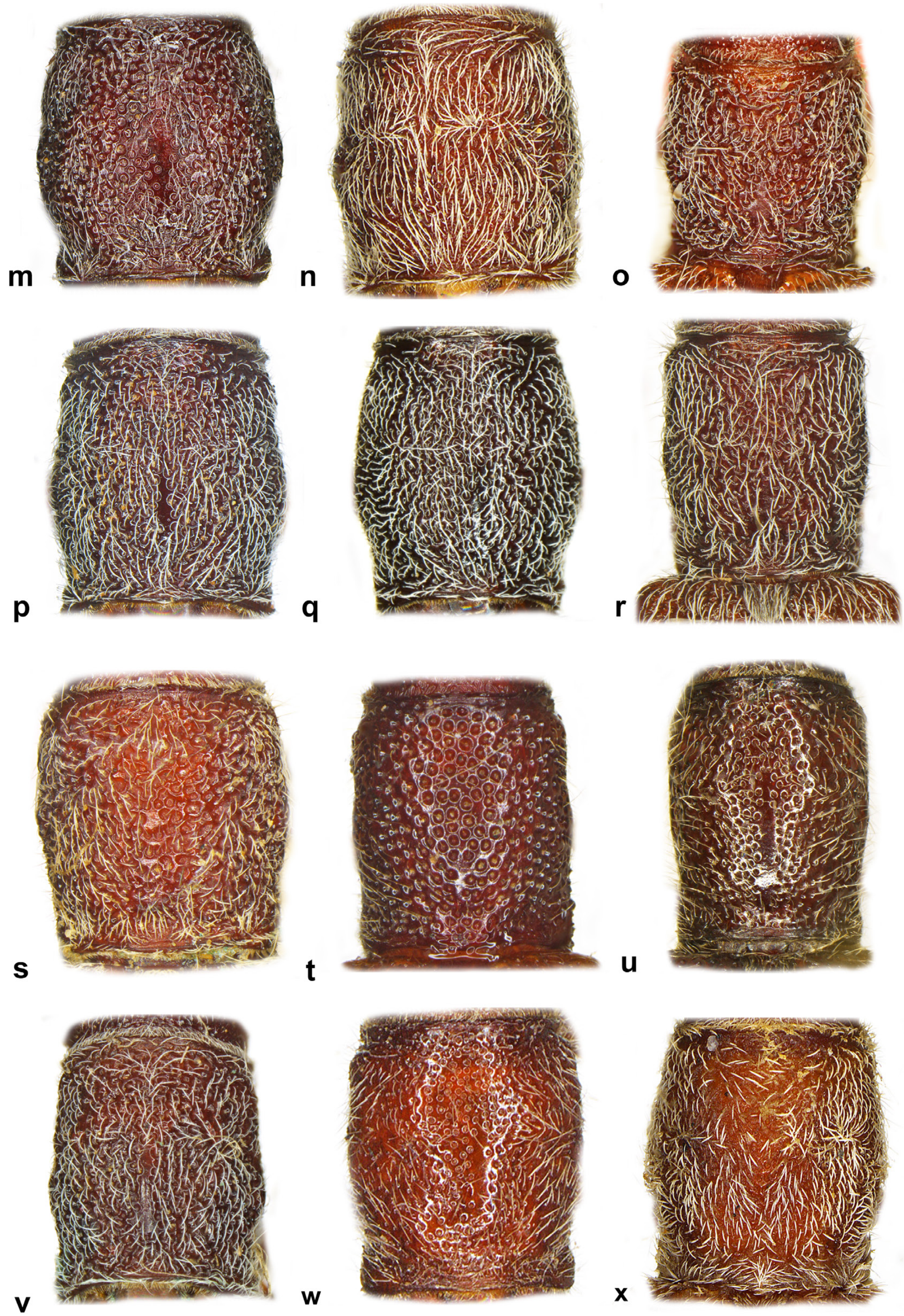

Figure 6. Pronota of *Aneflomorpha* Casey. **m**) *A. opacicornis* Linsley (*Neaneflus*, herein). **n**) *A. parkeri* Knull, holotype. **o**) *A. parowana* Casey, lectotype. **p**) *A. paralinearis* Lingafelter, n. sp., holotype. **q**) *A. rectilinea* Casey, Arizona. **r**) *A. rectilinea* Casey, Texas. **s**) *A. seminuda* Casey, holotype. **t**) *A. subpubescens* (LeConte). **u**) *A. tenuis* (LeConte). **v**) *A. unispinosa* Casey, holotype. **w**) *A. texana* Linsley. **x**) *A. yumae* Giesbert and Hovore, paratype.

Most species have the elytral apices symmetrically dentiform or bispinose (Fig. 8), although a few species have the apices unarmed and truncate (as in *A. minuta*, Fig. 8k and *A. crypta*, n. sp., Fig. 8d). A few species have the apices asymmetrical, with the outer apex rounded to a dentiform or spinose suture (as in *A. unispinosa*, Fig. 8t). Most species have moderate pubescence on the elytra comprised primarily of recumbent, recurved setae (e.g., Fig. 7e, q, v), however, a few species have a nearly equal amount of erect or semi-erect setae in addition (as in *A. aculeata*, Fig. 7a and *A. tenuis*, Fig. 7u), and a few have only erect and suberect setae and lack recumbent setae entirely (as in *A. linsleyae*, Fig. 7j and *A. subpubescens*, Fig. 7t).

Aneflomorpha is most similar to species in the genera shown in Figure 4. These include *Aneflus* LeConte (Fig. 4a), *Anelaphus* Linsley (Fig. 4b), *Anopliomorpha* Linsley (Fig. 4c), *Elaphidion* Audinet-Serville (Fig. 4d), *Micraneflus* Linsley (Fig. 4e), *Micranoplium* Linsley (Fig. 4f), *Neaneflus* Linsley (Fig. 4g), *Orwellion* Skiles (Fig. 4h), *Parelaphidion* Skiles (Fig. 4i), *Pseudoperiboeum* Linsley (Fig. 4j), *Psyrassa* Pascoe (Fig. 4k), and *Stenelaphus* Linsley (Fig. 4l). Characters distinguishing each of these genera are discussed below and extracted from the following papers where these genera were fully diagnosed: Lingafelter (1998, 2007, 2020), Lingafelter and Ivie (2004), and Linsley (1963).

Aneflus (Fig. 4a) have an elongate morphology similar to *Aneflomorpha*, but the ratio of elytra length to width is lower, with most species having both elytra less than 3.3 times as long as wide. Likewise, the pronota of many species of *Aneflus* are as wide as long (or wider), and this is very rare in *Aneflomorpha*. With few exceptions, such as small individuals of *Aneflus levettei* (Casey) (Fig. 4a), *Aneflus* species are more robust and are at least 20 mm in length. *Aneflomorpha unispinosa* Casey (including its new synonym *A. arizonica* Linsley) (Fig. 1b, 3e) and *A. tenuis* (Fig. 3b) are regularly in that size range and rarely, a few very large individuals of other species such as *A. fisheri* Linsley (Fig. 1g) and *A. rectilinea* (Fig. 2h) also approach this size. Most species of *Aneflus* have pronounced mesal antennal spines present on antennomeres 3–7 (rarely more than dentiform beyond 5 in *Aneflomorpha*) and sometimes also apicolaterally (apicolateral spines are absent in *Aneflomorpha*). Nearly all specimens of *Aneflus* have strongly bispinose elytral apices, while in *Aneflomorpha*, the apicolateral spine is usually reduced, dentiform, or absent, however, exceptions are found such as in *A. aculeata*.

With a few exceptions such as *Anelaphus villosus* (Fabricius) (see Lingafelter (2020) for full description of this species), *Anelaphus* species (Fig. 2b) are not as elongate and narrow-bodied as *Aneflomorpha* and have elytra length to width ratios much less than 3.3. Further, most species of *Anelaphus* have the pronotum as wide as, or wider than long. Most *Anelaphus* species have a rather distinct pubescent patch on the antennal tubercles, while in *Aneflomorpha*, it is lacking or inconspicuous. The antennae are not carinate in *Anelaphus* but are in most species of *Aneflomorpha*.

Anopliomorpha species (Fig. 4c) are quite small (generally less than 8 mm) and would be at the lowest size range of *Aneflomorpha*, comparable to small individuals of *A. cazieri* Chemsak (Fig. 1c), *A. minuta* Chemsak (Fig. 2c), and *A. crypta* Lingafelter, n. sp. (Fig. 1e). Like most *Aneflomorpha*, *Anopliomorpha* species have the antennae carinate on the basal segments. The pronotum in *Anopliomorpha* is densely, confluently alveolate-punctate while in *Aneflomorpha*, the punctures are usually not all confluent and are never alveolate. The presence of very long "flying" setae scattered over the body and appendages (present in only a few species of *Aneflomorpha*, but not as strongly developed), combined with a very densely white pubescence scutellum are also distinctive for *Anopliomorpha*.

Almost all species of *Elaphidion* (Fig. 4d) have a very pronounced impunctate median pronotal callus. The callus, when present in *Aneflomorpha*, is typically very narrow and not as conspicuous. Most species of *Elaphidion* have strongly developed elytral spines (often strongly bispinose), and more developed than in most *Aneflomorpha* species. In *Aneflomorpha*, only *A. aculeata* (Fig. 8a) has the elytral apices typically strongly bispinose. Nearly all species have a pronounced, abruptly declivous prosternal process that angles behind the procoxal cavities. In *Aneflomorpha* (and other genera of Elaphidiini), the process is gradually declivous. The antennae are not carinate in *Elaphidion*, unlike in most species of *Aneflomorpha*. *Elaphidion* species are much more robust than *Aneflomorpha* and have elytra length to width ratios less than 3.1 in most individuals. Further, most species of *Elaphidion* have the pronotum as wide as, or wider than long. The antennal spines are more pronounced in many species of *Elaphidion* and often are present apicolaterally on many antennomeres (apicolateral antennal spines are absent in *Aneflomorpha*.)

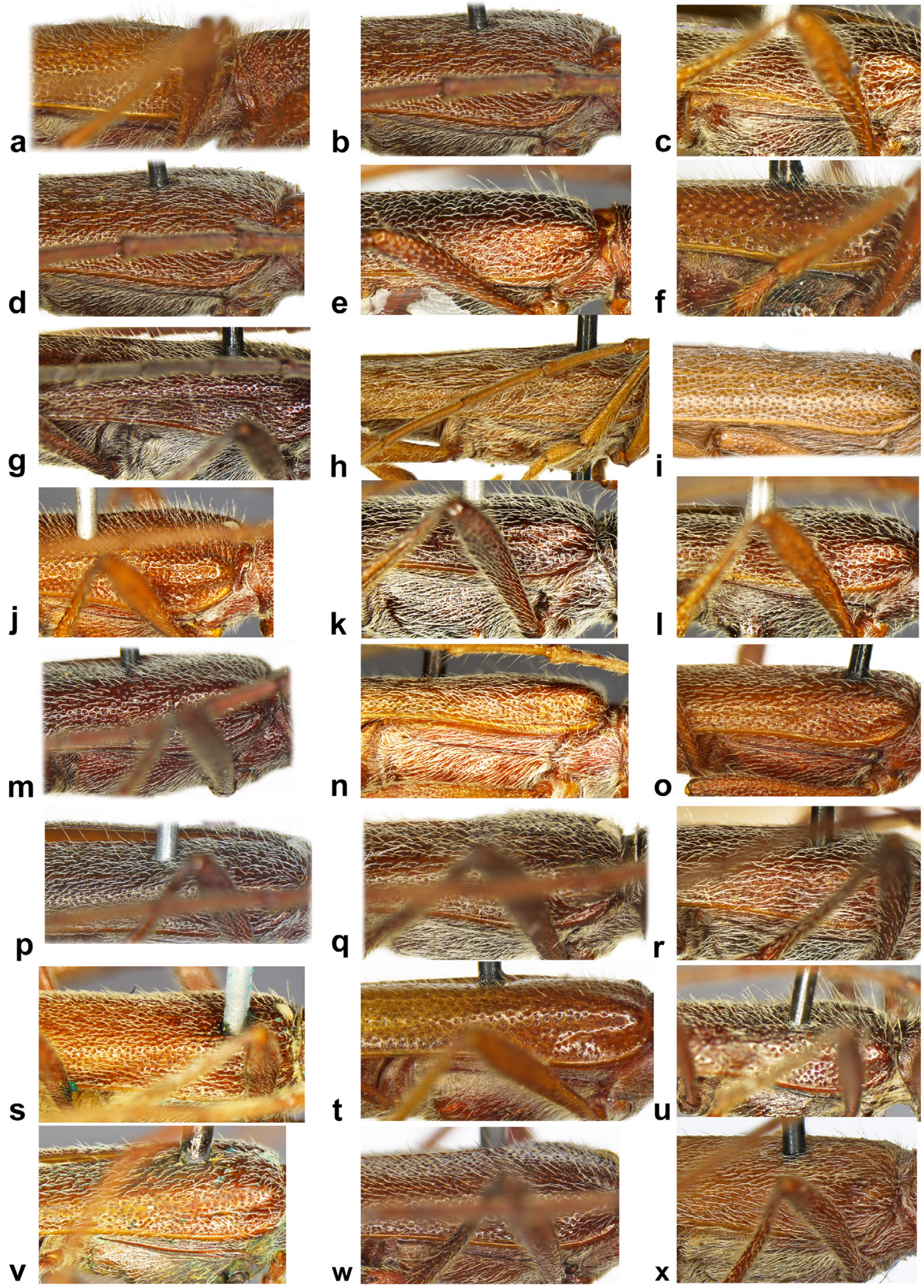

Figure 7. Elytral pubescence of *Aneflomorpha* Casey. **a**) *A. aculeata* (LeConte), holotype. **b**) *A. arizonica* Linsley. **c**) *A. cazieri* Chemsak. **d**) *A. citrana* Chemsak, holotype. **e**) *A. crypta* Lingafelter, n. sp. **f**) *A. delongi* (Champlain and Knull). **g**) *A. fisheri* Linsley. **h**) *A. gilana* Casey. **i**) *A. linearis* (LeConte), holotype. **j**) *A. linsleyae* Chemsak. **k**) *A. luteicornis* Linsley. **l**) *A. minuta* Chemsak. **m**) *A. opacicornis* Linsley (*Neaneflus*, herein). **n**) *A. parkeri* Knull, holotype. **o**) *A. parowana* Casey, lectotype. **p**) *A. paralinearis* Lingafelter, n. sp., holotype. **q**) *A. rectilinea* Casey, Arizona. **r**) *A. rectilinea* Casey, Texas. **s**) *A. seminuda* Casey, holotype. **t**) *A. subpubescens* (LeConte). **u**) *A. tenuis* (LeConte). **v**) *A. unispinosa* Casey, holotype. **w**) *A. texana* Linsley. **x**) *A. yumae* Giesbert and Hovore, paratype.

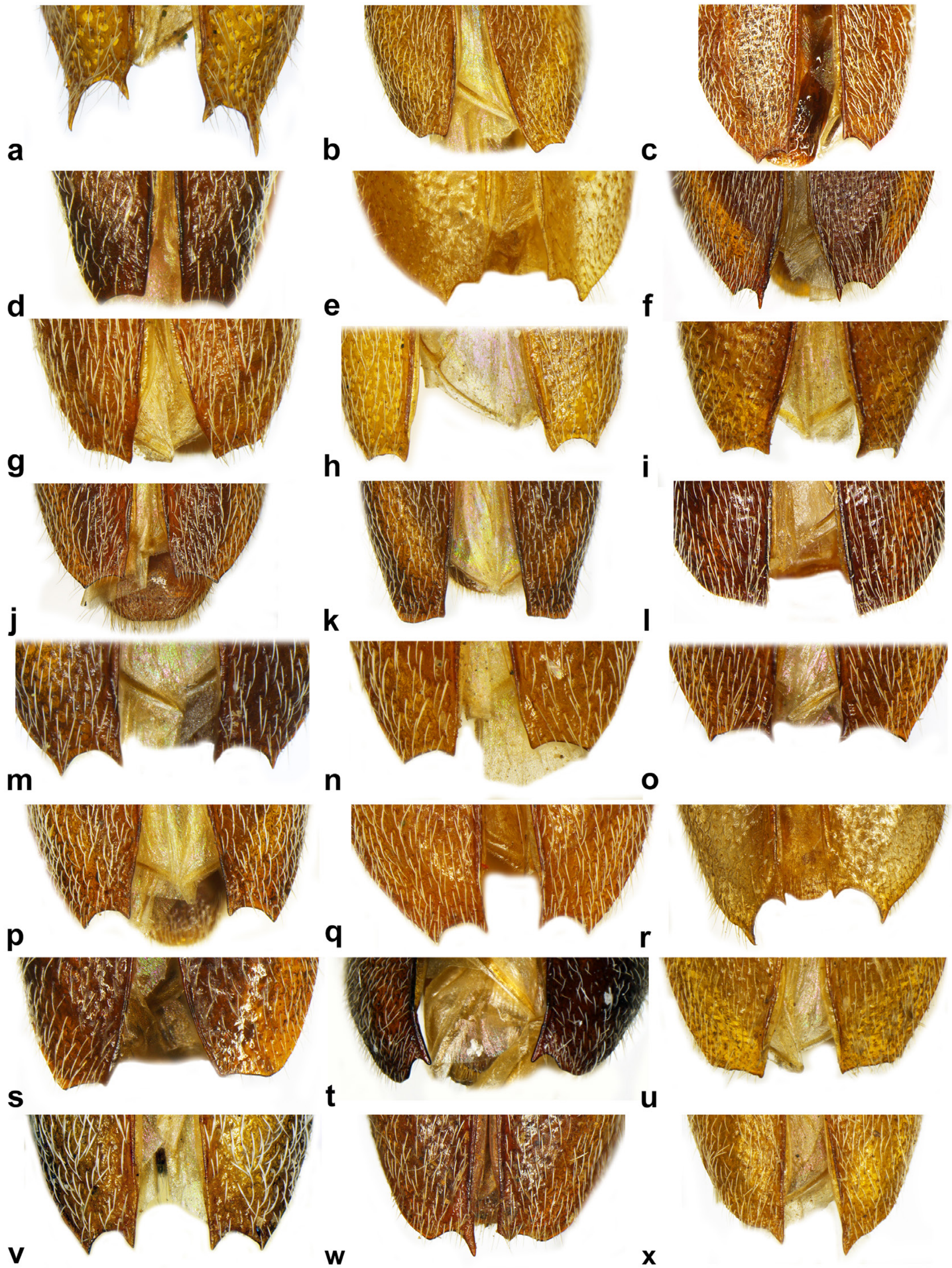

Figure 8. Elytral apices of *Aneflomorpha* Casey. **a**) *A. aculeata* (LeConte), holotype. **b**) *A. cazieri* Chemsak. **c**) *A. citrana* Chemsak, holotype. **d**) *A. crypta* Lingafelter, n. sp. **e**) *A. delongi* (Champlain and Knull). **f**) *A. fisheri* Linsley. **g**) *A. gilana* Casey, holotype. **h**) *A. linearis* (LeConte), holotype. **i**) *A. linsleyae* Chemsak. **j**) *A. luteicornis* Linsley. **k**) *A. minuta* Chemsak. **l**) *A. opacicornis* Linsley (*Neaneflus*, herein). **m**) *A. paralinearis* Lingafelter, n. sp., holotype. **n**) *A. parowana* Knull, lectotype. **o**) *A. rectilinea* Casey, Arizona. **p**) *A. rectilinea* Casey, Texas. **q**) *A. seminuda* Casey, holotype. **r**) *A. subpubescens* (LeConte). **s**) *A. tenuis* (LeConte). **t**) *A. unispinosa* Casey. **u**) *A. texana* Linsley, holotype. **v**) *A. yumae* Giesbert and Hovore, paratype. **w**) *A. arizonica* Linsley, holotype. **x**) *A. parkeri* Knull, holotype.

Micraneflus is a monotypic genus containing only *M. imbellis* (Casey) (Fig. 4e) and resembles *Aneflomorpha* but is easily distinguished since it lacks antennal spines. All species of *Aneflomorpha* have at least a small spine on antennomere three. The elytral apices are rounded apicolaterally in *Micraneflus* and this is present in only a few *Aneflomorpha* such as *A. unispinosa* Casey (Fig. 8t,w).

Another monotypic genus, *Micranoplium* (Fig. 4f), which is known only from the eastern United States, is, like *Micraneflus*, distinguished from *Aneflomorpha* by its lack of antennal spines. Further, most individuals are smaller than 10 mm in length, so only small individuals of *A. cazieri* Chemsak (Fig. 1c), *A. minuta* Chemsak (Fig. 2c), and *A. crypta* Lingafelter, n. sp. (Fig. 1e) are comparable.

Neaneflus (Fig. 4g) is very similar to *Aneflomorpha* and one species of the latter (*A. opacicornis* Linsley) is transferred to the genus herein (Fig. 17). This genus differs from all *Aneflomorpha* in having strongly apicolaterally expanded antennomeres and pronounced sexual dimorphism in antennal length (Fig. 18). *Neaneflus* differs from most *Aneflomorpha* by its lack of antennal carinae. Further, the elytral and pronotal proportions are broader than all *Aneflomorpha* species with only *A. texana* (Fig. 3c, d) and *A. gilana* (Fig. 1h) having nearly as broad elytra and pronota, respectively. As in *Micraneflus*, the elytral apices are rounded apicolaterally, a rarely occurring character state in *Aneflomorpha*.

Orwellion (Fig. 4h), like *Elaphidion*, has much broader pronota (wider than long) and elytra (less than 3.1 times longer than wide) than *Aneflomorpha* species. Antennomere three is at least two-thirds the length of the pronotum in *Orwellion* (shorter in *Aneflomorpha*). The elytra and pronotum in *Orwellion* species have scattered dense pubescent patches while the pubescence is more uniformly distributed in *Aneflomorpha*.

Parelaphidion (Fig. 4i), like *Elaphidion* and *Orwellion*, has broader proportions and a less elongate facies than *Aneflomorpha*. The pronotum is wider than long and has multiple well-developed glabrous calli in *Parelaphidion* (longer than wide in nearly all specimens of *Aneflomorpha* and with, at most, a small median callus). The antennae are not carinate in *Parelaphidion*, unlike most species of *Aneflomorpha*.

One species of the small genus *Pseudoperiboeum* (*P. lengi* (Schaeffer), Fig. 4j), was included in *Aneflomorpha* by Linsley (1963) in part due to the carinate antenna. It is distinguished by having a moderately developed lateral pronotal projection or tubercle on each side (the pronota of most *Aneflomorpha* are evenly rounded (or nearly straight) at the sides, Fig. 5, 6), thus making the pronotum about as wide or wider than long (longer than wide in nearly all species of *Aneflomorpha*). The integument is covered with long, flying setae unlike nearly all species of *Aneflomorpha* (except *A. aculeata* (LeConte), Fig. 7a).

Psyrassa (Fig. 4k) (and the recently synonymized *Megapsyrassa*, García and Santos-Silva, in press) is most similar to *Aneflomorpha* in terms of the elongate and narrow pronotum and elytra and presence of antennal carinae in some species. It is distinguished from *Aneflomorpha* by having the pronotum mostly smooth, shiny, glabrous, and nearly impunctate (heavily punctate with punctures usually partially obscured by pubescence in *Aneflomorpha*).

Stenelaphus (Fig. 4l) is a monotypic genus that could be confused initially with *Aneflomorpha*, but upon examination, the combination of antennae lacking carinae, broad pronotum with smooth, impunctate calli; nearly glabrous elytra except for widely scattered, long, erect setae; densely golden pubescent scutellum; and rounded elytral apices to a spinose or dentiform suture are unique to *Stenelaphus* and not present in any *Aneflomorpha* species.

Aneflomorpha crypta Lingafelter, new species

(Fig. 1e, 5e, 7e, 8d, 9d, 10e, 12a,b)

Diagnosis. Antennae carinate (Fig. 9d). Spine of third antennomere distinctly longer than second antennomere, projecting away from antennal plane by less than 45 degrees, acute at apex (Fig. 9d). Pronotum with pronounced punctures unobscured by pubescence, sometimes with small, matte, impunctate, post-median callus (Fig. 5e). Elytral apices truncate to very weakly bidentate (Fig. 8d). Elytral pubescence semitranslucent to white or off-white, recumbent and recurved, with a few scattered long erect to suberect setae (Fig. 7e). Procoxal cavities nearly closed by broadly expanded prosternal process (Fig. 10e).

Description. Length 7–10 mm. Integument dark rufous to piceous. Head with sparse, short, recurved, recumbent, semitranslucent setae mostly each mostly arising from a separate puncture; a few longer, erect setae present on

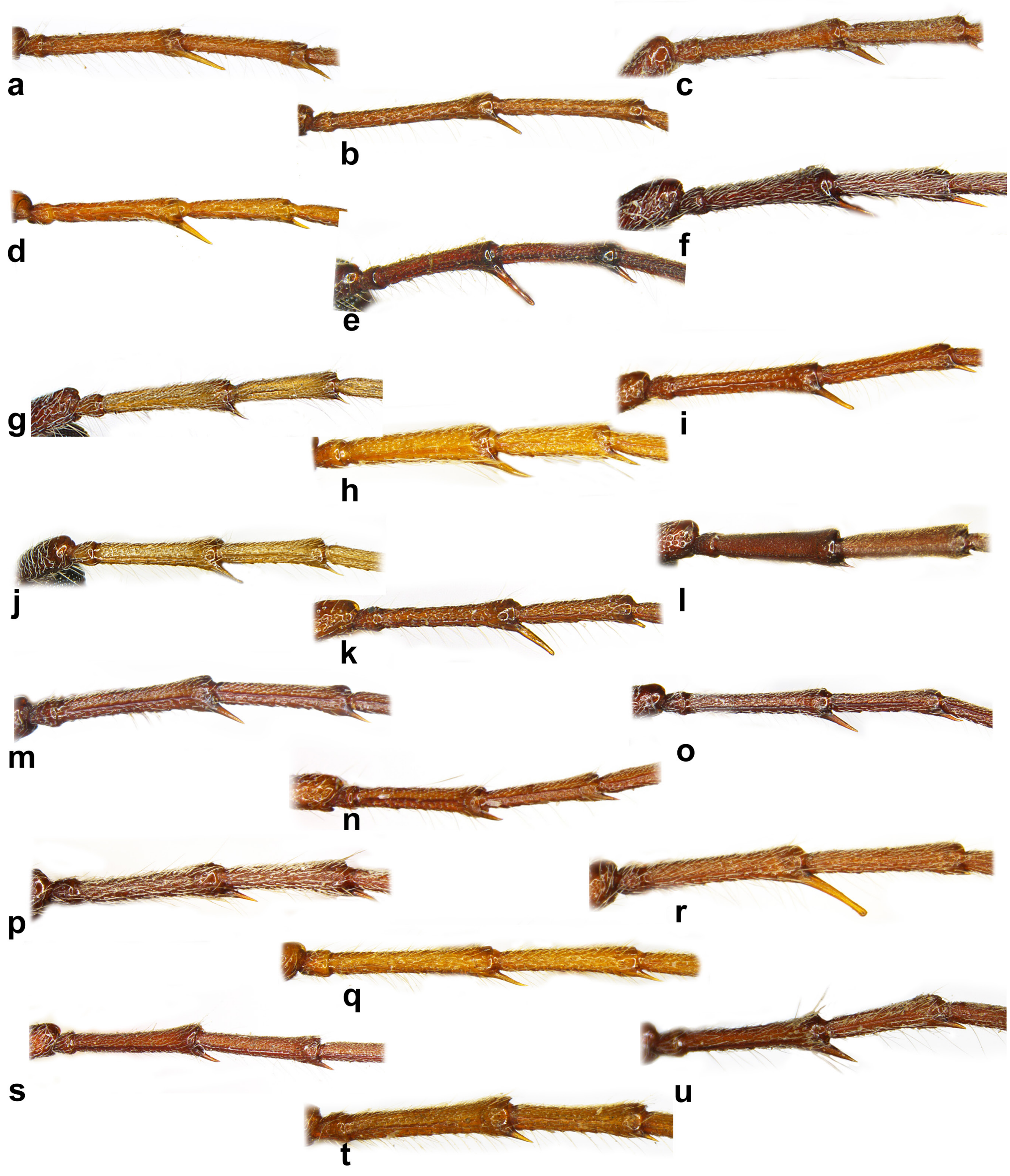

Figure 9. Basal antennomeres of *Aneflomorpha* Casey. **a**) *A. aculeata* (LeConte), holotype. **b**) *A. cazieri* Chemsak. **c**) *A. citrana* Chemsak, holotype. **d**) *A. crypta* Lingafelter, n. sp., holotype. **e**) *A. delongi* (Champlain and Knull). **f**) *A. fisheri* Linsley. **g**) *A. gilana* Casey. **h**) *A. linearis* (LeConte), holotype. **i**) *A. linsleyae* Chemsak. **j**) *A. luteicornis* Linsley. **k**) *A. minuta* Chemsak, holotype. **l**) *A. opacicornis* Linsley (*Neaneflus*, herein). **m**) *A. paralinearis* Lingafelter, n. sp., holotype. **n**) *A. parowana* Knull, lectotype. **o**) *A. rectilinea* Casey. **p**) *A. seminuda* Casey, holotype. **q**) *A. subpubescens* (LeConte). **r**) *A. tenuis* (LeConte). **s**) *A. unispinosa* Casey. **t**) *A. texana* Linsley, holotype. **u**) *A. yumae* Giesbert and Hovore, paratype.

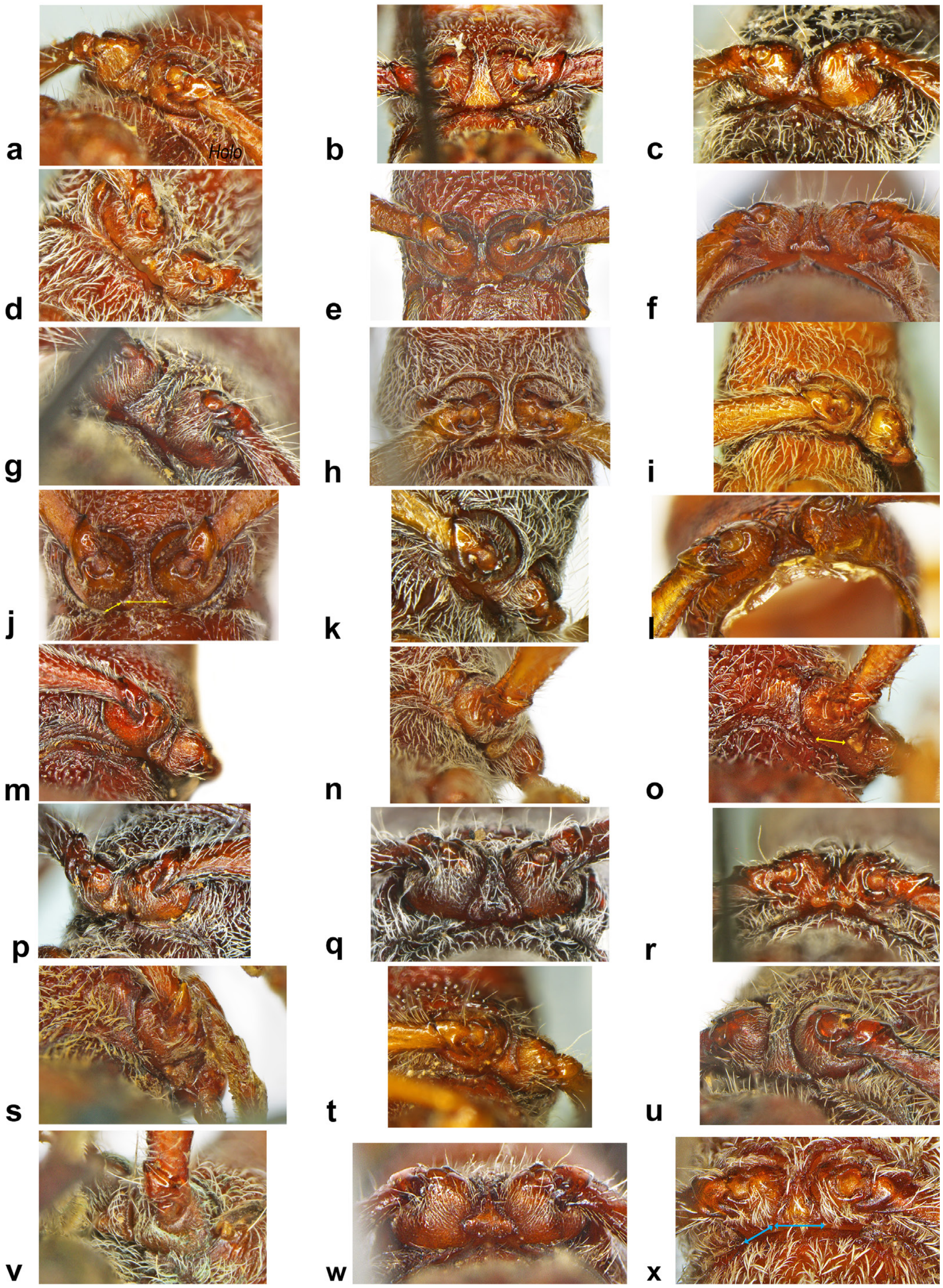

Figure 10. Procoxal cavities and intercoxal prosternal processes of *Aneflomorpha* Casey. **a**) *A. aculeata* (LeConte), holotype. **b**) *A. arizonica* Linsley. **c**) *A. cazieri* Chemsak. **d**) *A. citrana* Chemsak, holotype. **e**) *A. crypta* Lingafelter, n. sp., holotype. **f**) *A. delongi* (Champlain and Knull). **g**) *A. fisheri* Linsley. **h**) *A. gilana* Casey. **i**) *A. linearis* (LeConte), holotype. **j**) *A. linsleyae* Chemsak. **k**) *A. luteicornis* Linsley. **l**) *A. minuta* Chemsak. **m**) *A. opacicornis* Linsley (*Neaneflus*, herein). **n**) *A. parkeri* Knull, holotype. **o**) *A. parowana* Casey, lectotype. **p**) *A. paralinearis* Lingafelter, n. sp., paratype. **q**) *A. rectilinea* Casey, Arizona. **r**) *A. rectilinea* Casey, Texas. **s**) *A. seminuda* Casey, holotype. **t**) *A. subpubescens* (LeConte). **u**) *A. tenuis* (LeConte). **v**) *A. unispinosa* Casey, holotype. **w**) *A. texana* Linsley. **x**) *A. yumae* Giesbert and Hovore, paratype.

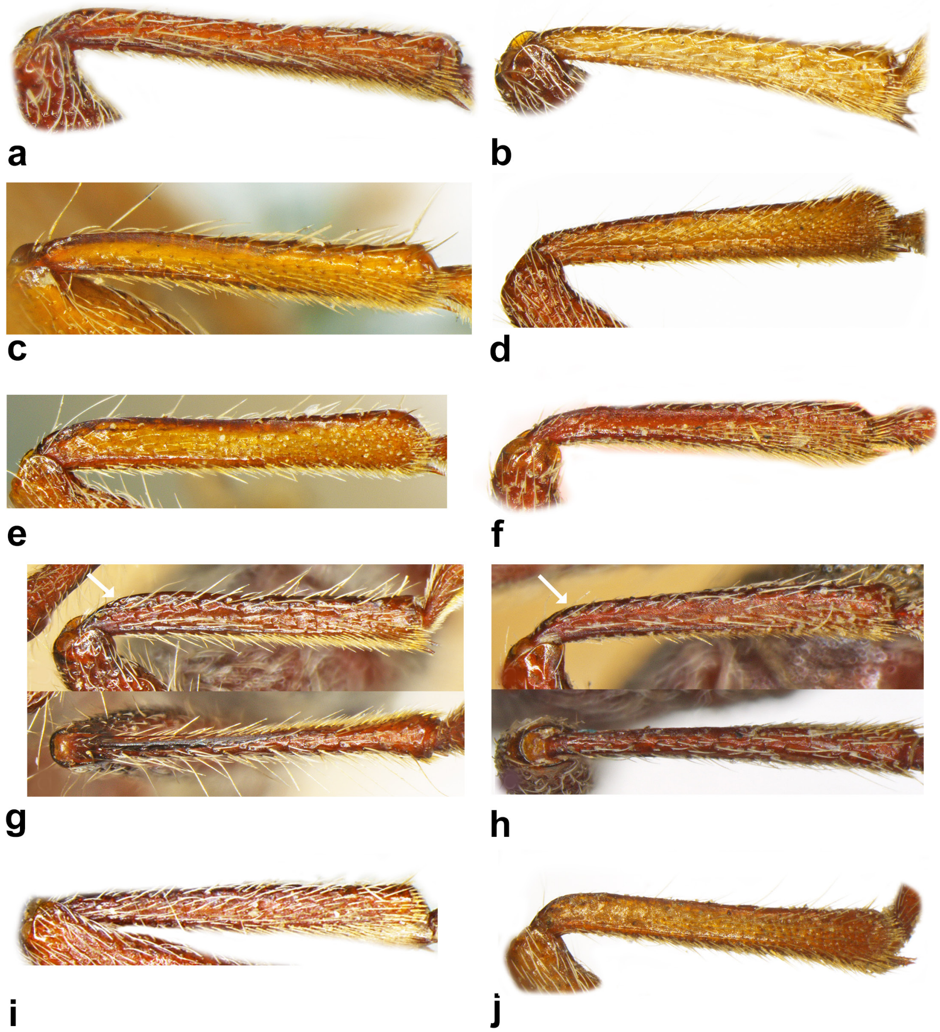

Figure 11. Protibiae of *Aneflomorpha*, lateral views. **a**) *A. citrana*, holotype. **b**) *A. gilana*. **c**) *A. linsleyae*. **d**) *A. parkeri*, holotype. **e**) *A. linearis*, holotype. **f**) *A. rectilinea*, lectotype. **g**) *A. paralinearis* Lingafelter, n. sp., paratype (also showing dorsal view and basal carina). **h**) *A. rectilinea*, Hereford, Arizona (also showing dorsal view and absence of basal carina). **i**) *A. seminuda*, holotype. **j**) *A. yumae*, paratype.

vertex. Interantennal impression weak; antennal tubercles rounded and not strongly elevated. Gula semi-rugose with sparse punctures and setae. Antennae extending beyond elytral apices by 1–2 antennomeres; last antennomere 1.2 times length of penultimate in male with weak constriction at apical third; slightly shorter and less constricted in female. Antennomere four of both sexes slightly shorter than three and five. Antennomere three with acute apicomesal spine about 1.5 times length of antennomere two, projecting away from antennal plane by less than 45 degrees; smaller acute spine on antennomere four that is shorter than antennomere two; very short spine on antennomere five; dentiform on antennomere six. Antennomeres distinctly carinate dorsomesally on three through five, less pronounced on successive antennomeres. Antennomeres of subequal width subbasally and apically; not produced apicolaterally. Antennae with dense but inconspicuous, short, appressed pubescence with scattered, sparse, longer, suberect setae ventro-mesally and apically on most antennomeres. Pronotum dark rufous; distinctly longer than wide (average 1.18 times longer than wide); slightly wider at middle and evenly rounded at sides except for anterior and posterior constrictions; anterior and posterior ends of equal width; much narrower than base of elytra. Pronotum with sparse, short, recurved, recumbent, semi-translucent to white setae,

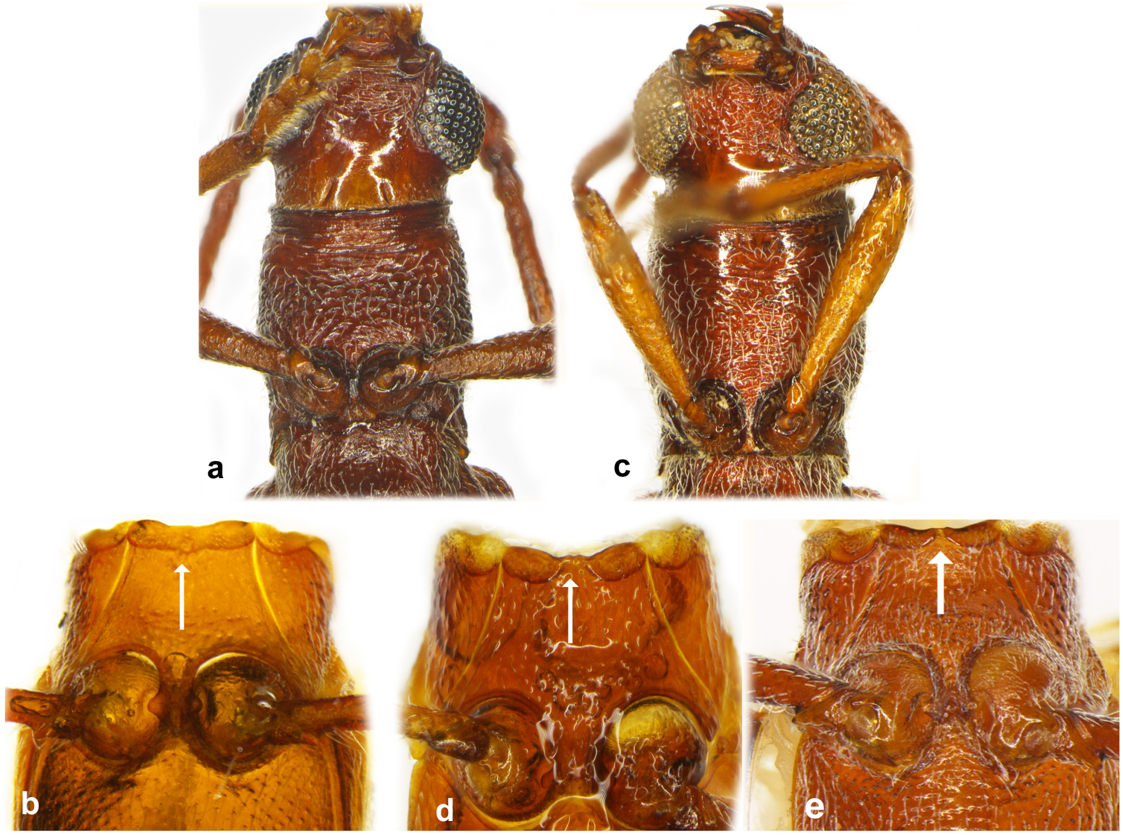

Figure 12. Ventral structures of *Aneflomorpha crypta* Lingafelter, n. sp., *A. minuta* Chemsak, and *A. rectilinea* Casey. **a**) *A. crypta*, head and prothorax. **b**) *A. crypta*, partially cleared mesosternum. **c**) *A. minuta*, head and prothorax. **d**) *A. minuta*, partially cleared mesosternum. **e**) *A. rectilinea*, partially cleared mesosternum.

each mostly arising from a separate puncture and not obscuring them; most punctures pronounced, contiguous; relatively larger and deeper than those of elytral base; vague, small posteromedian impunctate callus sometimes present. Prosternum dark rufous, irregularly punctate at posterior three-fourths and base of prosternal process; smooth and coarsely rugose at anterior fourth. Prosternal intercoxal process narrow between procoxae; arcuately declivous and broadly expanded at apex, nearly closing procoxal cavities posteriorly. Mesosternum dark rufous, sparsely punctate, with anterior collar undivided at middle. Metasternum dark rufous to piceous, shallowly punctate. Elytra dark rufous, together average 3.93 times longer than wide (Fig. 1e); with sparse, uniformly distributed, semitranslucent to white, short, recurved, recumbent setae, each arising out of a separate, distinct, mostly noncontiguous puncture. Elytral apices subtruncate to very weakly bidentate. Scutellum broadly rounded posteriorly, with sparse to moderate appressed white setae. Legs with femora dark rufous, of similar color to elytra and pronotum, tibiae and tarsi slightly lighter in color; short with pro-, meso-, and metafemora progressively longer; metafemora extending to about apex of third ventrite. Femoral pubescence mostly short, sparse, semitranslucent to white, recumbent to suberect, but not recurved. Tibiae with scattered, longer, erect setae in addition to shorter, semi-recumbent setae. Femoral apices rounded mesad and laterad, without spines. Tibiae cylindrical; only slightly enlarged apically; weakly laterally carinate; not dorsally carinate. Abdomen dark rufous to piceous; last ventrite broad and truncate in males; slightly, shallowly notched medially in females.

Etymology. The name *crypta* refers to its similarity to, and confusion with, *A. minuta* and small individuals of *A. rectilinea*.

Discussion. This species is known only from southeastern Arizona. It is most similar to *A. minuta* Chemsak due to its small size and proportions. The relatively smooth, sparsely punctate and rugose gula (Fig. 12a) distinguishes

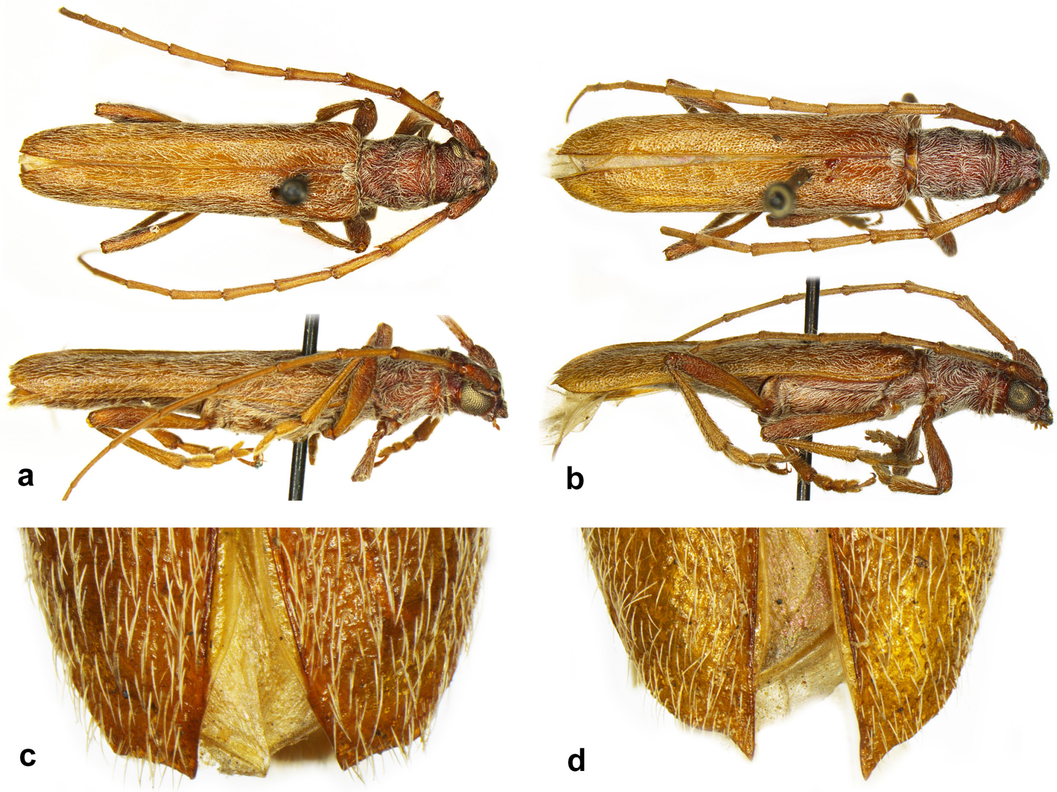

Figure 13. *Aneflomorpha gilana* holotype compared to *A. parkeri* holotype. **a**) *A. gilana* holotype, dorsal and lateral views. **b**) *A. parkeri* holotype, dorsal and lateral views. **c**) *A. gilana* holotype, elytral apices. **d**) *A. parkeri* holotype, elytral apices.

it from *A. minuta* which has the gula densely punctate (Fig. 12c). The pronotum of *A. minuta* has, in most specimens, a prominent, shiny impunctate post-median callus (Fig. 3l) unlike *A. crypta* which has, at most, a small, matte, post-median impunctate region (Fig. 5e). These two species are further distinguished by the anterior margin of the mesosternum which is undivided in *A. crypta* (Fig. 12b) and divided in *A. minuta* (Fig. 12d); however this character is usually visible only through dissection and partial clearing. Specimens of *A. crypta* have legs rufous and very similar to the overall ventral coloration unlike *A. minuta* which have pale testaceous legs that are distinctly lighter in color from the venter of the pro- and mesothorax, at least. The spine of the third antennomere in *A. crypta* is more acute at the apex than specimens examined of *A. minuta*. The leg color and antennal spine characters should be used with caution since larger series could reveal variability as has been seen in some specimens of other species.

Aneflomorpha crypta is similar in size to small examples of *A. cazieri*. Most specimens of *A. cazieri* are easily distinguished by the blunt spine of antennomere three. For those specimens of *A. cazieri* without a very blunt spine on antennomere three, the presence of a basal antennal carina on antennomere three (Fig. 9d) in *A. crypta* will distinguished it from *A. cazieri* which lack antennal carinae (Fig. 9b). The open procoxal cavities of *A. cazieri* (Fig. 10c) which are closed (or very nearly so) in *A. crypta* (Fig. 10e) aid in distinguishing them. Both have a similar weakly punctate gular region, but in that region punctation is limited to the anterior half in *A. crypta* (Fig. 12a) and extends to the posterior margin of the lower eye lobes in *A. cazieri* (as in Fig. 12c). The anterior margin of the mesosternum is undivided at the middle in *A. crypta* (Fig. 12b) and divided in *A. cazieri* (as in Fig. 12d). The pronotum of *A. crypta* typically has sparse, inconspicuous setae on the disk, exposing large, separate punctures of nearly same size as those on elytral base (Fig. 5e), while in *A. cazieri*, the pronotum usually has the setae more prevalent, partially concealing punctures that are mostly smaller than those of the elytral base (Fig. 5c).

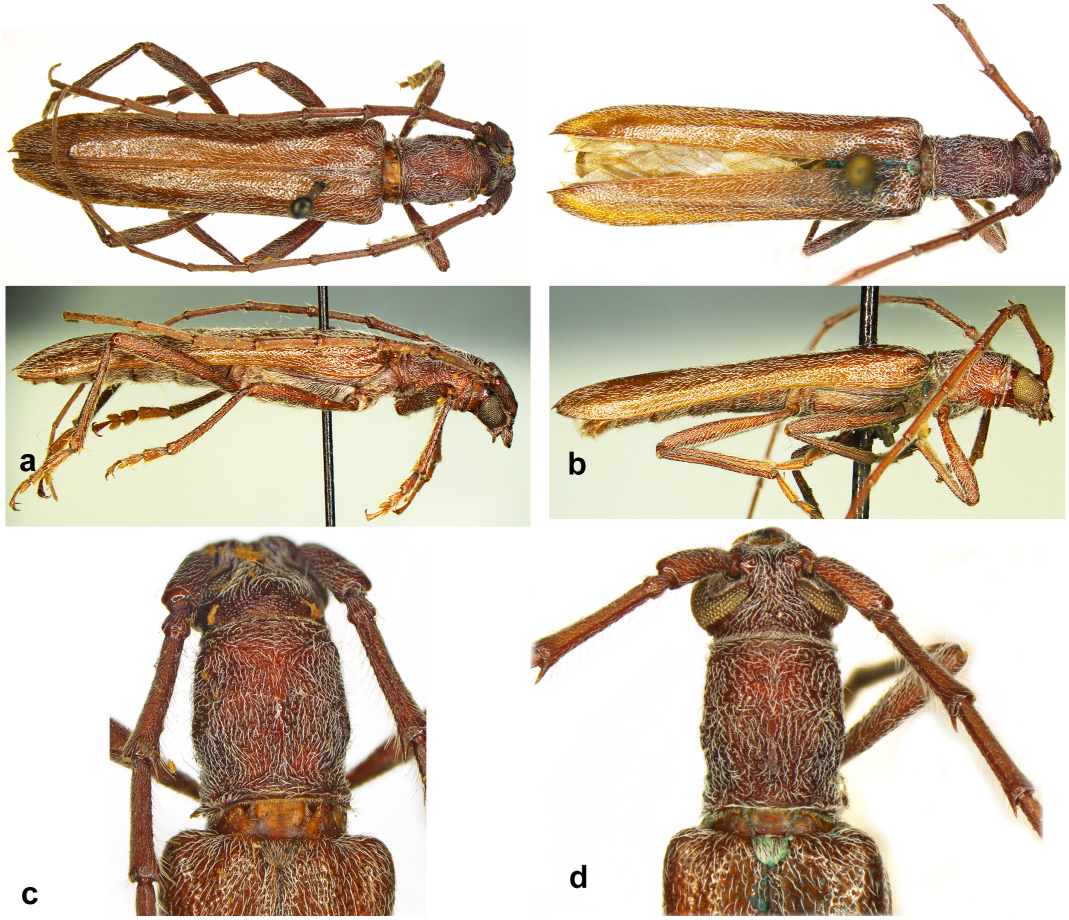

Figure 14. *Aneflomorpha arizonica* Linsley, holotype compared to *A. unispinosa* Casey, holotype. **a**) *A. arizonica*, dorsal, lateral habitus. **b**) *A. unispinosa*, dorsal, lateral habitus. **c**) *A. arizonica*, detail of pronotum and basal antennomeres. **d**) *A. unispinosa*, detail of pronotum and basal antennomeres.

This species might also be confused with small examples of *A. rectilinea*, but it can be distinguished by the less strongly carinate antennae (Fig. 9d) which are boldly carinate in *A. rectilinea* (Fig. 9o) and the less distinctly pubescent pronotum with the punctures exposed (Fig. 5e) unlike most *A. rectilinea* which have denser pronotal setae that obscure many punctures (Fig. 6q, r). Further, most *A. rectilinea* have strongly bidentate or weakly bispinose elytral apices unlike *A. crypta* which have the apices truncate or very weakly bidentate. Another character that distinguishes them is the anterior collar of the mesosternum which is divided in *A. rectilinea* (Fig. 12e) and undivided in *A. crypta* (Fig. 12b).

Distribution and biology. All specimens have been collected at ultraviolet and mercury vapor lights in July and August at the base of the Huachuca Mountains in Arizona at an elevation of 1500 meters (pers. obs.). The larval hosts are unknown, however the immediate habitat where adults have been collected is dominated by Emory oaks (*Quercus emoryi* Torr.) and Arizona Blue oaks (*Quercus oblongifolia* Torr.), and it is presumed that one, or both, of these trees are the larval host plant.

Type material. Holotype: USA: Arizona: Cochise Co., Hereford, 8920 S. Bryerly Ct., N 31°24′14″, W 110°13′52″, 1500m, July 3–4, 2016, uv lights, S. W. Lingafelter (male, USNM). **Paratypes (all USA: Arizona)**: Cochise Co., Hereford, 8920 S. Bryerly Ct., N 31°24′14″, W 110°13′52″, 1500m, July 3–4, 2016, uv lights, S. W. Lingafelter (1 male, disarticulated in alcohol, SWLC); Cochise Co., Hereford, 8920 S. Bryerly Ct., N 31°24′14″, W 110°13′52″, 1500m, 13–15 July 2018, uv lights, J. E. Wappes (1 female, FSCA); Cochise Co., Hereford, 8920 S. Bryerly Ct., N

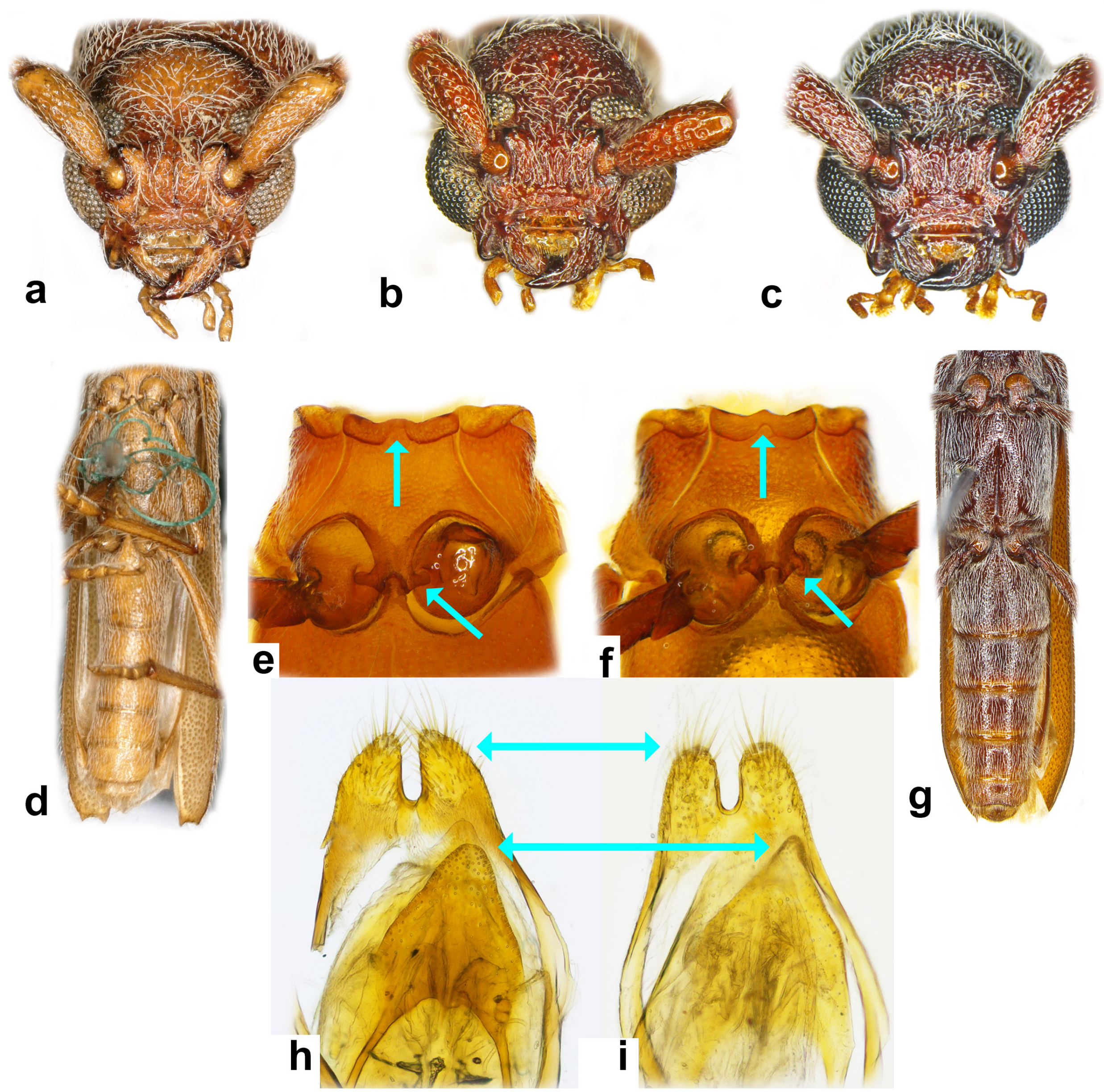

Figure 15. Comparison of *Aneflomorpha linearis* and *A. paralinearis*, n. sp. **a**) *A. linearis*, holotype, head. **b**) *A. parowana*, lectotype, head. **c**) *A. paralinearis* n. sp., holotype, head. **d**) *A. linearis*, holotype, abdomen and metathorax. **e**) *A. linearis*, Nevada specimen, mesothorax. **f**) *A. paralinearis*, n. sp., paratype, Cochise County, Arizona, mesothorax. f) *A. linearis*, Nevada specimens, mesothorax. **g**) *A. paralinearis*, n. sp., holotype, abdomen. **h**) *A. linearis*, Calaveras County, California, aedeagus. **i**) *A. paralinearis*, n. sp., paratype, Cochise County, Arizona, aedeagus.

31°24′14″, W 110°13′52″, 1500m, 20 July 2017, uv lights, J. E. Wappes (1 female, SWLC); Cochise Co., Hereford, 8920 S. Bryerly Ct., N 31°24′14″, W 110°13′52″, 1500m, 5 July 2016, uv lights, N. E. Woodley (1 male, SWLC); Cochise Co., Hereford, 8920 S. Bryerly Ct., N 31°24′14″, W 110°13′52″, 1500m, 13–15 July 2018, uv lights, J. E. Wappes (1 female, FSCA); Cochise Co., Ash Canyon, McFarland's, 23 July 2010, Wappes and Sullivan (1 female, SWLC).

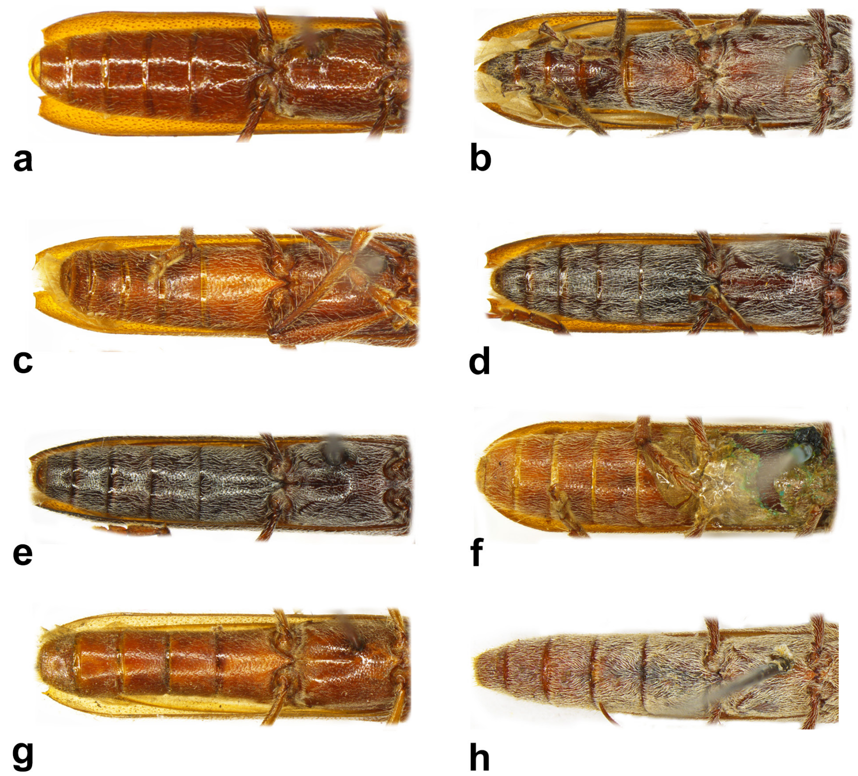

Figure 16. Abdomen and metasternum of *Aneflomorpha*. **a**) *A. aculeata*. **b**) *A. citrana*, allotype. **c**) *A. parowana*, lectotype. **d**) *A. rectilinea*, Davis Mountains, Texas. **e**) *A. rectilinea*, Huachuca Mountains, Arizona. **f**) *A. seminuda*, holotype. **g**) *A. subpubescens*. **h**) *A. yumae*, paratype.

Aneflomorpha paralinearis Lingafelter, new species

(Fig. 2e, 6p, 7p, 8m, 9m, 10p, 11g, 15c, f, g, i)

Diagnosis. Antennae carinate (Fig. 9m). Spine of third antennomere about 1.5 times longer than second antennomere and spine of fourth antennomere, projecting away from antennal plane by less than 45 degrees, acute at apex (Fig. 9m). Pronotum with dense punctures partially obscured by white, recumbent setae; often with small, irregular, impunctate, post-median callus (Fig. 6p). Elytral apices usually strongly bidentate or weakly bispinose (Fig. 8m). Elytral pubescence white, moderately dense, mostly recumbent and recurved, with scattered long erect to suberect setae (Fig. 7p). Procoxal cavities broadly open by one-half to nearly the width of slightly expanded prosternal process (Fig. 10p). Protibiae flattened and carinate at base (Fig. 11g).

Description. Length 9–16 mm. Integument rufous to brunneous (Fig. 2e, 15f, g). Head with moderately dense, short, recurved, recumbent, white setae, each mostly arising from a separate puncture; a few longer, erect setae present on vertex around upper eye lobe margin. Interantennal impression weak; antennal tubercles moderately acute and glabrous at apex. Gula with sparse punctures and moderate recumbent and erect setae. Antennae extending beyond elytral apices by about 2 antennomeres; last antennomere nearly 1.5 times length of penultimate with moderate constriction before apical third in male; shorter and less constricted in female. Antennomere four of both sexes slightly shorter than three and five. Antennomere three with acute apicomesal spine about 1.3 times length of antennomere two, projecting away from antennal plane by less than 45 degrees; smaller acute spine on antennomere four that is shorter or subequal to antennomere two; very short spine on antennomere five; dentiform on antennomere six. Antennomeres distinctly dorsomesally carinate on three through six, less pronounced on successive antennomeres. Antennomeres of subequal width sub-basally and apically; not produced apicolaterally. Antennae with dense, short, appressed translucent golden pubescence with longer, suberect setae ventromesally and apically on most antennomeres. Pronotum dark brunneous; distinctly longer than wide

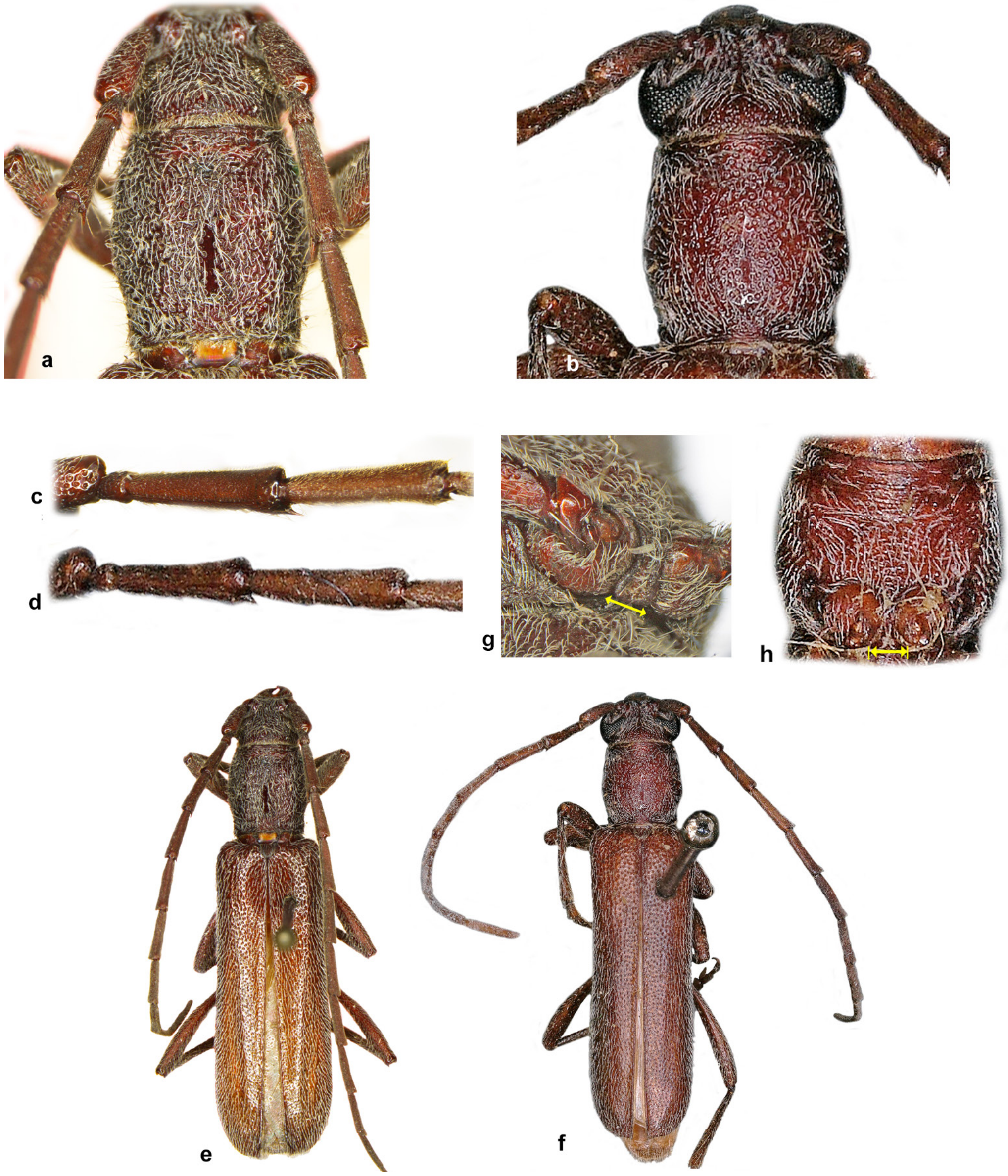

Figure 17. *Aneflomorpha opacicornis* Linsley (*Neaneflus*, new combination), holotype compared to *Neaneflus brevispinus* Chemsak, holotype. **a**) *A. opacicornis*, pronotum. **b**) *N. brevispinus*, pronotum. **c**) *A. opacicornis*, basal antennomeres. **d**) *N. brevispinus*, basal antennomeres. **e**) *A. opacicornis*, habitus. **f**) *N. brevispinus*, habitus.

(average 1.10 times longer than wide); slightly wider at middle and evenly rounded at sides except for anterior and posterior constrictions; anterior and posterior ends of equal width; much narrower than base of elytra. Pronotum with sparse, short, recurved, recumbent, white setae mostly each arising from a separate puncture and scattered, longer, erect setae partially obscuring punctures; punctures dense, contiguous; somewhat irregular in size and shape, relatively larger and more closely spaced than those of elytral base; vague, small, shiny, postero-median impunctate callus usually present. Prosternum brunneous, rugose on anterior third, punctate and moderately pubescent on posterior two-thirds, including prosternal process. Prosternal intercoxal process narrow between procoxae; arcuately declivous and moderately expanded at apex. Procoxal cavities open by about half the width of the prosternal process apex or more. Mesosternum brunneous, finely, shallowly punctate and moderately pubescent with anterior collar indented but undivided at middle. Metasternum brunneous, shallowly punctate and moderately pubescent. Elytra dark rufous to brunneous, together average 3.33 times longer than wide (Fig. 2e);

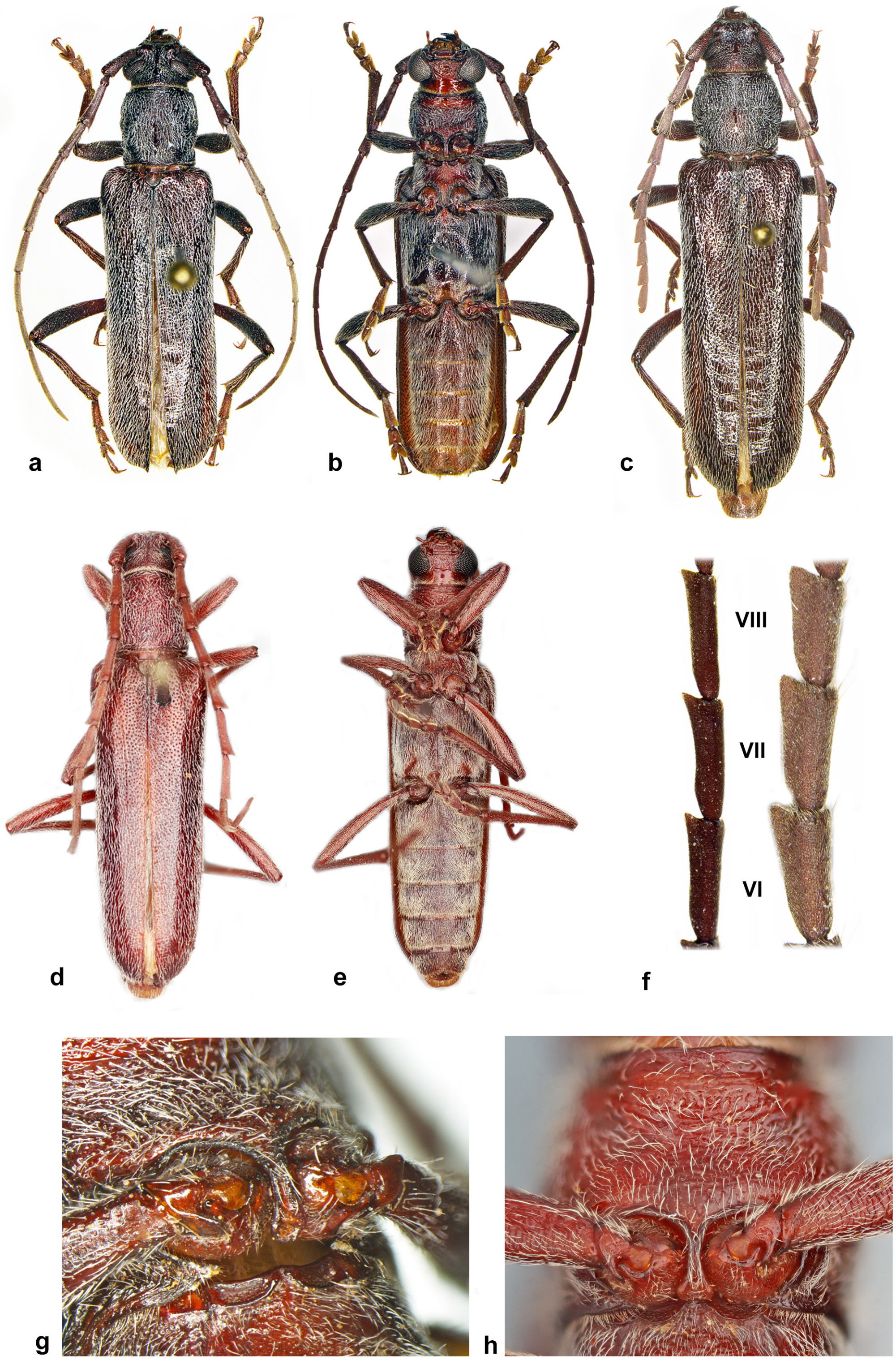

Figure 18. *Neaneflus fuchsii* (Wickham) variation. **a**) male, Texas (Big Bend), dorsal. **b**) male, Texas (Big Bend), ventral. **c**) female, Texas (Big Bend), dorsal. **d**) male holotype, California (Independence), dorsal. **e**) male holotype, California (Independence), ventral. **f**) antennomeres 6–9 of male (left) and female (right) of Texas (Big Bend) specimens. **g**) prosternal process of male specimen from Big Bend, Texas. **h**) prosternal process of holotype male from Independence, California.

with moderately dense, mostly uniformly distributed, white, short, recurved, recumbent setae, each arising out of a separate, distinct, mostly non-contiguous puncture, and longer, erect white setae at base and along suture. Elytral apices usually strongly bidentate to weakly bispinose and concave between spines. Scutellum rounded posteriorly, with dense, appressed white setae. Legs with femora brunneous, of similar color to elytra and pronotum; tarsi slightly lighter in color; short with pro-, meso-, and metafemora progressively longer; metafemora not extending to apex of third ventrite. Femoral pubescence mostly short, sparse, white, recumbent to suberect, but not recurved. Tibiae with scattered, longer, erect setae in addition to shorter, semi-recumbent setae. Femoral apices rounded mesad and laterad, without spines. Meso- and metatibiae cylindrical; only slightly enlarged apically; weakly laterally carinate; not dorsally carinate. Protibiae laterally flattened, dorsoventrally thickened at base with dorsal carina, slightly narrowing at middle and expanded at apex. Abdomen brunneous; last ventrite broad and shallowly notched medially in males. Aedeagus with parameres evenly and symmetrically rounded at apex and median lobe more narrowly constricted at apex (Fig. 15i).

Etymology. The name *paralinearis* refers to the similarity and presumed sister-species relationship to *Aneflomorpha linearis* (LeConte).

Discussion. This species is most similar to *Aneflomorpha linearis* (LeConte) with regard to the laterally flattened protibiae with dorsal carina at the base, open procoxal cavities, and carinate antennae. *Aneflomorpha paralinearis* are, on average, larger, rufous or brunneous (Fig. 15g) rather than testaceous (Fig. 15d), have the apex of the prosternal process apex more expanded, have more abundant erect setae on the elytra, and usually have more strongly bidentate to weakly bispinose elytral apices. In addition, there are differences in the aedeagi: *A. linearis* has the parameres asymmetrically narrowed apically and the median lobe more broadly rounded at the apex (Fig. 15h) while *A. paralinearis* has the parameres evenly and symmetrically rounded at the apex and the median lobe more narrowly constricted at the apex (Fig. 15i). Also, *A. linearis* has the anterior collar of the mesosternum nearly divided at the middle (Fig. 15e), while in *A. paralinearis*, it is not divided (Fig. 15f), but this character usually requires dissection and clearing to see well.

Aneflomorpha yumae (elevated from subspecies level herein) shares the feature of having the base of the protibiae flattened, carinate dorsally, and as thick at the base as the apex (Fig. 11j) but is distinguished by its lighter testaceous integument and relatively dense, thick, white, closely recumbent setae over much of the dorsal and ventral surface, and particularly dense on the scutellum, inner eye margins, metasternum, and basal sternites (Fig. 3f, 16h), much denser than in *A. paralinearis*. The dense punctures of the pronotum are more hidden in *A. yumae* (Fig. 6x) unlike *A. paralinearis* which has the pronotal punctures more exposed (Fig. 6p). One other species from Arizona, *A. linsleyae*, also has the protibia moderately flattened at the base, however, it is not carinate dorsally. *Aneflomorpha linsleyae* is easily distinguished by its elytral pubescence consisting of only erect and suberect setae (Fig. 7j), whereas the elytral setae in *A. paralinearis* are mostly recumbent (Fig. 7p). Specimens of *A. paralinearis* resemble *A. rectilinea* in size and coloration, but the narrow, unflattened, non-carinate protibial base of (Fig. 11f, h) and nearly closed procoxal cavities of *A. rectilinea* (Fig. 10q, r) will easily distinguish that species.

Distribution and biology. This species is present in most of the mountains of central to southeast Arizona and western New Mexico. Adults have been collected mostly at lights from late June through early August at elevations between 1400–2100 meters. Josef Vlasak (pers. comm.) has reared specimens from *Cercocarpus* Kunth and collected adults in *Quercus rugosa* Née.

Type material. Holotype: USA: Arizona: Cochise Co., Hereford, Lower Ida Canyon, 31° 22.77′ N, 110° 19.82′ W, 1815 m, 16 June 2020, MV/UV lights, S. W. Lingafelter (male, USNM). **Paratypes (all USA: Arizona)**: **Graham Co.**, Galiuro Mtns., W. Ash Creek Road, 1480 m, 32° 30.481′ N, 110° 12.720′ W, 18 July 2020, MV/UV lights, Jason Botz (1 male, disarticulated in alcohol, SWLC; 1 male, NPIC); Graham Co., Galiuro Mtns., High Cr., 1660 m, 20 July 1978, lite, S. McCleve (4, TAMU); Graham Co., east end of Aravaipa Canyon, 24–25 July 1974, S. McCleve (1 male, 1 female, TAMU); Graham Co., Stockton Pass, 12 mi. east of Ft. Grant, 4 July 1989, R. Gordon, 32° 25′ 29″ N, 109° 51′ 15″ W (1 female, USNM); Graham Co., Noon Creek, 3 August 2017, F. W. Skillman, Jr. (FWSC); Graham Co., FR 664, 3.5 mi. E. Bonita, 25 July 2010, F. W. Skillman, Jr. (FWSC); Graham Co., Turkey Cr., 1 mi. S. Aravaipa Cr., at light, 11 August 1975, S. McCleve (1 female, TAMU); Graham Co., AZ 366, 7.6 mi. from US 191, 32.66611°N, 109.79866°W, 1625 m, blacklight, 17 July 2017, EG Chapman, AB Richards (1 female, EGCCRC); Graham Co., AZ Hwy 366, 12.2 km W. Jct. Hwy 191, 17 July 2017, A.B. Richards and E.G. Chapman, 32.66611°N, 109.79886°W, 1625 m, blacklight (1 male, ABRC); Graham Co., Galiuro Mtns., High Creek, 20 July 1978, at light, S. McCleve (1 male, TAMU); **Cochise Co.**, Lower Ida Canyon, 31° 22.77′ N, 110° 19.82′ W, 1815 m, 1 July 2017, MV/UV lights, S. W. Lingafelter (2 males, SWLC); Oversite Canyon, 31° 22.983′ N, 110° 19.450′ W, 1890 m, 2 July 2022, MV/UV lights, S. W. Lingafelter (1 female, SWLC); Cochise Co., lower Lutz Canyon, 1775 m, 31° 22.733′ N, 110° 15.783′ W, 26 July 2018, S. W. Lingafelter (1 male, SWLC); same but 24 June 2019 (1 male, SWLC); Cochise Co., Hereford, 8920 S. Bryerly Ct., N 31° 24′ 14″, W 110° 13′ 52″, 1500m, 29 July 2016, MV/UV lights, S. W. Lingafelter (male, SWLC); Cochise Co., Mule Mtns., N. Juniper Flats Road, 3.5 km NW Hwy 80, 2100 m, 31° 28.457′ N, 109° 57.244′ W, 28 July 2019 (1 male, 1 female, SWLC); Cochise Co., Mule Mtns., N. Juniper Flats Road, 2100 m, 31.473° N, 109.952° W, 27 July 2019, MV/BL, JM Leavengood, Jr., SW Lingafelter, E Chapman, P Baker (1 male, JMLC); Cochise Co., Mule Mtns., 3.5 km NW Bisbee, 1680 m, 31° 28.161′ N, 109° 58.020′ W, 11 July 2021 (1 male, 1 female, SWLC); Cochise Co., Mule Mtns., Hwy 80, 4 miles NW Bisbee, 2157 m, 31° 29′ N, 109° 57.5′ W, 26 June 2022, *beating Pinus cembroides*, S. W. Lingafelter (1 female, SWLC); Cochise Co., upper Carr Canyon Road, 0.85 km E. Ramsey Vista Campground, 2250 m, 31° 25.587′ N, 110° 17.901′ W, MV/UV lights, D. A. Marsden (1 female, SWLC); Cochise Co., 8 km W Sierra Vista, 31.449°, −110.306°, 1678 m, 10 August 2013, M. A. Johnston, mv/uv light trap (1 female, ASUC); Cochise Co., Carr Canyon Road just below Carr House, 1660 m, 31° 26.574′ N, 110° 17.190′ W, 8 July 2019, MV/UV lights (1 male, SWLC); Cochise Co., Peloncillo Mtns., Cottonwood Canyon, 1510 m, 31° 29.389′ N, 109° 04.205′ W, 22 July 2019, S. W. Lingafelter (2 males, 1 female, SWLC); same but 30 June 2022 (8 males, 5 females); Cochise Co., Ramsey Canyon, Pat Sullivan's, 5510 ft, 565881 3479586 UTM, P. Kaufman #13929 (1 male, ASUC); Upper Hunter Canyon, 1900 m, 31° 23.993′ N, 110° 16.411′ W, 19 June 2022, mv/uv lights, S. W. Lingafelter (1 male, SWLC); Cochise Co., Texas Canyon, 17 July 1982, John Ryan (1 male, DJHC); Cochise Co., Copper Canyon, 1850–1950 m, 31° 21.8′ N, 110° 17.8′ W, 27 July 2021, S. W. Lingafelter (1 female, SWLC); Cochise Co., Pinery Canyon Road, 6000′, 9 July 2013, at light, Kyle E. Schnepp (1 male, KESC); Cochise Co., Huachuca Mtns., Montezuma Pass, 31° 21.167′ N, 110° 17.224′ W, 15 July 2013, beating roadside vegetation, Kyle E. Schnepp (1 male, KESC); Cochise Co., Whetstone Mtns., French Joe Canyon, July, 2009, McPeak, Warner (FWSC); Cochise Co., Cochise Stronghold, 2–11 July 2012, sweet bait, F. W. Skillman, Jr. (FWSC); Cochise Co., 10 mi. W. Sunsites, 23 July 1997, blacklight, F. W. Skillman, Jr. (1 male, FWSC); Cochise Co., Dragoon Mtns., Middlemarch Pass, 30 June 1997, MV light, F. W. Skillman, Jr. (1 female, FWSC); Cochise Co., Dragoon Mountains, Middlemarch Pass, 29 June 1997, Green/Skillman (1 male, JGPC); Cochise Co., Dragoon Mountains, Cochise Stronghold, 22 July 1999, J. A. Green (1 male, JGPC); Cochise Co., Huachuca Mtns., Garden Canyon, 24 July 2001, D. Hildebrandt, uv light (RAAC); Cochise Co., Huachuca Mountains, Garden Canyon, 1625 m, 8.9 km SSW Sierra Vista, 31°28′44″N, 110°20′35″W, 25 July 2000, uv/mv light sheet, R. A. Androw, K. Will, and K. Karns (1 female, RAAC); Cochise Co., Dragoon Mtns., Soren Pass, 6 July 1997, MV light, F. W. Skillman, Jr. (1 female, FWSC); Palmerlee, July 5 (no other data) (1 female, RAAC); Cochise Co., Paradise, 11 June 2007, R. Morris (1 male, RFMC); Huachuca Mtns, near Montezuma Pass, 6 July 1956, OL Cartwright (2 males, USNM); Cochise Co., Carr Canyon, Adult in *Cercocarpus*, 5 July 2021, J. Vlasak, (1 female, SWLC); Cochise Co., The Research Ranch, Lyle Canyon, Elgin, 20 July 1975, J. M. Cicero (RFMC); Cochise Co., Miller Canyon, 18 July 1971, D. G. Marqua (2 males, 2 females, TAMU); Cochise Co., Miller Canyon, 20 July 1972, D. G. Marqua (1 female, TAMU); Peloncillo Mtns., 33 miles East Douglas, 17 July 1973, at lights, S. McCleve (1 male, TAMU); Chiricahua Mtns., Ash Spring, at lite, 9 July 1976, McCleve and Daneker (1 female, TAMU); Cochise Co., Guadalupe Canyon, 31 July 1975, at lite, S. McCleve (1 female, TAMU); Cochise Co., Copper Canyon, 16 July 1977, S. McCleve (1 female, TAMU); Cochise Co., 5 mi. W. Portal, S.W.R.S., 5400′, 16 August 1969, Bruce A. Tilden (1 female, BTC); Cochise Co., 5 mi. W. Portal, S.W.R.S., 5400′, 4 August 1966, Bruce A. Tilden (1 male, BTC);; Cochise Co., Dragoon Mtns., Middlemarch Pass, 29 June 1997, Green/Skillman (1 male, JAGC); Cochise Co., Dragoon Mtns., Cochise Stronghold, 22 July 1999, J. A. Green (1 male, JAGC); Cochise Co., Miller Canyon, 18 July 1971, D. G. Marqua (2 male, TAMU); **Santa Cruz Co.**, Madera Canyon, Santa Rita Mtns., 5100′, July 10–26, 1964, D. R. Davis (3 females, 2 males, USNM); Santa Cruz Co., Upper Madera Canyon, Adult in *Quercus rugosa*, 4 July 2021, J. Vlasak, (1 female, SWLC); Santa Cruz Co., Madera Canyon, 19 August 1979, uv light, B. A. Tilden (1 male, BTC); Santa Cruz Co., Madera Canyon, Picnic Area at end of road, 5800′, 31° 42′ 41″ N, 110° 52′ 28″ W, 20 July 2001, blacklighting, S. Lingafelter (1 female, SWLC); Santa Cruz Co., Madera Canyon, Santa Rita Mtns. 31 July 1991, E.C. and R.C. Mower (1 male, RAAC); Santa Cruz Co., Madera Canyon, blacklight near upper parking lot, 21 August 2021, J. M. Leavengood and E. Chapman (1 female, JMLC); Santa Cruz Co., Madera Canyon, Roundup Picnic Area, 1650 m, 31° 42.782′ N, 110° 52.495′ W, 14 July 2016, M. Brummermann (1 male, 1 female, USNM); Santa Cruz Co., Madera Canyon, 4600–5450′, 13–22 July 2011, J. Wappes and B. King (1 female, 2 males, CMNH); Santa Cruz Co., Santa Rita Lodge, Madera Canyon, Coronado NF, 5000′, 40 mi. SSE Tucson, M V light, 17 July 1993 (2 females, ASUC); Santa Cruz Co., Madera Canyon, 4600′-5450′, 13–22 July 2011, J. Wappes and B. King (1, FSCA); Santa Cruz Co., Madera Canyon, Santa Rita Lodge, 31° 43′ N, 110° 52′ W, MV/UV lights, 21–24 July 2016, J. E. Wappes (3 males, FSCA); Santa Cruz Co., Madera Canyon, 25 July 1982, J. D. Ryan (1 male, DJHC); Santa Rita Mountains, Madera Canyon, 12–29 July 1971, D. G. Marqua (2 male, 3 females, TAMU); Santa Cruz Co., Madera Canyon, 13–14 August 1983, E. G. and M. A. Riley (1 male, 1 female, TAMU); Santa Cruz Co., Sonoita, 2 km S. Town Center, 31°38′N, 110°39′W, 1–21 July 2014, Malaise Trap, EE Grissell (1 female, EGCCRC); Santa Rita Mountains, 14 July 1972, D. G. Marqua (1 male, TAMU); Santa Rita Mountains, 16 July 1972, D. G. Marqua (1 male, TAMU); Santa Rita Mtns., Madera Canyon, 4 July 1976, D. G. Marqua (1 male, 1 female, TAMU), same but 18 July 1972 (1 male, TAMU); same but 24 July 1976 (2 males, TAMU); same but 20 July 1972 (2 males, TAMU); same but 11 July 1972 (1 male, TAMU); Santa Rita Mtns, Madera Canyon, 18 July 1971, D. G. Marqua (1 male, TAMU); Santa Rita Mtns., Montosa Canyon, 10 July 1975, D. G. Marqua (2 males, TAMU); Santa Rita Mtns., Madera Canyon, 15 July 1975, D. G. Marqua (1 female, TAMU); Santa Rita Mtns., Madera Canyon, 20 August 1972, D. G. Marqua (1 male, TAMU); Santa Rita Mtns., Madera Canyon, 14 July 1975, D. G. Marqua (2 females, TAMU); Santa Rita Mtns., Madera Canyon, 15 August 1976, D. G. Marqua (1 male, TAMU); Santa Rita Mtns., Madera Canyon, 4 July 1976, D. G. Marqua (1 male, TAMU); Santa Rita Mtns., Madera Canyon, 9 July 1975, D. G. Marqua (2 males, TAMU); Santa Rita Mtns., Madera Canyon, 6 July 1974, D. G. Marqua (1 male, TAMU); Santa Rita Mtns., Madera Canyon, 6 August 1977, D. G. Marqua (1 female, TAMU); Santa Rita Mtns., Madera Canyon, 8 July 1971, D. G. Marqua (1 male, female, TAMU); Santa Rita Mtns., Madera Canyon, 28 July 1971, D. G. Marqua (1 male, TAMU); Santa Rita Mtns., Madera Canyon, 11 July 1971, D. G. Marqua (2 males, TAMU); Santa Rita Mtns., Madera Canyon, 17 July 1971, D. G. Marqua (5 males, TAMU); Santa Rita Mtns., Madera Canyon, 7 July 1971, D. G. Marqua (2 males, TAMU); Santa Rita Mtns., Madera Canyon, 9 July 1971, D. G. Marqua (1 male, TAMU); Santa Rita Mtns., Madera Canyon, 3 July 1975, D. G. Marqua (1 male, TAMU); Santa Rita Mtns., Madera Canyon, 10 July 1971, D. G. Marqua (1 male, 1 female, TAMU); Santa Rita Mtns., Madera Canyon, 13 July 1971, D. G. Marqua (2 females, TAMU); Santa Rita Mtns., Madera Canyon, 12 July 1971, D. G. Marqua (1 female, TAMU); Santa Rita Mtns., Madera Canyon, 19 July 1971, D. G. Marqua (1 male, 1 female, TAMU); Santa Rita Mtns., Madera Canyon, 22 July 1965, D. G. Marqua (1 female, TAMU); Santa Rita Mtns., Madera Canyon, 21 July 1971, D. G. Marqua (1 male, TAMU); Santa Rita Mtns., Madera Canyon, 12 July 1972, D. G. Marqua (1 male, TAMU); Santa Rita Mtns., Madera Canyon, 17 July 1972, D. G. Marqua (1 female, TAMU); Santa Cruz Co., Sycamore Canyon, 31 July 1973, D. G. Marqua (1 male, TAMU); Santa Cruz Co., Sycamore Canyon, 21 July 1972, D. G. Marqua (1 male, TAMU); **Pima Co.**, Madera Canyon, Dr. Lenczy, July 1980 (1 female, USNM); Pima Co., Proctor Rd Area, Madera Canyon, SR Mts., El 4200′, on mesquite, 23 July 1995 (1 male, ASUC); **Gila Co.**, Mogollon Rim, See Canyon, 34.325° N, 111.015° W, 25 June 2020, UV/MV lights, J. T. Botz (1 male, SWLC); Gila Co., Christopher Creek, 34.314° N, 111.021° W, 15 July 2019, UV+ white LED lights, J. T. Botz (1 female, SWLC); **Greenlee Co.**, Upper Juan Miller Campground, 1765 m, 33° 16.153′ N, 109° 20.862′ W, 20 June 2020, MV/UV lights, S. W. Lingafelter (1 female, SWLC); **Maricopa Co.**, Mount Ord, 1715 m, 33.9217° N, 111.4144° W, 20 July 2017, M. A. Johnston (MAJC); **Yavapai Co.**, Prescott, 8 August 1967, J. McCleve (1 female, TAMU); **New Mexico**: **Grant Co.**, 11 mi NE Gila, 2 July 2003, at light, F. W. Skillman, Jr. (FWSC); Grant Co., SR90, 20 mi. Lordsburg, 15 September 2003, F. W. Skillman, Jr. (FWSC); Grant Co., Harden Cienega Rd., .5 miles N. SR78, 2.5 mi. E. AZ/NM border, 22 July 2015, F. W. Skillman, Jr. (2, FWSC); Grant Co., FR 153, 5 mi. W. Tyrone, 4 July 2003, F. W. Skillman, Jr. (4, FWSC); **Catron Co.**, Apache National Forest, 3 mi. N. Apache Creek, blacklighting, 19 July 1992, Lingafelter/Danoff-Burg (1 male, SWLC); **Harding Co.**, Mills Canyon, lower campground area, 36.07° N, 104.35° W, MV/UV lights, 10 July 2020, Wappes and Skillman (2 males, 1 female, RFMC); same, but 9 July, Skillman and Wappes (5, FWSC); **Dona Ana Co.**, Aguirre Spring campground, 25 July 2000, F. W. Skillman, Jr. (FWSC); Dona Ana Co., Organ Mountains, Aguirre Springs Campground, uv light, 32.36964°N, 106.56076°W, 13 July 2012, E. & M. Riley (1 male, EGRC); **Hidalgo Co.**, Animas Mtns., Indian Creek, 5–6 August 1979, Scott McCleve (2 females, TAMU).

Aneflomorpha aculeata (LeConte)

(Fig. 1a, 5a, 7a, 8a, 9a, 10a, 16a)
Elaphidion aculeatum LeConte 1873: 264.

Diagnosis. Length 10–16 mm, pronotum averages 1.20 times longer than wide, elytra together average 3.38 times longer than wide (Fig. 1a). Integument rufous (Fig. 1a, 16a). Antennae not or weakly carinate (Fig. 9a). Spine of third antennomere at least 1.5 times as long as second antennomere, projecting away from antennal plane by less than 40 degrees, acute at apex (Fig. 9a). Spine of fourth antennomere well-developed, acute, longer than second antennomere. Pronotum densely punctate with punctures of differing sizes and contiguous; unobscured by pubescence. Some specimens with small, narrow post-median callus (Fig. 5a). Elytral apices moderately to strongly bispinose in most specimens, some without produced apical spines (Fig. 8a). Elytral pubescence white or off-white, with very numerous long, erect setae in addition to recumbent and recurved setae (Fig. 7a). Procoxal cavities moderately open by over two-thirds the width of the broadly expanded prosternal process (Fig. 10a). Protibia slender, gradually widening apically with the dorsal margin straight and non-carinate (as in Fig. 11h).

Discussion. *Aneflomorpha aculeata* is most similar to *A. texana*, *A. linsleyae* and *A. subpubescens* in having rufous coloration, moderately open procoxal cavities, densely punctate pronotum, and abundant erect and suberect setae on the elytra and appendages. The erect setae are longer, more abundant, and not as uniformly distributed on the body and appendages of *A. aculeata* as in *A. linsleyae* which has the erect and suberect setae of more uniform length and distribution (Fig. 7j). This feature also distinguishes *A. aculeata* from *A. seminuda* Casey (Fig. 7s) and *A. subpubescens* (LeConte) (Fig. 7t) which have more uniform length and distributed setae on the elytra and appendages (mostly recumbent and recurved in *A. seminuda* and straight and erect or suberect in *A. subpubescens*). *Aneflomorpha aculeata* differs also from *A. linsleyae* in having the base of the protibia slender and gradually widening apically with the dorsal margin straight and non-carinate while in *A. linsleyae* the base of the protibia is bulging and then narrowed distally, then widening apically such that the dorsal margin is slightly sinuate and weakly carinate dorsally at the base (Fig. 11c). The antennae are moderately carinate in *A. linsleyae* (Fig. 9i) while not carinate or weakly so in *A. aculeata* (Fig. 9a). Most specimens of *Aneflomorpha aculeata* usually have strongly or moderately bispinose elytral apices (Fig. 8a), while in *A. linsleyae*, the apices are usually bidentate, without spines (Fig. 8i). *Aneflomorpha aculeata* is not known west of Texas while *A. linsleyae* is known only from the Chiricahua Mountains in Arizona. The very long, acute spines of the third and usually fourth antennomeres further distinguish *A. aculeata* from the superficially similar *A. seminuda* and *A. subpubescens* which have much shorter spines (Fig. 9p,q, respectively). In specimens where the antennal and elytral apical spines are not pronounced, the finer pronotal punctation and typically ochraceous pubescence on the scutellum in *A. aculeata* distinguish it from *A. subpubescens* which has larger pronotal punctures and typically fine, white scutellar pubescence. *Aneflomorpha texana* can be distinguished by the near absence of recurved, recumbent elytral setae (the setae are straight) (Fig. 7w), the pronotum having a pronounced median callus in most specimens (Fig. 6w), a dentiform or absent spine on antennomere 4 in most specimens (Fig. 9t), and the outer elytral apex rounded to dentiform (Fig. 8u).

Note that some *A. aculeata* from Texas and Oklahoma are not typical and have reduced elytral and antennal spines as well as less prevalent long, erect setae. These are somewhat intermediate with *A. seminuda* and some have been found mixed with specimens identified as *A. subpubescens* due to their similar size and coloration. They are tentatively assigned to *A. aculeata* in this work, but further study may conclude they belong elsewhere.

Distribution and biology. Specimens have been encountered from May through September at lights, sugar and other fermented bait traps, and Lindgren Funnel traps baited with ethanol in central and southwestern Texas. Specimens were examined from eastern Oklahoma, southwestern Missouri, and northwestern South Carolina which represent three new state records for the species. One digital specimen, tentatively assigned to this species, was seen on BugGuide (BugGuide 2022) from Bibb County, Alabama (Alabama Museum of Natural History). No larval hosts have been documented for *Aneflomorpha aculeata*. Two specimens were examined from Coahuila, Mexico (TAMU), representing a new state record for Mexico and a range extension considerably south of the previously known distribution.

Material examined. Mexico: Coahuila (new state record): Sierra de los Burros, 18 June 1938, Rollin Baker (2, TAMU); USA: **Texas**: no further data (holotype, MCZ); **Comal Co**., N. of Bulverde, Honeycreek Nature Conservancy, 27 April 1985, Cicero (RFMC); **Crosby Co.**, White Riv. Res. Merc. Vap. 25 June 1987, Morris & Sites

(RFMC); **Dickens Co.**, White River Res., Fermented Bait Trap, 18–25 June 1989, R. F. Morris (RFMC); Dickens Co., White River Lake, 8 June 1989, R. Morris (2, RAAC); **Jeff Davis Co.**, near Fort Davis, 2 July 1957, L. N. Bell (RFMC); Jeff Davis Co., FM 1832, 11 mi. W. SR 17, 24 June 2014, F. W. Skillman, Jr. (2, FWSC); Jeff Davis Co., Davis Mts. St. Pk., 27 June–1 July 1987, 5200′, J. B. Heppner (RFMC); Jeff Davis Co., Davis Mtn . S. P. 7 June 1974, D. E. Foster, J. V. Moody (2, RFMC); Jeff Davis Co., 3 mi. E. Davis Mtn. SP, MV light, 4 July 1987, R. Morris (2, RFMC); Jeff Davis Co., Davis Mtns. Resort, 5800′, June-July, D. G. Marqua (4, TAMU); Brazos Co., College Station, 4 July 1994, E. G. Riley (EGRC); Jeff Davis Co., Davis Mtns. St. Pk. 29–30 June 1999, UV, E. G. Riley (EGRC); Bandera Co., Lost Maples State Park, 29.81046°N, 99.57409°W, 23 June 1990, E. Riley and C. Wolfe (EGRC); Jeff Davis Co., Limpia Canyon, 27 June 1967, B. A. Tilden (BTC); Jeff Davis Co., Davis Mtns. Resort, 5800′, May–June 1991–2002, D. G. Marqua (8, TAMU); **Eastland Co.**, 5 mi. SW Eastland, 32.364° N, 98.8925° W, 1538′, 2 June 2021, F. W. Skillman, Jr. (2, FWSC); **Kimble Co.**, TTU Center, Junction, MV light, 13 May 1988, R. Morris (2, RFMC); **Anderson Co.**, Engeling Wildlife Management Area, 28 May 1995, E. G. Riley (SWLC); Anderson Co., Engeling Wildlife Management Area, 28 May and 3 June 1995, E. G. Riley (2, EGRC); **Smith Co.**, Tyler State Park, July 5, 1989, C. S. Wolfe (DJHC); **Bexar Co.**, China Grove, June 1992, D. Walters (DJHC); Bexar Co., NW edge of San Antonio, May 28, 1992, D. W. Sundberg (DJHC); **Val Verde Co.**, Langtry at Rio Grande, June 21, 1990, C. S. Wolfe (DJHC); Val Verde Co., 30 miles NNW Del Rio, vicinity of Gold Mine Canyon, 29.802° N, 100.937° W; 5 June–14 July 2021, 407 m., uv light trap, B. Raber and D. Heffern (3 SWLC; 13 DJHC); same but 3 May–5 June (2 SWLC; 11, DJHC); Val Verde Co., 30 mi NNW Del Rio, nr Carlos Camp Spr. Devils R. near Dry Devils R. 387 m., 29.798° N, 101.000° W, Lindgren with EtOH bait, 29 August–26 September 2020, E. Raber & D. Heffern (DJHC); **Kerr Co.**, Kerrville, 26 August 1966, R. R. Blume (FWSC); Bandera Co. Hill Country St. Natural Area, 14 June 2003, D. W. Sundberg (DJHC); Kerrville, at light, FC Pratt (2, USNM); Kerrville, 15 May 1990, uv light, W. F. Chamberlain (TAMU); **Hidalgo Co.**, Santa Ana National Refuge, 8–9 May 1978, J. E. Wappes (FWSC); Hidalgo Co., Santa Ana National Wildlife Refuge, 2 May 1987, E. G. Riley and F. Whitford (2, EGRC); **Brazos Co.**, College Station, June 1989, E. G. Riley (EGRC); Brazos Co., 5 km SW Wellborn, 30.5022°N, 96.3360°W, 16–0 June 2017, at lights, V. Belov (2, ABRC, EGCCRC); **Wharton Co.**, MacKay UV trap, July–August 1983–1984, Marlin E. Rice (8, TAMU); Wharton Co., MacKay UV trap, May 1984, Marlin E. Rice (3, TAMU); Texas: Mexia, 23 June 1937 (TAMU); College Station, Texas Experimental Station, 20 May 1930, S. E. Jones (TAMU); Rio Frio, at light, 10 May 1910 (USNM); Texas (no further data), C. V. Riley Collection (USNM); **Oklahoma** (new state record): **Sequoyah Co.**, Tenkiller Lake, 3 mi. W. Blackgum, D. and M. Davis, 6–9 July 1979 (USNM); Robber's Cave State Park, 5 mi. N. Wilburton, H. V. Weems, Jr. 15 June 1966, at light (FSCA); **Latimer Co.**, SW of Red Oak, June 1997, K. Stephan (TAMU); Latimer Co., 5 mi. W. Red Oak, 2 July 1977, K. Stephan (6, TAMU); Latimer Co., 5 mi. W. Red Oak, June-July 2001, UV light, K. Stephan (6, TAMU); **Missouri** (new state record): **Barry Co.**, SR112, 5.5 mi. S. Cassville, Deer Ridge Lodge, 10 June 2018, Skillman and Wappes (FWSC). **South Carolina** (new state record): Newberry Co., Saluda River and S. H. 121, 28 May 2017, at light, Kyle E. Schnepp (KESC).

Aneflomorpha cazieri Chemsak

(Fig. 1c, 5c, 7c, 8b, 9b, 10c)

Aneflomorpha cazieri Chemsak 1962: 107.

Diagnosis. Length 7–14 mm, pronotum averages 1.20 times longer than wide, elytra together average 3.67 times longer than wide (Fig. 1c). Integument brunneous to piceous. Antennae not or inconspicuously and incompletely carinate (Fig. 9b). Spine of third antennomere distinctly longer than second antennomere, sometimes twice as long, projecting away from antennal plane by less than 45 degrees, usually blunt, uncommonly acute and/or bent inward at apex (Fig. 9b). Pronotum with dense, small punctures partially obscured by mostly short, recumbent setae; most specimens with variably developed shiny, post-median pronotal callus (Fig. 5c). Elytral apices subtruncate to weakly bidentate (Fig. 8b). Elytral pubescence white or off-white, mostly recumbent and recurved, with a few scattered long erect to suberect setae (Fig. 7c). Procoxal cavities open by about two-thirds the width of the broadly expanded prosternal process (Fig. 10c). Protibia slender, gradually widening apically with the dorsal margin straight and non-carinate (as in Fig. 11h).

Discussion. This is among the smallest *Aneflomorpha*, along with *A. minuta* and *A. crypta*. There is variation in the length and apical shape of the spine of the third antennomere, although most have it short, straight, and blunt.

This, combined with their small size and absence of distinct antennal carinae (Fig. 9b), make *A. cazieri* distinctive. From *A. crypta*, it is distinguished by the open procoxal cavities which are closed (or very nearly so) in *A. crypta* (Fig. 10e), along with the typically blunt spine of antennomere three which is acute in *A. crypta* (Fig. 9s). *Aneflomorpha cazieri* is further distinguished by having the anterior collar of the mesosternum divided (as in Fig. 12d) and in having the legs of a similar color to most of the venter, although as discussed for *A. crypta*, this character should be used with caution and only in conjunction with other confirmatory characters. Specimens having a long, blunt spine on antennomere three are easily distinguished from *A. minuta* due to its short and acute spine (Fig. 9k). Specimens with a more acute spine are distinguished from *A. minuta* by having the pronotum more evenly rounded at the sides and having a less distinct (or absent) median callus (Fig. 5c) unlike *A. minuta* which often is distinctive due to the abruptly constricted posterior fifth of the pronotum and presence of a distinct, elongate, post-median callus (Fig. 5l). Males of some specimens of *A. cazieri* have the antennae extending beyond the elytral apices by three antennomeres—much longer than the antennae of *A. crypta* and *A. minuta*. From very small individuals of *A. rectilinea* which *A. cazieri* may resemble, all specimens of *A. cazieri* can be distinguished easily by the absence of antennal carinae, among the other characters described above.

Distribution and biology. This species was previously known only from southeastern Arizona, but with specimens examined for this study, the range is extended to southwestern New Mexico and northern Sonora, Mexico. Specimens have been collected at ultraviolet and mercury vapor lights, sugar bait traps, and by beating *Quercus* species (including *Q. arizonica* Sarg. and *Q. hypoleucoides* A. Camus) mostly at elevations of 1300–2000 meters in July and August (pers. obs.; Linsley et al. 1961; Linsley 1963).

Material examined. Mexico: Sonora (new state record): Ures, 1.6 km WSW Rancho Bachan, 28 July 2014, Van Devender & Palting (10, ASUC); 14 K. SW Bacanora, Rancho Las Tierras, Jimenez, 2 August 2014 (5, FSCA); San Felipe de Jesus, Rancho El Llano, Sierro Los Lochos, 29.8775° N, 110.3872° W, Oak Woodland, 1300m, 5 August 2019, Van Devender & Palting (5, ASUC); 16 km SSE Nacozari de Garcia, la Zuelma, 15 July 2017, 1687 m, 30° 28′ N, 109° 56′ W, Van Devender/Palting (4, ASUC); USA: **Arizona**: **Pima Co.**, Baboquivari Mtns., Baboquivari Camp, 17 July 1972, D. G. Marqua (3, TAMU); **Graham Co.**, east end of Aravaipa Canyon, 24–25 July 1974, at light, Scott McCleve (2, TAMU); Graham Co., Galiuro Mtns., High Creek, 20 July 1978, at light, Scott McCleve (2, TAMU); Graham Co., 10 mi. W. New Mexico on Rt. 70, 20 July 1988, J. A. Green (JAGC); Graham Co., AZ 366, 7.6 mi. from US 191, 32.66611°N, 109.79866°W, 1625 m, blacklight, 17 July 2017, EG Chapman, AB Richards (2, EGCCRC); **Cochise Co.**, Whetstone Mtns., Cottonwood Canyon, 7 August 1978, at light, Scott McCleve (TAMU); Cochise Co., Peloncillo Mtns., 33 mi. east Douglas, 17 July 1973, at light, Scott McCleve (3, TAMU); Cochise Co., Chiricahua Mtns., Horseshoe Canyon, 30 July 1976, at light, McCleve and Daneker (TAMU); Peloncillo Mtns., 33 miles East Douglas, 17 July 1973, at lights, S. McCleve (TAMU); Cochise Stronghold, 11–15 July 2012, sweetbait trap, F.W. Skillman, Jr. (5, FWSC); Dragoon Mtns., Soren Pass, 1 August 2003, F.W. Skillman, Jr. (2, FWSC); Cochise Co., 5 mi. W. Portal, S.W.R.S., 5400′, 16–17 August 1969, Bruce A. Tilden (2, BTC); Cochise Co., East Turkey Creek at Paradise Road, 3.6 km SW Paradise, 31° 54.776′ N, 109° 14.426′ W, 1850 m, 17 July 2018, mv/uv lights, S. W. Lingafelter (SWLC); Cochise Co., Hereford, 8920 S. Bryerly Ct., N 31° 24′ 14″, W 110° 13′ 52″, 1500m, July 2019, mv/uv lights, S. W. Lingafelter (6, SWLC); Cochise Co., Huachuca Mtns., Carr Canyon Road, 9.5 km from Hwy 92, 31° 25.797′ N, 110° 16.984′ W, 2160 m, 5 August 2019, sweeping *Quercus hypoleucoides* A. Camus, N. E. Woodley (2, SWLC); Cochise Co., Peloncillo Mtns., Cottonwood Canyon, 1510 m, 31° 29.389′ N, 109° 04.205′ W, 22 July 2019, S. W. Lingafelter (5, SWLC); Cochise Co., Miller Canyon, July 22, 1981, W. B. Warner (DJHC); Cochise Stronghold, 2–11 July 2012, sweet bait trap, F. W. Skillman, Jr. (FWSC); Cochise Stronghold, 18 July 2004, D. Hildebrant (3, FWSC); Onion Saddle, 18 July 2013, F. W. Skillman, Jr. (FWSC); Calabasas Cn., W. of Nogales, 28 July 1948, W. Nutting & F. Werner (Paratype, UAIC); Santa Cruz Co., Santa Rita Lodge, Madera Canyon, 13–15 July 1988 (5, ASUC); Cochise Co., Mule Mtns., 3.5 km NW Bisbee, 1680 m, 31° 28.161′ N, 109° 58.020′ W, 11 July 2021, mv/uv lights, S. W. Lingafelter (4, SWLC); same but 28 July 2020 (3, SWLC); Chiricahua Mtns., Cave Creek Ranch, 25 July 1987, G. H. Nelson, on *Quercus arizonica* (UAIC); Cochise Co., 2.5 mi. E. SWRS on Cave Creek Canyon Road, blacklight, 10 July 1992, S. W. Lingafelter (SWLC); Cochise Co., Southwestern Research Station, uv lights, L. L. Lampert, Jr., July, 1980 (6, RFMC); Texas Canyon, 5300′, 12 August 1974, at light, Scott McCleve (TAMU); Cochise Co., Pinery Canyon Road, 6000′, 9 July 2013, at light, Kyle E. Schnepp (3, KESC); **Santa Cruz Co.**, Peña Blanca Lake, 19 July 2001, J. A. Green (3, JAGC); Santa Cruz Co., Atascosa Mtns., Sycamore Canyon, 12 July 1977, at light, S. McCleve (TAMU); Santa Cruz Co., Montosa Canyon, 6600′, 6 August 1977, D. G. Marqua (4, TAMU); Santa Cruz Co., Ruby Road at Sycamore Canyon, 1225 m, 31° 25.923′ N, 111° 11.318′, 31 July 2018, mv/uv light, S. W. Lingafelter (SWLC); Santa Cruz Co., Peña Blanca Canyon, 1209 m, 31° 22′ 54″ N, 111° 5′ 53″ W, 1 August 2016, mv/uv lights, S. W. Lingafelter (2, SWLC); Santa Cruz Co., Sycamore Canyon, 1332 m, 31° 25′ 02″ N, 111° 9′ 42″ W, 4 August 2016, mv/uv lights, S. W. Lingafelter (3, SWLC); Santa Cruz Co., Ruby Road, 2 mi. E. Sycamore Canyon, 22 July 1982, G. H. Nelson, on *Quercus arizonica* (UAIC); Santa Cruz Co., Madera Canyon, L. L. Lampert, Jr., August 1978 (4, RFMC); Santa Cruz Co., Patagonia Mountains, Finley & Adams Canyon, 31° 23.667′ N, 110° 41.325′ W, 1615 m, 11 July 2020, mv/uv lights, Jason T. Botz (SWLC); Santa Cruz Co., Madera Canyon, 5100′, Bog Spring Campground, Santa Rita Mtns., 10–26 July 1964, D. Davis (USNM); Santa Cruz Co., Peña Blanca Canyon, 27–28 July 1964, D. R. Davis (USNM); **Pima Co.**, Canoa Ranch Rest Area, I-19 at exit 52, 20 July 2017, A.B. Richards and E. G. Chapman, 31.76550°N, 111.03491°W, 933m (ABRC); Pima Co., Canoa Ranch Rest Area on I-19, 31.76550°N, 111.03491°W, 933 m, 31 July 2019, EG Chapman, P. Baker, JM Leavengood (EGCCRC); Pima Co., Peña Blanca Lake, Upper White Rock Campground, 31.3938°N, 111.0896°W, 1177m, 1 August 2019, EG Chapman, P. Baker, JM Leavengood (EGCCRC); Pima Co., Madera Canyon, 20 July 1985, Don Ahart (DJHC); same but 22 July 1980 (DJHC); same but 29 July 1977 (DJHC); Pima Co., Florida Canyon at Santa Rita Experimental Research Station, 1320 m, 31° 45.808′ N, 110° 50.756′ W, mv/uv lights, 7 August 2021, S. W. Lingafelter (SWLC); **New Mexico (new state record): Grant Co.,** 1 mile S. Cherry Creek Camp, 32° 54′ 51″ N, 108° 13′ 25″ W, 6800′, lights, 18 August 2007, S. W. Lingafelter (SWLC); Grant Co., Harden Cienega Rd., .5 miles N. SR78, 2.5 mi. E. AZ/NM border, 22 July 2015, F. W. Skillman, Jr. (FWSC); **Hidalgo Co.**, Animas Mtns., Indian Creek, 5–6 August 1979, Scott McCleve (TAMU).

Aneflomorpha delongi (Champlain and Knull)

(Fig. 1f, 5f, 7f, 8e, 9e, 10f)

Elaphidion delongi Champlain and Knull 1922: 147.

Diagnosis. Length 14–17 mm, pronotum averages 1.15 times longer than wide, elytra together average 3.89 times longer than wide (Fig. 1f). Integument rufous. Antennae not carinate (Fig. 9e). Spine of third antennomere about twice as long as second antennomere in most specimens, projecting away from antennal plane by nearly 45 degrees, blunt at apex (Fig. 9e). Pronotum with moderate punctures unobscured by pubescence; with elongate impunctate, median callus (Fig. 5f). Elytral apices bidentate or with dentiform suture and short, broad, apicolateral spine (Fig. 8e). Elytral pubescence consisting only of translucent, erect setae, without recumbent setae (Fig. 7f). Procoxal cavities open by slightly less than the width of the moderately expanded prosternal process (Fig. 10f). Protibia slender, gradually widening apically with the dorsal margin straight and non-carinate (as in Fig. 11h).

Discussion. This is one of only two species of *Aneflomorpha* known from the eastern United States (Lingafelter 2007; Bezark 2022), the other being *A. subpubescens*. Only two other species, *A. subpubescens* (Fig. 7t) and *A. linsleyae* (Fig. 7j), lack short, recumbent elytral pubescence. *Aneflomorpha subpubescens* is easily distinguished by its relatively short, acute spine on antennomere three (Fig. 9q). The antennae are distinctly carinate and the blunt spine of antennomere three is no more than one-third the length of the fourth antennomere in *A. linsleyae* (Fig. 9i). The antennae lack carinae, and the spine of the third antennomere is nearly half the length of the fourth antennomere in *A. delongi* (Fig. 9e). Further distinguishing these two species is the protibia which is laterally flattened and carinate dorsally in *A. linsleyae* (Fig. 11c), but neither flattened nor carinate in *A. delongi*.

Distribution and biology. This species is known only from Florida and Georgia, usually below 100 meters (Lingafelter 2007). Morris (2002) reared one specimen from *Quercus laevis* Walter in Ocala National Forest, Florida. Other specimens have been collected at lights there and in similar scrub oak habitat in Georgia from April through September (pers. obs.; Morris 2002; Lingafelter 2007). Vlasak and Vlasakova (2021) reared many specimens from small branches of several new hosts of *Quercus* including *Q. chapmanii* Sarg., *Q. geminata*, *Q. inopina* Ashe, and *Q. myrtifolia* in Polk County, Florida.

Material examined. USA: **Florida:** Miami, 3 April 1921, D. M. De Long, J. N. Knull Collection (holotype, FMNH); Marion Co., Ocala National Forest, USFS Rd 97, 2.5 miles N. Hwy 40, 29°**12**′34″N, 81°47′02″ W, 100′, 26–27 July 2002, mv/uv lights, S. W. Lingafelter (SWLC); Marion Co., Ocala National Forest, 21–22 July 2000, Green/Morris

(2, JAGC); Marion Co., 10 mi. NE Ocklawaha, Ocala N. F., 4 August 2018, at light, Kyle E. Schnepp (KESC); Highlands Co., Archbold Biol. Sta., 21 August 1978, William Rosenberg (USNM); Highlands Co., Archbold Biological Station, 23 September 1977, L. L. Lampert, Jr. (TAMU); Highlands Co., Archbold Biological Station, 9 September 1983, R. M. Brattain (TAMU); Polk Co., 674 Pfundstein Rd., Tiger Creek Preserve, 26 August 2016, R. Morris, mv/uv light (FWSC). **Georgia**: Emanuel Co., Halls Bridge Road, Ohoopee Dunes, 20 June 2014, at lights, Kyle E. Schnepp (KESC); Emanuel Co., 10 mi. SW Swainsboro, Ohoopee Dunes, 6 June 2015, at light, Kyle E. Schnepp (KESC); Long Co., 10 mi. WNW Ludowici, 18 June 2016, at light, Kyle E. Schnepp (KESC).

Aneflomorpha fisheri **Linsley**

(Fig. 1g, 5g, 7g, 8f, 9f, 10g)

Aneflomorpha fisheri Linsley 1936: 475.

Diagnosis. Length 14–20 mm, pronotum averages 1.05 times longer than wide, elytra together average 3.30 times longer than wide (Fig. 1g). Integument brunneous or, uncommonly, rufous. Antennae not carinate (Fig. 9f). Spine of third antennomere distinctly longer than second antennomere, projecting away from antennal plane by about 30 degrees, acute at apex (Fig. 9f); only slightly longer and more outwardly projecting than spine of fourth antennomere. Antennae with long, recumbent setae on basal segments and vestiture of very dense setae coating most antennomeres beyond four. Pronotum with dense punctures that are partially obscured by recumbent white and off-white pubescence; with or without a small, impunctate median callus (Fig. 5g). Elytral apices rounded to broadly dentate apicolaterally, spiniform suturally (Fig. 8f). Elytral pubescence white or off-white, moderately dense with approximately even mixture of short, recumbent and long erect to suberect setae (Fig. 7g). Procoxal cavities open by usually less than half the width of the apex of the broadly expanded prosternal process (Fig. 10g). Protibia slender, gradually widening apically with the dorsal margin straight and non-carinate (as in Fig. 11h).

Discussion. The dark brown coloration of most specimens, dense pubescence throughout the integument, which is particularly dense and brighter white on the scutellum, absence of basal antennal carinae, outer antennomeres with vestiture of very short and dense pubescence, and elytral apices rounded or dentiform apicolaterally to a moderate to strong sutural spine are distinctive features of this species. *Aneflomorpha unispinosa*, which has a similar elytral apex (Fig. 8t, w), is distinguished by having carinate antennae (Fig. 9s), less dense pubescence of the scutellum (Fig. 8t, w), and a known distribution of southeastern Arizona and adjacent Mexico unlike *A. fisheri* which is known only from southern and western Texas. *Aneflomorpha opacicornis* (Fig. 17) (transferred to *Neaneflus* herein) can also be confused with this species based on the similar size, coloration, rounded apicolateral elytral apex, and proportions, but it can be distinguished by its lack of a sutural spine (Fig. 8l), much weaker antennal spines (Fig. 9l), and vestiture of short pubescence covering all antennomeres and absence of long, recumbent setae, unlike *A. fisheri* which has long, recumbent setae present on the basal four antennomeres (Fig. 9f). *Aneflomorpha seminuda* is similar, but has more symmetrically bispinose elytral apices (Fig. 8q) unlike the apicolaterally dentate and suturally spinose apices of *A. fisheri* (Fig. 8f).

Distribution and biology. This species is known only from south and west Texas from 400–2000 meters. Specimens have been collected at lights in June and July and have been reared from girdled live stems (1–2 cm diameter) of *Quercus* sp. and *Cercocarpus montanus* (Vlasak and Vlasakova 2021).

Material examined. USA: **Texas**: **Kinney Co.**, 7 mi. NE Bracket, 8 June 2000, J. E. Wappes (FWSC); **Pecos Co.**, 28 miles S. Ft. Stockton, Hwy 385, 21 June 1997, JE Wappes (FWSC); **Live Oak Co.**, Choke Canyon State Park, 3 miles East of Three Rivers, 1 May 1986, S. Jay Hanselmann (DJHC); **Val Verde Co.**, Seminole Canyon State Park, at street lights, 16 May 1986, S. Jay Hanselmann (DJHC); same but D. W. Sundberg, 14 May 1989 (2, JGPC); Val Verde Co., Pecos River crossing, Amistad Natl. Rec. Area, 17–18 May 1986, S. Jay Hanselmann (USNM); Cotulla, 12 May 1906 (2, USNM); Sabina, 26 May 1910, F. C. Pratt (USNM); Val Verde Co., 30 miles NNW Del Rio, vicinity of Gold Mine Canyon, 29.802° N, 100.937° W; 5 June–14 July 2021, 407 m., uv light trap, B. Raber and D. Heffern (2 SWLC; 5 DJHC); Val Verde Co., Seminole Canyon State Park, 14 May 1989, D. W. Sundberg (2, JAGC); **Jeff Davis Co.**, Davis Mountains Resort, 1–2 July 1995, D. J. Heffern, Co. (1, DJHC); Jeff Davis, FM 1832, 2 miles W. SR17, 23 June 2014, F. W. Skillman, Jr. (FWSC); Davis Mtns., Mt. Locke, 6700′, 4 July 1969, A. & ME Blanchard (4, USNM); Jeff Davis Co., Davis Mtns. Resort, 5800′, June-July, D. G. Marqua (4, TAMU); Webb

Co., 16 mi. W. Freer, 17 May 2008, W. Seifert (TAMU); Kinney Co., 7 mi. NW Jct. 1572 & 693 on 1572, mv light, 14 April 2010, M. Seifert (TAMU); TEXAS: Jeff Davis Co., Davis Mtns. Resort, 5800′ (Marqua Residence), UV, 30.62842°N, 104.08360°W, 4–5 July 2009, E and M. L. Riley (EGRC); Dimmit Co., 4 June 1933, Texas Experimental Station (5, TAMU); Jeff Davis Co., Davis Mtns. Resort, 5800′, 12 June 2002 (and many other dates), D. G. Marqua (15, TAMU); **Presidio Co.**, Shafter, 22 June 1968, J. E. Hafernik (TAMU); Guadalupe Mtns. National Park, Pine Springs, 15 June 1980, Marlin E. Rice (2, TAMU); **New Mexico: Otero Co.**, Sacramento Mtns., Westside Road, 7500′, 32°54′49″N, 105°50′05″W, 11 August 2003, UV, E. Riley (EGRC).

Aneflomorpha gilana **Casey**

(Fig. 1h, 2f, 5h, 6n, 7h, n, 8g, x, 9g, 10h, n, 11b, 13)

Aneflomorpha gilana Casey 1924: 243.
Aneflomorpha parkeri Knull, **new synonym.**

Diagnosis. Length 13–17 mm, pronotum averages 1.0 times longer than wide, elytra together average 3.50 times longer than wide (Fig. 1h, 13a, b). Integument testaceous to light rufous. Antennae carinate (Fig. 9g). Spine of third antennomere very short, about the same length as second antennomere and only slightly longer than spine of fourth antennomere, projecting away from antennal plane by nearly 45 degrees, acute at apex (Fig. 9g). Pronotum with moderately dense punctures mostly obscured by pubescence, without impunctate central callus (Fig. 5h, 6n). Elytral apices obtusely truncate to weakly dentate at suture (rarely rounded apicolaterally) truncate to weakly bidentate (Fig. 8g). Elytral pubescence white or off-white, recumbent; erect and suberect setae nearly absent (Fig. 7h, n). Procoxal cavities widely open by more than apical width of prosternal process which is only slightly expanded (Fig. 10h, n). Protibia slender, gradually widening apically with the dorsal margin straight and non-carinate (Fig. 11b).

Discussion. The very broad pronotum (slightly broader than long), antennal flagellomeres and tibiae paler in color than antennal scape and femora, widely open procoxal cavities and barely weakly expanded prosternal process, and very short spine of antennomere three are distinctive for this species. *Aneflomorpha luteicornis* is similar in having lighter colored antennal flagellomeres, but they, along with the tibiae and femoral bases, contrast much more from the darker surrounding integument (Fig. 2b). The overall integument color in *A. gilana* is rufous, while in *A. luteicornis* it is usually dark brown. The spine of antennomere three is distinctly longer than antennomere two in *A. luteicornis* (Fig. 9j), unlike in *A. gilana*. The pronotum is slightly longer than wide in *A. luteicornis* (Fig. 5k), but as broad as long in *A. gilana*. The elytral pubescence in *A. gilana* has erect setae almost entirely absent (Fig. 7h, 13) and has primarily recumbent setae, while in *A. luteicornis*, erect setae are abundant at the elytral base (Fig. 7k), in addition to recumbent setae. *Aneflomorpha gilana* is also similar to *A. linearis*, but the dorsally flattened and carinate protibia of *A. linearis* is distinctive (Fig. 11e, g).

Examination of the holotype of *A. parkeri* Knull (Fig. 2f, 13b, d) shows it to have all the features of *A. gilana* (with the exception of having the outer apex of the elytra rounded) and is considered a **new synonym**.

Distribution and biology. This species is known only from central Arizona (Linsley 1963). A male and female of *A. gilana* were collected in the same beat of *Quercus gambelii* Nutt. in Coconino County, Arizona in July. An additional specimen was identified in the USNM collection having been reared from this tree, so it is a confirmed larval host. Vlasak in Heffern et al. (2018) recorded a larval host for *A. parkeri* as *Calliandra eriophylla* Benth., near Tucson, Arizona, however, this specimen is actually *A. paralinearis*.

Material examined. USA: **Arizona:** Phoenix (holotype, USNM); Pinal Mts., 12 August, F. H. Parker, J. N. Knull Collection (holotype of *A. parkeri*, FMNH); **Coconino Co.**, Lake Mary Road at Road 124, 34° 54.492 N, 111° 25.886 W, 20 July 2020, beating *Quercus gambelii* Nutt. (2, SWLC); Prescott National Forest, reared from Gambel oak, emerged 23 March 1928, G. Hofer (USNM); **Yavapai Co.**, Connerville Cutoff Rd. ½ mile W. SR 174, 28 July 1999, R. A. Belmont (CMNH); Yavapai Co., Prescott, 8 August 1967, J. McCleve (TAMU).

Aneflomorpha linearis **(LeConte)**

(Fig. 1i, 2g, 5i, 6o, 7i, o, 8h, n, 9h, n, 10i, o, 11e, 15a, b, d, f, h, 16c)

Elaphidion lineare LeConte 1859: 80.
Aneflomorpha longipennis Casey 1912: 472. Synonymy by Linsley (1963: 57).

Aneflomorpha parowana Casey 1924: 242. **New synonym**.
Aneflomorpha testacea Casey 1924: 243. Synonym of *parowana* by Linsley (1963: 56). **New synonym**.
Aneflomorpha elongata Linsley 1936: 473. Synonym of *parowana* by Linsley (1963: 56). **New synonym**.
Aneflomorpha californica Linsley 1936: 476. Synonym of *parowana* by Linsley (1963: 56). **New synonym**.

Diagnosis. Length 9–17 mm, pronotum averages 1.05 times longer than wide, elytra together average 3.55 times longer than wide (Fig. 1i, 2g). Integument testaceous (Fig. 1i, 15a, b, d). Antennae carinate (Fig. 9h, n). Spine of third antennomere slightly longer than second antennomere, projecting away from antennal plane by less than 45 degrees, acute at apex (Fig. 9h, n). Pronotum with moderately dense punctures partially obscured by pubescence; usually with small, irregular, impunctate, post-median callus (Fig. 5i). Elytral apices most often weakly bidentate (Fig. 8h, n). Elytral pubescence white, sparse, mostly recumbent, with very few scattered long erect to suberect setae (Fig. 7i, o). Procoxal cavities broadly open by nearly twice the width of the barely expanded prosternal process (Fig. 10i, o). Protibiae flattened and carinate at base (Fig. 11e).

Discussion. When *Elaphidion lineare* LeConte, 1859 was transferred to the new genus *Aneflomorpha* (feminine in gender) by Casey (1912), *lineare* should have been changed to *linearis* to agree in gender. It is corrected herein. When Casey (1924) described *A. parowana*, he compared it to *A. linearis* and differentiated it as being "a little larger, less pallid in color, with larger eyes, more deeply and densely punctured pronotum, and slightly longer hairs of the elytra." Examination of the primary types of both species (Fig. 1i, 2g, 15a, b, d) and their synonyms demonstrates that these characters are trivial, in some cases mischaracterized, and not of value for discriminating the species. My determination is that *A. parowana* (Fig. 2g, 15b, f) is a **new synonym** of *A. linearis*, rendering that species as the single *Aneflomorpha* occurring in the western coastal states of the United States. The holotypes of all the synonyms of *A. parowana* of Linsley (1963) (*A. testacea* Casey, 1924, *A. elongata* Linsley, 1936, and *A. californica* Linsley, 1936) were examined and are determined to be **new synonyms** of *A. linearis* as well.

Aneflomorpha linearis is most similar to a new species described herein, *A. paralinearis* Lingafelter, **new species**, from Arizona and New Mexico (Fig. 2e, 11g, 15c, f, g, i) due to the laterally flattened protibia with a dorsal carina at the base, open procoxal cavities, and carinate antennae. That species is distinguished by its larger average size, more rufous or brunneous rather than testaceous coloration, more strongly bidentate or bispinose elytral apices, more abundant erect elytral setae, as well as differences in the mesosternum and aedeagus as discussed in the description of *A. paralinearis*. *Aneflomorpha yumae* (elevated from subspecies level herein) shares the feature of having the base of the protibiae flattened, carinate dorsally, and as thick at the base as at the apex (Fig. 11j). It is distinguished by its relatively dense, thick, white, recumbent setae over much of the dorsal and ventral surface, particularly dense on the scutellum, inner eye margins, metasternum, and basal abdominal sternites (Fig. 3f, 16h), much denser than in *A. linearis*. The dense punctures of the pronotum are mostly hidden in *A. yumae* (Fig. 6x) and the pronotum usually lacks a callus unlike *A. linearis* which has the pronotal punctures mostly exposed and usually has a posteromedian impunctate callus (Fig. 5i). Another species from Arizona, *A. linsleyae*, also has the protibia moderately flattened at the base, however, it is not carinate dorsally. *Aneflomorpha linsleyae* is easily distinguished by its elytral pubescence consisting of only erect and suberect setae (Fig. 7j), whereas the elytral setae in *A. linearis* are mostly recumbent (Fig. 7i). Specimens of *A. linearis* resemble some lighter colored specimens of *A. rectilinea*, but the narrow protibial base which is not flattened (Fig. 11f, h) and nearly closed procoxal cavities of *A. rectilinea* (Fig. 10q, r) will easily distinguish that species.

Distribution and biology. This species was described from Fort Tejon, Kern County, California (LeConte, 1859). With the synonymy of *A. parowana*, the range is extended to the east to include Nevada, Utah, Colorado, and primarily northwest and central Arizona (Bezark 2022; Linsley 1963; Heffern 1998). Craighead (1923) records the larvae as being twig girdlers of *Quercus* species. Linsley (1963) records *Q. agrifolia*, *Q. emoryi*, and *Q. arizonica* as larval hosts. Tyson (1970) added *Purshia tridentata* (Pursh) as a host. One specimen examined for this study was collected on *Purshia glandulosa* Curran in the Hualapai Mountains in Arizona. Cope (1984) reared several specimens from *Quercus dumosa* Nuttall in Riverside Co., California and *Adenostoma fasciculatum* Hook. and Arn. in San Diego Co., California. Vlasak in Heffern et al. (2018) added two additional larval host records when he reared specimens from girdled stems of *Ceanothus integerrimus* Hook. and Arn. from El Dorado Co. and *Rhus aromatica* from Riverside Co., California. An additional specimen reared from *Rhus* sp. from Utah was examined.

Material examined. USA: **California**: Tejon (holotype, MCZ); Ash Mt., Sequoia National Park (holotype of *A. californica*, CASC); Santa Ana Canyon, Orange Co. (holotype of *A. elongata*, CASC); Red Bluff, 20 mi NW, Tehama Co., 27 August 1971 (UAIC); San Gabriel Mtns., 1 mile above Mt. Baldy Village, 29 July 1989, G. H. Nelson, at uv light (2, FSCA); San Gabriel Mtns., Mouth of San Antonio Canyon, 9 July 1985, G. H. Nelson, uv lights (2, FSCA); San Bernardino Co., 10 mi. SE Cima, 5 July 1985, G. H. Nelson, at uv light (FSCA); Los Angeles Co., W fork San Gabriel River, 18 July 1973, R. B. Miller (FSCA); Mt. Hamilton, Isabel Creek, uv light, R. L. Morrison (FSCA); same, but 6 June 1973 (FSCA); Clarksburg, 10 July 1931, A. T. McClay (2, USNM); River Co., Santa Rosa Mountains, Pinyon Flats Campground, 17 June 1997, M. W. Gates (SWLC); San Diego Co., Kitchen Creek, reared 10 July 2017 from girdled *Quercus* collected on 29 April 2017 Josef Vlasak (SWLC); El Dorado Co., Rt. 50 near Riverton, 11 June 2015, larva in *Ceanothus integerrimus*, J. Vlasak (SWLC); Los Angeles Co., Placerita Canyon Park, 1550′, 10 August 1985, F. T. Hovore (FSCA); Los Angeles Co., Wrightwood vic., 5 August 2001, Morris & Hovore (3, RFMC); Tehama Co., Red Bluff, 8 July 1970, uv light, D. L. Wilson (4 , BTC, donated to SWLC); Santa Clara Co., Loma Prieta, 20 July 1969, night light, J. Smith (BTC, donated to SWLC); Santa Clara Co., 3 mi. SW Los Gatos, 10 August 1969, Robert Criswell (2, BTC, donated to SWLC); Santa Clara Co., Alum Rock Park, 1 August 1965, B. A. Tilden (BTC, donated to SWLC); Mariposa Co., Varain Road, 28 July 2000 (2, BTC, donated to SWLC); Placer Co., Meadow Vista, July 1969, B. Paul (BTC, donated to SWLC); Yuba Co., 9448 Rice′s Texas Hill Rd, Oregon House, 121.25° W, 39.35° N, uv light, 9–16 August 2008, David L. Wilson (7, BTC, donated to SWLC); Yuba Co., 6 mi. S. Marysville, beating *Quercus*, David L. Wilson (BTC, donated to SWLC); Alameda Co., Mocho Creek, 2 August 1969, uv light, B. A. Tilden (BTC, donated to SWLC); Nevada Co., Nevada City, Grass Valley, 19 July 1991, S. Miller (2, JGPC); San Gabriel Mtns. Foothills, 6–8 September 1963, R. H. Grandall (4, TAMU); Los Angeles Co., Burbank, 23 August 1971, D. G. Marqua (2, TAMU); Joshua Tree National Monument, Covington Flat, E. L. Sleeper (many dates) (45, TAMU); California: Joshua Tree National Monument, Pleasant Wash, Fried Liver Wash, E. L. Sleeper, 15 July 1965 (25, TAMU); Joshua Tree National Monument, Quail Guzzler, Hanging Bait, E. L. Sleeper and S. L. Jenkins (TAMU); Los Angeles Co., Eaton Canyon Park, 8 August 1972, P. H. Sullivan and K. Nickel (TAMU); Nevada Co., Grass Valley, 19 July 1991, S. Miller (4, JAGC); Santa Clara Co., Mt. Hamilton, August 1973, B. A. Tilden (BTC); Butte Co., Slaughterhouse Ravine, Magalia, off Lafayette Circle, 39.83861°N, 121.61694°W, July (various dates), A.B. Richards, MV light (23, ABRC); Mohave Co., Hwy 259 near mile 3, 2.1 km S. I-40, 35.16717°N, 113.88993°W, 1415 m, A.B. Richards (2, ABRC); Butte Co., Magalia: Slaughterhouse Ravine off Lafayette Circle, 39.8386°N, 121.6169°W, 23–27 July 2012 (and other dates), 730 m. AB Richards (10, EGCCRC); Madera Co., T65, R21E, 25SE, Lewis Cr., 10 April 1983 (2, TAMU); Santa Clara Co., Alum Rock Park, 20 July 1967 (4, TAMU); Kern Co., Erskine Cr., July 1979, J. Anderson (2, TAMU); **Arizona**: Oraibi, 10 August 1970, W. F. Chamberlain (2, TAMU); **Pinal Co.**, 12 mi. SE Oracle, 23 July 1973, D. G. Marqua (TAMU); **Gila Co.**, Pinal Mtns., Russel Gulch, 9 mi. SSW Midland City, 9 August 1987 (JGPC); Prescott, 29 July 1970, J. McCleve (TAMU); Gila Co., Sierra Ancha Mtns., 27 July 2003, F. W. Skillman, Jr. (FWSC); Gila Co., Pinal Mountains, Russell Gulch, 9 miles SSW Midland City, 9 August 1987 (JGPC); Gila Co., Fossil Creek @ old Power Plant, 21 August 2008, F. W. Skillman, Jr. (2, FWSC); Gila Co., Pinal Mtns., Jct. FS roads 55 and 651, 30 July 1994, uv lights, scrub oak zone, WB and BC Warner (FWSC); **Mohave Co.**, Hualapai Mtn. Road, mile 9, County Highway 147, SE Kingman, 10 August 2019, A.B. Richards, 35.12391°N, 113.91426°W, 1587 m, uv lights (2, ABRC); Mohave Co., Hualapai Mtn. Park, 7 July 1975, D. G. Marqua (TAMU); Mohave Co., Pinyon Pines Estates, Hualapai Mtns., 20–26 August 1978, F. Hovore (4, FSCA); Mohave Co., Pinyon Pines Estates, Hualapai Mtns., 5–6 August 1977, F. Hovore (SWLC); Mohave Co., Hualapai Mtns., 5 August 1978, E. Giesbert (FSCA); Mohave Co., Hualapai Mtns., Hualapai Mt. Pk., 27 July 1974, on *Purshia glandulosa*, G. H. Nelson (FSCA); **Pima Co.**, Baboquivari Mtns, 18 July 1999, F. W. Skillman, Jr. (FWSC); Gila Co., Mogollon Rim, See Canyon, 34.325° N, 111.015° W, 25 June 2020, mv/uv lights, J. T. Botz (1 male, SWLC); Santa Catalina Mtns., Bear Canyon, 24 July 1971, K. Stephan (FSCA); **Yavapai Co.**, Mayer, 19670 E. Juniper Dr., 3766 ft, 12S 397143 3797688 UTM, on wall, August 2018, P. Kaufman #14309 (ASUC); Globe, 8 July 1949, F. Werner, W. Nutting (UAIC); **Colorado**: Durango, 27 July, E. J. Oslar, Wickham Coll. (USNM); **Utah**: Parowan Mtns. (lectotype and paralectotype of *A. parowana*, USNM); Eureka (lectotype and paralectotypes of *A. testacea*, USNM); **San Juan Co.**, Moab, reared from *Rhus* sp., 22 November 2018, J. Vlasak (SWLC); 14 mi. S. Hanksville, Fairview Ranch, 21 July 1973, Robert

Gordon (USNM); Dividend, Tom Spalding, 7 August, Wickham Collection (2, USNM); **Nevada**: **Lincoln Co.**, Silver King Rd., 17.5 mi. W. US 93, 5714′, 15 August 2016, F. W. Skillman, Jr. and S. Lee (4, FWSC); **Douglas Co.**, North Minden, 5 July 1978, D. B. Thomas (TAMU).

Aneflomorpha linsleyae Chemsak

(Fig. 2a, 5j, 7j, 8i, 9i, 10j, 11c)

Aneflomorpha linsleyae Chemsak 1962: 105.

Diagnosis. Length 13–16 mm, pronotum averages 1.05 times longer than wide, elytra together average 3.30 times longer than wide (Fig. 2a). Integument rufous. Antennae carinate (Fig. 9i). Spine of third antennomere blunt or subacute, nearly 1.5 times longer than the second antennomere and spine of the fourth antennomere, projecting away from antennal plane by nearly 45 degrees (Fig. 9i). Pronotum with dense, mostly contiguous punctures of similar size and mostly unobscured by moderately dense, but fine and erect setae; very small post-median impunctate callus sometimes present (Fig. 5j). Elytral apices bidentate to weakly bispinose (Fig. 8i). Elytral pubescence consisting only of uniformly distributed, translucent or golden, erect setae, without recumbent setae (Fig. 7j). Procoxal cavities open by less than half the width of the broadly expanded prosternal process (Fig. 10j). Protibia flattened laterally and non-carinate (Fig. 11c).

Discussion. The light rufous integument with uniformly distributed, erect setae with absence of recumbent setae are distinctive for this species. Only the two species in the eastern United States, *A. delongi* and *A. subpubescens*, are similar in color and pubescence. *Aneflomorpha delongi* has a much longer spine of the third antennomere which is nearly half the length of the fourth antennomere (Fig. 9e) unlike *A. linsleyae* in which it is only about one-fourth the length of the fourth antennomere (Fig. 9i). The spine of antennomere three in *A. subpubescens* is acute and not strongly projecting away from the antennal plane (Fig. 9q), unlike *A. linsleyae*. *Aneflomorpha aculeata* is also similar in coloration and pubescence, but the presence of recumbent elytral setae (Fig. 7a) and protibial base not flattened (as in Fig. 11h) immediately distinguishes it from *A. linsleyae*.

Distribution and biology. This rarely encountered species is primarily restricted to the Chiricahua Mountains of southeastern Arizona (Chemsak 1962; Linsley 1963), although one specimen has been examined from the Patagonia Mountains. No larval hosts or adult associations have been documented; adults have been taken most commonly at lights at the Southwestern Research Station and the South Fork of Cave Creek in nearby Cave Creek Canyon and in Rucker Canyon in late July and August.

Material examined. USA: **Arizona**: Cochise Co., S. W. Res. Sta. 27 July 1976, Lester L. Lampert, U.V. light (RFMC); Cochise Co., Cave Creek Canyon, South Fork Cave Creek, 1610 m, 31° 52.377′ N, 109° 11.059′ W, 16 July 2018, mv/uv lights, S. W. Lingafelter (SWLC); Cochise Co., Southwestern Research Station, 1645 m, 31° 53.006′ N, 109° 12.355′ W, 7–16 August 2018, mv/uv lights, S. W. Lingafelter (SWLC); Cochise Co., John Hands Picnic Area, 1700 m, 31° 52′ 44″N, 109° 13′ 18″W, 24 July 2022, mv/uv lights, S. W. Lingafelter (2, SWLC); Cochise Co., Paradise Rd. & Forest Rd 42 near East Turkey Creek, 1955 m, 31.908710°, −109.251056°, 9 August 2018, mv/uv lights, S. W. Lingafelter (SWLC); Cochise Co., Red Rock Canyon Trail, Rucker Canyon, F. W. Skillman, Jr. (FWSC); Chiricahua Wilderness, Pinery Canyon, 16 July 2009, W. Seifert (TAMU); Santa Cruz Co., 10 mi. S. Patagonia, 31.4585°, −110.7281°, 2 August 2019, at light, Kyle E. Schnepp (KESC).

Aneflomorpha luteicornis Linsley

(Fig. 2b, 5k, 7k, 8j, 9j, 10k)

Aneflomorpha luteicornis Linsley 1957: 285.

Diagnosis. Length 12–16 mm, pronotum averages 1.08 times longer than wide, elytra together average 3.41 times longer than wide (Fig. 2b). Integument brunneous except for pale testaceous antennomeres beyond scape, tibiae, and femoral bases. Antennae carinate (Fig. 9j). Spine of third antennomere distinctly longer than second antennomere and spine of fourth antennomere, projecting away from antennal plane by about 30 degrees, acute at apex (Fig. 9j). Pronotum with large, mostly separate punctures partially obscured by recumbent white to ochre pubescence; often with small impunctate, post-median callus (Fig. 5k). Elytral apices truncate or weakly bidentate (rarely rounded apicolaterally) (Fig. 8j). Elytral pubescence white or off-white, recumbent and recurved, with scattered long erect to suberect setae, especially at base (Fig. 7k). Procoxal cavities open by more than the apical width of the weakly expanded prosternal process (Fig. 10k). Protibia slender, gradually widening apically with the dorsal margin straight and non-carinate (as in Fig. 11b).

Discussion. Like *A. gilana*, the highly contrasting, lighter colored antennal flagellomeres and tibiae compared to the darker scape and femoral apices are very distinctive for *A. luteicornis*. These contrast much more than in *A. gilana* which has rufous integument (Fig. 1h) unlike *A. luteicornis* which has dark brown integument (Fig. 2b). The spine of antennomere three is distinctly longer than antennomere two in *A. luteicornis* (Fig. 9j), unlike that in *A. gilana* (Fig. 9g). The pronotum is slightly longer than wide in *A. luteicornis* (Fig. 5k), but slightly broader than long in *A. gilana* (Fig. 5h). The elytral pubescence in *A. gilana* has almost no erect setae (Fig. 7h) and has primarily recumbent setae, while in *A. luteicornis*, erect setae are abundant at the elytral base (Fig. 7k), in addition to recumbent setae.

Distribution and biology. Although this species is widespread in the mountains of southeastern Arizona and southwestern New Mexico, it is not as commonly collected as other species that are found at lower elevations (pers. obs.; Linsley 1963). No larval hosts were established until Vlasak in Heffern et al. (2018) collected larvae in living, girdled terminal branches of *Q. hypoleucoides* A. Camus from the Santa Catalina Mountains, Pima County, and other locations in southeastern Arizona. Confirming this host, another specimen from the Hopkins rearing material from "Chiricahua, New Mexico", reared from *Q. hypoleucoides*, was identified in the USNM collection. One adult specimen was collected beating *Cercocarpus breviflorus* A. Gray at over 2000 meters in Cochise Co., Arizona.

Material examined. USA: **Arizona: Graham Co.**, Pinaleno Mtns., Arcadia Campground, 6600′, 19–20 July 2014, J. E. Wappes (SWLC); **Pima Co.**, Santa Catalina Mt., M. Gulch, reared 5 June 2017 from girdled *Q. hypoleucoides*, J. Vlasak (SWLC); Madera Canyon, Roundup, 3 August 2007, Pat Sullivan (PSIC); **Cochise Co.**, Chiricahua Mtns., Onion Saddle, 22–23 July 2001, D. A. Hildebrandt (RAAC); Cochise Co., Mule Mountains, Juniper Flats Road, 5.1 km NW of Highway 80, 2155m, 31° 28.990′ N, 109° 57.545′ W, 29 July 2021, N. E. Woodley, beating *Cercocarpus breviflorus* (SWLC); Cochise Co., S. W. Res. Sta. 20 July 1976, Lester L. Lampert (RFMC); Cochise Co., Carr Peak, 7125′, 7 July 1976, D. G. Marqua (TAMU); Cochise Co., Carr Peak, 5 July 1974, D. G. Marqua (5, TAMU); Cochise Co., Dragoon Mtns., Cochise Stronghold, 24 July 1979, D. G. Marqua (TAMU); Cochise Co., Texas Canyon, 5300′, 12 August 1974, McCleve (TAMU); Cochise Co., Copper Canyon, 16 July 1977, S. McCleve (TAMU); Cochise Co., near Rucker Lake, 10 July 1974, S. McCleve (2, TAMU); Cochise Co., Pinery Canyon Road, 6100′, at light, 24 July 2010, Kyle E. Schnepp (KESC); **Santa Cruz Co.**, Madera Canyon, 1 September 1978, L. L. Lampert, Jr. (RFMC); Santa Cruz Co., SR 19 and Peck Canyon Road, 23 June 2001, F. W. Skillman, Jr. (FWSC); Santa Cruz Co., Madera Canyon, 5100′, Bog Spring Campground, Santa Rita Mtns., D. Davis, 10–26 July 1964 (3, USNM); Tumacacori Mtns, Bear Valley, Werner & Nutting, 20 August 1949, Parker Collection (UAIC); Santa Rita Mtns., Madera Canyon, 4 July 1976, D. G. Marqua (2, TAMU); Santa Rita Mtns., Madera Canyon, 29 July 1971, D. G. Marqua (8, TAMU); Santa Cruz Co., Montosa Canyon, 6600′, 6 August 1977, D. G. Marqua (2, TAMU); Santa Cruz Co., Atascosa Mtns., Sycamore Canyon, 12 July 1977, at light, S. McCleve (TAMU); Santa Cruz Co., Atascosa Mtns., Sycamore Canyon, 16 July 1974, D. G. Marqua (2, TAMU); Santa Cruz Co., Madera Canyon, upper parking lot, 31.71301°N, 110.87368°W, 1603m, blacklight, 21 July 2017, EG Chapman, AB Richards (EGCCRC); **New Mexico**: Chiricahua, reared from *Quercus hypoleucoides*, Hopkins 37220-V, W. M. F., collector (USNM); Peloncillo Mtns., Black Dam, D. Sundberg, 21 July 2004 (DJHC); **Grant Co.,** Mimbres Mtns., 2 km W. Emory Pass, Iron Creek Camp, 2090 m., 31 July 1991, M. Daman, R. Davidson, M. Klingler, W. Zanol, J. Rawlins (CMNH); **Mexico: Sonora (new state record):** Sierra la Mariquita: 9.4 km NNW Cananea, Vic. Obs. Astrofisico, 2422m: 2 Aug. 2013, Van Devender & Palting (7, ASUC); Rancho el Jaraza, 22 km N. Narcozari de Garcia, 1595m, Van Devender & Palting; Sonora: San Luis Mtns., 31 June 1988, D. Barker (TAMU).

Aneflomorpha minuta Chemsak

(Fig. 2c, 5l, 7l, 8k, 9k, 10l, 12c, d)

Aneflomorpha minuta Chemsak 1962: 103.

Diagnosis. Length 7–13 mm, pronotum averages 1.11 times longer than wide, elytra together average 3.47 times longer than wide (Fig. 2c). Integument dark rufous to piceous. Antennae weakly carinate (Fig. 9k). Spine of third antennomere at least one and one-half times longer than second antennomere and spine of fourth antennomere, projecting away from antennal plane by nearly 45 degrees, subacute at apex (Fig. 9k). Pronotum with pronounced punctures, dense and unobscured by fine, recumbent pubescence; often with small, linear, impunctate, post-median callus (Fig. 3l). Elytral apices truncate to very weakly bidentate (Fig. 8k). Elytral pubescence white or off-white, recumbent and recurved, with very few scattered long erect to suberect setae (Fig. 7l). Procoxal cavities nearly closed to open by less than half the width of broadly expanded prosternal process (Fig. 10l). Protibia slender, gradually widening apically with the dorsal margin straight and non-carinate (as in Fig. 11h).

Discussion. This species is most similar to *A. crypta*, n. sp., and *A. cazieri* due to its small size and proportions. The relatively smooth, sparsely punctate and rugose gula distinguishes *A. crypta* (Fig. 12a) from *A. minuta* which has the gula densely punctate (Fig. 12c). The pronotum of *A. minuta* usually has a more prominent, shiny impunctate post-median callus (Fig. 5l) unlike *A. crypta* which has, at most, a small, irregular post-median impunctate region (Fig. 5e). The anterior margin of the mesosternum is undivided in *A. crypta* (Fig. 12b) and divided in *A. minuta* (Fig. 12d). Available specimens of *A. minuta* have pale testaceous legs (Fig. 2c) that are distinctly lighter in color from the venter unlike *A. crypta* which has rufous legs that are very similar to the overall ventral coloration (Fig. 1e). The spine of the third antennomere in *A. crypta* (Fig. 9d) is more acute at the apex than in specimens examined of *A. minuta* (Fig. 9k). The leg color and antennal spine characters should be used with caution since larger series could reveal variability as has been seen in some specimens of other species. This species might also be confused with small examples of *A. rectilinea*, but it can be distinguished easily by the weakly carinate antennae (Fig. 9k) which are prominently carinate in *A. rectilinea* (Fig. 9o). Further, most *A. rectilinea* have strongly bidentate or weakly bispinose elytral apices unlike *A. minuta* which have the apices truncate to weakly bidentate. *Aneflomorpha minuta* resembles *A. cazieri*, but the longer blunt spine of the third antennomere of most *A. cazieri* immediately distinguishes them from *A. minuta* which has a shorter, subacute spine. For those specimens of *A. cazieri* without a noticeably blunt spine on antennomere three, the presence of basal antennal carinae, lighter colored, pale testaceous legs, and more closed procoxal cavities in *A. minuta* will help distinguish it from *A. cazieri* which lack antennal carinae (Fig. 9b), have more open procoxal cavities (Fig. 10c), and have darker rufous legs (Fig. 1c).

Distribution and biology. This species was described from the Baboquivari Mountains, Arizona (Chemsak 1962) and is primarily restricted to Pima and Santa Cruz counties from those mountains to the western and southern Santa Catalina and Santa Rita Mountains. All specimens have been attracted to lights in July and August and no larval hosts are recorded. Sonora, Mexico, represents a new state record and the southernmost collection locality for this species.

Material examined. Mexico: Sonora (new state record): Cholla Bay, 14 June 1968; USA: **Arizona**: Baboquivari Mts., Brown′s Cn., 3800 ft, 28 July 1949, F. Werner, W. Nutting, sycamore-oak-mes. (holotype, CASC); Tucson Mtns., Picture Rock Pass, 25 July 1961, uv light, Werner, Nutting (Paratype, UAIC); **Pima Co.**, Baboquivari Mountains, Brown Canyon, 31° 46.179′ N, 111° 33.039′ W, 1220 m, 20 July 2018, mv/uv lights, S. W. Lingafelter (3, SWLC); Pima Co., Baboquivari Mountains, Brown Canyon, 31° 45.759′ N, 111° 32.329′ W, 1175 m, Harm House, 1–2 August 2021, mv/uv lights, S. W. Lingafelter (5, SWLC); Baboquivari Mtns., 18 July 1999, F. W. Skillman, Jr. (FWSC); Pima Co., Continental, July, 1974, Dr. Lenczy (USNM); Pima County, 3 mi. NE Madera Canyon Road, 23 July 2016, J. E. Wappes (FSCA); Pima Co., Sabino Canyon, 25 July 1973, F. T. Hovore (2, FSCA); Pima Co., Baboquivari Mtns., Sabino Canyon, 1143 m, 31 July 1979, Scott McCleve (2, TAMU); Pima Co., Baboquivari Mtns., Baboquivari Camp, 17 July 1972, D. G. Marqua (6, TAMU); Pima Co., Canoa Ranch Rest Area on I-19, 31.76550°N, 111.03491°W, 933 m, 18 -21 July 2017, EG Chapman, AB Richards (5, EGCCRC); Pima Co., Canoa Ranch Rest Area on I-19, 31.76550°N, 111.03491°W, 933 m, 31 July 2019, EG Chapman, P. Baker, JM Leavengood (2, EGCCRC); Pima Co., Canoa Ranch Rest Area, I-19 at exit 52, 18–21 July 2017, A.B. Richards and E. G. Chapman, 31.76550°N, 111.03491°W, 933m (3, ABRC); Santa Rita Mtns., Madera Canyon, 6 July 1974, D. G. Marqua (TAMU); **Santa Cruz Co.**, Peña Blanca Campground, 21 July 1989, G. H. Nelson (FSCA); Santa Cruz Co., Gardner Canyon, 9 July 1976, D. G. Marqua (2, TAMU); Santa Rita Mtns., Madera Canyon, Charcoal Pits, 16 July 1978, D. G. Marqua (TAMU); Santa Cruz Co., Rio Rico, 22 July 1971, D. G. Marqua (TAMU); Santa Cruz Co., Peña Blanca, 3780′, 26 July 2010, at light, Kyle E. Schnepp (KESC).

Aneflomorpha rectilinea Casey

(Fig. 1d, 2h, 5d, 6q, r, 7d, q, r, 8c, o, p, 9c, o, 10d, q, r, 11f, h, 16e)

Aneflomorpha rectilinea Casey 1924: 243.
Aneflomorpha spinicornis Linsley 1935: 147. Synonymy by Linsley (1963: 49).
Aneflomorpha duncani Linsley 1936: 472. Synonymy by Linsley (1963: 49).
Aneflomorpha citrana Chemsak 1960: 49. **New synonym**.

Diagnosis. Length 9–19 mm, pronotum averages 1.17 times longer than wide, elytra together average 3.71 times longer than wide (Fig. 1d, 2h). Integument dark testaceous, brunneous to piceous. Antennae moderately to strongly carinate (Fig. 9c, o). Spine of third antennomere about twice length of second antennomere and spine of fourth antennomere, projecting away from antennal plane by nearly 45 degrees, acute at apex (Fig. 9c, o). Pronotum with dense punctures partially obscured by recumbent setae, lacking impunctate, median callus (Fig. 5d, 6q, r). Elytral apices bidentate or weakly bispinose (Fig. 8c, o, p). Elytral pubescence white or off-white, mostly recumbent and recurved, with a few scattered long erect to suberect setae (Fig. 7d, q, r). Procoxal cavities closed or nearly closed by broadly expanded prosternal process (Fig. 10d, q, r). Protibia slender, gradually widening apically with the dorsal margin straight and non-carinate (Fig. 11f, h).

Discussion. This is the widest ranging (central Mexico to Colorado), most commonly collected, and most morphologically variable species of *Aneflomorpha* (Linsley 1963; Heffern 1998; Bezark 2022). The pronounced spine on antennomere three that usually extends away from the antennal plane by 45 degrees, the pronounced antennal carina on the basal antennomeres, the closed or nearly closed procoxal cavities by the broadly expanded apex of the prosternal process, the protibiae not flattened and without a basal carina, and the uniform testaceous, brunneous, to piceous coloration with often gradually darker elytral apices and abdominal sternites aid to distinguish this widespread southwestern United States and northern Mexico distributed species.

Examination of the holotype of *A. citrana* (Fig. 1d) has not revealed any distinguishing characteristics that would exclude it from *A. rectilinea*, and therefore, I consider it a **new synonym**. Despite Linsley (1963) stating that *A. citrana* differs "in its smaller size and paler color", the size range given is well within the size range given for *A. rectilinea*. Linsley further states that the color of *A. citrana* is variable, "ranging from brownish-testaceous to dark brown" which clearly places it within the color variation of *A. rectilinea* and somewhat contradicts the previous statement of it having a "paler color". The records of larval development within non-native trees is most likely just a consequence of the highly polyphagous and opportunistic nature of the adults ovipositing on any suitably sized branch (see discussion of biology with wide range of hostplants below).

The rarely collected *A. seminuda* is similar, but differs by lacking basal antennal carinae (Fig. 9p); has the spine of the third antennomere only a little longer than the second antennomere and the spine of the fourth antennomere, and not projecting from the antennal plane by more than 35 degrees; has the pronotum as wide as long (Fig. 6s); has more uniform rufous coloration without darkening of elytral apices or abdominal sternites (Fig. 2i, 16f), and has less elongate and narrow proportions than the average *A. rectilinea*. Small specimens of *A. rectilinea* can resemble *A. minuta* and *A. crypta*, but the pronounced basal antennal carinae (less pronounced in *A. minuta* and *A. crypta*, Fig. 9d, k, respectively) and bidentate to bispinose elytral apices of *A. rectilinea* (truncate or very weakly bidentate in *A. crypta* and *A. minuta*, Fig. 8d, k, respectively), will distinguish it from them. Most specimens of *A. rectilinea* have the pronotal punctures partially obscured by relatively thick, white appressed pubescence unlike *A. crypta* and *A. minuta* which have them mostly unobscured by setae. A further character that distinguishes *A. rectilinea* from *A. crypta* is the anterior collar of the mesosternum which is divided in *A. rectilinea* (Fig. 12e) and undivided in *A. crypta* (Fig. 12b), however this character usually requires partial disarticulation.

From *A. yumae* it is distinguished by having the protibia not carinate at the base and gradually widening toward the apex (Fig. 11a, h) and having recurved, recumbent setae that are less dense than in *A. yumae*. In *A. yumae*, the protibia is flattened and bulging at the base, carinate dorsally, and slightly narrowing medially or straight to apex (Fig. 11j) and the setae are denser, whiter, and more appressed (Fig. 7x).

Distribution and biology. This is the most widespread and most polyphagous species of *Aneflomorpha* (Linsley 1963; Heffern et al. 2018; Bezark 2022). The species is known from west Texas through New Mexico, Arizona, and northern Mexico, most commonly at elevations below 1700 meters (pers. obs., Linsley 1963). Specimens can be abundant at lights after the monsoon rains begin in this area. Documented larval hosts include many species of *Quercus*, *Rhus virens*, *Mimosa dysocarpa* (J. Vlasak, pers. comm.), as well as all the hosts documented for specimens previously called *A. citrana* including *Citrus*, *Prunus*, *Morus*, *Ficus*, *Euonymus*, *Gossypium thurberi*, (Linsley 1963; D. Heffern, J. Vlasak, pers. comm.). Specimens have been collected from *Baccharis sarothroides* A. Gray (pers. obs.). The new synonym, *A. citrana*, was described by Chemsak (1960) from specimens that were collected by P. D. Gerhardt in August from orange trees in Tempe, Arizona. Upon examination of dead and dying branches of approximately 0.25 inches diameter, larvae of this species were discovered internally girdling them (Gerhardt 1961). Gerhardt speculated that other native trees must serve as the natural larval host for *A. citrana* since *Citrus* trees are not native to the United States. Specimens identified as *A. citrana* by J. Vlasak were reared from *Indigofera sphaerocarpa* A. Gray (Fabaceae) and *Rhus aromatica* Aiton (Anacardiaceae) (Heffern et al. 2018).

Material examined. USA: **California:** Joshua Tree National Monument, Pleasant Valley, Liver Wash, 15 July 1965, blacklight, E. L. Sleeper and S. L. Jenkins (TAMU); **Arizona**: Tucson (lectotype and paralectotype, USNM); **Santa Cruz Co.**, 14 mi. SE Patagonia, 19 July 1978, D. G. Marqua (TAMU); Santa Cruz Co., Peña Blanca Lake, 19 July 2001, J. A. Green (3, JAGC); Santa Cruz Co., Sonoita, 2 km S. Town Center, 31°38′N, 110°39′W, 1–21 July 2014, Malaise Trap, EE Grissell (3, EGCCRC); Santa Cruz Co., Patagonia Mtns., Harshaw Creek, 1577 m, 1 August 1979, at lights, S. McCleve (TAMU); Santa Cruz Co., Sycamore Canyon, Atascosa Mtns, 4200′ el, MV light, 29 July 1998 (ASUC); Santa Cruz Co., Patagonia, 4800′, July 14, 1990 (ASUC); Coconino Co., Sedona, at light (ASUC); Santa Cruz Co., Patagonia, 1615 m, 31° 23.667′ N, 110° 41.325′ W, 11 July 2020, mv/uv lights, Jason T. Botz (SWLC); Santa Cruz Co., Gardner Canyon Road, 5.5 km W of Highway 83, 1500 m, 31.721° N, 110.718° W, 17 July 2020, mv/uv lights, Jason T. Botz (SWLC); Santa Cruz Co., Finley & Adams Canyon, 1255 m, 31° 32.432′ N, 110° 43.882′ W, 24 July 2020, mv/uv lights, Jason T. Botz (SWLC); Santa Cruz Co., Rio Rico, 1056 m, 31° 28′ 8″ N, 110° 58′ 24″ W, 1 July 2016, mv/uv lights, S.W. Lingafelter (SWLC); Nogales, reared from peach twig, #38743 (USNM); Santa Cruz Co., Santa Rita Lodge, Madera Canyon, 13–15 July 1988 (2, ASUC); Santa Cruz Co., Madera Canyon, 16 July 2004, D. Hidebrant (FWSC); **Mohave Co.**, Hualapai Mtn. Road, mile 9, County Highway 147, SE Kingman, 10 August 2019, A.B. Richards, 35.12391°N, 113.91426°W, 1587 m, uv lights (ABRC); Mohave Co., Pinyon Pines Estates, Hualapai Mtns., 20–26 August 1978, F. Hovore (4, FSCA); Mohave Co., Cerbat Mntns, 1430 m, 35.4639°, 114.1935°, 7 July 2015, M. A. Johnston (ASUC); Mohave Co., Burro Creek Campground, 16 mi. S. Wikieup, 2000 ft, 31 August 1991, L. Stange & R. Miller (2, RFMC); **Cochise Co.**, Hunter Canyon, rd. off Hwy 92, Huachuca mtns., 19 July 2017, A.B. Richards and E. G. Chapman, 31.40302°N, 110.25319°W, 1609m (ABRC); Cochise Co., 5 mi. W. Portal, S.W.R.S., 5400′, 1 August 1966, Bruce A. Tilden (BTC); Cochise Co., Dragoon Mtns., Cochise Stronghold, 19 July 1972, D. G. Marqua (6, TAMU); Pinal Co., 7.5 mi. SW Oracle, 20 July 1973, D. G. Marqua (8, TAMU); Cochise Co., nr. SW Research Station, Cave Creek Canyon, 5650′, 31°53k′38″N, 109°12′53″W, 6 August 2003, uv light, E. Riley (2, EGRC); Cochise Co., Hunter Canyon, on *Baccharis*, 31.40302°N, 110.25319°W, 1609m, 18–19 July 2017, EG Chapman, AB Richards (2, EGCCRC); Cochise Stronghold, 11–15 July 2012, sweetbait trap, F.W. Skillman, Jr. (5, FWSC); Cochise Co., Peloncillo Mtns., 33 mi. east Douglas, 17 July 1973, at light, Scott McCleve (8, TAMU); Graham Co., east end of Aravaipa Canyon, 24–25 July 1974, at light, Scott McCleve (3, TAMU); Cochise Co., Huachuca Mtns., Copper Canyon, 1764 m, 11 July 1978, Scott McCleve (4, TAMU); Cochise Co., Guadalupe Canyon, 2 August 1969, R. J. and J. W. Smith (TAMU); Douglas, 11 July 1973, Scott McCleve (TAMU); San Bernardino Ranch, 14 July 1975, at light, S. McCleve (TAMU); Cochise Co., San Pedro River, Gray Hawk Ranch, 1223 m, 31° 36.215′ N, 110° 09.201′ W, 6 August 2020 (7, SWLC); Cochise Co., Carr Canyon Road just W of Carr House, 1710 m, 31° 26.574′ N, 110° 17.190′ W, 13 July 2021, mv/uv lights (SWLC); Cochise Stronghold, 29 September 2008, Skillman and Turnbow (FWSC, 8); Cochise Co., Mule Mtns., 3.5 km NW Bisbee, 1680 m, 31° 28.161′ N, 109° 58.020′ W, 28 July 2020 (SWLC); Cochise Co., 2 miles East Tombstone, August 5, 1992, R. W. Duff (DJHC); Cochise Co., Copper Canyon, lower 0.75 km of trail, 1850–1950 m, 31° 21.8′ N, 110° 17.8′ W, 27 July 2021, beating *Quercus*, S. W. Lingafelter (SWLC); Cochise Co., Hunter Canyon trail at parking area, 1630 m, 31° 24.344′ N, 110° 15.417′ W, 25 July 2020, mv/uv lights, S. W. Lingafelter (SWLC); Cochise Co., Geronimo Trail, 11.3 km E of Douglas, 1320 m, 31° 21.042′ N, 109° 23.920′ W, 16 July 2017, On *Baccharis sarothroides* A. Gray, S. W. Lingafelter (SWLC); Cochise Co., Southwestern Research Station, 1645 m, 31° 53.006′ N, 109° 12.355′ W, 9–18 August 2019, mv/uv lights, S. W. Lingafelter (SWLC); Cochise Co., Southwestern Research Station, 5.5 mi. SW Portal, 5400′, 31° 52′ 59″ N, 109° 12′ 19″ W, 16 July 2001, at lights, S. W. Lingafelter

(SWLC); Cochise Co., Hereford, 8920 S. Bryerly Ct., N 31° 24′ 14″, W 110° 13′ 52″, 1500m, 17–19 July 2017, mv/uv lights, S. W. Lingafelter (3, SWLC); Cochise Co., Huachucas, Miller Canyon, 6000′, 31° 24′ 40″ N, 110° 16′ 52″ W, 17 July 2001, blacklighting, S. W. Lingafelter (5, SWLC); same, but on *Mimosa* (2, SWLC); Cochise Co., Cave Creek Canyon, Cathedral Vista parking area, 1546 m, 31° 53′ 21″ N, 109° 10′ 9″ W, 16 August 2016, mv/uv lights, S. W. Lingafelter (SWLC); Cochise Co., Basin Trail, Greenhouse Canyon, 1885 m, 31° 52.833′ N, 109° 14.350′ W, 27 July 2020, mv/uv lights, S. W. Lingafelter (SWLC); Cochise Co., east side of Whetstone Mtns., 0.7 mi. W of AZ90, 10.5 mi. N. jct AZ82, 10 July 1993, uv light, W. B. Warner (SWLC); Cochise Co., San Bernardino Wildlife Refuge, 1141 m, 31° 20′ 35.96″ N, 109° 15′ 50.67″ W, 25 July 2017, mv/uv lights, S. W. Lingafelter (SWLC); Cochise Co., west slope of Dragoon Mountains, 20.5 km NE of highway 80, 1695 m, 31° 53.483′ N, 109° 57.750′ W, 3 July 2018, mv/uv lights, S. W. Lingafelter (SWLC); Cochise Co., Cave Creek Canyon, South Fork Cave Creek, 1610 m, 31° 52.377′ N, 109° 11.059′ W, 16 July 2018, mv/uv lights, S. W. Lingafelter (SWLC); Cochise Co., 2 miles E. Tombstone, 5 August 1992, R. Duff (2, DJHC); Cochise Stronghold, 18 July 2004, D. Hildebrant (FWSC); **Pima Co.**, Canoa Ranch Rest Area, I-19 at exit 52, 21 July 2017, A.B. Richards and E. G. Chapman, 31.76550°N, 111.03491°W, 933m (ABRC); Pima Co., Lower Tanque Verde Canyon Trailhead, parking area, 3100′, 32.25465°N, 110.66471°W, 18 July 2012, E. Riley (6, EGRC); Pima Co., 4 mi. S. Arivaca, Fraguita Wash, 10 July 1977, lite, S. McCleve (TAMU); Santa Rita Mtns., Madera Canyon, July, 1971 (3, TAMU); Pima Co., Baboquivari Mtns., Baboquivari Camp, 25–26 July 1973, D. G. Marqua (10, TAMU); Pima Co., Baboquivari Mtns., Baboquivari Camp, 17 July 1972, D. G. Marqua (3, TAMU); Pima Co., Sabino Canyon, 20 July 1976, Mercury vapor light, F. T. Hovore (5, FSCA); Pima Co. 9 mi. NE Arivaca, 14 July 1993, F. W. Skillman, Jr., mv/uv lights (3, ASUC); Pima Co., Proctor Road, Madera Canyon, on *Baccharis*, 17 July 1995 (ASUC); Pima Co., Sabino Canyon, reared from *Gossypium thurberi*, em. July 2017, J. Vlasak (SWLC); Pima Co., Lower Madera Canyon, 4 July 2021, in *Mimosa dysocarpa*, J. Vlasak (SWLC); Pima Co., Baboquivari Mountains, Brown Canyon, Harm House, 1175 m, 31° 45.759′ N, 111° 32.329′ W, 1 August 2021, mv/uv lights, S. W. Lingafelter (4, SWLC); Pima Co., Organ Pipe Mon., uv light, 20 September 1971, M. Druckenbrod (USNM); Pima Co., Highway 62, west end of Box Canyon, 1332 m, 31,799° N, 110.798° W, 25 July 2020, mv/uv lights, Jason T. Botz (SWLC); Pima Co., Madera Canyon, 23–24 July 1971, F. Hovore (SWLC); **Yavapai Co.**, McGuireville Rest Area, NB I-17, exit 296, 15–23 July 2017, A. B. Richards, 34.67240°N, 111.77310°W, 1147 m (2, ABRC); Yavapai Co., Prescott, August 6, 1962 (DJHC); **Graham Co.**, AZ 366, 7.6 mi. from US 191, 32.66611°N, 109.79866°W, 1625 m, blacklight, 17 July 2017, EG Chapman, AB Richards (EGCCRC); Graham Co., Turkey Creek, 1 mi. S. Aravaipa Creek, 11 August 1975, Scott McCleve, at light (4, TAMU); **Pinal Co.**, Oracle, 20 July 1973, D. G. Marqua (3, TAMU); Pinal Co., Oak Flat Campground, August 7, 2013, R. Cunningham (DJHC); **Gila Co.**, Cherry Creek, 6 August 1977, at light, 2000′, Scott McCleve (TAMU); Gila Co., Oak Flat Campground, 19 July 1978, D. B. Thomas (TAMU); Tempe, 5 Aug. 1956, P. D. Gerhardt, On Citrus (holotype of *A. citrana*, CASC); **Coconino Co.**, Stoneman Lake, July 31, 1971, R. Dunn (DJHC); **La Paz Co.**, Harquahala Peak Summit, 5675′, Alcohol traps, 12S 282807 3743754 UTM, 6 July – 26 October 2019, P. Kaufman (5, ASUC; 2, FWSC); **New Mexico**: **Grant Co.**, Bayard, 5880′, 9–11 August 1979, C. D. Ferris (2, TAMU); **Hidalgo Co.**, Animas Mtns., Indian Creek, 5–6 August 1979, Scott McCleve (TAMU); Hidalgo Co., Granite Gap, 19 mi. N. of Rodeo, 32° 05′ 15″ N, 108° 58′ 34″ W, 4400′, blacklighting, 22 July 2001, S. W. Lingafelter (3, SWLC); **Eddy Co.**, Carlsbad National Monument, Rattlesnake Springs, 13–15 July 1968, D. G. Marqua (2, TAMU); **Catron Co.**, MP 12.25 of NM Rt 12, N. Reserve, MV trap, N33.7769°, W 108.7134°, D.E. Bowman (SWLC); **Luna Co.**, Rock Hound S. P., 14 mi. SE Deming, 1 August 1989, John B. Heppner (FSCA); **Texas: Crosby Co.**, 8 mi. E. Crosbyton, 4 August 1980, Marlin E. Rice (3, TAMU); **Dickens Co.**, 7 mi. W Dickens, 5 July 1981, reared from *Rhus aromatica*, Marlin Rice (FSCA); **Brewster Co.**, Chisos Mtns. Basin, 29–31 July 1984, lights, M. E. Rice (2, TAMU); Brewster Co., Big Bend National Park, North Rosillos Mtns. Lodge at Butrill Spring, 12 July 1991, R. Vogtsberger, uv/mv light (3, TAMU); Brewster Co., Chisos Mtn. Basin, Panther Pass, June 22–23, 2001, C. S. Wolfe (DJHC); **Presidio Co.**, Big Bend Ranch State Park, Leyva Campground, uv light, 29.4766°, –103.9461°, 17 July 2021, E. Riley (1, DJHC); **Jeff Davis Co.**, Davis Mtns. Resort, 5800′ (Marqua Residence), UV, 30.62842°N, 104.08360°W, 4–5 July 2009, E and M. L. Riley (EGRC); Jeff Davis Co., Limpia Canyon, 27 June 1967, B. A. Tilden (2, BTC); Jeff Davis Co., Terlingua Ranch, Alpine, 29.45247°, –103.39288°, 23 July 2014, S. Lee, uv light trap (3, ASUC); Jeff Davis Co., 11 mi NE Ft. Davis Rt. 17, 30.68985°, –103.78919°; elev. 4491 ft; 21 July 2014, leg. S. Lee; uv/mv lights (UAIC); Jeff Davis Co., Davis Mountains Resort, July 1–2, 1995, D. J. Heffern, Co. (DJHC); Jeff Davis Co., Davis Mt. State Park, 18–21 July 1973, F. T. Hovore (SWLC); Jeff Davis Co., 5 mi. NW Fort Davis, August 7, 1988, R. S. Zack (DJHC); Jeff Davis Co., Livermore Ranch, Slickrock Canyon,1920 m, June 26, 2020, W. Godwin, B. Raber (DJHC); Jeff Davis Co., Davis Mtn State Park, July 11, 2001, D. Sundberg (DJHC); Jeff Davis Co., Davis Mountains, Boy Scout Road (FM1832), 1270 m, 30° 48.433′ N, 103° 54.650′ W, 13 August 2015, mv/uv lights, S. W. Lingafelter (4, SWLC); **Val Verde Co.**, 30 miles NNW Del Rio, vicinity of Gold Mine Canyon, 29.802° N, 100.937° W; 14–15 August 2021, 425 m., mv/uv lights, B. Raber and D. Heffern (9, DJHC); same but emerged from *Rhus virens*, June 2021; **Utah (new state record): Washington Co.,** New Harmony at Highway I-15, 31 August 2009, D. Cavan (DJHC); Washington Co., Zion National Park, 29 August 1941, M. Harris (CMNH); Zion National Park, 2000′, 15 July 1961, R. D. Ward (CMNH); **Mexico: Sonora:** San Felipe de Jesus, Rancho El Llano, Sierro Los Lochos, 29.8775° N, 110.3872° W, Oak Woodland, 1300m, 5 August 2019, Van Devender & Palting (2, ASUC); MX16 @ km 155, 5 July 2008, Skillman, C. O'Brien, Ribardo, at light (17, ASUC); 16 km SSE Nacozari de Garcia, la Zuelma, 15 July 2017, 1687 m, 30° 28′ N, 109° 56′ W, Van Devender/Palting (ASUC); Sonora: San Luis Mtns., 31 July 1988, D. Barker (2, TAMU).

Aneflomorpha seminuda Casey

(Fig. 2i, 6s, 7s, 8q, 9p, 10s, 11i, 16f)

Aneflomorpha seminuda Casey 1912: 294.

Diagnosis. Length 11–16 mm, pronotum as long as wide, elytra together 3.40 times longer than wide (Fig. 2i). Integument light testaceous. Basal antennomeres very weakly carinate (Fig. 9p). Spine of third antennomere slightly longer than second antennomere and spine of fourth antennomere, projecting away from antennal plane less than 35 degrees, acute at apex (Fig. 9p). Pronotum with dense punctures of uneven size and placement, some contiguous and others not; punctures mostly unobscured by fine, recumbent pubescence; some specimens with a very small impunctate, post-median callus (Fig. 6s). Elytral apices strongly bidentate and concave between projections (Fig. 8q). Elytral pubescence fine, translucent and off-white, recumbent and recurved, with a few scattered long erect to suberect setae (Fig. 7s). Procoxal cavities narrowly open by less than half the width of the broadly expanded prosternal process (Fig. 10s). Protibia slender, gradually widening apically with the dorsal margin straight and non-carinate (Fig. 11i).

Discussion. *Aneflomorpha seminuda* is most similar to *A. rectilinea* in size and coloration. *Aneflomorpha rectilinea* has prominent antennal carinae and a well-developed spine on the third antennomere (Fig. 9o). In *A. seminuda*, the antennal carinae are barely evident, the spine of the third antennomere is only a little longer than the second antennomere and the spine of the fourth antennomere, and it does not project from the antennal plane by more than 35 degrees (Fig. 9p). The pronotum in *A. rectilinea* is longer than wide (Fig. 6q, r), unlike that of *A. seminuda* which is about as wide as long (Fig. 6s). As discussed in the *A. rectilinea* account, most specimens of that species have gradual darkening of the elytral apices and/or sternites (Fig. 1d, 2h, 16d, e) unlike *A. seminuda* which has more uniform testaceous coloration without darkening of the elytral apices or abdominal sternites (Fig. 2i, 16f). Although *A. rectilinea* is highly variable, on average, that species has longer, narrower proportions (elytra averaging 3.7 times as long as wide) compared to *A. seminuda* (elytra 3.4 times as long as wide). Material of the common and widespread *A. rectilinea* (especially from Texas and Oklahoma) should be carefully reviewed for potential misidentified specimens of *A. seminuda*. Chemsak (1962) stated that *A. texana* (formerly *A. werneri*) is closely related to *A. seminuda*, but they share few similar features and *A. texana* is herein removed from synonymy. The mostly suberect setae of the pronotum and elytral base in *A. texana* and relatively sparse recumbent setae and presence of a well-developed antennal carina distinguishes it most easily from *A. seminuda* which has mostly recurved, recumbent pubescence (Fig. 7s) and lacks a distinct carina on the basal antennomeres (Fig. 9p). *Aneflomorpha seminuda* is similar to *A. fisheri*, but has more symmetrically bispinose elytral apices (Fig. 8q) unlike the apicolaterally dentate and suturally spinose apices of *A. fisheri* (Fig. 8f).

Distribution and biology. This species, known only from Texas, has likely been misidentified previously (e.g., Turnbow and Wappes 1978; Lingafelter and Horner 1993), so distribution records in southern and northern Texas, respectively cannot be confirmed.

Material examined. USA: **Texas** (no further data) (holotype, USNM); **Dickens Co.**, White River Res., Fermented Bait Trap, 11 July 1988, R. F. Morris (DJHC); Dickens Co., 7 mi. W. Dickens, 27–28 July 1981, Marlin E. Rice (2, TAMU); **Crosby Co.**, 8 mi. E. Crosbyton, 4 August 1980, Marlin E. Rice (3, TAMU); **Parker Co.**, Brazos River at Dennis, E. G. Riley, 24–25 June 1989 (EGRC).

Aneflomorpha subpubescens (LeConte)

(Fig. 3a, 6t, 7t, 8r, 9q, 10t, 16g)

Elaphidion subpubescens LeConte 1862: 41.

Diagnosis. Length 15–20 mm, pronotum averages 1.20 times longer than wide, elytra together average 3.88 times longer than wide (Fig. 3a). Integument mostly rufous, with head and pronotum usually distinctly darker testaceous. Antennae not or weakly carinate on basal antennomeres (Fig. 9q). Spine of third antennomere very narrow, slightly longer than second antennomere and spine of fourth antennomere barely projecting from antennal plane, acute at apex (Fig. 9q). Pronotum with pronounced punctures unobscured by pubescence, without median callus (Fig. 6t). Elytral apices usually bispinose with apicolateral spine much broader and longer than sutural spine (Fig. 8r). Elytral pubescence very fine, translucent or pale golden, erect and suberect, without recumbent and recurved setae (Fig. 7t). Procoxal cavities open by more than the apical width of the prosternal process (Fig. 10t). Protibia slender, gradually widening apically with the dorsal margin straight and non-carinate (as in Fig. 11h).

Discussion. This species, the type of the genus, is distinctive due to its large, uniform pronotal punctures, light rufous coloration with elytra usually lighter in color than the head and pronotum, and erect setae on the dorsal surface, without recumbent setae. This is one of only two species of *Aneflomorpha* known from the eastern United States (Lingafelter 2007; Bezark 2022), the other being *A. delongi* (Fig. 1f). Only these two species, along with *A. linsleyae* (Fig. 7j) from the Chiricahua Mountains in Arizona, lack short, recumbent elytral pubescence. *Aneflomorpha aculeata*, which is sympatric with *A. subpubescens* along the western part of *A. subpubescens* range, especially in Texas and Oklahoma, is similar, but has recumbent pubescence mixed with erect and suberect setae (Fig. 7a). These four species are also similar in having light rufous coloration over most of the integument. *Aneflomorpha subpubescens* is easily distinguished by the darker testaceous head and pronotum compared to the remainder of the integument which is rufous. In addition, its relatively short, acute spine on antennomere three (Fig. 6q) distinguishes it from *A. aculeata* which typically has a longer spine. In specimens where the antennal and elytral apical spines are not pronounced, the finer pronotal punctation and typically ochraceous pubescence on the scutellum in *A. aculeata* distinguish it from *A. subpubescens* which has larger pronotal punctures and typically fine, white scutellar pubescence (Fig. 6t). In *A. linsleyae*, the spine of antennomere three is subacute or blunt, and relatively longer, and the antennae are distinctly carinate (Fig. 9i). In *A. delongi* (Fig. 9e), the spine of the third antennomere is blunt and nearly half the length of the fourth antennomere. In *A. aculeata*, the spines of the third antennomere and elytral apices are typically very pronounced, and the integument coloration is more uniform rufous (Fig. 1a), not darker on the head and pronotum as in most *A. subpubescens*.

Distribution and biology. This species is widespread through much of the eastern half of the United States (Linsley 1963; Lingafelter 2007). Linsley (1963) and Lingafelter (2007) recorded *Quercus* (especially *Q. alba*) and *Castanea* as larval hosts. Vlasak in Heffern et al. (2018) recorded larvae in saplings of *Quercus ilicifolia* Wangenh, *Comptonia peregrina* (L.) J. M. Coult., and *Gaylussacia* sp. in Burlington and Camden counties, New Jersey. These observations support Craighead (1950) and Linsley (1963) which state that *A. subpubescens* rarely develops in branches of mature trees and favors seedlings up to one inch in diameter.

Material examined. USA: **Florida:** Flagpond, 3 mi. S. Kenwood Beach, 24 June 1949, O. L. Cartwright (USNM); **Georgia: Dawson Co.**, Dawsonville, 9 June 1988, F. W. Skillman, Jr., mv/uv light (FWSC); **Virginia:** Lancaster Co., Davis Millpond, Rt. 616, N. Lancaster, 15 June 2005, C. M. and O. S. Flint, Jr. (USNM); Fauquier Co., Beloir, Dieke, June 30, 1941, at light (USNM); **Ohio:** Shawnee Forest, 15 July 1985 (TAMU); **Missouri: Callaway Co.**, Holts Summit, Camp Keown, June-July 1977, D. R. Gates (TAMU); **Tennessee:** Burrville, June 28, 1959, B. Benesh (USNM); Franklin Co., rest area along I-44, 21 June 2011, at light, Kyle E. Schnepp (KESC); **Washington, DC:** July 13, 1898, electric light, CE Burden Collection, acquired 1913 (USNM); **South Carolina: Greenville Co.**, Greenville, 11–28 June 1977, R. S. Peigler (2, TAMU); Pickens Co., Clemson, J. R. Ables, June 1974 (2, TAMU); **Kentucky: Madison Co.**, Forest on Horse Cove Road, 0.5 mi. E. SR 421, 37°34.30′N, 84°13.12′W, 16 June 2011, blacklight, E.G. Chapman and W. Wallin (2, ABRC, EGCCRC); **Oklahoma: Latimer Co.**, SW of Red Oak, June 2002, UV light, K. Stephan (TAMU).

Aneflomorpha tenuis (LeConte)

(Fig. 3b, 6u, 7u, 8s, 9r, 10u)

Elaphidion tenue LeConte 1854: 81.

Diagnosis. Length 12–15 mm, pronotum averages 1.30 times longer than wide, elytra together average 3.33 times longer than wide (Fig. 3b). Integument typically brunneous, sometimes rufous. Antennae not or inconspicuously carinate (Fig. 9r). Spine of third antennomere over twice the length of the second antennomere and nearly half the length of the fourth antennomere (Fig. 9r); projecting away from antennal plane by nearly 45 degrees, blunt at apex (Fig. 9r). Pronotum with small punctures throughout, except for narrow, elongate, impunctate median callus (Fig. 6u). Elytral apices truncate or rounded apicolaterally to a weakly dentate suture (Fig. 8s). Elytral pubescence white and translucent, with primarily erect and suberect setae and lacking recurved, recumbent setae (Fig. 7u). Procoxal cavities closed by broadly expanded prosternal process (Fig. 10u). Protibia slender, gradually widening apically with the dorsal margin straight and non-carinate (as in Fig. 11h).

Discussion. Although there are some exceptions, this species is typically darker brown and has a longer and narrower pronotum than most *Aneflomorpha*. It is unique in having the spine of the third antennomere very long (nearly half the length of the fourth antennomere), and blunt at the apex (Fig. 9r). *Aneflomorpha volitans* (LeConte) which is known only from Baja California, Mexico, is very similar in having an extremely long, blunt spine of antennomere three, however, most specimens of *A. volitans* are rufous in coloration rather than brunneous or testaceous as in *A. tenuis* and have widely open procoxal cavities unlike *A. tenuis* which has them closed (Fig. 10u). For similar species in the United States, only *A. cazieri* (Fig. 9b), *A. delongi* (Fig. 9e), and some *A. linsleyae* (Fig. 69) have a blunt spine on antennomere three. The latter two species are easily distinguished from *A. tenuis* by having only erect and suberect setae on the elytra, as well as having allopatric distributions with *A. delongi* (known only from Florida and Georgia) and *A. linsleyae* (known only from the Chiricahua Mountains in Arizona), while *A. tenuis* is known only from Texas. Specimens of *A. cazieri* are much smaller than *A. tenuis* and have open procoxal cavities (Fig. 10c) and have either a smaller or absent impunctate median callus (Fig. 5c) unlike *A. tenuis* which has closed procoxal cavities (Fig. 10u) and a pronounced median callus in most specimens (Fig. 6u).

Distribution and biology. This species is known from southern and western Texas and adjacent northern Mexico (Linsley 1963; Bezark 2022). Two records from Nuevo Leon (USNM) represent a new state record. Specimens have been mostly collected at lights from June through September. One specimen was collected from *Baccharis*. Linsley (1963) lists *Acacia* [now *Senegalia*] *farnesiana* as a larval host.

Material examined. USA: **Texas**: **Live Oak Co.**, 7 mi. SW George West, 21 September 2014, Skillman and Limon (8, FWSC); Live Oak Co., 4 mi. W. Three Rivers, 9 September 1994, D. J. Heffern (2, TAMU); Live Oak Co., 6 mi. S. George West, 20 September 2014, at light, Kyle E. Schnepp (4, KESC); **Duval Co.**, Freer, Monte Cortado Ranch, Barb Sutton, at light, 11 September 1977 (FSCA); **La Salle Co.**, Chaparral W. M. A., 19 August 2016, at light, Kyle E. Schnepp (3, KESC); **Val Verde Co.**, 30 miles NNW Del Rio, vicinity of Gold Mine Canyon, 29.802° N, 100.937° W; 3 May–5 June 2021, 407 m., uv light trap, B. Raber and D. Heffern (DJHC); **San Patricio Co.**, Lake Corpus Christi State Park, June 19, 1971, G. H. Nelson (FSCA); San Patricio Co., Lake Corpus Christi St. Pk. 15 June 1984, Marlin Rice (SWLC); San Patricio Co., Lake Corpus Christi St. Pk., 15 June 1984, Marlin E. Rice (6, TAMU); **Bexar Co.**, Babcock Road and Scenic Loop near San Antonio, G. H. Nelson, 7 July 1985, G. H. Nelson (FSCA); **Zavala Co.**, 9 mi. N. La Pryor Nueces River, 14 June 1994, sweeping mixed *Baccharis neglecta* and *salicifolia*, P. E. Boldt (USNM); **Zapata Co.**, Lopeno to Falcon, 3 September 1988, street lights, D. J. Heffern (JGPC); Zapata Co., Lopeno, 3 June 1984, Marlin E. Rice (TAMU); **Refugio Co.**, 5.5 mi. S. Woodboro, 14 June 1984, M. E. Rice (TAMU); **Webb Co.**, 1 mi. E. Mills Benet, 5 September 1982, R. M. Sprague (TAMU); Webb Co., 16 mi. W. Freer, 17 May 2008, W. Seifert (2, TAMU); **Dimmit Co.**, Texas Experimental Station light trap, S. E. Jones, 12 August 1933 (and many other dates) (9, TAMU); **Hidalgo Co.**, Bentson Rio Grande Valley State Park, 6 May 1989, E. G. Riley (TAMU); Hidalgo Co., Bentson Rio Grande Valley State Park, 17 May 1987, C. S. Wolfe (TAMU); **Howard Co.**, 30 July 2010, 2400′, at light, Kyle E. Schnepp (KESC); **Starr Co.**, Falcon Heights, May-June 1981, Marlin Rice (20, TAMU); Starr Co., near Falcon Heights, 3 September 1988, D. J. Heffern (2, TAMU); Starr Co., Falcon State Park, 2 September 1995, D. G. Marqua (2, TAMU); **Cameron Co.** 2 mi. N. Rio Hondo, 3 June 1984, J. A. Jackman (TAMU); Cameron Co., Laguna Atascosa NWR, 26.22375° 9735454° W, 4–19 September 2009, uv light, J.. King and E. G. Riley (2, TAMU); Cameron Co., 2.6 mi. E. Palmito Hill, 5 June 2009, Heffern and Riley (TAMU); **Mason Co.**, 2 mi. W. Castell, 15 June 1991, D. W. Sundberg (TAMU); Mason Co., Stein Ranch, west of Castell, 14 June 1996, C. Wolfe and D. Marqua (TAMU); **Nolan Co.**, 9 mi. S. Sweetwater, 2 September 2001, W. Seifert (TAMU); McMullen Co., 21 mi. N. Freer, 1 June 1997, C.S. Wolfe, D. G. Marqua (TAMU); **Bandera Co.**, Lost Maples State Park, 29.81046°N, 99.57409°W, 23 August 2011, E. G. Riley (TAMU); Frio St. Park, 24 September 1951, O. L. Cartwright (USNM); Laredo, 26 September 1951, O. L. Cartwright (USNM); Edingburg (USNM); Port Mansfield, at light, 20 May 1994, W. F. Chamberlain (TAMU); **Mexico: Tamaulipas**: Guemes, June 28, 1965, Paul Spangler (USNM); 5 mi. SW C. Victoria, 10 July 1963, 1000′, Duckworth & Davis (USNM); 9 mi. E. Juamave, 5 July 1991, D. W. Sundberg (TAMU); Jiminez, 20 August 1979, E. P. Case, D. Thomas (TAMU); **Nuevo Leon (new state record):** Rancho Presa, E. A. Bowles, June 1934 (USNM); Monterrey, 8 August 1963, Paul J. Spangler (USNM).

Aneflomorpha texana Linsley

(Fig. 3c, d, 6w, 7w, 8u, 9t, 10w)

Aneflomorpha texana Linsley 1936: 473. Synonym of *seminuda* Casey, 1912 by Linsley (1963: 51). **New status**.
Aneflomorpha werneri Chemsak 1962: 106. **New synonym**.

Diagnosis. Length 10–17 mm, pronotum averages 1.17 times longer than wide, elytra together average 3.10 times longer than wide (Fig. 3c, d). Integument light rufous. Antennae carinate (Fig. 9t). Spine of third antennomere about as long or a little longer than second antennomere, projecting away from antennal plane by less than 40 degrees, acute at apex (Fig. 9t); fourth antennomere usually dentiform or rarely with small spine. Pronotum with small, closely placed punctures, mostly unobscured by suberect and erect setae, usually with small to moderate-sized impunctate, post-median callus (Fig. 6w). Elytral apices unevenly rounded apicolaterally, subtruncate to weakly bidentate (Fig. 8u). Elytral pubescence fine and translucent or golden, mostly straight, erect and suberect at base, but with some straight, semi-recumbent setae and very few recurved, recumbent setae (Fig. 7w). Procoxal cavities open by less than half the width of the broadly expanded prosternal process (Fig. 10w). Protibia slender, gradually widening apically with the dorsal margin straight and non-carinate (as in Fig. 11h).

Discussion. The holotype of *A. texana* Linsley was examined (Fig. 3c) and found to be conspecific with *A. werneri* Chemsak. The holotype of *A. texana* has distinct antennal carinae, lacks spines on the elytral apices, and lacks appressed setae on the pronotum unlike the holotype of *A. seminuda* (Fig. 2i) which it was considered closely related to (Chemsak 1962) and placed in synonymy by Linsley (1963). The only feature somewhat atypical of some populations is that the spine of antennomere four is more prominent in the holotype of *A. texana* than in some other specimens. *Aneflomorpha werneri* is therefore considered a **new synonym** of *A. texana*. The mostly suberect setae of the pronotum and elytral base in *A. texana* (and near absence of recurved, recumbent setae) and presence of a basal antennal carina distinguishes it most easily from *A. seminuda* which has mostly recurved, recumbent pubescence with few erect setae (Fig. 7s) and lacks a distinct carina on the basal antennomeres (Fig. 9p).

The combination of distinctive light rufous coloration, rounded or weakly dentate apical margin of the elytra, pronotum with small to moderately developed impunctate central callus, moderate antennal carina, reduced spine on the fourth antennomere, and setae on the pronotum and the base of the elytra being erect, suberect and straight (not recurved and recumbent) as in most *Aneflomorpha*, aid in making this species distinctive. Due to the rufous coloration, erect pubescence, and size, this species is similar to *A. aculeata*. That species differs in having an apicolateral spine on the elytra (Fig. 8a) and in having recurved, recumbent setae in addition to the straight erect and suberect setae on the elytra (Fig. 7a). From the less common rufous forms of *A. tenuis*, *A. texana* can be most easily distinguished by having a shorter, acute spine on antennomere three (Fig. 9t) as opposed to the long, blunt spine in *A. tenuis* (Fig. 9r). From *A. opacicornis* (transferred to *Neaneflus* herein), *A. texana* is distinguished by having the pronotal and basal elytral setae as described (Fig. 6w; 7w) unlike the recurved, recumbent setae in *A. opacicornis* (Fig. 6m, 7m). Further, *A. texana* has a more elongate pronotum with straight or less rounded sides (Fig. 6w) unlike *A. opacicornis* which has the pronotum slightly wider than long and broadly rounded at the sides and constricted basally (Fig. 6m). That species is further distinguished by having more rounded outer apical elytral apices (Fig. 8l, 17e, f).

Distribution and Biology. This species was previously known only from western Texas (Linsley 1936; Chemsak

1962; Linsley 1963). Specimens examined from New Mexico represent a new state record for *A. texana* in the United States and Coahuila represents a new state record and southernmost distribution for Mexico.

Material examined. Mexico: Coahuila (**new state record**): Sierra de los Burros, 18 June 1938, Rollin Baker (TAMU); USA: **New Mexico (new state record):** White's City, 25 August 1958, H. V. Weems, Jr., at light (2, FSCA); **Eddy Co.**, Cave National Park, 16 July 1993, Property of CAVE National Park (CSUC); Eddy Co., Lincoln National Forest, Sitting Bull Canyon, 32°15′20″N, 104°41′50″W, 13 August 2003, uv light, E. Riley (EGRC); Eddy Co., Carlsbad National Monument, Rattlesnake Springs, 13–15 July 1968, D. G. Marqua (2, TAMU); **Otero Co.**, 12 mi. W. Cloudcroft, Dry Canyon, Hg lt., 22 July 1989, Morris & Walker (3, RFMC); **Texas**: **Mason Co.**, Stein Ranch, west of Castell, 14 June 1996, C. Wolfe and D. Marqua (2, TAMU); **Kendall Co.**, Boerne, blacklight, June 2002, W. Seifert (3, TAMU); **Presidio Co.**, Big Bend Ranch State Park, Leyva Campground, uv light, 29.4766°, −103.9461°, 17 July 2021, E. Riley (1, DJHC); **Brewster Co.**, BBNP, Croton Springs, 29°20′24″N, 103°20′45″W, 3 August 2003, E. Riley (3, EGRC); Brewster Co., Big Bend National Park, Chisos Mtns., 4000′, Oak Canyon, 22 July 1967, Robert G. Beard, at light (BTC); Brewster Co., Big Bend National Park, Panther Junction, 10 July 1982, R. S. Anderson (TAMU); Brewster Co., Chisos Mtns. Basin, 29–31 July 1984, lights, M. E. Rice (4, TAMU); Brewster Co., Big Bend National Park, The Basin, 14 August 1969, Board and Hafernik (2, TAMU); Brewster Co., Big Bend National Park, Chisos Mountain Lodge, 1665 m, 29° 16.166′ N, 103° 18.153′ W, uv lights, 18 August 2015, S. W. Lingafelter (USNM); Brewster Co., Chisos Basin, 1 August 1991, D. W. Sundberg (DJHC); **Comanche Co.**, Proctor and nearby farms, 24 June 1970, J. W. Smith and A. R. Hardy (TAMU); **Erath Co.**, Stephenville, 28 June 1982, Charles W. Agnew (TAMU); **Jeff Davis Co.**, Terlingua Ranch, Alpine, 29.45247°, −103.39288°, 3768′, 23 July 2014, S. Lee, uv light trap (3, ASUC); Jeff Davis Co., Davis Mountains, Boy Scout Road (FM1832), 1270 m, 30° 48.433′ N, 103° 54.650′ W, 13 August 2015, mv/uv lights, S. W. Lingafelter (4, SWLC); Kerrville, 4 May 1956, O. L. Cartwright (USNM); **Tom Green Co.**, Christoval at lights, 30 July 1989, R. Morris (2, RFMC).

Aneflomorpha unispinosa Casey

(Fig. 1b, 3e, 5b, 6v, 7b, v, 8t, w, 9s, 10b, v, 14)

Aneflomorpha unispinosa Casey 1912: 295.
Aneflomorpha arizonica Linsley 1936: 475. **New synonym**.

Diagnosis. Length 15–23 mm, pronotum averages 1.15 times longer than wide, elytra together average 3.78 times longer than wide (Fig. 1b, 3e). Integument dark testaceous to rufous. Antennae carinate (Fig. 9s). Spine of third antennomere shorter or subequal to second antennomere, projecting away from antennal plane by less than 40 degrees, acute at apex (Fig. 9s). Pronotum with dense, mostly contiguous punctures partially obscured by pubescence; usually with small, narrow, impunctate post-median callus (Fig. 6b, v). Elytral apices rounded apicolaterally (rarely dentiform) to a well-developed sutural spine (Fig. 8t, w). Elytral pubescence white, recumbent and recurved, without erect or suberect setae, except for, at most, a few along suture (Fig. 7b, v). Procoxal cavities closed or nearly closed by broadly expanded prosternal process (Fig. 10b, v). Protibia slender, gradually widening apically with the dorsal margin straight and non-carinate (as in Fig. 11h).

Discussion. On average, this is the largest species of *Aneflomorpha* occurring in the United States with most specimens over 16 mm and often around near 20 mm. The large size, combined with short spine of antennomere three, absence of any erect hairs on pronotum and elytra (except for just a few near suture), normally rounded outer apex of the elytron and pronounced sutural spine, and distinct antennal carinae make this rarely collected species distinct. Careful examination of the holotypes of this species and *A. arizonica* (Fig. 14) demonstrate that they share all the features that distinguish *A. unispinosa* from the other species. The only differences seen are that the procoxal cavities of the holotype of *A. unispinosa* are slightly open (Fig. 10v) as compared to the holotype of *A. arizonica* (Fig. 10b) and the length of the holotype of *A. unispinosa* is 16 mm, while that of *A. arizonica* is 20 mm. Therefore, I consider *A. arizonica* a **new synonym** of *A. unispinosa*.

Distribution and biology. This species is rarely collected, possibly because specimens are more restricted to higher and less accessible mountain regions of Mexico and Arizona. It was originally described from Chihuahua, Mexico (Casey 1912) and its synonym, *A. arizonica*, was described from the Huachuca Mountains, Arizona (Linsley 1936). Linsley et al. (1961), recorded a specimen from 9,000 feet in the Chiricahua Mountains. Vlasak and Vlasakova (2021) reared larvae from living stems of *Ceanothus fendleri* A. Gray in the Santa Rita Mountains. A specimen examined from Sonora, Mexico adds that as a new state to the known distribution in Mexico.

Material examined. Mexico: Chihuahua: Colonia Garcia (holotype, USNM); **Sonora** (new state record): 2 mi. W. Tres Rios, 13 July 1988, Steve Prchal (FWSC); **USA: Arizona: Cochise Co.**, Huachuca Mts., Van Dyke Collection (holotype of *A. arizonica*, CASC); **Santa Cruz Co.**, Upper Madera Canyon, reared 2021 from *Ceanothus fendleri*, J. Vlasak (SWLC).

Aneflomorpha yumae Giesbert and Hovore, new status

(Fig. 3f, 6x, 7x, 8v, 9u, 10x, 11j, 16h)

Aneflomorpha rectilinea yumae Giesbert and Hovore 1976: 97.

Diagnosis. Length 10–16 mm, pronotum averages 1.11 times longer than wide, elytra together average 3.80 times longer than wide (Fig. 3f). Integument testaceous to light rufous. Antennae carinate (Fig. 9u). Spine of third antennomere distinctly longer than second antennomere, projecting away from antennal plane by nearly 40 degrees, acute at apex (Fig. 9u). Pronotum with dense punctures and uneven sculpturing, partially to mostly obscured by recumbent, white setae; without impunctate, post-median callus (Fig. 6x). Elytral apices bispinose or strongly bidentate (Fig. 8v). Elytral pubescence white to off-white, setae somewhat thickened at middle, mostly recumbent and flattened, only slightly recurved, with a few scattered long erect to suberect setae (Fig. 7x). Procoxal cavities narrowly to moderately open by a little less than the apical width of the moderately expanded prosternal process (Fig. 10x). Protibiae flattened and usually carinate dorsally (Fig. 11j).

Discussion. This species is distinctive by its testaceous integument and relatively dense, thick, white, closely recumbent setae over much of the dorsal and ventral surface, and particularly dense on the scutellum, inner eye margins, metasternum, and basal sternites (Fig. 3f, 16h) and flattened, usually dorsally carinate, protibiae (Fig. 11j). It superficially resembles very light-colored individuals of *A. linearis* and *A. rectilinea* based on size and proportions and shares with those species carinate antennae and a strong spine of antennomere three. The more widely open procoxal cavities (Fig. 10x) and laterally flattened protibiae with a dorsal carina (Fig. 11j) immediately distinguish *A. yumae* from *A. rectilinea* and this is the basis for elevating it from a subspecies of *A. rectilinea* to full species. The denser pubescence as described above also distinguishes *A. yumae* from *A. linearis* which has finer pubescence and specifically lacks the dense pubescence on the inner eye margins and, sometimes, scutellum (Fig. 1i). The dense punctures of the pronotum are mostly hidden in *A. yumae* (Fig. 6x) and the pronotum usually lacks a postmedial callus unlike *A. linearis* which has the pronotal punctures mostly exposed and usually has a posteromedian impunctate callus (Fig. 5i).

Distribution and Biology. This species is known only from a population in Yuma, Arizona in a desert riparian corridor along the Colorado River. Adults and larvae have been collected and reared from *Salix* (Giesbert and Hovore 1976).

Material examined. USA: Arizona: Yuma Co., Morelos Dam, 22 June 1971, E. F. Giesbert (FSCA, 6 paratypes); Same data but 10 June 1972 (FSCA, 4 paratypes); same data but 4 July 1975 (FSCA).

Identification Key to *Neaneflus* Linsley and *Aneflomorpha* Casey

As the concepts of the genera *Neaneflus* and *Aneflomorpha* have been modified herein, this key will aid in distinguishing them.

1. Antennomeres 6–9 expanded apicolaterally (twice as wide at apex as base). Pronotum as wide or wider than long (Fig. 18a, c, d). Antennae with pronounced sexual dimorphism (as long as body or longer in male, not attaining fourth ventrite in females); antennomeres with vestiture of very short setae (long suberect or recumbent setae very sparse and restricted to venter or apex of some antennomeres) (Fig. 17–18) . . . . **_Neaneflus_ Linsley**

— Antennomeres not or weakly expanded apicolaterally (6–9 much less than twice as wide at apex than at base). Pronotum longer than wide (Fig. 5). Antennae with weak sexual dimorphism (extending beyond elytral apex in males by less than 3 antennomeres, usually not or barely attaining elytral apex in females). Antennomeres (at least basal segments 3–4) with relatively long suberect and recumbent setae throughout (Fig. 1–3; 9a–k, m–u) . . . . **_Aneflomorpha_ Casey**

Illustrated Key to Species of *Aneflomorpha* from the United States

This genus, perhaps more than any other in the United States, is nearly lacking in distinctive external features that allow for easy identification. Specimens need to be clean, relatively fresh without rubbed setae, and mounted well with legs and antennae not obscuring other structures. Even then, this key will not work for every specimen. Due to intraspecific variation, mutations, possible hybrids, or undocumented species, a few specimens will, unfortunately, remain indeterminate. However, for nearly all specimens, this will be the most useful tool since the genus was proposed over 100 years ago.

1. Base of elytra and/or pronotum with primarily suberect or erect setae (recumbent setae, if present, very fine, rarely recurved, and not obscuring surface) (Fig. 19a) **2**

— Base of elytra and/or pronotum with primarily recumbent, recurved setae or a nearly even mixture of erect, suberect, and recumbent setae (Fig. 19b) **7**

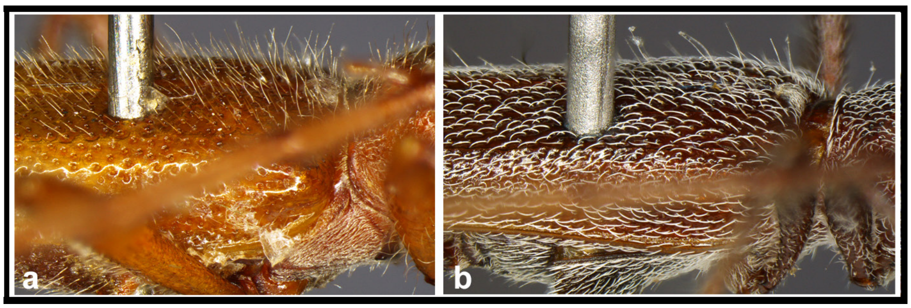

Figure 19. Elytral pubescence of *Aneflomorpha*, lateral view. **a**) *A. delongi*, mostly erect. **b**) *A. rectilinea*, mostly recurved, recumbent.

2(1). Antennal carinae pronounced on basal antennomeres (Fig. 20b) **3**

— Antennal carinae absent or indistinct on basal antennomeres (Fig. 20a) **4**

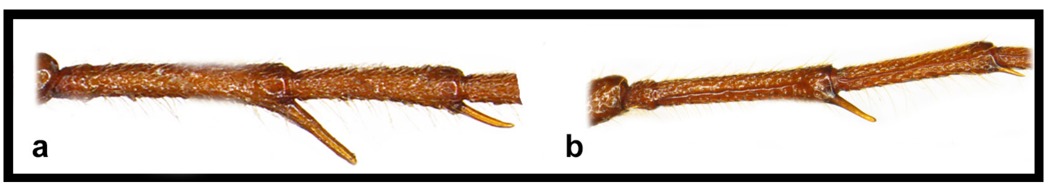

Figure 20. Basal antennomeres of *Aneflomorpha*. **a**) *A. delongi*. **b**) *A. linsleyae*.

3(2). Elytral setae erect and suberect, of differing lengths (Fig. 21a). Protibia not flattened laterally and not carinate dorsally (e.g., Fig. 11h). Spine of antennomere three acute (Fig. 21b); fourth antennomere usually dentiform. Elytral apices subtruncate or rounded apicolaterally to dentate suture (Fig. 8u). Known only from western Texas and southern New Mexico .... ***Aneflomorpha texana* Linsley**

— Elytra with only erect setae of nearly uniform length (Fig. 21d). Protibia flattened laterally and carinate dorsally (Fig. 21c). Spine of antennomere three blunt or subacute (Fig. 21e); fourth antennomere acutely spinose. Elytral apices bidentate to weakly bispinose (Fig. 8i). Known only from southeast Arizona .... ***Aneflomorpha linsleyae* Chemsak**

Figure 21. Morphological features of *Aneflomorpha*. **a**) *A. texana*, elytral setae. **b**) *A. texana*, antennomere three spine. **c**) *A. linsleyae*, flattened protibia, lateral and dorsal views. **d**) *A. linsleyae*, elytral setae. **e**) *A. linsleyae*, antennomere three spine.

4(2). Spine of third antennomere acute at apex (Fig. 22a). Known from throughout the eastern United States west to Texas and Oklahoma **6**

— Spine of third antennomere blunt at apex (Fig. 22b) **5**

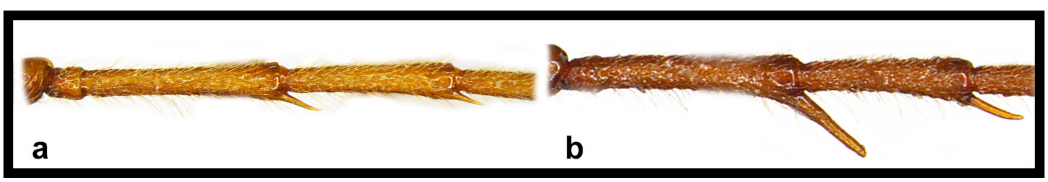

Figure 22. Basal antennomeres of *Aneflomorpha*. **a**) *A. subpubescens*. **b**) *A. delongi*.

5(4). Elytra with erect setae only (no recumbent setae) (Fig. 23a); setae mostly fine and translucent. Procoxal cavities widely open posteriorly. Fourth antennomere moderately spinose (Fig. 23b). Known from Florida and Georgia .... ***Aneflomorpha delongi* (Champlain and Knull)**

— Elytra with dense erect and suberect setae in addition to recumbent setae (Fig. 23b); setae white. Procoxal cavities closed or nearly closed posteriorly. Fourth antennomere dentiform or weakly spinose (Fig. 23d). Known from Texas and northern Mexico .... ***Aneflomorpha tenuis* (LeConte)**

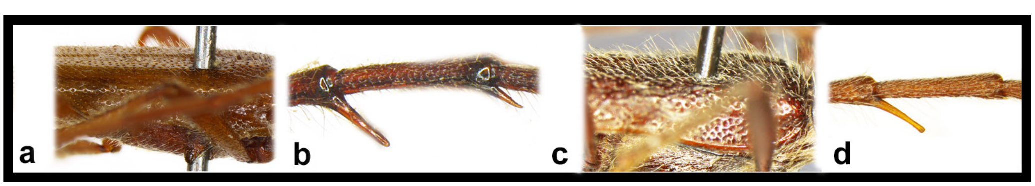

Figure 23. Elytral pubescence and basal antennomere 3–4 spination of *Aneflomorpha*. **a, b**) *A. delongi*. **c, d**) *A. tenuis*.

6(4). Pronotal punctures dense, mostly of uniform size, contiguous, and larger than those of elytral base; pronotum usually lacking impunctate callus at middle (Fig. 24a). Elytral apicolateral spine (Fig. 8r) usually subequal to sutural spine. Spine of third antennomere (Fig. 9q) usually less than 1.5 times length of second antennomere, with apex curved back toward antenna. Scutellum usually finely golden pubescent. Known from the eastern and central United States to Texas and Oklahoma .... ***Aneflomorpha subpubescens* (LeConte)**

— Pronotal punctures dense, of differing size (mostly about the same size as those at the base of the elytra), some contiguous and some separate; pronotum usually with central or post-median impunctate callus (Fig. 24b). Elytral apicolateral spine (Fig. 8a) usually distinctly longer than sutural spine. Spine of third antennomere (Fig. 9a) usually longer than 1.5 times length of second antennomere (often twice as long) and straight at apex. Scutellum usually densely ochraceous pubescent. Known only from Texas, Oklahoma, and southwest Missouri .... ***Aneflomorpha aculeata* (LeConte)**

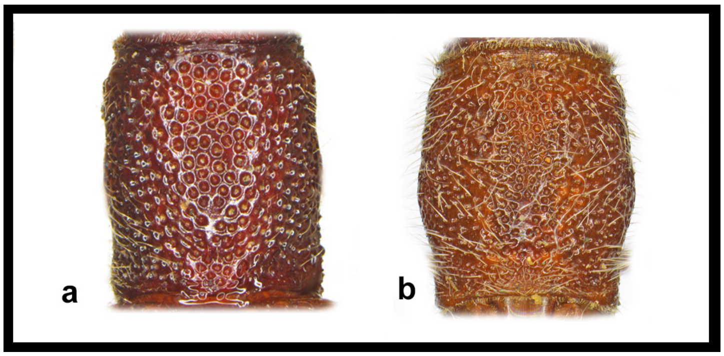

Figure 24. Pronota of *Aneflomorpha*. **a**) *A. subpubescens*. **b**) *A. aculeata*, holotype.

7(1). Spine of third antennomere blunt at apex (Fig. 25a, b) **8**

— Spine of third antennomere acute or subacute at apex (e.g., Fig. 22a, 31b) **9**

8(7). Spine of third antennomere nearly half length of antennomere (Fig. 25a); procoxal cavities closed (Fig. 10u); pronotum usually with a distinct, narrow, elongate callus at middle (Fig. 25c); elytra with dense erect and suberect setae in addition to recumbent setae (Fig. 7u). Longer than 13 mm (average 15 mm). Known only from Texas and adjacent Mexico .... ***Aneflomorpha tenuis* (LeConte)**

— Spine of third antennomere usually less than one-third length of antennomere (Fig. 25b); procoxal cavities open (Fig. 10c); pronotum with a small and poorly defined central callus or none (Fig. 25d); elytra with very few erect setae and mostly recumbent setae present (Fig. 7c). Shorter than 14 mm (average 10 mm). Known only from Arizona and adjacent Mexico (note that this species keys out twice due to a few specimens having a subacute spine on third antennomere) .... ***Aneflomorpha cazieri* Chemsak**

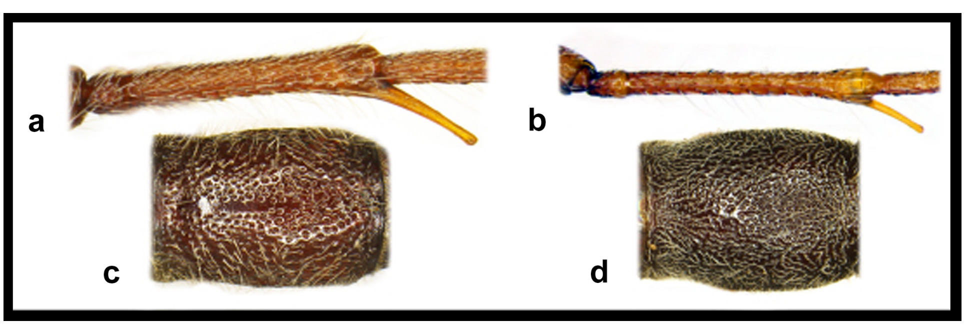

Figure 25. Basal antennomeres (a, b) and pronota (c, d) of *Aneflomorpha*. **a**) *A. tenuis*. **b**) *A. cazieri*. **c**) *A. tenuis*. **d**) *A. cazieri*.

9(7). Protibia lacking a dorsal carina at base and not very laterally flattened (Fig. 26c, d); dorsal margin straight, narrower at base and gradually expanded toward apex **10**

— Protibia with a dorsal carina at base and strongly laterally flattened (Fig. 26a, b); dorsal margin weakly sinuate; thicker at base, slightly narrowed at middle, and straight to weakly expanded toward apex **18**

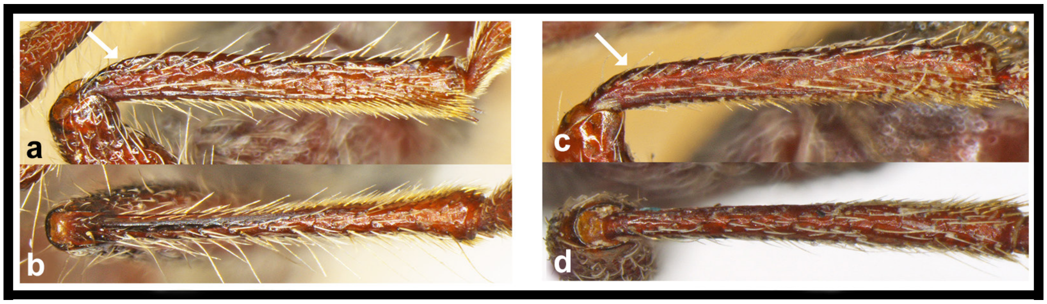

Figure 26. Protibia of *Aneflomorpha*. **a**) *A. paralinearis*, lateral. **b**) *A. paralinearis*, dorsal. **c**) *A. rectilinea*, lateral. **d**) *A. rectilinea*, dorsal.

10(9). Flagellomeres of antennae distinctly paler than scape and dorsal body integument (Fig. 27a) **11**

— Flagellomeres of antennae similar in color to scape and dorsal body integument (Fig. 27b) **12**

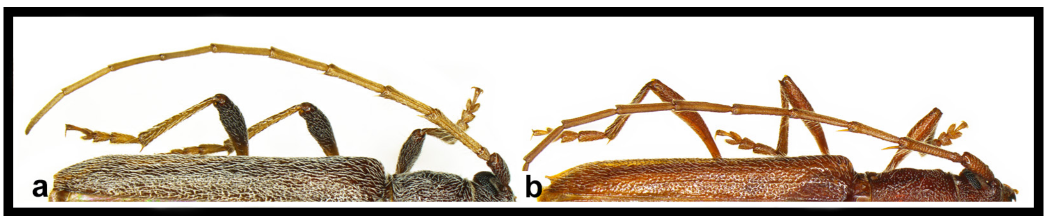

Figure 27. Antennal flagellomere coloration in *Aneflomorpha*. **a**) *A. luteicornis*. **b**) *A. aculeata*.

11(10). Spine of third antennomere shorter than second antennomere (Fig. 9g). Testaceous head, thorax, and elytra. Base of femora slightly paler than apex. Elytra only slightly darker than antennal flagellomeres (Fig. 28a) .... ***Aneflomorpha gilana* Casey**

— Spine of third antennomere subequal to or longer than second antennomere (Fig. 9j). Dark brown head, thorax, and elytra. Base of femora much paler than apex. Elytra much darker than antennal flagellomeres (Fig. 28b) .... ***Aneflomorpha luteicornis* Linsley**

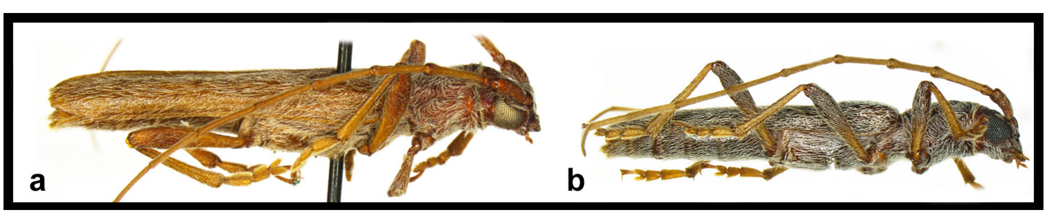

Figure 28. Coloration in *Aneflomorpha*. **a**) *A. gilana*. **b**) *A. luteicornis*.

12(10). Elytral apices with well-developed sutural extension or spine and rounded or dentiform apicolaterally (Fig. 29a) (if appearing bispinose, sutural spine much longer than apicolateral spine); specimens usually longer than 14 mm **13**

— Elytral apices truncate, bidentate or weakly, symmetrically bispinose (Fig. 29b); size variable but often less than 15 mm **14**

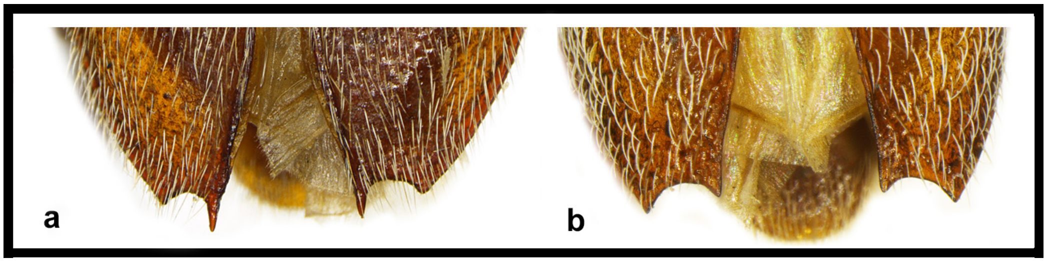

Figure 29. Elytral apex in *Aneflomorpha*. **a**) *A. fisheri*. **b**) *A. rectilinea*.

13(12). Short, suberect setae abundant on at least base of elytra. Basal half of antennae with long recumbent setae; apical half with only dense vestiture of very short pubescence. Antennomeres 3 and 4 not mesally carinate (Fig. 30b). Elytra dentiform apicolaterally to having a spine nearly half length of sutural spine (Fig. 30a). Known only from western and southern Texas . . . . ***Aneflomorpha fisheri*** **Linsley**

— Suberect setae nearly absent from elytra. Pubescence of antennae more uniform on basal and apical antennomeres. Antennomeres 3 and 4 mesally carinate (Fig. 30d). Elytra rounded apicolaterally and projecting much less than half length of sutural spine (Fig. 30c). Known only from southern Arizona and adjacent Mexico . . . . ***Aneflomorpha unispinosa*** **Casey**

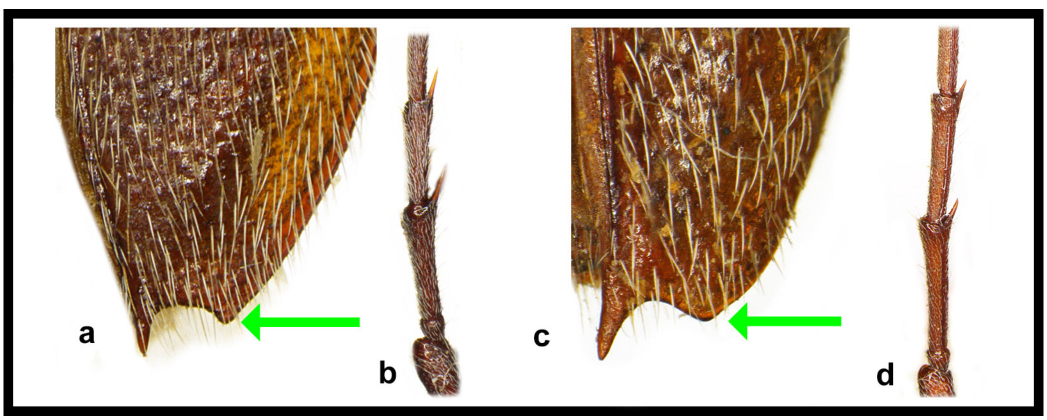

Figure 30. Elytral apex and basal antennomeres in *Aneflomorpha*. **a-b**) *A. fisheri*. **c-d**) *A. unispinosa*.

14(12). Basal antennomeres (3 and 4, at least) without conspicuous carina (Fig. 31a) **15**

— Basal antennomeres (3 and 4, at least) with a conspicuous carina (Fig. 31b) **16**

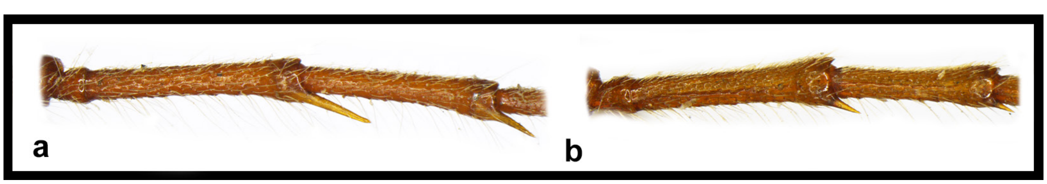

Figure 31. Basal antennomeres in *Aneflomorpha*. **a**) *A. cazieri*. **b**) *A. rectilinea*.

15(14). Spine of antennomere three either blunt or subacute, or bent at apex (Fig. 32b). Pronotal punctures mostly uniform in size and shape, surface not semi-rugose (Fig. 32c); pronotum distinctly longer than wide. Antennae of males extending beyond elytral apices by more than two antennomeres. Size often less than 13 mm. Known only from southern Arizona, southwestern New Mexico and adjacent Mexico . . . . ***Aneflomorpha cazieri*** **Chemsak**

— Spine of antennomere three acute (Fig. 32a). Pronotal punctures variable in size and shape, variably merging with one another creating an uneven surface (Fig. 32d); pronotum about as long as broad. Antennae not extending beyond elytral apices by more than two antennomeres. Size usually greater than 13 mm. Known only from Texas . . . . ***Aneflomorpha seminuda*** **Casey**

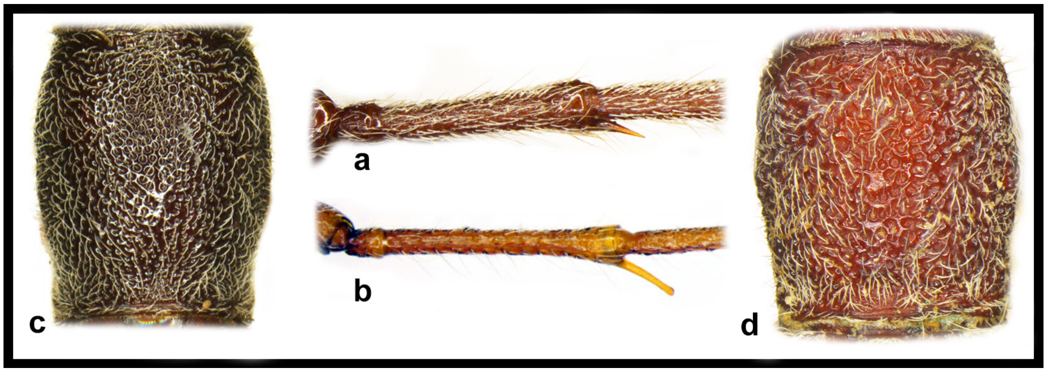

Figure 32. Basal antennomeres and pronotum in *Aneflomorpha*. **a**) *A. seminuda*. **b**) *A. cazieri*. **c**) *A. cazieri*. **d**) *A. seminuda*.

16(14). Moderate to large species (most specimens longer than 13 mm). Elytral apices usually moderately dentiform to weakly bispinose (Fig. 33a). Antennal carinae pronounced on most antennomeres (Fig. 9o) . . . . ***Aneflomorpha rectilinea*** **Casey**

— Small species (nearly all specimens shorter than 13 mm). Elytral apices truncate to very weakly bidentate (Fig. 33b). Antennal carinae typically not well developed on most antennomeres (Fig. 9k) **17**

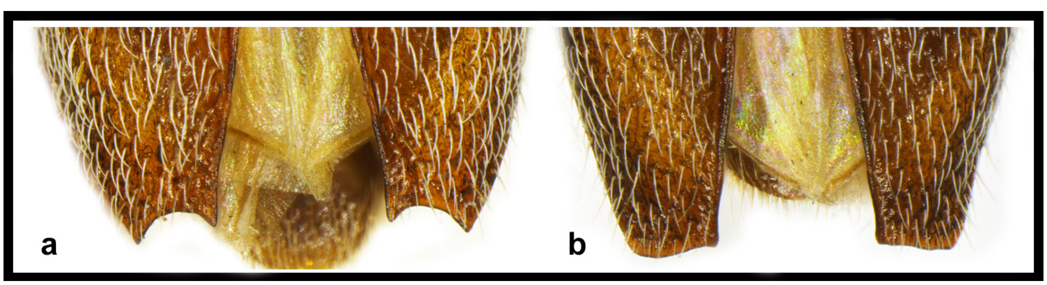

Figure 33. Elytral apices in *Aneflomorpha*. **a**) *A. rectilinea*. **b**) *A. minuta*.

17(16). Legs distinctly pale rufous and contrasting from most of testaceous pro- and mesothorax venter and piceous abdomen (Fig. 34c); pronotum usually with shiny, narrow impunctate post-median callus (Fig. 5l); gular region densely punctate to posterior margin of lower eye lobes (Fig. 34c); anterior margin of mesosternum divided (Fig. 34d). Known only from Baboquivari and Santa Rita Mountains and points between in Arizona . . . . ***Aneflomorpha minuta* Chemsak**

— Legs testaceous, not contrasting much from ventral integument color of pro- and mesothorax (Fig. 34a); pronotum with, at most, ill-defined matte impunctate callus (Fig. 5e); gular region with fewer punctures and semi-rugose integument (Fig. 34a); anterior margin of mesosternum undivided (Fig. 34b). Known only from Huachuca Mountains in Arizona . . . . ***Aneflomorpha crypta* Lingafelter, new species**

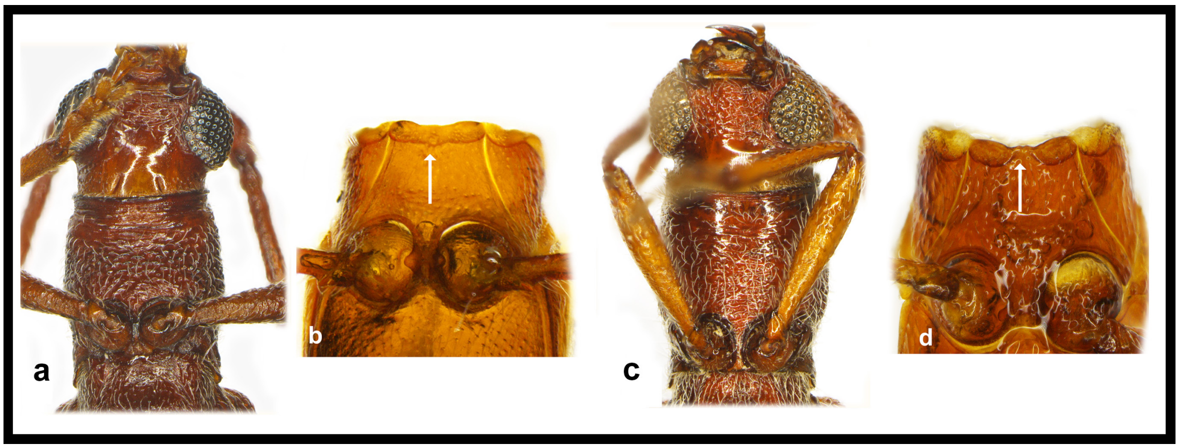

Figure 34. Ventral structures of *Aneflomorpha*. **a**) *A. crypta* gula and prosternum. **b**) *A. crypta*, mesosternum. **c**) *A. minuta*, gula and prosternum. **d**) *A. minuta*, mesosternum.

18(9). Pubescence relatively dense and white over much of the dorsal and ventral surface and particularly dense on the scutellum, inner eye margins, metasternum, and basal sternites (Fig. 3f); many dorsal elytral setae slightly thickened at middle. Pronotum usually without an impunctate callus and with most punctures hidden under dense setae (Fig. 35a). Known only from riparian areas below 200 meters in southwest Arizona . . . . ***Aneflomorpha yumae* Giesbert and Hovore, new status**

— Pubescence relatively sparse, thin, translucent or white over much of the dorsal and ventral surface (Fig. 1i). Pronotum usually with a small, impunctate posteromedian callus and mostly exposed punctures (Fig. 35b). Primarily distributed in mountainous regions above 1000 meters **19**

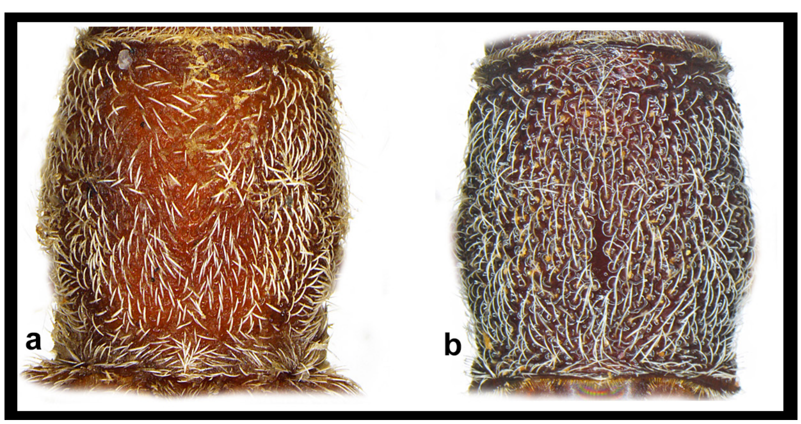

Figure 35. Pronotum of *Aneflomorpha*. **a**) *A. yumae*. **b**) *A. paralinearis*.

19(18). Usually uniformly pale rufous (basal sternites sometimes partially piceous) (Fig. 1i, 15d); apex of prosternal process usually rounded and very slightly expanded (Fig. 36a); usually very few erect elytral setae (Fig. 7i, o); elytral apices usually weakly bidentate (Fig. 8h, n); aedeagus with parameres asymmetrically narrowed apically and median lobe more broadly rounded at apex (Fig. 36e); anterior collar of mesosternum nearly divided at middle (Fig. 36b) .... ***Aneflomorpha linearis*** **(LeConte)**

— Usually testaceous or brunneous (Fig. 2e, 15g); apex of prosternal process usually moderately expanded (Fig. 36d); more abundant erect setae on elytra (Fig. 7p); elytral apices usually strongly bidentate to moderately bispinose (Fig. 8m); aedeagus with parameres evenly and symmetrically rounded at apex and median lobe more narrowly constricted at apex (Fig. 36f); anterior collar of mesosternum indented but not nearly divided at middle (Fig. 36c) .... ***Aneflomorpha paralinearis*** **Lingafelter, new species**

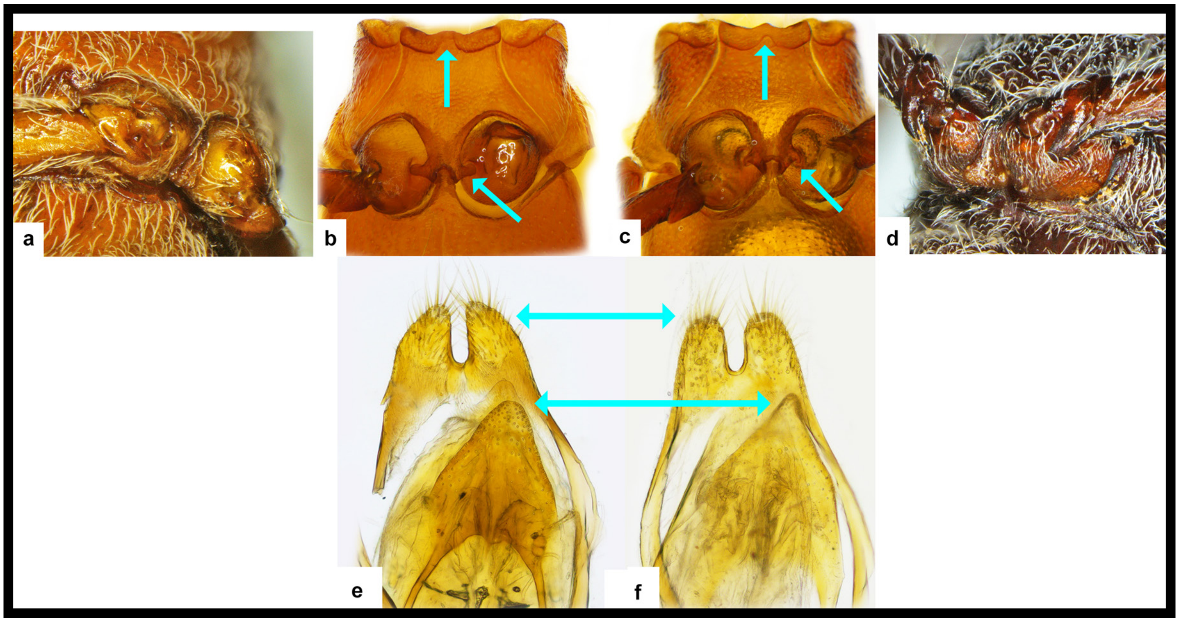

Figure 36. Morphological structures in *Aneflomorpha*. **a**) *A. linearis*, prosternal process. **b**) *A. linearis*, mesosternum. **c**) *A. paralinearis*, mesosternum. **d**) *A. paralinearis*, prosternal process. **e**) *A. linearis*, aedeagus, top arrow showing paramere shape, bottom arrow showing median lobe apex shape. **f**) *A. paralinearis*, aedeagus.

Neaneflus Linsley, 1957

(Fig. 17, 18)

Neaneflus Linsley 1957: 19.

Type species. *Elaphidion fuchsii* Wickham, 1905. Original designation.

Discussion. The genus *Neaneflus* was proposed by Linsley (1957) based on the single species, *Elaphidion fuchsii* Wickham (1905), described from the Mojave Desert in California. This species was distinguished from other genera of Elaphidiini, especially *Aneflus* and *Aneflomorpha*, in having the procoxal cavities widely open, the outer antennal flagellomeres not or vaguely carinate, and the elytra rounded apicolaterally. Chemsak (1962) subsequently described *N. brevispinus*, which is synonymized with *Aneflomorpha opacicornis* herein. Linsley (1963) stated that "the robust form and broadly expanded, not or only vaguely carinate antennae will distinguish it from *Aneflomorpha*."

Since some of these character states (widely open procoxal cavities, elytral apices rounded apicolaterally, and antennae vaguely carinate) are present in some *Aneflomorpha*, *Neaneflus* in this work is further diagnosed as having antennae that are covered with a vestiture of very short, erect setae throughout and nearly lacking longer recumbent setae and the pronotum that is as wide as or wider than long. Specimens of *N. fuchsii* (females of *N. opacicornis* not known) present striking sexual dimorphism in the antennal length and form to a degree not seen in other Elaphidiini which may serve as another character defining *Neaneflus*.

Neaneflus opacicornis (Linsley), new combination

(Fig. 2d, 6m, 7m, 8l, 9l, 10m, 17)

Aneflomorpha opacicornis Linsley 1957: 285.
Neaneflus brevispinus Chemsak 1962: 109. **New synonym**.

Diagnosis. Length 13–18 mm, pronotum averages 0.99 times longer than wide, elytra together average 3.05 times longer than wide (Fig. 2d). Integument brunneous to dark rufous. Antennae weakly carinate (Fig. 9l); antennomeres with vestiture of very short, uniform, dense setae (long setae nearly absent); middle and outer antennomeres expanded apicolaterally. Spine of third antennomere usually shorter than second antennomere, projecting away from antennal plane by less than 20 degrees, acute at apex (Fig. 9l); fourth antennomere usually lacking a spine or dentiform. Pronotum broadly rounded at sides and constricted at basal fifth, broader or as broad as long; with dense punctures slightly obscured by pubescence; posteromedial impunctate callus usually present (Fig. 6m). Elytral apices rounded apicolaterally to dentiform or spinose suture (sutural spine more strongly developed in larger specimens) (Fig. 8l). Elytral pubescence moderately dense, with equal distribution of white or off-white, recumbent, recurved setae and suberect setae (Fig. 7m). Procoxal cavities open by approximately the width or more than width of the weakly expanded and usually rounded prosternal process (Fig. 10m, 17g, h). Protibia slender, gradually widening apically with the dorsal margin straight and non-carinate (as in Fig. 11h).

Discussion. The antennae with a vestiture of very short of pubescence with long setae nearly lacking, combined with the apicolaterally expanded middle and apical antennomeres, the unexpanded or weakly expanded, rounded prosternal process, and the pronotum very nearly as wide as long, as well as the overall broad proportions, suggest that *Aneflomorpha opacicornis* is best assigned to *Neaneflus*. Comparison of the holotype *of Neaneflus brevispinus* Chemsak (Fig. 17f) to the holotype of *N. opacicornis* (Fig. 17e), shows it to be a **new synonym** of *N. opacicornis*. Note that the photograph of *N. brevispinus* used a lighting diffuser and presents the surface reflectivity differently from the photo of *N. opacicornis*, however, all the morphological features are nearly identical.

The very short spine on antennomere three and the absent spine or barely dentiform apex of antennomere four combined with the rounded outer apex of the elytra to a dentiform suture are unique to *N. opacicornis*. A further defining character is the dense vestiture of very short, erect pubescence coating the antennomeres and most visible along the outer margin, especially against a dark background. Small individuals are less broad than larger individuals and do resemble some species of *Aneflomorpha*. *Aneflomorpha unispinosa* has rounded elytra apicolaterally as in *N. opacicornis*, but has a distinct sutural spine (Fig. 8t, w), and pronounced antennal carinae (Fig. 9s), and the suberect elytral setae are nearly completely lacking (Fig. 7v). *Aneflomorpha texana* (Fig. 3c, d) is similar but the elongate and more parallel-sided pronotum (Fig. 6w) is distinct from the much broader and more broadly-rounded pronotum of *N. opacicornis* (Fig. 17a, b). Most specimens of *A. texana* are further distinguished by having the elytral apex not as rounded apicolaterally (Fig. 8u) and having a longer spine on antennomere three (distinctly longer than second antennomere) (Fig. 9t), although, like *N. opacicornis*, most *A. texana* have the apex of the fourth antennomere dentiform. The pronotal and basal elytral setae of *A. texana* are erect and suberect and mostly straight and not recurved (Fig. 7w), unlike *N. opacicornis* which has abundant recurved, recumbent setae (Fig. 7m). The procoxal cavities in *A. texana* are open by less than half the width of the broadly expanded prosternal process (Fig. 10w) unlike the more open cavities and less expanded prosternal process of *N. opacicornis* (Fig. 10m).

Distribution and biology. This species is primarily distributed in south and west Texas, but additional specimens examined in this study expand the range into New Mexico and Chihuahua, Mexico. These three states represent new state records. One specimen from Arizona was seen, although it is apparently very rare in that state. Almost all specimens have been collected at lights from May through August, however one was reared from *Quercus hypoleucoides* by Hopkins in the USNM. Vlasak and Vlasakova (2021) reared larvae from living stems (1–3 cm in diameter) of *Guaiacum angustifolium* Engelm. in Brewster County, Texas.

Material examined. USA: **Texas:** Cline (holotype of *Aneflomorpha opacicornis*, USNM); **Brewster Co.**, Santa Elena Jct., July 10, 2001, MV, D. W. Sundberg (DJHC); Brewster Co., Big Bend National Park, North Rosillos Mtns. Lodge at Butrill Spring, 12 July 1991, R. Vogtsberger, uv/mv light (2, USNM); Brewster Co., Big Bend National Park, North Rosillos Mtns., Lodge at Butrill Spring, 12 July 1991, MV/UV light, R. Vogtsberger (7, TAMU); Brewster Co., Big Bend National Park, K-Bar Campground, 3400′, 29°18′N , 103°10′W, uv light, 29 June 1982, R. S. Anderson (2, TAMU); Brewster Co., BBNP, Croton Springs, 29°20′24″N, 103°20′45″W, 3 August 2003, E. Riley (EGRC); Brewster Co., Big Bend National Park, Chisos Mtns., 4000′, Oak Canyon, 22 July 1967, Robert G. Beard, uv light (BTC); Brewster Co., 10 mi. S. Marathon, at light, 17 August 2016, Kyle E. Schnepp (KESC); **Presidio Co.**, Dalquest Desert Research Station headquarter, 29°33.783′N, 103°48.350′W, 15 August 2015, mv/uv lights, S. W. Lingafelter (SWLC); **Jeff Davis Co.,** Terlingua Ranch, Alpine, 29.45247°, −103.39288°, 3768′, 23 July 2014, S. Lee, uv light trap (ASUC); **Val Verde Co.**, 30 miles NNW Del Rio, vicinity of Gold Mine Canyon, 29.802° N, 100.937° W; 5 June-14 July 2021, 407 m., uv light trap, B. Raber and D. Heffern (2 SWLC; 6 DJHC); same but 3 May-5 June (11, DJHC); Val Verde Co., Seminole Canyon State Park, 10 mi. W. Comstock, 16–17 May 1986 and 29 July 1986, S. Jay Hanselmann (3, DJHC); Val Verde Co., Seminole Canyon, 28 July 1984, at lights, M. E. Rice (2, USNM); Val Verde Co., Dolan Creek Campground, 29°54′N, 100°53′ W, 14 June 1975, at light, J. S. Ashe (TAMU); Val Verde Co., Seminole Canyon State Historic Area, 30 August 1986, East, Kovarik, Haack (8, TAMU); **El Paso Co.**, Co. Rd. 1281 15 km E. Horizon City, 1245 m, 31°40′40″N, 106°02′29″W, 18 August 2001, mv, J. D. Oswald (TAMU); **Hardeman Co.**, Copper Breaks S. P., 10 June 1996, C. Wolfe and D. Marqua (TAMU); **Randall Co.**, Palo Duro Canyon State Park, 30 June 1994, E. G. Riley (2, EGRC); **Graza Co.**, 2 mi. NW Post, 3 July 1995, E. G. Riley (EGRC); **Nolan Co.**, Sweetwater, 29 July 1937 (TAMU); **Crosby Co.**, 4 mi. E. Crosbyton, 14 June 1980, M. Rice (TAMU); Crosby Co., 4 mi. E. Crosbyton, 14 June 1980, Marlin E. Rice (TAMU); Dickens Co., 8 mi. W. Dickens, 7–9 July 1981, M. Rice (3, TAMU); **Dickens Co.,** 7 mi. W Dickens, 57July 1981, Marlin Rice (TAMU); **Arizona** (new state record): Cochise Co., 7 mi. W. Sunsites, 30 June 2009, F.W. Skillman, Jr., at light (FWSC); **New Mexico (new state record):** 10 miles W. Cloudcroft, New Mexico, 4 August 1959, R. B. Selander and J. C. Schaffner (USNM); **Otero Co**., 12 mi. W. Cloudcroft, Dry Canyon, Hg lt., 22 July 1989, Morris & Walker (RFMC); Chiricahua, 3/10/59, W. M. F., Hopkins Collection, reared from *Quercus hypoleucoides* (USNM); Otero Co., Sacramento Mtns., Fresnal Canyon, 5850′, 32° 56′ 50″ N, 105° 52′ 29″ W, 10 August 2003, E. G. Riley (USNM); **Eddy Co.**, Whites City, 13–15 July 1968, D. G. Marqua (TAMU); Otero Co., 12 mi. W. Cloudcroft, Dry Canyon, mv lights, 22 July 1989, Morris and Walker (JAGC); **Mexico**: **Chihuahua** (new country and state record): 5 km S. Saucillo, 2–3 August 1974, E.M. and J. L. Fisher (ACMT).

Neaneflus fuchsii (Wickham)

(Fig. 18)

Elaphidion fuchsii Wickham 1905: 170.

Diagnosis. Length 17–20 mm, pronotum averages 0.95 times longer than wide, elytra together average 2.81 times longer than wide (Fig. 18a, c, d). Integument rufous (in most California specimens) to brunneous (most Texas specimens) (Fig. 18). Antennae weakly or not carinate (Fig. 18); antennomeres with vestiture of very short, uniform, dense setae (long setae nearly absent); middle and outer antennomeres expanded apicolaterally, very strongly so in females. Spine of third antennomere shorter than second antennomere, projecting away from antennal plane by less than 20 degrees, acute at apex; fourth antennomere usually lacking a spine or dentiform. Antennae of males extending nearly to elytral apex (Fig. 18a, d); of females, extending just beyond elytral midpoint (Fig. 18c). Pronotum broadly but weakly rounded at sides, broader or as broad as long; with dense punctures slightly obscured by pubescence; narrow medial to slightly posteromedial, shiny, impunctate callus usually present (Fig. 18). Elytral apices rounded apicolaterally to broad, subspiniform suture (sutural spine nearly length of second antennomere). Elytral pubescence moderately dense, with mostly recumbent, recurved setae. Procoxal cavities widely open by about twice the width of rounded, nearly unexpanded prosternal process (Fig. 18g, h). Protibia slender, gradually widening apically with the dorsal margin straight and non-carinate.

Discussion. This species, like *N. opacicornis*, is recognized by the antennae with a very short vestiture of pubescence with long setae nearly absent, combined with strongly expanded middle and apical antennomeres (moreso in females) (Fig. 18f), unexpanded and rounded prosternal process (Fig. 18g, h), and short and broad proportions of the elytra and pronotum (Fig. 18a-d). Examination of two female specimens shows pronounced sexual dimorphism of the antennae, with most antennomeres being strongly apicolaterally expanded (Fig. 18f). The antennae are much shorter in females and barely attain the apical third of the elytra, while in males, the antennae extend beyond the elytral apices by about 1–2 antennomeres. This level of sexual dimorphism has not been seen in *Aneflomorpha* or related Elaphidiini.

Distribution and biology. The range of this desert species was listed in Linsley (1963) as "southern Utah and Arizona to southeastern California". With additional material from the Big Bend region of Texas herein assigned to this species, the range is expanded to western Texas. Thus, the range includes the Mojave and Chihuahuan Deserts, but its presence in the Sonoran Desert has not been documented. In addition to the wide geographic range of this species, it has a broad host range as well that apparently exploits both dead and living plants in the Rosaceae and Solanaceae. Swift (2008) reared *N. fuchsii* from dead branches of *Lycium cooperi* A. Gray in Los Angeles County, California. Heffern et al. (2018) reared it from living stems of *Prunus fasciculata* (Torr.) A. Gray in San Bernardino County, California.

Material examined. USA: California: Independence, July 17, Wickham Collection (holotype, USNM); Joshua Tree National Monument, Pinyon Wells, 20 July 1968, E. L. Sleeper (SWLC); **Los Angeles Co.**, Big Pines, Wrightwood, 16 July 1966, M. E. Thompson (TAMU); Orange Co., Back Bay, 24 October 1964, S. Gilbert (TAMU); **Texas**: **Brewster Co.**, Black Gap WMA, 2 July 2016, J.E. Wappes, coll. (FSCA); **Presidio Co.**, Big Bend Ranch State Park, Leyva Campground, uv light, 29.4766°, −103.9461°, 17 July 2021, E. Riley (10, DJHC; 1, SWLC); Presidio Co., Big Bend Ranch State Park, Leyva Campground, uv light, 29.4766°N, 103.9461°W, 16–17 July 2021, E. G. Riley (7, EGRC).

Identification Key to *Neaneflus* Species

1. Elytral suture subspiniform (spine nearly length of second antennomere). Prosternal process rounded at apex (Fig. 18g, h). Most specimens greater than 17 mm long. California specimens usually rufous to light testaceous (Fig. 18d, e); Texas specimens usually dark testaceous to brunneous (Fig. 18a-c). Mojave Desert of California, Nevada, Utah and Arizona and Chihuahuan Desert of western Texas and southeastern New Mexico . . . . ***Neaneflus fuchsii*** **(Wickham)**

— Elytral suture dentiform (projection much shorter than second antennomere). Prosternal process transverse at apex (Fig. 17g, h). Most specimens shorter than 17 mm long. Dark rufous to light brunneous integument (Fig. 17e, f). Known only from Chihuahuan Desert of southwest Texas and eastern New Mexico . . . . ***Neaneflus opacicornis*** **(Linsley)**

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