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New species of Elateridae (Coleoptera) from Sonora, Mexico, with new country and state records, new taxonomic changes and a classificatory checklist

Nuevas especies de Elateridae (Coleoptera) de Sonora, México con nuevos registros para el estado y para el país, nuevos cambios taxonómicos y una lista clasificatoria

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ABSTRACT

The click beetles (Elateridae) of Sonora, Mexico reported here are based on published historical records and recent sampling efforts in discrete Sky Island mountain ranges in the Madrean Archipelago north of the Sierra Madre Occidental. Sixty-three (63) species are listed from Sonora of which 41 are newly recorded. *Anoplischius murrieta* **new species,** *Aptopus opata* **new species,** and *Aptopus purica* **new species** are described. *Aptopus allita* Aranda is treated as a **new synonym** of *A. subcarinatus* Schaeffer. *Conoderus texanus* Candèze is removed from synonymy with *C. vespertinus* (F.) and **reinstated** as a valid species. *Orthostethus caviceps* Schaeffer is a **new synonym** of *O. pectinicornis* Champion. *Aeolus livens* (LeConte) is the senior homonym of *A. livens* Candèze, which is changed to *A. ticuna* **new name**. A summary checklist of recorded click beetle taxa from Sonora is provided.

Key words: click beetle, taxonomy, fauna, biodiversity, Sky Island ranges.

RESUMEN

Se presentan los Elateridae de Sonora, México reportados con base en los registros históricos y los esfuerzos de muestreo en las Islas Serranas en el Archipiélago Madrense al norte de la Sierra Madre Occidental. Sesenta y tres (63) especies presentes en Sonora, de los cuales 41 son nuevos registros. Se describen *Anoplischius murrieta* **nueva especie**, *Aptopus opata* **nueva especie**, y *Aptopus purica* **nueva especie**. *Aptopus allita* Aranda es tratado como un nuevo sinónimo de *A. subcarinatus* Schaeffer. *Conoderus texanus* Candèze se elimina de la sinonimia con *C. vespertinus* (F.) y se restablece como una especie válida, *Orthostethus caviceps* Schaeffer es un **nuevo sinónimo** de *O. pectinicornis* Champion. *Aeolus livens* (LeConte) es el homónimo principal de *A. livens* Candèze, que se cambia a *A. ticuna* **nuevo nombre**. Se proporciona una lista de los taxones de elatéridos registrados para Sonora.

Palabras clave: elatéridos, taxonomia, fauna, biodiversidad, Islas del Cielo Madrenses.

The click beetles (Elateridae) of Sonora are poorly documented in diversity, occurrence, habitat, and distribution as reflected by Zurita-García et al. (2014), who in a preliminary assessment indicated only 13 species from the state, without specification. As more recently demonstrated (Johnson 2013, 2016, and here), the discovery of species new to science in Sonora continues. Much of the fauna of these beetles is shared with that of regional biomes that also occur in Chihuahua, Sinaloa, Baja California, Arizona, and New Mexico. The Sky Island mountain ranges that dominate the basin and range physiography of the region filter the northward occurrences of Neotropical click beetle taxa (e.g., *Dipropus* Germar; Johnson 2016), while northern ranges filter Nearctic taxa (e.g., *Athous* Eschscholtz; Becker 1979).

Although the *Biologia Centrali-Americana* project focused considerable attention and effort in Mexico, according to Horn (1886) the far northwestern areas including Sonora and Baja California, were not extensively included. Godman (1915) remarked that he sent collectors to Durango, Sinaloa and Sonora, but obtained "no accurate information as to the physical features." Godman hired Alphonse Forrer to collect in Durango, Sinaloa, and Chihuahua; and C.T. Höge in Durango and Sinaloa. In addition, John G. Buchan-Hepburn, co-owner of the Pinos Altos Mine at the time collected in Durango and Chihuahua, and the professional collector Herbert K. Morrison supposedly collected in northern Sonora. However, Horn (1886) and Schwarz (1899) noted that specimens purportedly collected in "northern Sonora" by Morrison and reported as such by Champion (1894-1896) were actually collected in southern Arizona in the Graham and Huachuca mountain ranges. Selander and Vaurie (1962) provided improved locality information for Elateridae reported by Champion (1894-1896) that largely are from Durango and neighboring Chihuahua, further showing that the northwestern regional fauna of Mexico received limited study in early exploratory programs.

Click beetles were collected on the first organized military and geographic explorations by the United States government in the Arizona and Sonora borderland region, with the majority of species described by LeConte (1853, 1858, 1863, 1866, 1884) and Horn (1885). In the 1890's and into the 20th century the next generation of click beetle collectors, taxonomists, and faunal analyses was dominated by Wickham (1896, 1898), Fall (1898, 1901, 1905, 1928, 1929, 1932, 1934), Fall and Cockerell (1907), Schaeffer (1909a-b, 1916), Knull (1934, 1938a-b), and Van Dyke (1932, 1953). Leng (1920) listed the taxa from the earlier of these studies. During and following the 1940's click beetle collecting in the region was conducted by numerous resident and itinerant entomologists who provided much

of the material now in university, museum, agricultural, and private collections, at least in Canada and the United States, with new species described by Werner (1943), Knull (1957, 1959, 1962), and Becker (1966, 1971, 1972, 1979). However, no faunal summary explicitly of Sonoran regional click beetles was ever published. Other than Zurita-García et al. (2014) it appears that no explicit attention has been given by Mexican entomologists to the click beetle fauna of Sonora.

Since 2009 biotic inventory expeditions to nearly a dozen Sonoran Sky Island mountain ranges in the Madrean Archipelago as part of the Madrean Archipelago Biodiversity Assessment (MABA) and Madrean Discovery Expeditions (MDE) programs were conducted (e.g., Van Devender et al. 2013). Habitats sampled include desert grassland, foothills thornscrub, oak woodland, and pine-oak forest. All of the biological records, including range extensions, new species, and distribution maps, are publicly available in the MDE database (madreandiscovery.org).

Each species treated by historical workers noted above and reported from Sonora was identified among the contemporary materials studied, and there is no pretense intended that all taxa extant in the state were recorded because of the undercollected areas. A general survey of numerous museums, university, and other collections holding Sonora materials is now needed to better document the occurrence, distribution, and habitat characteristics of the various species. It is hoped that this first approximation of the Sonoran click beetle fauna will stimulate further studies from students, resident naturalists, and others.

The click beetles of the MABA and MDE expeditions were submitted for assessment and determination through the last several years, with new records and species reported by Johnson et al. (2012) and Johnson (2013, 2016). Here, three more species new to science are described, and a new synonymy and a replacement name due to homonymy are also given. Forty-one (41) new state records for Sonora are presented. A classificatory checklist of taxa historically reported from Sonora is provided. A number of additional species known from adjacent Arizona, Chihuahua, and Sinaloa can be reasonably predicted to occur in Sonora, but without verified specimens they are not included here.

METHODS AND MATERIALS

Specimens described and reported here were acquired mostly by T.R. Van Devender and the Madrean Discovery Expeditions (MDE) under permits SEMARNAT/Instituto de Biologia-UNAM permit FAUT-0062 to Harry Brailovsky and SGPA/DGVS/05706/16 to Alejandro Zaldívar-Riverón. Additional historical specimens were seen from the collections of Arizona State University Hasbrouck Insect Collection, Tempe, Arizona (ASUHIC), National Museum of Natural History, Washington, D.C. (USNM), and the author's collection (PJJC). Specimens from the MDE were collected into ethyl alcohol, pinned or pointed, and dissected as needed. Primary types of most of the described species were examined as needed at the Museum für Naturkunde, Berlin (MFNB); Museum of Comparative Zoology, Harvard University, Cambridge (MCZ); Natural History Museum, London (BMNH); Senckenberg Deutsche Entomologische Institute, Müncheberg (SDEI); and the National Museum of Natural History, Washington, D.C. (USNM), and augmented with published descriptions, notes and photographs. Images of primary types of species described by J.L. LeConte, G.H. Horn, and H.C. Fall in the Museum of Comparative Zoology online database were used as supplemental resources. Madrean Discovery Expedition (MDE) specimens were deposited at the ASUHIC with duplicates to UNAM, with only a few representatives retained in PJJC as indicated below. Photographs from MDE are available at https://www.greatergood.org/madrean-discovery-expeditions/database).

Measurements for species descriptions were made with an ocular micrometer at 0.1 and 0.01 mm increments between 10-50 magnifications. Body length was measured from the anterior margin of the frons to the elytra apices, and width is measured across the elytral humeri. The ocular index (Campbell and Marshall 1962, Fender 1972) was calculated and this value given as a whole number. Antennomere length ratios for flagellomeres 2-11 were measured along the lateral midline from antennomere base to apex, and values are rounded to one decimal place. The string of values is presented as antennomeres 2-3 and 11, with antennomeres 3-10 subequal, or 2-5, 8 and 11, with 6-7 subequal to 5 and 9-10 subequal to 8. Pronotal length is along the midline from anterior margin to the antescutellar emargination, and width is at widest point at midlength or base of the hind angles. Metatarsomere lengths are measured at moderate magnifications along the lateral midline, from base to apex, values are rounded to two decimal places, and given as a ratio string. Aedeagus total lengths were measured from the median lobe apex to the anterior margin of the basal piece; paramere length from apex to the anterior-most point of the basal lobe; paramere tip along midline from apex to lateral spine; and basal piece length from basal lateral angle to apex of shoulder junction with paramere. Aedeagal ratios are basal piece length/total length, median lobe/total length, and paramere length/total length.

Label data is given verbatim, except dates are standardized to the dd.mm.yyyy format, with the month in lower case Roman type. Information from separate labels is separated a slash (/) bracketed by single spaces. Interpolated information is given within squared brackets as needed for clarity or supplementation. Collection abbreviations are from Evenhuis (2017).

References are generally kept to those of nomenclatural value, historical name tracking, or regional inclusion. Extra-territorial references not of nomenclatural value, of only agricultural note, or of non-nomenclatural bibliographic treatment are not included.

RESULTS

Aeolus livens (LeConte)

Monocrepidius livens LeConte, 1853: 484

Drasterius livens, of Candèze 1859: 430, 1891: 87; Gemminger & Harold 1869: 1532; Crotch 1873: 69; LeConte 1884: 5; Henshaw 1885: 68; Champion 1895: 375; Griffith 1900: 561; Fall 1901: 21; Knaus 1906: 106; Schwarz 1906: 112; Schenkling 1925: 137; Blackwelder 1944: 291

Drasterias livens, of Fall & Cockerell 1907: 178 (in part) (genus misspelling)

Aeolus livens, of Leng 1920: 167 (not *Aeolus livens* Candèze 1881: 55, 1891: 78, see below); Larson & Fisher 1930: 75; Davis 1932: 85; Moore 1937: 47

Specimen examined. MEXICO: SONORA, Municipio de de Agua Prieta, 31.31417°N, 109.58222°W, 1195 m elev., 23.viii.2013, T.R. Van Devender, A.L. Reina-G. (1, ASUHIC).

Notes. *Aeolus livens* was described from southern California and subsequently recorded from Arizona (Leng 1920). Champion (1895) noted specimens from Chihuahua, Coahuila, Durango and Guanajuato. The specimen documented above provides a **new state record** for Sonora.

Aeolus livens is a distinctive western North American species (Lin 1998) recognized by its larger size, 6.2-9.1 mm length, a depressed pronotal disc usually with median macula absent or small, a flat to shallowly convex scutellum, a strong mesal carina on the pronotal hind angle, and the aedeagus with the median lobe narrow basally, subspatulate apically with an acute apex, and the parameres each with eight long subapical setae.

The listing of *D. livens* LeConte in the combination *A. livens* by Leng (1920) produced a subsequently long overlooked secondary homonymy with *A. livens* Candèze (1881) described from Ega (now Tefé), Brazil. In accordance with the ICZN (1999) Arts. 52.2, 53.3, and 57.3, *A. livens* Candèze is here replaced with *A. ticuna* **new name**. This new name is after the Ticuna indigenous people of the region and is treated as a noun in apposition.

Alaus zunianus Casey

Alaus zunianus Casey, 1894: 584; Henshaw 1895: 18; Schaeffer 1916: 256; Leng 1920: 167; Kirk 1922: 238;
Schenkling 1925: 51; Casari 1996: 260, 2003: 316
Alaus oculatus var. *zunianus*, of Hatch, 1930: 23

Specimens examined. MEXICO: SONORA: Municipio de Ímuris: Arroyo Las Palomas, Rancho El Aribabi, 29.21.0 km (by air) ENE of Ímuris, Sierra Azul. 30.8208°N -110.548732°W, 1344 m elev., 7.vii.2016 On sycamore trunk, perched on tree trunk in mid-day, ephemeral stream through oak savanna, J.C. Rorabaugh (1 image, MDE); Municipio de Nogales, Cañón Planchas de Plata, Rancho Esmeralda (Rancho los Borregos), ca. 18.8 km (by air) SW of Nogales, Sierra las Avispas, 31.21222°N-111.12611°W, 1082 meters (3549ft), 07.viii.2011, T. Hare / oak Woodland, canyon riparian deciduous forest, rocky stream canyon (1 image, MDE)

Notes. This large and distinctive species is recorded only from Arizona (Casari 1996, 2003). No records from Mexico of this species were found in the historical literature. One specimen was photographed from each location given above and the images submitted for identification and confirmation. Digital copies of the images and the collecting data are recorded in the Madrean Discovery Expeditions (https://www.greatergood.org/madrean-discovery-expeditions/database). These reports provide a **new country record** and a **new state record.**

Anchastus ventralis Van Dyke

Anchastus ventralis Van Dyke, 1932: 322

Specimens examined. MEXICO: SONORA, Municipio de Ures, 1.6 air km WSW of Rancho el Bachán, 10.7 air km NW of Mazatán, Sierra Huérfana, 29.09083°N, 110.20472°W, 1381 m elev., 28.vii.2014, T.R. Van Devender, J.D. Palting / gentle granitic slopes, oak woodland (2, ASUHIC).

Notes. Van Dyke (1932) described this species from Mt. Washington and the Baboquivari Mountains, Arizona. The specimen reported here provides a **new country record** and a **new state record.**

Anoplischius murrieta new species

Figs. 1-2
http://zoobank.org/797AA273-E65D-48C4-AC83-3DADCA94D9F0

Diagnosis. This is the only species of *Anoplischius* Candèze in the study region. It is immediately recognized by its larger size, shining golden pubescence, narrowly serrate antenna, simple labrum, broadly rounded frontal margin, and tarsomeres 2-4 with ventral membranous lobes.

Description. Characters for *Anoplischius*, as given by Candèze (1859), Champion (1895) and Casari (2013). Male (Fig. 1), body 17.9 mm long, 5.6 mm wide at humeri; elongate, subparallel, dorsum moderately convex. Integument variably dark red-black; head black, antennae dark infuscate; elytra slightly paler, with strial punctures red-black; legs infuscate. Pubescence shining golden-yellow. Head and pronotum densely punctured, punctures umbilicate, <0.2X own diameter on disc, becoming approximate laterally, slightly smaller and sparser medioposteriorly.

Head with vertex evenly rounded; frons depressed; frontal margin arcuate, carinate, slightly projecting over clypeal remnant. Ocular index 60. Antennomere 2-3 and 11 length ratio 1.00:2.75, 4.37. Antennomeres 4-10 length each subequal to antennomere 3.

Pronotum evenly trapezoidal from hind angle apices to anterior margin; lateral margin obsolete before anterior margin; hind angles strong, obtuse apically, dorsal carina short, reaching 0.35X distance to anterior margin. Pronotosternal suture sinuate, anterior half deeply grooved; hypomeral margin strongly reflexed, with polished marginal carina. Thoracic ventrites densely to moderately-densely punctured. Metatarsomere length ratio 1.00:0.54:0.32:0.32:1.25.

Elytral striae of shallowly impressed serial punctures; intervals flat, obscurely scabrous; apices conjointly subtruncate.

Abdominal ventrites moderately-densely, shallowly punctured. Aedeagus (Fig. 2) with basal piece subrectangular; median lobe, subparallel, attenuate to narrowly rounded apex; paramere broad basally, rapidly narrowing apicad, apex broadly sagittate with hooked lateral angle, broadly arcuate apical margin, 7-8 ventral setae, four setae on apical margin, single large seta dorsally.

Material examined. Holotype, male, labeled: MEXICO: SONORA, Municipio de Bacanora, Rancho las Tierras de Jimenez, 14.2 air km SW of Bacanora, Sierra de Murrieta, 28.90111°N, 109.51417°W, 1387 m elev., 2.viii.2014, T.R. Van Devender, J.D. Palting; rocky slope, oak woodland (UNAM via ASUHIC).

Paratype, one male, labeled same as holotype. Agrees with holotype, but slightly smaller, 17.8 mm long, 5.5 mm wide (ASUHIC).

Type locality: Sonora, Municipio de Bacanora, Rancho las Tierras de Jimenez, 14.2 air km SW of Bacanora, Sierra de Murrieta, 28.90111°N, 109.51417°W, 1387 m elev.

Etymology. The specific epithet "*murrieta*" is treated as a noun in apposition, and is from the Sierra de Murrieta, the mountain range including the type locality.

Notes. The two specimens attributed to this species were collected at mercury-vapor and ultraviolet light sheets in deciduous woodlands dominated by *Quercus* spp.

This new species is similar and will key to *Anoplischius mexicanus* Champion described from "Cordova" [= Cordoba, Veracruz], Mexico in Champion (1895), and subsequently cataloged by Schwarz (1906b), Schenkling (1925), and Blackwelder (1944). The lectotype designated by Johnson (2002) was examined and compared to the Sierra de Murrieta specimens. *Anoplischius murrieta* is only superficially similar to *A. mexicanus*, and differs in having a longer and wider body; the pronotum, hypomeron, and thoracic ventrites are more densely and umbilicately punctured; the aedeagus has a wider and evenly tapered median lobe, and the sagittate paramere apices are broader and have one dorsal, four apical marginal, and 7-8 ventral setae.

The occurrence of *A. murrieta* in central Sonora provides the northern-most record of any species of the genus.

Anthracalaus agrypnoides (Van Dyke)

Melanactes agrypnoides Van Dyke, 1932: 446
Pseudomelanactes agrypnoides, of Mathieu 1961: 476; Arnett 1967: 110; Arnett et al. 1969: 14
Anthracalaus agrypnoides, of Calder & Hayek 1992: 21; Johnson 2002: 169

Specimens examined. MEXICO, SONORA, Municipio de Aconchi, Rancho los Alisos, 9.4 km (air) WSW of Aconchi, Sierra Aconchi, 29.79833N 10.31972W, 1301m elev., T.R. Van Devender, J.D. Patling, A.L. Reina-G., 2.vii.2013 / Rocky canyon. Sycamore riparian forest, oak woodland on slopes (1, ASUHIC); 70 km E. Hermosillo, Sierra de Mazatan, *Quercus viminia* woodland, MV/UV light, J. Palting, 1.viii.2004 (1, ASUHIC); Mcpo de Moctezuma, Sierra La Madera, Rancho San Fernando, *Quercus oblongifolia*/pine forest, elevation 4888', N29°55'43", W109°28'54", MV/UV light, 3-6. viii.2010, J. Palting (1, ASUHIC); Municipio de Fronteras, El Aserradero, 24 km WSW of Fronteras, Sierra Buenos Aires, Ajos-Bavispe Reserva Forestal Nacional y Refugio de Fauna Silvestre, 30.72694°N,-109.8135°W, 1707 m elev., 14.viii.2016, T.R. Van Devender, J.D. Palting / rocky mountainside; oak woodland with pine (1, ASUHIC).

Notes. Described by Van Dyke (1932) from a Nogales, Arizona specimen collected by F.W. Nunenmacher during a trip with A. Koebele in California, Arizona and Sonora in search of biological control species for horn fly (*Haematobia irritans* (L.), Diptera: Muscidae) (Howard 1925). Mathieu (1961) established *Pseudomelanactes*, then this was synonymized with *Anthracalaus* Fairmaire by Calder and Hayek (1992). The discovery of this species from Sonora provides a **new country record** and a **new state record**.

Aptopus opata new species

Figs. 3, 5, 7

http://zoobank.org/NomenclaturalActs/F022C7FB-95EB-4B60-BB1F-3CA7A39C9B6A

Aptopus campylinus (in part), of Champion, 1895: 426 (not Erichson 1840: 333)

Diagnosis. This species is best recognized within the study region by the structure of the aedeagus as described and illustrated (Figs 3, 5, 7), in combination the relatively narrow body form, subcylindrical pronotum infuscate coloration with the sutural interval pale, and the narrowly serrate antennae reaching four antennomere lengths beyond the pronotal hind angle.

Description. Characters for *Aptopus* Eschscholtz as given by Candèze (1863), amended by Douglas (2017). Male (Fig. 1), body 7.3-7.5 mm long, 2.0-2.1 mm wide at humeri; elongate, subparallel, dorsum shallowly convex. Integument infuscate. Pubescence pale flavous.

Head with vertex evenly rounded; frons depressed, circularly impressed anteriorly; densely punctured, punctures approximate; frontal margin narrowly arcuate at median, carinate, slightly projecting over clypeal remnant. Ocular index 67-70. Antenna narrowly serrate from antennomere 3; long, reaching to anterior margin of metaventrite; antennomere 7 reaching apex of hind angle; antennomeres 2-5, and 11 length ratio 1.0:2.0:2.4:2.6, 3.2.

Pronotum with length 0.9X width, disc depressed on median, lateral margin of silhouette shallowly arcuate at midlength; submarginal carina nearly flat, obsolescent, obsolete before anterior margin; hind angles divergent, with dorsal carina short, reaching 0.22X distance to anterior margin. Metatarsomere length ratio 1.00:1.00:0.80:0.60:1.40.

Elytral striae of moderate sized serial punctures and interspaces; intervals shallowly convex basally, flat apically, finely punctured; apices slightly divergent, conjointly rounded.

Aedeagus (Fig. 2) 1.3 mm long; strongly arched ventrally in lateral aspect; in dorsal aspect basal piece subtrapezoidal, 0.30 of total length; median lobe 0.38 of total length, shallowly arcuately attenuate, apex narrowly rounded; paramere 0.65 of total length, broad basally, rapidly narrowing apicad, apex subacute, with single preapical setae dorsally and ventrally.

Specimens examined. Holotype male labeled: MEXICO, SONORA, Sierra de Bacadéhuachi mountain top, La Cruz, 29.83814, -108.977509, leg, N. Franz, 2.viii.2011 (ASUHIC). Paratype labeled as the holotype, male (ASUHIC). [Complete locality fide T. Van Devender: Municipio de Bacadéhuachi: Rincón de Guadalupe, 16.5 km (by air) ENE of Bacadéhuachi, Arroyo Campo los Padres (Río Riíto drainage), Sierra de Bacadéhuachi. 29.84444ºN -108.97694ºW, 1680 m elev. Rocky canyon and mountainside. Sycamore-*Cupressus arizonica* riparian forest, pine-oak forest on slopes.]

Etymology. The species epithet "*opata*" is treated as a noun in apposition and comes from the Ópata indigenous people who natively inhabit central Sonora and western Chihuahua.

Notes. This species keys in Champion (1895) to *A. campylinus* (Erichson) described from "Mexico", and

reported from Chihuahua and Veracruz (as "San Andres Tuxtla"). The syntypes of *C. campylinus* were studied at the MFNB, and the Champion (1895) specimens were seen at the BMNH. The Champion specimens are not conspecific with the Erichson types.

Aptopus pullatus (Horn)

Eniconyx pullatus Horn, 1885: 52, 1894: 327; Leng 1920: 166; Hyslop 1921: 644; Schenkling 1927: 5
Enisonyx pullatus, of Candèze, 1891: 217 (misspelling of genus name); Schwarz 1907: 7
Aptopus pullatus, of Arnett, 1962: 508 (by synonymy of *Eniconyx* Horn)

Specimens examined. MEXICO, SONORA, Municipio de Arizpe, 30.38889, -110.166667, 6.viii.2011, 846 m, leg. T.R. Van Devender / urban, foothill thornscrub collected at light at night (2, ASUHIC); Municipio de Bacanora, Rancho las Tierras de Jimenez, 14.2 air km SW of Bacanora, Sierra de Murrieta, 28.90111°N, 109.51417°W, 1387 m elev., 2.viii.2014, T.R. Van Devender, J.D. Palting, rocky slope, oak woodland (5, ASUHIC).

Notes. Horn (1885) described *Aptopus peregrinus*, *Eniconyx pullatus*, and *E. gracilis*. He associated the *Eniconyx* species with *Aphricus* LeConte and others in the then Plastocerini, but placed *A. peregrinus* in *Aptopus* Eschscholtz in the Cardiophorinae. The transfer of *E. pullatus* and *E. gracilis* did not occur until Arnett (1962) provided the explicit synonymy of the genera. Schaeffer (1916) described *A. subcarinatus* and *A. rugiceps*. He differentiated *A. subcarinatus* from *A. peregrinus* by body form, antennomere lengths, and integumental sculpture, but stated that *A. rugiceps* differed from *A. peregrinus* by "slight" variations of integument sculpture. Aranda (2001) described the similar *A. allita* from Chihuahua and Arizona.

Aptopus pullatus was described from Dimmit County, Texas. Horn (1894) reported it from San José del Cabo, Baja California, but this is a doubtful identification that requires review. The specimens reported above provide a **new state record.**

Aptopus purica new species

Figs. 3, 6, 8
http://zoobank.org/NomenclaturalActs/54CD0BE9-8260-4FEC-8BF9-8DD9D6D725DA

Diagnosis. This species is best recognized within the study region by the structure of the aedeagus as described and illustrated (Figs 4, 6, 8), in combination the relatively narrow body form, pronotum margins broadly arcuate, dark infuscate to black concolorous elytra, and the narrowly serrate antennae reaching three antennomere lengths beyond the pronotal hind angle.

Description. Characters for *Aptopus* Eschscholtz as given by Candèze (1863) and amended by Douglas (2017). Male (Fig. 1) as for *A. opata*, except: body 7.4-9.0 mm long, 2.2-2.5 mm wide at humeri; elongate, subparallel, dorsum moderately convex. Integument variably dark infuscate to black; head black, antenna dark infuscate, apices of antennomeres briefly flavous; legs infuscate, with rufotestaceous highlights.

Head with vertex evenly rounded; punctures dense; frons depressed; frontal margin subangularly arcuate, carinate, slightly projecting over clypeal remnant. Ocular index 65-68. Antennomeres 2-4, 8 and 11 length ratio 1.0:1.6:2.4, 2.2, 2.6.

Pronotum with length and width subequal, lateral margin of silhouette shallowly arcuate at midlength; submarginal carina nearly flat, obsolescent, obsolete before anterior margin; hind angles slightly divergent, with dorsal carina short, reaching 0.22X distance to anterior margin. Discal punctures small, ca. 0.5X own diameter on disc, becoming approximate laterally, slightly smaller and denser mediposteriorly. Metatarsomere length ratio 1.00:1.00:0.78:0.56:1.33.

Elytral striae of subsulcately impressed serial punctures and interspaces; intervals shallowly convex; apices divergent, sutural angle briefly and obtusely extended.

Aedeagus (Fig. 2) 1.5 mm long, shallowly arcuate in lateral aspect; basal piece subtrapezoidal, 0.27 of total length; median lobe 0.73 of total length, subparallel, subparallel to slightly expanded, subbulbous apex; paramere 0.71 of total length, broad basally, rapidly narrowing apicad, apex subacute, single preapical setae dorsally and ventrally.

Material examined. Holotype, male, labeled: MEXICO: SONORA, Las Antennas, 19.1 km NNW of Nacozari de García, Sierra la Púrica, 30.54417°N, 109.74861°W, 2467m, 17.vii.2013, T.R. Van Devender, A.L. Rein-G., rocky ridge pine forest (UNAM via ASUHIC). Paratypes labeled same as holotype (5, ASUHIC).

Etymology. The species epithet "*purica*" is taken from the Sierra Púrica and is treated as a noun in apposition.

Notes. The specimens seen were collected at ultraviolet/mercury vapor lights along with specimens of *A. subcarinatus* in pine-oak forest. *Aptopus purica* differs in having a darker integument, including antennae and legs infuscate; slightly broader form and depressed on elytra; antennae shorter with antennomere 7 reaching apex of hind angle; aedeagus 1.4 mm long, nearly flat in lateral aspect; median lobe apex subcylindrical, paramere narrower and evenly attenuate.

This species is slightly larger than *A. opata* and similar in dimensions to *A. subcarinatus*. These species differ also in antennal length, antennomere ratio, slightly in coloration, and aedeagal morphology. An intensive study with extensive material may show high degrees of local endemism with the *Aptopus* of Sonora, with species or variations probably separating by mountain range and habitat.

Aptopus rugiceps Schaeffer

Aptopus rugiceps Schaeffer, 1916: 257; Leng 1920: 175; Schenkling 1925: 255; Lane & Fisher 1941: 121

Specimens examined. MEXICO, SONORA, Municipio de de Nacozari de García, Pilares de Nacozari, 6.5 air km SE of Nacozari de García, Sierra Nacozari, 30.32833°N, 109.62972°W, 1413 m elev., 9 August 2015, T.R. Van Devender, A.L. Reina-G., rocky slope (4, ASUHIC).

Notes. This species was described from the Huachuca Mountains of south-central Arizona and not since reported elsewhere. The holotype was examined. The specimens reported above provide a **new country record** and a **new state record.**

Aptopus subcarinatus Schaeffer

Aptopus subcarinatus Schaeffer, 1916: 256; Leng 1920: 175; Schenkling 1925: 255; Lane & Fisher 1941: 121

Specimens examined. MEXICO: SONORA,_Las Antennas, 19.1 km NNW of Nacorari de Garcia, Sierra la Purica, 30.54417°N, 109.74861°W, 2467m, 17.vii.2013, T.R. Van Devender, A.L. Rein-G., rocky ridge pine forest (10, ASUHIC).

Notes. This species was described from the Huachuca Mountains of south-central Arizona and not since reported elsewhere. The holotype was examined. Based on the specimens reported above from Sonora and other Arizona specimens this species is variable in size, integumental sculpture, color, and slightly in aedeagal morphology. Aranda (2001) described *A. allita* based on two specimens, the holotype from Santa Clara Canyon, Chihuahua and a paratype from Santa Cruz County, Arizona. The description and drawings of salient structures of *A. allita,* including the aedeagus, are consistent with the variation seen in typical *A. subcarinatus*. As such, *A. allita* is here considered a **new synonym** of *A. subcarinatus*. The specimens of *A. subcarinatus* reported above provide a **new state record**.

Athous arizonicus Van Dyke

Athous arizonicus Van Dyke, 1932: 384; Becker 1979: 593

Specimens examined. MEXICO: SONORA, Municipio de Cananea, Ajos Nuevos station, Cañon de Evans, Sierra de los Ajos, 29.9 air km E of Cananea, Ajos-Bavispe Reserva Forestal Nacional y Refugio de Fauna Silvestre, 30.97283°N, 109.96075°W, 1905 m elev., 12.vii.2014, T.R. Van Devender, J.D. Palting, A. Yanahan, F.I. Ochoa-G., A.L. Reina-G., S.L. Minter / Rocky stream canyon; riparian deciduous forest in canyon, oak woodland and pine-oak forest on slopes (4, ASUHIC); Las Antennas, 19.1 km NNW of Nacorari de Garcia, Sierra la Purica, 30.54417°N, 109.74861°W, 2467m, 17.vii.2013, T.R. Van Devender, A.L. Rein-G., rocky ridge pine forest (5, ASUHIC); Municipio de de Nacozari de García, Rancho el Tigre, 29 air km WNW of Bavispe, Sierra el Tigre, 30.58944°N, 109.21833°W, 2297 m elev., 25.vi.2015 / T.R. Van Devender, A.L. Reina-G., pine-oak forest (22, ASUHIC); 10.viii.2015, T.R. Van Devender, J.D. Palting, A.L. Reina-G., pine-oak forest (2, ASUHIC).

Notes. Van Dyke (1932) described this species from the Chiricahua Mountains in southeastern Arizona, and reported specimens from the Huachuca Mountains, Arizona. He also reported specimens from the Jemez Mountains and Fort Wingate, New Mexico. Becker (1979) added southwestern Colorado and western Texas to the range of this species. The specimens reported above provide both a **new country record** and a **new state record** for Sonora.

Chalcolepidius webbi LeConte

Chalcolepidius webbi LeConte, 1853: 223; Candèze 1857: 292, 1874: 164, 1886: lxxiv; 1891: 39; Gemminger & Harold 1869: 1504; Crotch 1873: 67; Henshaw 1885: 65; Champion 1895: 278; Townsend 1895: 42; Fall 1898: 238; Schwarz 1906: 46; Leng 1920: 167; Schenkling 1925: 59; Blackwelder 1944: 282; Becker 1961: 162; Casari 2002: 345

Chalcolepidius substriatus Schwarz, 1906b: 46; Casey 1907: 29; Becker 1961: 163; Casari 2002: 345

Chalcolepidius snowi Casey, 1907: 31; Leng 1920: 167; Casari 2002: 345

Chalcolepidius idoneus Casey, 1907: 31, 1911: 253; Casari 2002: 345

Chalcolepidius arizonicus Casey, 1907: 31, 1911: 253; Casari 2002: 345

Chalcolepidius abdominalis Casey, 1907: 32, 1911: 253; Casari 2002: 345

Chalcolepidius sonoricus Casey, 1907: 35; Casari 2002: 345

Specimens examined. MEXICO, SONORA, Sierra de Bacadéhuachi, Rincón de Guadalupe Station, 29.84511, -108.9771; 5500 ft., leg. A.D. Smith & N.M. Franz, 31.vii-04.viii.2011 (1, ASUHIC) [Complete locality fide T. Van Devender: Municipio de Bacadéhuachi: Rincón de Guadalupe, 16.5 km (by air) ENE of Bacadéhuachi, Arroyo Campo los Padres (Río Riíto drainage), Sierra de Bacadéhuachi. 29.84444ºN -108.97694ºW, 1680 m elev. Rocky canyon and mountainside.Sycamore-*Cupressus arizonica* riparian forest, pine-oak forest on slopes.]; Municipio de Aconchi, Rancho los Alisos, 9.4 km (air) WSW of Aconchi, Sierra Aconchi, 29.79833N 10.31972W, 1301m elev., 2.vii.2013, T.R. Van Devender, J.D. Patling, A.L. Reina-G. / Rocky canyon; sycamore riparian forest, oak woodland on slopes (1, ASUHIC).

Notes. Champion (1895) reported *C. webbi* from southern California, Arizona, Chihuahua, and Durango. Casari (2002) listed one examined specimen from Sonora, without further data.

Conoderus athoides (LeConte)

Monocrepidius athoides LeConte, 1863: 84; Candèze 1859: 264, 1891: 72; Gemminger & Harold 1869: 1520; Crotch 1873: 69; Henshaw 1885: 67; Champion 1895: 346; Schwarz 1906: 96; Fall & Cockerell 1907: 177; Leng 1920: 167;

Monocrepidius mutuus Horn 1871: 312 (female); Schwarz 1906: 97

Conoderus athoides, of Schenkling, 1925: 112; Van Dyke 1932: 299

Specimens examined. MEXICO, SONORA, W. side of Mazatán, 550m, 29.0472, -110.14806; T.R. Van Devender, A.L. Reina-G., 17.vii.2012 (3, ASUHIC), same, 25.vi.2012 (2, ASUHIC).

Notes. Described from Texas, then Champion (1895) reported the species also from Arizona, Morelos, Guerrero, Durango, Jalisco, Veracruz (as "Jalapa"), and Yucatan. The specimens documented provide a **new state record** for Sonora.

Conoderus browni Knull

Conoderus browni Knull, 1938a: 13

Specimens examined. MEXICO, SONORA, 1.5 km WSW of Magdalena de Kino, Hwy 15, 742 m, 30.61528N 111.00083W, 12.vii.2013, T.R. Van Devender, A.L. Reina-G. / at light, desert grassland (1, ASUHIC); Municipio de Nogales, Agua Zarca, MEX 15, 31.16222°N, 110.95333°W, 1161 m elev., 12.vii.2015, T.R. Van Devender, A.L. Reina-G.; at lights, desert grassland (1, ASUHIC).

Notes. Described from Brownsville, Texas, this species is confounded with *Conoderus varians* (Steinheil) in collections and past treatments, e.g., Van Dyke (1932),

along with *C. texanus*. The specimens reported above provide a **new state record** for Sonora.

Conoderus parallelus (Candèze)

Monocrepidius canus Sturm, 1826: 135 (*nomen nudum*)
Monocrepidius parallelus Candèze 1859: 246, 1891: 71; Gemminger & Harold 1869: 1523; Champion 1895: 345; Schwarz 1906: 95; Schaeffer 1909a: 378; Leng 1920: 167
Conoderus parallelus, of Schenkling 1925: 116; Van Dyke 1932: 299; Blackwelder 1944: 288

Specimens examined. MEXICO, SONORA, 15.5 air km SW of Nogales, elev. 1200m, 31.19728. -111.10139, leg. T.R. Van Devender, A.L. Reina-G., 12.vii.2012 / rocky canyon riparian forest/oak woodland (1, ASUHIC); Sierra de Bacadéhuachi, El Rincón de Guadalupe, 29.84511, -108.9771; 5500 ft., leg. AD Smith & NM Franz, 31.vii-04.viii.2011 (1, ASUHIC); Rincón de Guadalupe Station, 29.84511, -108.9771; 5500 ft., leg. AD Smith & NM Franz, 31.vii-04.viii.2011 (1, ASUHIC); Ricón de Guadalupe Sta., at night/lights, 5500 elev., leg. N. Franz, 3.viii.2011 (1, ASUHIC); Municipio de Imuris, Río Cocóspora, 30.856111, -110.665278, 21.viii.2011, 948m elev., leg. T.R. Van Devender / cottonwood-willow riparian gallery forest desert grasslands slopes (1, ASUHIC); 4-5 mi. dirt road to Ricón de Guadalupe, leg. N. Franz, 31.viii.2011 / collected on plants with beating nets (2, ASUHIC); Agua Zarca S of Nogales, 31.16222, -110.95333, leg. T.R. Van Devender, A.L. Reina-G., 13.vi.2012 / collected at lights on building at night (6, ASUHIC); 9.4 air km WSW of Aconchi, elev. 1301 m, 29.79833, -110.31972, leg. T.R. Van Devender, N.S. Deyo, 7.vii.2012 / rocky canyon, sycamore riparian forest/oak woodland on slope (6, ASUHIC); Municipio de Sahuaripa, Sahuaripa, 29.04722N, 109.23167W, el. 435 m, 3.viii.2012, T.R. Van Devender, R.A. Villa (1, ASUHIC); Municipio de Yécora, Rancho la Palmita, 28.37111N, 109.06472W, 1499 m, 4.viii.2012, T.R. Van Devender, R.A. Villa (6, ASUHIC); Municipio de Aconchi, Rancho los Alisos, 29°47'54"N 110°19'11"W, 1301m elev., 2.ix.2012, T.R. Van Devender (6, ASUHIC); Municipio de Aconchi, Rancho los Alisos, 9.4 km (air) WSW of Aconchi, Sierra Aconchi, 29.79833N 10.31972W, 1301m elev., T.R. Van Devender, J.D. Patling, A.L. Reina-G., 2.vii.2013 / Rocky canyon. Sycamore riparian forest, oak woodland on slopes (13, ASUHIC); Rancho el Jarazos, 22.4 km N of Nacozari de Garcia, Sierra la Púrica, 30.57556N 109.73250W, 1595 m, 16.vii.2013, T.R. Van Devender, A.L. Reina-G. / rocky cyn/oak woodland (14, ASUHIC); Cananea, 30.99333°N, 110.28000°W, 1573 m elev., 4.viii.2013, T.R. Van Devender, A.L. Reina-G.; urban lights (2, ASUHIC); 1 km NNW of Cibuta, Hwy 15, 30.07139°N, 110.90417°W, 1081 m elev., 9.viii.2013, T.R. Van Devender, A.L. Reina-G.; at lights (1, ASUHIC); Agua Zaraca, aduana sta. Hwy 15, S. of Nogales, 31.16222°N, 110.95333°W, 1161 m, 9.viii.2013, T.R. Van Devender, A.L. Reina-G.; at lights (2, ASUHIC); Municipio de de Ures, 10.7 air km NW of Mazatán, Sierra Huérfana, 29.09083°N, 110.20472°W, 1381 m el., 28.vii.2014, T.R. Van Devender, J.D. Palting; oak woodland (35, ASUHIC); Municipio de Bacanora, Rancho las Tierras de Jimenez, 14.2 air km SW of Bacanora, Sierra de Murrieta, 28.90111°N, 109.51417°W, 1387 m elev., 2.viii.2014, T.R. Van Devender, J.D. Palting; rocky slope, oak woodland (7, ASUHIC); Municipio de de Cananea, along MEX 2, 30.99361°N, 110.26389°W, 1539 m elev., 24.viii.2014, T.R. Van Devender, A.L. Reina-G.; disturbed area, grassland (1, ASUHIC); Municipio de Cananea, Rancho El Chiltepín, 23.3 km S of Cananea, Sierra Manzanal, 30.77222N 110.28889W, 1216 m, 13-14.ix.2014, T.R. Van Devender, J.D. Palting, Al. Reina-G., G. Molina / rock hillside, desert grassland (17, ASUHIC); Municipio de Nogales, Aduana station at Agua Zarca, km 21 S of Nogales, MEX 15, 31.16278°N, 110.95306°W, 1159 m elev., 27.vi.2015, T.R. Van Devender, A.L. Reina-G.; at light at night (13, ASUHIC); Municipio de de Nacozari de García, Pilares de Nacozari, 6.5 air km SE of Nacozari de García, Sierra Nacozari, 30.32833°N, 109.62972°W, 1413 m elev., 9.viii.2015, T.R. Van Devender, A.L. Reina-G., rocky slope (7, ASUHIC); Municipio de Fronteras, Rancho Capulín, 23.5 km WSW of Fronteras, Sierra Buenos Aires, Ajos-Bavispe Reserva Forestal Nacional y Refugio de Fauna Silvestre, 30.76167°N, -109.82361°W, 1429 m elev., 2.vii.2016, T.R. Van Devender, J.D. Palting / cow pasture in oak woodland (41, ASUHIC).

Notes. Champion (1895) reported this species from Chihuahua, Guerrero, Michoacan, Puebla, Guanajuato, Veracruz (as "Cosamaloapam"), Morelos, and from Arizona, the latter supported by Schaeffer (1909a). *Conoderus parallelus* is probably the most commonly collected species of the genus in the Sonoran region. Both males and females are readily attracted to lights of various types. The numerous collections documented above provide a **new state record** for Sonora.

Conoderus pictus (Candèze)

Monocrepidius pictus Candèze, 1859: 267, 1891: 73; Gemminger & Harold 1869: 1523; Schwarz 1906: 97; Bruch 1911: 246
Conoderus pictus, of Schenkling 1925: 117; Blackwelder 1944: 288; Golbach 1987: 17, 1994: 35

Specimens examined. MEXICO, SONORA, E of Tecorpia, 413m, 28.62917, -109.95222, leg. T.R. Van Devender, A.L. Reina-G., 16.x.2012 (5, ASUHIC); same, Granados, at hotel, 29.85754, -109.31193, 30.vii.2011, 544m, leg. N.M. Franz (1, ASUHIC).

Notes. Described from Guatemala and subsequently reported (Champion 1895) from Brazil, Colombia, Panama, Nicaragua, and Mexico in Guerrero, Tabasco, Mexico City, Michoacan, Morelos, Oaxaca, Veracruz and Xalapa (as "Jalapa"). Bruch (1911) reported it from Argentina. It is also known from Costa Rica, Honduras, Belize, and Florida in the United States. The specimens reported above provide a **new state record** for Sonora.

Conoderus pictus is often confused with *C. bellus* (Say), but is immediately distinguished by a posterior median tubercule on the pronotum above a steep posterior declivity.

Conoderus texanus (Candèze)

Monocrepidius texanus Candèze, 1859: 262, 1891: 73; LeConte 1863: 46, 1866: 46; Gemminger & Harold 1869: 1524; Crotch 1873: 69; Horn 1875: 148; Schwarz 1906: 97; Van Dyke 1932: 300 (as synonym of *M. vespertinus* (F.)) (not *M. texanus* Schaeffer 1909a: 379, 1909b: 436)
Monocepidius texanus, of Henshaw 1885: 67 (not *M. texanus* Schaeffer 1909a: 379, 1909b: 436) (as synonym of *M.*

vespertinus (F.)) (genus misspelling)
Monocrepidius vespertinus a. *texanus*, of Leng 1920: 167
Conoderus vespertinus var. *texanus*, of Schenkling, 1925: 120
Conoderus varians, of Van Dyke, 1932: 300 (not *C. varians* (Steinheil 1875: 121))
Conoderus texanus, of Peck and Thomas 1998: 72 (as synonym of *M. vespertinus* (F.))

Specimens examined. MEXICO: SONORA, Municipio de Bacanora, Rancho las Tierras de Jimenez, 14.2 air km SW of Bacanora, Sierra de Murrieta, 28.90111°N, 109.51417°W, 1387 m elev., 2.viii.2014, T.R. Van Devender, J.D. Palting; rocky slope, oak woodland (2 ASUHIC).

Notes. *Monocrepidius texanus* Candèze (1859) was described and compared to *Monocrepidius vespertinus* (Fabricius). The key character for separation of these species was that the elytra of *C. vespertinus* were more than twice the length of the pronotum, while the elytra of *C. texanus* were less than twice the length of the pronotum. Horn (1875) considered *M. vespertinus* and *M. texanus* as opposite sexes of one species. Leng (1920) listed *M. texanus* and Schenkling (1925) listed it as an aberration or variety of *C. vespertinus.* Van Dyke (1932) treated *C. texanus* as a subspecies of *C. vespertinus*.

An examination of the female lectotype of *M. texanus* as designated, but not published, by M.C. Lane in 1964, demonstrated conspecificity with female specimens of "*C. vespertinus*" from the study region, but not typical *C. vespertinus*. Associated males have a different aedeagal morphology of the median lobe, parameres, and apical setal pattern of the parameres from *C. vespertinus* as described from "Carolina" and known from the southeastern United States. As such, *M. texanus* is removed from synonymy with *C. vespertinus* and regarded as a valid species, as *Conoderus texanus* (Candèze) **reinstated status**. The specimens reported above provide a **new country record** and a **new state record**.

Schaeffer (1909a) described another species from Brownsville, Texas as *M. texanus*. He recognized (Schaeffer 1909b) this homonymy and gave the replacement name of *M. similis*.

***Diplostethus opacicollis* (Schaeffer)**

Ludius texanus (part), of Horn, 1894: 327
Diplostethus (*Ludius*) *opacicollis* Schaeffer, 1916: 260; Lane & Fisher 1941: 120
Diplostethus opacicollis, of Leng 1920: 172; Schenkling 1927: 431; Roache 1961: 297; Schimmel & Tarnawski 2010: 448, 449

Specimens examined. MEXICO, SONORA, 15.5 air km SW of Nogales, elev. 1200m, 31.19728. -111.10139, leg. T.R. Van Devender, A.L. Reina-G., 12.vii.2012 / rocky canyon riparian forest/oak woodland (6, ASUHIC); same, W. side of Mazatán, 550m, 29.0472, -110.14806; T.R. Van Devender, A.L. Reina-G., 17.vii.2012 (2, ASUHIC); same, Sierra de Bacadéhuachi, Rincón de Guadalupe Station, 29.84511, -108.9771; 5500 ft., leg. AD Smith & NM Franz, 31.vii-04.viii.2011 (2, ASUHIC); MEXICO, Sonora, Municipio de Aconchi, Rancho los Alisos, 9.4 km (air) WSW of Aconchi, Sierra Aconchi, 29.79833N 10.31972W, 1301m elev., T.R. Van Devender, J.D. Patling, A.L. Reina-G., 2.vii.2013 / Rocky canyon. Sycamore riparian forest, oak woodland on slopes (17, ASUHIC); Municipio de Bacanora, Rancho las Tierras de Jimenez, 14.2 air km SW of Bacanora, Sierra de Murrieta, 28.90111°N, 109.51417°W, 1387 m elev., 2.viii.2014, T.R. Van Devender, J.D. Palting; rocky slope, oak woodland (6, ASUHIC); 1 km NNW of Cibuta, Hwy 15, 30.07139°N, 110.90417°W, 1081 m elev., 9 Aug. 2013, T.R. Van Devender, A.L. Reina-G.; at lights (1, ASUHIC); Municipio de de Ures, 10.7 air km NW of Mazatán, Sierra Huérfana, 29.09083°N, 110.20472°W, 1381 m el., 28.vii.2014, T.R. Van Devender, J.D. Palting; oak woodland (23, ASUHIC); Municipio de Fronteras, Rancho Capulín, 23.5 km WSW of Fronteras, Sierra Buenos Aires, Ajos-Bavispe Reserva Forestal Nacional y Refugio de Fauna Silvestre, 30.76167°N, -109.82361°W, 1429 m elev., 2.vii.2016, T.R. Van Devender, J.D. Palting / cow pasture in oak woodland (5, ASUHIC): Municipio de Fronteras, El Aserradero, 24 km WSW of Fronteras, Sierra Buenos Aires, Ajos-Bavispe Reserva Forestal Nacional y Refugio de Fauna Silvestre, 30.72694°N,-109.8135°W, 1707 m elev., 14.viii.2016, T.R. Van Devender, J.D. Palting / rocky mountainside; oak woodland with pine (7, ASUHIC).

Notes. *Diplostethus opacicollis* is widely distributed from southwestern New Mexico, southern Arizona, Sonora, to Sinaloa. Schaeffer (1916) stated for *D. opacicollis* that the integument of the pronotum is dull in sheen due to denser punctation and that the prosternal intercoxal process possessed an obtuse postcoxal tooth. Roache (1961) reiterated these characters and added that the sides of the mesoventral fossa were obtusely angulate at the declivity. In contrast, Roach (1961) diagnosed *D. peninsularis* with an acute postcoxal tooth on the prosternal process, a more shining pronotum, and the sides of the mesosternal fossa sharply angulate at the declivity. An assessment of these characters over their combined geographic range and examination of the primary types of both species finds that the traits traditionally emphasized are quite variable throughout the ranges of these nominal species. Within the greater *D. opacicollis* distribution morphological extremes can be found in specimen series representing local populations of the various mountain ranges. Some of these variations in central Sonora specimens approach character states found on *D. peninsularis*.

Diplostethus opacicollis and *D. peninsularis* are probably sister-species and best separated on distribution and morphological character states involving antennal length, pronotal dimension, form of the dorsal carina of the pronotal hind angle, elytral apex, and aedeagus. The antenna of *D. opacicollis* is longer, with antennomeres 10-11 extended posteriad of the pronotal hind angle apex, while the antenna of *D. peninsularis* usually fails to reach the pronotal hind angle apex by a distance $\leq$ 0.5-1.0 antennomere length. The pronotum of *D. opacicollis* is variable in its length/width ratio from 0.9-1.0, with a ratio of 1.0-1.1 for *D. peninsularis*. Assuredly, these are often subtle morphological traits that are sometimes best seen by direct comparison, but they seem consistent with the geographic separation.

Diplostethus opacicollis has apparently never been reported from Sonora. Thus, the specimens documented above provide a **new state record** for Sonora.

***Diplostethus setosus* (Germar)**

Aphanobius setosus Germar, 1844: 185; Hyslop 1921: 640
Probothrium setosum, of Candèze 1863: 294
Ludius setosus, of Champion, 1896: 505
Ludius innoxius Champion, 1896: 505 (not available; ICZN 1999, Art. 11.6)
Diplostethus setosus, of Schwarz, 1907: 258; Leng 1920: 172; Schenkling 1927: 431; Blackwelder 1944: 294; Roache 1961: 295; Schimmel & Tarnawski 2010: 450

Specimens examined. MEXICO, SONORA, Municipio de de Ures, 10.7 air km NW of Mazatán, Sierra Huérfana, 29.09083°N, 110.20472°W, 1381 m el., 28.vii.2014, T.R. Van Devender, J.D. Palting; oak woodland (10, ASUHIC); Municipio de Bacanora, Rancho las Tierras de Jimenez, 14.2 air km SW of Bacanora, Sierra de Murrieta, 28.90111°N, 109.51417°W, 1387 m elev., 2.viii.2014, T.R. Van Devender, J.D. Palting; rocky slope, oak woodland (2, ASUHIC).

Notes. *Diplostethus setosus* was described from Colombia, but subsequently reported northward through Mesoamerica to Durango, Mexico (Champion 1896). Roache (1961) incorrectly cited Durango as the type locality. Hyslop (1921) designated *A. setosus* as the type species for *Diplostethus* Schwarz. The Mesoamerican species of *Diplostethus* are in need of review.

***Esthesopus parcus* Horn**

Esthesopus parcus Horn, 1885: 42; Henshaw 1885: 66; Candèze 1891: 138; Schwarz 1906: 180; Leng 1920: 175; Schenkling 1925: 260
Esthesopus dispersus Horn, 1885: 43, 1894: 326; Henshaw 1885: 66; Schwarz 1906: 180; Leng 1920: 175; Schenkling 1925: 260; Rhyand 1976: 9 (synonymy)
Horistonotus flavidus Fall, 1901: 240 (not *H. flavidus* Candèze 1860: 250); Leng 1920: 175; Rhyand 1976: 9 (synonymy)
Esthesopus flavidus, of Fall 1934: 22
Esthesopus indistinctus Fall, 1934: 23; Rhyand 1976: 9 (synonymy)

Specimens examined. MEXICO, SONORA, Rancho el Jarazo, 22.4 km N of Nacozari de García, Sierra la Púrica, 30.57556N 109.73250W, 1595 m, 16.vii.2013, T.R. Van Devender, A.L. Reina-G. / rocky cyn/oak woodland (3, ASUHIC); Arizpe, 30.338889, -110. 166667, 6.viii.2011, 846 m, leg. T.R. Van Devender / urban, foothills thornscrub, collected at light at night (1, ASUHIC); Sierra de Bacadéhuachi, Rincón de Guadalupe Station, 29.84511, -108.9771; 5500 ft., leg. AD Smith & NM Franz, 31.vii-04.viii.2011 (1, ASUHIC);

Notes. The synonymies above were first given by Rhyand (1976) and are adopted here. The original homonymy between *Horistonotus flavidus* Candèze (1860) and *H. flavidus* Fall (1901) was corrected by Fall (1934) without comment when his species was transferred to *Esthesopus*.

Rhyand (1976) reported a number of localities from the Baja California peninsula, but not elsewhere in Mexico. The specimens reported above provide a **new state record** for Sonora.

***Glyphonyx dubius* Schaeffer**

Glyphonyx dubius Schaeffer, 1916: 265; Leng 1920: 172; Schenkling 1927: 485; Lane & Fisher 1941: 121; Smith & Balsbaugh 1984: 22

Specimens examined. MEXICO, SONORA, Ri[n]cón de Guadelupe Sta., 29.84511, -108.9771, 31.vii.2011, 1676.4m, leg. N.M. Franz / collected on plants at lights at night (1, ASUHIC); Mexico: Estado Sonora, Sierra de Bacadéhuachi, El Rincón de Guadalupe, 29.84511, -108.9771; 5500 ft., leg. A.D. Smith & N.M. Franz, 31.vii-04.viii.2011 (1, ASUHIC) [Complete locality fide T. Van Devender: Municipio de Bacadéhuachi: Rincón de Guadalupe, 16.5 km (by air) ENE of Bacadéhuachi, Arroyo Campo los Padres (Río Riíto drainage), Sierra de Bacadéhuachi. 29.84444ºN -108.97694ºW, 1680 m elev. Rocky canyon and mountainside. Sycamore-*Cupressus arizonica* riparian forest, pine-oak forest on slopes.]

Notes. Smith and Balsbaugh (1984) reported this species from Arizona, then in Mexico from Chiapas, Durango, and Sinaloa (as "Sinoloa"). The specimens reported here provide a **new state record.**

***Hemicrepidius carbonatus* (LeConte)**

Asaphes carbonatus LeConte, 1860: 320; Candèze 1863: 207, 1891: 181; Gemminger & Harold 1869: 1583; Crotch 1873: 73; Horn 1880: 71; Henshaw 1885: 71; Fall 1901: 114
Asaphes coracinus Candèze, 1863: 214, 1891: 181 (synonymy by Horn 1880: 71)
Hemicrepidius carbonatus, of Champion 1896: 479; Schwarz 1907: 240; Fall & Cockerell 1907: 178; Leng 1920: 170; Knowlton 1936: 110; Blackwelder 1944: 293; Brooks 1960: 32; Lane 1971: 25

Specimens examined. MEXICO: SONORA, Municipio de Bacoachi, Arroyo Frijolito, Sierra de los Ajos, 30.4 air km ESE of Cananea, Ajos-Bavispe Reserva Forestal Nacional y Refugio de Fauna Silvestre, 30.945094°N, 109.95707°W, 2238 m elev., 13.vii.2014 / A. Yanahan, G. Molina; Rocky canyon; pine-oak forest with *Abies concolor* (1, ASUHIC); Municipio de Cananea, Ajos Nuevos station, Cañon de Evans, Sierra de los Ajos, 29.9 air km E of Cananea, 30.97283°N, 109.96075°W, 1905 m elev., 12.viii.2014 / T.R. Van Devender, J.D. Palting, A. Yanahan, F.I. Ochoa-G., A.L. Reina-G., S.L. Minter / rocky stream canyon, riparian deciduous forest in canyon, oak woodland and pine-oak forest on slopes (1, ASUHIC); Las Antennas, 19.1 km NNW of Nacozari de Garcia, Sierra la Purica, 30.54417°N, 109.74861°W, 2467m, 17.vii.2013, T.R. Van Devender, A.L. Rein-G. / rocky ridge pine forest (3, ASUHIC); Municipio de de Nacozari de García, Rancho el Tigre, 29 air km WNW of Bavispe, Sierra el Tigre, 30.58944°N, 109.21833°W, 2297 m elev., 25.vi.2015 / T.R. Van Devender, A.L. Reina-G., pine-oak forest (21, ASUHIC).

Notes. This species was described from "Oregon or Rocky Mountains", and then subsequently reported from Manitoba to British Columbia south to western South Dakota and Nebraska to New Mexico, Arizona and California. Champion (1896) reported it from Durango. The finding of specimens in the mountains of Sonora constitutes a **new state record**.

***Heteroderes amplicollis* (Gyllenhal)**

Elater amplicollis Gyllenhall, 1817: 141
Elater (Oophorus) laurentii Guérin-Méneville, 1838: 31; Wolcott 1936: 213, 1948: 275
Heteroderes amplicollis, of Gemminger & Harold 1869: 1528;

Schenkling 1925: 131
Conoderes (*Heteroderes*) *amplicollis*, of Van Dyke 1932: 298
Heteroderes amplicollis, of Candèze 1859: 372, 1891: 85; Chevrolat 1867: 607; Gemminger & Harold 1869: 1528; Schwarz 1906: 109; Fleutiaux 1902: 113, 1911: 258; Schenkling 1925: 131; Blackwelder 1944: 289; Lane 1954: 244;
Heteroderes nicholsi Notman, 1922: 107 (synonymy by Lane 1956: 36)
Monocrepidius fuscosus Blatchley, 1925: 163, 1930: 30; Leng & Mutchler 1933: 27; Fall 1934: 9 (synonymy by Lane 1954: 244)
Monocrepidius (*Heteroderes) planidiscus* Fall, 1929: 56, 1934: 9; Leng & Mutchler 1933: 27; Blatchley 1930: 30 (synonymy); Lane 1954: 244
Conoderus amplicollis, of Van Dyke 1932: 300; Löding 1945: 60; Lane 1954: 244, 1956: 36; Kirk 1969: 48, 1970: 51; Stone 1975: 163; Becker 1975: 270; Woodruff et al. 1998: 24
[An extensive bibliography on extra-limital distribution of this species is not included here.]

Specimen examined. MEXICO, SONORA, W. side of Mazatán, 550m, 29.0472, -110.14806, 12.vii.2012, T.R. Van Devender, A.L. Reina-G. (1, ASUHIC).

Notes. The type locality for *H. amplicollis* is the island of St. Bartholomew in the northern Lesser Antilles. The species is considered introduced (e.g., Cockerham & Deen 1936, Stone 1975) to the mainland of North America and has spread across the southern United States to Arizona and California. The record given here documents the species from Sonora as a **new state record** and appears to be a **new country record**.

Heteroderes sordidus (LeConte)

Monocrepidius sordidus LeConte, 1853: 482; Candèze 1859: 271, 1891: 72; Gemminger & Harold 1869: 1524; Crotch 1873: 69; Horn 1894: 327; Wickham 1896: 162, 1898: 304, 1902: 265; Fall & Cockerell 1907: 177
Monocepidius sordidus, of Henshaw 1885: 67 (genus misspelling)
Heteroderes lantus Candèze, 1889: 31
Heteroderes sordidus, of Champion 1895: 357; Schwarz 1906: 108; Leng 1920: 167
Conoderus sordidus, of Schenkling 1925: 119
Conoderus (*Heteroderes*) *sordidus*, of Van Dyke 1932: 297, 300
Heteroderes sordida, of Blackwelder 1944: 289 (incorrect gender change)

Specimens examined. MEXICO, SONORA, Municipio de Moctezuma, 29.8127787°N, -109.075°W, 4.viii.2011, 635m elev., leg. T.R. Van Devender / collected at lights at night (1, ASUHIC); Municipio de Rayón, 29.713682°N, 110.57192°W, 542 m, 29.viii.2014, T.R. Van Devender, D. Barrales, A.L. Reina-G., urban foothills thornscrub (1, ASUHIC); Municipio de Cananea, ca. 2.0 km NE of Cananea, 31.00167°N, -110.2472°W, 1521 m elev., 24.viii.2016, T.R. Van Devender, A.L. Reina-G., grassland (1, ASUHIC); Municipio de Nogales, aduana station at Agua Zarca, km 21 S of Nogales, Mex 15, 31.16278°N, 110.95306°W, 1159 m elev., 27.vi.2015, T.R. Van Devender, A.L. Reina-G.; at light at night (1, ASUHIC).

Notes. The type locality for *H. sordidus* is along the Gila River, New Mexico. It was subsequently recorded from California to New Mexico, Colorado and Utah. Horn (1894) reported it from Baja California. The specimens collected by H.K. Morrison from "northern Sonora" and reported by Champion (1895) were probably collected in Arizona (Horn 1886, Schwarz 1899).

Horistonotus densus LeConte

Horistonotus densus LeConte, 1863: 83; Gemminger & Harold 1869: 1554; Crotch 1873: 68; Horn 1885: 35, 1895: 228; Henshaw 1885: 66; Schwarz 1906: 177; Leng 1920: 175; Schenkling 1925: 256; Blackwelder 1944: 303

Specimens examined. MEXICO: SONORA, Municipio de Ures, 1.6 air km WSW of Rancho el Bachán, 10.7 air km NW of Mazatán, Sierra Huérfana (= Mazatán), 29.09083°N, 110.20472°W, 1381 m elev., 23.vii.2014, T.R. Van Devender, J.D. Palting / Gentle granitic slopes; oak woodland (1, ASUHIC).

Notes. This species was described from "[Cabo] San Lucas." Horn (1884) reported one specimen from "Lower California", then later (Horn 1895) gave it from San José del Cabo and the Sierra San Lazaro, though both of these areas are within the Cape Region. Schwarz (1906) and Leng (1920) simply listed the species from "California." The Sonora specimen is a male and the aedeagus was dissected and compared with the holotype and topotypical specimens. The specimen reported above provides a **new state record**.

Horistonotus simplex LeConte

Horistonotus simplex LeConte, 1863: 83; Gemminger & Harold 1869: 1554; Crotch 1873: 68; Horn 1885: 38, 1894: 326; Henshaw 1885: 66; Candèze 1891: 136; Schwarz 1906: 177; Fall & Cockerell 1907: 177; Leng 1920: 175; Schenkling 1925: 256
Horistonotus fidelis Fall, 1934: 21; Wells 2000
Horistonotus fidelis fuscus Fall 1934: 22; Wells 2000

Specimens examined. MEXICO: SONORA, Municipio de Bacanora, Rancho las Tierras de Jimenez, 14.2 air km SW of Bacanora, Sierra de Murrieta, 28.90111°N, 109.51417°W, 1387 m elev., 2.viii.2014, T.R. Van Devender, J.D. Palting, rocky slope, oak woodland (1, ASUHIC); Sierra de Bacadéhuachi, Rincón de Guadalupe Station, 29.84511, -108.9771; 5500 ft., leg. AD Smith & NM Franz, 31.vii-04.viii.2011 (1, ASUHIC); Municipio de de Ures, 10.7 air km NW of Mazatán, Sierra Huérfana, 29.09083°N, 110.20472°W, 1381 m el., 23.vii.2014, T.R. Van Devender, J.D. Palting, oak woodland (1, ASUHIC); Municipio de Nogales, Aduana station at Agua Zarca, MEX 15, 31.16222°N, 110.95333°W, 1161 m elev., 12.vii.2015, T.R. Van Devender, A.L. Reina-G.; at lights, desert grassland (1, ASUHIC); Agua Zarca, 31°09'44"N, 110°57'12"W, 1161 m, 9.viii.2012, T.R. Van Devender (1, ASUHIC).

Notes. LeConte (1863) described this species from Cabo San Lucas, Baja California Sur. Horn (1885, 1894, 1895) reported it from the Cape Region of Baja California Sur, as well as Fort Yuma in the southwestern corner of Arizona, southern California, and southwestern Utah. Schwarz (1906) listed *H. simplex* simply from California. Fall (1934) remarked that "all typical examples" seen by him were from Baja California. Wells (2000) stated that *H. simplex* "is probably the most commonly collected species of the genus in the southwestern U.S. and northern

Mexico", but gave no specific data for specimens from Mexico. The specimens documented above provide a **new state record** for Sonora.

Examinations of the holotype of *H. simplex* and topotypical specimens judged conspecific suggest that specimens from California to Texas attributed to *H. simplex* may represent a complex of cryptic species as initially surmised by Fall (1934). Specimens from Sonoran localities, as well as various Arizona localities, were also compared to the holotypes of *H. fidelis fidelis* and *H. fidelis fuscus* and judged the same as these morphotypes of *H. simplex*. There is a high degree of variation in body length, but without significant differences in the length/width proportions, integumental sculpture, antennomere length ratios, or other typical elateroid morphological traits other than color. Aedeagal morphology variation is slight but differs between populations across the broader geographic range represented by the specimens examined. Integumental color varies from piceous to infuscate, to rufocastaneous, and a variety of intermediary shades and highlights. None of this variation seems to correlate with geographic region. Effects of post-eclosion maturation on integumental color, or seasonal or periodic environmental conditions on morphological expression of these beetles cannot be assessed at this time, but should be considered in future taxonomic evaluations. Considerable additional study is required to best evaluate the variation in this species.

Lacon candidus (Fall)

Adelocera candida Fall, 1932: 59
Lepidotus (*Lepidotus*) *candida*, of Arnett 1952: 110
Lepidotus (*Zalepia*) *candidus*, of Arnett 1953: 7
Zalepia candida, of Arnett 1953: 7; Arnett et al. 1969: 11
Lacon candidus, of Hayek, 1973: 59

Specimens examined. MEXICO, SONORA, Municipio de Aconchi, Rancho los Alisos, 9.4 km (air) WSW of Aconchi, Sierra Aconchi, 29.79833N 10.31972W, 1301m elev., T.R. Van Devender, J.D. Patling, A.L. Reina-G., 2.vii.2013 / Rocky canyon. Sycamore riparian forest, oak woodland on slopes (3, ASUHIC); Municipio de Fronteras, El Aserradero, 24 km WSW of Fronteras, Sierra Buenos Aires, Ajos-Bavispe Reserva Forestal Nacional y Refugio de Fauna Silvestre, 30.72694°N,-109.8135°W, 1707 m elev., 14.viii.2016, T.R. Van Devender, J.D. Palting / rocky mountainside; oak woodland with pine (1, ASUHIC); Municipio de Fronteras, Rancho Capulín, 23.5 km WSW of Fronteras, Sierra Buenos Aires, Ajos-Bavispe Reserva Forestal Nacional y Refugio de Fauna Silvestre, 30.76167°N, -109.82361°W, 1429 m elev., 2.vii.2016, T.R. Van Devender, J.D. Palting / cow pasture in oak woodland (7, ASUHIC).

Notes. Described from the Baboquivari Mountains, Arizona, the specimens above provide a **new country record** and a **new state record**.

Lacon mexicanus (Candèze)

Adelocera mexicana Candèze, 1857: 70, 1891: 14; Van Dyke 1932: 293; Fall 1934: 7
Lepidotus (*Aulacon*) *mexicana*, of Arnett, 1952: 114
Aulacon mexicanus, of Arnett et al.1969: 11
Lacon (*Aulacon*) *mexicanus*, of Arnett 1953: 7; Golbach 1969: 157
Lacon mexicanus, of Hayek 1973: 71, 1979: 198

Specimens examined. MEXICO, SONORA, Mcpo de Moctezuma, Rancho los Barchatas, disturbed mesquite bosque, elev. 2093', N29°48'46", W109°32'55", MVUV light, 31.vii.2010, J. Palting leg. (1, ASUHIC).

Notes. The species was described from Mexico, without further specification. Van Dyke (1932) reported *L. mexicanus* from the Baboquivari Mountains, Arizona, just north of the international border. The specimen reported above provides a **new state record**.

Lacon nobilis (Fall)

Adelocera nobilis Fall, 1932: 58, 1934: 7
Lepidotus (*Aulacon*) *nobilis*, of Arnett 1952: 113
Lacon (*Aulacon*) *nobilis*, of Arnett 1953: 7
Aulacon nobilis, of Arnett et al.1969: 11
Lacon nobilis, of Hayek 1973: 72

Specimen examined. MEXICO, SONORA, W. side of Mazatán, 550 m, 29.0472, -110.14806, leg. T.R. Van Devender, A.L. Reina-G., 25.vi.2012 (1, ASUHIC).

Notes. Fall (1932) described this species from the Baboquivari Mountains of southern Arizona. The above specimen provides a **new country record** and a **new state record** in Sonora.

Megapenthes apacheorum Becker

Megapenthes apacheorum Becker, 1971: 157

Specimens examined. MEXICO, SONORA, Las Antennas, 19.1 km NNW of Nacorari de Garcia, Sierra la Púrica, 30.54417°N, 109.74861°W, 2467m, 17.vii.2013, T.R. Van Devender, A.L. Rein-G., rocky ridge pine forest (5, ASUHIC); Rancho el Jarazos, 22.4 km N of Nacozari de García, Sierra la Púrica, 30.57556N, 109.73250W, 1595 m, 16.vii.2013, T.R. Van Devender, A.L. Reina-G.; rocky cyn, oak woodland (7, ASUHIC).

Notes. This species was described (Becker 1971) from central and eastern Arizona, southwestern New Mexico, to west-central Chihuahua. The specimens above provide a **new state record**.

Megapenthes fuscus Becker

Megapenthes fuscus Becker, 1971: 162

Specimens examined. MEXICO, SONORA, Sierra de Bacadéhuachi, El Rincón de Guadalupe, 29.84511, -108.9771; 5500 ft., leg. AD Smith & NM Franz, 31.vii-04.viii.2011 (1, ASUHIC).

Notes. This species was described (Becker 1971) from central and eastern Arizona. The specimens above provide both a **new country record** and a **new state record**.

Megapenthes longicornis Schaeffer

Megapenthes longicornis Schaeffer, 1916: 258; Van Dyke 1932: 313; Lane & Fisher 1941: 121; Becker 1971: 151

Specimens examined. MEXICO, SONORA, Ri[n]cón de Guadalupe Sta., 29.84511, -108.9771, 31.vii.2011, 1676.4 m, leg. N.M. Franz / collected on plants at lights at night (4, ASUHIC); Sierra de Bacadéhuachi, El Rincón de Guadalupe, 29.84511, -108.9771; 5500 ft., leg. AD Smith

& NM Franz, 31.vii-04.viii.2011 (1, ASUHIC); Rancho el Jarazos, 22.4 km N of Nacozari de Garcia, Sierra la Púrica, 30.57556N 109.73250W, 1595 m, 16.vii.2013, T.R. Van Devender, A.L. Reina-G. / rocky cyn/oak woodland (4, ASUHIC; 2 PJJC); Municipio de Cananea, Ajos Nuevos station, Cañon de Evans, Sierra de los Ajos, 29.9 air km E of Cananea, Ajos-Bavispe Reserva Forestal Nacional y Refugio de Fauna Silvestre, 30.97283°N, 109.96075°W, 1905 m elev. 12.vii.2014, T.R. Van Devender, J.D. Palting, A. Yanahan, F.I. Ochoa-G., A.L. Reina-G., S.L. Minter / rocky stream canyon; riparian deciduous forest in canyon, oak woodland and pine-oak forest on slopes (9, ASUHIC).

Notes. Schaeffer (1916) described *M. longicornis* from the Huachuca Mountains, Arizona and stated that it is "a fairly common species." Van Dyke (1932) gave simply "southern Ariz." Becker (1971) reported this species from many sites in central and southeastern Arizona, and near Creel, Chihuahua, Cuernavaca, Morelos, and Jalisco. The specimens reported above provide a **new state record** for Sonora.

Megapenthes obtusus Van Dyke

Megapenthes obtusus Van Dyke, 1932: 315; Becker 1971: 161

Specimen examined. MEXICO: SONORA, Municipio de Fronteras, Rancho Capulín, 23.5 km WSW of Fronteras, Sierra Buenos Aires, Ajos-Bavispe Reserva Forestal Nacional y Refugio de Fauna Silvestre, 30.76167°N, -109.82361°W, 1429 m elev., 2.vii.2016, T.R. Van Devender, J.D. Palting / cow pasture in oak woodland (1, ASUHIC).

Notes. This species was described from the Chiricahua Mountains, Arizona and reported from the Sacramento Mountains in southwestern New Mexico. Becker (1971) gave records from throughout southeastern Arizona. The above specimen provides a **new country record** and a **new state record**.

Megapenthes variolatus Van Dyke

Megapenthes variolatus Van Dyke, 1932: 316; Becker 1971: 154

Specimens examined. MEXICO: SONORA, Municipio de Cananea, Rancho El Chiltepín, 23.3 km S of Cananea, Sierra Manzanal, 30.77222N, 110.28889W, 1216 m, 13Sept14, T.R. Van Devender, J.D. Palting, Al. Reina-G., G. Molina / rock hillside, desert grassland

Notes. Becker (1971) noted that all of the specimens examined by him were collected within 75 miles of the type locality, Mt. Washington, near to Nogales, Arizona. The Rancho El Chiltepín is within this radius and provides both a **new country record** and a **new state record** for Sonora.

Melanotus chiricahuae Knull

Melanotus chiricahuae Knull, 1962: 34; Quate & Thompson 1967: 69

Specimens examined. MEXICO, SONORA, Agua Zarca S of Nogales, 31.16222, -110.95333, leg. T.R. Van Devender, A.L. Reina-G., 13.vi.2012 / collected at lights on building at night (1, ASUHIC); Municipio de Aconchi, Rancho los Alisos, 9.4 km (air) WSW of Aconchi, Sierra Aconchi, 29.79833N 10.31972W, 1301m elev., 2.vii.2013, T.R. Van Devender, J.D. Patling, A.L. Reina-G. / Rocky canyon, sycamore riparian forest, oak woodland on slopes (7, ASUHIC); Municipio de Ures, Rancho los Dos Porillos, 11.9 air km NNW of Mazatán, Sierra Huérfana (=Mazatán), 29.10398°N, 110.18861°W, 1422 m elev., 27.iv.2014, T.R. Van Devender, A.L. Reina-G. / Rocky granitic slope; oak woodland (2, ASUHIC); Municipio de Cananea, Rancho El Chiltepín, 23.3 km S of Cananea, Sierra Manzanal, 30.77222N 110.28889W, 1216 m, 13.ix.2014, T.R. Van Devender, J.D. Palting, Al. Reina-G., G. Molina / rock hillside, desert grassland (1, ASUHIC).

Notes. Described from Arizona and New Mexico, no locations in Mexico were given by Quate and Thompson (1967). The above specimens provide a **new country record** and a **new state record** for Sonora.

Melanotus sestrotrachelus Hayek

Melanotus cribricollis Candèze, 1860: 358, 1891: 145 b (homonym of *M. cribricollis* (Falderman 1835: 361)); LeConte 1863: 47, 1866: 47; Gemminger & Harold 1869: 1558; Crotch 1873: 70; Henshaw 1885: 69; Horn 1894: 327; Fall 1901: 21; Schwarz 1906: 190; Leng 1920: 174; Blackwelder 1944: 301; Quate & Thompson 1967: 68

Melanotus sestrotrachelus Hayek, 1990: 72 (replacement name)

Specimens examined. MEXICO, SONORA, Municipio de Aconchi, Rancho los Alisos, 9.4 km (air) WSW of Aconchi, Sierra Aconchi, 29.79833N 10.31972W, 1301m elev., T.R. Van Devender, J.D. Patling, A.L. Reina-G., 2.vii.2013 / Rocky canyon. Sycamore riparian forest, oak woodland on slopes (3, ASUHIC); Municipio de de Ures, Rancho los Dos Potrillos, 11.9 air km NNW of Mazatán, Sierra Huérfana, 29.10398°N, 110.18861°W, 1422 m elev., 27.iv.2014, T.R. Van Devender, J.D. Palting, rocky granitic slope, oak woodland (1, ASUHIC); Municipio de Cananea, Rancho El Chiltepín, 23.3 km S of Cananea, Sierra Manzanal, 30.77222N 110.28889W, 1216 m, 13-14. ix.2014, T.R. Van Devender, J.D. Palting, Al. Reina-G., G. Molina / rock hillside, desert grassland (1, ASUHIC).

Notes. *Melanotus sestrotrachelus* (as *cribricollis*) was reported only from Baja California Sur by Horn (1894) and Quate and Thomson (1967). The above specimens provide a **new state record** for Sonora. Hayek (1990) changed the species name due to homonymy.

Melanotus lanceatus Quate

Melanotus lanceatus Quate in Quate & Thompson, 1967: 57; Hayek 1990: 67

Specimens examined. MEXICO, SONORA, Sierra de Bacadéhuachi, El Rincón de Guadalupe, 29.84511, -108.9771; 5500 ft., leg. AD Smith & NM Franz, 31.vii-04. viii.2011 (3, ASUHIC); 9.4 km NNW of Cananea, Sierra lae Mariquieta, 30.0544°N, 110.38250°W, 2422 m elev., 2 Aug. 2013, T.R. Van Devender, A.L. Reina-G.; pine forest, rocky slope (1, ASUHIC).

Notes. This species was described from a wide variety of locations in Arizona and Texas by Quate and Thompson (1967), but no locations were given for Mexico. The above specimens provide a **new country record** and a **new state record** for Sonora.

Melanotus similis (Kirby)

Perimecus similis Kirby, 1837: 149
Cratonychus similis, of Erichson 1841: 116
Melanotus similis, of Candèze 1891: 146; Quate & Thompson 1967: 14; Hayek 1990: 72 (see this last reference for a complete synonymy list)

Specimens examined. MEXICO, SONORA, Sierra de Bacadéhuachi, El Rincón de Guadalupe, 29.84511, -108.9771; 5500 ft., leg. AD Smith & NM Franz, 31.vii-04.viii.2011 (1, ASUHIC); Ricón de Guadalupe Sta., at night/lights, 5500 elev., leg. N. Franz, 3.viii.2011 (1, ASUHIC); Municipio de de Nogales, Agua Zarca, 31°09'44"N, 110°57'12"W, 1161 m, 9.viii.2012, T.R. Van Devender (1, ASUHIC); 16.5 air km ENE of Bacadéhuachi, 29.84444, -108.97694, 2.viii.2011, 1680m, leg. T.R. Van Devender / Sycamore *Cupressus arizonica*, riparian/pine-oak forest on slopes (3, ASUHIC); same, 4.ix.2011 (2, ASUHIC); Municipio de Aconchi, Rancho los Alisos, 29°47'54"N 110°19'11"W, 1301m elev., 2.ix.2012, T.R. Van Devender (2, ASUHIC); Rancho el Jarazos, 22.4 km N of Nacozari de Garecia, Sierra la Púrica, 30.7556°N, 109.73250°W, 1595m, 16.vii.2013, T.R. Van Devender, A.L. Reina-G., rocky cyn, oak woodland (8, ASUHIC); Municipio de Aconchi, Rancho los Alisos, 9.4 km (air) WSW of Aconchi, Sierra Aconchi, 29.79833N 10.31972W, 1301m elev., T.R. Van Devender, J.D. Patling, A.L. Reina-G., 2.vii.2013 / Rocky canyon. Sycamore riparian forest, oak woodland on slopes (2, ASUHIC); Las Antennas, 19.1 km NNW of Nacorari de Garcia, Sierra la Purica, 30.54417°N, 109.74861°W, 2467m, 17.vii.2013, T.R. Van Devender, A.L. Rein-G., rocky ridge pine forest (5, ASUHIC); Municipio de Cananea, Ajos Nuevos station, Cañon de Evans, Sierra de los Ajos, 29.9 air km E of Cananea, Ajos-Bavispe Reserva Forestal Nacional y Refugio de Fauna Silvestre, 30.97283°N, 109.96075°W, 1905 m elev., 12.vii.2014, T.R. Van Devender, J.D. Palting, A. Yanahan, F.I. Ochoa-G., A.L. Reina-G., S.L. Minter / Rocky stream canyon; riparian deciduous forest in canyon, oak woodland and pine-oak forest on slopes (13, ASUHIC); Cananea, 30.99333°N, 110.28000°W, 1573 m elev., 4.viii.2013, T.R. Van Devender, A.L. Reina-G., urban lights (1, ASUHIC); Municipio de Ures, 10.7 air km NW of Mazatán, Sierra Huérfana, 29.09083°N, 110.20472°W, 1381 m elev., 23.vii.2014, T.R. Van Devender, J.D. Palting oak woodland (7, ASUHIC); Municipio de Bacanora, Rancho las Tierras de Jimenez, 14.2 air km SW of Bacanora, Sierra de Murrieta, 28.90111°N, 109.51417°W, 1387 m elev., vii.2014, T.R. Van Devender, J.D. Palting / rocky slope, oak woodland (2, ASUHIC); Municipio de de Bacanora, Rancho las Tierras de Jimenez, 14.2 air km SW of Bacanora, Sierra de Murrieta, 28.90111°N, 109.51417°W, 1387 m elev., 2.viii.2014, T.R. Van Devender, J.D. Palting, rocky slope, oak woodland (2, ASUHIC); Municipio de Magdalena de Kino, Los Empelotos, Rancho el Yeso, 18.5 air km E. of Magdalena de Kino, Sierra de la Madera, 30.6161°N, 110.76556°W, 1599 m elev., 14.ix.2015, T.R. Van Devender, J.D. Palting; oak woodland (1, ASUHIC); Municipio de Fronteras, El Aserradero, 24 km WSW of Fronteras, Sierra Buenos Aires, Ajos-Bavispe Reserva Forestal Nacional y Refugio de Fauna Silvestre, 30.72694°N,-109.8135°W, 1707 m elev., 14.viii.2016, T.R. Van Devender, J.D. Palting / rocky mountainside; oak woodland with pine (6, ASUHIC).

Notes. This species is probably the most widespread of the North American *Melanotus* species and is quite variable in pronotal silhouette and punctation. Quate and Thompson (1967) listed Mexico as within the range of the species but curiously did not give more specific information. The specimens reported above provide a **new state record**.

Orthostethus infuscatus (Germar)

Aphanobius infuscatus Dejean 1833: 92, 1836: 104 (*nomen nudum*)
Aphanobius infuscatus Germar, 1844: 183; LeConte 1853: 492
Orthostethus infuscatus, of Lacordaire 1857: 207; Candèze 1863: 314, 1891: 191; Champion 1896: 508; Schwarz 1907: 261; Leng 1920: 172; Schenkling 1927: 434; Blackwelder 1944: 294; Schimmel & Tarnawski 2010: 438, 440
Pristilophus sordidus Melsheimer, 1846: 216; Lacordaire 1857: 207; Candèze 1863: 314
Orthostethus sordidus, of Schwarz 1907: 261
Orthostethus praefectus Candèze, 1863: 315; Schwarz 1907: 261; Schimmel & Tarnawski 2010: 438, 440

Specimens examined. MEXICO, SONORA, Sierra de Bacadéhuachi, El Rincón de Guadalupe, 29.84511, -108.9771; 5500 ft., leg. AD Smith & NM Franz, 31.vii-04.viii.2011 (1, ASUHIC); 16.5 air km ENE of Bacadéhuachi, 29.84444, -108.97694, 2.viii.2011, 1680m, leg. T.R. Van Devender / Sycamore/*Cupressus arizonica*, riparian/pine-oak forest on slopes (3, ASUHIC); 4.ix.2011 (1, ASUHIC); 15.5 air km SW of Nogales, elev. 1200m, 31.19728. -111.10139, leg. T.R. Van Devender, A.L. Reina-G., 12.vii.2012 / rocky canyon riparian forest/oak woodland (1, ASUHIC); Municipio de Aconchi, Rancho los Alisos, 9.4 km (air) WSW of Aconchi, Sierra Aconchi, 29.79833N 10.31972W, 1301m elev., 2.vii.2013, T.R. Van Devender, J.D. Patling, A.L. Reina-G. / rocky canyon; sycamore riparian forest, oak woodland on slopes (4, ASUHIC); Rancho el Jarazos, 22.4 km N of Nacozari de Garcia, Sierra la Púrica, 30.57556N 109.73250W, 1595 m, 16.vii.2013, T.R. Van Devender, A.L. Reina-G. / rocky cyn/oak woodland (1, ASUHIC); Municipio de Fronteras, Rancho Capulín, 23.5 km WSW of Fronteras, Sierra Buenos Aires, Ajos-Bavispe Reserva Forestal Nacional y Refugio de Fauna Silvestre, 30.76167°N, -109.82361°W, 1429 m elev., 2.vii.2016, T.R. Van Devender, J.D. Palting / cow pasture in oak woodland (2, ASUHIC).

Notes. *Orthostethus infuscatus* is a widespread species from Maryland to Indiana, to Kansas and Arizona, and south to Brazil. The type locality is given broadly as "America boreali" and "Mexico" (Germar 1844). Champion (1896) cited Mexican localities in Veracruz (as "Cordova" and "Santecomapan") and Chiapas (as "Tuxtla"). Roache (1961) did not give information on the species distribution in Mexico. The collecting of this species in Sonora provides a **new state record.**

Orthostethus pectinicornis Champion

Ludius pectinicornis Champion, 1896: 510
Orthostethus pectinicornis, of Schwarz 1907: 261; Schenkling 1927: 434; Blackwelder 1944: 294; Schimmel & Tarnawski 2010: 438
Orthostethus caviceps Schaeffer, 1916: 263; of Leng 1920: 172; Schenkling 1927: 434; Lane & Fisher 1941: 120; Roache 1961: 307; Schimmel & Tarnawski 2010: 436, 440 **new synonym**

Specimens examined. MEXICO, SONORA: Sierra de Bacadéhuachi, Rincón de Guadalupe Station, 29.84511, -108.9771; 5500 ft., leg. AD Smith & NM Franz, 31.vii-04.viii.2011 (5, ASUHIC); Ri[n]cón de Guadalupe Sta., trail to Arroyo Semi-Olímpico; leg. N. Franz, 3.viii.2011 (2, ASUHIC); Ri[n]cón de Guadalupe Sta., 29.84511, -108.9771, 31.vii.2011, 1676.4m, leg. N.M. Franz / collected on plants at lights at night (1, ASUHIC); 9.4 air km WSW of Aconchi, elev. 1301m, 29.79833, -110.31972, leg. T.R. Van Devender, N.S. Deyo, 7.vii.2012 / rocky canyon, sycamore riparian forest/oak woodland on slope (1, ASUHIC); Municipio de Aconchi, Rancho los Alisos, 9.4 km (air) WSW of Aconchi, Sierra Aconchi, 29.79833N 10.31972W, 1301m elev., T.R. Van Devender, J.D. Palting, A.L. Reina-G., 2.vii.2013 / Rocky canyon; sycamore riparian forest, oak woodland on slopes (1, ASUHIC); Municipio de Rancho el Jarazos, 22.4 km N of Nacozari de Garcia, Sierra la Púrica, 30.57556N 109.73250W, 1595 m, 16.vii.2013, T.R. Van Devender, A.L. Reina-G. / rocky cyn/oak woodland (10, ASUHIC); Municipio de Fronteras, Arroyo Frijolito, Sierra de los Ajos, 30.4 aur km ESE of Cananea, Ajos-Bavispe Reserva Forestal Nacional y Refugio de Fauna Silvestre, 30.945094°N, 109.95707°W, 2238 m elev., 13.vii.2014, A. Yanahan, G. Molina / Rocky canyon; pine-oak forest with *Abies concolor* (1, ASUHIC); Municipio de Cananea, Ajos Nuevos station, Cañon de Evans, Sierra de los Ajos, 29.9 air km E of Cananea, 30.97283°N, 109.96075°W, 1905 m elev., 12.viii.2014 / T.R. Van Devender, J.D. Palting, A. Yanahan, F.I. Ochoa-G., A.L. Reina-G., S.L. Minter / rocky stream canyon; riparian deciduous forest in canyon, oak woodland and pine-oak forest on slopes (3, ASUHIC).

Notes. The synonymy was predicted by Schaeffer (1916) with the description of *O. caviceps*, but apparently Schaeffer never studied the female holotype of *O. pectinicornis*. The holotype of *O. caviceps* is a male. The supposed separation characters of prosternal punctation density and relative density of pubescence are highly variable and sexual. Schaeffer's comment on the incurved form of the divergent pronotal hind angle apices and description of serrate antennae apply to the female. Males have subparallel lateral margins for the hind angles and pectinate antennae. Sonoran specimens of both sexes were seen from the localities given above.

Schimmel and Tarnawski (2010, p. 438) commented that they provided the first record of the species from North America by citing a specimen from Arizona, but this is quizzical given that the species was described from Chihuahua, Mexico, and that North America extends well south of the Mexico-United States border. They noted the species a second time (p. 440) as from "North America: Arizona, Mexico."

The finding of this species in Sonora provides a **new state record.**

Vesperelater ornamentum (Germar)

Pyrophorus ornamentum Germar, 1841: 39; Candèze 1863: 34, 1891: 159; Champion 1895: 469; Schwarz 1907: 212; Schenkling 1927: 348; Blackwelder 1944: 286
Pyrophorus gemmiferus Germar, 1841: 26
Pyrophorus caliginosus Sturm, 1843: 67 (*nomen nudum*)
Vesperelater ornamentum, of Costa 1975: 110; Reise 2012: 123

Specimens examined. MEXICO, SONORA, Municipio de Bacanora, Rancho las Tierras de Jimenez, 14.2 air km SW of Bacanora, Sierra de Murrieta, 28.90111°N, 109.51417°W, 1387 m elev., 2.viii.2014, T.R. Van Devender, J.D. Palting; rocky slope, oak woodland (1, ASUHIC); Municipio de de Ures, 10.7 air km NW of Mazatán, Sierra Huérfana, 29.09083°N, 110.20472°W, 1381 m el., 28.vii.2014, T.R. Van Devender, J.D. Palting; oak woodland (1, ASUHIC); Municipio de de Ures, 7.6 air km SSW of Pueblo de Álamo, Sierra Huérfana, 29.12158°N, 110.16953°W, 865 m elev., 29.vii.2014, J.D. Palting, J. Haxaire; foothills thornscrub (8, ASUHIC; 2, PJJC); Municipio de Soyopa, Arroya Garambullo, 28.56944N, 109.5500W, el. 180 m, 3.3 km S., 1.5 km. E. of Tonchi, 8.viii.2012, T.R. Van Devender, R.A. Villa (1, ASUHIC).

Notes. *Vesperelater ornamentum* was reported from Durango, Guerrero, Morelos, and Sinaloa (Costa 1975, Reise 2012). The specimens documented here provide a **new state record** for Sonora.

A CHECKLIST OF THE ELATERIDAE OF SONORA, MEXICO

(Family-group assignments follow Johnson (2002 a, b). Citations are first reports for species from Sonora not given here first)

SUBFAMILY AGRYPNINAE

Tribe Agrypnini

Lacon candidus (Fall)
Lacon mexicanus (Candèze)
Lacon nobilis (Fall)

Tribe Oophorini

Aeolus livens (LeConte)
Conoderus athoides (LeConte)
Conoderus auritus (Herbst)
Conoderus browni Knull
Conoderus parallelus (Candèze)
Conoderus texanus (Candèze)
Heteroderes amplicollis (Gyllenhal)
Heteroderes robustus (Horn)
Heteroderes sordidus (Germar)

Tribe Pseudomelanactini

Anthracalaus agrypnoides (Van Dyke)

Tribe Hemirhipini

Alaus lusciosus (Hope) (Champion 1894)
Alaus zunianus Casey
Chalcolepidius approximatus Erichson [Johnson et al. 2012]
Chalcolepidius apacheanus Casey [Casari 2002]
Chalcolepidius lenzi Candèze [Casari 2002]
Chalcolepidius oxydatus Candèze [Casari 2002]
Chalcolepidius smaragdinus LeConte [Casari 2002]
Chalcolepidius sulcatus (Fabricius) [Casari 2002]
Chalcolepidius virginalis Candèze [Casari 2002]
Chalcolepidius webbi LeConte [Casari 2002]

Tribe Pyrophorini

Vesperelater ornamentum (Germar)

SUBFAMILY DENDROMETRINAE

Tribe Athoini

Athous arizonicus Van Dyke

Tribe Hemicrepidiini
Hemicrepidius carbonatus (LeConte)

SUBFAMILY NEGASTRIINAE
Paradonus futilis (LeConte)

SUBFAMILY ELATERINAE
Tribe Elaterini
Subtribe Elaterina
Diplostethus arizonensis (Schaeffer)
Diplostethus opacicollis (Schaeffer)
Diplostethus substriatus (Schaeffer)
Orthostethus infuscatus (Germar)
Orthostethus pectinicornis Champion
Tribe Agriotini
Subtribe Synaptina
Glyphonyx championi Smith & Balsbaugh
Glyphonyx dubius Schaeffer
Glyphonyx ferruginosus Schaeffer [Smith & Balsbaugh 1984]
Tribe Ampedini
Subtribe Dicrepidiina
Anoplischius murrieta **new species**
Dicrepidius corvinus (Candèze) [Clark 1963]
Dipropus reinae Johnson [Johnson 2016]
Dipropus sonora Johnson [Johnson 2016]
Dipropus sus (Candèze)
Dipropus yaqui Johnson [Johnson 2016]
Subtribe Melanotina
Melanotus cribricollis Candèze
Melanotus chiricahuae Schaeffer
Melanotus lanceatus Quate
Melanotus similis (Kirby)
Subtribe Physorhinina
Anchastus ventralis Van Dyke
Physorhinus fusculus Champion [Schaaf 1971]
Tribe Megapenthini
Megapenthes apacheorum Becker
Megapenthes fuscus Becker
Megapenthes longicornis Schaeffer
Megapenthes megalops Van Dyke
Megapenthes obtusus Becker
Megapenthes variolatus Van Dyke

SUBFAMILY CEBRIONINAE
Scaptolenus paltingi Johnson

SUBFAMILY CARDIOPHORINAE
Aptopus campylinus Erichson
Aptopus opata **new species**
Aptopus purica **new species**
Aptopus rugiceps Schaeffer
Aptopus subcarinatus Schaeffer
Cardiophorus vulneratus (Horn) [Champion 1896]
Esthesopus parcus Horn
Horistonotus densus LeConte
Horistonotus simplex LeConte

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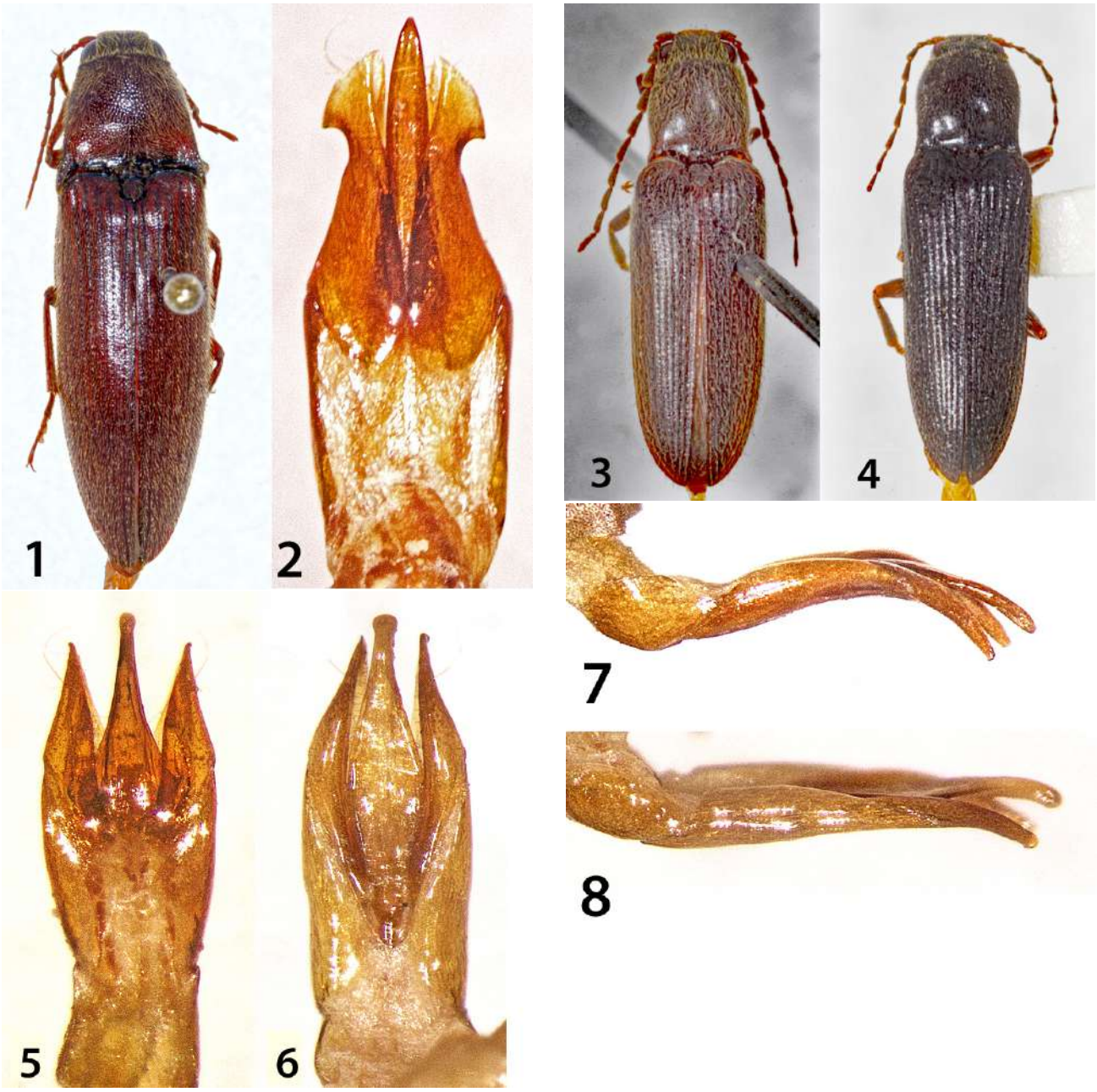

Figures 1-2, *Anoplischius murrieta* new species. Fig. 1 – adult, dorsal aspect. Fig. 2 – aedeagus, dorsal aspect.Figures 3-4, *Aptopus* new species. Fig.3 - *Aptopus opata*, adult, dorsal aspect. Fig. 4 – *Aptopus purica*, adult, dorsal aspect. Figures 5-6, *Aptopus* new species. Fig. 5 – *Aptopus opata*, aedeagus, dorsal aspect. Fig. 6 – *Aptopus purica*, aedeagus, dorsal aspect. Figures 7-8, *Aptopus* new species. Fig. 7 – *Aptopus optata*, aedeagus, lateral aspect. Fig. 8 – *Aptopus purica*, aedeagus, lateral aspect.