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Abstract. New adult host records of *Agrilus langei* Obenberger, *A. pilosicollis* Fisher, and *Dicerca mutica* LeConte (Coleoptera: Buprestidae) are reported. The known geographic range of *A. pilosicollis* is expanded from the type location in Kansas south to Texas and east to North Carolina. Images with key characters of each of the three species are included.

Key words. Agrilinae, Chrysochroinae, Nearctic.

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Introduction

Among the nearly 800 species of buprestids in North America (north of Mexico) are those known from very few specimens. Distribution and plant host information for such species is understandably limited and, in many cases, completely unknown (Nelson et al. 2008). A knowledge of host utilization is often the first step in understanding the life history of such buprestid species. Adult host records of rarely encountered buprestids can be useful starting points to determine larval hosts, as adults of non-anthrophilous genera are frequently found feeding on larval plant hosts. Herein we report distribution and adult plant host records that may prove useful in future study of *Agrilus langei* Obenberger, *A. pilosicollis* Fisher and *Dicerca mutica* LeConte.

Materials and Methods

The following are collection abbreviations used for depositories of specimens herein:

EDNC North Carolina Department of Agriculture, Raleigh, North Carolina, USA
TAMU Texas A & M University College Station, Texas, USA
JAHC Jason A. Hansen Collection, Harlingen, Texas, USA
JPBC Joshua P. Basham Collection, Murfreesboro, Tennessee, USA

Unidentified specimens collected by Jeff A. Back (Hewitt, Texas), specimens collected by the first author, and material from emerald ash borer monitoring efforts in North Carolina were determined to species using available literature (Fisher 1928; Nelson 1975; Westcott and Noguera 1995). Among the specimens examined, three species stood out: *Agrilus langei*, *A. pilosicollis* and *Dicerca mutica*. Detailed images of the *A. pilosicollis* specimen from Texas were sent for comparison to the U.S. National Museum of Natural History (USNM; Washington, D.C.), where the unique holotype is housed. The North Carolina specimens were determined to be *A. pilosicollis* by comparison to the published species description and the Texas specimen. Two specimens of *A. langei*, one of each sex, were deposited at Texas A & M University (TAMU; College Station, Texas) along with single Texas specimens of *A. pilosicollis* and *D. mutica*. An additional three specimens of *A. langei* remain in the collection of the first author (JAHC). The 2015 specimen of *A. pilosicollis* from North Carolina is deposited in the collection of the second author (JPBC) and the 2018 specimen in the collection at North Carolina State University (EDNC; Raleigh, North Carolina).

Results and Discussion

Agrilus langei Obenberger, 1935

TEXAS: Cameron Co., nr. Sabal Palm Sanctuary, 25.859757, –97.424329, 4–5.xi.2018 (2), 14.x.2019 (3) on *Abutilon trisulcatum*, coll. J.A. Hansen. **New adult host record.**

Though not uncommon in the more tropical habitat of Mexico, *A. langei* is rarely encountered in the United States. A single male specimen in the TAMU collection labeled from "Tex" was found by Westcott and Noguera (1995) to be incorrectly identified as *A. cavifrons* Waterhouse. Still, no mention of its occurrence in the U.S. is seen in current catalogs (Nelson et al. 2008; Bellamy 2008). The vague label data and lack of any additional specimens are likely reasons for its exclusion from the published North American buprestid fauna. A chance image of *A. langei* from Hidalgo Co., Texas was submitted to the popular website bugguide.net, which appeared to confirm its presence in the U.S. (Zurovec 2012). Though the specimen was not collected or vouchered, the images were of sufficient quality for Richard L. Westcott to confirm the identity of the beetle.

The specimens reported here were collected by hand or with sweep net over a two-year period just north of Sabal Palm Sanctuary along the border wall in Cameron Co., Texas. All specimens were collected while resting on leaves of *Abutilon trisulcatum* (Jacq.) Urb. The first specimen collected was a female resting on the leaf of an isolated, knee-high *Abutilon* plant. The following day a large patch of mature *A. trisulcatum* was found not far from where the original specimen was collected in a vacant lot between the border wall and an adjacent neighborhood. Upon further investigation, a male specimen was seen flying among the plants and subsequently collected (Fig. 1a–e). Despite an exhaustive search of the area, no other specimens were found. Considering the time of year, it was likely peak flight time had passed several weeks earlier. The following year the author returned to the same location on 14.x.2019 and collected three additional specimens, despite most of the plants having been bulldozed as the nearby neighborhood expanded.

The collection of five specimens in south Texas over a two-year period (2018–2019), along with the image posted on bugguide.net and the vaguely labeled TAMU specimen, confirm the presence of *A. langei* in the United States, specifically in the two southernmost Texas counties of Cameron and Hidalgo. *Albutilon trisulcatum* is known to occur from Nicaragua north to Hidalgo and Cameron counties in the United States (Fryxell 1983). It was one of several native plants used to manage invasive grasses as part of a 15-year revegetation program in the Lower Rio Grande Valley (Best 2009). Several other species of *Abutilon* occur in the United States, but no records of *A. langei* exist north of the two southmost counties, suggesting *A. langei* may prefer specific *Abutilon* species or simply is not suited to a more northerly environment. It remains to be shown if *A. langei* is associated with *A. trisulcatum* exclusively; seven other species of *Abutilon* occur in south Texas. Further investigation may show a more diverse host range within the plant genus, as is common with many *Agrilus* species. No larval activity could be found in the stems or roots of several plants inspected by the first author. Given the low number of adults in the area, it is possible larvae would be hard to locate, despite the fact its late instar larvae would undoubtedly rival those of *A. planipennis* Fairmaire (emerald ash borer) in size.

Figure 1. *Agrilus langei* Obenberger ♂. **a)** Dorsal view. **b)** Ventral view. **c)** Lateral view. **d)** Dorsal view of aedeagus. **e)** Frons.

Given the limited distribution of *A. langei* in the United States and the dearth of individuals observed in south Texas, it is reasonable to have concern about the elimination of habitat where *A. langei* is known to occur along the southern border. *Abutilon trisulcatum* was found in small patches by the author in multiple locations in Hidalgo and Cameron counties, but *A. langei* was observed only near Sabal Palm Sanctuary. As development continues to occur on land surrounding the few existing protected areas across the Lower Rio Grande Valley, the importance of preserving the shrinking habitat for native wildlife to thrive has become ever more pronounced.

In the United States, *A. langei* somewhat resembles *A. cavifrons* in size and general mottling, but the latter is only known from Arizona and is readily distinguished by its more robust form and rounded elytral tips.

Agrilus pilosicollis Fisher, 1928

TEXAS: San Saba Co., 2.5 mi. NW Bend, 18.iv.1994 (1♀), on live oak [*Quercus virginiana* Mill.] tree, coll. J.A. Back. **New state and adult host record.** NORTH CAROLINA: Wayne Co. Goldsboro, Faith Christian Academy, 35°24′00″N, 78°00′42″W, *Cerceris fumipennis* Say prey, 15.vi.2015 (1♀), coll. C.A. Nalepa; Franklin Co.,

Franklinton, Franklinton Park, 36°06′25″N, 78°26′06″W, *C. fumipennis* prey, 10.vi.2018 (1♀), coll. N. Oderkirk. **New state record.**

Agrilus pilosicollis was originally described from a single specimen taken in Garden City, Kansas in 1914 (Fisher 1928). No additional specimens have come to light since its description until the present records. The three female specimens above range in size from 11.2–12 mm, somewhat larger than the holotype (10.5 mm). The two North Carolina specimens were collected as part of a biosurveillance program targeting *A. planipennis* using the crabronid wasp *Cerceris fumipennis* Say, which provisions its nests with buprestid beetles as a larval food source. The two female specimens were collected in different counties three years apart. The pubescent spots on the elytra of one specimen were less evident, especially the median one which was represented by a single golden seta on each elytron. This is presumed to be the result of typical setal loss over the lifespan of the beetle or from rough handling by the wasp. The golden setae comprising the elytral spots were broader than the surrounding elytral setae, which were white to translucent. Male representatives of *A. pilosicollis* are unknown.

The newly discovered Texas (Fig. 2a–e) and North Carolina specimens represent a surprising expansion of the known geographic range of *A. pilosicollis* from a solitary midwestern state to potentially include the entire

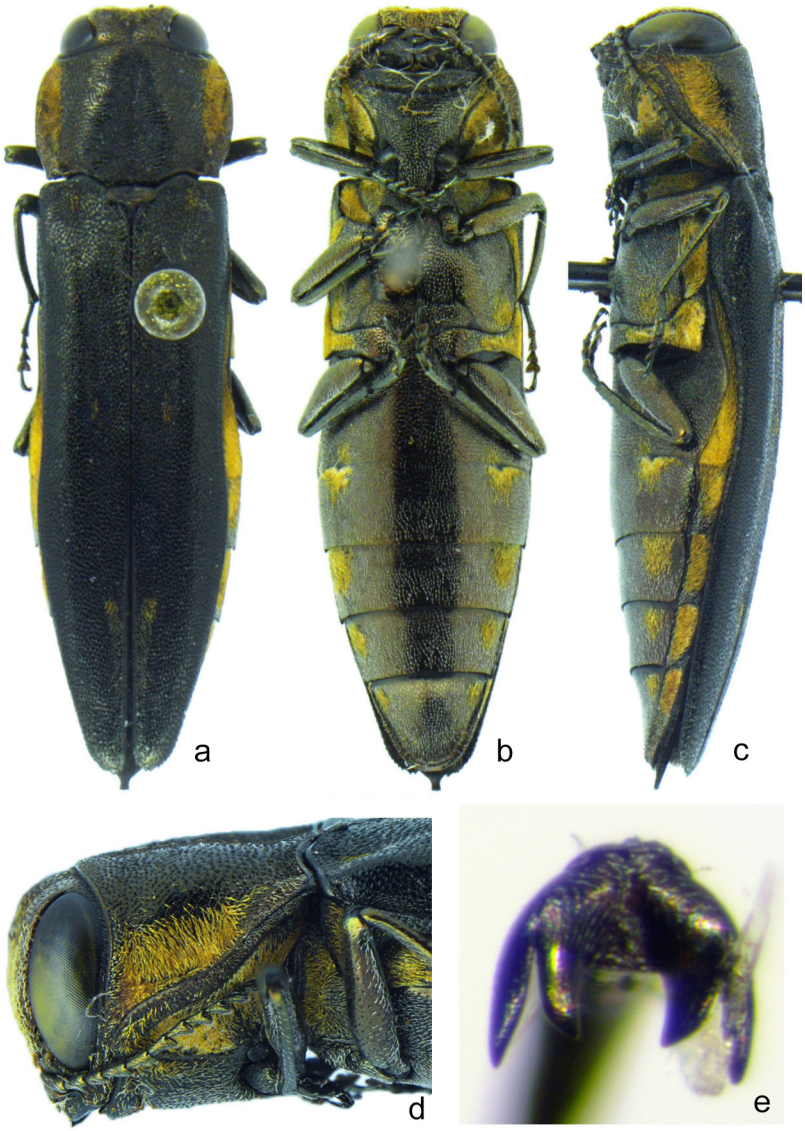

Figure 2. *Agrilus pilosicollis* Fisher ♀. **a)** Dorsal view. **b)** Ventral view. **c)** Lateral view. **d)** Lateral view of pronotum. **e)** Proclaw.

southeastern U.S. Equally surprising is the fact that the North Carolina specimens come from separate locals within the state, suggesting it may not be as rare as it appears to be. The Texas specimen taken on live oak suggests rearing from *Quercus* sp. may be fruitful in future searches for the larval host.

Agrilus pilosicollis is most similar in appearance to *A. quadriguttatus* Gory and *A. granulatus* (Say) and may easily be confused in collections with them. It can be separated by lack of a prehumeral carina and presence of a broadly rounded or subtruncate prosternal lobe.

Dicerca mutica LeConte, 1860

TEXAS: McLennan Co., Harris Ck. Hike n Bike Path @ Old Loreana & Church Rds., 31.474449, –97.279180, 17.v.2013 (1♂), on Osage orange tree [*Maclura pomifera* (Raf.) C.K. Schneid], coll: J.A. Back. **New adult host record.**

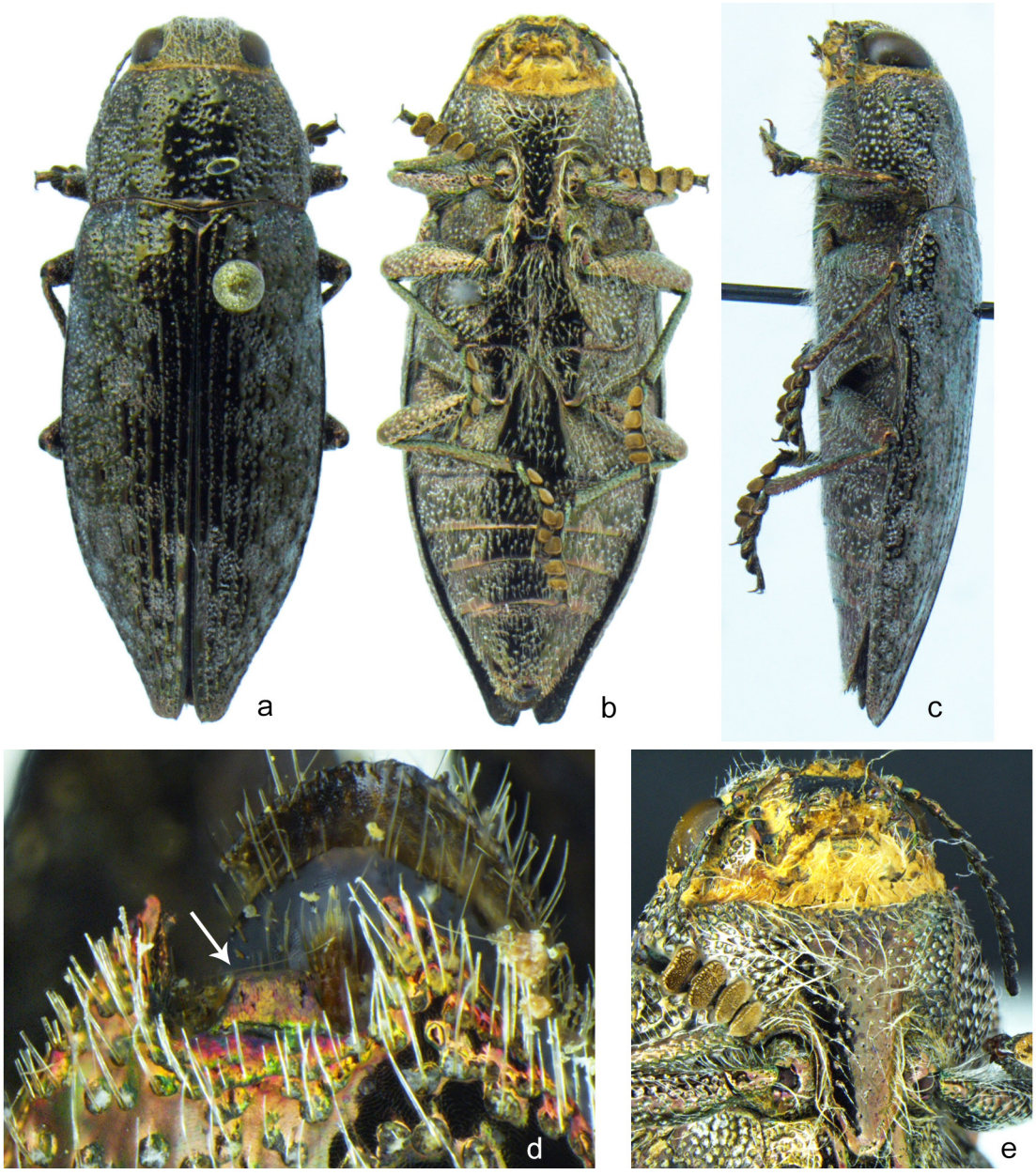

Figure 3. *Dicerca mutica* LeConte, ♂. **a)** Dorsal view. **b)** Ventral view. **c)** Lateral view. **d)** 5th abdominal sternite, emargination with broad, truncate tooth indicated. **e)** Convex prosternal process.

Dicerca mutica is known from only six published specimens ranging from northeastern New York to Texas. The single female record from Texas (Knull 1947) lacks specific locality data. The specimen reported here represents the only other record from Texas (Fig. 3a–e). At 18 mm in length, it is much larger than previously reported males (15.3–16.0 mm), but still within the size range of the species (15.2–20.0 mm). Though no larval host is known, there is a report of an adult male found on *Acer saccharum saccharum* Marsh in Missouri (Nelson et al. 1981). The adult host record of *M. pomifera* is intriguing given that *A. saccharum*, previously the only adult host record, is not known from Texas, while *M. pomifera* is widely distributed throughout Missouri, including the counties where *D. mutica* has been collected previously. Other records from New York and Maryland also come from areas where *M. pomifera* is present. Though it may be an incidental association, the possibility that *M. pomifera* may serve as a larval host merits further investigation.

Dicerca mutica most closely resembles *D. lurida* (Fabricius) and related species but can be separated by the elytral apices being entire, produced slightly at suture, and by having the prosternal process convex (♂) to flat (♀) rather than concave.

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