

A KEY TO THE ANTHICIDAE OF HAWAII, WITH ONE NEW SPECIES (COLEOPTERA)¹

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Eight species of Anthicidae have been collected in the Hawaiian Islands, but only one of these on islands other than Oahu. Three species are cosmopolitan, two North American, and two Micronesian. The eighth, described as new, is of unknown origin and most likely belongs to the Oriental or East Indian faunas which are badly in need of revisionary work. It was compared with specimens in the British Museum in 1960, and E. T. Smith, of Melbourne, compared it with the Australian fauna. I describe it as new in hope that someone will recognize it as a member of the fauna he is studying, just as *Anthicus mundulus* Sharp, described from Honolulu, eventually proved a member of the fauna of coastal California.

Most of the specimens reported here are from the collection of the Hawaiian Sugar Planters' Association, kindly sent for study by J. W. Beardsley. The specimens have been returned to this collection unless another source is indicated.

KEY TO SPECIES

1. Each elytron with a distinct pale spot or band behind the middle.
..... 2
Elytra uniformly colored or paler across the base, without a spot or band behind the middle.....5
2. Pubescence on elytra dense and double, of decumbent setae directed backward and more numerous fine, short setae beneath them, directed obliquely laterally, in addition to scattered suberect tactile setae. Each elytron with a pale spot behind the base and another behind the middle, the basal spots sometimes connected across the suture. Intervals between punctures on head distinctly microreticulate.....**Anthicus vexator** Werner
Pubescence on elytra simple3
3. Head rounded at base, narrowly oval. Pale markings on elytra, a narrow transverse band behind the base and another behind the middle**Anthicus recens**, n. sp.
Head truncate or subtruncate. Whole base of elytra pale.....4
4. Pale marking behind middle of elytra a transverse band, behind a median dark band that is often interrupted at the suture. Shiny, the punctures large and the pubescence moderately sparse.

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- Mesosternum expanded laterally almost to the sides of the elytra.
 **Vacusus vicinus** (LaFerté)
- Pale marking behind middle of each elytron an isolated quadrate spot, the whole middle portion of the elytra dark but sometimes invaded along the suture from the anterior. Punctures on upperside fine and moderately dense, the pubescence fine and silky, moderately dense. Mesosternum not expanded
 **Anthicus tobias** Marseul
5. Pubescence double, as in *vexator*. Uniformly tan to brown, the legs paler.....**Anthicus insularis** Werner
 Pubescence simple6
6. Head produced at middle of base, its surface smooth between the punctures. Uniformly tan or the elytra with an interrupted infuscation medially. (Probably no longer found in Hawaii).....
**Thicanus annectens** (LeConte)
- Head truncate at base, its surface finely wrinkled between the punctures. Forebody and legs rufescent, the elytra dark with the whole basal area usually rufescent.....7
7. Pronotum with a pair of small bumps in the middle at the anterior fifth. Mesosternum expanded, its margins with a fringe of fine setae appressed to the mesepisterna.....
 **Anthicus floralis** (Linnaeus)
- Pronotum and mesosternum simple...**Anthicus formicarius** (Goeze)

SPECIMENS SEEN

Anthicus floralis (Linnaeus)

Meloë floralis Linnaeus, 1758, SYSTEMA NATURAE..., ed. 10, vol. 1:420.

Anthicus floralis: Bonadona, 1953, REV. FRANÇ. ENT. 20:101 (see for extensive synonymy and bibliography). Werner, 1964, Misc. Pub. ENT. SOC. AMER. 4 (5):233-4, Figs. 18, 71.

This is a cosmopolitan species, found on all the continents but Antarctica and on many islands. *A. formicarius* has long been confused with it.

OAHU: Ewa: V. 29. 51, lt. trap, Pemberton; X. 58, lt. trap.
 Honolulu: I. 16. 23, E. C. VanDyke (Cal. Acad.). Kaimuki: XI. 9. 15, Swezey; XII. 6. 21, at lt., Swezey; XII. 22. 22, at lt., Swezey.
 Waipio: II. 27. 46, lt. trap.

Anthicus formicarius (Goeze)

Notoxus formicarius Goeze, 1777, Entomol. Beitr. des Ritter Linné 12. AUSGABE DES NATURSYSTEMS, vol. 1: 705.

Anthicus formicarius: Bonadona, 1953, REV. FRANÇ. ENT. 20:101 (see for extensive synonymy and bibliography). Werner, 1964, Misc. Pub. ENT. SOC. AMER. 4 (5): 234-5, Figs. 19, 72 (some additional synonymy).

Anthicus quisquilius Thomson, 1864, *Skandinaviens Coleoptera...*, vol. 6:360; and many subsequent authors.

Since many authors have not distinguished this cosmopolitan species from the former, many literature records of *floralis* probably refer to *formicarius*.

OAHU: Ewa: X. 10. 61, lt. trap, Beardsley. Kaimuki, no date, at light, Swezey.

***Anthicus insularis* Werner**

Anthicus insularis Werner, 1965, *INSECTS OF MICRONESIA* 16 (5):266–267, Fig. 4.

This species, recently described from the Caroline and Marshall Islands, is known from the Hawaiian Islands by a single specimen. OAHU: Ewa: VIII. 20. 61, light trap, Beardsley.

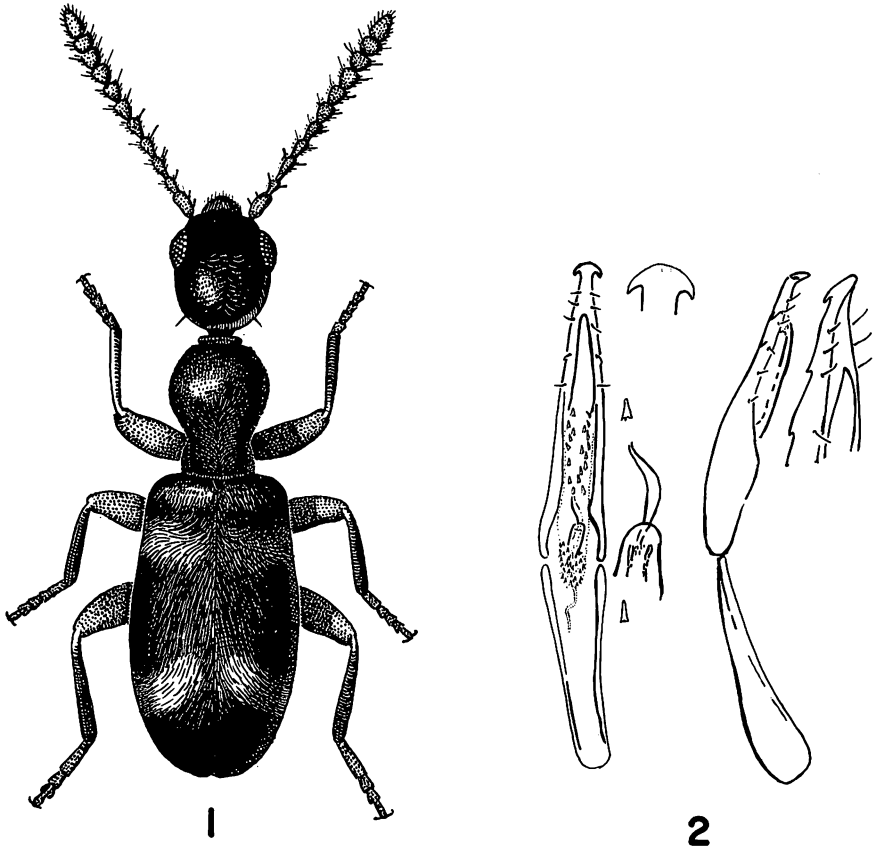


Fig. 1. *Anthicus recens*, n. sp. (36 \times). Drawing by Sheridan Oman; 2. *A. recens*, aedeagus in ventral and left lateral views (82 \times), with enlarged views of tip of tegmen, gonopore armature and spines of internal sac in ventral view, and tip of tegmen in ventro-lateral view. Drawing by author.

Anthicus recens, new species (Figs. 1, 2)

Moderately slender and shiny, 2.16 to 2.60 mm long. Forebody rufescent brown; elytra brown with a transverse luteous band in postbasal transverse impression, and a slightly oblique luteous mark on each elytron from apical 1/3 to 1/5, not reaching suture or sides. Antennae dark luteous, palpi and legs luteous. Underside rufescent, meso- and metathorax paler. Head rather narrow, oval, rounded behind eyes, which are set quite far forward; slightly produced and slightly retrosalient at middle of occiput. Pronotum constricted laterally near basal 1/3, sides then expanded and rounded, widest near apical 1/3. Whole upper surface evenly and moderately densely covered with fine but distinct punctures, with intervals smooth. Pubescence moderately fine and dense, appressed, directed obliquely laterally on disc of elytra, longitudinal along suture and some of it transverse in postbasal transverse impression.

Holotype ♂. Length 2.60 mm. Head 0.56 mm long, 0.49 wide across eyes, 0.44 just behind. Eyes moderately prominent, 0.19×0.17 mm, separated by 0.32, with 0.29 mm separating a line across their posterior margins and the occiput. Facets moderately coarse, with curved setae ca. 0.03 mm long, directed anteriorly, at their intervals. Disc evenly convex, punctures small but well-defined, ca. 0.02 mm from center to center, intervals nearly flat and smooth. The punctures extend evenly onto front, being sparser only on a very narrow midline there. Setae fine and appressed, ca. 0.03 mm long; tactile setae inconspicuous, suberect, ca. 0.03 mm. Frontoclypeal suture fine and indistinct, clypeus on the same plane as the front. Last segment of maxillary palpi securiform, 0.15×0.10 mm. Antennae gradually thicker apically, with moderately dense setae, segments well separated, becoming more truncate at apex but only last 3 subtruncate at base. Measurements (in 0.01 mm, base to apex, length over width): 15/8, 8/5, 12/5, 10/6, 10/6, 10/8, 9/8, 9/9, 9/10, 8/10, 13/9.

Pronotum 0.63 mm long, 0.33 wide at base, 0.28 at constriction, 0.46 maximum and 0.20 at collar. Disc almost evenly convex but slightly flattened anteriorly. Basal impressed line distinct only at middle; collar sharply set off but short. Surface similar to head, but becoming puncture-free and very shiny laterally above coxae. Elytra 1.41 mm long, 0.61 wide at well-defined humeri, 0.78 maximum, the sides subparallel and apices together almost evenly rounded. Postbasal transverse impression well defined but not deep and not extending across suture, which is distinctly elevated for almost the entire length of the elytra. Pale marking of transverse impression ca. 0.20 mm wide, marked in ground color but with pubescence paler also. Posterior pale mark on each elytron with its anterior margin ca. 0.86 mm from base near suture to 0.96 mm laterally, its posterior margin 0.96 mm near the suture and 1.09 mm laterally. This marking is rounded medially and just perceptibly sinuous. Punctures on elytra finer than on forebody, denser in basal 1/3, becoming moderately dense behind,

the intervals smooth. Setae ca. 0.04 mm long, appressed; tactile setae inconspicuous, subdecumbent, ca. 0.04 mm. Wings well developed.

Underside generally shiny, thorax sparsely and moderately deeply, the abdomen moderately densely and finely, punctured. Mesosternum somewhat expanded laterally, its anterolateral margins nearly straight, slightly concave anteriorly, and ending in a sharp curve at about 1/2 way between coxa and lateral margin. Its medial area with some punctures and setae but smooth and shiny laterally. Mesepisterna shiny and slightly expanded laterally in their ventral portion, partially visible from above before elytral humeri, with some punctures anteriorly in the ventral portion. Mesepimera barely visible but with one long and several shorter setae directed dorsally and slightly anteriorly; least at the long seta, 0.13 mm, visible from above. Sternum 7 (visible sternum 5) with its hind margin straight, otherwise unmodified; sternum 8 thin-margined and evenly curved apically. Tergum 7 truncate apically; tergum 8 (pygidium) flattened, margin almost evenly rounded and finely beaded, exposed portion 0.24 mm wide and set off anteriorly by a fine line. Femora moderately heavy; front femur 0.55×0.18 mm, front tibia 0.46×0.06 , hind femur 0.67×0.16 . Hind tibia slightly bowed, medial surface with a narrow zone of small pointed knobs from basal fourth to near apex.

There is comparatively little variation in the specimens seen. The females have the antennae and front femora slightly more slender, and the hind tibiae simple. The tegmen of the ♂ aedeagus has the apex hastate and slightly downcurved and the sides bearing 2-3 recurved spines dorsally and a row of setae ventrally. The internal sac has a zone of apparently dorsal spines medially and another, with spines on all surfaces, near the primary gonopore. The primary gonopore appears to be lightly sclerotized. The specimen figured has what is probably a small spermatheca extending from the primary gonopore.

Holotype: ♂, Waipio, Oahu, HAWAII, light trap, VIII. 10. 55, J. Beardsley, Bishop Museum. Paratypes (25): OAHU: Barbers Pt., VIII. 49, E. J. Ford, Jr. (3♂, 2♀, E. J. F.); same date, on edge of steer dung, and polluted water (1♀, E. J. F.). Ewa, VIII. 49, Ford (1♀, E. J. F.). Ewa Coral Plain, VI. 54, on beach (1♂, 1♀, E. J. F.); same date, on beach under board (1♂, E. J. F.). Ewa M. C. A. S., VII. 28. 45, lt. trap, W. W. Wirth (1♂, H. S. P. A.). Hickam Field, VII. 20. 45, trap # 1F (1♀, H. S. P. A.). Iroquois Point, VII. 23. 47, lt. trap, J. S. Rosa (2♂, H. S. P. A.). Keehi, I. 53, Ford (1♂, 1♀, E. J. F.). Mt. Konahuanui, N. sl., 1500-2000', I. 14. 45, C. T. Parsons (1♀, F. G. W.). Salt Lake, XI. 53, Ford (1♀, E. J. F.). Wahiawa, IX. 58, lt. trap, Ford (1♂, E. J. F.). Waipio, VIII. 49, lt. trap, Pemberton (1♂, H. S. P. A.); IX. 28. 55, lt. trap, Beardsley (1♂, 1♀, H. S. P. A.); X. 19. 55, lt. trap, Beardsley (1♂, H. S. P. A.); V. 56, lt. trap (1♀, H. S. P. A.); IX. 57, lt. trap, Ford (1♀, E. J. F.).

Anthicus tobias Marseul

Anthicus Tobias Marseul, 1879, L'ABEILLE 17:125.

Anthicus tobias: Werner, 1961, PSYCHE 68: 70-72, Figs. 1-3; 1964, MISC. PUB. ENT. SOC. AMER. 4 (5): 235, Fig. 1. (See these two references for synonymy.); 1965, INSECTS OF MICRONESIA 16 (5): 269.

Originally described from Mesopotamia, this species has now been found in Europe, Japan, North and South America, Mauritius in the Indian Ocean, Java, and Guam. There is every indication that its range is expanding very rapidly. In Hawaii the name *A. mundulus* Sharp has been applied to it, but erroneously.

See the discussion of the species *A. mundulus* Sharp that follows below under *Thicanus annectens* (LeConte).

OAHU: Ewa, X. 58, lt. trap. Ewa Coral Plain, VI. 56, lt. trap, Beardsley. Manoa, IX. 10. 49, at lt., Swezey. Manoa Valley, IX. 15. 51, at lt., Bryan. Waipio, I. 22. 46, lt. trap; VIII. 49, lt. trap, Pemberton.

Anthicus vexator Werner

Anthicus vexator Werner, 1965, INSECTS OF MICRONESIA 16 (5): 264-266, Fig. 3b.

This is undoubtedly the species previously reported from the Hawaiian Islands as *A. oceanicus* LaFerté, to which it is closely related. *A. vexator* has been collected in the Carolines, Marshalls, Gilberts, and on Wake and Canton Islands. It is the only species known from islands other than Oahu in the Hawaiian Islands. *A. oceanicus* has previously been reported from these islands and beyond. However, records outside of Micronesia and the Marquesas Islands need verification.

No true *oceanicus* specimens have been seen from the Hawaiian Islands. Some of the Micronesian specimens of *vexator* were taken at light, so the species should appear in light trap collections. Surprisingly few Hawaiian records are available.

Locations of the reports from the Hawaiian Islands, according to records from Werner (1965), are named in the next paragraph.

KAHOOLAWE: Kanapou, II. 14. 31, Bryan. MOLOKAI: Kaunakakai, VII. 93, Perkins; IX. 24. 30, under board on beach, Swezey.

OAHU: Koko Head, II. 5. 11.

Thicanus annectens (LeConte)

Anthicus annectens LeConte, 1851, ANN. LYC. NAT. HIST. NEW YORK 5: 153; 1852, PROC. ACAD. NAT. SCI. PHILADELPHIA 6: 97.

Anthicus californicus: LeConte, 1852, IBID. 6: 97. Pic, 1911, COLEOP. CAT., pars 36 (vol. 17): 39. Not *Anthicus californicus* LaFerté, 1848, MONOGR. DES ANTHICUS...: 128, which is an erroneously labeled species from Mexico. Not *Anthicus californicus*: Champion, 1890, BIOL. CENT.-AMER., COLEOP. 4 (2): 235 (Mexican specimens).

Thicanus californicus: Casey, 1895, ANN. NEW YORK ACAD. SCI. 8: 672-3.

Anthicus mundulus Sharp, 1885, TRANS. ROYAL DUBLIN SOC. 3: (2) 168.

New Synonymy

Anthicus mundulus was described from Honolulu but there have been no subsequent records of it from the Hawaiian Islands. The name has generally been applied to specimens of *Anthicus tobias* Marseul taken in Hawaii. An examination of specimens in the British Museum, including a dissection of the male aedeagus, confirms the above synonymy, which was noted on the museum series, presumably by Blair. *Thicanus annectens* is a species of the coastal region of southern California, north to San Francisco.

Vacusus vicinus (LaFerté)

Anthicus vicinus LaFerté, 1848, MONOGR. DES *Anthicus*...: 157-8.

Vacusus vicinus: Werner, 1961, ANN. ENT. SOC. AMER. 54: 799-801, Fig. 1 (see for synonymy).

This species ranges from southern United States to northern South America and is abundant in many parts of its range. OAHU: Ewa, VII. 61, X. 10. 61, X. 31. 61, lt. trap, Beardsley. Waipio, VII. 61, lt. trap, Beardsley.