

FIGURE 6. Distribution of Ovatus Group species.

***Aglaothorax tinkhamorum* (Rentz & Birchim, 1968) stat. rev.**

Neduba (Aglaothorax) ovata tinkhamorum—Rentz & Birchim, 1968: 81.

Aglaothorax segnis—Tinkham, 1944: 291 (Incorrect synonymy).

Aglaothorax tinkhamorum **stat. rev.** (Revised to species status).

Fig. 6 (distribution), Fig. 9 (male and female habitus, calling song, male and female terminalia, karyotype), Plate 4 (male terminalia), Plate 7 (female subgenital plate), Plate 10 (male titillators), Plate 14 (male calling song).

Common name. Tinkham’s Shieldback.

History of recognition. Described as a subspecies of *Neduba (Aglaothorax) ovata* (Rentz & Birchim 1968). Returned to *Aglaothorax* (Rentz & Colless 1990) where this species remains as a subspecies of *A. ovatus* (Cigliano *et al.* 2025). We elevate *A. tinkhamorum* to species rank based on morphology, geography, and phylogeny.

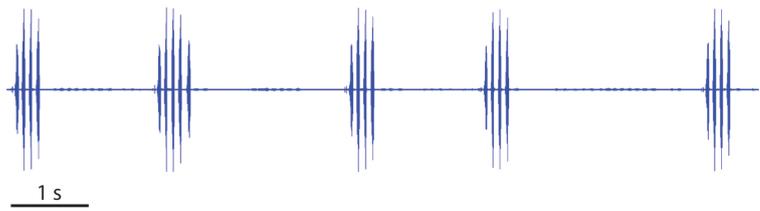
Type material. The holotype male in ANSP is from Pinyon Flats along state highway 74 at 4000 feet in the Santa Rosa Mountains, Riverside County, California, USA. Images of the holotype and allotype are available at OSFO (Cigliano *et al.* 2025). PARATYPES EXAMINED: (n=6) **USA, CA, Riverside Co.**, Santa Rosa Mtns, Pinyon Flats, 33.524192, -117.276148, 1219 m, 13-IX-1957, ER Tinkham, CAS, 3♂; **San Bernardino Co.**, Little San Bernardino Mountains, 1 mi. W of Yucca Valley, 34.114173, -116.449759, 999 m, 30-VI-1953, ER Tinkham, CAS, 3♂.

TOPOTYPES EXAMINED: (n=28) **USA, CA, Riverside Co.**, Cactus Spring Trailhead, 0.4 mi. S of SR74 on Pinyon Flats Sta. Rd., 33.5804, -116.4507, 1200 m, 28-29-VI-2004, JA Cole, JF Eguizabal, LACM, 1♂; Pinyon Flat Campground, 14 miles southwest of Palm Desert on SR74, 33.5856, -116.4570, 1219 m, 27-28-VI-2005, JA Cole, AMNH, 1♂; same data except LACM, 5♂; same data except 28-29-VI-2003, JA Cole, AMNH, 1♂; same data except LACM, 4♂; same data except 3-4-VII-2008, JA Cole, LACM, 7♂; Pinyon Flat, San Jacinto Mountains, 33.7500, -116.6667, 27-V-1939, ER Tinkham, CAS, 1♀ nymph; same data except 29-VI-1975, ER Tinkham, CAS, 2♂; Pinyon Flats, intersection of Pinyon drive and Hwy 74, 33.603360, -116.455847, 1158 m, 26-VIII-1982, d B Weissman, CAS, 5♂; Ribbonwood Equestrian Campground, Santa Rosa Mountains, 33.58000, -116.45167, 1234 m, 26-VIII-2020, JA Cole, J Bailey, LACM, 1♂.

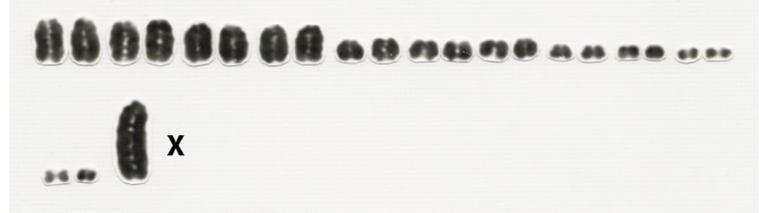
male TOPOTYPE USA. CA: Riverside Co.
JAC000002518



calling song TOPOTYPE USA. CA: Riverside Co. 25.0°C JCR08PF7



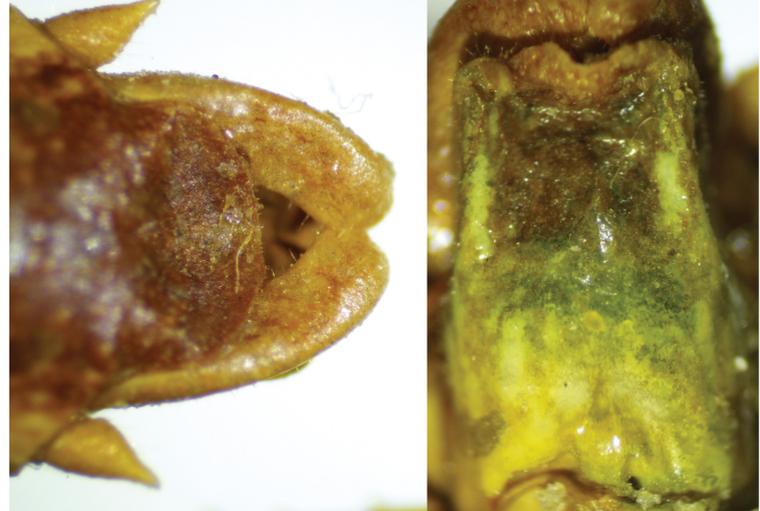
karyotype TOPOTYPE USA. CA: Riverside Co. S82-105 T82-132



male USA. CA: Riverside Co. S83-64



male terminalia TOPOTYPE USA. CA: Riverside Co. S82-105 R82-291
R V



female USA. CA: Riverside Co. S83-64



titillator PARATYPE
USA. CA: San Bernardino Co.

female subgenital plate
USA. CA: Riverside Co. S83-64



FIGURE 9. *A. tinkhamorum* male and female habitus, calling song, male and female terminalia, and karyotype. Idiogram shows karyotype $2n_{\text{♂}}=23$. Marked X chromosome is largest in complement.

Measurements. (mm, ♂n=12, ♀n=2) Hind femur ♂16.00–20.59, ♀20.85–21.46, pronotum total length ♂11.75–15.08, ♀12.95–13.43, prozona length ♂5.10–6.21, ♀6.26–6.79, metazona dorsal length ♂6.65–8.99, ♀6.16–7.17, pronotum constriction width ♂3.65–4.90, ♀3.80–4.44, metazona dorsal width ♂7.76–9.85, ♀8.79–9.15, head width ♂4.95–6.19, ♀6.30–6.83, ovipositor length ♀20.15–21.35.

Distribution. Southern California mountain ranges bordering the Colorado Desert including the Santa Rosa and Little San Bernardino Mountains.

Habitat. Pinyon-juniper and yucca woodland. Type series taken from Parry Pinyon (*Pinus quadrifolia* Par. ex Sudlow) and Joshua Tree. Also recorded from *Ceanothus* sp.

Seasonal occurrence. Late spring (29-V-1963, EL Sleeper, CAS) through summer and into fall (21-IX-1962, RC Stephens, CAS). Nymphs through late spring (27-V-1939, ER Tinkham, CAS).

Stridulatory file. (n=12) length 3.90–6.30 mm, 89–113 teeth, tooth density 20.3±1.8 (17.8–23.0) teeth/mm.

Song. (n=36) A loud calling song that consists of echemes (“chirps”) as in other *Ovatus* Group species. Males may call with single pulse trains before sunset. Pulse trains 70±20 ms in length are repeated at a rate of 9.08±1.23 s⁻¹. Mean peak frequency is 13.83±4.79 kHz; recordings with ultrasonic equipment found significant sound energy in the ultrasonic, with peak frequencies as high as 26.19 kHz. Echemes group 3±1 (range 1–6) pulse trains. Echemes are separated by silent intervals that last 1–5 (mean 2.48±0.91) s. At the type locality on 28–29 June 2004, JAC observed alternating choruses of seven nearest neighbor males, each situated in its own juniper tree, on a cool 16.6°C summer night. Males perched between 1.85–2.10 m above the ground. The average spacing between males was 15.8 m, with the closest pair situated 0.6 m apart. Two of the seven junipers harbored two males each, but only one male in each case was acoustically active. This suggests that males may employ satellite behavior (reviewed in Greenfield 2002) to intercept females that are phonotaxing to calling males.

Karyotype. (n=7) 2n♂=23 (22t+Xt), topotype T82-132 (S82-105).

Recognition. Morphology, geography. The abdomen has a longitudinal red-brown stripe and the tegmina are white, unlike the wood-brown abdomen and tegmina of *A. gurneyi*. The male paraproct processes have a subapical ventrally directed tooth, unlike the apical tooth found in *A. segnis* and *A. strobilion*. Body ground color in life usually a rich green against which contrasts a yellow pronotal disk. The pronotal disk has a pair of central black spots and lacks black longitudinal streaking and never has any broad white longitudinal stripes as in *A. ovatus*. *A. armiger* has reduced black streaking on the pronotal disk, but the male supra-anal plate is longer than wide in that species but as long as wide in *A. tinkhamorum*. Geographically, *A. tinkhamorum* occurs where the Peninsular Ranges meet the Colorado Desert in California.

Notes. This species replaces *A. ovatus* to the south along the fringes of the Colorado Desert. At the type locality *A. hulodomus* is sympatric where chaparral vegetation is interspersed with pinyon-juniper. Genetics (Figs. 2–4) found this species more closely related to the eastern Mojave species *A. armiger*, *A. segnis*, and *A. strobilion* than to the western Mojave *A. ovatus*.

Material examined. (n=65) **All USA, CA, Riverside Co.,** 1 mi. W Whitewater Canyon, 33.92655, -116.65886, IV-1972, ER Tinkham, CAS, 1♀; Berdoo Canyon, 33.810156, -116.170507, 1-VII-1975, ER Tinkham, CAS, 3♂, 2♀; Cactus Spring Trailhead, 0.4 mi. S of SR74 on Pinyon Flats Sta. Rd., 33.5804, -116.4507, 1200 m, 28-29-VI-2004, JA Cole, JF Eguizabal, LACM, 5♂; mouth of Whitewater Canyon, 33.92424, -116.64175, 21-VI-1973, ER Tinkham, CAS, 1♀; LACM, 1♂; Upper Berdoo Canyon, Little San Bernardino Mtns, 33.810156, -116.170507, 1-VII-1975, ER Tinkham, CAS, 1♂; Whitewater Canyon, 33.9579, -116.6463, 396 m, 20-VI-1974, ER Tinkham, CAS, 3♂, 1♀; same data except 4-VI-1975, ER Tinkham, CAS, 2♂; same data except 7-VI-1983, d B Weissman, CAS, 11♂, 1♀; same data except late IV-early V, ER Tinkham, CAS, 1♂; same data except no date, ER Tinkham, CAS, 8♂; same data except 431 m, 27-VI-2005, JA Cole, LACM, 2♂; same data except 21-IV-1973, VV Omotov, LACM, 1♂; Whitewater Canyon, NW of Palm Springs, 33.9579, -116.6463, 396 m, 24-IV-1982, d B Weissman, CAS, 1♂; **San Bernardino Co.,** 5 mi S yucca Valley, 34.041633, -116.432235, VII-1971, ER Tinkham, CAS, 3♂, 1♀; Joshua Tree NM, L Covington Flat, 34.134728, -116.313066, 21-IX-1962, RC Stephens, CAS, 1♀; same data except 30-VII-1960, J Geest, CAS, 1♂; Joshua Tree NM, Long Cyn Cholla Br., 34.134728, -116.313066, 29-V-1963, EL Sleeper, CAS, 1♂; Joshua Tree NM, Pleasant Valley Quail Guzzler, 34.134728, -116.313066, 10-VI-1966, EL Sleeper, SL Jenkins, CAS, 1♂; Joshua Tree NM, U Covington Flat, 34.134728, -116.313066, 22-VII-1960, EL Sleeper, CAS, 1♂; same data except 8-VII-1960, EL Sleeper, CAS, 1♂; Little San Bernardino Mountains, 1 mi. W of yucca Valley, 34.114173, -116.449759, 999 m, 30-VI-1953, ER Tinkham, CAS, 1♂; **San Diego Co.,** County Road S22 SW of Borrego Springs, 33.048669, -117.041941, 370-1040 m, 3-VI-1989, DB Weissman, DC Lightfoot,

CAS, 2♂; Culp Cyn, 5 mi. W Borrego Springs, 33.048669, -117.041941, 28-VI-1975, ER Tinkham, CAS, 2♂; Mason Valley, 32.980881, -116.426682, 23-V-1943, JH Comstock, LACM, 1♀; San y sidro Mountains, 32.5833, -116.8167, no date, ER Tinkham, CAS, 3♂; same data except 3-VI-1975, ER Tinkham, CAS, 2♂.