

FIGURE 15. Distribution of Morsei Group species.

Aglaothorax hulodomus Cole, Weissman, and Lightfoot, sp. nov.

Fig. 15 (distribution), Fig. 22 (male and female habitus, calling song, male and female terminalia, karyotype), Plate 5 (male terminalia), Plate 8 (female subgenital plate), Plate 12 (male titillators), Plate 15 (male calling song).

Common name. Forest Home Shieldback.

History of recognition. None.

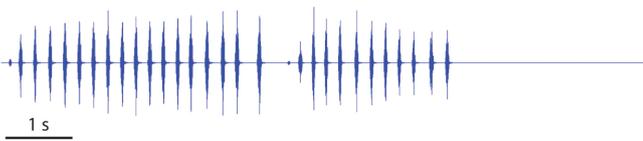
Type material. HOLOTYPE MALE: **USA, California, San Bernardino County**, San Bernardino Mountains, State Highway 18, 0.7 mile W & E of Skyforest, 34.23528N, 117.19149W, 1750 m, 26-VII-1989, DB & DW Weissman leg., S89-56, R89-64, T89-39, DNA09-35, 3.55 [stridulatory file length], 102 [stridulatory file tooth count] excised tegmen in gelcap below specimen, deposited in CAS, Entomology type #20238.

PARATYPES: (n=71) **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, LACM, 1♂; Chino Canyon, 1.5-3.5 mi. SW SR111, San Jacinto Mountains, 33.84662, -116.58295, 305 m, WR Icenogle, CAS, 1♂; Fern Valley, Idyllwild, 33.758631, -116.698074, 1737 m, 10-IX-1960, ER Tinkham, CAS, 1♂; same data except X-1958, ER Tinkham, CAS, 1♂; Idyllwild, 33.740021, -116.718908, 1646 m, 15-XII-1964, ER Tinkham, CAS, 1♀; same data except 28-VIII-1964, d Bryant, CAS, 1♂; Marion Canyon Campground, San Bernardino National Forest, 33.79278, -116.73222, 2012 m, 27-VIII-2020, JA Cole, J Bailey, LACM, 5♂; Pinyon Flat Campground, 14 miles southwest of Palm desert on SR74, 33.5856, -116.4570, 1219 m, 28-29-VI-2004, JA Cole, LACM, 1♂; same data except 28-29-VI-2005, JA Cole, LACM, 6♂; same data except 3-4-VII-2008, JA Cole, LACM, 2♂; San Jacinto Mountains, 0.5 km N of Idyllwild on Hwy. 243, 33.744526, -116.718908, 1676 m, 16-VIII-1982, d B Weissman, CAS, 1♂; San Jacinto Mountains, 11.3 miles N of Idyllwild on Hwy. 243, 33.903975, -116.718908, 1615 m, 16-VIII-1982, DB Weissman, CAS, 6♂, 1♀; Santa Rosa Mountains, 33.431421, -116.227785, 1-XI-1952, ER Tinkham, CAS, 1♂; SR371 East of Anza, 33.55944, -116.60528, 1375 m, 26-VIII-2020, JA Cole, J Bailey, LACM, 2♂; SR74 roadside through Santa Rosa Indian Reservation, 33.56139, -116.56750, 1503 m, 26-VIII-2020, JA Cole, J Bailey, LACM, 1♂; Whitewater Canyon, 3 mi. N of Hwy. 10 on Whitewater Canyon Rd., 33.9579, -116.6463, 431 m, 20-21-VI-2006, JA Cole, GL Miller, LACM, 4♂, 1♀; Whitewater Canyon, 33.9579, -116.6463, 20-VI-1974, ER Tinkham, CAS, 1♂; **San Bernardino Co.**, same data as holotype, 1♂, 2♀; 0.4 mi. W Skyforest at Switzer Park Picnic Grounds, 34.235285, -117.186227, 1740 m, 20-VII-1992, d B Weissman, CAS, 1♀; 0.7 mi. W of Skyforest on Hwy. 18, 34.235284, -117.191491, 1707 m, 17-VIII-1982, d B Weissman, CAS, 2♂; Camp O-ongo, near Running Springs, 34.207786, -117.109205, 8-12-VIII-1966, CL Hogue, LACM, 1♂; same data except 1890 m, 16-22-VIII-1980, CL & JN Hogue, LACM, 1♂; San Bernardino Mts., Camp O-Ongo, 2.5 mi. NW of Running Springs, 34.22, -117.12, 1900 m, 21-VIII-1978, JN Hogue, CSUN, 1♀; same data except 22-28-VIII-1981, CL & JN Hogue, CSUN, 1♀; Forest Home, Mill Creek, 34.09009, -116.93140, 1859 m, X-1964, ER Tinkham, CAS, 1♂, 2♀; Hanna Flat Campground, San Bernardino National Forest, 34.28778, -116.97556, 2152 m, 10-11-VIII-2022, JA Cole, C Wong, LACM, 2♂; Mill Creek, 33.940314, -117.622585, no date, ER Tinkham, CAS, 1♀; Oak Glen beyond Penyoct Flat, 34.049457, -116.947804, 1487 m, X-1953, ER Tinkham, CAS, 1♂; San Bernardino Mountains, 0.8 mi. E Lake Arrowhead (City) on Highway 173, 34.248339, -117.175167, 1520 m, 20-VII-1992, d B Weissman, CAS, 4♀; San Bernardino Mountains, 34.125566, -116.876415, 10-IX-1957, ER Tinkham, CAS, 1♂; same data except 12-X-1952, ER Tinkham, CAS, 1♂, 1♀; San Bernardino Mountains, Mill Creek Road, 34.090712, -117.037165, 1463 m, 25-VII-1981, d C Lightfoot, d B Weissman, CAS, 1♂; San Bernardino, 34.088624, -117.280598, 13-X-1952, ER Tinkham, CAS, 1♂; Switzer Picnic Area, San Bernardino National Forest, 34.23284, -117.18608, 1724 m, 19-20-VII-2013, JA Cole, JF Eguizabal, AMNH, 1♂, 1♀; same data except LACM, 4♂; **San Diego Co.**, Mariposa Ranch, Anza, 33.46161, -116.63947, 1287 m, 20-21-VII-2019, A Abela, LACM, 1♀.

male HOLOTYPE USA. CA: San Bernardino Co. S89-56, R89-64, T89-39



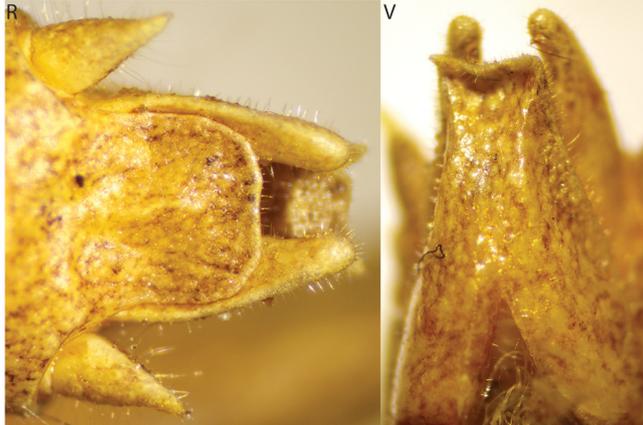
calling song TOPOTYPE USA. CA: San Bernardino Co. 22.8°C JCR130731_02



karyotype PARATYPE USA. CA: San Bernardino Co. S82-65, T82-136



male terminalia HOLOTYPE USA. CA: San Bernardino Co. S89-56



female PARATYPE USA. CA: San Bernardino Co. S92-77



female PARATOPOTYPE USA. CA: San Bernardino Co. S92-77



female PARATYPE USA. CA: Riverside Co.



male PARATYPE USA. CA: Riverside Co. S82-61, R82-307



female PARATYPE USA. CA: San Bernardino Co. S82-65, R82-252



female PARATYPE USA. CA: Riverside Co. S82-61

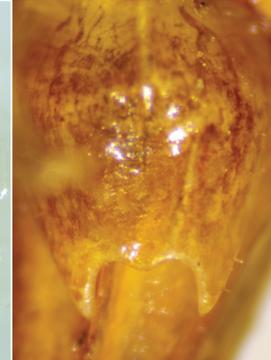


FIGURE 22. *A. hulodomus* male and female habitus, calling song, male and female terminalia, and idiogram of karyotype $2n_{\text{♂}}=24$.

Measurements. (mm, ♂n=9, ♀n=6) Hind femur ♂13.44–15.73, ♀16.83–19.35, pronotum total length ♂7.79–9.26, ♀7.65–9.05, prozona length ♂3.41–4.72, ♀4.03–4.90, metazona dorsal length ♂4.23–5.28, ♀3.27–4.48, pronotum constriction width ♂2.59–3.20, ♀3.05–3.52, metazona dorsal width ♂5.45–6.15, ♀5.41–6.17, head width ♂3.86–4.20, ♀4.60–5.10, ovipositor length ♀10.90–12.47.

Distribution. Moderate to high elevations in the Transverse and Peninsular Ranges of California including the San Bernardino, San Jacinto, and Santa Rosa Mountains. Populations exist at a wide range of elevations from 300 to 2150 m, the mode of elevation being 1600 m.

Habitat. Chaparral and understory of mixed woodland. Taken from Manzanita (*Arctostaphylos* spp.), *Ceanothus* spp., Yerba Santa (*Eriodictyon* spp.), and laurel sumac.

Seasonal occurrence. Adults from summer (20-VI-1974, ER Tinkham, CAS) through fall (13-X-1952, ER Tinkham, CAS). Nymphs apparently overlap adults over a considerable portion of the season, as a female nymph was found alongside adult males 20-VII-2013 (JA Cole & JF Eguizabal, LACM) that matured on 27-VII.

Stridulatory file. (n=9) length 3.30–3.90 mm, 91–113 teeth, tooth density 27.8 ± 1.7 (24.6–30.0) teeth/mm.

Song. (n=37) Standard song structure for genus with slowly delivered pulse trains that are countable by a human listener. Pulse trains 60 ± 10 ms in length produced at a rate of 5.33 ± 0.82 s⁻¹. Mean peak frequency is 15.19 ± 3.10 kHz, with ultrasonic peak frequencies detected up to 23.5 kHz. Echemes are variable and frequently long, consisting of 27 ± 13 pulse trains (range 7–56 pulse trains/echeme). Echeme repetition is irregular; males may remain silent for a minute or more or repeat up to 8 min⁻¹.

Karyotype. (n=7) $2n\♂=24$ (22t+Xty t), paratype T82-136 (S82-65).

Recognition. Morphology, habitat. Male supra-anal plate rounded and paraproct processes with subapical tooth, characters that eliminate the Diminutiva Group from consideration, which are characterized by a heart-shaped caudally indented supra-anal plate and an apical tooth on the paraproct process. Male paraproct with an internal tooth that is positioned far from apex of process, which separates *A. hulodomus* from all other Morsei Group species except *A. islandica*, which is a Channel Islands endemic, and some *A. nesiazoo*. The paraproct processes are about two times as long as wide in *A. hulodomus*, shorter than those of *A. nesiazoo*, which also has a square supra-anal plate that is distinct from the rounded, flat supra-anal plate of *A. hulodomus*. From *A. costalis*, the male supra-anal plate is concave in that species but flat in *A. hulodomus*. The styli on the male subgenital plate are narrow and cylindrical in *A. hulodomus* but thick and conical in *A. conistylus*, and that species also has longer paraproct processes. The male titillator arms are short and barely curved laterally, nearly straight, and without a notch at the base; Diminutiva Group titillator arms are long, and *A. morsei* distributed to the west have a mesal notch at the base of the titillator arm. Female *A. hulodomus* have short, triangular lateral processes on the subgenital plate unlike the long, digitiform processes of most Diminutiva Group species.

Etymology. Gr. *hulodomus* forest home. Refers to the mountain woodland habitats of this species.

Notes. This eastern Transverse Range and northern Peninsular Range species replaces *A. morsei* to the east and south. This species was only recovered as monophyletic from concatenated data (Fig. 4). The genetic distance between *A. hulodomus* and *A. morsei* is substantial (Figs. 2–4) suggesting isolation by distance. Lineage sorting was incomplete between *A. hulodomus*, *A. conistylus*, and *A. nesiazoo* (Figs. 2–3) which are geographically proximal, the first two species situated at the connection between the San Gabriel and San Bernardino Mountains at Cajon Pass. Some factors that may maintain low levels of gene flow are low dispersal ability and dissimilar habitat preferences: *A. morsei* inhabits riparian corridors and other mesic areas while *A. hulodomus* occurs in woodland understory. This species is sympatric with *A. gurneyi* in the San Bernardino Mountains but often separated by habitat, with *A. hulodomus* preferring more open woodland and chaparral while *A. gurneyi* inhabits dense woodland. We observed syntopy in ruderal habitats.

Material examined. (n=6) In addition to Type Material above, **All USA, CA, Riverside Co.**, Garnet Queen Creek at Santa Rosa Mountain Truck Trail, 33.543, -116.482, 1865 m, 3-IX-2005, JN Hogue, CSUN, 4♂, 1♀; **San Bernardino Co.**, Heaps Peak Arboretum, 34.23386, -117.16061, 1837 m, 19-20-VII-2013, JA Cole, JF Ramirez, 1♂ sound record.