

FIGURE 15. Distribution of Morsei Group species.

***Aglaothorax nesiazio* Cole, Weissman, and Lightfoot, sp. nov.**

Fig. 15 (distribution), Fig. 24 (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. Peninsular Shieldback.

History of recognition. None.

Type material. HOLOTYPE MALE: USA, California, San Diego County, Torrey Pines State Park, 34.94546N, 117.25427W, 110 m, 9-VIII-2021, DB & DW Weissman, S21-21, R22-10, F1 [reared male], deposited in CAS, Entomology type #20374.

PARATYPES: (n=39) USA, CA, San Diego Co., same data as holotype, CAS, 9♂, 12♀; 3-10 mi. SW of Borrego Springs on road S22, 33.048669, -117.041941, 410-1040 m, 8-VIII-1988, DB Weissman, DC Lightfoot, CAS, 1♂; Boulder Oaks Campground, Cleveland National Forest, 8 miles southeast of Pine Valley off I-8, 32.7299, -116.4839, 968 m, 27-VI-2004, JA Cole, LACM, 1♂; same data except 7-9-VII-2005, JA Cole, JF Eguizabal, AMNH, 1♂; same data except LACM, 2♂, 1♀; Camp Pendleton, Vandegrift Rd., 3 mi. S of Basilone, 33.210314, -117.392817, 10-VII-1976, d B Weissman, CAS, 1♂, 1♀; Campo, Highway 94, 32.606449, -116.468905, 792 m, 12-VII-1976, d B Weissman, CAS, 1♂; Mission Trails Regional Park, Brushy Gate, 32.83926, -117.03423, 180 m, 5-VIII-2021, JA Cole, J Bailey, LACM, 4♂, 1♀; Troy Canyon, Cleveland National Forest, 10 miles north of Boulder Oaks on Kitchen Creek Road, 32.8231, -116.4498, 1646 m, 19-20-VII-2003, JA Cole, MFJ Storck, AMNH, 1♂; same data except LACM, 1♂; same data except 7-VII-2005, JA Cole, JF Eguizabal, LACM, 2♂.

Measurements. (mm, ♂n=9, ♀n=7) Hind femur ♂11.85–14.60, ♀14.55–17.04, pronotum total length ♂7.10–8.55 ♀6.12–7.80, prozona length ♂2.71–3.93, ♀3.51–4.40, metazona dorsal length ♂3.57–4.70, ♀2.60–3.40, pronotum constriction width ♂2.39–2.90, ♀2.60–3.13, metazona dorsal width ♂4.90–6.03, ♀4.78–6.12, head width ♂3.15–3.92, ♀3.63–4.27, ovipositor length ♀9.06–11.34.

Distribution. Southern Peninsular Ranges of Southern California.

Habitat. Oak savannah and chaparral. On Scrub Oak (*Quercus dumosa*), Common Buckwheat (*Eriogonum fasciculatum*), and *Ceanothus* spp. Males may be heard deep within scrub oaks where they call from interior bare branches.

Seasonal occurrence. Records of adult activity span summer (27-VI-2004, JA Cole, LACM to 9-VIII-2021, DB & DW Weissman, CAS).

Stridulatory file. (n=9) length 2.80–3.35 mm, 76–108 teeth, tooth density 31.1 ± 4.7 (26.2–38.6) teeth/mm.

Song. (n=7) Common song of small *Aglaothorax* with countable pulse trains. Pulse trains 70 ± 20 ms in length are produced at a rate of 5.46 ± 1.75 s⁻¹. Mean peak frequency is 16.61 ± 3.42 kHz, the peak shifting as high as 22.40 kHz when high frequency recording equipment was used. Echemes are variable and consist of 30 ± 15 (range 12–45) pulse trains repeated at a rate of 2–14 min⁻¹.

Karyotype. (n=3) $2n\♂=24$ (22t+Xty t), paratopotype, T21-23 (S21-21).

Recognition. Morphology, geography. Although the paraproct processes usually have an apical tooth, the male supra-anal plate is square and the titillators are short and barely bowed, eliminating the Diminutiva Group in which males have heart-shaped or caudally indented supra-anal plates. The long, slender, cylindrical paraproct processes eliminate *A. costalis*, *A. morsei*, and *A. hulodomus* from consideration. The male subgenital plate has thin, cylindrical styli unlike the thick cone-shaped styli of *A. conistylus*. The male titillator arms are short and nearly straight and without a basal notch, which eliminates *A. amathitis*, *A. conistylus*, *A. costalis*, *A. longipennis*, and *A. morsei*. From adjacent Baja California species to the south, *A. kelainops* and *A. sphenosternum* also have shorter paraproct processes, about 2 times as wide plus rounded supra-anal plates. Both sexes of *A. sphenosternum* may be separated by the wedge-like prosternal spines in contrast to the long, thin, spines of *A. nesiazio*. Females have short, triangular lateral processes on the subgenital plate, unlike most Diminutiva Group females. The female subgenital plate lateral processes are as long as wide, unlike *A. kelainops* and *A. constrictans* females which have the triangular lateral processes longer than wide.

Etymology. Gr. *nesiazio* peninsular. Refers to the California Peninsular Range distribution.

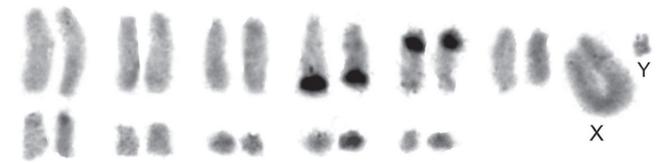
male HOLOTYPE USA. CA: San Diego Co. S21-21, R22-10, F1



calling song HOLOTYPE USA. CA: San Diego Co. 21.0°C R22-10



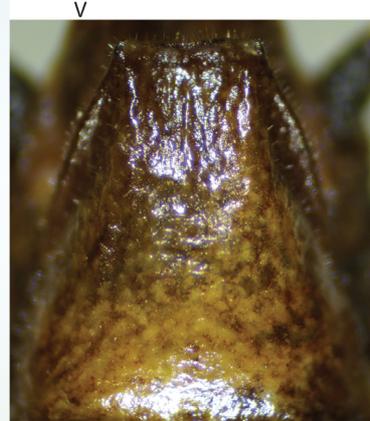
karyotype PARATOPOTYPE USA. CA: San Diego Co. S21-21, T21-23



female PARATOPOTYPE USA. CA: San Diego Co. S21-21

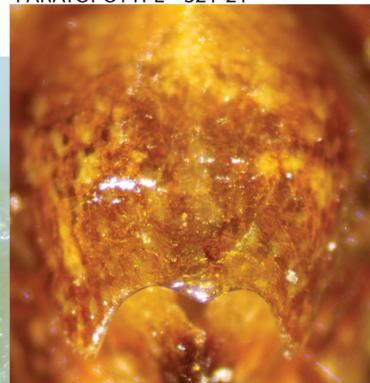


male terminalia HOLOTYPE USA. CA: San Diego Co. S21-21



female subgenital plate PARATOPOTYPE S21-21

titillators PARATOPOTYPE S21-21



male PARATYPE USA. CA: San Diego Co. JAC000005726



male PARATYPE USA. CA: San Diego Co. S21-21

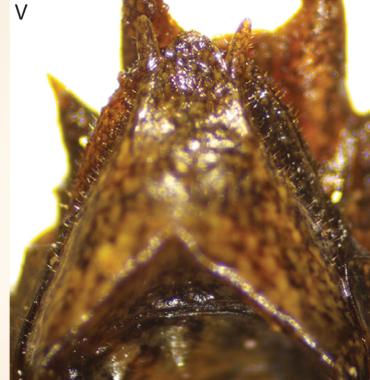
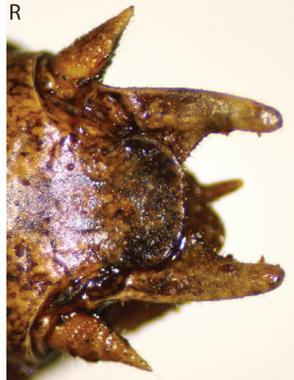


FIGURE 24. *A. nesiazio* male and female habitus, calling song, male and female terminalia, and karyotype. Idiogram shows karyotype $2n\sigma=24$.

Notes. *A. nesiazo* belongs to a complex of Transverse and Peninsular Range species. Multiple mtDNA haplotypes exist (Fig. 3) and concatenated data found a grade between *A. hulodomus* to the north and three Baja California lineages to the south (Fig. 4). This phylogeographic pattern may be explained by isolation by distance as neighboring populations experience gene flow.

Three field collected adult females of *A. nesiazo* (from type locality S21-21), collected on 19-VIII-2021, were housed together at room temperature as described on p. 6, starting on 12-VIII-2021. Between 19-28-IX-2021, the sand was examined for eggs and a total of 37 were recovered. The eggs were subjected to two different treatments as follows:

1. Twenty-seven eggs were kept at room temperature (15–25°C) and natural photoperiod until hatching commenced on 21-I-2022. Between 21-I-2022 and 9-III-2022, a total of 22 eggs hatched. The five unhatched eggs were continued at room temperature until they were chilled at 3°C from 3-IX-2022 to 6-III-2023, before being returned to room temperature and natural photoperiod. Between 24–29-III-2023 another three eggs hatched, resulting in 25 out of 27 total eggs successfully hatched.

2. Ten eggs were kept at room temperature and natural photoperiod until 3-I-2022, without any hatching, when they were chilled at 3°C. On 1-III-2022, the eggs were placed back at room temperature, and between 7-III-2022 and 22-III-2022 four eggs hatched. The six unhatched eggs were continued at room temperature until they were subsequently chilled for a second time, between 3-IX-2022 and 6-III-2023. They were then returned to room temperature with two eggs hatching on 24-III-2023, for a total of 6 out of 10 eggs successfully hatched.

It appears from treatment 1 that most eggs of *A. nesiazo* do not require a 3°C chill period for hatching to occur, which makes sense as they occur in a coastal area of Southern California which may not always experience such winter temperatures. In fact, from treatment 2, chilling the eggs only seems to delay their hatching by the number of days that they are chilled. Most curious is the finding, in both treatments, that some 20% of total eggs require at least one chill period, and the passing of 18 months, before they hatched. We wonder how these findings reflect actual field conditions because they may indicate an unappreciated degree of flexibility of response to the variable weather and climate conditions that exist in Southern California's Mediterranean climate.

Material examined. See Type Material above. QUESTIONABLE PLACEMENT: (n=1) USA, CA, Riverside Co., Menifee Valley, 33.689188, -117.180867, 6-VII-1975, SI, SL Frommer, UCR, 1♂.