

**FIGURE 15.** Distribution of Morsei Group species.

## *Aglaothorax longipennis* (Rentz & Weissman, 1981)

*Neduba* (*Aglaothorax*) *longipennis*—Rentz & Weissman 1981: 96.

Fig. 15 (distribution), Fig. 19 (male and female habitus, calling song, male and female terminalia, karyotype), Plate 5 (male terminalia), Plate 8 (female subgenital plate), Plate 11 (male titillators), Plate 14 (male calling song).

**Common name.** Santa Monica Mountains Shieldback

**History of recognition.** Described in *Neduba* (*Aglaothorax*) (Rentz & Weissman 1981). Returned to *Aglaothorax* (Rentz & Colles 1990) where this species remains classified (Cigliano *et al.* 2025).

**Type material.** The holotype male in CAS is from the entrance to Big Rock Canyon along Big Rock Drive, Malibu, Los Angeles County, California. Images of the type are available at OSFO (Cigliano *et al.* 2025). PARATYPES EXAMINED: (n=11) USA, CA, Los Angeles Co., Malibu, Big Rock Canyon Near Piedra Chica Rd., 34.035842, -118.609528, 19-VI-1975, d B Weissman, CAS, 7♂, 4♀; TOPOTy PES EXAMINED : (n=8) USA, CA, Los Angeles Co., Malibu, Big Rock Canyon Rd at Rockport Road, 34.035842, -118.609528, 27-VI-1976, DB Weissman, CAS, 1♂; Malibu, intersection of Big Rock and Inland Roads, 34.035842, -118.609528, 5-VII-1982, d B Weissman, CAS, 6♂; junction Big Rock d rive and SR1, 34.0377, -118.6088, 5 m, 16-17-VI-2008, JA Cole, LACM, 1♂.

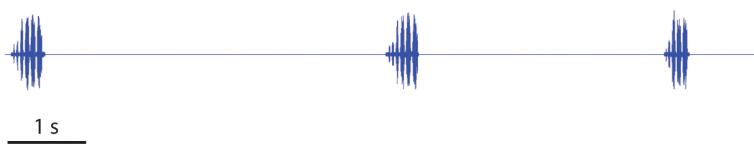
**Measurements.** (mm, ♂n=14, ♀n=6) Hind femur ♂12.75–15.82, ♀14.73–17.45, pronotum total length ♂7.54–9.90, ♀6.57–8.45, prozona length ♂3.15–4.31, ♀3.58–4.65, metazona dorsal length ♂4.33–5.95, ♀2.83–4.33, pronotum constriction width ♂2.40–3.20, ♀2.84–3.62, metazona dorsal width ♂5.52–7.06, ♀5.05–6.51, head width ♂3.55–4.11, ♀4.10–4.54, ovipositor length ♀11.30–13.25.

**Distribution.** Santa Monica Mountains of Southern California east of Malibu Creek, Los Angeles County.

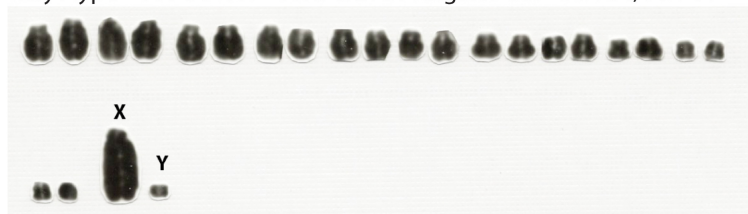
male TOPOTYPE USA. CA: Los Angeles Co. S82-34, R82-85, T82-17



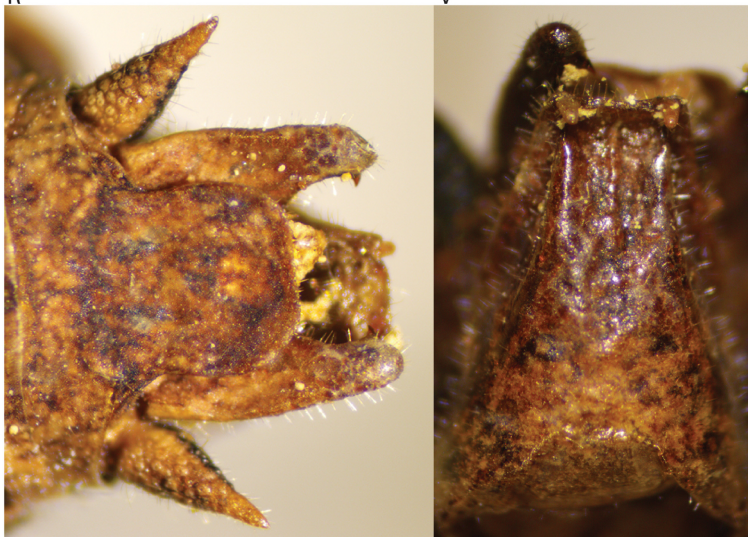
calling song TOPOTYPE USA. CA: Los Angeles Co. 25.5°C R82-100



karyotype TOPOTYPE USA. CA: Los Angeles Co. S82-34, T82-14



male terminalia USA. CA: Los Angeles Co. JAC000002697  
R V



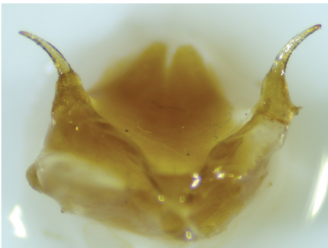
female USA. CA: Los Angeles Co. JAC000002672



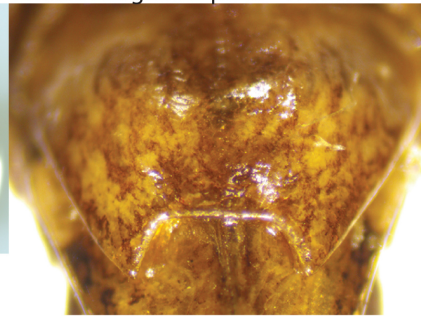
male USA. CA: Los Angeles Co. JAC000002724



titillator TOPOTYPE



female subgenital plate PARATYPE



**FIGURE 19.** *A. longipennis* male and female habitus, calling song, male and female terminalia, and karyotype. Idiogram shows karyotype  $2n\text{♂}=24$ .

**Habitat.** Coastal sage scrub, riparian, and canyons. Generally associated with north facing slopes and canyon bottoms, where they prefer dense tangles of vegetation. Taken from common Buckwheat (*Eriogonum fasciculatum* Benth.), Ornamental figs (*Ficus* sp.) Toyon (*Heteromeles arbutifolia* (Lind.) M. Roem), Laurel Sumac, ornamental pines (*Pinus* spp.), and Scrub Oak (*Quercus berberidifolia* Liebm.). Nymphs were common at night feeding on Canyon Sunflower flowers.

**Seasonal occurrence.** Adult activity from late spring (18-VI-2022, JA Cole & K Halsey, LACM) into winter (26-XII-2002, JA Cole & JF Eguizabal, LACM). Nymphs from spring (28-V-2008, JA Cole, LACM) through summer (26-VII-1969, BW Howard, LACM).

**Stridulatory file.** (n=6) length 3.10–3.90 mm, 80–100 teeth, tooth density  $26.2 \pm 1.2$  (24.6–27.8) teeth/mm.

**Song.** (n=95) A ventriloquistic and often brief song made late at night. Singing begins close to midnight, often around 2300 h, with acoustical activity increasing through the early morning hours, ceasing near dawn. Pulse trains are delivered at a rate slow enough to discern by ear at the cool nighttime temperatures of the habitat, but at 25°C pulse trains occur too fast to count. Pulse trains last  $70 \pm 40$  ms and are produced at a rate of  $13.04 \pm 1.83$  s<sup>-1</sup>. Mean peak frequency is  $14.95 \pm 3.42$  kHz, with peak frequencies shifting towards the ultrasonic boundary as high as 19.80 kHz using ultrasonic recording equipment. Male generally produce brief echemes with  $4 \pm 2$  pulse trains/echeme, but later in the evening echeme length increases to as many as 11 pulse trains/echeme. Echeme repetition is sporadic, especially earlier in the evening when two min may pass between echemes, but over the course of the night the echeme rate may be as high as 31 min<sup>-1</sup>. Males overlap pulse trains in synchronous choruses.

**Karyotype.** (n=1)  $2n \text{♂} = 24$  (22t+Xty t), topotype T82-14 (S82-34).

**Recognition.** Morphology, song, and geography. The rounded, tongue-like male supra-anal plate, short titillator arms and subapical tooth on the paraproct process place *A. longipennis* in the Morsei Group and separate it from sympatric *A. dactyla* and other members of the Diminutiva Group, which have caudally indented or heart-shaped supra-anal plates and an apical tooth on the paraproct. The cylindrical paraproct process is about twice as long as wide; two neighboring western Transverse Range Morsei Group species, *A. costalis* and many *A. morsei* have short paraproct processes that are knob-like and about as long as wide. The closely related *A. amathitis*, as well as some *A. morsei*, also have similar length paraproct processes, but in *A. longipennis* the supra-anal plate is concave while it is flat in the former two species. The male titillator arms are short and curved unlike the long, bowed titillator arms of most Diminutiva Group species, and lack a notch at the base characteristic of *A. morsei* and *A. constrictans*. The species was named for the protrusion of the male tegmina beyond the posterior edge of the pronotum (Rentz & Weissman 1981). This character is not diagnostic as it depends on the posture of a living male and in dried specimens depends upon preservation. Female *A. longipennis* have a subgenital plate with short lateral processes, unlike the long digitiform processes of sympatric *A. dactyla* and most other Diminutiva Group species. The apical margin of the *A. longipennis* female subgenital plate has a low rounded to triangular emargination unlike that of *A. costalis*, which have a straight apical margin. The song of *A. longipennis* is also diagnostic. Only two species approach the rapid pulse train rate of 11–15 s<sup>-1</sup> in *A. longipennis*: *A. costalis* has a faster rate at about 13–17 s<sup>-1</sup> while *A. amathitis* has a slower rate of 9–11 s<sup>-1</sup>. Both *A. costalis* and *A. amathitis* have more pulse trains in their echemes: 6–14 in *A. costalis*, 4–16 in *A. amathitis* compared with only 2–6 in *A. longipennis*. The range of *A. longipennis* is restricted to the Santa Monica Mountains east of Malibu Creek while *A. amathitis* is found on relict sand dunes in the Los Angeles Basin.

**Notes.** A petition was submitted to list *A. longipennis* as federally endangered (Nagano *et al.* 1994) under the assumption that its range may be restricted to the type locality at Big Rock Drive in Malibu, which has been developed since its description. The IUCN Red List categorizes it as Critically Endangered (Orthopteroid Specialist Group 1996). Our distributional records extend the range of this species throughout the eastern Santa Monica Mountains. Rather than being rare in the strict sense, *A. longipennis* is poorly known because of secretive habits. These katydids prefer dense tangles of vegetation and sing late at night, and then only sporadically. *A. longipennis* is common across much of its range and is protected by Regional, State, and National Park lands such as Griffith Park, Topanga State Park, and the Backbone Trail National Recreation Area. Much of the sample size in this study consisted of adults reared from nymphs that were found feeding on flowers at night. At Topanga State Park, a wide variety of color patterns occur that may be the result of apostatic selection as in *A. morsei* (see species account above, p. 39) and in many species of the related genus *Neduba* (Cole *et al.* 2021). Like *A. costalis*, the *A. longipennis* lineage has captured mtDNA from *A. dactyla* (Fig. 3), suggesting recent or historical hybridization. The two species are sympatric at the type locality of Big Rock Canyon, Malibu.

**Material examined.** (n=89) All USA, CA, Los Angeles Co., Bel Air Area, 34.083342, -118.448691, 11-VII-1966, C Ishida, LACM, 1♀; same data except 12-VII-1966, C Ishida, LACM, 1♂; Beverly Glen, 34.107786, -118.445636, 20-VII-1960, JAR, LACM, 1♂; Elysian Park, Angel's Point, 34.08330, -118.23658, 205 m, 18-19-V-2022, JA Cole, K Halsey, LACM, 4♂; same data except JAC, 1♂; Fryman Canyon, 5 miles west of US101 on Mulholland drive, 34.1220, -118.3844, 347 m, 23-XII-2004, JA Cole, LACM, 4♂; Griffith Park, Fern dell, end of Vermont Avenue, 34.1123, -118.2894, 222 m, 26-XII-2006, JA Cole, JF Eguizabal, LACM, 6♂; same data except JAC, 2♂; Griffith Park, Mount Hollywood Trail, 34.1240, -118.3009, 370 m, 15-XII-2001, JA Cole, AMNH, 1♂;

same data except LACM, 8♂; junction Las Flores Canyon Road and Schueren Road, 34.0625, -118.6486, 469 m, 24-25-VI-2012, JA Cole, LACM, 2♂; junction Las Flores Road and Gorge Road, 34.0507, -118.6391, 66 m, 25-VI-2012 JA Cole, LACM, 1♂; Sullivan Canyon, 34.061856, -118.496064, 26-VII-1969, BW Howard, LACM, 1♂, 1♀; Temescal Canyon Fire Road, Pacific Palisades, CA, 34.048064, -118.526471, 8-XII-1969, BW Howard, LACM, 1♀; Topanga State Park, dead Horse Trail, 34.0915, -118.5939, 274 m, 12-VI-2007, JA Cole, JAC, 1♂; same data except 13-VI-2006, JA Cole, LACM, 1♂, 3♀; same data except 15-16-X-2006, JA Cole, JF Eguizabal, LACM, 10♂; same data except 15-VII-2005, JA Cole, LACM, 1♂; same data except 16-VI-2006, JA Cole, GL Miller, LACM, 2♀; same data except 28-V-2008, JA Cole, LACM, 3♀; same data except 3-7-VII-2006, JA Cole, JF Eguizabal, AMNH, 1♂, 1♀; same data except LACM, 5♂; same data except JAC, 1♂; same data except 3-VII-2006, JA Cole, JF Eguizabal, LACM, 4♂; same data except 4-5-VI-2006, JA Cole, L Gonzalez, LACM, 7♀; same data except JAC, 1♀; same data except 4-5-VI-2008, JA Cole, L Gonzalez, LACM, 1♀; same data except 7-VI-2006, JA Cole, LACM, 1♂, 4♀; same data except JAC, 1♀; same data except XII-2005, JA Cole, LACM, 2♂; UCLA Stunt Ranch Santa Monica Mountains Reserve, 34.0951, -118.6486, 374 m, 12-13-VI-2014, JA Cole, d A Gray, LACM, 2♂, 1♀; Topanga State Park, 34.09, -118.59, 365 m, 29-I-2004, d A Gray, CSUN, 1♂.