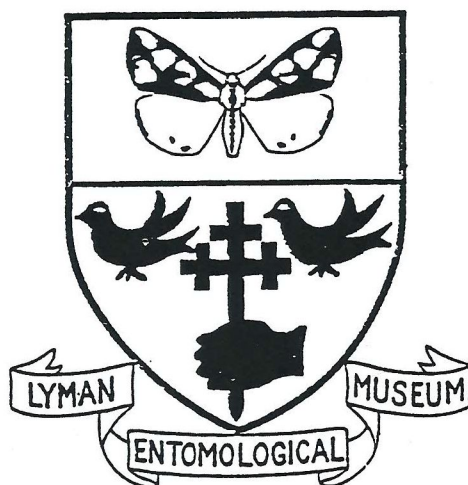


***Timema monikensis*, Species Nov. (Phasmatoptera: Timematodea:
Timematidae), a New Parthenogenetic Species in California**

by
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Note No. 22

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1998

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Abstract: *Timema monikensis* occurs only in the Santa Monica Mountains in Los Angeles County, California. It is one of the few parthenogenetic species of the genus *Timema*.

Since 1993, five new species have been added to the genus *Timema* (*T. nakipa*, *T. tahoe*, *T. cristinae*, *T. douglasi* and *T. bartmani*) and another is described in a paper in press (Vickery 1993, 1994, Sandoval and Vickery 1996 and in press, and Vickery and Sandoval 1997. Another species, here named *Timema monikensis*, was discovered only in July of 1998. Five specimens were found near the Mulholland Highway by Sandoval.

***Timema monikensis* new species.** Holotype female: U.S.A. California, Los Angeles County, Mulholland Highway, 4-VII-1998, C.P. Sandoval. Deposited in California Academy of Sciences, San Francisco, CA.

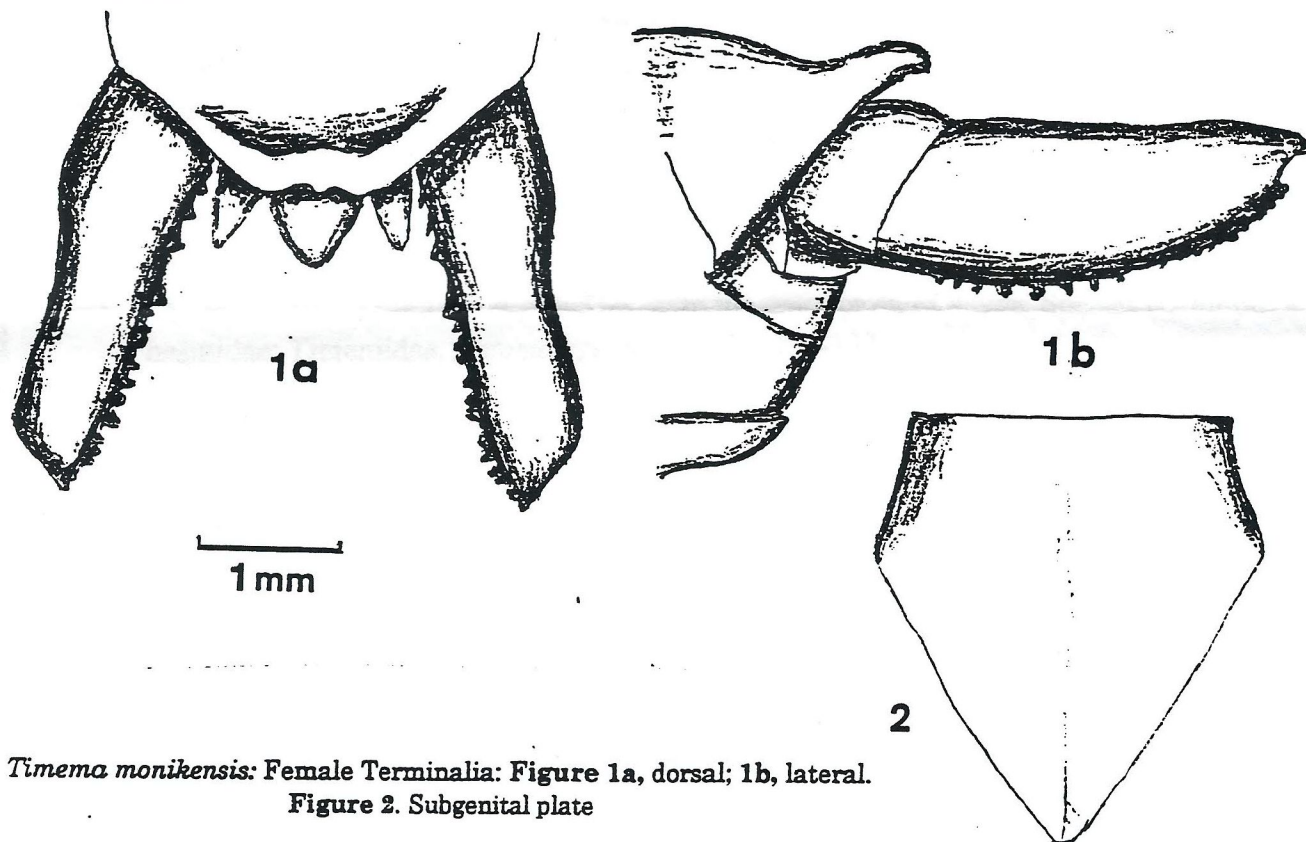
Description: medium sized species, 20.7 mm in length, broader across first two abdominal segments (2.4 mm) than females of other species of the genus. Head wider than long, vertex projected forward on either side of median area; eyes pale, not prominent; antennae with 22 segments, the segments longer apically; Pronotum broader than long, anterior lateral angles acutely projected forward, posterior margin broadly rounded laterally, truncate at middle; abdominal segments broad anteriorly, narrowing toward apex; terminal tergum (Fig. 1) broad at base, apex with small mesal invagination but this with a small mesal projection, differing in this respect from females of all other known species of the genus; cerci robust, elongate with strong teeth on lower and inner faces (Fig. 1a, 1b); supra-anal plate small and broad; subgenital plate triangular in apical two-thirds (Fig. 2). Left posterior leg missing.

Colour: Basically green, fading after death to yellowish to very pale brown, with very numerous small paler spots on body and legs; apical half of subgenital plate and cerci brown to dark brown; underside of body conspicuously white.

Measurements (mm): body length (without cerci) 20.7; head, length 1.8, width 2.8; pronotum, length 2.8, width 4.3; hind femur length 3.4; anterior tibia length 2.5; cerci 2.3.

Paratypes: 4 females, same data as holotype. Three paratypes are identical to the holotype. The other

one differs in colour, grey strongly marked with dark brown to black with numerous small pale spots on the body and legs.; vertex with fewer very small black marks; dark spots mesally at junction of pronotum and first abdominal tergum and between abdominal segments one and two; abdomen with paler band outlined with dark incurved lines, darker laterad of the lines, paired dark spots on the median paler area, two pairs on abdominal terga one and two, one pair on each of the other segments: apical tergum with small median notch, asymmetrical, broader on right side; legs speckled and with pale white beneath; underside white.



Timema monikensis: Female Terminalia: Figure 1a, dorsal; 1b, lateral.
Figure 2. Subgenital plate

Measurements of paratypes, averages and range

Body length 23.4 (19.5-23.6); head, length 2.7 (2.6-2.8); pronotum, length 2.3 (2.2-2.5), width 3.9 (3.8-4.1); fore femur length 2.5 (2.2-2.7); hind tibia length 3.9 (3.7-4.1); ratio, pronotal width/length 1.6; ratio, hind tibia/fore femur 1.6.

Timema monikensis was found in a small area of chaparral along the sides of Mulholland Highway. The vegetation consisted mostly of *Cercocarpus betuloides* Nutt, *Quercus dumosa* Nutt, *Adenostoma fasciculatum* H. & A., and *Ceanothus spinosus* Nutt. About 55% of the individuals were found on *Quercus dumosa*, 40% on *C. betuloides* and the remaining 5% on *A. fasciculatum*. In bisexual species, adult females nearly always have males riding on them but all of the individuals of *T. monikensis* are females, strongly indicating the parthenogenetic state of the species. In the laboratory *T. monikensis* fed on all of the listed host plants and *Ceanothus spinosus* as well.

wrong 40 for individuals!

The only previous collection of a *Timema* species on Santa Monica Mountain, a male of *T. chumash* Hebard, was reported by Vickery (1993), collected in 1981. During 1996 and 1997, Sandoval searched for *Timema* specimens in the area without success. The specimens reported here were present in a very small area, less than a few hundred square metres. The search was continued along a 10 mile (16 km) transect without success. It appears that this species has an extremely limited distribution. Unfortunately, the area in which it is found is being developed for housing.

Timema monikensis is the fourth parthenogenetic species known in the genus. The others are *T. genevieveae* Rentz, *T. tahoe* Vickery, *T. douglasi* Sandoval and Vickery and there is another known species that is not yet described, five parthenogenetic species and eleven bisexual species in the genus.

References

- Hebard, M. 1920. The Genus *Timema* Scudder, with the description of a New Species (Orthoptera: Phasmidae: Timematidae). *Entomological News* 31: 126-132.
- Rentz, D.C.F. 1978. A New Parthenogenetic *Timema* from California (Phasmatoidea: Timematidae). *Pan-Pacific Entomologist* 54: 173-177.
- Sandoval, C.P. and V.R. Vickery 1996. *Timema douglasi* (Phasmatoptera: Timematodea), a new Parthenogenetic Species from southwestern Oregon and northern California, with notes on other species. *The Canadian Entomologist* 128: 79-84.
- Sandoval, C.P. and V.R. Vickery 1998. *Timema coffmani* (Phasmatoptera: Timematodea: Timematidae), a new Species from Arizona and Description of the Female of *Timema ritensis*. *Journal of Orthoptera Research* 7: (in press).
- Vickery, V.R. 1993. Revision of *Timema* Scudder (Phasmatoptera: Timematodea) including Three New Species. *The Canadian Entomologist* 125: 657-692.
- Vickery, V.R. 1994. Additional Information on *Timema* Species. *The Canadian Entomologist* 126 (2): 443.
- Vickery, V.R. and C.P. Sandoval 1997. *Timema bartmani* (Phasmatoptera: Timematodea: Timematidae), a New Species from southern California. *The Canadian Entomologist* 129: 933-936.