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The millipede family Striariidae Bollman, 1893. IX. The identity of *Striaria californica* Cook, 1899, and the new genus *Bayaria* for *Striaria nana* Loomis, 1936, with a key to genera and an annotated checklist of the Striariidae (Diplopoda, Chordeumatida, Striarioidea)

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Abstract

The identity of *Striaria californica* Cook, described in 1899 from a single female, is established on the basis of additional specimens collected by Cook in 1929 and determined to be that species by Loomis (1936) as well as specimens from the San Francisco Bay region, likely to be from near the original collection locality. We propose *Amplaria californica* (Cook, 1899) **new combination**. A new genus, *Bayaria* Shear & Marek **n. gen.**, is established for *Striaria nana* Loomis, 1936 *Bayaria nana* (Loomis, 1936) **new combination**. *Striaria carmela* Chamberlin, 1947, is a junior synonym of *Bayaria nana.* A key to the 16 genera of Striariidae and an annotated checklist of the 52 species are provided.

Key words: new taxa, new combinations, Striariinae, Trisariinae, California, *Amplaria*

Introduction

Early in the development of myriapod systematics in North America, it was not uncommon for species to be described from single female specimens, since until the publication on the family Craspedosomatidae (= Suborder Chordeumatidea) in North America by Cook & Collins (1895), male gonopods were not widely used as taxonomic characters by American myriapodologists. Even after that seminal monograph, O. F. Cook and others continued to describe species from females if the specimens were from a region poorly collected for millipedes and appeared to be distinctive. Such was the case with *Striaria californica* Cook, 1899. This species was described as new in a paper (Cook 1899) on the family Striariidae, prior to that time known only from the type genus and single species *Striaria granulosa* Bollman, 1893, from Tennessee. *Striaria granulosa*, the genus and family type, was also described from a female specimen (but see the checklist entry below). Cook likely reasoned that his single female specimen from California had to be a new species due to the great distance between Tennessee and that state. We studied the female holotype as well as specimens collected in 1928 and 1929 by Cook and other material from the San Francisco Bay region, and came to the conclusion that these represented *S. californica* and that the species belongs in the genus *Amplaria* Chamberlin, 1941, giving the new combination *Amplaria californica* (Cook, 1899).

Shear & Krejca (2007) thought that both *Striaria nana* Loomis, 1936 and *Striaria carmela* Chamberlin, 1947 might be synonyms of *S. californica*, spare the fact that *californica* was described as about 15 mm long, while *S. nana* and *S. carmela* are only 5–7 mm long. An examination of the types and newly collected material shows that *S. nana* and *S. carmela* are synonyms, with *nana* the senior name, and *S. nana* is not a synonym of *S. californica*. The small size and distinctive gonopods of *S. nana* led us to describe *Bayaria* **n. gen.** for this species.

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Methods

Specimens were probably field-preserved in various solutions but are now in 70% ethanol. Morphological studies were done using an Olympus SZH stereomicroscope and an Olympus BX50 compound microscope equipped with Nomarski optics. Gonopods were temporarily mounted on microscope slides in glycerine for study up to 400X magnification and drawings were made from these slides using a drawing tube on the BX50. For scanning electron microscopy (SEM), specimens were first cleaned in an ultrasonic cleaner, then mounted on 12.7 mm diameter aluminum stubs using double-sided adhesive carbon discs and allowed to air-dry. These were sputter coated with a 40-nm thick layer of platinum and palladium, using a Leica EM ACE600 high vacuum sputter coater. SEM micrographs were taken with a FEI Quanta 600 FEG environmental scanning electron microscope. Micrographs were edited and refined using GIMP, and plates were composed in InkScape.

A problem with older museum specimens is vague or incomplete labeling. We used Google Earth to obtain coordinates for most of the localities listed in this paper, rounding off to three decimal degrees. Thus the coordinates are not meant to be exact, only approximate.

Abbreviations of specimen repositories are as follows: BMUW, Burke Museum, University of Washington; CAS, California Academy of Sciences; FMNH, Field Museum of Natural History; FSCA, Florida State Collection of Arthropods; INHS, Illinois Natural History Survey; USNMNH, United States National Museum of Natural History; VMNH, Virginia Museum of Natural History. In the records sections, m stands for male, f for female.

List of abbreviations on figures

aac anterior angiocoxite
ap accessory spine
c comblike process
cc colpocoxite
cf coxal flask
f flagellocoxite
ls lateral spine
m mandible
pac posterior angiocoxite
pcb postcoxal bar
pf2 second prefemur
pf3 third prefemur
sp sinuous spine
vd opening of *vas deferens*

Taxonomy

Family Striariidae Bollman, 1893

Subfamily Striariinae Bollman, 1893

Genus *Amplaria* Chamberlin, 1941

Amplaria californica (Cook, 1899), new combination

Figs 1–10, 18, 19

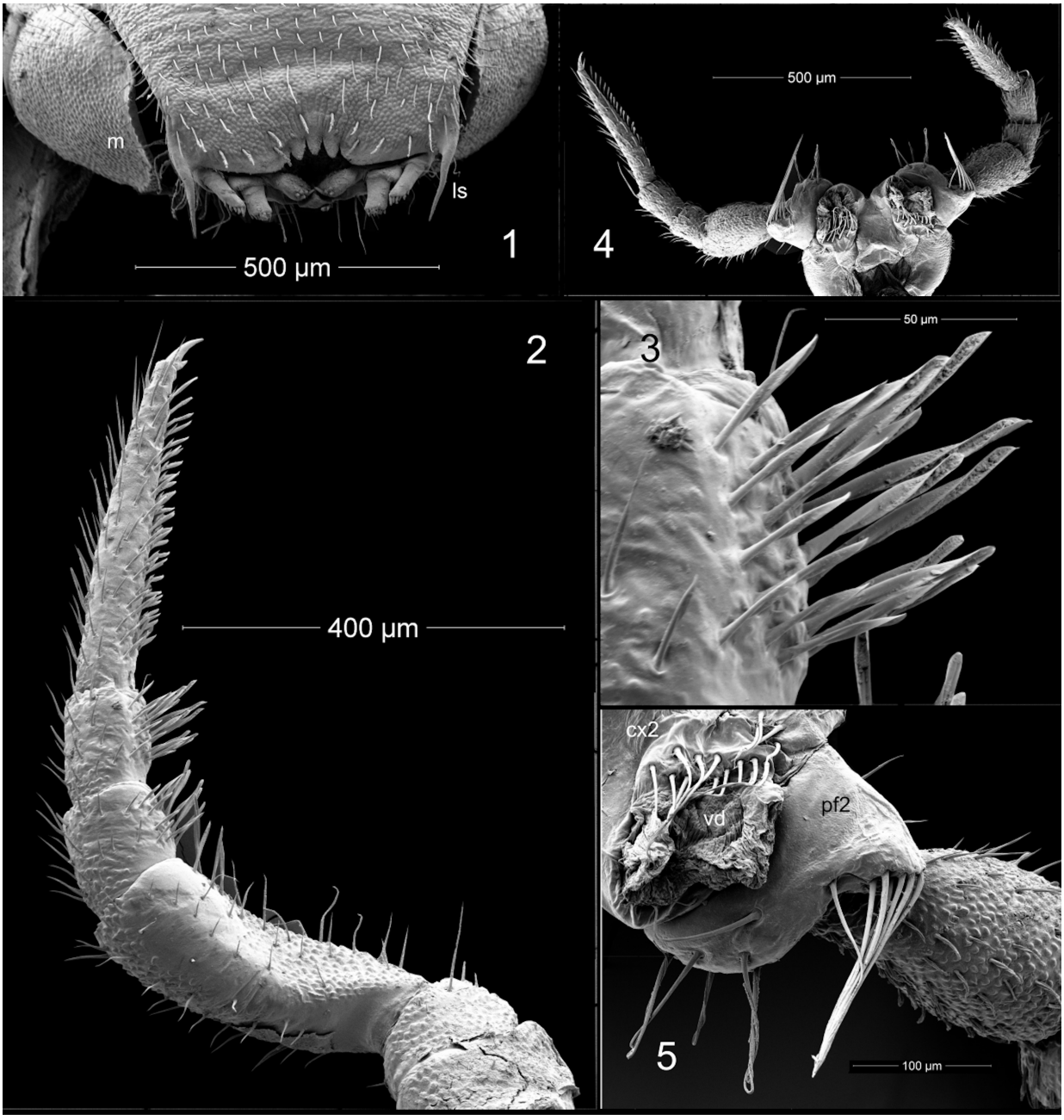
Striaria californica Cook, 1899: 675; Loomis 1936: 409; Causey 1958: 181; Hoffman 1999: 208.

Type: Female holotype (USNMNH Type #776) from "California;" no further locality data. Cook speculated that the type was collected "probably near Sausalito" but gives no evidence for thinking so.

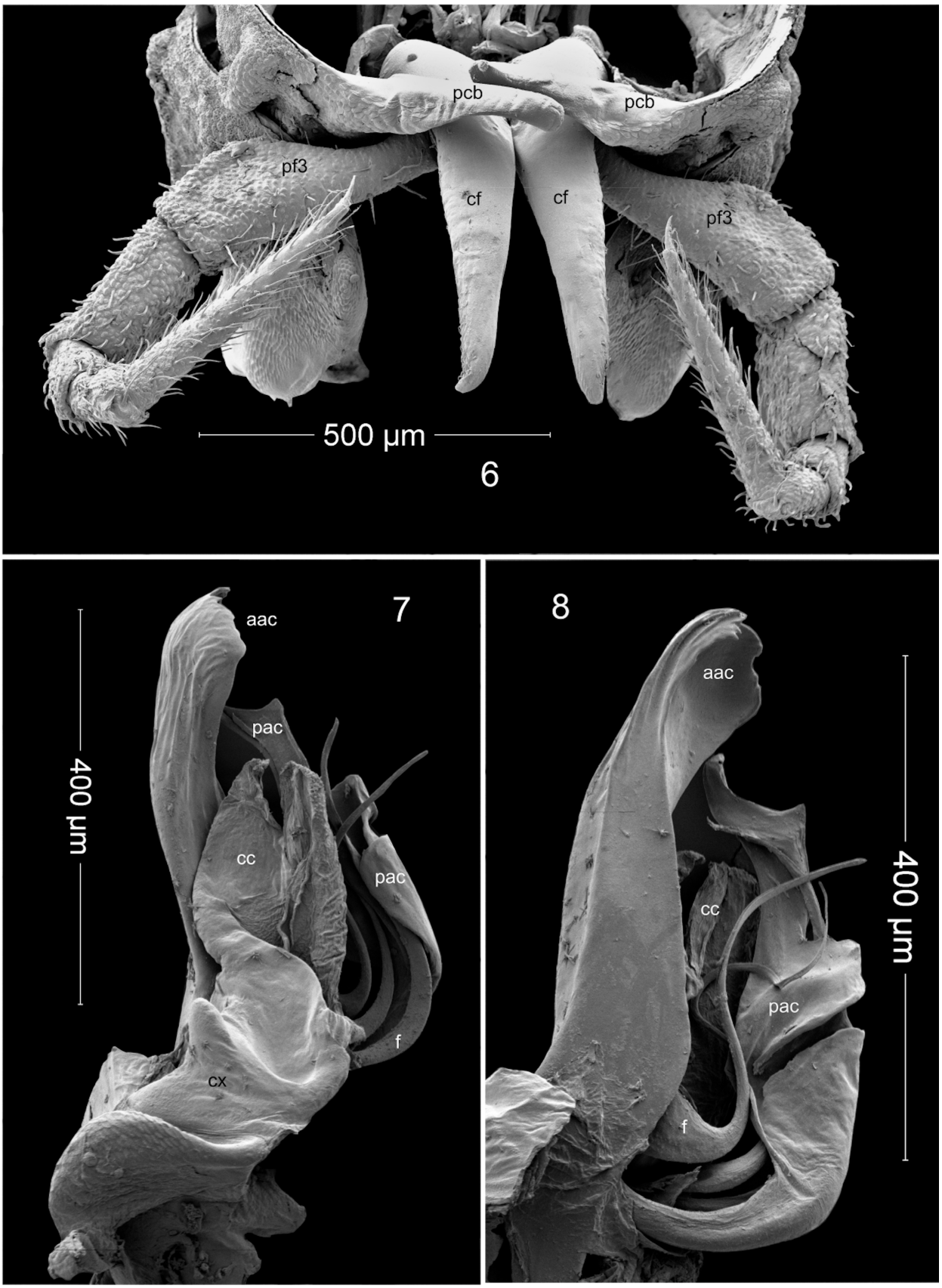
Diagnosis. The gonopods, secondary sexual characters of the males, and nonsexual characters are consistent with the genus *Amplaria* Chamberlin, 1941, and the species is transferred to that genus as *Amplaria californica* (Cook 1899) **new combination**. *Amplaria californica* is distinct in its greater length from other species of *Amplaria* (14–18 mm long, as opposed to at most 12 mm in other species). Only *Amplaria shastae* (Causey) is longer at 25 mm or more. Details of the gonopods serve as the primary means to distinguish *A. californica* from other taxa (Figs 7, 8, 18, 19).

Descriptive notes. Loomis (1936) provided a detailed description of the male, which we supplement here with illustrations and discussion of the gonopods and some other characters. A female is illustrated in Fig. 10.

Modifications of the head and anterior legs of males are in most ways typical of species of *Amplaria,* but the acute lobes and serrate edges of the mandibular stipes are not present. The corners of the labrum are drawn out into slightly sinuous, acute processes (**ls**, Fig. 1). The first legpair (Fig. 2) bears long, twisted spatulate setae (Fig. 3) on the postfemora and tibiae, with a few distally on the femora. The first and second legpairs are similar in size and not reduced. The second coxae (**cx2,** Figs 4, 5) are enlarged, with wide openings of the *vas deferens* (**vd**) subtended by

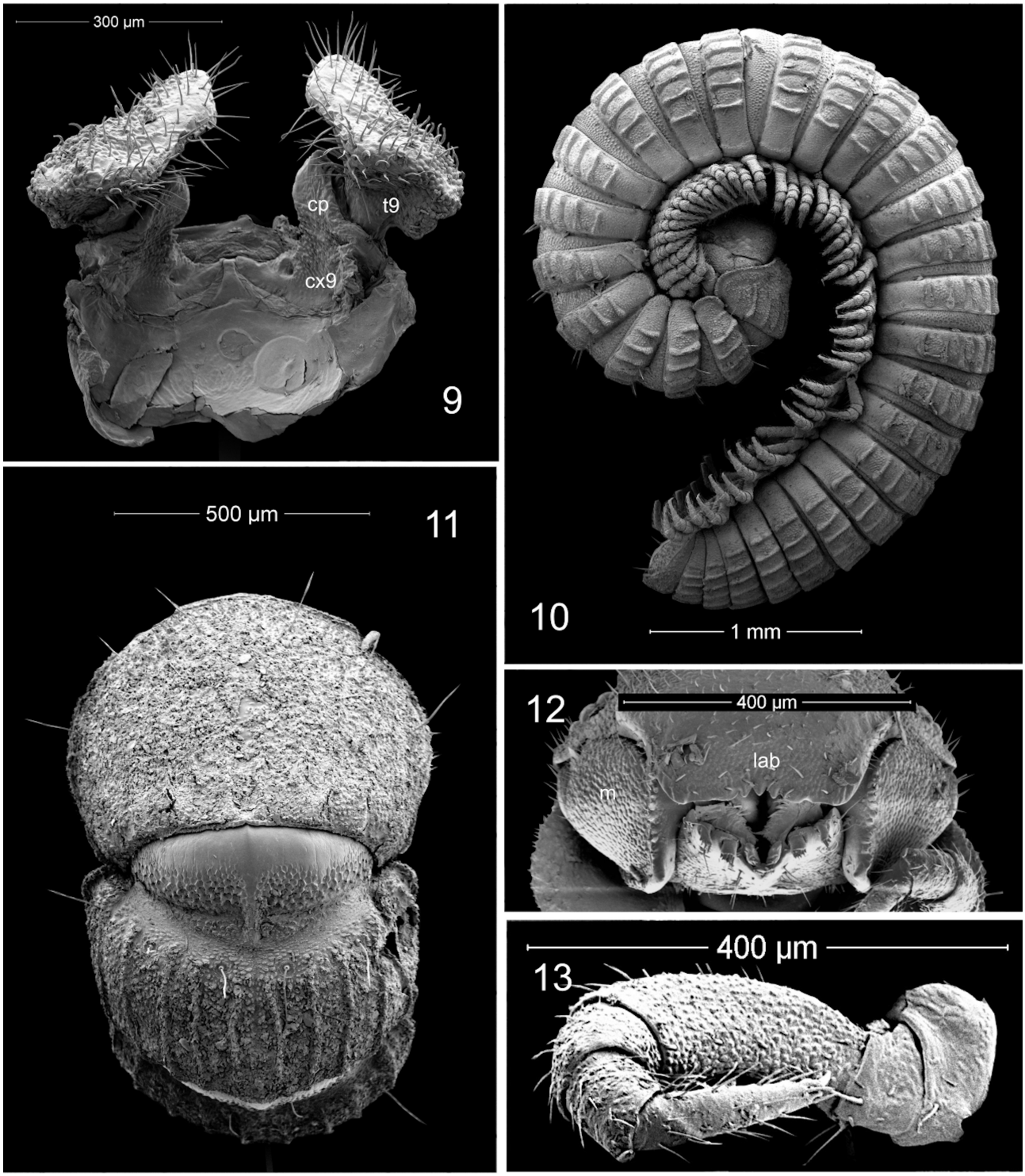


FIGURES 1–5. *Amplaria californica* (Cook, 1899), **n. comb.**, male from Davenport, CA. **1.** Front of head, anterior view. **2.** Left leg 1, anterior view. **3.** Postfemoral spine cluster of leg 1, anterior view. **4.** Legpair 2, posterior view. **5.** Coxa and prefemur 2, posterior view. Abbreviations: **cx2**, coxa 2; **ls**, lateral spine of labrum; **m**, mandible; **pf2**, prefemur 2; **vd**, opening of *vas deferens.*



FIGURES 6–8. *Amplaria californica* (Cook, 1899), **n. comb.**, male from Davenport, CA. **6**. Third legs and postcoxal bars, posterior view. **7**. Right gonopod, lateral view. **8**. Left gonopod, mesal view. Abbreviations: **aac**, anterior angiocoxite; **cf**, coxal flask of leg 3; **cc**, colpocoxite; **cx**, gonopod coxa; **f**, flagellocoxite; **pac**, poserior angiocoxite; **pcb**, postcoxal bars of fourth ring; **pf3**, Prefemur of leg 3.

long setae, and the second prefemora (**pf2**) have distal knobs with a tuft of even longer setae. The third legpair (Fig. 6) is typical of *Amplaria,* with the coxae bearing long flasks (**cf**) equal to or surpassing the prefemora (**pf3**) in length and with curled, decumbent apical setae on the anterior surface; the telopodites are not reduced. The pleurotergal edges of the fourth ring extend into processes overlapping in the midline behind the third legs (**pcb**, Fig. 6). The ninth legpair coxae (Fig. 9) have short, blunt, mesal processes (**cp**) and the telopodites (**t**) are broadly flattened in the typical striariid manner.



FIGURES 9–13. 9, 10. *Amplaria californica* (Cook, 1899), **n. comb.**, male and female from Davenport, CA. **9.** Male legpair 9, anterior view. **10.** Female. **11–13.** *Bayaria nana* (Loomis), **n. comb.,** male from Bottcher's Gap, CA. **11**. Collum and first ring, dorsal view. **12**. Head, ventrofrontal view. **13**. Legpair 1, ventral view. Abbreviations: **cp**, coxal process; **cx9**, coxa 9; **lab**, labrum; **m,** mandible; **t9**, telopodite 9.

Gonopods. The sternum (**s,** Figs 7, 18) and coxa (**cx,** Figs 7, 18) are well sclerotized. The coxae and sternum are free from each other. In lateral view (Figs 7, 18), the poorly sclerotized posterior lobe of the colpocoxite (**cc**) conceals most of the other structures, but it is clear that there are three branches of the flagellocoxite (**f**) sheathed by the posterior branch of the angiocoxite (**pac**). In mesal view (Figs 8, 19) the tip of the anterior branch of the angiocoxite (**aac**) can be seen to be truncate and simple, and the posterior branch (**pac**) arises from a strongly curved pedicel.

Females (Fig. 10) are 15–18 mm long and like the males in nonsexual characters.

Records. Loomis (1936) reported this species from "Santa Cruz Mountains [Santa Cruz/Santa Clara Cos., California]," Cordelia (Solano Co.) and Davenport (Santa Clara Co.). Only the Davenport specimens could be located in the USNMNH collection. Causey (1958) had a large female specimen (18 mm) from Lagunitas (Marin Co.). All these previously reported localities are consistent with a distribution around and north and south of San Francisco Bay. We cite the following new localities as consistent with the specimens determined as this species by Loomis (1936).

CALIFORNIA: *Alameda Co.*: Woolsey Canyon, Berkeley, 37.875°, -122.250°, 21 December 1965, T. Briggs *et al.*, m (CAS). *Contra Costa Co.*: Mitchell Canyon, 37.920°, -121,941°, 20 May 1961, R. Brown, m, f (CAS). *Marin Co.*: McClure's Beach, Point Reyes, 38.187°, -122.965°, 17 October 1965, K. Lee, B. Owyang, m (CAS); Mill Valley, 37.906°, -122.545°, J. Helfer, mm, ff (CAS). *San Francisco*: Golden Gate Park, 37.769°, -122.486°, 15 September 1965, P. Rubtzoff, mm (CAS); below Municipal Pier at foot of Van Ness Avenue, 37.807°, -122.426°, O. Owyang, m (CAS). *Santa Cruz Co.*: Davenport, 37.016°, -12.199°, 21 February 1929, O. F. Cook, m, f (USNMNH).

Notes. The female type of *S. californica* was examined by us for this study. The type is in poor condition, fragmented, and at one time was probably pinned and dried (two insect pins are in the type vial), but all or nearly all of the individual is present. Unfortunately, though the type has the appearance of a species of *Amplaria* Chamberlin, 1941, at the present time it is not possible to separate species in that genus based on females alone. A second complicating factor is that the locality label reads only "California, Capt. Casey" without further data.

Thomas Lincoln Casey, Jr. (1857–1925) was an army officer and entomologist who collected insects and other natural history specimens at the various places he was stationed. Casey was a Captain of Engineers and stationed in California in 1885 and 1886 (Essig 1972), so the collection was probably made during that period. Although we could not verify it, the most likely station for Casey as an engineer specializing in lighthouses would be the San Francisco Bay area, probably the Presidio in San Francisco itself, or perhaps Point Reyes Station. This also may have been the assumption of Cook (1899), who, however, suggested a type locality as near Sausalito, Marin Co., California, though he did not state why he thought so, and this is hardly a firm designation of a type locality. However, Loomis (1936) listed and described additional specimens collected by Cook himself in 1928 and 1929 in localities somewhat removed from the immediate Bay Area, from Cordelia, Davenport and "Santa Cruz Mountains". While the Cordelia and "Santa Cruz Mountains" specimens could not be located, we were able to examine the single male and female from Davenport conserved in the collection of the United States National Museum of Natural History and in order to clear up the identity of *S. californica,* accept Loomis' identification of them as that species, as they conform to the descriptions of both Cook (1899) and Loomis (1936). However, Davenport is some distance south of San Francisco Bay, so we enquired of the California Academy of Sciences if they had material of striariid millipeds from the immediate region. This material was loaned to us, and while it consisted mostly of juvenile and female specimens, males attributable to *S. californica* from Marin Co. (near the suggested type locality) conforming to the Davenport male were present. These *S. californica* males gave us further confidence in our identification of both the Cook and San Francisco area collections as *S. californica. Bayaria nana* could be eliminated from consideration because of the great size discrepancy between the two species. At least at the Point Reyes localities, *A. californica* and *B. nana* are sympatric or even syntopic, both species appearing in at least one of the same collection vials from CAS.

Bayaria Shear & Marek, new genus

Type species: *Striaria nana* Loomis, 1936. The genus is at present monotypic.

Diagnosis. This genus is distinct from the co-occuring *Amplaria* in lacking distinct crests on the male collum (Fig. 11), though in females small crests may be present in the posterior lateral quarter of the collum. In this respect, the

genus is similar to *Petra* Shear *et al.*, 2022, but in the single species of that genus (which occurs far away in Idaho), the males have distinct crests on the posterior third of the collum and the anterior two thirds are ornamented with rounded tubercles. The gonopods of *Petra sierwaldae* Shear *et al.*, 2022 are also quite different. The single included species of *Bayaria* is, at 5–7 mm in body length, only one-third the length of the sympatric *Amplaria californica.* The gonopods have a distinctive comb-like process not found in any known striariid species.

Etymology. The generic name is a Latin neologism (feminine) based on the occurrence of the species in the San Francisco Bay region, informally called the Bay Area, with spelling slightly altered to conform to other generic names in the Striariidae.

Description. As for the only included species, see below and Loomis (1936).

Bayaria nana (Loomis, 1936), new combination

Figs. 11–17, 20–26

Striaria nana Loomis, 1936: 407; Hoffman, 1999: 209.

Striaria carmela Chamberlin, 1947: 9; Hoffman, 1999: 208. **New synonymy.**

Types. Male holotype and male and female paratypes of *S. nana* from Altamont Pass, above Niles, California (37.746°, -121.658°), collected 1 December 1926 by O. F. Cook (USNMNH). Male holotype and female paratype of *S. carmela* from the Hastings Reservation, Monterey Co., California (36.379°, -121.563°), collected 24 March 1946 by J. M. Linsdale (USNMNH). Types examined by WS in 2017.

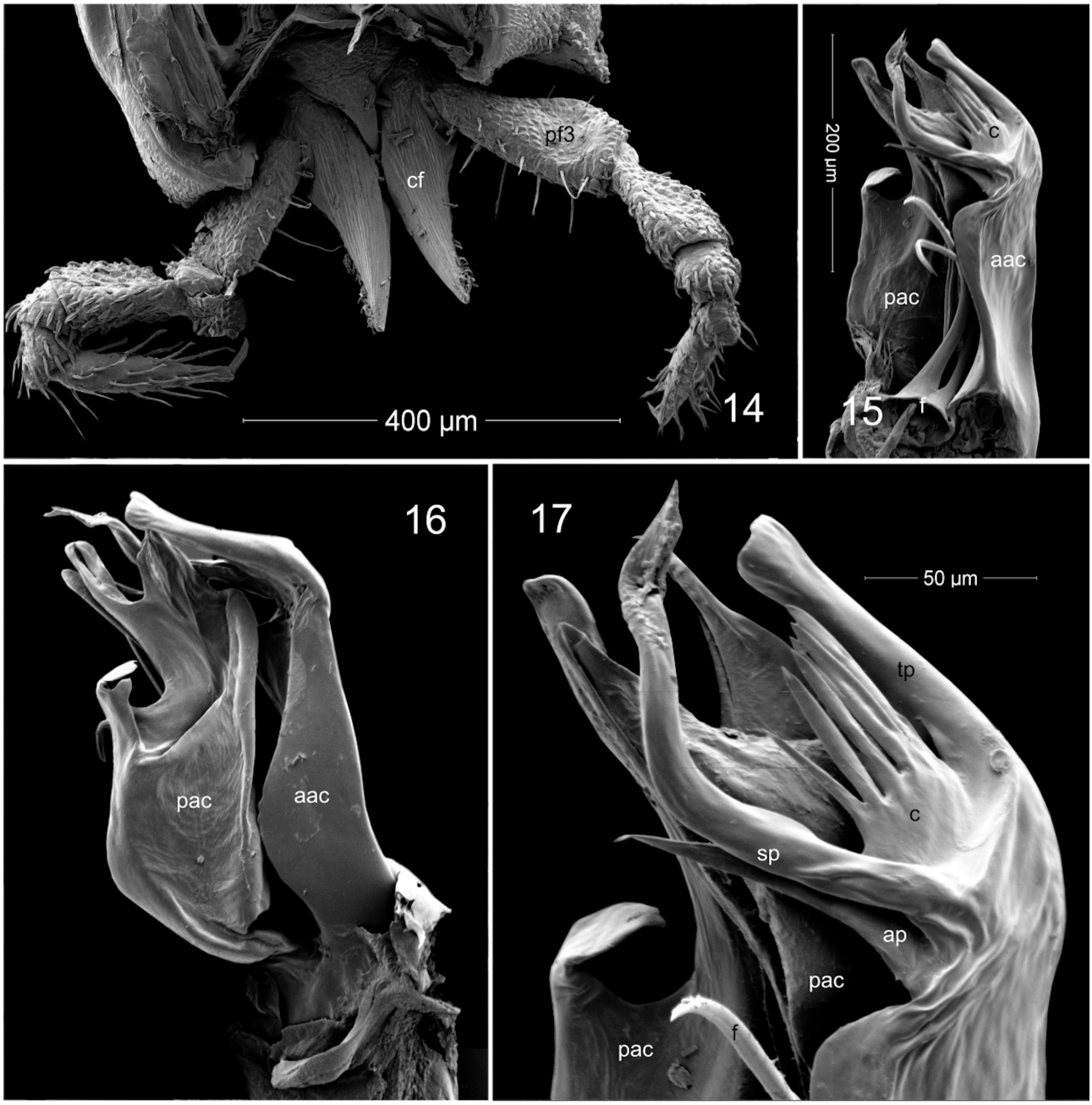
Diagnosis As for the genus, above.

Descriptive notes: Loomis (1936) described the collum of *B. nana* as having the usual 10 crests, but this is not borne out by examination of specimens; the great majority of which have either no detectable crests on the collum in males (Fig. 11) or only very low crests posteriolaterally in females. Otherwise Loomis's description of the nonsexual characters is accurate and need not be repeated here. We provide new figures of the gonopods and secondary sexual characters of the male (Figs 11–17, 20–26). The mandibular stipes bears a serrate distal margin and an apical acute lobe (**m**, Fig. 12). Labral processes are absent (**lab**, Fig. 12). The first legs lack spatulate or needlelike setae (Fig. 13) and the third legs have coxal flasks (**cf**, Fig. 14), about the same length as the prefemora (**pf3**, Fig 14). The anterior angiocoxites (**aac**, Figs 15, 16, 20–26) are similar to those of species of *Amplaria* and other striariid genera, but distinctive in having a long, sinuous lateral process (**sp**, Fig. 17) with a basal accessory spine (**ap**, Fig. 17) and a shorter, mesal process which ends in an array of comblike teeth (**c**, Fig. 17). The posterior angiocoxites (**pac**, Figs 16, 17, 20–22, 24, 25) are, as usual, more difficult to characterize, but as in other genera sheath two or possibly three flagellocoxites (**f**). The lateral lobes of the colopcoxites are poorly sclerotized (**cc**, Figs 20, 22, 24).

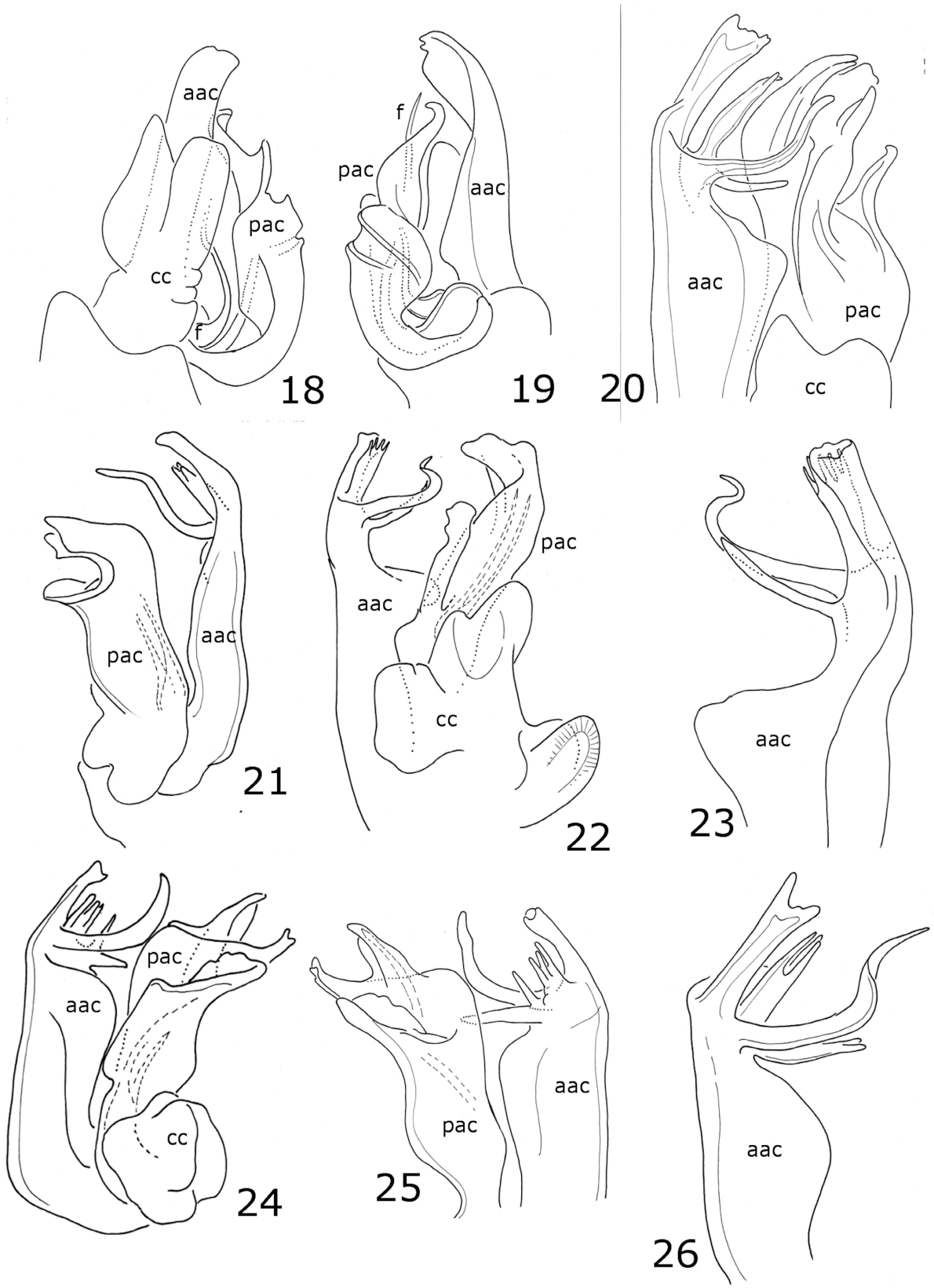
Records: In addition to the type localities. CALIFORNIA: *Marin Co.* 6 miles east of Point Reyes Station, 38.070°, -121.701°, 1 March 1960, A. Grigarick *et al.*, m (CAS). *Monterey Co.*: Big Creek Reserve, 30 km east of Big Sur, 36.070°, -121.599°, 27 February 1999, S. & J. Peck coll. #9972, mm, ff (FMNH); Bottchers Gap. 3 km east and 11 km east of Rt. 1 on Palo Colorado Road, 36.354°, -121.813°, 600' asl, 26 February 1999, S. & J. Peck coll. #9970, 9969, mm, ff (FMNH); Pfeiffer Big Sur State Park, 36.253°, -121.787°, 26 February 1999, S. & J. Peck coll. 9971, mm, ff (FMNH). *Sonoma Co.*: 6 miles east of Petaluma, 38.236°, -122.525°, 29 December 1961, J. S. Buckett, m (CAS); Monte Rio Trail above Pine Glade Road, 38.456°, -123.008°, 5 May–29 August 1996, D. Ubick *et al.,* m (CAS); Inverness, 36.100°, -122.857°, 8 November 1953, R. O. Schuster, m (CAS); Samuel P. Taylor State Park, 38.024°, -122.721°, 8 December 1953, R. O. Schuster, m (CAS).

Notes: Chamberlin (1947) contrasted his *S. carmela* with *S. nana* stating that "...the anterior gonopods are trilobed instead of bilobed..." but it is clear from the illustrations that this apparent difference is due to Chamberlin's only illustrating the very distal part of the anterior branch of the angiocoxite, probably in a mesal view, not lateral as he states; Loomis illustrated the whole structure in an obviously lateral view. Thus Chamberlin's drawing misses the long, sinuous subterminal process. Nevertheless, Chamberlin's sketchy drawing includes the characteristic comb-branch, not seen in Loomis's, while Loomis illustrates the long, sinuous subterminal process, but not the comb-branch. Examining both holotypes showed that these supposed differences are not real. While all of the specimens we looked at were bleached by long preservation, the relatively fresh material studied by Chamberlin exhibited a color pattern: "A brown form with a narrow yellow stripe on each side at the level of the pores (*sic!*). Also showing a median dorsal pale line (Chamberlin 1947, p. 9)". Chamberlin seems to have forgotten for the moment that chordeumatidans do not have ozopores.

We found variation in the gonopods of specimens from different localities that initially made us think there might be more than one species. Specimens from Point Reyes Station (Figs 22, 23) have longer comb-branches than others and the accessory spine of the long sinuous lateral process is also longer. In contrast, Bottcher's Gap males (Figs 24, 25) have much shorter, stouter processes in both positions and appear to have one long "tooth" separate from the others of the comb-branch. A male from near Petaluma (Fig. 26) has fewer "teeth" and the basal branch of the long sinuous lateral process is apically bifid. That latter branch was illustrated by Loomis (1936) for *nana,* so this is probably only an apparent artifact of our view in making the drawings. The same might explain the smaller and fewer "teeth" of the comb-branch seen in those drawings. However, in the absence of enough geographic coverage to assess a multi-species hypothesis, we place all of our material in *B. nana.* CAS collections contain a number of female and juvenile specimens in the size range of *B. nana*, but we are reluctant to include these without males.



FIGURES 14–17. *Bayaria nana* (Loomis, 1936), **n. comb.,** male from Bottcher's Gap, CA. **14**. Legpair 3, posterior view. **15**. Left gonopod, lateral view. **16.** Right gonopod, mesal view. **17.** Tip of left gonopod, lateral view. Abbreviations: **aac**, anterior angiocoxite; **ap**, accessory spine; **cf**, coxal flask of leg3; **f**, flagellocoxite; **pac**, posterior angiocoxite; **sp**, sinuous spine; **tp**, terminal process.



FIGURES 18–26. *Amplaria californica* (Cook, 1899), **n. comb.**, male from Davenport, CA. **18**. Left gonopod, lateral view. **19.** Left gonopod, mesal view. **20–26.** *Bayaria nana* (Loomis), **n. comb.,** gonopods. **20**. Holotype of *Striaria nana*, right gonopod, lateral view. **21.** *Striaria carmela* Chamberlin, 1941, holotype, mesal view. **22.** From Point Reyes, CA, right gonopod, lateral view. **23.** Same, mesal view. **24**. From Boetticher's Gap, right gonopod, lateral view. **25.** Same, mesal view. **27.** From near Petaluma, CA, right gonopod, lateral view. Abbreviations: **aac**, anterior angiocoxite; **cc**, colpocoxite; **f**, flagellocoxite; **pac**, posterior angiocoxite.

Key to genera of the family Striariidae

This key is updated from the one in Shear & Marek (2022b).

1a. Gonopod flagellocoxites absent; ninth legs of males with telopodites, coxae and sternum often fused . . . . . Subfamily Trisariinae, 2
1b. Gonopod flagellocoxites present; ninth legs of males with all elements, or at least telopodites always free . . . . . Subfamily Striariinae, 4
2a. Some crests of metazonites much larger than the others 3
2b. All metazonital crests similar in size . . . . . *Trisaria*
3a. Sixth and second crests larger than others . . . . . *Nototrisaria*
3b. Only second crests enlarged, sixth crests not enlarged . . . . . *Stegostriaria*
4a. Second and third crests enlarged on some rings, sixth crests as others . . . . . *Kentrostriaria*
4b. Second and third crests not enlarged on any rings 5
5a. 10–25 mm long. 5
5b. 5–7 mm long, or smaller. 6
5a. Gonopod anterior angiocoxites with a distal crown of stout spines . . . . . *Striaria*
5b. Gonopod anterior angiocoxites without such a crown of spines . . . . . *Amplaria*
6a. 5–7 ommatidia on each side of head . . . . . *Bayaria*
6b. 1–3 ommatidia on each side of head 7
7a. 1 ommatidium on each side of head. 8
7b. 2 or 3 ommatidia on each side of head. 11
8a. Mandible with prominent apophysis and gland opening . . . . . *Kingaria*
8b. Mandible without apophysis or gland 9
9a. Coxae 3 without flasks, coxae 5 with toothed knobs 10
9b. Coxae 3 with short flasks, coxae 5 unmodified . . . . . *Miniaria*
10a. Collum with distinct notch at level of outermost seta . . . . . *Petra*
10b. Collum without such a notch . . . . . *Tigraria*
11a. Sixth crests of metazonites enlarged, paranota-like 12
11b. All metazonital crests similar in size 14
12a. Three ommatidia on each side of head. . . . . *Plaramia*
12b. Two ommatidia on each side of head 13
13a. Gonopod anterior angiocoxites densely fimbriate on posterior surface. . . . . *Lamparia*
13b. Gonopod anterior angiocoxites not fimbriate, fused . . . . . *Rampalia*
14a. Gonopod anterior angiocoxites reflexed dorsally. . . . . *Maraplia*
14b. Gonopod anterior angiocoxites not reflexed, gonopods compact . . . . . *Ralampia*

Annotated checklist of the family Striariidae

We have followed, with some slight changes, the format of Hoffman (1999).

FAMILY STRIARIIDAE Bollman 1893

Striariinae Bollman, 1893, Bull. U. S. Nat. Mus. 46: 158.

Striariidae Cook, 1895, Ann. New York Acad. Sci. 9: 4. Cook, 1899, Proc. U. S. Nat. Mus. 21: 670. Loomis, 1936, J. Washington Acad. Sci. 26: 409. Shear, 1972, Bull. Mus. Comp. Zool. 144: 257; 2020, Zootaxa 4758: 275; Hoffman, 1999, Virginia Mus. Nat. Hist. Special Publ. 8: 208. Sixteen genera and 57 species.

SUBFAMILY STRIARIINAE Bollman, 1893.

Striariinae Bollman, 1893, Bull. U. S. Nat. Mus. 46: 158. Thirteen genera.

Genus *Amplaria* Chamberlin, 1941

Amplaria Chamberlin, 1941, Bull. Univ. Utah 31: 9. Type species *Amplaria eutypa* Chamberlin, by original designation. Hoffman, 1980, *Classification of the Diplopoda*, p. 127 (synonymized with *Striaria* Bollman, 1888); Hoffman, 1999, Virginia Mus.

Nat. Hist. Special Publ. 8: 208. Shear & Krejca, 2007, Zootaxa 1532: 25 (revalidation of *Amplaria*). Shear, 2021a, Zootaxa 4908: 206. Distributed from southern British Columbia (unpublished records) south to San Diego Co, California, and also in the Sierra Nevada Mountains of California. A single species is known from Idaho. Nineteen species.

Speostriaria Causey, 1960, Proc. Biol. Soc. Washington 71: 25 (synonymized by Shear & Krejca 2007). Type species, *Striaria shastae* Causey, 1958.

Vaferaria Causey, 1958, Proc. Biol. Soc. Washington 71: 182. Shear, 2020, Zootaxa 4758: 282 (synonymized by Shear 2020). Type species, *Striaria imberbis* Loomis, 1936.

"Vaferia" lapsus for *Vaferaria,* Hoffman, 1999, Virginia Mus. Nat. Hist. Special Publ. 8: 210. Shear & Krejca, 2007, Zootaxa 1532: 26.

Amplaria adamsi Shear & Krejca, 2007

Amplaria adamsi Shear & Krejca, 2007, Zootaxa 1532: 35. Male holotype from Hidden Cave, Sequoia National Park, Tulare Co., California (FMNH). Known from five caves in Sequoia National Park.

Amplaria arcata Shear, 2021

Amplaria arcata Shear, 2021a, Zootaxa 4908: 212. Male holotype and paratype from Prairie Creek Redwoods State Park, Humboldt Co., California (CAS). Known from two localities near Arcata, Humboldt Co., California.

Amplaria baughi Shear, 2021

Amplaria baughi Shear, 2021a, Zootaxa 4908: 217. Male holotype and female paratype from O'Hara Campground, Nez Perce-Clearwater National Forest, Idaho Co., Idaho (CAS). Known only from the type locality. The only *Amplaria* species known from Idaho.

Amplaria californica (Cook, 1899)

See the account of this species in the text above.

Amplaria cervus Shear, 2021

Amplaria cervus Shear, 2021a, Zootaxa 4908: 218. Male holotype from Wrigley Road, 6 miles northeast of Loleta, Humboldt Co., California (CAS). Known only from the type locality.

Amplaria crawfordi Shear, 2021

Amplaria crawfordi Shear, 2021a, Zootaxa 4908: 209. Male holotype and male and female paratypes from west of Thornton Creek, Seattle, King Co., Washington (BMUW). Known only from the type locality.

Amplaria eldora Chamberlin, 1953

Striaria eldora Chamberlin, 1953a, Ent. News 64: 95. Three female syntypes from Crystal Cosumnes Cave, Eldorado Co., California, repository unknown. Hoffman, 1999, Virginia Mus. Nat. Hist. Special Publ. 8: 209 (as *Striaria eldora*). Shear & Krejca, 2007, Zootaxa 1532: 27. Hoffman (1999) mistakenly refers to a holotype male, possibly deposited in USNMNH, but no such specimen could be located there. Chamberlin (1953b) mentioned a male specimen from Grapevine Cave in Calaveras Co., California (USNMNH) and this specimen was labeled at some point, probably by Hoffman, as a paratype although no published designation as such was ever made. Shear & Krejca based their concept of *A. eldora* on the Grapevine Cave specimen. *Amplaria eutypa* Chamberlin 1941, the type species of the genus, was collected nearby and Shear & Krejca

thought that *S. eldora* is likely to be a junior synonym. This species has not been recollected and remains known only from the two above mentioned localities.

Amplaria eutypa Chamberlin, 1941

Amplaria eutypa Chamberlin, 1941, Bull. Univ. Utah 31: 9. Hoffman, 1999, Virginia Mus. Nat. Hist. Special Publ. 8: 208. Shear & Krejca, 2007, Zootaxa 1532: 26. Female holotype from 9 miles north of Placerville, Eldorado Co. California (USNMNH). As the holotype is a female (the holotype vial contains parts of at least three females), the identity of this species remains in question. Shear & Krejca (2007) speculated that this species may be a senior synonym of *A. eldora*; see the discussion of that species, above. The species has not been recollected and remains known only from the type locality.

Amplaria flucticulus Shear, 2021

Amplaria flucticulus Shear, 2021a, Zootaxa 4908: 222. Male holotype and paratype from Rippled Cave, Amador Co., California (CAS). Known only from the type locality. This species and *A. shastae* are the only known troglobitic *Amplaria* species. Unlike *A. shastae, A. flucticulus* lacks eyes.

Amplaria fontinalis Shear, 2021

Amplaria fontinalis Shear, 2021a, Zootaxa 4908: 209. Male holotype and male and female paratypes from Spring Creek Hatchery, Skamania Co., Washington (CAS). Known only from the type locality.

Amplaria imberbis (Loomis, 1936)

Striaria imberbis Loomis, 1936, J. Washington Acad. Sci.26: 408. Male holotype from south of Atascadero, California (USNMNH).
Vaferaria imberbis Causey, 1958, Proc. Biol. Soc. Washington 71: 182.
"*Vaferia"* (*sic) imberbis* Hoffman, 1999 Virginia Mus. Nat. Hist. Special Publ. 8: 209.
Amplaria imberbis Shear, 2020, Zootaxa 4758: 282. Shear (2020) provided new illustrations from the holotype. Known only from the type locality.

Amplaria mendocino Shear, 2021

Amplaria mendocino Shear, 2021a, Zootaxa 4908: 220. Male holotype and paratype from Usal Road, 1 mile north of US 1, Mendocino Co., California (CAS). Known only from the type locality.

Amplaria muiri Shear & Krejca, 2007

Amplaria muiri Shear & Krejca, 2007, Zootaxa 1532: 28. Male holotype and male and female paratypes from Crystal Cave, Sequoia National Park, Tulare Co., California (FMNH). Known from six caves in Sequoia National Park.

Amplaria nazinta (Chamberlin, 1910)

Striaria nazinta Chamberlin, 1910, Ann. Ent. Soc. America 3: 35. Location of original material unknown and no formal types designated; collected from Portland, Multnomah Co., Oregon. Neotype male from Powell Butte Park, Portland, Oregon, designated by Shear, Nosler & Marek (2017; VMNH) Loomis, 1936, J. Washington Acad. Sci. 26: 408. Causey, 1958, Proc. Biol. Soc. Washington 71: 180. Hoffman, 1999, Mus. Nat. Hist. Special Publ. 8: 210. Shear & Krejca, 2007, Zootaxa 1532: 26. Shear, Nosler & Marek, 2017, Zootaxa 4311: 234. Shear, 2021a, Zootaxa 4908: 209. Known only from Portland, Oregon.

Amplaria oedipus Shear, Nosler & Marek, 2022

Amplaria oedipus Shear, Nosler & Marek, 2022, Zootaxa 5099: 139. Male holotype and female paratype from Cape Mountain, near Florence, Lane Co., Oregon (CAS). Known only from the type locality. This species is unique among *Amplaria* species in having greatly swollen tarsi on legpairs 5–7 of the males.

Amplaria rykkenae Shear, 2021

Amplaria rykkenae Shear, 2021a, Zootaxa 4908: 212. Male holotype from 1 mile northeast of Upper Soda, Sweet Home Road, Linn Co. Oregon (CAS). Known from three localities, all along Sweet Home Road, Linn Co., Oregon.

Amplaria shastae (Causey, 1958)

Striaria shastae Causey, 1958, Proc. Biol. Soc. Washington 71: 182. Female syntypes from Samwel Cave, Shasta Co., California, (AMNH). Hoffman, 1999, Virginia Mus. Nat. Hist. Special Publ. 8: 208.
Speostriaria shastae Causey, 1960, Proc. Biol. Soc. Washington 73: 26.
Amplaria shastae Shear & Krecja, 2007, Zootaxa 1532: 25. This species is one of two presumed troglobites in the genus, both from northern California. *Amplaria shastae* retains eyes, while *A. flucticulus* (see above) is eyeless. *Amplaria shastae,* at 25 mm in length, is much larger than any other striariid species. Potentially present in other caves in Shasta Co., California.

Amplaria staceyi Shear, 2021

Amplaria staceyi Shear, 2021, Zootaxa 4908: 215. Male holotype and male and female paratypes from Weir Trail, Palomar Mountain State Park, San Diego Co., California (CAS). Known from a few localities on Palomar Mountain, San Diego Co., California. This species marks the southernmost known occurrence of a species of *Amplaria* and of the family Striariidae.

Amplaria umatilla Shear, 2021

Amplaria umatilla Shear, 2021a, Zootaxa 4908: 218. Male holotype and paratype from Tiger Creek, Umatilla National Forest, Umatilla Co., Oregon (CAS). Known from two nearby localities along Tiger Creek, Umatilla Co., Oregon.

Genus *Bayaria* Shear & Marek 2023

See the account of this genus and its only included species, *Bayaria nana* (Loomis, 1936), in the text above.

Genus *Kentrostriaria* Shear & Marek 2022

Kentrostriaria Shear & Marek, 2022a Zootaxa 5094: 467. Type species, *Kentrostriaria ohara* Shear & Marek 2022, by monotypy. One species.

Kentrostriaria ohara Shear & Marek, 2022

Kentrostriaria ohara Shear & Marek, 2022a, Zootaxa 5094: 467. Male holotype and female paratype from O'Hara Bar Campground, Nez Percé National Forest, Idaho Co., Idaho. Known only from the type locality.

Genus *Kingaria* Shear & Marek 2023

Kingaria Shear & Marek, 2023, Zootaxa 5264: 334. Type species, *Kingaria prattensis* Shear & Marek, 2023, by monotypy.

Kingaria prattensis Shear & Marek, 2023

Kingaria prattensis Shear & Marek, 2023, Zootaxa 5264: 334. Male holotype from Pratt Lake trailhead, north of I-90, King Co., Washington. Known only from the type locality.

Genus *Lamparia* Shear & Marek, 2022

Lamparia Shear & Marek, 2022b, Zootaxa 5205: 511. Type species *Lamparia bentonensis* Shear & Marek, 2022, by original designation. Four species.

Lamparia bentonensis Shear & Marek, 2022

Lamparia bentonensis Shear & Marek, 2022b, Zootaxa 5205: 513. Male holotype and male and female paratypes from Clemens Park, Benton Co., Oregon (CAS). Known from four localities in Benton Co., Oregon.

Lamparia curryensis Shear & Marek, 2022

Lamparia curryensis Shear & Marek, 2022b, Zootaxa 5205: 512. Male holotype from northeast of Brookings, Redwood Nature Trail, Alfred E. Loeb State Park, Curry Co., Oregon (CAS). Known from two nearby localities in Curry Co., Oregon.

Lamparia millicoma Shear & Marek, 2022

Lamparia millicoma Shear & Marek, 2022b, Zootaxa 5205: 516. Male holotype and female paratype from 11 miles east and 4 miles north of Allegany, Douglas Co., Oregon (CAS). Known from four localities in Douglas and Coos Cos., Oregon.

Lamparia pratensis Shear & Marek, 2022

Lamparia pratensis Shear & Marek, 2022b, Zootaxa 5205: 514. Male holotype from Grassy Flat Campground, near Gasquet, Del Norte Co., California (FMNH). Known only from the type locality.

Genus *Maraplia* Shear & Marek 2022

Maraplia Shear & Marek, 2022b, Zootaxa 5205: 506. Type species, *Maraplia napa* Shear & Marek, 2022, by original designation. Three species.

Maraplia chico Shear & Marek, 2022

Maraplia chico Shear & Marek, 2022b, Zootaxa 5205: 509. Male holotype from West Branch of the Feather River, Butte Co., California (FMNH). Known from two localities near Chico, Butte Co., California.

Maraplia napa Shear & Marek, 2022

Maraplia napa Shear & Marek, 2022b, Zootaxa 5205: 507. Male holotype and female paratypes from 1 mile south of Oakville, Napa Co., California (FMNH). Also known from a single locality in Lake Co., California.

Maraplia schusteri Shear & Marek, 2022

Maraplia schusteri Shear & Marek, 2022b, Zootaxa 5205: 509. Male holotype and male paratypes from near Stringtown Hill northeast of Oroville, Butte Co., California (FSCA). Known only from the type locality.

Genus *Miniaria* Shear & Marek, 2023

Miniaria Shear & Marek, 2023, Zootaxa 5264: 325. Type species, *Miniaria ramifera* Shear & Marek, 2023, by original designation. Two species.

Miniaria ramifera Shear & Marek, 2023

Miniaria ramifera Shear & Marek, 2023, Zootaxa 5264: 326. Male holotype and male and female paratypes from Mashel River at State Route 7, Pierce Co., Washington (CAS). Known from localities in Pierce and Skamania Cos., Washington, and from Multnomah and Washington Cos., Oregon.

Miniaria richarti Shear & Marek, 2023

Miniaria richarti Shear & Marek, 2023, Zootaxa 5264: 328. Male holotype and female paratype from Rainier Road, 3 miles northwest of Military Road, Fort Lewis Military Reservation, Thurston Co., Washington (CAS). Known from localities in Thurston, Cowlitz, Mason and Wahakiakum Cos., Washington, and from Tillamook Co., Oregon.

Genus *Petra* Shear, Marek, Bond & Wesener, 2022

Petra Shear, Marek, Bond & Wesener, 2022, Zootaxa 5213: 288. Type species, *Petra sierwaldae* Shear, Marek, Bond & Wesener, 2022, by monotypy. One species.

Petra sierwaldae Shear, Marek, Bond & Wesener, 2022, Zootaxa 5213: 288. Male holotype and male and female paratypes from Beauty Creek, Panhandle National Forest, Kootenai Co., Idaho (FMNH). Known from three localities along Beauty and Bumblebee Creeks, Kootenai Co., Idaho.

Genus *Plaramia* Shear & Marek, 2022

Plaramia Shear & Marek, 2022b, Zootaxa 5205: 519. Type species, *Plaramia arcata* Shear & Marek, 2022, by original designation. Two species.

Plaramia arcata Shear & Marek, 2022

Plaramia arcata Shear & Marek, 2022b, Zootaxa 5205: 520. Male holotype, male and female paratypes from Jolly Giant Canyon, Arcata Community Forest, Arcata, Humboldt Co., California (FSCA). Known only from localities in Arcata Community Forest, Arcata, Humboldt Co., California.

Plaramia johnsonae Shear & Marek, 2022

Plaramia johnsonae Shear & Marek, 2022b, Zootaxa 5205: 522. Male holotype and female paratypes from Lady Bird Johnson Grove, Redwood National Park, Humboldt Co., California (CAS). Known only from the type locality.

Genus *Ralampia* Shear & Marek, 2022

Ralampia Shear & Marek, 2022b. Zootaxa 5205: 523. Type species, *Ralampia complexa* Shear & Marek, 2022, by original designation. Two species.

Ralampia complexa Shear & Marek, 2022

Ralampia complexa Shear & Marek, 2022b, Zootaxa 5205: 524. Male holotype and male and female paratypes from Patrick Creek Campground, near Gasquet, Del Norte Co., California. (FSCA). Known only from the type locality.

Ralampia filamentosa Shear & Marek, 2022

Ralampia filamentosa Shear & Marek, 2022b, Zootaxa 5205: 530. Male holotype and male and female paratypes from 4 miles south of Pistol River on US 101, Curry Co., Oregon (CAS). Known only from the type locality.

Genus *Rampalia* Shear & Marek, 2022

Rampalia Shear & Marek, 2022b Zootaxa 5205: 517. Type species, *Rampalia chathamensis* Shear & Marek, 2022, by monotypy. One species.

Rampalia cheathamensis Shear & Marek, 2022

Rampalia chathamensis Shear & Marek, 2022b, Zootaxa 5205: 517. Male holotype and paratype from Owen R. Cheatham Grove, Humboldt Co., California (FSCA). Known from two localities in Humboldt Co., California.

Genus *Striaria* Bollman, 1888

Striaria Bollman, 1888, Ann. New York Acad. Sci. 4: 108. Type species *Striaria granulosa* Bollman, 1888, by original designation. Cook, 1899, Proc. U. S. Nat. Mus. 21: 671. Loomis, 1936, J. Washington Acad. Sci. 26: 409. Causey, 1952, Proc. Biol. Soc. Washington 65: 112. Hoffman, 1999, Virginia Mus. Nat. Hist. Special Publ. 8: 208. Distributed in the Appalachian Mountains from western Maryland south to northern Georgia and west to Indiana, and in northern Idaho. A number of the species listed in Hoffman (1999) have been moved to other genera. Nine species.

Striaria aculeata Shear 2021

Striaria aculeata Shear, 2021b, Zootaxa 4920: 397. Male holotype and male and female paratypes from Meadow Creek, Idaho Co., Idaho (CAS). Known from Idaho, Benewah and Latah Counties, Idaho (Shear 2021)

Striaria antica Causey, 1952

Striaria antica Causey, 1952, Proc. Biol. Soc. Washington 65: 112; Causey, 1958, Proc. Biol. Soc. Washington 71: 180. Male holotype from Turkey Run State Park, Montgomery Co., Indiana (INHS). Hoffman, 1999, Virginia Mus. Nat. Hist. Special Publ. 8: 208. Known only from the type locality.

Striaria bombillus Shear, 2021

Striaria bombillus Shear, 2021b, Zootaxa 4920: 402. Male holotype and female paratypes from Little Bumblebee Creek, Shoshone Co., Idaho (CAS). Known only from the type locality.

Striaria causeyae Chamberlin, 1940

Striaria causeyae Chamberlin, 1940, Proc. Biol. Soc. Washington 60: 9. Male holotype from Duke Forest, Durham Co., North Carolina (USNMNH). Causey, 1952, Proc. Biol. Soc. Washington 65: 112; 1958, Proc. Biol. Soc. Washington 71: 180. Shelley, 1978, J. Nat. Hist. 12: 51. Hoffman, 1999, Virginia Mus. Nat. Hist. Special Publ. 8: 209. Shelley recorded this species from eight Piedmont counties in North Carolina, but as some of the records were based on females or juveniles, the distribution may be more restricted or undescribed species may have been included.

Striaria columbiana Cook, 1899

Striaria columbiana Cook, 1899, Proc. U. S. Nat. Mus. 21: 674. No definite type locality specified, several sites in and near Washington, DC, are mentioned. Types not formally designated, but Cook's specimens are in USNMNH. Shear, 1972, Bull. Mus. Comp. Zool. 133: 247; 2020, Zootaxa 4758: 276 *et seq*. Hoffman, 1999, Virginia Mus. Nat. Hist. Special Publ. 8: 208. Shear (1972, 2020) provided detailed descriptions and illustrations of this species. It appears to be generally distributed in western Maryland and the Blue Ridge and Shenandoah Valley of Virginia, frequently found in caves though it shows no troglobitic adaptations.

Striaria granulosa Bollman, 1888

Striaria granulosa Bollman, 1888, Ann. New York Acad. Sci. 10: 108. Type material evidently lost, but from Beaver Creek, Jefferson Co., Tennessee, originally deposited as type #230, USNMNH. Cook, 1899, Proc. U. S. Nat. Mus. 21: 672. Loomis, 1936, J. Washington Acad. Sci.26: 408. Causey, 1958, Proc. Biol. Soc. Washington 71: 181. Hoffman, 1999, Virginia Mus. Nat. Hist. Special Publ. 8: 208. Bollman's 1888 description of this species is incomplete and he thought his single specimen was a female. Cook (1899) had access to Bollman's specimens and described, in great detail, a male. It is not clear if this was the same specimen Bollman used or not. Bollman (1888) mentions only a single, enrolled specimen so it may have been a male after all, and this is what Cook redescribed after unrolling it and finding it to be a male. Cook illustrated the tip of the anterior branch of the gonopod angiocoxite from two views, but provided no written description of the gonopods or ninth legs at all. WAS examined the holotypes of *S. causeyae* and *S. zygoleuca* as well as original material of *S. columbiana* and was able to determine, based on Cook's description and drawings, that *S. granulosa* is probably not a senior synonym of any of those species. There have been several attempts to recollect the species at Beaver Creek or nearby, none of them successful. Causey (1958) recorded the species from localities in Georgia, Kentucky and North Carolina, but as all the specimens were juveniles, the records remain in doubt. She also considered *S. zygoleuca* a junior synonym of *S. granulosa* (without presenting evidence) so some of her records may apply to that species if indeed it is not a synonym.

Striaria orator Shear, 2021

Striaria orator Shear, 2021b, Zootaxa 4920: 403. Male holotype and female paratype from Banks Gulch, Latah Co., Idaho (CAS). Known only from the type locality.

Striaria vagabundus Shear, 2021

Striaria vagabundus Shear, 2021b, Zootaxa 4920: 402. Male holotype and male and female paratypes from Hobo Cedar Grove Botanical Area, St. Joe National Forest, Shoshone Co., Idaho. Known only from the type locality.

Striaria zygoleuca Hoffman, 1950

Striaria zygoleuca Hoffman, 1950, J. Elisha Mitchell Sci. Soc. 66: 16. Male holotype from Highlands, Macon Co., North Carolina (USNMNH). Causey, 1958, Proc. Biol. Soc. Washington 71: 181 (as a synonym of *S. granulosa*) Hoffman, 1999, Virginia Mus. Nat. Hist. Special Publ. 8: 209. Hoffman (1999) states that this species occurs in "western North Carolina and eastern Tennessee" but no specific additional localities are given. Following Causey (1958) he also thought that the species was a junior synonym of *S. granulosa,* but this may not be the case since an examination by WAS of the holotype's gonopods showed them to be different from the illustrations of *S. granulosa* by Cook (1899). *Striaria zygoleuca* also has a striking white collum contrasting with the dark pigment of the rest of the trunk and such an obvious feature was not

mentioned for *S. granulosa* by either Bollman (1888) or Cook (1899). Causey (1958) did not examine the specimens of *S. granulosa* described by Cook (1899) and had only juvenile specimens possibly attributable to *S. zygoleuca.* She gave no reasons for the synonymy. All of the Georgia, Kentucky and North Carolina localities listed by Causey under *S. granulosa* (some of which may be attributable to *S. zygoleuca)* are based on juvenile specimens.

Genus *Tigraria* Shear & Marek, 2023

Tigraria Shear & Marek, 2023, Zootaxa 5264: 331. Type species, *Tigraria oregonensis* Shear & Marek, 2023, by monotypy. One species.

Tigraria oregonensis Shear & Marek, 2023

Tigraria oregonensis Shear & Marek, 2023, Zootaxa 5264: 332. Male holotype and male and female paratypes from Tiger Saddle, Umatilla National Forest, Umatilla Co., Oregon (CAS). Known only from the type locality.

SUBFAMILY TRISARIINAE Shear, 2020

Trisariinae Shear, 2020, Zootaxa 4758: 283. Shear & Marek, 2022b, Zootaxa 5205: 503. The spelling "Trisarsiinae" appears at one place in Shear (2020). This should be regarded as a *lapsus calami* and not a substitute name. Three genera.

Genus *Nototrisaria* Shear & Marek, 2022

Nototrisaria Shear & Marek, 2022b, Zootaxa 5205: 504. Type species *Nototrisaria ornata* Shear & Marek, 2022, by monotypy. One species.

Nototrisaria ornata Shear & Marek, 2022

Nototrisaria ornata Shear & Marek, 2022b, Zootaxa 5205: 504. Male holotype and male paratype from 9.6 miles on Elochoman Valley Road from Route 4, Wahakiakum Co., Washington (CAS). Also known from a single locality in Pacific Co., Washington.

Genus *Stegostriaria* Shear & Marek, 2022

Stegostriaria Shear & Marek, 2022a, Zootaxa 5094: 463. Type species, *Stegostriaria dulcidormus* Shear & Marek, 2022, by monotypy. One species.

Stegostriaria dulcidormus Shear & Marek, 2022a, Zootaxa 5094: 463. Male holotype and male paratype from Sweet Home Road, 4 miles west-northwest of Upper Soda, Linn Co., Oregon (CAS). Known from localities in Linn and Tillamook Cos., Oregon.

Genus *Trisaria* Shear, 2020

Trisaria Shear, 2020, Zootaxa 4758: 283. Type species, *Trisaria rex* Shear 2020, by original designation. Endemic to the state of Washington, primarily around Puget Sound. Three species.

Trisaria rex Shear, 2020

Trisaria rex Shear, 2020, Zootaxa 4758: 284. Male holotype and female paratypes from I-90 exit #37, King Co., Washington (UWBM). Known from several localities in King Co., Washington.

Trisaria washingtonensis Shear, 2020

Triasaria [sic!] *washingtonensis* Shear, 2020, Zootaxa 4758: 284. Male holotype and male and female paratypes from Swede Park, 309 Loop Road, Grays River, Wahakiakum Co., Washington (UWBM). Collected at numerous localities in Wahakiakum and Pacific Counties, Washington. The name was mistakenly spelled "Triasaria" in Shear (2020). This was a *lapsus* and not to be regarded as the correct name.

Trisaria olympia Shear, 2020

Triasaria [sic!] *olympia* Shear, 2020, Zootaxa 4758: 290. Male holotype and male and female paratypes from Hospital Creek, above confluence with Skookumchuck River, Thurston Co., Washington. Known from many localities in Thurston, Clallam and Grays Harbor Counties, Washington. The name was mistakenly spelled "Triasaria" in Shear (2020). This was a *lapsus* and not to be regarded as the correct name.

Discussion

With the addition of the new genus described here, the family Striariidae now encompasses 16 genera and 57 species. In Hoffman's 1999 checklist of the millipedes of North and Middle America, three "nominal genera" and 13 species were listed; the most recently described dating to 1958. Of those three genera, two have been synonymized under a revalidated *Amplaria,* considered in Hoffman's checklist to be a synonym of *Striaria,* which remains the only checklist genus still regarded as valid. Of the species listed by Hoffman, only *Striaria carmela* has proven to be a synonym (of *Bayaria nana,* see above) though all but four others have now been assigned to genera other than the one in which they were described. All of the additional species have been described since 2007 as a result of our series of papers on the family, of which this is the ninth, and for the present, final part. Our work is incomplete because we have not looked in any detail at the genus *Striaria* as it occurs in the Appalachian Mountains of the eastern United States from whence four of the nine species of the genus, and the family's type, have been described. We are confident there are more but leave the task of finding and describing them to future taxonomists.

We also think that a considerable number of western striariid taxa remain to be collected and described. The more recently described species come entirely from the part of North America west of the Rocky Mountains, and most of them are from the lands between the Cascade and Coast Ranges and the Pacific Ocean. The discovery of so many new taxa, not only of striariids, but also of xystodesmids, macrosternodesmids, polydesmids, conotylids and caseyids points to the Pacific states as centers of diversity in great need of exploration, not just for millipedes, but for many other arthropod taxa that live in the leaf litter, caves and soil of the great forests of that region. The key seems to be collecting in winter. The land between the mountains and the sea has a mild climate, but with a distinctly warm and dry summer, when the soil and litter fauna either estivates or burrows much deeper underground. During the cool, wet winters these animals again come to the surface, attain maturity and become available to collectors. Until the last two decades, winter collecting has not been done much. The efforts of Bill Leonard, Casey Richart, Philip Nosler and the late Ellen Benedict during that season have produced most of the new taxa we have described.

Our late colleague Rowland Shelley visited practically every museum or university millipede collection in North America. Notes he shared with WAS also point to many undescribed taxa in those collections. Thus a great amount of work remains to be accomplished to gain a better understanding of the biodiversity of the region as it concerns the soil and litter fauna.

We have not attempted to present any phylogenetic hypotheses regarding the Striariidae except that they are related to a larger array of North American families that includes Caseyidae, Urochordeumatidae, Apterouridae, Rhiscosomididae and Buotidae –the suborder Striariidea. But we have not formally marshalled the morphological evidence that could provide an internal structure for a phylogenetic tree of these families, and there is no published molecular genetic data, to our knowledge, available for any North American chordeumatidan millipede, spare species of *Cleidogona* Cook, 1895 (in Cook & Collins 1895) and *Scoterpes* Cope, 1872 sampled in Rodriguez *et al*. (2018) as ordinal exemplars.

As with the vast majority of North American millipedes, little is known of the ecology or behavior of striariids. Anecdotal observations suggest that at least in the Appalachians, species of *Striaria* are found in habitats somewhat drier than those typically inhabited by other millipedes, such as xystodesmids, and perhaps the thick cuticle and

waxy coating of the species reflect adaptation to such habitats. But in the Pacific states striariids occur in typically moist forests, along with many other millipede taxa that do not share these characters. Like all chordeumatidans, striariids lack repugnatorial glands and ozopores. The long segmental setae present in, for example, trichopetalids and conotylids, which may be at least partly defensive, are generally reduced or even absent in many striariids. Their striae may serve as corrugations for strengthening their cuticle against compressive forces, however this remains an untested hypothesis. Nothing is known of any food preferences beyond the usual feeding on forest litter, but striariids in the Pacific states seem equally at home in coniferous as well as broadleaf litter. Shear & Krejca (2007) published a photograph of a mating pair of *Amplaria adamsi,* but there appears to be nothing unique about the positioning of the two sexes and how the gonopods function remains unknown, as it does for all but a few millipede species.

These comments point the way to future research on this fascinating taxon, the family Striariidae.

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