

one straight the other sickle-shaped, tips at the same level.

Type material.—HOLOTYPE, ♂, **PUERTO RICO**, El Verde, Quebrada Prieta, emergence trap, 3 April, 1992, leg. Buzby & Masteller.

Etymology.—This species is named for the island where it was collected.

Remarks: This new species has an aedeagus that resembles *Psychoda satchelli* Quate. However, the shape of the basistyles is markedly different; twice as long as wide in *P. satchelli*, but length and width equal in *P. puertoricana*.

***Psychoda juliae* Wagner and Masteller,
NEW SPECIES
(Figs. 50–53)**

Description.—*Head* (Fig. 50) oval, small postocular area. Eye reniform, eye bridge with 4 rows of facets, smallest interocular distance 1 facet diameter, no interocular suture. Antenna with cylindrical scape. Twice as long as wide and twice as long as globular pedicel, flagellomeres bottle-shaped, Y-shaped ascoids. Relative length of antennal segments: 11-6-12-12-12-, distal segments missing. Relative length of maxillary palpus segments: 15-15-12-, distal segment missing.

Wing (Fig. 51) twice as long as width, venation typical of the genus. Wing length 1.56 mm. Thorax and legs without specific features.

Male genitalia uncomplicated (Fig. 52), asymmetric aedeagus. Ninth tergite rectangular, approximately twice as wide as long, 10th tergite small, distally setose. A rectangular, distally incurved sclerite between basistyles and 9th tergite, connecting left and right side of the genitalia. Cercopodia basally wide, strongly curved with one tenaculum. No sternal band. Basistyle 1.5 times longer than wide, cylindric, and $\frac{2}{3}$ length of dististyle. Dististyles basally thin, medially narrower, increasing in width distally. Bipartite tip appears like a wrench. Aedeagus straight with blunt tip. A thin

sclerite present basally, crosses above the aedeagus, its distal part thin, L-shaped.

Type material.—HOLOTYPE, ♂, **PUERTO RICO**, El Verde, Quebrada Prieta, emergence trap, 29 June, 1992 leg. Masteller.

Etymology.—This species is dedicated to Miss Julia Wagner, the senior author's daughter.

Remarks.—This new species has distally bifurcated dististyles and an almost straight aedeagus; thus cannot be confused with any other taxon.

***Quatiella interdicta* Quate and
Maruina hirta Johannsen**

Additional species collected in the emergence traps were *Maruina hirta*, and *Quatiella interdicta*. *Maruina hirta* was the most abundant taxon in the emergence traps and present almost every month of the year. A few larval samples from benthos seem to indicate the life cycle was desynchronized as several larval instars (2nd–4th) were present at the same time. *Quatiella interdicta* is widely distributed from southeastern U.S.A. over a large, but unknown, area in the Caribbean islands, previously known also from Cuba, (Vaillant and Botosaneanu 1970). In the emergence traps it was quite abundant from January–July.

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**A NEW SPECIES OF *EUTARSOPOLIPUS* (ACARI: PODAPOLIPIDAE) FROM
AMARA CALIFORNICA DEJEAN (COLEOPTERA: CARABIDAE)
FROM CALIFORNIA**

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Abstract.—*Eutarsopolipus capowayensis* Husband and Husband, n. sp. (Acari: Podapolipidae) is described from the Californian carabid beetle, *Amara californica*, and illustrated and compared with related North American *Eutarsopolipus* in the *acanthomus* group.

Key Words: Podapolipidae, mite, *Eutarsopolipus*, new species

Mites in the family Podapolipidae (Acari: Tarsonemini) are all parasites of insects. The genus *Eutarsopolipus* is restricted to Carabidae (Coleoptera) and occurs worldwide. It was erected by Berlese for *E. laganaeformis* Berlese 1913. More than 30 species have been discovered, most of them described by Regenfuss (1968, 1974). This is the first record of *Eutarsopolipus* from the western United States.

The purpose of this paper is to describe *Eutarsopolipus capowayensis*, new species, collected from *Amara californica* Dejean (Coleoptera: Carabidae) in Poway, California, and to compare *E. capowayensis* with related members of the *acanthomus* group described by Regenfuss (1968) (e.g. *E. acanthomus*, *E. alarum*, *E. assimilis*, *E. crassisetus*, and *E. elongatus*), *E. pseudopus* Regenfuss 1974, *E. porteri* Husband 1993, *E. bembidii* Eidelberg and Husband 1993, *E. diunculosus* Eidelberg 1994a, and *E. diachelae* Eidelberg 1994b.

MATERIALS AND METHODS

Numerous specimens of *Eutarsopolipus* were removed from under the elytrae of 5 specimens of *Amara californicus* collected

in Poway, California, and placed in vials in 70% ethanol or mounted on slides. These were compared with specimens in the reference collection of *Eutarsopolipus* spp. at Adrian College, Adrian, Michigan, U.S.A.

Measurements were taken with the aid of a Wild microscope with an ocular micrometer. All measurements are in micrometers. Setae which are no longer than the setal socket are listed as microsetae. Terminology is based on Lindquist (1986).

Eutarsopolipus capowayensis Husband and Husband, NEW SPECIES

(Figs. 1–6)

Female (Figs. 1, 2).—Gnathosoma length 52–60 width 44–51. Palp length 12–15; cheliceral stylets 35–36, dorsal gnathosomal setae 13–17, ventral setae 9–10. Stigmata on stout stalks dorsolateral to base of gnathosoma, atria branch to tracheoles at the level of setae v_2 .

Idiosoma: Length 405–415, width 311–390. Prodorsal plate length 94, width 206, groove between setae v_1 and v_2 ; setae v_1 , v_2 vestigial, sc_2 50–54, setae situated distinctly anterior to posterior margin of prodorsal plate. Distance between setae v_1 57–62; v_2

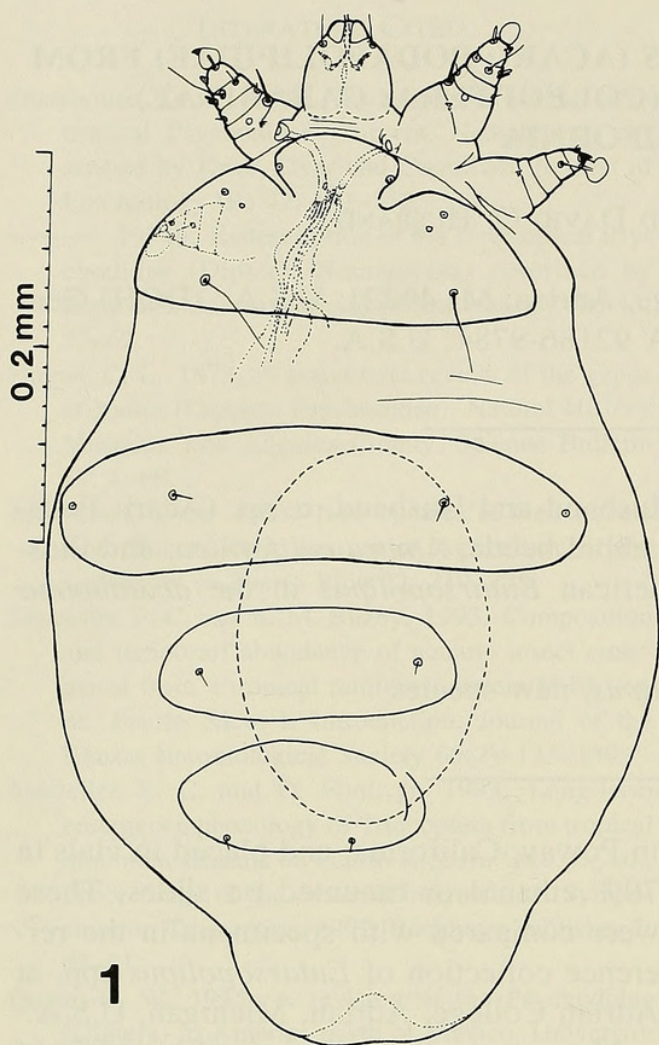


Fig. 1. *Eutarsopolipus capowayensis*, adult female, dorsal aspect.

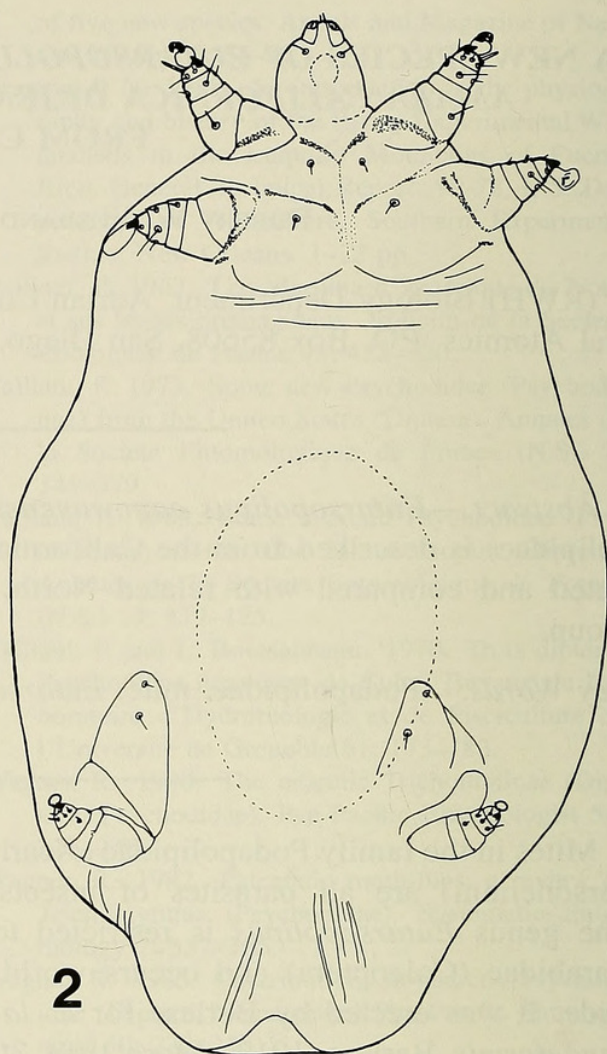


Fig. 2. *Eutarsopolipus capowayensis*, adult female, ventral aspect.

medial to a line connecting v_1 and sc_2 . Plate C length 64–80, width 276–310; width vs. length ratio about 4:1. Setae c_1 13–14, c_2 vestigial. Plate D length 56, width 270, setae d 11. Plate EF length 40, width 160, setae f 6.

Venter with apodemes 1 well developed, meeting sternal apodeme medially; apodemes 2 not extending to sternal apodeme. Coxal setae 1a 8, 2a 8–10; setae 1a situated at the level of junction of apodemes 1, distance from apodeme 1 about equal to length of setae 1. Distance between setae 1a 23, distance between setae 2a 58. Setae 2a nearer sternal apodeme than trochanters 11. Coxal setae 3a 5, 3b 10.

Legs: Leg setation as in Table 1. Ambulacrum 1 with a terminal stout claw, ambulacrum 11, 111 without claws. Single tar-

sus 1 spine, 2 terminal spines on each of tarsi 11, 111. Tarsus 1 and tarsus 11 solenidion omega 2–3, nearly triangular. Tibial solenidion phi 9–10, finger-like. Tibial 1, 11, 111 setae d 28–33, 12–15 and 7 respectively.

Male (Figs. 3, 4).—Gnathosoma length 31–36, width 29–33. Palp length 8–10; cheliceral stylets 20–25; dorsal setae 1–4, ventral setae 3–4.

Idiosoma: Length 150–198, width 120–141. Prodorsal plate wider than long, setae v_1 , v_2 vestigial, setae sc_2 20–33. Distance between setae v_2 greater than the distance between setae v_1 ; setae v_2 lateral to a line connecting setae v_1 and sc_2 . Plates C and D fused, setae c_1 , c_2 , d, f and h_1 microsetae.

Genital capsule length 28, width at base 42, width at apex 16.

Table 1. Leg setation for femur, genu, tibia and tarsus for *Eutarsapolipus capowayensis* and selected species in the acanthomus group. Leg setation for an adult female *E. ochoai* Husband 1995 is included for comparison with a species with the maximum number of tarsal setae for *Eutarsapolipus*.

Species	Leg I				Leg II				Leg III			
	F	G	Ti	Ta	F	G	Ti	Ta	F	G	Ti	Ta
<i>E. capowayensis</i>	3	2	7	9	0	1	4	7	0	1	4	6
<i>E. porteri</i>	3	2	7	8	0	1	4	6	0	1	4	5
<i>E. crassisetus</i>	3	2	7	8	0	1	4	6	0	1	4	5
<i>E. acanthomus</i> ¹	3	2	6	7	0	1	4	6	0	1	4	4
<i>E. pseudopus</i>	3	2	7	9	0	1	4	7	0	1	4	6
<i>E. bembidii</i> ²	3	2	7	8	0	1	4	6	0	1	4	5
<i>E. diacheilae</i> ¹	3	2	5	6	0	1	4	5	0	1	4	6
<i>E. diunculosus</i> ³	3	0	4	7	0	0	4	4	0	0	4	4
<i>E. ochoai</i>	3	2	7	10	0	1	4	8	0	1	4	7

¹ From Eidelberg (1994b). Eidelberg listed 6 setae for tibia II in Table 2 for *E. acanthomus* but illustrated 4 setae on this segment in Figure 4. Four setae is the maximum number of setae for tibia II in Podapolipidae.

² From Eidelberg and Husband (1993). The setae listed here are based on the numbers of setae indicated in figure 3 of this publication, not on the numbers listed in Table 1 of this publication.

³ From Eidelberg (1994a).

Venter: Apodemes 1,2 conspicuous but sternal apodeme weakly sclerotized; coxae 111 separated medially. Setae 1a 2, 2a 2, 3a 1, 3b 2.

Legs: Leg setation as in table 1. Ambulacrum with 1 straight claw, ambulacra 11, 111 without claws. Tarsus 1 spine-like seta *s* 4–5, tarsus 11, 111 spine-like setae *tc'* and *s* 4–6. Tarsus 1 solenidion omega 3, tarsus 11 solendion omega 2–3, solenidia nearly triangular. Tibia 1 solendion phi 5–7.

Larva (Figs. 5, 6).—Gnathosoma length 42–47, width 35–41. Palp length 10–16, cheliceral stylets 32–33, dorsal setae 16–19, ventral setae 7–9.

Idiosoma: Length 188–218, width 142–183. Prodorsal plate subtriangular, setae *v*₁, *v*₂ vestigial, *sc*₂ 107–127. Distance between setae *v*₂ greater than the distance between setae *v*₁; setae *v*₂ lateral to a line connecting setae *v*₁ and setae *sc*₂. Setae *c*₁ 10–12, *c*₂ vestigial, setae *d* 8–9. Setae *c*₁ and *c*₂ situated nearly on a straight line on the anterior 1/3 of plate C. Plate EF length 32–47, width 49–55, setae *f* 7–9. Plate H length 28–28, width 34–39, setae *h*₁ 166–190, *h*₂ 17–20, distance between setae *h*₁ 14.

Venter: Apodemes 1,2 and sternal apodeme conspicuous but weakly sclerotized.

Setae 1a 5, 2a 5, 3a 5–7 and 3b 5–7. Setae 1a, 2a and 3b stout. Setae 3a not stout.

Legs: Leg setation as in Table 1. Ambulacrum 1 with 2 slender claws. Ambulacra 11, 111 without claws. Tarsus 1 spine-like seta *s* short and stout 5, Tarsus 11 spine-like setae *tc'*, *u'* and tarsus 111 setae *u'*, 5–7. Tarsus 111 setae *tc'* 6–8. Tarsus 1 and 11 solenidia omega 2–3, tibia 1 solenidion phi 8, adjacent seta *k* 3–5. Tarsus 1 setae *tc'* 9–10, *tc''* 11–12.

Type data.—Holotype female: Poway, San Diego County, California, U.S.A., from under the elytra of *Amara californica* Dejean (Carabidae) collected by D. O. Husband, 27 December 1994. Deposited in the Acarology Collection, Museum of Zoology, University of Michigan, Ann Arbor, MI, U.S.A. (DRH122794-1).

Paratypes: 8 females, 5 males, 5 larval females, 2 eggs, 2 vials with same host and locality data as holotype. One female, 1 male, 1 larval female deposited in the National Museum of Natural History, Washington, D.C., USA.

Etymology.—The species is named for the locality, Poway, California.

Diagnosis.—Female *E. capowayensis* differ from female *E. crassisetus*, *E. porteri*

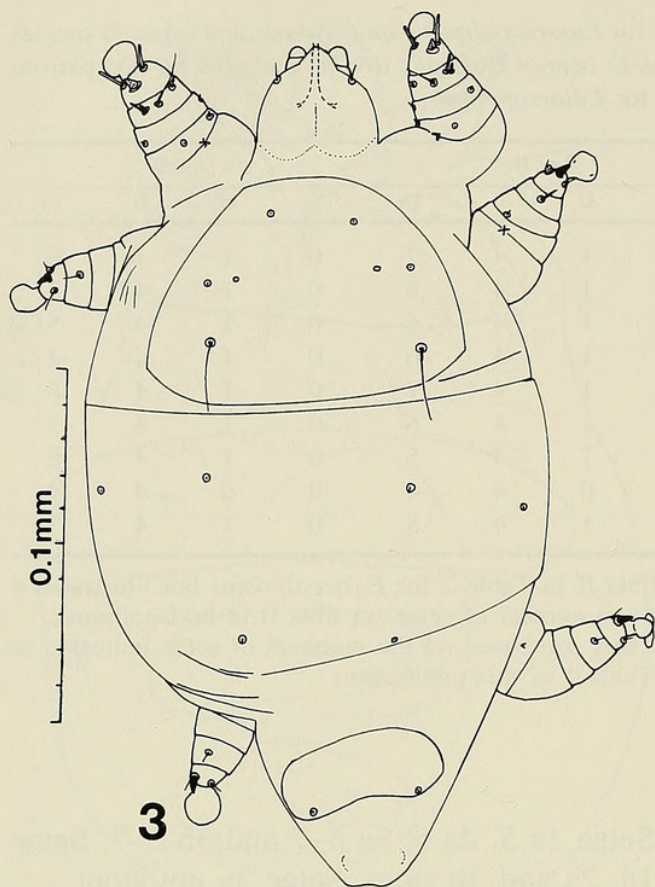


Fig. 3. *Eutarsopolipus capowayensis*, male, dorsal aspect.

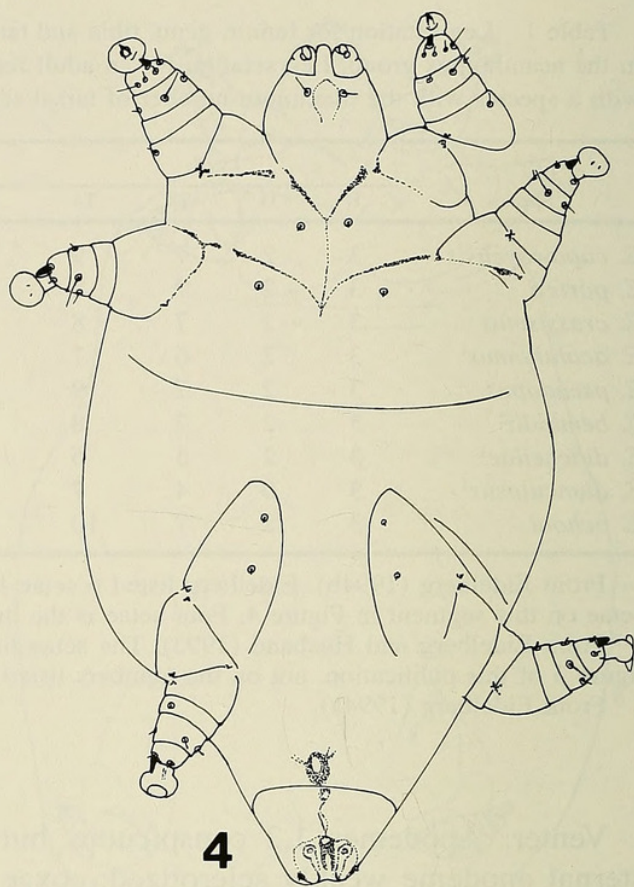


Fig. 4. *Eutarsopolipus capowayensis*, male, ventral aspect.

and *E. elongatus* in having thin coxal setae 1a and 2a. Gnathosomal setae of female *E. capowayensis* are slightly longer than those of *E. crassisetus* but are distinctly shorter than those of *E. porteri*. Grooves in the portion of the prodorsal plate which bears setae v_1 separates this portion from the remaining portion of the prodorsal plate laterally in *E. capowayensis*. Regenfuss (1968) illustrates similar grooves which are less developed in *E. crassisetus*. The remaining species in the *acanthomus* group lack these grooves.

No males are known for *E. alarum*, *E. assimilis*, *E. crassisetus* or *E. elongatus*, and Regenfuss (1968) did not illustrate a male *E. acanthomus*. Gnathosomal setae of male *E. capowayensis* are at most 4 micrometers long in contrast to 11 micrometers for dorsal gnathosomal setae in *E. porteri*. Dorsal gnathosomal setae of larval female *E. capowayensis* are at most 19 micrometers long in contrast to 21 in *E. crassisetus* and 28 in *E. porteri*. Setae c_1 , d

and 3a are thin in larval female *E. capowayensis* but thicker and longer in *E. porteri*. Coxal setae 3a are about equal to coxal setae 3b in *E. capowayensis* in contrast to *E. crassisetus* where coxal setae 3a are about twice the length of 3b. Coxal setae 1a and 2a are microsetae in *E. capowayensis* but are at least two times the diameter of setal sockets in *E. pseudopus*, *E. porteri* and *E. bembidii*. Setae v_1 , v_2 are microsetae in *E. capowayensis* but these setae are longer than the diameter of the setal socket in *E. diunculosus*. Setae c_1 , c_2 are nearly in a line in *E. capowayensis* but setae c_2 are posterolateral to setae c_1 in *E. diachelae*.

Regenfuss (1968) did not describe the larval female stage of *E. assimilis*. Coxal setae 1a and 2a are either on or very near apodemes 1 and 2 in larval female *E. bembidii*, *E. elongatus*, *E. crassisetus* and *E. pseudopus*. These setae are posterior to apodemes 1 and 2 in *E. capowayensis*, *E. acanthomus*, *E. alarum*, *E. diunculosus*, and *E.*



Husband, Robert W. and Husband, David O. 1996. "A new species of Eutarsopolipus (Acari: Podapolipidae) from Amara californica de jean (Coleoptera: Carabidae) from California." *Proceedings of the Entomological Society of Washington* 98, 465–470.

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