TWO NEW SPECIES OF MITES OF THE FAMILY CANESTRINIIDAE (ACARI: ASTIGMATA) ASSOCIATED WITH BEETLES OF THE SUBFAMILY CETONIINAE (COLEOPTERA, SCARABAEIDAE) FROM ETHIOPIA

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ABSTRACT: Two new species of mites of the family Canestriniidae (Acari, Astigmata): Barbiangia elongata sp. n. and Tamarangia ethiopica sp. n., collected from the Ethiopian beetles of the subfamily Cetoniinae (Coleoptera, Scarabaeidae), Diplognatha gagates (Forster, 1771) and Pachnoda abysinica Reiche, 1847, respectively, are described.

Key words: Canestriniidae, Tamarangia, Barbiangia, new species, Scarabaeidae, Cetoniinae, Africa

During examination of beetles collected in Ethiopia two new species of mites of the family Canestriniidae (Acari, Astigmata) from the genera Tamarangia Haitlinger, 1991 and Barbiangia Haitlinger, 1993 were discovered. Both species were found under the elytra of beetles of the subfamily Cetoniinae (Coleoptera, Scarabaeidae). The purpose of this paper is to describe the two new mite species.

The terminology follows that of Griffiths et al. (1990). All measurements are given in micrometers (µm) for holotype and, if available, for 5 paratypes (in parenthesis). Type material is deposited in the collection of the department of Acarology, Shmalgausen Institute of Zoology, Kiev, Ukraine.

Genus Tamarangia Haitlinger, 1991

Type species: Tamarangia nimfae Haitlinger, 1991.

Emendation of diagnosis (adults). Setae vi situated on or outside well sclerotized propodosomal plate, setae ve vestigial. Setal formula: leg I: Tr 1–Fe 1–Ge 2(1)–Ti 1–Ta 9 (3) (number of solenidia in parenthesis), leg II: Tr 1–Fe 1–Ge 2(1)–Ti 1–Ta 6 (1), leg III: Tr 1–Fe 0–Ge 1–Ti (1)–Ta 4, leg IV: Tr 1–Fe 0–Ge 0–Ti (1)–Ta 5. Subunguinal setae on tarsi I–IV straight, spine-like.

Mites of this genus are associated (probably parasites) of African beetles of the genus Pachnoda (Scarabaeidae: Cetoniinae). There are 3 described species: T. nimfae Haitlinger, 1991 from Pachnoda thoracica Sch. from Ethiopia and South Africa (Haitlinger and Chmielewski 2004), T. fabiobae Haitlinger, 1991 from Pachnoda marginata Fabr. and T. flaviana Haitlinger, 1991 from Pachnoda marginata from Sierra Leone.

Tamarangia ethiopica sp. n.

Figs 1–10.


Gnathosoma slightly longer than its width. Idiosomal dorsum (Fig. 1). Propodosoma distinctly separated from hysterosoma by sejugal furrow. Setae vi situated on well sclerotized propodosomal plate. Dorsal cuticle weakly striated. Setae f1 and h1 very long, flagellate distally. Length of dorsal setae: vi 51 (48–55), si 49 (45–51), se 188 (178–197), c1 114 (105–119), c2 78 (59–79), c3 150 (142–167), c4 48 (41–52), d1 113 (105–114), d2 143 (124–148), e1 61 (53–63), e2 65 (59–66), h1 50 (30–55).

Idiosomal venter (Fig. 2). Apodemes 1 and 2 joined together. All ventral setae thin and filiform. Ventral surface with very delicate striae. Bursa copulatrix (fig. 2) large, almost rectangular.

Legs (Figs. 4–7). Leg I (Fig. 4). Solenidia ω 98 (90–98) > σ 114 (105–119), p 150 > φ 97 (78–98) > σ 31 (27–32). Leg II (Fig. 5). Solenidia ω 33 (29–34) < φ 97 (90–98) > σ 28 (24–29). Leg III (Fig. 6). Solenidon φ 83 (79–85). Leg IV (Fig. 7). Solenidon φ 61 (58–62).

Male. Idiosomal length 396–450, maximal width 305–372.


Idiosomal venter (Fig. 9). Adanal suckers well developed. Aedeagus as on fig. 10. Setae h1 and e2 short, spherical. Setae ps1 and ps2 short, stiff.

Legs. Similar with those of female.

Type material. Holotype: female, ETHIOPIA, Addis Ababa, under elytra of Pachnoda abysinica Reiche, 1847, 1847, coll. A.F. Evmenenko; paratypes: 17 females, 13 males, 8 TN, 7 PN, 2 larvae, same data as holotype.

Differential diagnosis. The new species differs from T. nimfae Haitlinger, 1991 by longer dorsal setae of the female, especially setae c1 105–
119 (72–102 in *T. nimfae*), c₂ 59–78 (44–54 in *T. nimfae*), d₁ 105–114 (66–98 in *T. nimfae*), and d₂ 124–148 (74–106 in *T. nimfae*). Male and female also differ by the position of setae *vi* on the propodosomal plate (setae *vi* situated outside the propodosomal plate in *T. nimfae*); from *T. flawiani* Haitlinger, 1991 the new species differs by the absence of scale-like ornamentation at the posterior part of the hysterosoma of the female (present in *T. flawiani*); females of the new species differs from *T. fabiolae* Haitlinger, 1991 by distinctly longer setae c₁ 105–119 (76–82 in *T. fabiolae*), d₁ 105–114 (64–74 in *T. fabiolae*), while setae c₂ and d₂ subequal with that of *T. fabiolae*.

**Etymology.** The specific epithet, *ethiopica*, refers to the geographical distribution of the new species.

**Genus Barbiangia** Haitlinger, 1993

Type species: *Barbiangia alvari* Haitlinger, 1993.

Emendation of diagnosis (adults). Setae *vi* situated outside well sclerotized elongated propodosomal plate, setae *ve* vestigial. Setal formula as in the genus *Tamarangia*. Subunguinal setae on tarsi I–IV straight, thin, spine-like.

Mites of this genus are associated with African beetles of the subfamily Cetoniinae (Scarabaeidae). There are 2 described species: *B. alvari* Haitlinger, 1993 from undetermined Cetoniinae from Tanzania (Haitlinger 1993) and *B. ethiopica* (Haitlinger, 1990) from undetermined Cetoniinae from Ethiopia (Haitlinger 1990).

**Barbiangia elongata** sp. n.

Figs 11–18.

**Female.** Idiosomal length 377, max width 255. Gnathosoma slightly longer than its width. Idiosomal dorsum (Fig. 11). Propodosoma distinctly separated from hysterosoma by sejugal furrow. Setae *vi* anterior to well sclerotized and elongate propodosomal plate. Dorsal cuticle weakly striated. Setae *f₂* and *h₂* very long, flagellate distally. Setae *f₂* distinctly lanceolate basally. Length of dorsal setae: *vi* 27, *si* 9, *se* 167, c₁ 16, c₂ 22, cₚ 61, d₁ 18, d₂ 76, e₁ 11, e₂ 9, h₁ 11.

Idiosomal venter (Fig. 12). Apodemes 1 and 2 joined together. All ventral setae thin filiform.
Two new species of canestriniid mites

Figs. 4–7. *Tamarangia ethiopica* sp. n., female: 4–7 — legs I–IV, respectively.
Ventral surface with very delicate striae. Bursa copulatrix large, oval.

Legs (Figs. 13–16). Leg I (Fig. 13). Solenidia Ω 6 < Ω 20 < Ω 37 < Ω 83 > Ω 39. Leg II (Fig. 14). Solenidia Ω 24 < Ω 83 > Ω 18. Leg III (Fig. 15). Solenidon ϕ 70. Leg IV (Fig. 16). Solenidon ϕ 48.

Male. Idiosomal length 350, max width 219. Idiosomal dorsum (Fig. 17). Dorsal setae slightly shorter than in female. Length of dorsal setae: vi 21, si 7, se 194, c1 14, c2 18, cp 45, d1 14, d2 53, e1 9, e2 10, h1 11.

Idiosomal venter (Fig. 18). Adanal suckers well developed. Aedeagus long. All ventral setae flagellate.

Legs. Similar with those of female.

**Type material.** Holotype: female, ETHIOPIA, under elytra of *Diplognatha gagate* (Forster, 1771), 1982, coll. A.F. Evmenenko; paratypes: 1 male, 7 TNs, with same data as holotype.

**Differential diagnosis.** The new species is similar to *B. alvari* Haitlinger, 1993 and *B. ethiopica* (Haitlinger, 1990), but differs from both species by distinctly shorter dorsal setae *d2* and *e1* of female which about 2 times shorter than distances between their bases (in *B. alvari* and *B. ethiopica* setae *d2* about as long as distance *d2–d2*, *e1* distinctly longer than *e1–e1*).

**Etymology.** The specific epithet *elongata* refers to the unusually elongated propodosomal plate.

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Fig. 11–12. *Barbiangia elongata* sp. n., female: 11 — dorsum of body, 12 — venter of body.

