# A NEW SUBGENUS AND SPECIES OF THE CHIGGER MITE GENUS *NEOTROMBICULA* (ACARI: TROMBICULIDAE)

BY A. A. STEKOL'NIKOV*

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TAXONOMY
CHIGGERS
ACARI
PARASITES
RODENTS

SUMMARY: A new subgenus, *Iranotrombicula* n. subgen., is established within the chigger mite genus *Neotrombicula*. One new species, *Neotrombicula* (*Iranotrombicula*) *lazistanica* n. sp., is described from rodents collected in NE Turkey.

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RÉSUMÉ : Un nouveau sous-genre, *Iranotrombicula* n. subgen., est créé au sein du trombiculidés genre *Neotrombicula*. Une espèce nouvelle, *Neotrombicula* (*Iranotrombicula*) *lazistanica* n. sp., trouvée sur des rongeurs de Turquie nord-orientale, est décrite.

The genus *Neotrombicula* Hirst, 1925 has a rather complicated taxonomy. In the last revision of the "*Neotrombicula* complex" (VERCAMMEN-GRANDJEAN & KOLEBINOVA, 1985) it included 11 subgenera and about 200 species. These authors regard as subgenera some taxa previously described as genera, for instance *Hirsutiella* Schluger & Vysotskaya, 1970 and *Hoffmannina* Brennan & Jones, 1959. Several subgenera were based on only one character: thus, *Arctrombicula* Vercammen-Grandjean & Kolebinova, 1985 is characterized by branched galeala and *Anamasticula* Vercammen-Grandjean & Kolebinova, 1985 is characterized by the absence of mastitarsala III. Such taxonomic decisions increased the artificial nature of the genus (KUDRYASHOVA, 1998). Obviously, a classification based on the study of relatively small, but natural species groups would be more suitable in the taxonomy of *Neotrombicula*. The description of the genus *Eutonella* Kudryashova, 1988 is an example of this method.

The present paper is another step in this direction. It gives the description of a new subgenus in *Neotrombicula*, with 5 chigger mites species, parasitizing rodents in Iran and neighbouring countries. The new subgenus is distinguished by having 2 setae on coxae III, 2 genualae I, the characteristic form of the scutum, and the densely barbed dorsal idiosomal setae. I follow the terminology generally accepted in systematics of chiggers (GOFF *et al.*, 1982), with some modifications and additions: "ventral setae" (V) — setae on the ventral surface of idiosoma, excluding coxal and sternal setae; VS — number of ventral setae; D — dorsal idiosomal setae; $D_m$ — mean length of D; DS — number of D; TaIII — length of leg III tarsus; TaW — width of leg III tarsus. All measurements are in micrometres (μm).

* Zoological Institute, Russian Academy of Sciences, Saint-Petersburg, 199034, Russia. E-mail: sta@zisp.spb.su.

Genus *Neotrombicula* Hirst, 1925

Subgenus ***Iranotrombicula*** n. subgen.

Diagnosis: SIF=7BS-B/N-3-(2-3)111.(1-0)000; fPp=B/B/BBB, B/B/NBB; fSt=2.2; fCx=1.1.2 (in *N. mofidi* 1.1.1); PL>AL>AM (in *N. lazistanica* n. sp. AL<AM). Larvae of medium size, Ip=778–945. Scutum relatively small, subpentagonal or with rounded posterior margin, sparsely or moderately punctate. SB clearly anterior to level of PL bases. Sensillae flagelliform with branches on distal 1/2-2/3. Scutal and idiosomal setae of medium length (PL=43–64, H=40–67), densely covered with long barbs. One pair of humeral setae. Dorsal idiosomal setae arranged (6-8)-(6-8)-(6-9)-... Galeala branched or forked (nude in *N. faghihi*). 2 genualae I (3 in *N. lazistanica* n. sp.). Mastitarsala III present or replaced with barbed seta.

Type species: *Neotrombicula sabzavari* Kudryashova, 1977.

Hosts: Rodents.

Distribution: Turkey, Iran, Tadjikistan.

***Neotrombicula (Iranotrombicula) lazistanica*** n. sp.

(Figs 1–9)

Diagnosis: SIF=7BS-B-3-3111.0000; fPp=B/B/NBB; fCx=1.1.2; fSt=2.2; fSc: PL>AM>AL; Ip=879; fD=2H-6-6-6-4-6-2; DS=33; VS=35; NDV=68.

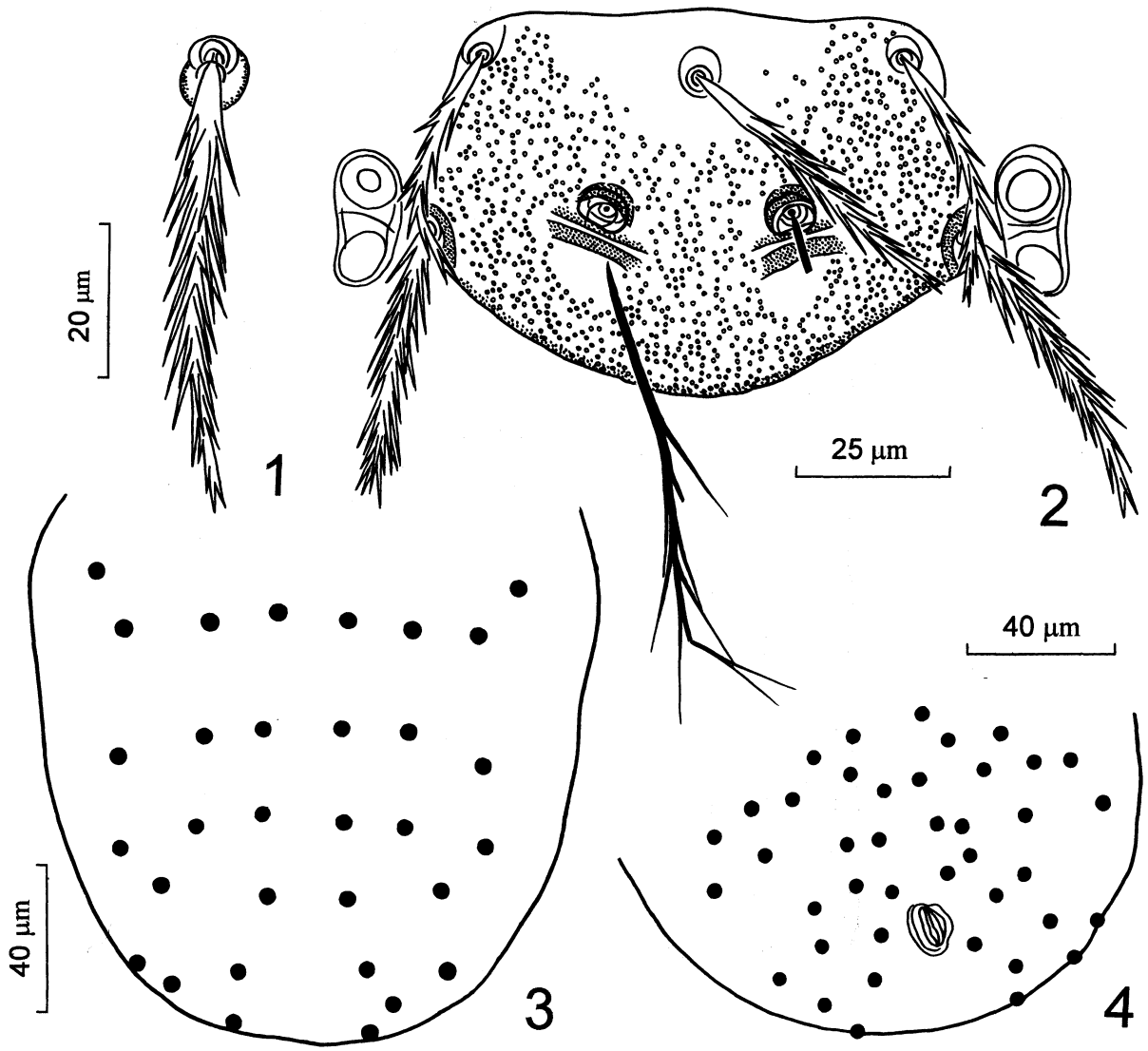
Description. *Larvae*. Idiosoma. Eyes 2 + 2, on ocular plate, anterior larger. One pair of humeral setae; 32–34 dorsal idiosomal setae, densely covering with rather thick and long barbs, arranged 6(7)-6-6(7)-4(6)-6(7)-2; 2 pairs of sternal setae and 31–41 ventral setae; total idiosomal setae 63–73. Gnathosoma. Cheliceral blade with tricuspid cap, gnathobase moderately punctate, bearing a pair of branched setae; galeala forked; palpal claw 3-pronged; setae on palpal femur and genu branched; palpal tibial setae: ventral seta branched, lateral seta forked, dorsal seta nude. Scutum. Moderately punctate, subpentagonal, with shallowly biconcave anterior margin; AM base posterior to level of AL bases; SB anterior to level of PL bases; PL>AM>AL; sensillae flagelliform with branches on distal 2/3, nude basally. Legs. All 7-segmented, terminating in a pair of claws and a clawlike empodium. Onychotriches absent. Leg I. Coxa with 1 branched seta (1B); trochanter 1B; basifemur 1B; telofemur 5B; genu 4B, 3 genualae, microgenuala; tibia 7B, 2 tibialae, microtibiala; tarsus 22B, tarsala, microtarsala, subterminala, parasubterminala, pretarsala. Leg II. Coxa 1B; trochanter 1B; basifemur 2B; telofemur 4B; genu 3B, genuala; tibia 6B, 2 tibialae; tarsus 16B, tarsala, microtarsala, pretarsala. Leg III. Coxa 2B; trochanter 1B; basifemur 2B; telofemur 3B; genu 3B, genuala; tibia 6B, tibiala; tarsus 15B, mastitarsala absent.

Standard measurements (N=6)

| | AW | PW | SB | ASB | PSB | SD | P-PL | AP | AM | AL | PL | S | H | $D_m$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min | 68 | 87 | 30 | 29 | 29 | 59 | 23 | 24 | 48 | 38 | 50 | 76 | 55 | 48 |
| Max | 73 | 95 | 32 | 32 | 32 | 62 | 30 | 32 | 59 | 52 | 64 | 86 | 67 | 54 |
| m | 70 | 91 | 31 | 31 | 30 | 61 | 27 | 29 | 53 | 43 | 55 | 82 | 61 | 51 |

| D | V | pa | pm | pp | Ip | DS | VS | NDV | TaIII | TaW |
|---|---|---|---|---|---|---|---|---|---|---|
| 41-54 | 27-44 | 288 | 265 | 302 | 859 | 32 | 31 | 63 | 72 | 18 |
| 50-65 | 38-63 | 308 | 284 | 322 | 905 | 34 | 41 | 73 | 79 | 19 |
| 46-58 | 32-51 | 298 | 270 | 311 | 879 | 33 | 35 | 68 | 75 | 18 |

Differential diagnosis: The new species is similar to *N. mofidi* and differs from it by the presence of 2 setae on coxae III (fCx=1.1.2 against 1.1.1 in *N. mofidi*), longer scutal and idiosomal setae (AM=48–59 against 23–26, PL=50–64 against 43–47, H=55–67 against 40–45 in *N. mofidi*), slightly shorter tarsus III (TaIII=72–79 against 85–88 in *N. mofidi*) and slightly broader scutum (AW=68–73, PW=87–95, SB=30–32



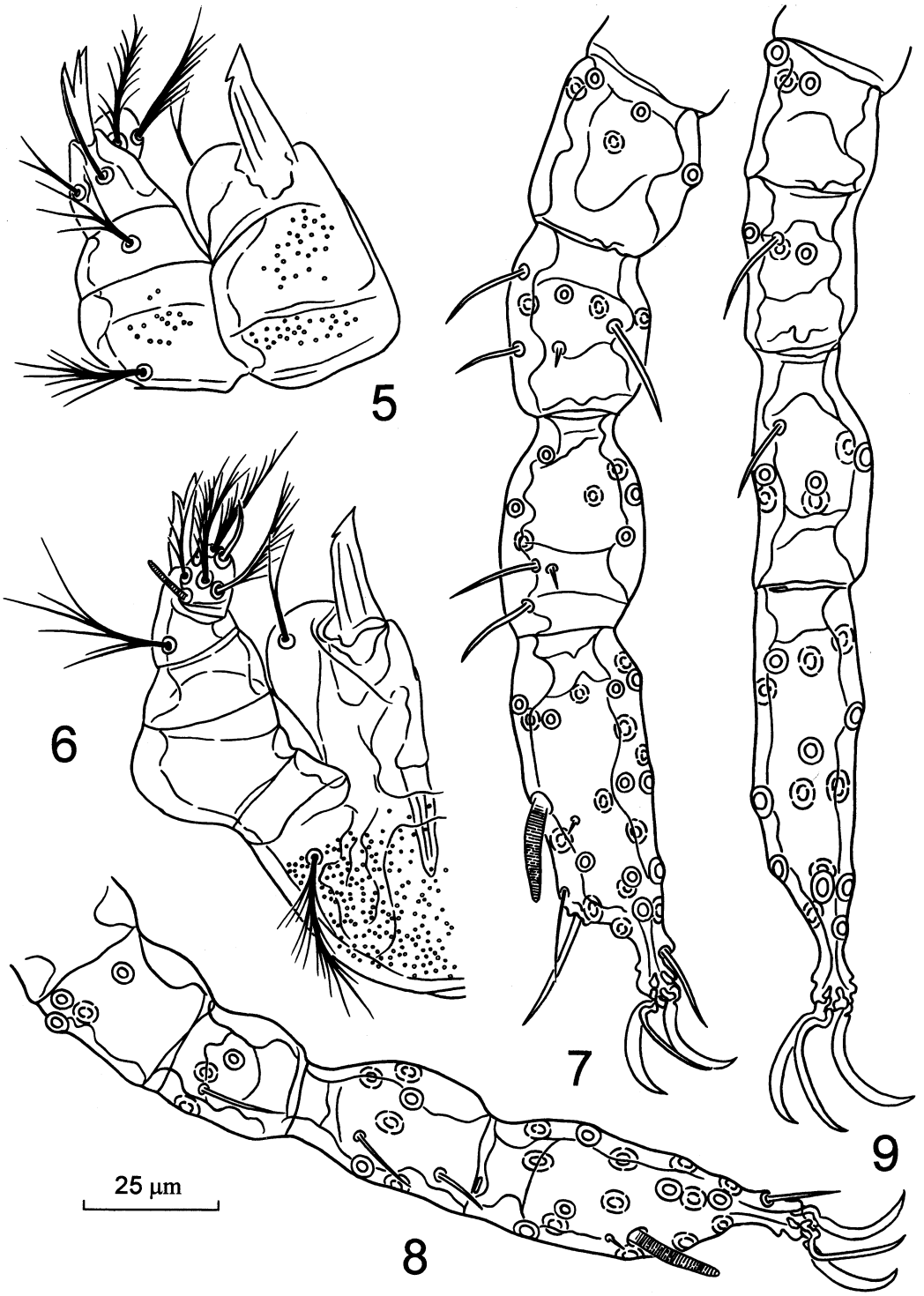

FIGS 1–4: *Neotrombicula lazistanica* n. sp., holotype larva.
1. — Dorsal idiosomal seta of first row. 2. — Scutum. 3. — Arrangement of dorsal idiosomal setae. 4. — Arrangement of ventral idiosomal setae.

against 62–66, 82–85 and 27–28 respectively). The new species differs from all other *Iranotrombicula* by the presence of 3 genualae on leg I and by AM longer than AL.

Hosts: *Microtus majori* Thomas, *Apodemus fulvipectus* Ognev.

Type data and additional material: Holotype (4654, T-Tr.-12) and 3 paratypes, NE Turkey, Artvin Province, East Ponticus Chain (Dogu Karadeniz Daglari), Gül Mt. (East of Kaçkar Mt.), 2400 m, 24 June 1998, from *Microtus majori*, A. A. STEKOL'NIKOV coll.; 1 specimen, 25 June 1998, from *Apodemus fulvipectus*, 2750 m, other data same; 2 specimens, NE Turkey, Trabzon Province, Zigana Range (Kalkanli Daglari), 2050 m, 10 June 1998, from *M. majori*, A. A. STEKOL'NIKOV coll.

The holotype and paratypes of the new species are deposited in the Zoological Institute of the Russian Academy of Science, Saint Petersburg (ZIN).




FIGS 5–9: *Neotrombicula lazistanica* n. sp., larva.

5. — Dorsal aspect of gnathosoma. 6. — Ventral aspect of gnathosoma. 7. — Leg I. 8. — Leg II. 9. — Leg III.

*Neotrombicula (Iranotrombicula) faghihi* Kudryashova, 1973

KUDRYASHOVA, NERONOV & FAHRANG-AZAD, 1973: 130, fig. 1 (holotype and paratypes in Zoological Museum of Moscow University — ZMMU).

Diagnosis: SIF=7BS-N-3-2111.1000; fPp=B/B/NBB; fCx=1.1.2; fSt=2.2; fSc: PL>AL>AM; Ip=914; fD=2H-8-8-6-4-6(4)-2; DS=34–36; VS=38–41; NDV=72–77.

Hosts: *Cricetulus migratorius* (Pallas), *Tatera indica* Hardwicke.

Material examined: Holotype and 1 paratype, Iran, Fars Province, 48 km S of Fasa, 28 Nov. 1969, from *Tatera indica*, V. M. NERONOV coll.

*Neotrombicula (Iranotrombicula) mofidi* Kudryashova, 1973

KUDRYASHOVA, NERONOV & FAHRANG-AZAD, 1973: 132, fig. 2 (holotype and paratypes in ZMMU); 1978: 134; KUDRYASHOVA, 1998: 210, fig. 169.

Diagnosis: SIF=7BS-B-3-2111.0000; fPp=B/B/BBB; fCx=1.1.1; fSt=2.2; fSc: PL>AL>AM; Ip=899; fD=2H-6-6-6-4-(4-6)-(2-3); DS=32; VS=37; NDV=69. Mastitarsala absent.

Material examined: Holotype and 3 paratypes, Iran, Markazi Province, 16 km N of Delijan, 1600 m, 14 October 1969, from *Meriones persicus* (Blanford), V. M. NERONOV coll.

*Neotrombicula (Iranotrombicula) sabzavari* Kudryashova, 1977

KUDRYASHOVA, 1977: 50, fig. 3 (holotype and 2 paratypes in ZMMU).

Diagnosis: SIF=7BS-B-3-2111.1000; fPp=B/B/BBB; fCx=1.1.2; fSt=2.2; fSc: PL>AL>AM; Ip=929; fD=2H-(7-8)-8-(7-9)-(6-7)-6(4)-...; DS=42; VS=52; NDV=94.

Material examined: Holotype and 2 paratypes, Iran, Khorasan Province, 137 km SE of Sabzevar, 1200 m, 9–14 Oct. 1970, from *Meriones lybicus* (Lichtenstein), V. M. NERONOV coll.

*Neotrombicula (Iranotrombicula) subtilis* Schluger & Kudryashova, 1969

SCHLUGER & KUDRYASHOVA, 1969: 117, fig. 8–14, table 1 (holotype and paratypes in ZMMU).

Diagnosis: SIF=7BS-B-3-2111.1000; fPp=B/B/BBB; fCx=1.1.2; fSt=2.2; fSc: PL>AL>AM; Ip=783; fD=2H-8-7-6-4-4-2-2, 2H-8-8-7-5-4-1; DS=35; VS=39; NDV=74. Scutum small, posterior margin rounded. Sensillae flagelliform with branches on distal 2/3 and several small barbs on proximal part.

Material examined: 2 paratypes, Tadjikistan, Gissarskij Range, Romit Reserve, 27 April 1967, from *Apodemus sylvaticus* (L.), N. I. KUDRYASHOVA coll.

KEY TO LARVAE OF *Iranotrombicula* n. subgen.

1(4) Mastitarsala absent; fD=2H-6-6-6-...
2(3) fCx=1.1.1; AL>AM; 2 genualae I ..... *N. mofidi*
3(2) fCx=1.1.2; AL<AM; 3 genualae I ... *N. lazistanica*
4(1) Mastitarsala present; at least in anterior 2 rows of D number of setae is 7–8.
5(6) Galeala nude; fPp=B/B/NBB..... *N. faghihi*
6(5) Galeala branched; fPp=B/B/BBB
7(8) Scutum with rounded posterior margin; AW=58–59, PW=77–80, SD=49, NDV=70–78, TaIII=70–72..... ..... *N. subtilis*
8(7) Scutum subpentagonal; AW=63–68, PW=81–85, SD=53–56, NDV=84–106, TaIII=86–89..... ..... *N. sabzavari*

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