

# Seven new larval mites (Acari, Prostigmata, Erythraeidae) from Iran

R. Haitlinger & A. Saboori

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*Seven new larval mites (Acari, Prostigmata, Erythraeidae) from Iran.*— Seven new larval mites are described: *Hauptmannia ostovani* n. sp. obtained from undetermined Aphididae (Homoptera), a species with thick and sharptipped accessory claw on palptibia and without pectinala on palptarsus; *H. iranica* n. sp. from plants, without pectinala on palptarsus and bearing numerous setae on dorsal and ventral surfaces (NDV over 170); *H. khanjaniin* sp. from plants, with pectinala on palptarsus and has shorter L, W and ISD than the other species of this group; *Leptus fathipeuri* n. sp. from plants with two palpgenualae; *Erythraeus (E.) akbarianin* sp. from unidentified Aphididae; it has very short ASE; *E. (E.) sabrinae* n. sp. from undetermined Aphididae; this species is similar to *E. adrasatus*, *E. kresnensis* and *E. akbariani*, differing mainly in number of dorsal and ventral setae and *E. (Zaracarus) tehranicus* n. sp. from plants; one of the three species of this subgenus, differs mainly from the other two by shorter tarsi and tibiae I.

Key words: Acari, Erythraeidae, Iran, New species.

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*Ryszard Haitlinger, Dept. of Zoology, Agricultural Academy, 50-205 Wrocław, Cybulskiego 20, Polska (Poland).*— *Alireza Saboori, Dept. of Entomology, Tarbiat Modarres Univ., Teheran, Iran (Iran).*

## Introduction

Only a few erythraeid mites are known from Iran and neighbouring countries. No species have been described based on larval stages other than *Leptus tammuzi* Haitlinger, *L. horiacus* Haitlinger from Israel, Syria and

Saudi Arabia (HAITLINGER, 1994a) and *L. guus* Haitlinger described from Turkmenia (HAITLINGER, 1990c). Larval species of the genus *Hauptmannia* Oudemans are known from Europe, Japan, Malaysia, Vietnam, Thailand, Australia and Madagascar (WILLMANN, 1937; KAWASHIMA, 1958; SOUTHCOTT, 1961, 1994; SHIBA,

1976, HAITLINGER, 1986a, 1986b, 1987a, 1987b, 1987c, 1994b). Larval species of the genus *Leptus* Latreille are widely distributed throughout the world. All known species in their larval stage are associated with various arthropods, especially with insects. The genus *Erythraeus* Latreille is cosmopolitan but larval species are known mainly from Europe and Asia (BERON, 1982; HAITLINGER, 1987e, 1994b) and North America (WELBOURN & YOUNG, 1987).

Seven new larval species obtained from plants or insects in Iran are described in this paper; three belong to the genus *Hauptmannia*: *H. ostovani* n. sp., *H. iranica* n. sp. and *H. khanjanii* n. sp.; one to the genus *Leptus*: *L. fathipeuri* n. sp.; and three to the genus *Erythraeus*: *E. sabrinae* n. sp., *E. akbariani* n. sp. and *E. (Zaracarus) tehranicus* n. sp.

## Material and methods

The specimens of mites examined were obtained from plants and insects in Iran using the entomological scoop by A. Saboori, H. Ostovan, M. Khanjani, J. Akbarian and Y. Fathipeur. All new species were determined by R. Haitlinger. The mites were mounted on slides in Berlese fluid. The terminology and setal notation was adopted from SOUTHCOFF (1961, 1988). All measurements are given in  $\mu\text{m}$ . Holotypes are deposited in the Museum of Natural History, Wrocław University (MNHWU).

Abbreviations used in the text are: H. Holotype; L. Length of scutum; W. Width of scutum; AW. Distance between centres of bases of AL scutalae; PW. Distance between centres of bases of PL scutalae; SBa. Distance between centres of external orifices of scutal anterior sensilla; SBp. Distance between centres of external orifices of scutal posterior sensilla; ISD. Intersensillary distance between levels of centres of anterior and posterior sensillary setae of scutum; AP. Distance between centres of bases of AL and PL scutalae of the same side; AL. Length of anterolateral scutala; PL. Length of posterolateral scutala; ASE. Length of anterior sensillary seta of dorsal scutum; PSE. Length of posterior sensillary seta of dorsal scutum; DS. Length of

dorsal idiosomal setae; PDS. Length of posterior dorsal setae of idiosoma; St I. Length of seta between coxae I and coxae II on ventral surface of idiosoma; Coxala I. Length of seta on coxa I; GL. Length of gnathosoma measured between bases of palpcoxae and tip of chelicerae; PaScFed. Length of seta on dorsal surface of palpfemur; PaScFev. Length of seta on ventral surface of palpfemur; PaScGed. Length of seta on dorsal surface of palpgenu; PaScGev. Length of seta on ventral surface of palpgenu; NDV. Total number of dorsal and ventral setae; fD. Number of dorsal setae; fV. number of ventral setae; Vs. Vestigiala; Fa. Famala; Cp. Companala; So. Solenidion; N. Nude; B. Barbed; Hy. Length of posterior hyposomal; Ta I (L). Length of tarsus; Ta I (H). Height of tarsus; Ge. Length of genu; Tf. Length of telofemur; Bf. Length of basifemur; Tr. Length of trochanter; Cx. Length of coxa.

## Results

Fam. Erythraeidae Robineau - Desvoidy, 1828  
Genus *Hauptmannia* Oudemans, 1910

### *Hauptmannia ostovani* n. sp. (figs. 1-7)

#### Examined material

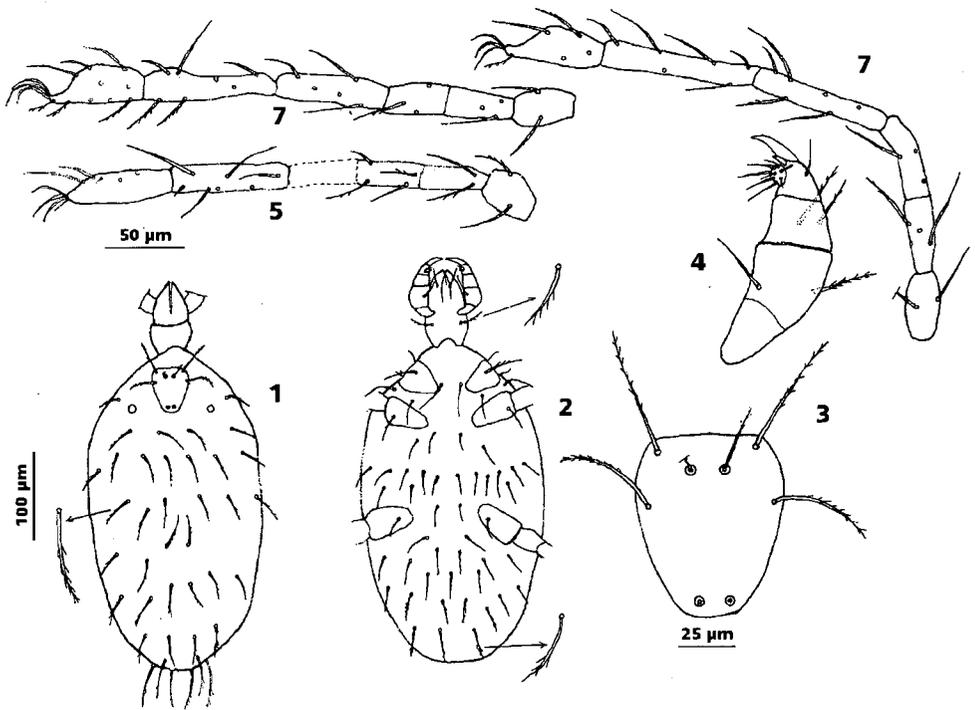
Holotype larva, Kazeron, Iran, 7 IV 94, from undetermined Aphididae (Homoptera), leg. H. Ostovan; deposited in MNHWU.

#### Description

Idiosoma elongate; dorsal surface with ~40 weakly barbed setae; setae at posterior margin of idiosoma somewhat longer than the remaining setae (fig. 1). Scutum as in figure 3 with two pairs of barbed scutalae (AL somewhat longer than PL). Anterior sensillae (ASE) short and barbed; PSE damaged. Bases of ASE placed somewhat behind AL. Both sides of scutum with one eye: cornea 16 across.

Ventral side of idiosoma with nude sternalae I between coxae I; between coxae I and II two pairs of nude setae; between coxae II and III ~20 weakly barbed setae; behind coxae III ~21 barbed setae. NDV =  $40 + 41 = 81$ . Coxae I-III each with barbed seta (fig. 2).

Gnathosoma elongate with two pairs



Figs. 1-7. *Hauptmannia ostovani* n. sp., larva: 1. Idiosoma and gnathosoma, dorsal view; 2. Idiosoma and gnathosoma, ventral view; 3. Scutum; 4. Palp; 5. Leg I, tarsus-trochanter; 6. Leg II, tarsus-trochanter; 7. Leg III, tarsus-trochanter.

*Hauptmannia ostovani* n. sp., larva: 1. Idiosoma y gnatosoma, vista dorsal; 2. Idiosoma y gnatosoma, vista ventral; 3. Scutum; 4. Palpo; 5. Pata I, tarso-trocànter; 6. Pata II, tarso-trocànter; 7. Pata III, tarso-trocànter.

of barbed hypostomalae. Palp on femur with one barbed and one smooth seta; genu with two barbed setae, tibia with one naked seta; palptarsus bears eight setae (with solenidion) (fig. 4). An accessory claw on palptibia relatively thick and sharp on the tip.

**Leg setal formula**

Leg I: Ta-1 So, 1 Fa, 6 N, 20 B; Ti-1So, 1 Vs, 14 probably only (poorly visible) N; Ge shifted and very poorly visible; Tf-1 So, 2 N, 5 B; Bf-1 N, 2 B; Tr-2 B (fig. 5). Leg II: Ta-1 So, 5 N, 14 B; Ti 1 So, 4 N, 11 B; Ge-1 So, 1 N, 7 B; Tf-5 B; Bf-4 B; Tr-2 B (fig. 6). Leg III: Ta-2 N, 16 B; Ti-

1 So, 2 N, 8 B; Ge-1 So, 1 N, 8 B; Tf-5 B; Bf-4 B; Tr-2 B (fig. 7).

$$Ip = 340 + 340 + 392 = 1072.$$

Measurements are given in table 1.

**Discussion**

*H. ostovani* n. sp. belongs to species with thick sharp-tipped accessory claw on palptibia and without pectinala on palptarsus. *H. brevicollis* Oud., *H. kazimierae* Haitlinger, *H. wratislaviensis* Haitlinger, *H. gracilentia* Willmann, *H. parvum* Schweizer & Bader, *H. willmanni* Schweizer and *H. iranica* n. sp. belong in this group. It differs from *H. kazimierae*

by longer AL than PL and longer Ti I-III; from *H. wratislaviensis* by a greater number of setae between coxae II-III (20 to 12) and distinctly longer AL and Ti I-III; from *H. gracilentata* by a smaller number beyond coxae III (21 to ~40) and longer AL; from *H. brevicollis* by shorter PW, longer AL, Ti I and Ti II; from *H. iranica* by its shape of scutum, longer AL, Ti II-III, ISD and L; from *H. parvum* by shorter Ta I and Ta III (62 to 90); from *H. willmanni* by longer Ti I (82 to 45) and Ip (1072 to 702).

#### Etymology

The species is named after the collector.

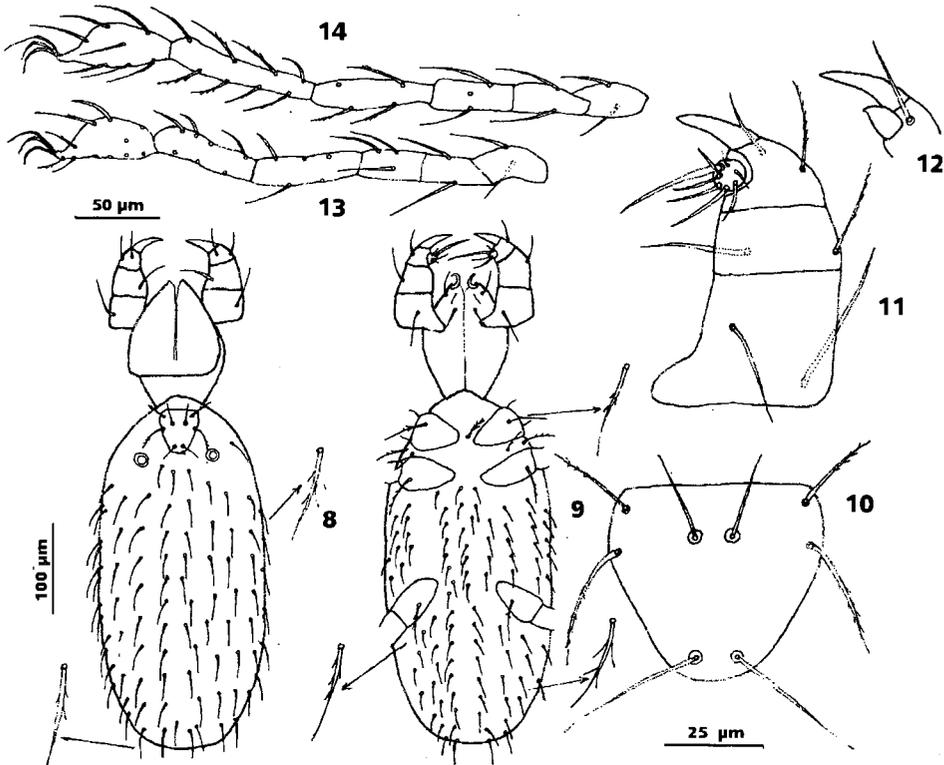
#### *Hauptmannia iranica* n. sp. (figs. 8-14)

##### Examined material

Holotype larva, Noshahr, Iran, 26 V 93, from plants, host unidentified, leg. A. Saboori, deposited in MNHWU.

##### Description

Idiosoma elongate; dorsal surface with about 90 setae bearing relatively long and usually four barbs; setae on posterior margin of idiosoma are somewhat longer and have shorter barbs (fig. 8). Scutum as in figure 10, with two pairs of short barbed scutalae



Figs. 8-14. *Hauptmannia iranica* n. sp., larva: 8. Idiosoma and gnathosoma, dorsal view; 9. Idiosoma and gnathosoma, ventral view; 10. Scutum; 11. Palp; 12. Claw and accidental claw on palptibia; 13. Leg II, tarsus-trochanter; 14. Leg III, tarsus-trochanter.

*Hauptmannia iranica* sp. n., larva: 8. Idiosoma y gnatosoma, vista dorsal; 9. Idiosoma y gnatosoma, vista ventral; 10. Scutum; 11. Palpo; 12. Uña y uña accidental en palpotibia; 13. Pata II, tarso-trocánter; 14. Pata III, tarso-trocánter.

Table 1. Metric data for larvae of: 1. *Hauptmannia ostovani* n. sp.; 2. *H. iranica* n. sp. and 3. *H. khanjanii* n. sp.: IL. Length of idiosoma; IW. Width of idiosoma. (All measurements are given in  $\mu\text{m}$ ). (For other abbreviations see Material and methods).

Valores métricos de las larvas de : 1. *Hauptmannia ostovani* sp. n.; 2. *H. iranica* sp. n. and 3. *H. khanjanii* sp. n.: IL. Longitud del idiosoma; IW. Ancho del idiosoma. (Todas las medidas en  $\mu\text{m}$ ). (Para otras abreviaturas ver Material and methods).

	1	2	3		1	2	3
	H	H	H		H	H	H
IL	552	360	320	Hy	22?	-	44
IW	312	184	216	Ta I(L)	62	-	58
L	74	46	52	Ta I(H)	-	-	20
W	90	70	50	Ti I	82	-	68
AW	42	48	32	Ge I	-	66	60
PW	52	80?	42	Tf I	44	32	32
SBa	14	16	10	Bf I	42	46	48
SBp	16	-	10	Tr I	40	-	36
ISD	56	30	38	Cx I	52	48	48
AP	24	14	12	Ta II(L)	60	62	52
AL	56	30?	50	Ta II(H)	28	24	22
PL	40?	?	50	Ti II	84	62	66
ASE	36	?	34	Ge II	70	66	56
PSE	-	40?	52	Tf II	40	34	66
DS	42-58	30-42	38-42	Bf II	44	40	40
PDS	80-90	42	40-42	Tr II	42	38	54
St I	42	~28	44	Cx II	64	52	54
Coxala I	44	44	38	Ta III(L)	62	68	52
Coxala II	34	-	24	Ta III(H)	22	22	20
Coxala III	38	-	30	Ti III	102	92	90
GL	110	120	122	Ge III	90	76	70
PaScFed	36	40	40	Tf III	42	46	40
PaScFev	30	28?	32	Bf III	50	48	44
PaScGed	26	34	22	Tr III	46	42	44
PaScGev	20	30	-	Cx III	70	-	52

(these are somewhat longer than given in table 1 because these setae are rather cramped and protrude upwards). Sensillae probably naked (poorly visible); PSE are longer than ASE. Eyes very poorly visible.

Ventral side of idiosoma with barbed sternalae I (anomaly: only one seta); between coxae I and II two pairs of barbed setae; between coxae II and III about 48 setae, each with four barbs; behind coxae III about 56 barbed setae. NDV = -194. Coxae I-III each with barbed seta (fig. 9).

Gnathosoma elongate with two pairs of setae. Palps enlarged; femur with two nude setae; genu bears two setae (B+N), tibia also with two setae (B+N). Tarsus with eight? setae; among them one is relatively

long and thick (fig. 11). An accessory claw on palptibia is thick (fig. 12).

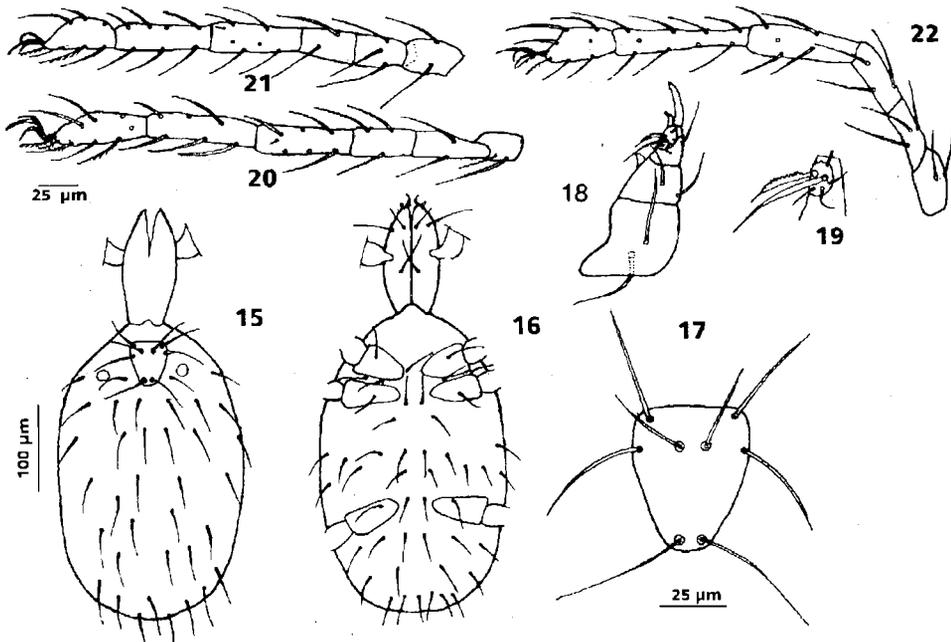
#### Leg setal formula

Leg I: this leg is deformed and its setae are poorly visible. Leg II: Ta-1 So, 19 B; Ti-2 So, 11 B; Ge-1 So, 10 B; Tf-5 B; Bf-5 B; Tr-2 B (fig. 13). Leg III: Ta-17 B; Ti-1 So, 11 B; Ge-9 B; Tf-5 B; Bf-5 B; Tr-2 B (fig. 14).

Measurements are given in table 1.

#### Discussion

*H. iranica* n. sp. differs from all other *Hauptmannia* belonging to the group of species without pectinala on palptarsus: 1. Numerous setae on dorsal and ventral



Figs. 15-22. *Hauptmannia khanjanii* n. sp., larva: 15. Idiosoma and gnathosoma, dorsal view; 16. Idiosoma and gnathosoma, ventral view; 17. Scutum; 18. Palp; 19. Palptarsus; 20. Leg I, tarsus-trochanter; 21. Leg II, tarsus-trochanter; 22. Leg III, tarsus-trochanter.

*Hauptmannia khanjanii* sp. n., larva: 15. Idiosoma y gnatosoma, vista dorsal; 16. Idiosoma y gnatosoma, vista ventral; 17. Scutum; 18. Palpo; 19. Palpotarso; 20. Pata I, tarso-trocánter; 21. Pata II, tarso-trocánter; 22. Pata III, tarso-trocánter.

surfaces (NDV over 170; in other species less than 140); 2. The shape of scutum; 3. Dorsal and ventral setae with relatively long barbs.

*Hauptmannia khanjanii* n. sp. (figs. 15-22)

Examined material

Holotype larva, Toiserkan, Iran, 15 VI 92, from plants (*Medicago sativa-alfalfa*), leg. M. Khanjani, deposited in MNHWU.

Description

Idiosoma elongate; dorsal surface with 34 smooth setae (fig. 15). Scutum as in figure 17, with two pairs of nude scutalae, equal in length. Sensillae smooth, ASE distinctly shorter than PSE. Eyes: cornea 12 across.

Ventral side of idiosoma with smooth setae, sternalae I rather short; between coxae I and II two pairs of setae; between coxae II and III 18 setae; behind coxae III 18 setae. NDV = 70. Coxae I-III smooth (fig. 16).

Gnathosoma elongate with three pairs of setae. Palp bears only smooth setae; two each on femur, genu and tibia (fig. 18). Tarsus with eight setae, one of them long and relatively thick smooth seta and pectinala (26 µm long with about 20 teeth). Palpal femur with hook (fig. 19).

Leg setal formula

Leg I: Ta-2 So, 4 B, 18 N; Ti-1 So, 12 N; Ge-1 So, 1 Vs, 11 N; Tf-8 N; Bf-4 N; Tr-2 N (fig. 20).

Leg II: Ta-1 So, 2 B, 17 N; Ti-2 So, 13 N; Ge-1 So, 1 Vs, 9 N; Tf-5 N; Bf-4 N; Tr-2 N (fig. 21).

Leg III: Ta-2 B, 17 N; Ti-1 So, 13 N; Ge-1 So, 9 N; Tf-5 N; Bf-4 N; Tr-2 N (fig. 22).

$$lp = 350 + 334 + 340 = 1024.$$

Measurements are given in table 1.

Discussion

*H. khanjanii* n. sp. belongs to the species group of *Hauptmannia* with pectinala on palptarsus. *H. longicollis* Oud., *H. pseudolongicollis* Haitlinger, *H. miyatakei* Kawashima and *H. aitapensis* Southcott (Oudemans, 1912; Kawashima, 1958; Southcott, 1946; Haitlinger, 1986a, 1986b, 1987b, 1987c, 1987d) belong to this group. *H. khanjanii* is especially similar to *H. longicollis* and *H.*

*pseudolongicollis*. It can be distinguished from them by shorter L and W (in *H. longicollis* and *H. pseudolongicollis* both these dimensions are over 60), shorter ISD (30 to 50-64), AP (12 to 16-28) and some others.

Etymology

The species is named after the collector.

Genus *Leptus* Latreille, 1796

*Leptus fathipeuri* n. sp. (figs. 23-29)

Examined material

Holotype larva, Tabriz, Iran, 6 VIII 93, from plants, host unidentified, leg. Y. Fathipeur, deposited in MNHWU.

Description

Scutum width greater than length, slightly punctate, with distinctly cuticular lines bounding PSE and ASE. Between bases of AL a distinctly cuticular stripe enlarged in the middle part. Similar stripes between bases of PL and PSE (on both sides) (fig. 25). AL and PL almost equal in length. Sensillae ciliated on 2/3 of length; PSE distinctly longer than ASE. Dorsal setae with moderate setules; fd = 60 (fig. 23). Metric data in table 2. Eyes: cornea 18 across, with surrounding ring to 20 across.

Ventral surface of idiosoma: sternalae I and II with distinct setules, four intercoxalae shorter than the last. Behind coxae III setae as dorsal but somewhat shorter (fig. 24). Coxalae I-III bear distinct setulae; the first being the longest (over twice the length of the shortest coxala II). Gnathosoma narrow, palpal femorala with long setulae. Palp genu with two palpgenualae; the dorsal seta is longer (fig. 26). Hypostomalae nude. Palptarsus with seven setae.

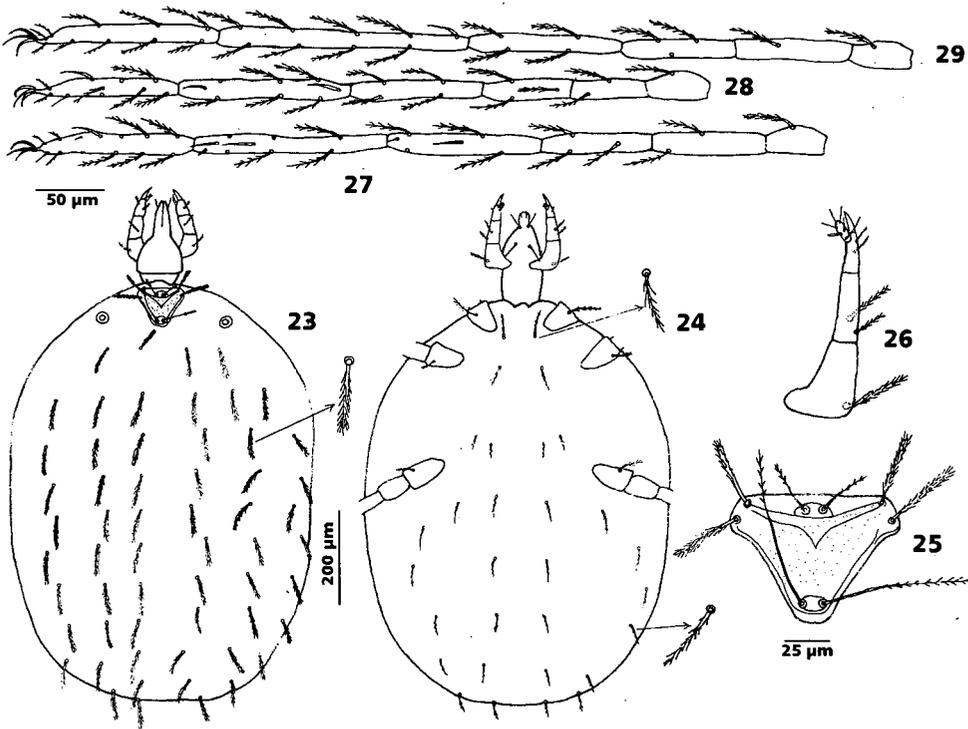
Leg setal formula

Leg I: Ta-1 So, 1 Fa, 2 N, 18 B; Ti-1 So, 1 Vs, 15 B; Ge-1 So, 1 Vs, 9 B; Tf-5 B; Bf-2 B; Tr-1 B (fig. 27).

Leg II: Ta-1 So, 2 N, 18 B; Ti-2 So, 15 B; Ge-8 B; Tf-5 B; Bf-2 B; Tr-1 B (fig. 28).

Leg III: Ta-18 B; Ti-1 So, 16 B; Ge-8 B; Tf-5 B; Bf-1 B; Tr-1 B (fig. 29).

Measurements are given in table 2.



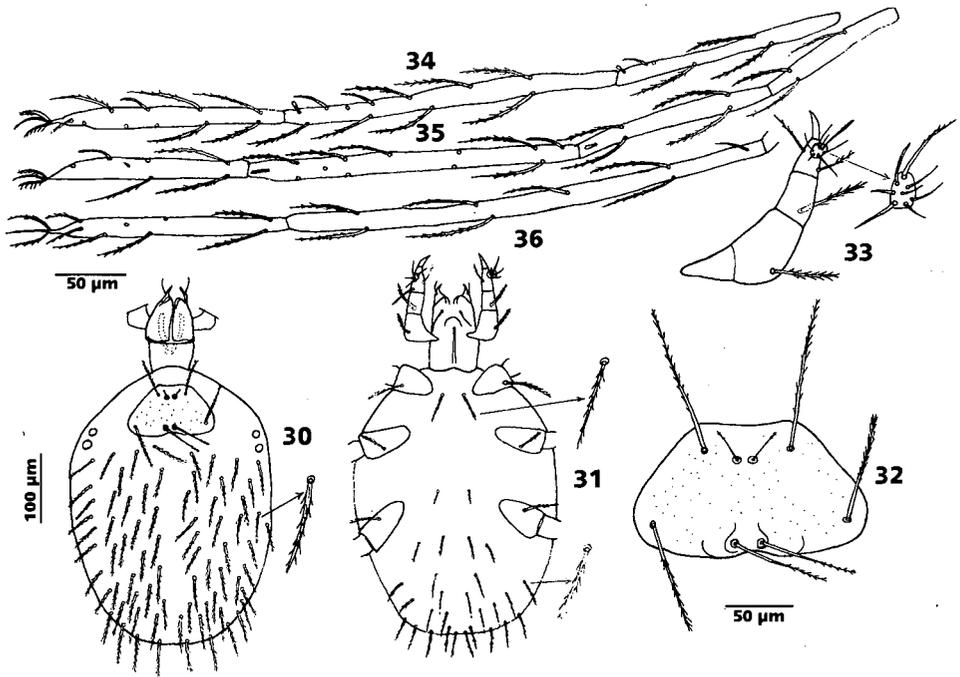
Figs. 23-29. *Leptus fathipeuri* n. sp., larva: 23. Idiosoma and gnathosoma, dorsal view; 24. Idiosoma and gnathosoma, ventral view; 25. Scutum; 26. Palp; 27. Leg I, tarsus-trochanter; 28. Leg II, tarsus-trochanter; 29. Leg III, tarsus-trochanter.

*Leptus fathipeuri* sp. n., larva: 23. Idiosoma y gnatosoma, vista dorsal; 24. Idiosoma y gnatosoma, vista ventral; 25. Scutum; 26. Palpo; 27. Pata I, tarso-trocánter; 28. Pata II, tarso-trocánter; 29. Pata III, tarso-trocánter.

#### Discussion

*L. fathipeuri* n. sp. belongs to the species group of *Leptus* bearing two palpgenualae. There are 29 species known to this group mainly from Australia: *L. gauphalus* Haitlinger, *L. comosus* South., *L. anomalus* South., *L. charon* South., *L. fortei* South., *L. heleus* South., *L. faini* South., *L. utheri* South., *L. halli* South.; from Africa: *L. glossinarum* Fain & Elsen, *L. belzaniensis* Fain & Elsen, *L. aureliani* Fain & Elsen, *L. puylaerti* Fain & Elsen, *L. polythrix* Fain & Elsen, *L. similis* Fain & Elsen, *L. aggoratus* Haitlinger, *L. ogazulacus* Haitlinger, *L.*

*pasopaicus* Haitlinger, *L. bertoldi* Haitlinger, *L. mogadoranus* Haitlinger; from Europe: *L. josifovi* Beron, *L. dubius* Paoli, *L. pyrenaeus* André, *L. akkus* Haitlinger, *L. mirenae* Haitlinger and from Asia: *L. horiacus* Haitlinger, *L. tammuzi* Haitlinger and *L. guus* Haitlinger (BERON, 1975; FAIN & ELSÉN, 1972, 1987; SOUTHCOTT, 1991, 1992, 1993; HAITLINGER, 1987a, 1987d, 1990a, 1990b, 1990c, 1993, 1994a). *L. fathipeuri* differs from all mentioned species in ornamentation of scutum (the presence of cuticular stripes between bases of AL and PL and PSE). Only *L. killingtoni* Turk, *L.*



Figs. 30-36. *Erythraeus (E.) akbariani* n. sp., larva: 30. Idiosoma and gnathosoma, dorsal view; 31. Idiosoma and gnathosoma, ventral view; 32. Scutum; 33. Palp; 34. Leg I, tarsus-genu; 35. leg II, tarsus-telofemur; 36. leg III, tarsus-tibia.

*Erythraeus (E.) akbariani* sp. n., larva: 30. Idiosoma y gnatosoma, vista dorsal; 31. Idiosoma y gnatosoma, vista ventral; 32. Scutum; 33. Palpo; 34. Pata I, tarso-genu; 35. Pata II, tarso-telofemur; 36. Pata III, tarso-tibia.

*bakeri* South., *L. titinius* South. *L. orthirius* South. and *L. faini* South. with the same or very similar ornamentation on scutum differs by only one palpgenuala. Three species with similar ornamentation on scutum: *L. pyrenaicus*, *L. galerae* Feider and *L. phyllotretae* Feider are known from Europe. It differs from *L. galerae* in shorter AL, PL, ISD, AW, PW; from *L. phyllotretae* by shorter ISD and longer PSE; from *L. pyrenaicus* by longer AL, PL and PSE.

#### Etymology

The species is named after the collector.

Genus *Erythraeus* Latreille, 1806

Subgenus *Erythraeus* Latreille, 1806

#### *Erythraeus akbariani* n. sp. (figs. 30-36)

#### Examined material

Holotype larva, Ardebil, Iran, 20 VI 93, from unidentified Aphididae, leg. J. Akbarian, deposited in MNHWU.

#### Description

Idiosoma oval, dorsal surface with 76 barbed setae (fig. 30). Scutum wide and relatively short, with two pairs of long scutalae AL,

Table 2. Metric data for larvae of: 1. *Leptus fathipeuri* n. sp.; 2. *Erythraeus* (E.) *akbariani* n. sp.; 3. *E. sabrinae* n. sp.; 4. *Erythraeus* (Z.) *tehranicus* n. sp. IL. Length of idiosoma; IW. Width of idiosoma. (All measurements are given in  $\mu\text{m}$ ). (For other abbreviations see Material and methods).

Valores métricos de las larvas de: 1. *Leptus fathipeuri* sp. n.; 2. *Erythraeus* (E.) *akbariani* sp. n.; 3. *E. sabrinae* sp. n.; 4. *Erythraeus* (Z.) *tehranicus* sp. n.: IL. Longitud del Idiosoma; IW. Ancho del idiosoma. (Todos los valores en  $\mu\text{m}$ ). (Para otras abreviaturas ver Material and methods).

	1	2	3	4		1	2	3	4		
	H	H	P	H	H	H	H	P	H	H	
IL	800	592	560	560	320	Hy	-	724	722	-	
IW	584	432	416	424	280	Ta I(L)	112	164	156	142	100
L	68	90	94	68	100	Tal(H)	16	20	18	18	20
W	86	160	144	132	140	Ti I	146	244	228	212	124
AW	68	66	66	60	50	Ge I	108	172	168	160	96
PW	76	138	126	110	108	Tf I	72	114	114	102	68
SBa	10	12	12	10	32	Bf I	86	122	120	110	74
SBp	10	16	16	16	22	Tr I	42	60	60	54	44
ISD	40	60	60	48	42	Cx I	46	62	62	60	56
AP	10	60	56	52	42	Ta II(L)	100	140	146	134	88
AL	50?	110	102	82	~140	Ta II(H)	16	18	16	18	18
PL	56	80	84	70	54	Ti II	122	242	234	210	122
ASE	36?	30	34	24?	28	Ge II	94	148	142	134	90
PSE	80	74	84	74	72	Tf II	62	112	110	100	66
DS	44-50	60-80	60-72	50-66	32-58	BfII	60	116	110	108	66
PD	40	64-66	60-70	54-64	32	Tr II	40	66	64	52	54
St I	36	50	50	54	70	Cx II	62	80	70	62	60
Cox. I	64	110	120	100	62	Ta III(L)	134	168	166	154	112
Cox. II	26	40	48	46	26	Ta III(H)	16	16	16	16	16
Cox. III	42	64	66	46	40	Ti III	180	362	340	304	180
GL	154	136	140	120	122	Ge III	106	174	176	160	104
PaScFed	42	44	46	40	48	Tf III	86	140	140	134	86
PaScFev	-	-	-	-	-	Bf III	84	156	142	132	86
PaScGed	36	60	68	56	-	Tr III	46	66	66	50	54
PaScGev	30	-	-	-	-	Cx III	60	84	86	70	54

distinctly longer than PL, both barbed. Sensillae with faint distal setulae; PSE over twice the length of ASE. Cuticular lines at bases of PSE. Whole area of scutum punctate (fig. 32). Both sides of scutum with a pair of eyes; anterior eye 24 across, posterior 20 across.

Ventral side of idiosoma behind coxae III with 26 barbed setae; two pairs of barbed sternalae between coxae I and III, with St I distinctly longer than St II. Coxae I-III each with barbed seta; coxala I more than twice the length of coxala II, but less than twice the length of coxala III (fig. 31). NDV =  $76 + 26 = 102$ .

Gnathosoma with two pairs of smooth hypostomata. Palp on femur and genu with barbed setae, seta on genu is longer (fig. 33). Tibia with three shorter setae. Tarsus with eight setae (with solenidion).

#### Leg setal formula

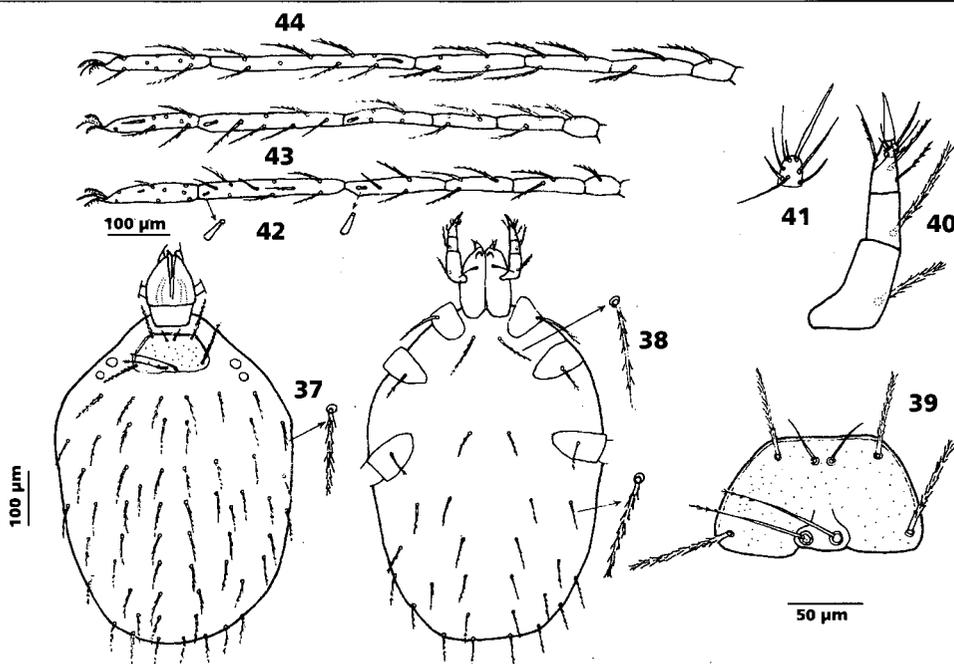
Leg I: Ta-1 So, 23 B, Ti 2 So, 1 Vs, 17 B; Ge-1 So, 1 Vs, 8 B; Tf-5 B; Bf-3 B; Tr-1 B. Ti I without companala (fig. 34). Leg II: Ta-1 So, 1 Fa, 1 N, 20 B; Ti-1 So, 1 Vs, 13 B; Ge-1 Vs, 8 B; Tf-5 B; Bf-3 B; Tr-1 B (fig. 35). Leg III: Ta-24 B, 14 B; Ge-8 B; Tf-5 B; Bf-3 B; Tr-1 B (fig. 36).

$lp = 876 + 824 + 1066 = 2766$  holotype,  $846 + 806 + 1030 = 2682$  paratype.

Measurements are given in table 2.

#### Discussion

*E. akbariani* n. sp. belongs to species with very short ASE (less than 40). Three species present this feature: *E. adrastus* (South.), *E. kresnensis* Beron, both from Europe, and *E. sabrinae* n. sp. from Iran. It differs from *E. adrastus* in its longer PW, distinctly longer



Figs. 37-44. *Erythraeus (E.) sabrinae* n. sp., larva: 37. Idiosoma and gnathosoma, dorsal view; 38. Idiosoma and gnathosoma, ventral view; 39. Scutum; 40. Palp; 41. Palptarsus; 42. Leg I, tarsus-trochanter; 43. Leg II, tarsus-trochanter; 44. Leg III, tarsus-trochanter.

*Erythraeus (E.) sabrinae* sp. n., larva: 37. Idiosoma y gnatosoma, vista dorsal; 38. Idiosoma y gnatosoma, vista ventral; 39. Scutum; 40. Palpo; 41. Palpotarso; 42. Pata I, tarso-trocànter; 43. Pata II, tarso-trocànter; 44. Pata III, tarso-trocànter.

AL (102-110 to 73-84), PL (80-84 to 55-62), ASE (30-34 to 14-24), PSE (74-84 to 58-66), Ta I (156-164 to 95) and Ti I (228-244 to 131); from *E. kresnensis* it differs in the longer AL (102-110 to 83), PL (80-84 to 63), fV (26 to 12) and fD (~76 to ~46); from *E. sabrinae* it differs in longer L, ISD, AL, PL and Ti III.

#### Etymology

The species is named after the collector.

#### *Erythraeus sabrinae* n. sp. (figs. 37-44)

##### Examined material

Holotype larva, Tehran, Iran, 22 VI 94, from undetermined Aphididae, leg. A. Saboori, deposited in MNHWU.

##### Description

Idiosoma oval; dorsal surface with 62 barbed setae (fig. 37). Scutum wider than long with two pairs of scutalae and AL longer than PL; both whole barbed. Sensillae ASE very short, smooth, PSE over twice the length with distal setulae. Cuticular folds present in median line. The posterior margin of scutum in median part concave (fig. 39). Eyes: anterior eye 24 across, posterior 20 across.

Ventral side of idiosoma behind coxae III with 28 barbed setae; between coxae I and III are two pairs of barbed sternalae; St I longer than St III. Coxae I-III each with weakly barbed seta; coxala I about twice the length of the remaining coxae (fig. 38). NDV = 62 + 28 = 90.

Gnathosoma with smooth hypostomale and galealae. Palp in femur and genu with barbed setae, palpgenua longer than palpfemorala. Tibia with three barbed setae (fig. 40).

##### Leg setal formula

Leg I: Ta-1 So, 1 Fa, 4 N?, 22 B; Ti-2 So, 1 Vs, 14 B; Ge-1 So, 1 Vs, 8 B; Tf-5 B; Bf-3 B; Tr-1 B (Fig. 42). Ti I without companala. Leg II: Ta-1 So, 1 Fa, 1 N, 23 B; Ti-1 So, 1 Vs, 14 B; Ge-1 Vs, 8 B; Tf-5 B; Bf-3 B; Tr-1 B (fig. 43). Leg III: Ta-23 B?; Ti-1 So, 15 B; Ge-8 B; Tf-5 B; Bf-3 B; Tr-1 B (fig. 44).

$$lp = 780 + 736 + 934 = 2450.$$

Measurements are given in table 2.

##### Discussion

*E. sabrinae* n. sp. is similar to *E. adrastus* (South.), *E. kresnensis* Beron and *E. akbariani* n. sp. It differs from *E. adrastus* by shorter SBa, ISD, longer DS (50-66 to 30-54), number of dorsal setae fD (?62 to 34) and fV (?28 to 12), longer Ta I (142 to 95), Ti I (212 to 131) and others; from *E. kresnensis* by shorter ISD (48 to 75), more numerous fV (28 to 12), fD (?62 to ?50) and shape of scutum; differences between *E. sabrinae* and *E. akbariani* are given in remarks for *E. akbariani*.

##### Etymology

The name of the species has been derived from the name Sabrina.

#### Subgenus *Zaracarus* Southcott, 1995

#### *Erythraeus (Z.) tehranicus* n. sp. (figs. 42-52)

##### Examined material

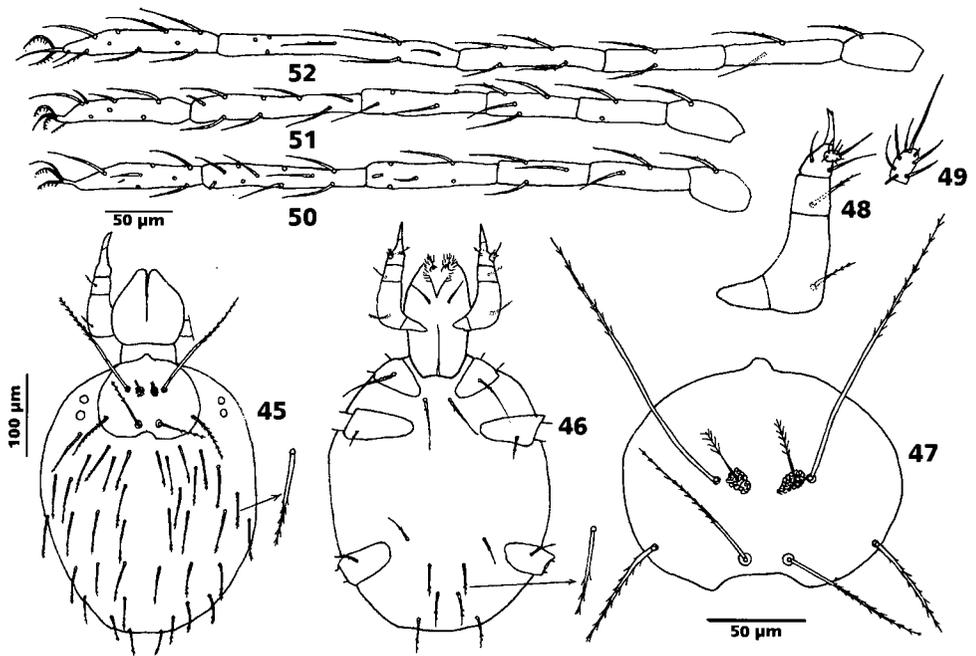
Holotype larva, Tehran, Iran, 1 VI 94, leg. A. Saboori, from plants, deposited in MNHWU.

##### Description

Idiosoma oval; dorsal surface with 38 weakly barbed setae. Setae on posterior part of idiosoma distinctly shorter than others (fig. 45). Scutum wider than long with two very long scutalae AL which are distally barbed; scutalae PL less than half the length, whole barbed. Sensillae ASE very short with long setulae, PSE over twice the length, weakly barbed. Characteristic cuticular structure at bases of ASE (fig. 47). Posterior margin of scutum concave. Both sides of scutum with one pair of eyes; anterior eye 16 across, posterior 14 across.

Ventral side of idiosoma behind coxae III with six slightly barbed setae; between coxae I and III are two pairs of slightly barbed setae; setae at coxae III distinctly shorter. Coxae I-III each with one seta; coxala more than twice as long as coxala II; coxala III longer than coxala II (all coxalae slightly barbed) (fig. 46). NDV = 38 + 6 = 44.

Gnathosoma with nude hypostomale and galealae. Palp on femur and genu with barbed seta each (fig. 48). Tibia with three setae (probably nude - poorly visible). Tarsus with eight setae, including one long seta (fig. 49).



Figs. 45-52. *Erythraeus (Z.) tehranicus* n. sp., larva: 45. Idiosoma and gnathosoma, dorsal view; 46. Idiosoma and gnathosoma, ventral view; 47. Scutum; 48. Palp; 49. Palptarsus; 50. Leg I, tarsus-trochanter; 51. Leg II, tarsus-trochanter; 52. Leg III, tarsus-trochanter.

*Erythraeus (Z.) tehranicus* sp. n., larva: 45. Idiosoma y gnathosoma, vista dorsal; 46. Idiosoma y gnathosoma, vista ventral; 47. Scutum; 48. Palpo; 49. Palpotarso; 50. Pata I, tarso-trocànter; 51. Pata II, tarso-trocànter; 52. Pata III, tarso-trocànter.

#### Leg setal formula

Leg I: Ta-1 So, 1 Fa, 12 N, 9 B; Ti-2 So, 1 Vs, 14 N; Ge-1 So, 1 Vs, 8 N; Tf-5 N; Bf-1 N, 1 B; Tr-1 B (barbed setae with very short barbs). Ti I without companala (fig. 50). Leg II: Ta-2 So, 1 Cp?, 5 N, 15 B; Ti-1 So, 1 Vs, 12 N, 2 B; Ge-6 N, 2 B; Tf-5 B; Bf-2 B; Tr-1 B (fig. 51). Leg III: Ta-6 N, 14 B; Ti-1 So, 1 N?, 14 B; Ge-2 N, 4 B; Tf-4 B; Bf-1 B, 1 N; Tr-1 B (barbs on barbed setae very poorly visible) (fig. 52).

Measurements are given in table 2.

#### Discussion

A new species *Erythraeus lancifer* South. ectoparasitic on Diptera (Dolichopodidae) (SOUTHCOTT, 1995) was recently described from

Spain. For this species Southcott described a new subgenus *Zaracarus*. He erroneously stated that the subgenus is monotypic because *E. eleonora* Haitlinger known from Poland has features typical for the subgenus *Zaracarus* (except basifemoral setal formula 2-2-2) (HAITLINGER, 1987e). The above described *E. (Z.) tehranicus* also belongs to the subgenus *Zaracarus* although it has another basifemoral formula.

*E. (Z.) tehranicus* n. sp. is similar to *E. (Z.) eleonora* Haitlinger and *E. (Z.) lancifer* South. It differs from *E. (Z.) eleonora* by shorter AL (140 to 202-242), PL (54 to 92-102), ISD (42 to 64-80), Ta I (100 to 122-154), Ti I (124 to 166-198) and other details; from *E. (Z.) lancifer* it differs by nar-

rower basis of AL, barbed PL, fewer of ventral setae placed beyond coxae III, shorter Ta I (100 to 144-164), Ti I (124 to 205-269), ISD (42 to 60-75) and other details.

## Resumen

*Estimación de la densidad, tamaño del grupo familiar y reclutamiento en una población de tejón cerca de Rogów en Polonia Central*

A lo largo de un período de 16 años la densidad de tejones de Polonia Central, aumentó de 1,6 individuos/m<sup>2</sup> en un área de bosque en 1979 a 2,6 individuos/m<sup>2</sup> en 1995. Este incremento estaba relacionado con la formación de nuevas familias. La media de jóvenes para cada hembra reproductora fue de tres, y el reclutamiento anual de jóvenes fue de 0,68 por cada adulto. La media del grupo familiar fue aproximadamente de 3,5 individuos (jóvenes y adultos) o de 2,1 individuos (sólo jóvenes).

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