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ERYTHRAEUS MIRJAVEHI N. SP. (ACARI, ACTINEDIDA, ERYTHRAEIDAE) FROM IRAN WITH REMARKS ON THE GENUS PARERYTHRAEUS

BY G. GABRYŚ *

TAXONOMY
SYNONYMY
ERYTHRAEIDAE
IRAN

SUMMARY: Erythraeus mirjavehi n. sp. (adult, female) collected in the gravel desert near Mirjaveh (Iran) at the Iran-Pakistan border is described. The genus Parerythraeus Southcott, 1946 is synonymized with the genus Erythraeus Latreille, 1806. All the species described within Parerythraeus hitherto, are specified as new combinations.

The genus Erythraeus was erected by Latreille in 1806 together with the type species Acarus phalangoides de Geer, 1778 (by original designation). Southcott (1946) created the monotypic genus Parerythraeus basing on the type species Parerythraeus gregoryi Southcott, 1946. In further work (Southcott, 1961) he included also Parerythraeus tragardi (= Erythraeus Dugesi Tragärð, 1904a non Erythraeus Dugesi (Lucas, 1846)) in this genus.

The definitions of Erythraeus and Parerythraeus given by Southcott (1961) are similar and differ fundamentally in one point referring to the construction of leg setae: Erythraeus: "... Legs without modified serrate setae (serratalae)"; Parerythraeus: "... legs with a clothing of asymmetrically serrate setae distally as far as the middle of genua, and a few on tibiae (metatarsi) proximally". Southcott, in the above work, adduced the descriptions made by Tragárdh (1904b pp. 59-61) and Schweizer (1951 p. 124) regarding them as the best of the type species of Erythraeus — E. phalangoides. Unfortunately, none of them contained figures of leg setae of the described species. Only in the later published work (Schweizer and Bader, 1963) in the page 273 we can find a figure of E. phalangoides and a magnified leg seta constructed as a typical serrata! (on tibia). Also my studies point out that all the specimens of E. phalangoides collected in Poland have "highly modified serrate setae" which may occur on every leg. There are also several intermediate forms between a straight seta and a highly modified seta in one specimen.

The opisthosomal and leg setae in several species

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of Erythraeus and also in species described within Parerythraeus show a great variability in structure. There are some relatively straight, long, and smooth as in E. glabrisetosus Willmann, 1953, and, through intermediate forms, the short and densely pilose as on opisthosoma of E. plumosus Khot, 1963 (the leg ones unchanged!) or highly modified (serratalae) as on legs in E. phalangoides (de Geer, 1778) or E. dubiosus Schweizer, 1951 (Schweizer and Bader, 1963). Proportions of the body also vary so there is no significant character differentiating these two genera, and, moreover, the definition of Parerythraeus comprises all characters of E. phalangoides — the type species of Erythraeus.

According to these the genus Parerythraeus Southcott, 1946 appears a synonym of Erythraeus Latreille, 1806.

There have been described six species within Parerythraeus hitherto, i.e.: Erythraeus gregoryi (Southcott, 1946) comb. nov., Erythraeus tragardhi (Southcott, 1961) comb. nov., Erythraeus delhiensis (Khot, 1963) comb. nov., Erythraeus serratociliatus (Khot, 1963) comb. nov., Erythraeus indicus (Khot, 1963) comb. nov., Erythraeus elegans (Khot, 1963) comb. nov. The last four were described by Khot (1963) under the name of Paraerythraeus (lapsus calami).

The diagnosis presented below is based in a great part on the definition of Southcott (1961).
FIGS 1-4: *Erythraeus mirjavehi* n. sp.

1. — Dorsal view. 2. — Genital region: (a) genital opening, (b) uropore. 3. — Crista metopica. 4. — Eye pair.
Figs 5-8: *Erythroes mirjavehi* n. sp.

5. — Right palp (tarsus, tibia and genu), medial (= internal) view.
6. — Right tarsus (and part of tibia) I, posterior view.
7. — Left tarsus (and part of tibia) IV, posterior view.
8. — Sensala ("small thumblike sensillary seta") similar to bothrila or vestigiala.
1983). Outer valvae narrow, the inner broad, both densely pilose (fig. 2a).

Uropore 122 long, 46 wide (fig. 2b).

Legs relatively long, densely covered with setae of different length 60-330 (figs. 11-16). Serrate setae are very characteristic. They are developed to the different degree on different legs; legs III and IV have the most developed serratalae and the legs I the poorly developed ones ("semiserratalae") (figs. 6, 7, 12a, b, 13). The very long (up to 330), feebly pilose and stout mastalae are also characteristic and best formed on tibia and genu IV (figs. 1, 7, 16). They form a kind of spur. Spinalae (fig. 11) and variously transformed scobopedalae (figs. 14, 15) are also present, Epimera (coxae) of all legs very well developed, elongate, almost adjoining at the region of the posterior sensillary area of crista metopica. Trochanters short, acetabular with well shaped, long and stout trochanteralae. Tibia II, III and particularly IV considerably longer than other articles (fig. 1). Tarsi terminated by two claws and covered with various setae. Ventral side with numerous, short and dense setae which form a "brush". There are also some scobalae, spinalae and tantalae (figs. 6, 7). We can also observe some characteristic little setae (20) (sensalae) similar to vestigialae or bothrialae, defined by KHOT (1963) as "small thumb-like sensillary setae". Their number and distribution is as follows: tarsus I 7, tarsus II 2, tarsus III 1, tarsus IV 1, tibia I 1, tibia II 1. They are all situated posteriorly (figs. 6, 7).


Male, nymph, and larva not known.

Etymology: the name of the species has been derived from the name of place of collection.

Collection data
One specimen of Erythraeus mirjavehi n. sp. has been collected during the Biological Expedition to Iran and Pakistan organized by the Department of Biology and Environment Protection of the Silesian University in Katowice. The specimen was caught the night from 3 to 4 of August 1984 with a use of the "white sheet", in the gravel desert near Mirjaveh (Iran), several dozen kilometers south of Zahedan.

Holotype: adult female collected on Aug. 3 1984; the specimen mounted in polyvinyl-lactophenol is deposited in the author's collection (AS/IRAN/1).

Remarks on taxonomy
As for now, there is no uniform method of the description of both nymphs and adults of Erythraeidae. Usually, we consider a set of descriptive, metric, and meristic characters. However, in spite of some difficulties (the variability of metric and meristic characters), relating to the mass data and a precise description, the differences between several species appear very clear. Erythraeus mirjavehi n. sp. differs from previously described species in a number of characters presented below.

E. mirjavehi n. sp. is distinctly separated from other Holarctic species and from some Oriental ones by the structure of dorsal (opisthosomal) setae. At the same time this character nears it to five Oriental species: E. plumosus Khot, E. orientalis Khot, E. delhiensis (Khot), E. serratociliatus (Khot), and E. indicus (Khot); to one Ethiopian: E. nigritiensis André; to one Palearctic-Ethiopian: E. tragardhi (Southcott); and, at last, to one Australian: E. gregoryi (Southcott).

E. plumosus Khot, 1963 and E. orientalis Khot, 1963 have similar opisthosomal setae but differ fundamentally in lack of specialized setae (serratalae) on legs, and body dimensions.

From the description of E. nigritiensis André, 1962 it appears that this species also does not possess serratalae on the legs, although the author says that some leg setae may be "barbulées ou denticulées". But none of the figures allows one to state that this character is as strongly developed as serratalae in E. mirjavehi n. sp. It was also pointed by KHOT (1963) while comparing E. nigritiensis to E. plumosus which lacks "modified serratae setae".
Figs 9-16: Erytheus mirjavehi n. sp.

E. nigritiensis is characterized also by different proportions in legs: leg I: body length = 4:1, tibia IV: tibia I = 1,4:1, tibia I: tarsus I = 3,2:1, tibia IV: tarsus IV = 5,5:1 (in E. mirjavehi: 2,5:1; 2,2:1; 1,6:1; 4,3:1 respectively). Other characters (length of crista metopica, number of nonsensillary setae as well as conalae, etc.) allow one to think about a certain relation between these two species.

E. serratociliatus (Khot, 1963) differs evidently in size of the body. It is twice smaller (1.053 in length) and has considerably shorter legs. It has 3 nonsensillae and on palp tibia 3 conalae while on palpgenu there is none. Crista metopica is extremely long (871) and in comparison with other parts of the body it appears as follows: length of the body: length of crista metopica = 1,2:1, leg I: crista metopica = 2,25:1, leg IV: crista metopica = 3,1:1 (in E. mirjavehi: 2,7:1; 6,75:1; 8,85:1 respectively).

The proportions of well sclerotized structures as crista metopica and legs seem to characterize the mite properly whereas the ratios of length (or width) of the body to other structures may appear unreliable in consideration of the different degree of filling with the feed (see SOUTHCOTT, 1961, pp. 397-399).

The last considerable character differing E. mirjavehi from E. serratociliatus appears in the construction of serratalae. In the last species they are blunt with rounded cup-like setations.

E. delhiensis (Khot, 1963) is greater (3.250 in length); its body is square in outline and has relatively shorter legs (their absolute lengths are close to E. mirjavehi). The fundamental differences appear in the number of nonsensillae (12), conalae on palpgenu (6-7), and the construction of serratalae which have more rounded and blunt serration.

E. indicus (Khot, 1963) resembles E. mirjavehi sensibly in shape and proportions of the body, but is far smaller (1.420 in length). On palp tibia there are only 3 conalae and the shape of dorsal setae is a little different — they are less asymmetric. The significant difference refers to the size of crista metopica which is very short (364) in E. indicus, and its relations to the other parts of the body stand as follows: length of the body: length of crista metopica = 3,9:1, leg I: crista metopica = 10:1, leg IV: crista metopica = 12,8:1 (in E. mirjavehi: 2,7:1; 6,75:1; 8,85:1 respectively). Other characters, as number of nonsensillae or structure of serratalae close this species to E. mirjavehi.

E. gregoryi (Southcott, 1946) is a little greater and has longer legs. The essential distinction is observed in the number of nonsensillae (10), and proportions of some parts of the body: leg I: crista metopica = 8,9:1, leg IV: crista metopica = 12,7:1, tibia I: tarsus I = 2,5:1 (in E. mirjavehi: 6,75:1; 8,85:1; 1,6:1 respectively). Also serratalae are formed in a different way; their denticles at the base are considerably broader and resemble rather an equilateral triangle in outline; they are not mucronate contrary to E. mirjavehi.

E. tragardhi (Southcott, 1961) is similar to E. mirjavehi in length of the body but has apparently shorter legs (legs II and III are shorter than the body I). The ratio of several legs to the length of the body is as follows: I 1,4:1; II 0,8:1; III 0,9:1; IV 1,7:1 (in E. mirjavehi: 2,3:1; 1,3:1; 1,6:1; 3,0:1 respectively). In both cases the length of coxae has not been considered. Crista metopica has 10 nonsensillae. Unfortunately, the length of crista metopica has been omitted in the original description (TR ÄGÅRDH, 1904a). However, there is an important information, that it has a process ("Fortsatz") projected forward and running from the anterior sensillary area. Such a process is not present in E. mirjavehi. Palptarsus is cylindrical, not clavate as in E. mirjavehi. Serratalae are also differently constructed: they do not possess a conspicuous broadening in the middle of seta, they are rather obtuse, the incisions in the denticles are shallow, the denticles are short.

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