

THREE NEW SPECIES OF WATER MITES
IN THE SUBGENUS *ARRENURUS* FROM TURKEY
(ACARI : HYDRACHNELLAE : ARRENURIDAE)

BY Orhan ERMAN *

TAXONOMY
HYDRACHNELLAE
ARRENURUS
TURKEY
TAXONOMIE
HYDRACHNELLAE
ARRENURUS
TURQUIE

ABSTRACT : In this paper, three new species *Arrenurus* (*Arrenurus*) *demirsoyi*, *Arrenurus* (*Arrenurus*) *kurui* and *Arrenurus* (*Arrenurus*) *ayyildizi* in the subgenus *Arrenurus* are described from Turkey.

RÉSUMÉ : Dans cet article, sont décrites trois espèces trouvées en Turquie, *Arrenurus* (*A.*) *demirsoyi*, *Arrenurus* (*A.*) *kurui* et *Arrenurus* (*A.*) *ayyildizi* toutes trois placées dans le sous genre *Arrenurus*.

INTRODUCTION

Members of the genus *Arrenurus*, totally over 1100 described species (VIETS, 1987), are distributed throughout the world (COOK, 1974). The water mites of Turkey that has a very rich fauna has not been studied enough. Totally, ten species of the subgenus *Arrenurus* were previously determined from Turkey (ÖZKAN, 1981; ERMAN and ÖZKAN, 1991; ERMAN, 1992). This study adds three species to the Turkish and world fauna.

If a number of specimens are available for that species, the range of size variation of the paratype series is given in parantheses following the measurements (in micrometers) of the holotype and allotype individuals. The type materials are deposited at the Zoology Museum of Science and Arts Faculty, Atatürk University, Erzurum.

Arrenurus (*Arrenurus*) *demirsoyi* new species

MALE : Body, including petiole, 924 in length, 588 in width; caudal lobes very short, directed more or less posteriorly; width between outer margins of caudal lobes 430; dorsal shield 380 in width; dorsal furrow incomplete, ending dorsally at the base of caudal lobes (fig. 1 A); dorsal shield bearing two pairs of glandularia; the second pair located on a pair of rather blunt dorsal humps; lateral humps on dorsal portion of ventral shield absent; anterior end of body straight between the eyes; petiole 276 in length, 132 in width; petiole opens dorsally, consists of two pieces, basal piece long and more or less straight, central piece decidedly upturned at the tip when viewed laterally, structure of petiole is better illustrated (fig. 1A, 1C) than described; hyaline appendage short, more or

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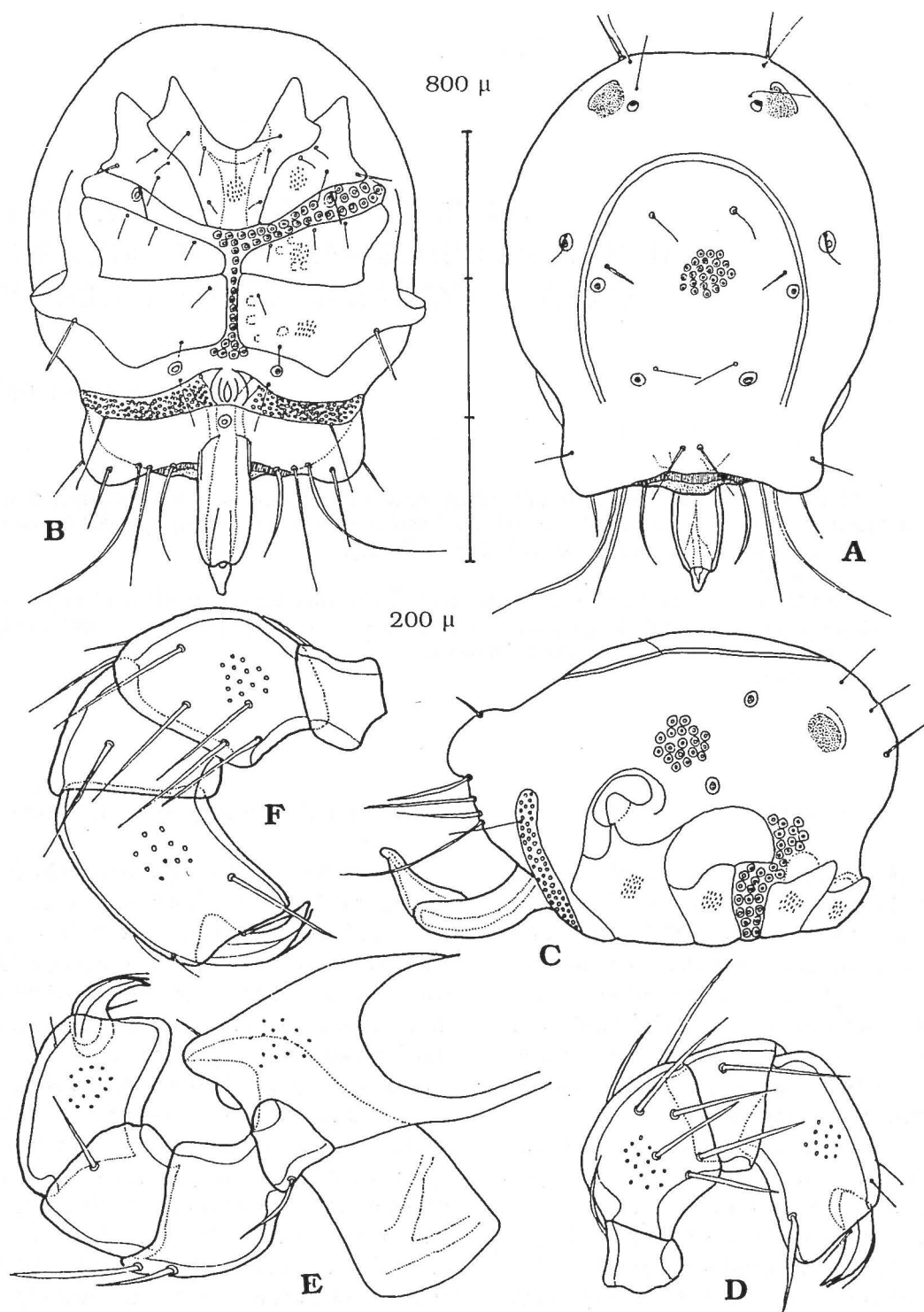


FIG. 1 : *Arrenurus* (s.str.) *demirsoyi* n.sp. and *A.* (s. str.) *kurui* n. sp.

A. Dorsal view, ♂. B. — Ventral view, ♂. C. — Lateral view, ♂. D. — Palp, ♂. E. — Gnathosoma, ♂. *Arrenurus* (s. str.) *kurui* n. sp.,
F. — Palp, ♂.

less straight posteriorly; acetabular plates extending up sides of body well beyond the associated glandularia; area between posterior coxal group fairly narrowed; coxal plates IV with well developed condyles at insertions of legs IV; the ventral view of the body is illustrated in fig. 1B.

Figure 1D, 1E illustrates the proportions and chaetotaxy of the palp; dorsal lengths of palpal segments : 28-70-47-73-39 = 257, ventral lengths of palpal segments : 16-33-20-56-37 = 162; chelicera 148 in length. Dorsal lengths of the leg segments :

I. leg : 54-60-96-114-120-148 = 592,
II. leg : 60-72-102-132-150-180 = 696,
III. leg : 84-88-120-168-172-192 = 824,
IV. leg : 132-144-168-204-96-156 = 900; distal end of IV-leg-4 with a very long projection and bearing five "swimming hairs"; sixth segments of first, second and third legs with many short "swimming hairs"; distribution of swimming hairs to the leg segments, II-leg-3:4, II-leg-4:3, II-leg-5:3, III-leg-3:4, III-leg-4:7, III-leg-5:6, IV-leg-3:5, IV-leg-4:6, IV-leg-5:9.

FEMALE : Unknown.

HOLOTYPE : Adult ♂, collected in a small stream, Kalecik village, Karakoçan, Elazığ, Turkey, on 19.10.1990 (O. ERMAN).

DISCUSSION : The new species, although not closely related, seems to have affinities with *Arrenurus* (s. str.) *galwayensis* Conroy, 1985 known from America in general shape of the body. *Arrenurus* (s.str.) *demirsoyi* differs from it in having incomplete dorsal furrow, without projecting posterior end of the petiole, fairly narrowed area between posterior coxal group, the posterior pair of glandularia located close to the bases of pygal lobes and hyaline appendage present.

Arrenurus (*Arrenurus*) *kurui* new species

MALE : Body, including petiole, 902 (864-936) in length; 684 (648-720) in width; pygal lobes very short, directed more or less posteriorly; width

between outer margins of pygal lobes 480 (480-516); dorsal shield 420 (384-432) in width; dorsal furrow passing onto sides of body at the near base of cauda; dorsal shield bearing two pairs of glandularia; the second pair of these glandularia lying on humps; humps of dorsal shield blunt; humps on cauda bluntly pointed and directed upwards when viewed laterally (fig. 2C); area between dorsal humps slightly depressed; anterior end of body projecting and slightly concave between the eyes; lateral humps on dorsal portion of ventral shield absent; petiole 96 (88-96) in length; 69 in width; petiole widest posteriorly, basal piece of petiole opens dorsally and with well developed ventrolaterally hyaline extensions; central piece of petiole greatly widened posteriorly and rounded at the posterior end; petiole proportionally very stocky when viewed laterally; structure of petiole better illustrated (fig. 2A, 2C) than described; hyaline appendage very short and slightly concave posteriorly; acetabular plates extending up sides of body well beyond the associated glandularia; area of body between posterior coxal group widened; coxal plates IV with well developed condyles at insertions of legs IV; ventral shield with two blunt tubercles posteriorly; the ventral view of the body is illustrated in figure 2B.

Figure 1F, 2D illustrate the proportions and chaetotaxy of the palp; dorsal lengths of palpal segment : 29(31-33)-73(75-81)-53(56-64)-81(79-89)-47(45-53) = 283 (286-320); ventral lengths of palpal segments : 17(16-20)-31(33-36)-21(22-23)-61(59-70)-39(39-50) = 169(169-199); chelicera 162 (158-168) in length. Dorsal lengths of leg segments :
I. leg : 60(56-62)-74(66-80)-108(96-114)-132(126-144)-132(126-144)-204(192-228) = 710(662-772);
II. leg : 72(60-72)-84(84-96)-120(114-132)-156(150-168)-160(156-180)-216(204-234) = 808 (768-882);
III. leg : 88 (72-90)-108(96-108)-132(120-132)-168(162-180)-174(162-180)-182(180-198) = 852(792-888);
IV. leg : 120(120-124)-156(150-168)-168(162-180)-204(216-228)-144(132-156)-196(180-216) = 988(960-1072); distal end of IV-leg-4 with a long projection and this projection bears five "swimming hairs"; sixth segments of first and second legs with a series of short "swimming hairs"; distribution of swimming hairs to the leg segments : II-leg-3:3, II-leg-

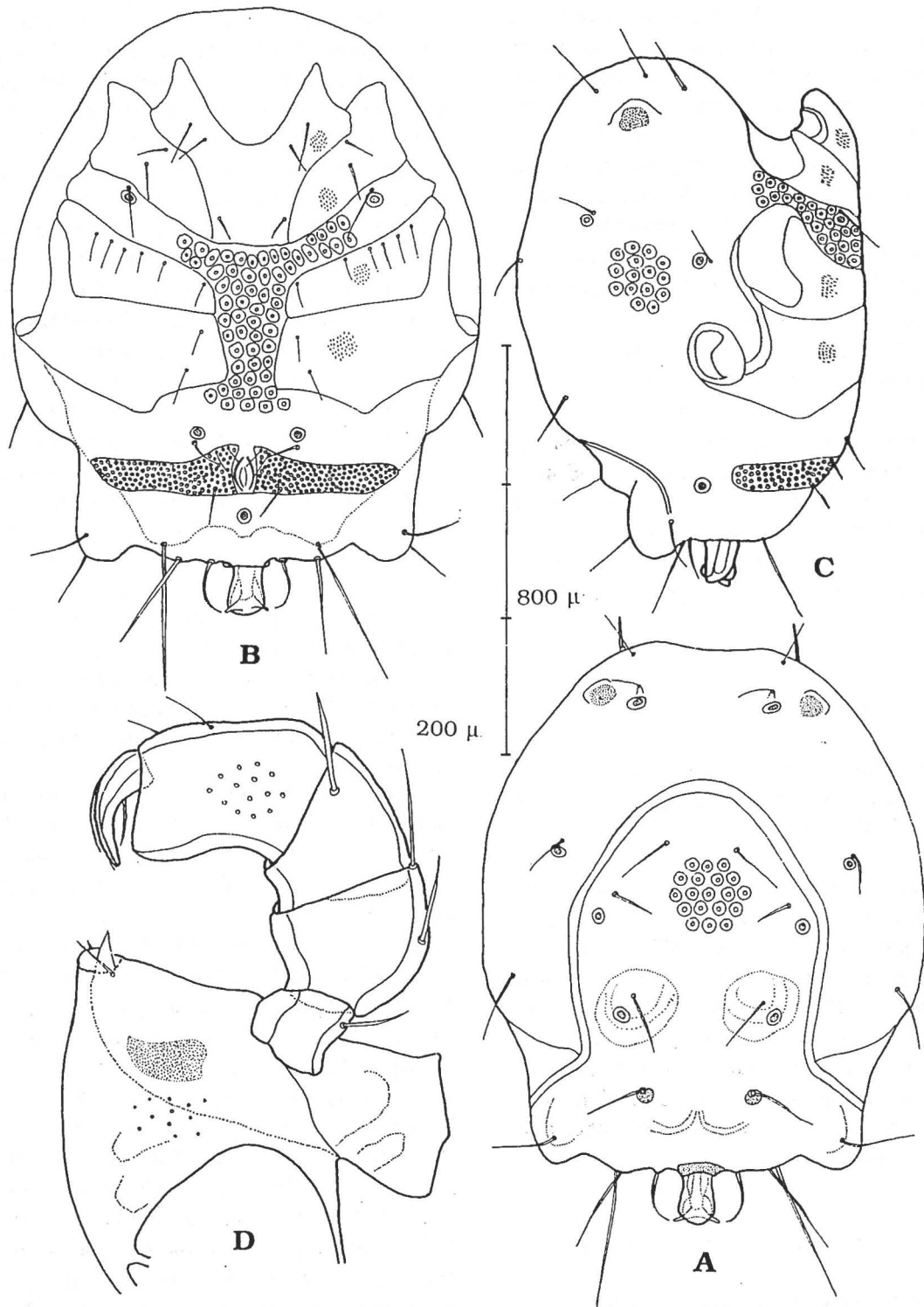


FIG. 2 : *Arrenurus* (s.str.) *kurui* n.sp.

A. — Dorsal view, ♂. B. — Ventral view, ♂. C. — Lateral view, ♂. D. — Gnathosoma, ♂.

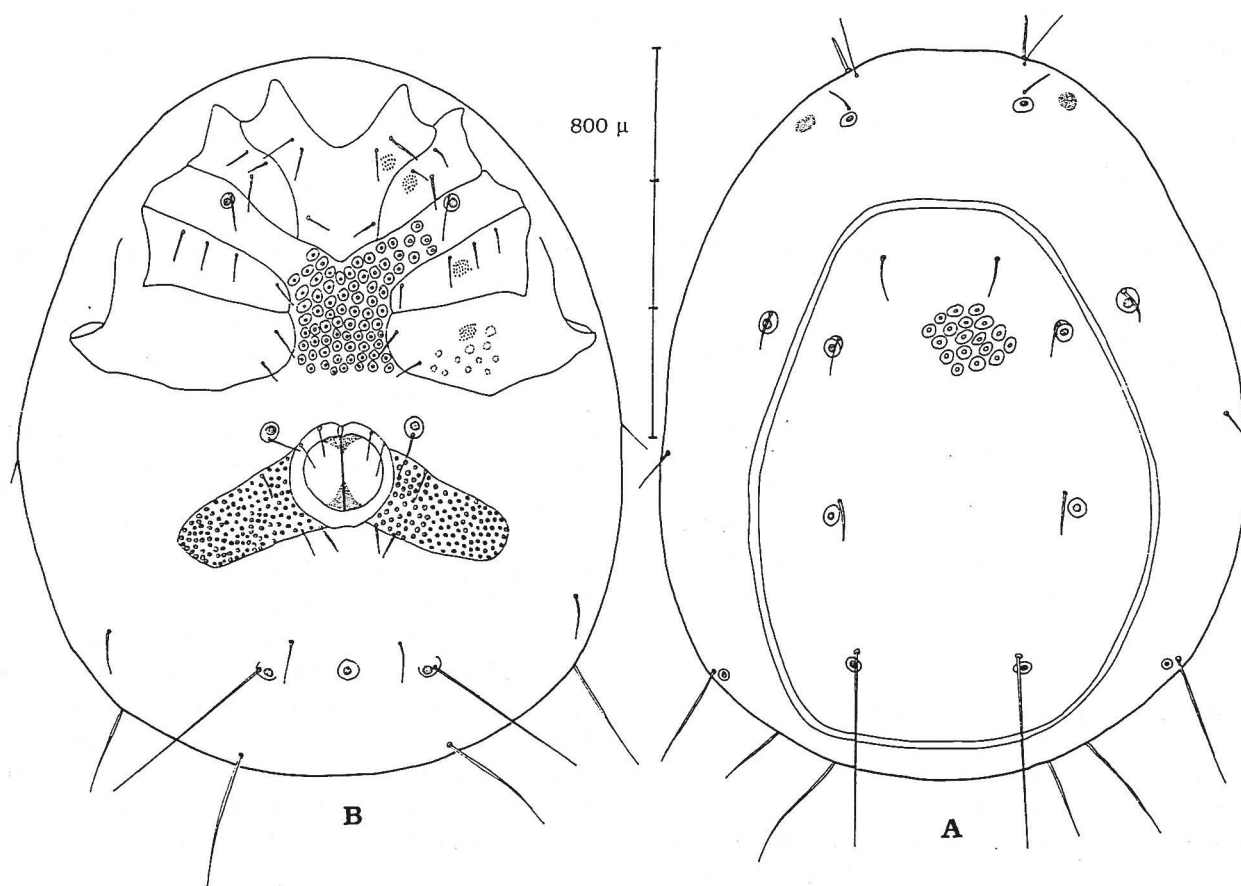


FIG. 3 : *Arrenurus* (s.str.) *kurui* n.sp.
A. — Dorsal view, ♀. B. — Ventral view, ♀.

4:3, II-leg-5:4, III-leg-3:4, III-leg-4:9, III-leg-5:6, IV-leg-3:4, IV-leg-4:8, IV-leg-5:9.

FEMALE : Body 1428 in length; 1200 in the greatest width; dorsal shield 1080 in length, 816 in width; body oval and without humps; dorsal furrow complete; anterior end of the body somewhat projecting and slightly concave between the eyes; dorsal shield bearing three pairs of glandularia; setae associated with the most posterior pair of glandularia fairly long; acetabular plate region 790 in width; gonopore 156 in width and flanked by wing-shaped acetabular plates that extend posterolaterally; area of body between posterior coxal

group wider than gonopore; the dorsal and ventral view of the body are illustrated in figures 3A, 3B.

Structure of the palp similar to that illustrated for the male; dorsal lengths of palpal segments : 39-84-65-95-51 = 334; ventral lengths of palpal segments : 25-42-28-73-37 = 205 chelicera 216 in length. Dorsal lengths of leg segments :

I-leg : 72-84-130-164-160-190 = 800;

II-leg : 72-108-144-192-192-204 = 912;

III-leg : 84-120-144-204-192-204 = 948;

IV-leg : 138-192-200-264-220-224 = 1238; sixth segments of the first and second legs with a little, short "swimming hairs"; distribution of swimming hairs to the leg segments : II-leg-3:5, II-leg-

4:5, II-leg-5:5, III-leg-3:6, III-leg-4:8, III-leg-5:8, IV-leg-3:8, IV-leg-4:11, IV-leg-5:9.

HOLOTYPE : Adulte ♂, collected from a march, Yeniköy, Kovancılar, Elazığ, Turkey, on 25.8.1989 (O. ERMAN).

Allotype : Adult ♀, same data as holotype.

PARATYPES : 13 ♂, 4 ♀♀, same data as holotype ; 2 ♀♀, 21.9.1989, same place as holotype.

DISCUSSION : The present species seems related to *Arrenurus* (s.str.) *processiger* Viets, 1930 and *Arrenurus* (s.str.) *zapus* Cook, 1976, but differs from them by following characteristics : the new species has very short pygal lobes, stocky petiole, wider area of body between posterior coxal group, blunt humps on dorsal shield, very small hyaline appendage, slightly concave anterior end of body.

Since females of *Arrenurus* (s.str.) *processiger* and *Arrenurus* (s.str.) *zapus* are unknown, it hasn't been made comparison with the female of this new species.

Arrenurus (*Arrenurus*) *ayyildizi* new species

Male : Body, including petiole, 984 (986-1002) in length ; 612 (588-624) in width ; pygal lobes well developed and directed posterolaterally ; width between outer margins of pygal lobes 468 (456-480) ; dorsal shield 408 (392-408) in width ; dorsal furrow passing onto sides of body at the base of pygal lobes ; dorsal shield bearing two pairs of glandularia in the non-cauda portion ; the second pair of these glandularia lying on blunt humps ; humps on cauda bluntly pointed and directed upwards when viewed laterally (fig. 4C) ; area between dorsal humps slightly depressed ; lateral humps on dorsal portion of ventral shield relatively low ; anterior end of body projecting and decidedly concave between the eyes ; petiole 204 (204-216) in length ; 130 in width ; petiole widest in the middle and narrowed at the posterior end ; basal piece of petiole opens dorsally ; central piece of petiole widened posteriorly and rounded at the posterior half ; the proportions of petiole is better illustrated (fig. 4A, 4C) than described ; hyaline appendage very short, as wide as petiole and straight poste-

riorly ; acetabular plates extending up sides of body well beyond the associated glandularia ; area between posterior coxal group rather narrowed ; coxal plates IV with well developed condyles at insertions of legs IV ; the ventral view of body is illustrated in figure 4B.

Figures 4D, 4E illustrate the proportions and chaetotaxy of the palp ; dorsal lengths of palpal segments : 30(28-31)-75(63-73)-59(55-62)-81(76-81)-56(53-56) = 301(275-303) ; ventral lengths of palpal segments : 16(14-17)-36(31-32)-20(19-20)-56(50-56)-42(45-51) = 170(159-176) ; chelicera 160(154-160) in length. Dorsal lengths of leg segments : I. leg : 60(60-66)-72(60-72)-108(102-108)-136(132-134)-132(120-126)-180(168-186) = 688(642-692) ; II. leg : 60(64-66)-74(72-84)-120(114-120)-156(144-156)-152(144-150)-204(192-198) = 766 (730-774) ; III. leg : 96(84-96)-108(96-108)-132(120-132)-180(168-180)-168(156-168)-204(192-210) = 888(816-894) ; IV. leg : 144(132-144)-168(156-168)-196(192-216)-252(228-240)-108(108-114)-144(132-150) = 1012(948-1032) ; distal end of IV-leg-4 with very long projection and this projection bears five "swimming hairs" ; the sixth segments of first and second legs with many fine short "swimming hairs" ; distribution of swimming hairs to the leg segments : II-leg-3:3, II-leg-4:5, II-leg-5:4, III-leg-3:7, III-leg-4:8, III-leg-5:6, IV-leg-3:9, IV-leg-4:8, IV-leg-5:8.

FEMALE : Unknown

HOLOTYPE : Adult ♂, collected in a small stream, Kalecik village, Karakoçan, Elazığ, Turkey, on 19.10.1989 (O. ERMAN).

Paratype : 27 ♂, same data as holotype, 3 ♂ same place as holotype, on 16.11.1989.

DISCUSSION : This new species is closely related to *Arrenurus* (s.str.) *neumani* Piersig, 1895 (Szalay, 1964). *Arrenurus* (s.str.) *ayyildizi* differs from it in having narrowed posterior end of petiole and widened in the middle, straight and very short hyaline appendage, fairly narrowed area between posterior coxal group, length of setae located nearby the petiole shorter than petiole, blunt humps on dorsal shield, hyaline appendage wider

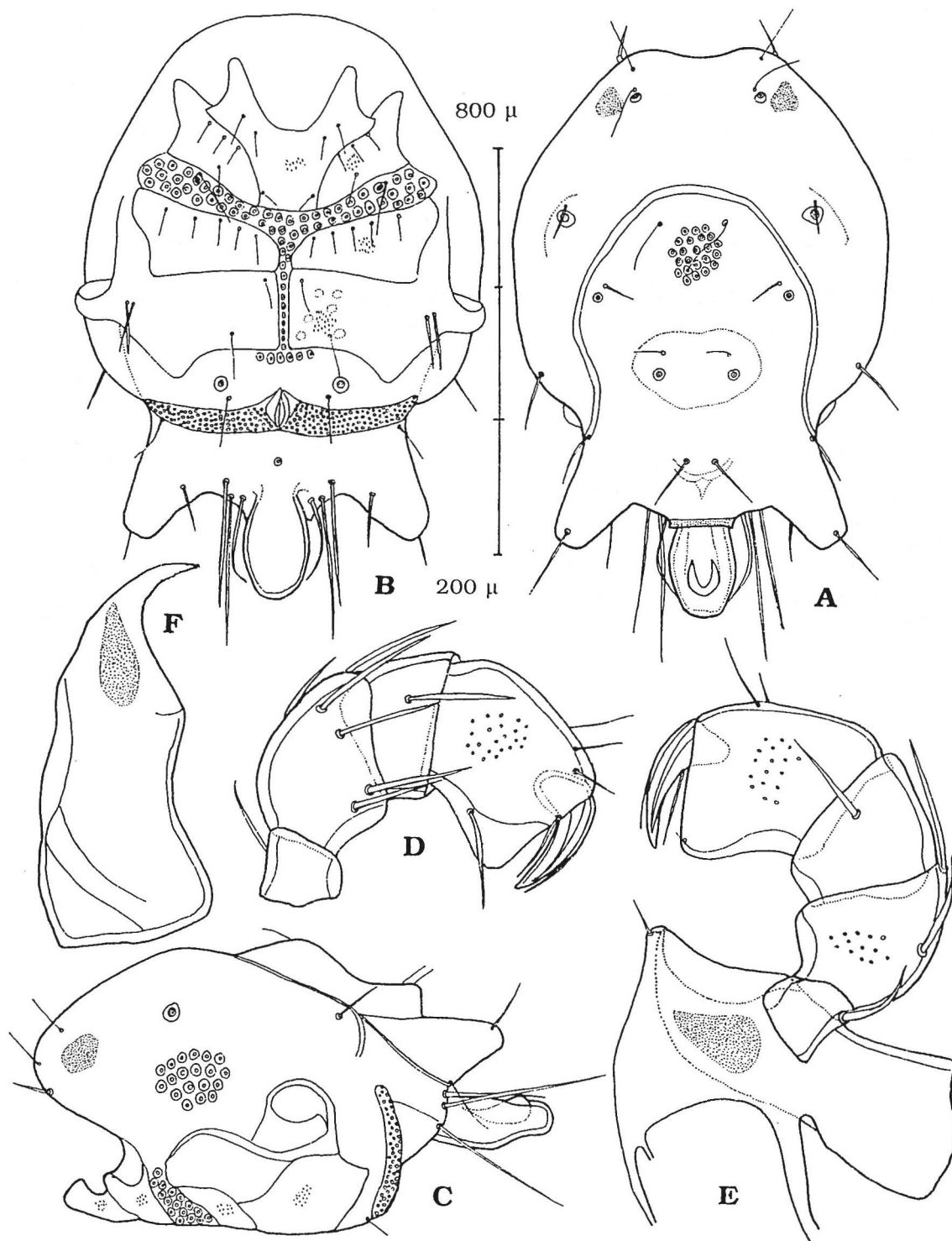


FIG. 4 : *Arrenurus* (s.str.) *ayyildizi* n.sp.

A. — Dorsal view, ♂. B. — Ventral view, ♂. C. — Lateral view, ♂. D. — Palp, ♂. E. — Gnathosoma, ♂. F. — Chelicera, ♂.

than pygal lobes. The pygal lobes are also rounded at point in the new species.

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