

**THE FIRST RECORD FOR WATERMITE *Arrenurus berolinensis* FROM TURKEY, (ACARI: HYDRACHNIDIA)****Ferruh Aşçı<sup>1\*</sup>, Ahmet Akın<sup>1</sup>, Yunus Ömer Boyacı<sup>2</sup>**<sup>1</sup> The University of Afyon Kocatepe, Department of zoology, Afyonkarahisar, Turkey<sup>2</sup> The University of Süleyman Demirel, Faculty of Aquaculture, Eğirdir, Isparta, Turkey

Received: 26.05.2013 / Accepted: 03.08.2013 / Published online: 05.03.2014

**Abstract:** In this study, a very rare water mite *Arrenurus berolinensis* is described for the first time from Turkey. The species was previously reported from Eastern Prussia (1907), Berlin (1896) and Overijssel (2007). The first description of the female was reported by Smit (2007). We have been reporting *Arrenurus berolinensis* from Turkey as the fourth report. Here, we have discussed the characteristics of this species by giving measured values of male specimens.**Keywords:** *Arrenurus berolinensis*, Water mite, New record, Turkey**Öz: Su Kenesi *Arrenurus Berolinensis* İçin Türkiye'den İlk Kayıt, (Acari: Hydrachnidia)**Bu çalışmada, çok nadir bir su kenesi olan *Arrenurus beroliensis*, Türkiye'den ilk defa tanımlanmıştır. Tür daha önce Doğu Prusya (1907), Berlin (1896) ve Overijssel (2007)'den rapor edilmiştir. İlk dişi tanımlaması Smit (2007) tarafından rapor edilmiştir. *Arrenurus beroliensis*'in Türkiye'den dördüncü kaydını rapor etmekteyiz. Burada erkek tür için, ölçülen ve gözlenen karakterlerinin tartışmaları yapılmıştır.**Anahtar Kelimeler:** *Arrenurus beroliensis*, Su kenesi, Yeni kayıt, Türkiye

---

\* Correspondence to: Ferruh AŞÇI, The University of Afyon Kocatepe, Department of Zoology, Afyonkarahisar-TURKEY  
E-mail: [f\\_asci@aku.edu.tr](mailto:f_asci@aku.edu.tr)

## Introduction

*Arrenurus berolinensis* Protz, 1896 is a very rare water mite, previously known from three localities only. Protz (1896) described the species first time from Fenn of the Grunewaldsee near Berlin. Therefore, the species' name is reminding of Berlin (= Berolinum). Second, Viets (1911) reported it from Perwilten in Eastern Prussia, nowadays in the Russian enclave Kaliningrad, where the species had been collected in September 1907. However, both records were only reported for male specimens, and no finding of a female specimen has been reported. As third record, four males and one female were collected from the northwest of the province of Overijssel, the Netherlands and the first description of the female was done by Smit (2007). In the present study, we have collected four male specimens of *A. berolinensis* from Karakuyu Lake in Dinar District of Afyonkarahisar Province of Turkey.

## Materials and Methods

In the present study, four male individuals were examined. The samples obtained from the lake of Karakuyu, province of Afyonkarahisar, Turkey, N 38° 03' E 30° 14'. All the samples were deposited in the Zoological Laboratory of the University of Afyon Kocatepe (Figure 1).

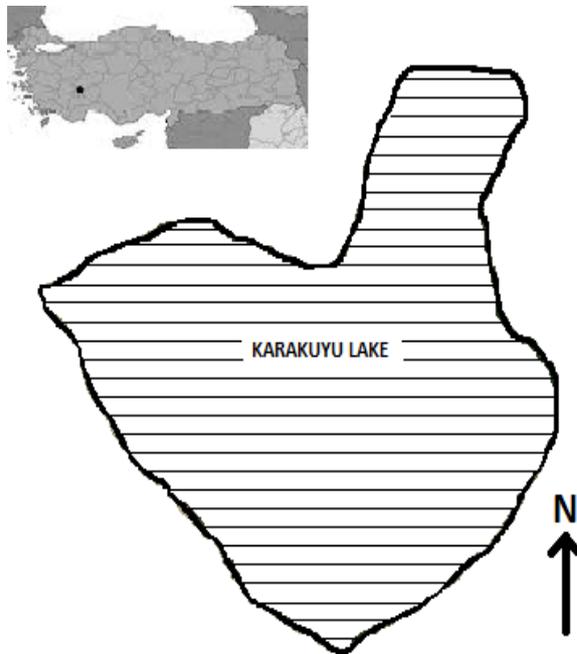


Figure 1. Karakuyu lake

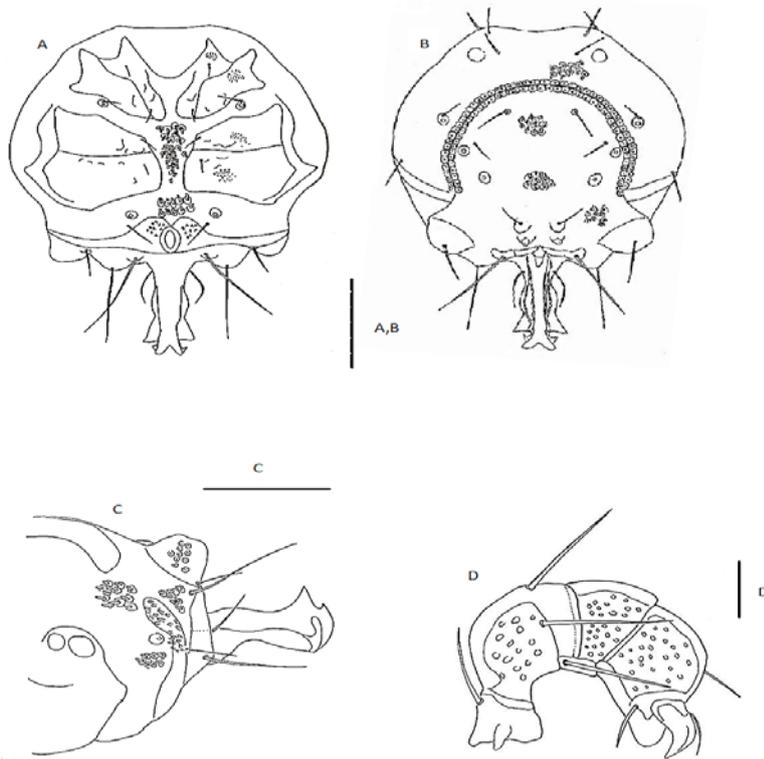
## Results and Discussion

### *Arrenurus berolinensis*

#### Description

**Male:** Idiosoma 981  $\mu\text{m}$  long (without petiole) and 899  $\mu\text{m}$  wide, including petiole 1321  $\mu\text{m}$  long (Figure 2). Body color greenish-brownish. Anterior idiosoma margin concave. Dorsal furrow completed extending onto lateral sides of idiosoma. Petiole very long, with two curves satea anteriorly. Petiole ending in some hooked extensions, like many swimming setae. The distance from the front edge of dorsal furrow 190  $\mu\text{m}$ . Capitulum 155  $\mu\text{m}$ , chelicerae 167  $\mu\text{m}$  and nail 72  $\mu\text{m}$  in length. The distribution parts of the setae in the form of palp; 1, 2 and 3. There are long setae on the palps. The upper parts of palp; 32-55-60-57-32 = 236  $\mu\text{m}$  in length, the lower parts; 22-32-22-52-27=155  $\mu\text{m}$  in length and the palp heights; 30-55-57-52-10  $\mu\text{m}$  in length. Coxae lengths; 270-250-310, 380  $\mu\text{m}$ . Genital plates narrowed towards the sides of the body width of the genital plates 650  $\mu\text{m}$ . Genital opening is 70  $\mu\text{m}$ . There are swimming hairs on the legs and there is a protrusion on the leg of fourth. The lengths of legs; LegI: 70-90-110-160-180-230 = 840  $\mu\text{m}$ , LegII: 80-90-100-180-210-250-140-160= 960  $\mu\text{m}$ , LegIII: 90-120-170-150-120-180= 830  $\mu\text{m}$  and legIV: 120-150-180-250-140-160 = 1000  $\mu\text{m}$ .

For the male specimens of *Arrenurus berolinensis*, the length and width of Idiosoma were reported as 960  $\mu\text{m}$  (without petiole) and 899  $\mu\text{m}$ , respectively (Smith 2007). In addition, Idiosoma plus petiole, that is the body length, was 1252  $\mu\text{m}$  as the length of petiole was 389  $\mu\text{m}$  (Smith 2007). These measures are almost similar what we have determined for *A. berolinensis* male specimens collected from the Karakuyu Lake. In addition, Smit (2007) reported that dorsal furrow is incomplete and not extending to the lateral sides in male specimens. On the other hand, the dorsal furrow is clearly complete, that is it extends to the lateral sites. Although genital plate completely surrounds the sexual plate in our male samples, genital plate of Smith's (2007) male specimens does not surround the sexual opening. The length of Petiole and its appearance is similar to a large extend by the Smit's specimen. In terms of other properties, there is not much differences between our samples and Smit's samples.



**Figure 2.** *Arrenurus berolinensis*, A. ventral view male, B. dorsal view male, C. lateral view male. D) Palp Scale bar: A,B) 250 µm C) 340 µm D) 50 µm

The length and width of Idiosoma for female specimen of *A. berolinensis* were reported as much as 1166 µm and 1085 µm, respectively. In addition, the front edges of Idiosoma were shown as a slight concave for both male and female specimens (Smit 2007). This is also the case for our specimens.

Males of this extraordinary species are relatively easy to identify with outstanding features of their Palps. On the other hand, this diagnose is very difficult for females (Smit 2007).

### Conclusions

Although there are very few records about this species, it is seen that *A. berolinensis* mostly lives in the muddy swamp areas. Almost all of the collected specimens were living in peat pits having neutral pH and low nutrient and mineral content. Uncommonness of such kind of areas could be explanation of why this species reported rarely. Morphology, body measurements and habitat characteristics of our specimens are largely similar to previous records.

### References

- Lundblad, O., (1962). Die Hydracarina Schwedens. ii., *Archiv für Zoologie*, **14**: 1-635.
- Protz, A., (1896). Beiträge zur Kenntnis der Wassermilben, *Zoologischer Anzeiger*, **19**: 407-411.
- Smit, H., (1999). *Arrenurus boruzkii*, a water mite new to the Dutch fauna, with some notes on its morphology (Acari: Hydrachnidia), *Nederlandse Faunistische Mededelingen*, **9**: 11-14.
- Smit, H., Didden, K., Wiggers, R., (2007). The first record of the watermite *Arrenurus berolinensis* from the Netherlands, with the first description of the female (Acari: Hydrachnidia), *Nederlandse Faunistische Mededelingen*, **26**: 39-42.
- Ssujetov, S., (1931). Zur Kenntnis der Gattung *Arrenurus* (Hydracarina), *Zoologischer Anzeiger*, **94**: 213-218.
- Viets, K., (1911). *Arrenurus berolinensis* Protz, *Schriften der Physikalisch-Ökonomischen Gesellschaft zu Königsberg*, **52**: 235-238.