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A new record of *Johnstoniana* George, 1909 (Acari: Johnstonianidae) from Turkey: *Johnstoniana parva* Wendt, Wohltmann, Eggers & Otto, 1994

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Abstract: *Johnstoniana parva* Wendt, Wohltmann, Eggers & Otto, 1994, a new record for Turkey, is redescribed from Harşit Valley in Giresun and Gümüşhane Province. Morphological illustration and morphometric datas are given. Measurements were made for some body parts of the specimens and accompanied with drawings.

Keywords: Acari, Harşit Valley, *Johnstoniana*, new record, Turkey.

Introduction

All members of the family Johnstonianidae (Acari) are confined to amphibious (limnic) biotopes and it consists of nine valid genera (Wohltmann et al., 2007). At present, thirteen species of the genus *Johnstoniana* George, 1909 have been described in the word (Mąkol and Wohltmann, 2012). This genus is previously represented by three species in Turkey: *Johnstoniana eximia, J. hakani* and *J. rapax* (Sevsay and Özkan, 2005; Adil et al., 2015; Doğan et al., 2015). *Johnstoniana parva* is the fourth species from Turkey and reported for the first time. Members of this genus live mostly in the moss and litter layer (Wohltmann et al., 2004). *Johnstoniana parva* is a Europen species and only known from Germany and Poland (Gabryś and Mąkol, 1994; Mąkol and Wohltmann, 2012). The aims of this study are to identify the adults and deutonymphs of *J. parva* and to make a contribution to Turkish mite fauna.

Materials and Methods

Post larval forms of *J. parva* were collected alive directly from the soil surface and extracted from soil samples in Berlese funnels. The material was preserved in 70% ethyl alcohol and then fixed on slides in Hoyer's medium (Walter and Krantz, 2009). For measurements and drawings a Leica DM 4000 microscope with phase contrast was used. Examined specimens were deposited in the Biology Department of Erzincan University, Turkey. For morphological terminology see by Wohltmann et al. (2004) followed in the text. All measurements are given in micrometres (μm).

Results

Family: Johnstonianidae Thor, 1935
Subfamily: Johnstonianinae Thor, 1935
Genus: *Johnstoniana* George, 1909
Type species: *Johnstoniana errans* (Johnston, 1852)

Johnstoniana parva Wendt, Wohltmann, Eggers & Otto, 1994

Adults. Colour in life light to dark red or brown. Body length 1612-1980, width 1015-1246. Standard measurements in Table 1.

Gnathosoma. Palp with numerous smooth setae. Palp tibia with odontus and bifid basidont. Palp tarsus with 1-2 solenidia, 6-8 eupathidia and lots of nonspecialized setae (Fig. 1).

Scutum forms a strongly sclerotized crista metopica along its median axis; with two pairs of smooth trichobothria. Scutum triangular with anterior naso, bears anterior (ASens) and posterior (PSens) sensillae. 5-15 non-specialized setae placed laterally to posterior sensillae. Crista metopica widened at level of just below posterior sensillae (Fig. 2). Two pairs of stalked eyes placed on level of posterior sensillae. Anterior lens slightly larger than posterior lens. Dorsal setae (*DS*) uniform, smooth, curved and pointed to the end, set on flat plates (Fig. 3).

Genital opening with three pairs of acetabula

Table 1. Morphometric data on adults and deutonymph of *Johnstoniana parva*.

Characters	*J. parva* adult	*J. parva* deutonymph
L	1612-1980	800-857
W	1015-1246	387-477
L/W	1.43-1.72	1.79-2.06
Scutum L	287-338	187-255
Scutum W	230-275	155-205
Asens	85-92	65-67
Psens	159-180	121-163
SBA	28-44	16-22
SBP	81-95	51-60
ISD	82-202	53-71
AL	55-81	48-55
PL	50-65	52-54
E	69-101	59-65
DS	40-74	34-45
L Gop	292-309	131-133
Ch	61-69	38-49
PaTi (L)	228-251	128-133
CpPp	39-46	21-23
PaTi/CpPp	4.8-6.07	5.78-6.09
odontus	66-82	46-50
basidont	53-64	25-32
PaFe (L)	220-260	130-145
PaGe (L)	129-151	75-80
PaTa(L)	162-187	98-103
Ti_I (L)	307-349	173-188
Ta_I (L)	391-405	233-275
Ta_I (W)	187-205	122-148
Ta_I (L/W)	1.95-2.09	1.85-1.9

surrounded by epivalves and centrovalves with smooth setae (Fig.4). Anal sclerites with smooth setae.

Legs with completely separated basifemur and telofemur. All non-specialized setae smooth. Eupathidia and solenidia present on all leg segments except for coxa I-IV. Tarsus I have not barbed setae (Fig. 5). Tarsus I with 1-3 club-shaped solenidia (ω).

Deutonymphs: Similar to adult, but smaller than adult. Scutum with 6-9 non-specialized setae and 2 pairs of trichobothria. Dorsal setae (*DS*) as in adults and set on flat, sclerites. Genital opening with two pairs of acetabula. Tarsus I have not barbed setae. Tarsus II with 1-2 club-shaped solenidia (ω).

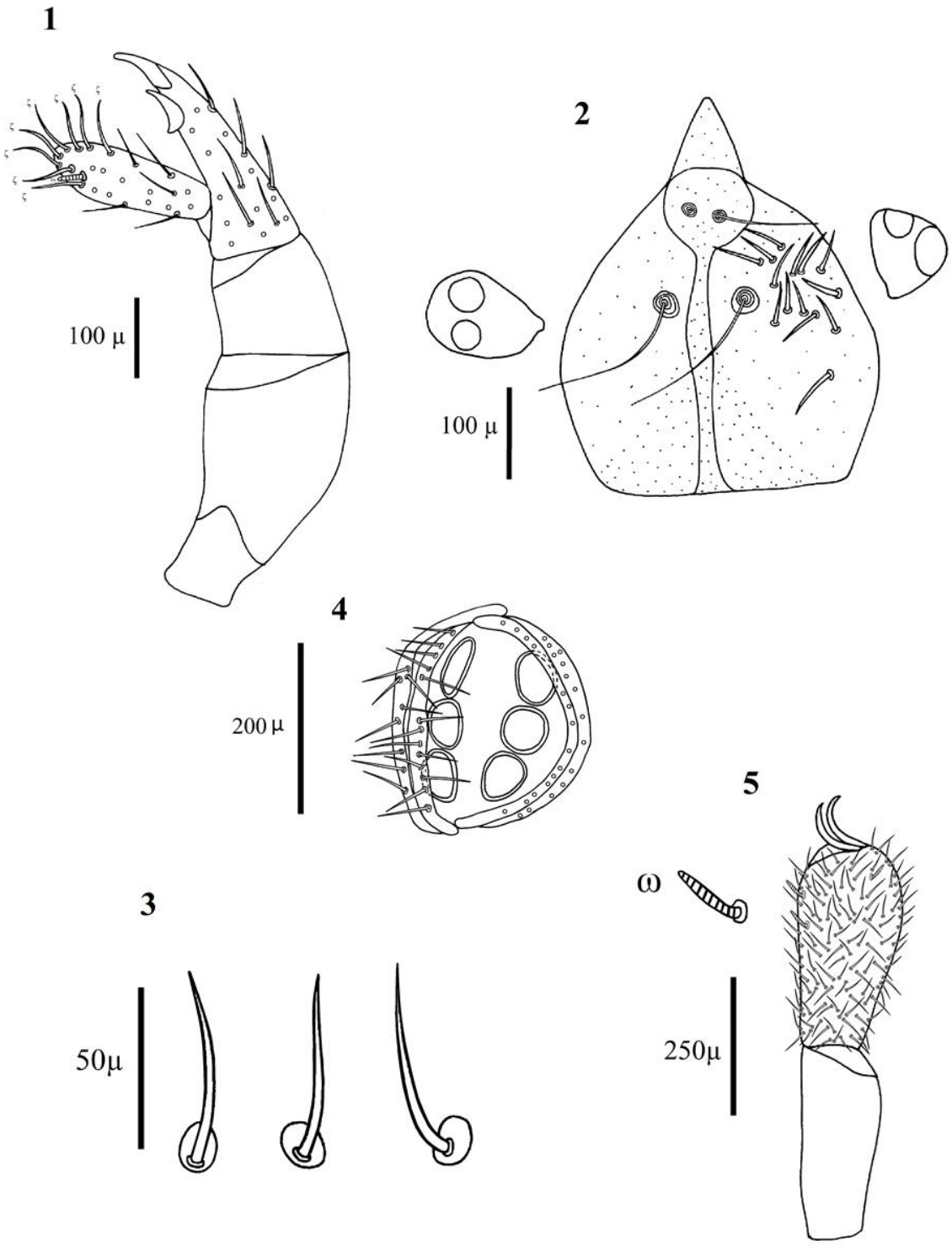
Specimens examined: - 15.03.2014, 2 adults, grassy moss, 40°41'07"N, 39°03'08"E, 780 m, Örümcek forests, Kürtün, Gümüşhane. - 15.03.2014, 1 adult, 1 deutonymph, lungwort and mossy soil, 40°56'35"N, 38°51'13"E, 100 m, İstiklal district, Tirebolu, Giresun. - 09.04.2015, 1 adult, mossy soil, 40°37'58"N, 39°07'03"E, 858 m, Kazıkbeli plateau, Gümüşhane. - 18.06.2015, 3 adults, 4 deutonymphs, grassy moss, 40°41'02"N, 39°03'15"E, 811 m, Örümcek forests, Kürtün, Gümüşhane, Turkey (Leg. S. Adil).

Distribution. Germany, Poland (Mąkol and Wohltmann, 2012). New for Turkish fauna.

Discussion

Johnstoniana parva is distinguished from other *Johnstoniana* species with structure of tarsus I, have not barbed setae and dorsal setae set on flat plates. Morphological properties of Turkish specimens are similar to those of European specimens given by Wohltmann et al. (2004), since they have approximately the same zoogeographical region.

Whereas Turkish specimens differs from European specimens (Wohltmann et al., 2004) with some morphological property: PaTa/CpPp ratio (Turkish specimens 4,8-6,07, European specimens 4,9-6,3), dorsal setae (*DS*) lenght (Turkish specimens 40-74, European specimens 40-55) and number of club-shaped solenidia on tarsus I (Turkish specimens 1-3, European specimens 4-5).



Figures 1-5. *Johnstoniana parva* Adult. (1) Palp general view and tarsus, (2) crista metopica region, (3) dorsal setae (DS), (4) Genital openingand (5) leg I tibia and tarsus.

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