

New records of *Filistata* Latreille (Araneae: Filistatidae) in Israel, with notes on *F. albens* and the first description of its female

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ABSTRACT

Filistata albens Zonstein & Marusik, 2019, is rediagnosed and redescribed based on newly collected specimens and its female is described for the first time. Several new records of *F. insidiatrix* (Forsskål, 1775), previously known from Israel, are also provided. In Israel, the genus is currently known to encompass five (four named and one yet undescribed) species.

KEYWORDS: Biodiversity, Aranei, Filistatinae, spiders, Levant, Middle East, taxonomy.

INTRODUCTION

Filistata Latreille, 1810 with its 14 named species is the third most speciose genus in the subfamily Filistatinae after *Zaitunia* Lehtinen, 1967 and *Kukulcania* Lehtinen, 1967, with 30 and 15 species, respectively (WSC 2024). The natural range of *Filistata* spreads through the Mediterranean and sub-Mediterranean countries, from the Canary Islands to the western Turkmenistan, and from Hungary to Egypt and southern Iran (Zonstein & Marusik 2019, fig. 30; Zamani & Marusik 2020; Magalhaes *et al.* 2022, fig. 4A). The genus was recently revised (Zonstein & Marusik 2019). Shortly after the revision, the information related to the genus composition and distribution was updated (Magalhaes *et al.* 2022). To date, the highest number of *Filistata* spp., i.e. five species, has been reported from Spain, including the Canary Islands (WSC 2024), and from Israel (Magalhaes *et al.* 2022). Four species are known from Iran (WSC 2024). However, the presence of seeming gaps in distribution of the genus across North Africa and the Middle East may result from an incomplete inventory.

While studying new filistatid material stored at the Steinhardt Museum of Natural History, along with several new records of *F. insidiatrix* (Forsskål, 1775), we found a few *Filistata* females from the Negev Desert distinguishable from all other congeners known to date. Our short collection trip to the Negev yielded more females belonging to the same species, together with a male. The latter was identified as

F. albens Zonstein & Marusik, 2019, a species known previously only from males. Thus, this study provides several new records of *Filistata* in Israel, as well as the complete diagnosis and description of *F. albens* based on both sexes.

MATERIAL AND METHODS

The spiders were photographed with a Canon EOS 80D camera attached to an Olympus SZX16 stereomicroscope. Digital images were montaged using Helicon Focus™ 7.6 image-stacking software and edited using Adobe® Photoshop CC. The separated endogyne was cleared in a 10 % KOH aqueous solution until the soft tissues were dissolved. Lengths of the leg segments were measured along the dorsal side of each segment. All measurements are given in millimetres.

Abbreviations: ALE – anterior lateral eye, AME – anterior median eye, PLE – posterior lateral eye, PME – posterior median eye.

Acronyms: HUJ – Hebrew University, Jerusalem, Israel; SMF – Senckenberg Museum, Frankfurt-on-Main, Germany; SMNH – Steinhardt Museum of Natural History, Tel Aviv, Israel.

All material listed in the article is housed in the SMNH. The following comparative material has also been studied: *F. betarif* Magalhaes, Aharon, Ganem & Gavish-Regev, 2022 – ♂♀ (HUJ), based on high-resolution illustrations in Magalhaes *et al.* (2022); *F. maguieri* Marusik & Zamani, 2015 – holotype ♂ and 1 ♀ paratype (SMF), Iran, env. Bandar-e Abbas, 27°24'N 56°07'E, ~500 m, 1–31.iii.2015, A. Zamani.

RESULTS

Family Filistatidae Simon, 1864

The authorship of the family is attributed to Simon (1864) as discussed elsewhere (Zonstein & Marusik 2019), contrary to the completely unsupported statement in the WCS (2024).

Genus *Filistata* Latreille, 1804

Filistata: Zonstein & Marusik 2019: 57; Magalhaes *et al.* 2022: 155.

Type species: *Filistata testacea* Latreille, 1810 (= *Aranea insidiatrix* Forsskål, 1775), by monotypy.

Notes: Until now, *Filistata* included four named species in Israel: *F. albens* Zonstein & Marusik, 2019, *F. betarif* Magalhaes, Aharon, Ganem & Gavish-Regev, 2022, *F. insidiatrix* (Forsskål, 1775), and *F. lubinae* Zonstein & Marusik, 2019. Magalhaes *et al.* (2022, fig. 4C) mentioned one undescribed *Filistata* species from northern Israel, thus bringing the regional spider fauna of the genus to five species in total.

Filistata insidiatrix (Forsskål, 1775)

Filistata testacea: Simon 1892: 80.

Filistata insidiatrix: Strand 1913: 147; Zonstein & Marusik 2013: 32, 33; 2019: 57; Magalhaes *et al.* 2022: 155; WCS 2024 (complete list of taxonomic references).

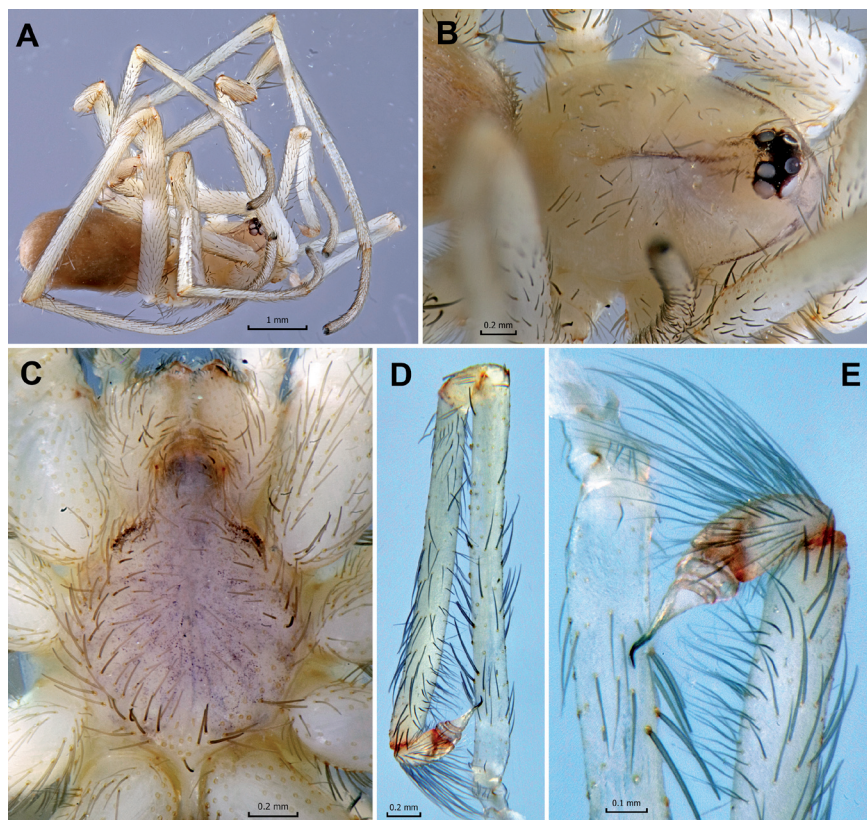


Fig. 1. *Filistata albens* Zonstein & Marusik, 2019, male from Mt Ramon: (A) habitus, lateral; (B) carapace, dorsolateral; (C) chelicerae, maxillae, labium and sternum, ventral; (D) entire palp, prolateral; (E) cymbium and bulb, prolateral. Scale bars: A = 1 mm, B–D = 0.2 mm, E = 0.1 mm.

New records: Israel: *Har Hermon*: 1♀, Mt Hermon, 33°18.1'N 35°46.3'E, 1750 m, 24.v.2012, S. Zonstein; 1♀, Mt Hermon area, Har Dov Ridge, 33°17'N 35°41'E, 635 m, 6.vi.2013, S. Zonstein; *Golan Heights*: 1♀, 1 km N Merom Golan, 33°08.5'N 35°46.3'E, 950 m, 25.v.2012, S. Zonstein; 2♀, Qazrin, 32°59'N 35°42'E, 350 m, 30.iii.2021, S. Zonstein; 1♀, Qeshet, 32°59'N 35°48'E, 700 m, 6.x.2014, S. Zonstein; *Upper Galilee*: 1♀, 'Amuqa, 32°59.5'N 35°31.5'E, 700 m, 20.ii.2013, S. Zonstein; 1♂, Mt Meron, Ba'al-Shem-Tov, 32°58.9'N 35°28.5'E, 750 m, 13–20.xi.2007, T. Levanyony; *Carmel Ridge*: 2♀, Bat Shelomo, 32°35.5'N 34°59.7'E, 130 m, 28.xii.2022, S. Zonstein; 1♀, same, but 23.xi.2023, S. Zonstein; *Central Coastal Plain*: 1♂, Caesarea, 32°31'N 34°54'E, 20 m, 12–28.xii.2010, W. Kuslitzky; 3♀, Tel Aviv University, Botanical Garden, 32°06.8'N 34°48.5'E, 35 m, 15.xii.2022, S. Zonstein; *Judean Foothills*: 1♂, 1♀, Adderet, 31°39'N 34°59'E, 400 m, 1–20.iv.2004, U. Columbus & T. Levanyony; 2♀, Ben Shemen Forest, Mizpe Modi'in, 31°57'N 34°57'E, 160 m, 27.iv.2021, S. Zonstein; 1♀, 0.5 km SW Zafririm, 31°39.2'N 34°56.3'E, 350 m, 1.xii.2022, S. Zonstein; 1♀, Zafririm, 31°39.3'N 34°56.5'E, 320 m, 30.iii.2018, S. Zonstein; 2♂, Zekharia, 31°43'N 34°56'E, 250 m, 20.v.2002, Y. Mandelik & A. Landsman.

Notes: The distribution of this species in Israel was discussed by Zonstein & Marusik (2019) and Magalhaes *et al.* (2022). It has been revealed that the range of this species

includes the coastal, lowland and montane areas throughout the country, from the northern border to the environs of Be'er Sheva' in the south. The species does not occur south of Be'er Sheva', being replaced by a few other congeners. One of these local species, previously known only from males, is considered below.

Filistata albens Zonstein & Marusik, 2019

(Figs 1–3)

Filistata albens Zonstein & Marusik, 2019: 62, figs 7A–G, 27D (♂); Magalhaes *et al.* 2022: 168, fig. 100 (♂).

Emended diagnosis: Males of *F. albens* resemble those of *F. maguirei* in possessing a very long palp, but differ in a considerably longer and dissimilarly arranged embolus (Figs 1D, 2, cf. Zonstein & Marusik 2019, figs 7E, F, 21A–C). In *F. albens* the embolus bears a longitudinal keel, which is less elevated than in *F. betarif*, but is higher than the embolic keel in males of *F. insidiatrix* (Fig. 2, cf. Magalhaes *et al.* 2022, figs 5, 6, 8). In *F. albens*, moreover, this keel is clearly S-shaped (when viewed ventrally) and more curved than the embolic keel in the other two species (Fig. 2C). The structure of the spermathecae in *F. albens* does not differ signifi-

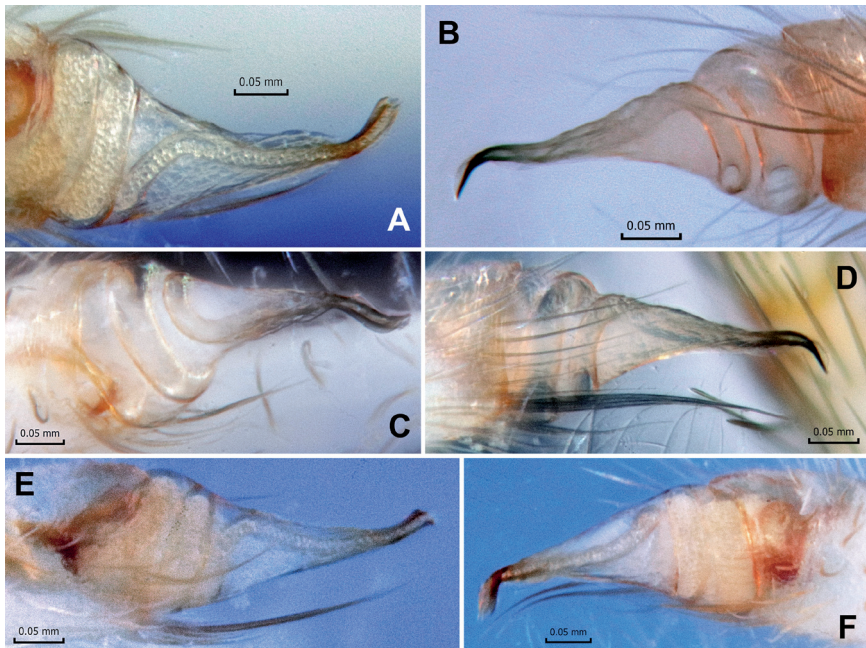


Fig. 2. *Filistata albens* Zonstein & Marusik, 2019, paratype male (A, E, F) and male from Mt Ramon (B–D), copulatory bulb: (A, C, E) dorsal, (B, F) retrolateral, (D) prodorsal, (E) prolateral. Scale bars, 0.05 mm.

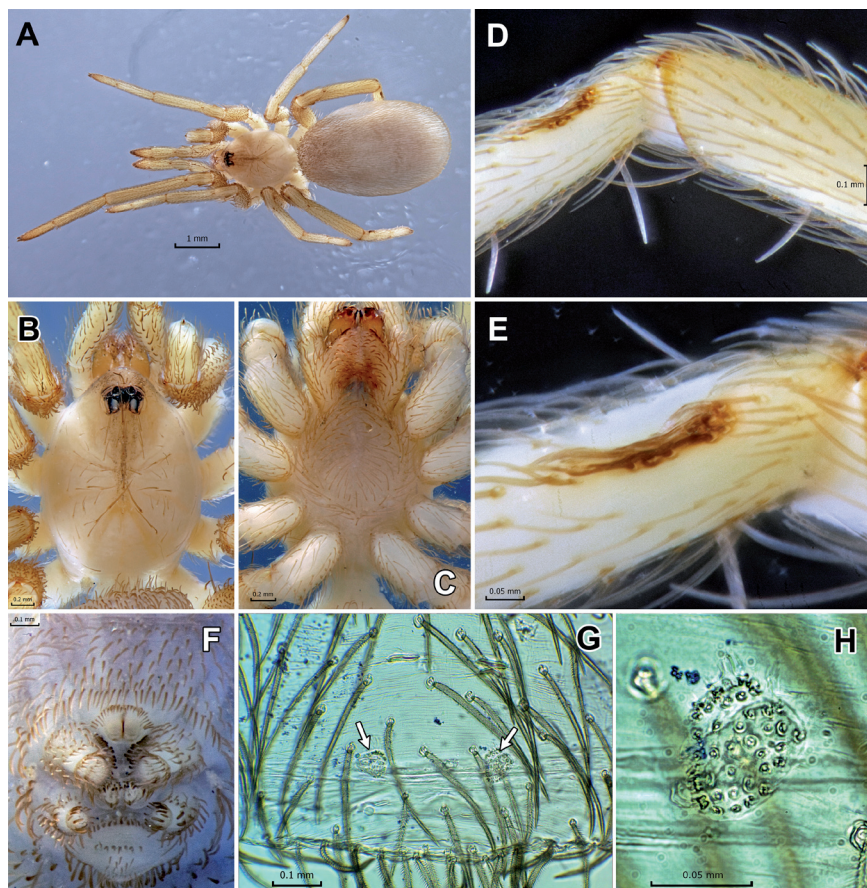


Fig. 3. *Filistata albens* Zonstein & Marusik, 2019, female from Han Be'erotayim: (A) habitus, dorsal; (B, C) cephalothorax, dorsal and ventral, respectively; (D) calamistrum, retrolateral; (E) same in close view, retrolateral; (F) cribellum and spinnerets, ventral; (G) spermathecae, dorsal; (H) left spermatheca in close view, dorsal. Scale bars: A = 1 mm, B, C = 0.2 mm, D, F, G = 0.1 mm, E, H = 0.05 mm.

cantly from that in *F. insidiatrix* and *F. betarif* (Figs 3G, H, cf. Zonstein & Marusik 2019, figs 7E, F, 21A–C; Magalhaes *et al.* 2022, figs 3C–F, 9), and females can be clearly distinguished from the related species (*F. betarif* and *F. insidiatrix*) due to their noticeably (ca. 1.5–2 times) smaller size and almost uniformly pale colouration characteristic for all specimens.

Redescription: Male (from Mt Ramon). *Habitus* as in Fig. 1A. Total length 4.16.

Colour in alcohol: Carapace very pale brownish white, with light brownish short and narrow medial stripe and anterior margins; two short marks located symmetrically in postocular area and lateral margins of clypeus also gently light brown;

eye tubercle blackish brown, chelicerae, labium, sternum, entire legs and palps, and spinnerets milky white, with weak yellowish brown tint; abdomen dorsally uniformly light greyish brown, ventrally pale yellowish grey.

Cephalothorax: Carapace (Fig. 1B) 1.79 long, 1.34 wide. Clypeus 0.21 long. Eye diameters and interdistances: AME 0.09, ALE 0.14, PLE 0.13, PME 0.11; AME–AME 0.08, PME–PME 0.13. Fovea narrow slit-like. Sternum, labium and maxillae as in Fig. 1C.

Legs and palp lengths as following:

	Palp	I	II	III	IV
Femur	2.31	3.28	2.67	2.40	3.36
Patella	0.36	0.72	0.56	0.47	0.61
Tibia	1.97	3.60	2.43	1.81	3.25
Metatarsus	–	3.64	2.77	2.68	3.55
Tarsus	0.36	1.77	1.26	1.08	1.44
Bulb	0.29	–	–	–	–
Total	5.29	13.01	9.69	8.44	12.21

Copulatory organs (Figs 1D, 1E, 2B–D): Palp: femur 11×, patella 1.8×, tibia ca. 9.3×, cymbium 2× as long as wide; tibia 1.1× as long as carapace. Cymbium with one pair of long prolateral setae. Entire copulatory bulb slightly shorter than cymbium. Embolus as long as cymbium and twice longer than wide, tapering, hooked and flattened subapically, with moderately elevated S-shaped keel stretching along its ventral and then (apically) retrolateral side.

Female (from Han Be'erotayim). *Habitus* as in Fig. 3A. Total length 5.02.

Colour in alcohol: As in male, with less intensely coloured dorsal surface of abdomen.

Cephalothorax: Carapace (Fig. 3B) 1.76 long, 1.32 wide. Clypeus 0.20 long. Eye diameters and interdistances: AME 0.08, ALE 0.14, PLE 0.14, PME 0.12; AME–AME 0.06, PME–PME 0.09. Fovea as in male. Sternum, labium and maxillae as in Fig. 3C.

Calamistrum as in Figs 3D, 3E. Legs and palp lengths as following:

	Palp	I	II	III	IV
Femur	0.83	1.77	1.38	1.15	1.74
Patella	0.34	0.59	0.51	0.49	0.58
Tibia	0.57	1.78	1.09	0.89	1.39
Metatarsus	–	1.51	1.02	0.84	1.22
Tarsus	0.56	0.97	0.68	0.57	0.82
Total	2.30	6.62	4.68	3.94	5.75

Cribellum and spinnerets as in Fig. 3F.

Copulatory organs (Figs 3G, 3H): Receptacles small and widely spaced (>3 times of their maximal width).

Variation: Carapace length in females (n=6) ranges from 1.68–1.83; all collected females have uniformly pale coloured abdomen. In males, the embolus does not vary in structure, but may slightly vary in length (Figs 2A, 2E, 2F).

Paratype (examined): 1♂ **Israel:** *Central Negev:* Haluqim Ridge, 4.v.1992, Y. Lubin.

New records: **Israel:** *Central Negev:* 1♂, 3♀, Mt Ramon, 30°30.2'N 34°38.1'E, 750–1030 m, 9.iv.2024, Y.M. Marusik; 2♀, same, but 950–1000 m, S. Zonstein; 2♀, Nahal 'Ezuz, near 'Ezuz, 30°47.2'N 34°28.1'E, 330 m, 25.ii.2019, S. Zonstein; 1♀, Han Be'erotayim, 2 km NW 'Ezuz, 30°48'N 34°27'E, 300 m, 13.iii.2019, S. Zonstein.

Distribution: Rocky foothills and uplands of the Negev Desert, Israel.

Remarks: All newly collected specimens were found hiding under stones.

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