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Genus *Arabshamshevia* Naglis (Diptera: Dolichopodidae) in the Palaearctic Region

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ABSTRACT

The formerly Afrotropical genus *Arabshamshevia* Naglis, 2014 is recorded from the Palaearctic Region for the first time. A new species *Arabshamshevia negevensis* n. sp. from Israel is described. A modified diagnosis of the genus is compiled. Possible synonymy of *Shamshevia* Grichanov, 2012 and *Arabshamshevia* is briefly discussed.

KEYWORDS: Diptera, Dolichopodidae, *Arabshamshevia*, Palaearctic Region, Israel, long-legged flies, new species.

INTRODUCTION

The genus *Arabshamshevia* Naglis, 2014 was described from the United Arab Emirates to accommodate a single species, *A. ajbanensis* Naglis, 2014, known from two males. The genus was placed in the subfamily Diaphorinae, sharing most of the hypopygial structures with *Aphasmaphleps* Grichanov, 2010, *Asyndetus* Loew, 1869, *Chrysotus* Meigen, 1824, *Cryptophleps* Lichtwardt, 1898, *Diaphorus* Meigen, 1824, and *Shamshevia* Grichanov, 2012 (Grichanov 2012*a*, *b*; Naglis 2014). Treating the collection of the Department of Zoology, Tel Aviv University, Israel, I have found an additional undescribed species of *Arabshamshevia* collected in the Negev Desert.

It is worth noting that the boundaries of the Afrotropical and Palaearctic regions are not yet clearly defined on the Arabian Peninsula and adjacent arid and semiarid territories (Kirk-Spriggs & Stuckenberg 2009). Crosskey (1980) used northern boundaries of the modern state of Yemen for separating Afrotropical and Palaearctic regions. Kryzhanovsky (2002) extended the Sudan-Zambezi subregion of the Afrotropical Region from Yemen across the eastern Arabian Peninsula, southern regions of Iran and Pakistan into the Thar Desert within the Indian states of Rajasthan and Gujarat. More recently, Oman and the United Arab Emirates are regarded as part of the Afrotropical Region (Kirk-Spriggs & Sinclair 2016). Consequently, the genus *Arabshamshevia* is recorded here for the first time in the Palaearctic Region.

MATERIALS AND METHODS

The holotype of the new species is housed at the National Collection of Insects, The Steinhardt Museum of Natural History, Israel National Research Center,

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Department of Zoology, Tel Aviv University, Tel Aviv, Israel. The male of *A. negevensis* n. sp. was studied and illustrated with a Zeiss Discovery V-12 stereomicroscope and an AxioCam MRc5 camera. Morphological terminology follows Cumming and Wood (2009). The relative lengths of the podomeres should be regarded as representative ratios and not measurements. Body length is measured from the base of the antenna to the tip of the abdomen. Wing length is measured from the base to the wing apex. Figure showing the male genitalia in lateral view is oriented as they appear on the intact specimen, with the morphologically ventral surface of the genitalia facing up, dorsal surface down, anterior end facing right and posterior end facing left.

TAXONOMY

Genus *Arabshamshevia* Naglis, 2014

The genus *Arabshamshevia* was described by males only (Naglis 2014). Based on additional material from Israel, I can provide a modified diagnosis of the genus with the following set of characters considered to be of generic importance.

Diagnosis: Body length 1.8–2.6 mm, and wing slightly shorter; face relatively broad, slightly convergent ventrally; eyes well separated; male frons broader than face; antennae inserted at upper third of head; scape subtriangular, with short pointed ventral projection; pedicel with short visible base and short concealed conus; male postpedicel strongly elongate, subtriangular, swollen at base, then flat and pointed at apex, arista-like stylus bare, basodorsal, with second segment much longer than first segment; occiput flat or convex; postvertical seta present; thorax with 5 pairs of dorsocentral setae; acrostichal setae absent; posterior slope of mesonotum distinctly flattened; 1 pair of median scutellar setae and 1 smaller seta laterad; pulvilli small; all claws present; wing with vein M complete, joining costa anteriad of wing apex; cross-vein dm–cu weak, located at basal ⅓ of wing between r–m and level of R_1; male abdomen with tergite 6 bare; sternite 8 with short simple setae; hypopygium with surstylus divided into dorsal and ventral arms; postgonite projecting and curved; epandrial lobe distinct and projecting; cercus small, rounded.

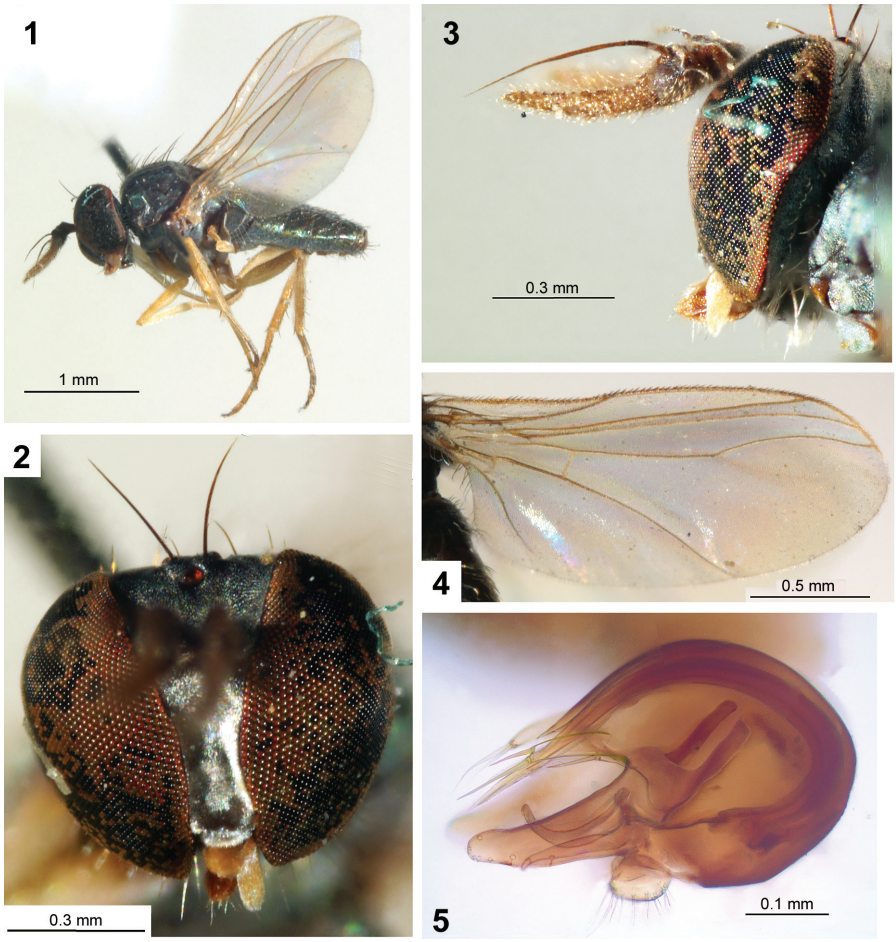
Arabshamshevia negevensis n. sp.

(Figs 1−5)

LSID: urn:lsid:zoobank.org:act:C8F969AE-D0E0-4116-B67A-60E4736DE754.

Etymology: The species name refers to the Negev Desert, where the holotype was collected.

Diagnosis: The new species is close to *A. ajbanensis*, differing from the latter in being larger, in the morphology of antenna, setation of mid tibia and colour of male cercus (see key below). The male of *A. ajbanensis* was described with regularly triangular postpedicel, with arista-like stylus with second segment 3 times as long



Figs 1–5. *Arabshamshevia negevensis* n. sp. (1) habitus; (2, 3) head, anterior and lateral views; (4) wing; (5) hypopygium, left laterally after maceration.

as first segment, mid tibia without posterodorsal setae, and cercus pale yellow. *A. negevensis* hypopygium is almost identical to that of *A. ajbanensis*. Nevertheless, the epandrial setae are distinctly longer in the new species, postgonite is shorter and narrower, and ventral lobe of surstylus is rod-like, not swollen on basal half (compare Fig. 5 in this paper with Naglis 2014: fig. 10).

Description: Male (Fig. 1). *Head*: about as high as wide (Fig. 2); vertex and upper occiput flat; frons black, weakly grey pollinose; face black, densely white pollinose; face under antenna 1.6 times as wide as basal height of postpedicel, convergent ventrally, at narrowest part as wide as basal height of postpedicel; one pair of strong ocellars; one vertical bristle on each side at eye margin, half as

long as ocellars; one short postvertical bristle on each side, not far from upper postocular seta; antenna (Fig. 3) black; scape with subtriangular pointed ventral process; pedicel with short visible base, with ring of short setulae, with concealed conus extending to basal fifth of postpedicel; postpedicel 4 times longer than high at base, swollen at base, flat and narrow distally, with concave dorsal margin (supposedly male secondary sexual character, since females are still unknown), with acute apex, bearing short hairs; arista-like stylus basodorsal, with second segment 4 times as long as first segment; length ratio (mm) of scape to pedicel (visible part) to postpedicel to stylus (segments 1 and 2), 0.14/0.05/0.49/0.11/0.41; proboscis small, yellow-brown; palpus large, ovate, yellow, with short apical seta; postocular setae relatively short, uniserial, mainly white; upper setae black. *Thorax*: entirely dark green, metallic, weakly pollinose; upper part of proepisternum with 2 white setae; lower part of proepisternum with short white seta above coxa; five pairs of strong dorsocentral bristles decreasing slightly in length anteriorly; posterior pair of dorsocentrals slightly shifted laterally; acrostichals absent; posterior slope of mesonotum distinctly flattened; scutellum with one pair of strong and one pair of weak setae. *Legs*: mainly yellow, with fore coxa brown at base, mid and hind coxae mainly brown, hind femur brownish dorsally at apex, apical segments of tarsi brownish to brown; coxae with white setae; fore and mid coxae with setae anteriorly and apically; mid and hind coxae with one lateral seta at upper third; femora without strong bristles, ventrally bare; tibiae with short apicals, somewhat longer on mid tibia; fore tibia without strong bristles; mid tibia with one anterodorsal at ⅓ of length from base, 2 short posterodorsals on basal half; hind tibia with three or four short dorsals, 1 short anterodorsal seta at base; all tarsi with 4th segment laterally flattened and 5th segment dorsoventrally flattened; tibia and tarsomere (from first to fifth) length ratio (mm): fore leg: 0.68/0.33/0.14/0.10/0.09/0.08, mid leg: 0.85/0.40/0.18/0.12/0.11/0.10, hind leg: 0.98/0.29/0.22/0.16/0.15/0.10. *Wing* (Fig. 4): membrane hyaline, with brown veins; length ratio (mm) of costal segments between R_{2+3} and R_{4+5} and between R_{4+5} and M_{1+2}, 0.26/0.10; R_{4+5} and M_{1+2} shifted anteriorly, subparallel on apical part of wing; M_{1+2} with distinct anterior bend at ½ beyond posterior crossvein dm–cu, then broadly curved anteriorly; dm–cu located at basal ⅓ of wing, weak; length ratio (mm) of apical segment of CuA_1 to dm–cu, 0.84/0.12; anal vein fold-like, anal lobe developed, anal angle obtuse; calypter yellow, with white simple cilia; halter yellow. *Abdomen*: dark metallic green, with white setae; row of longish marginal bristles on tergum 1, otherwise shorter bristling on abdomen; sterna 5–6 weakly sclerotized; segment 7 concealed within tergum 6, ring-like, glabrous; sternite 8 large, rounded, covered with simple setae not longer than diameter of segment 8; hypopygium (Fig. 5) black, small, partly concealed; epandrium flattened laterally, with left lateral foramen; hypandrium fused with epandrium, with two symmetrical pointed lateral projections (ventral aspect), located in distal third of epandrium; parameral sheath sclerotized, projecting, long, narrow, simple, cy-

lindrical; phallus long and thin, simple; epandrial lobe moderately narrow and strongly projecting, with 2 strong apical setae, and with short basal lobe bearing 1 strong seta; surstylus brown, bilobate, more or less straight, with ventral lobe long and wide, bearing few short setulae at apex; dorsal lobe narrow, rod-like, about ⅔ as long as ventral lobe, bearing short apical spine and short dorsal seta at distal 0.2; postgonite exposed, narrow, biapicate, strongly curved ventrally, reaching apex of dorsal lobe of surstylus; cercus brown-black, small, rounded, with long white marginal setae; small plate present between cerci.

Measurements (mm): Body length 2.6, antenna length 0.7, wing length 2.2, wing width 0.8.

Female. Unknown.

Holotype: ♂ [mounted on pin] **Israel:** 'En Mor [30°50'N 34°46'E], 16.iii.1995, A. Freidberg.

Key to males of known species of *Arabshamshevia*

1 Arista-like stylus with second segment 3× as long as first segment; mid tibia with 1 strong anterodorsal seta, without posterodorsal setae; cercus pale yellow; body length 1.8 mm, wing length 1.7 mm (United Arab Emirates)..... .....*A. ajbanensis* Naglis

– Arista-like stylus with second segment 4× as long as first segment; mid tibia with 2 posterodorsal setae in addition to 1 strong anterodorsal seta; cercus brown-black; body length 2.6 mm, wing length 2.2 mm (Israel)....*A. negevensis* **n. sp.**

DISCUSSION

Arabshamshevia as currently defined is a sister genus to *Shamshevia* Grichanov, 2012, differing primarily in the development of the acrostichal setae on the mesonotum (acrostichals are distinct and biseriate in *Shamshevia*, being totally absent in *Arabshamshevia*) (Grichanov 2012*a*, *b*; Naglis 2014). Therefore, the two genera may be regarded as possible synonyms. The *Shamshevia* is known from two species, one from Namibia, and another one from India (Grichanov 2012*a*, *b*). Thus, the occurrence of *Arabshamshevia* in Israel and the UAE supports the possible synonymy of the two genera. It is worth noting that the development of the acrostichal setae on the mesonotum is also the only character for distinguishing *Asyndetus* from *Cryptophleps*, potentially synonymic diaphorine genera with modified wing venation (Grichanov 2015). The position of the cross-vein dm–cu, as well as male secondary sexual characters seem to be subject to the specific and sexual variability. Discovery and examination of females and additional material are necessary in order to clarify the true position of *Arabshamshevia*.

Whether or not *Arabshamshevia* and *Shamshevia* are synonymic names, this is the first case of recording a non-Palaearctic dolichopodid genus in Israel that supports the country's position on a 'biogeographic crossroad' (Furth 1975; Freidberg 1988).

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REFERENCES

Crosskey, R.W. 1980. *Catalogue of the Diptera of the Afrotropical Region*. British Museum (Natural History), London, 1437 pp.

Cumming, J.M. & Wood, D.M. 2009. Adult morphology and terminology [Chapter] 2. *In*: Brown, B.V., Borkent, A., Cumming, J.M., Wood, D.M., Woodley, N.E. & Zumbado, M.A. (Eds.), *Manual of Central American Diptera*, Vol. 1. NRC Research Press, Ottawa, pp. 9–50.

Freidberg, A. 1988. Zoogeography of the Diptera of Israel. *In*: Yom-Tov, Y. & Tchernov, E. (Eds.), *The zoogeography of Israel. The distribution and abundance at a zoogeographical crossroad.* W. Junk, Dordrecht, pp. 277–308.

Furth, D. 1975. Israel, a great biogeographic crossroads. *Discovery* **11** (1): 2–13.

Grichanov, I.Ya. 2012*a*. *Shamshevia*, a new genus of long-legged flies from Namibia (Diptera: Dolichopodidae: Diaphorinae). *Journal of Natural History* **46** (9–10): 557–563. http://dx.doi.org/10.1080/00222933.2011.651631

———2012*b*. Discovery of *Shamshevia* Grichanov in the Oriental Region (Diptera: Dolichopodidae). *Zootaxa* **3329**: 64–68. http://dx.doi.org/10.15468/s0blsz

———2015. New species of *Cryptophleps* Lichtwardt (Diptera: Dolichopodidae) with a key to the Afrotropical and Palaearctic species of the genus. *Zootaxa* **4007** (2): 259–266. http://dx.doi.org/10.11646/zootaxa.4007.2.8

Kirk-Spriggs, A.H. & Sinclair, B.J. (Eds.). 2016. *Manual of Afrotropical Diptera.* Volume 1. Introductory chapters, nematocerous Diptera and Lower Brachycera. SANBI, Pretoria.

Kirk-Spriggs, A. & Stuckenberg, B. 2009. Afrotropical Diptera – Rich savannas, poor rainforests. *In*: Pape, T., Bickel, D. & Meier, R. (Eds.), *Diptera Diversity: Status, Challenges and Tools*. Koninklijke Brill NV, Leiden, The Netherlands, pp. 155–196. http://dx.doi.org/10.1163/ej.9789004148970.I-459

Kryzhanovsky, O.L. 2002. *Composition and distribution of the insect faunas of the World*. KMK, Moscow, 239 pp. [In Russian]

Naglis, S. 2014. Order Diptera, family Dolichopodidae. Two new genera of the subfamily Diaphorinae. *Arthropod Fauna of the UAE* **5**: 725–731.