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## A NEW SPECIES AND NEW RECORDS OF *LASIOGLOSSUM* CURTIS (HYMENOPTERA, HALICTIDAE) FROM AZERBAIJAN

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**Summary.** The data on 42 species of the genus *Lasioglossum* Curtis, 1833 collected in Nakhchivan Autonomous Republic of Azerbaijan in 2024 are given. Among them, *Lasioglossum nakhchivanicum* sp. n. described as new to science, *Lasioglossum daglariense* (Warncke, 1984) and *L. denislucum* (Strand, 1909) are newly recorded from the Caucasus region and *L. duckei* (Alfken, 1909) and *L. erraticum* (Blüthgen, 1931) are newly recorded from Azerbaijan. Now 106 species of *Lasioglossum* are known from this country.

**Key words:** Anthophila, bees, taxonomy, fauna, new records, Nakhchivan Autonomous Republic, Palaearctic region.

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**Резюме.** Приводятся данные о 42 видах пчел рода *Lasioglossum* Curtis, 1833, собранных в Нахичеванской Автономной Республике Азербайджана в 2024 г. Описан новый для науки вид *Lasioglossum nakhchivanicum* **sp. n.** Впервые для фауны Кавказа указываются *Lasioglossum daglariense* (Warncke, 1984) и *L. denislucum* (Strand, 1909), а для фауны Азербайджана *L. duckei* (Alfken, 1909) и *L. erraticum* (Blüthgen, 1931). К настоящему времени фауна рода *Lasioglossum* Азербайджана насчитывает 106 видов.

## INTRODUCTION

The present paper is a part of the ongoing research of the bee genus *Lasioglossum* Curtis, 1833 (Astafurova & Proshchalykin, 2018, 2023, 2024; Astafurova *et al.*, 2024). The global genus *Lasioglossum* currently includes 1,841 described species (Ascher & Pickering, 2024), with the highest known diversity in the Holarctic region (Michener, 2007). A total of 450 species are known from the Palearctic region (Astafurova & Proshchalykin, 2017), of which 182 species occur in Europe (Ghisbain *et al.* 2023; Astafurova & Proshchalykin, 2024), 168 species from Turkey, 145 species from Iran (Ascher & Pickering 2024), 54 species from Armenia, and 49 species from Georgia (Astafurova *et al.*, 2024).

The *Lasioglossum* fauna of Azerbaijan was recently reviewed by us and includes 101 species (Astafurova *et al.*, 2024). This paper is based on the additional material (280 specimens), collected in June 2024 in the Nakhchivan Autonomous Republic of Azerbaijan by M.Yu. Proshchalykin and M.M. Maharramov from 21 localities. A total of 42 species were collected, of which one species is new to science, two species are new to the fauna of the Caucasus, and two species are new to the fauna of Azerbaijan. At present, 106 species of *Lasioglossum* are known from Azerbaijan and 125 species from the whole of the Caucasus.

## MATERIAL AND METHODS

Geographical coordinates and administrative locations of collection sites are as follows: **Azerbaijan: Nakhchivan Autonomous Republic:** **I** – Julfa, Daridagh-2, 1100 m, 39°03'58"N, 45°37'35"E; **II** – Ordubad, Channab, 1090 m, 38°59'09"N, 45°53'32"E; **III** – Ordubad, Ustupu, 1495 m, 39°02'44"N, 45°54'46"E; **IV** – Ordubad, Mazra, 1615 m, 39°03'25"N, 45°55'30"E; **V** – Julfa, Daridagh, 900 m, 38°59'50"N, 45°40'47"E; **VI** – Babek, 3 km NE Sirab, 1250 m, 39°18'30"N 45°32'28"E; **VII** – Shakhbuz, Badamli, 1290 m, 39°28'05"N 45°33'00"E; **VIII** – Shakhbuz, Kulus, 1620 m, 39°21'56"N, 45°40'54"E; **IX** – Shakhbuz, Kechili, 1800 m, 39°22'09"N 45°43'10"E; **X** – Shakhbuz, Shakhbuzkend, 1140 m, 39°23'12"N 45°32'48"E; **XI** – Kengerli, Chalkhangala, Girmizidash, 1900 m, 39°28'34"N 45°14'18"E; **XII** – Kengerli, Chalkhangala, 1440 m, 39°26'58"N 45°15'51"E; **XIII** – Ordubad, Bilav-1, 1050 m, 39°02'43"N 45°49'07"E; **XIV** – Shakhbuz, Kolani, 1330 m, 39°26'51"N 45°39'13"E; **XV** – Shakhbuz, Zarnatun, 1550 m, 39°28'42"N 45°43'53"E; **XVI** – Ordubad, Unus, 1680 m, 39°01'18"N 45°59'30"E; **XVII** – Julfa, Gazanchi-2, 1440 m,

39°15'04"N 45°42'45"E; **XVIII** – Julfa, Milakh, 1430 m, 39°15'44"N 45°43'45"E; **XIX** – Babek, Payiz, 1230 m, 39°26'06"N 45°22'56"E; **XX** – Ordubad, Bilav-2, 1220 m, 39°05'18"N 45°51'11"E; **XXI** – Sharur, Shahbulag, 1210 m, 39°38'57"N 45°08'12"E.

The subgeneric classification of *Lasioglossum* is based on the conclusions of Gibbs *et al.* (2013) and follows Ghisbain *et al.* (2023) and Proshchalykin *et al.* (2023). Taxonomy, including subspecies status, follows Ebmer (1988, 1995), Pesenko *et al.* (2000), Pesenko (2006) and Pauly (2016). Morphological terminology follows that of Engel (2001) and Michener (2007). The density of integumental punctures is described using the following formula: puncture diameter (in  $\mu\text{m}$ ) / ratio of distance between punctures to average puncture diameter, e.g., 15–20  $\mu\text{m}$  / 0.5–1.5. Abbreviations **T** is used for metasomal tergum.

Specimens were studied with an Olympus SZ51 stereomicroscope, and photographs were taken with a combination of stereomicroscope (Olympus SZX10) and digital camera (Olympus OM-D). Final images are stacked composites generated using Helicon Focus v. 7.7.4 Pro. All images were post-processed for contrast and brightness using Adobe Photoshop. New distributional records are noted with an asterisk (\*). Additional material on the *Lasioglossum* species previously recorded for the fauna of Azerbaijan is presented in the Table 1 and is currently housed in the Zoological Institute, Russian Academy of Sciences (St. Petersburg, Russia, ZISP) and Federal Scientific Center of the East Asia Terrestrial Biodiversity, Far Eastern Branch of Russian Academy of Sciences (Vladivostok, Russia, FSCV).

## TAXONOMY

### *Lasioglossum* (*Sphecodogastra*) *nakhchivanicum* sp. n.

<https://zoobank.org/NomenclaturalActs/B9718346-A3D2-46B6-8FC9-79535CD64C3D>

Figs 1–4

**TYPE MATERIAL.** Holotype – ♀, **Azerbaijan:** Nakhchivan Autonomous Republic, Shakhbuz, Kulus, 1620 m, 39°21'N, 45°40'E, 27.VI 2024, leg. M. Proshchalykin, M. Maharramov [ZISP].

**DESCRIPTION.** Female (Fig. 1). Total body length 8.0 mm. Black, including marginal zone (posterior areas) of terga; wings brownish with dark brown veins and stigma. Head (Fig. 2) transverse-elliptic, 0.9 times as long as wide; vertex elevated, distance from top of head to upper margin of lateral ocellus ca. one lateral ocellar diameter as seen in frontal view. Clypeus 2.3 times wider than high, on lower two thirds almost impunctate, on upper thirds with coarse punctures separated by 1–3 puncture diameters, interspaces polished and shiny. Supraclypeal area polished, densely and finely punctate (ca. 10  $\mu\text{m}$  / 1–2). Frons and vertex with punctures (10–15  $\mu\text{m}$ ) separated less than a puncture diameter. Genal area expanded downward, as wide as eye in lateral view, on upper half densely and finely punctate with smooth interspaces, on lower half densely transversely rugose. Mesoscutum (Fig. 4) polished and shiny, coarser and denser punctate peripherally (15–20  $\mu\text{m}$  / 0.5–1) and finely

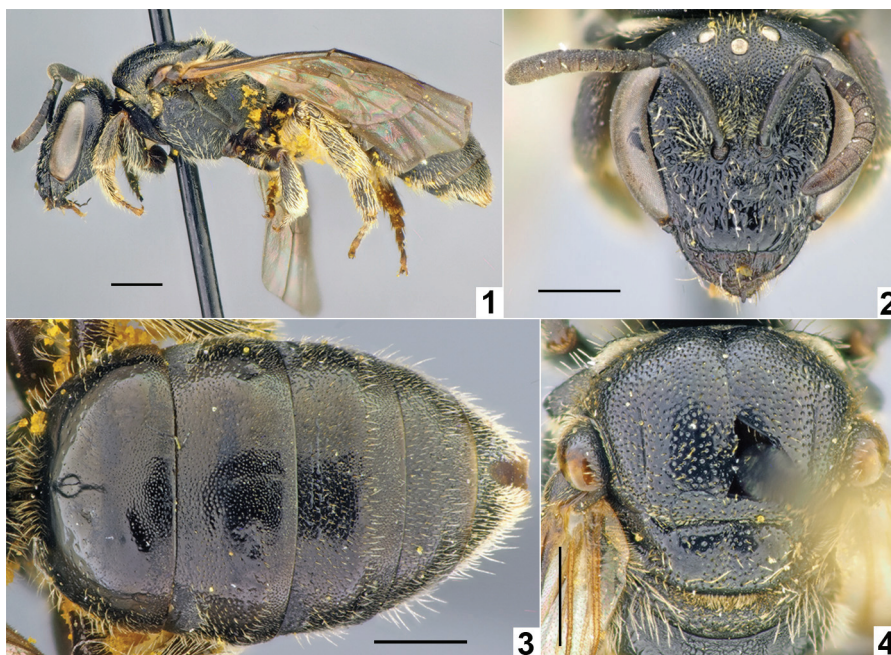
Table 1. Additional *Lasioglossum* material examined.

<i>Lasioglossum</i> species	Specimens examined	Collection sites
<i>L. anellum</i> (Vachal, 1905)	3 ♀	XXI
<i>L. brevicorne</i> (Schenck, 1869)	2 ♀	VIII
<i>L. ciscapum</i> (Blüthgen, 1931)	2 ♀	VI, VII
<i>L. corvinum</i> (Morawitz, 1877)	1 ♀	VIII
<i>L. crassepunctatum</i> (Blüthgen, 1923)	1 ♀	VII
<i>L. discus</i> (Smith, 1853)	1 ♀	XX
<i>L. edessae</i> Ebmer, 1974	47 ♀, 7 ♂	I–VIII, X, XII–XIV, XVI, XIX
<i>L. fallax</i> (Morawitz, 1873)	1 ♂	XIII
<i>L. glabriusculum</i> (Morawitz, 1872)	1 ♀, 1 ♂	VII, XIX
<i>L. griseolum</i> (Morawitz, 1872)	1 ♀	XII
<i>L. hilare</i> Ebmer, 1972	1 ♀	XIII
<i>L. hyalinipenne</i> (Morawitz, 1876)	2 ♂	XIX
<i>L. imbecillum</i> Ebmer, 1974	3 ♂	XV
<i>L. laticeps</i> (Schenck, 1869)	4 ♀, 20 ♂	I, II, VIII, IX, X, XIII, XV, XVI, XIX, XX
<i>L. leucopus</i> (Kirby, 1802)	10 ♀, 3 ♂	III, VIII, X, XI, XIII, XV, XVI, XIX
<i>L. leucozonium</i> (Schränk, 1781)	6 ♀, 8 ♂	II, VI–VIII, X–XII, XVI, XVIII, XIX
<i>L. lineare</i> (Schenck, 1869)	3 ♂	VII, XV, XIX
<i>L. longirostre</i> (Morawitz, 1876)	22 ♀	XIII, XIV, XVI, XIX
<i>L. malachurum</i> (Kirby, 1802)	8 ♀, 1 ♂	VI, XII, XIX, XXI
<i>L. marginatum</i> (Brullé, 1832)	3 ♀	I
<i>L. medinai</i> (Vachal, 1895)	3 ♂	XI
<i>L. mediterraneum</i> (Blüthgen, 1926)	5 ♀, 17 ♂	I, II, VIII, XII–XIV, XIX, XXI
<i>L. mesosclerum</i> (Pérez, 1903)	2 ♀, 2 ♂	VI, XIX, XXI
<i>L. morio</i> (Fabricius, 1793)	2 ♀	XIII, XXI
<i>L. muganicum</i> Ebmer, 1972	3 ♀	XI, XIII, XXI
<i>L. nitidiusculum</i> (Kirby, 1802)	2 ♂	III, IX
<i>L. obscuratum</i> (Morawitz, 1876)	2 ♀, 1 ♂	VII, XIX, XXI
<i>L. ordubadense</i> (Friese, 1916)	4 ♀	VIII, XIX
<i>L. pauxillum</i> (Schenck, 1853)	21 ♀, 4 ♂	II, III, VII–IX, XI, XII, XV, XVI, XIX–XXI
<i>L. politum</i> (Schenck, 1853)	14 ♀	II–IV, XIII, XIX
<i>L. punctatissimum</i> (Schenck, 1853)	2 ♂	II, VII
<i>L. puncticolle</i> (Morawitz, 1872)	1 ♀	VI
<i>L. pygmaeum</i> (Vachal, 1905)	6 ♀, 2 ♂	III, XIII, XV, XVI
<i>L. sexnotatum</i> (Kirby, 1802)	1 ♀	XVI
<i>L. subaenescens</i> (Pérez, 1895)	6 ♀, 7 ♂	I, VII, IX, XI, XII, XVII, XIX, XXI
<i>L. villosulum</i> (Kirby, 1802)	2 ♀	VII
<i>L. zonulum</i> (Smith, 1848)	1 ♀	VI

Comment. See "Materials and Methods" for designation of collection sites.

and relatively sparse punctate medially (10-15  $\mu\text{m}$  / 1-3). Mesoscutellum medially with densely punctate longitudinal depression that divided mesoscutellum into slightly convex and sparsely punctate lobes. Inner metatibial spur with 4 relatively long truncate teeth. Mesepisternum densely reticulate-rugose. Propodeum long, its dorsal surface as long as scutellum, dull, reticulate-rugulose, medially slightly depressed; posterior vertical surface of propodeum with weak lateral carina; sculpture of lateral and posterior surface of vertical propodeum coarser than on dorsal surface. Metasoma robust (Fig. 3), with maximum width at level of posterior margin of T2. Terga shiny, smooth on T1-T2 and delicately tessellate on T3-T4, marginal zones not depressed medially; disc T1 very sparsely and finely punctate, disc T2-T4 with dense punctures (5-10  $\mu\text{m}$  / 1-3); marginal zones finely and densely punctate. Pubescence whitish and sparse. T2 and T3 with anterior lateral spots of relatively dense tomentum. Pygidial fimbria light yellowish.

Male. Unknown.

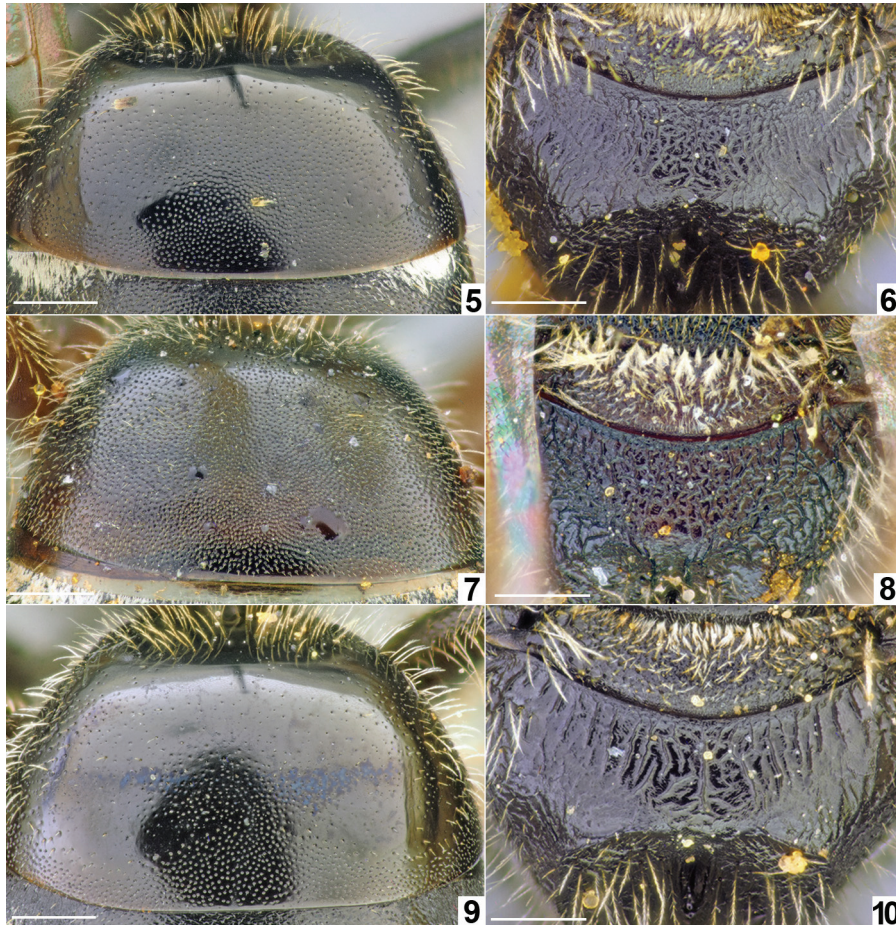


Figs 1–4. *Lasioglossum nakhchivanicum* sp. n., ♀, holotype; 1 – habitus, lateral view; 2 – head, frontal view; 3 – metasoma, dorsal view; 4 – scutum, dorsal view. Scale bars: 1.0 mm.

DIAGNOSIS. The new species belongs to the *Lasioglossum interruptum* species group. According to Pesenko (2007: 13), this group includes *L. interruptum* (Panzer, 1798), *L. limbelloides* (Blüthgen, 1931), *L. anellum* (Vachal, 1905), *L. pseudosphecodimorphum* (Blüthgen, 1923), and *L. opacum* (Pérez, 1895). The new species is



closest to *L. interruptum* by a combination of medium body size and black, not translucent marginal zones of terga, but differs from this species by the medially depressed and finely sculptured (rugulose) the dorsal surface of propodeum (Fig. 6) (vs medially flat and coarsely reticulate rugose dorsal surface of the propodeum in *L. interruptum*, Fig. 10). Although *L. interruptum* usually has distinctly punctate clypeus and T1 (vs clypeus and T1 disc almost impunctate in the holotype of *L. nakhchivanicum* sp. n.), these features are too variable from sparse to relatively dense (Figs 5, 9) to be used for diagnosis.



Figs 5–10. *Lasiglossum*, females. 6 – *L. nakhchivanicum* sp. n., holotype; 7, 8 – *L. opacum* (Pérez, 1895), paralectotype; 5, 9, 10 – *L. interruptum* (Panzer, 1798). 5, 7, 9 – T1, dorsal view; 6, 8, 10 – propodeum, dorsal view. Scale bars: 0.5 mm.

REMARKS. The status of *Lasioglossum opacum* (Pérez, 1895) is unclear. Although Pesenko (2007: 13) considered *L. opacum* as a valid species, this name was considered a synonym of *L. interruptum* (Blüthgen, 1926: 403; Ebmer, 1972: 608) or a subspecies of *L. interruptum* (Blüthgen, 1924: 360; Warncke, 1973: 286). Female specimens of *L. opacum* deposited in the ZISP (two paralectotypes [Bone, Perz // *opacus* Perez, ♀ // Typus] and two specimens from Spain and Morocco) clearly differ from studied specimens of *L. interruptum* by very densely punctate T1 (Fig. 7) and a dull, densely rugose dorsal surface of the propodeum (Fig. 8); the body size is 7.0 mm (smaller than the average of *L. interruptum*).

DISTRIBUTION. The species is currently known only from the type locality in Nakhchivan Autonomous Republic of Azerbaijan.

ETHYMOLOGY. The species name refers to Nakhchivan Autonomous Republic where the holotype was collected.

#### **List of species newly recorded from the Caucasus and Azerbaijan**

##### ***Lasioglossum (Dialictus) duckei* (Alfken, 1909)**

MATERIAL EXAMINED. **Azerbaijan:** Nakhchivan Autonomous Republic: Ordubad, Bilav-1, 1050 m, 39°02'N 45°49'E, 20.VI 2024, 1 ♂.

DISTRIBUTION. Caucasus: \*Azerbaijan, Armenia. – South Eastern Europe from Eastern Italy and the Balkans to the Don River in the East; Crete [ssp. *psilorum* Ebmer, 1981]; Turkey [ssp. *hakkariensis* (Warncke, 1984)] (Ebmer, 1988, 2014).

##### ***Lasioglossum (Dialictus) daglariense* (Warncke, 1984)**

MATERIAL EXAMINED. **Azerbaijan:** Nakhchivan Autonomous Republic: Shakhbuz, Shakhbuzkend, 1140 m, 39°23'N 45°32'E, 18.VI 2024, 1 ♂.

DISTRIBUTION. \*Caucasus: Azerbaijan. – Turkey (Ebmer, 1988).

##### ***Lasioglossum (Hemihalictus) denislucum* (Strand, 1909)**

MATERIAL EXAMINED. **Azerbaijan:** Nakhchivan Autonomous Republic: Ordubad, Bilav-1, 1050 m, 39°02'N 45°49'E, 20.VI 2024, 1 ♀.

DISTRIBUTION. \*Caucasus: Azerbaijan. – Macedonia, Greece, Turkey (Ebmer, 2000).

REMARKS. The records of the species from Ukraine, Russia, Azerbaijan, and Kazakhstan by Blüthgen (1925: 113) belong to *Lasioglossum pygmaeum* ssp. *patulum* (see Ebmer, 2000: 414).

##### ***Lasioglossum (Hemihalictus) erraticum* (Blüthgen, 1931)**

MATERIAL EXAMINED. **Azerbaijan:** Nakhchivan Autonomous Republic: Ordubad, Mazra, 39°03'N, 45°55'E, 1615 m, 16.VI 2024, 1 ♀; Babek, Payiz, 1230 m, 39°26'N, 45°22'E, 25.VI 2024, 3 ♀.

DISTRIBUTION. Caucasus: \*Azerbaijan, Georgia. – Greece, Aegean islands to the island of Crete, Cyprus, Turkey (Blüthgen, 1931; Ebmer, 1986, 2014).

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