

A checklist of the bees of the genus *Colletes* Latreille (Hymenoptera, Colletidae) of Azerbaijan

Список видов пчел рода *Colletes* Latreille (Hymenoptera, Colletidae) Азербайджана

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Abstract. A checklist of 42 species of bees of the genus *Colletes* Latreille, 1802 in Azerbaijan is provided, indicating their distribution by region of the country. The largest number of species is found in the Nakhchivan Autonomous Republic (29 species), the Ganja-Dashkasan Region (13 species), and the Lankaran-Astara Region (12 species). *Colletes perplexus* Kuhlmann, Proshchalykin et Maharramov, 2026 from Azerbaijan is a junior homonym of *C. perplexus* Smith, 1879, described from Mexico. The new replacement name *Colletes octogintaleleji* **nom.n.** is proposed here instead of the homonymic name.

Резюме. Приведен список из 42 видов пчел рода *Colletes* Latreille, 1802 Азербайджана, с указанием их распространения по регионам страны. Наибольшее количество видов обнаружено в Нахичеванской Автономной Республике (29 видов), Гянджанско-Дашкасанской области (13 видов) и Ленкораньско-Астарской области (12 видов). *Colletes perplexus* Kuhlmann, Proshchalykin et Maharramov, 2026 из Азербайджана является младшим омонимом *C. perplexus* Smith, 1879, описанного из Мексики. Вместо омонимического названия предлагается новое замещающее название *Colletes octogintaleleji* **nom.n.**

Introduction

The present paper is a continuation of the ongoing research of the bees from Azerbaijan [Aliyev et al., 2017; Proshchalykin et al., 2019; Fateryga et al., 2020, 2025b; Proshchalykin, Maharramov, 2020; Proshchalykin, Datche, 2021; Maharramov et al., 2021, 2023; Astafurova et al., 2024a, b; Kuhlmann et al., 2026].

The genus *Colletes* Latreille, 1802 currently includes approximately 520 described species with an estimated total of ~ 700 species [Proshchalykin, Kuhlmann 2023] from all continents except Antarctica and Oceania [Michener, 2007; Kuhlmann, 2014].

Colletes squamosus was the first species of the genus described from Azerbaijan (former station Tschemachlinskaja near Shamakhi, 40°37'N 48°38'E) [Morawitz, 1877], and a total of nine species have been described since from this country (Noskiewicz — 4 species, Kuhlmann and Proshchalykin — 3 species, Morawitz — 1 species, Morice — 1 species). *Colletes perplexus* Kuhlmann, Proshchalykin et Maharramov, 2026 recently described from the Nakhchivan Autonomous Republic [Kuhlmann et al., 2026], turned out to be a junior homonym of *C. perplexus* Smith, 1879, described from Orizaba (Mexico) [Smith, 1879]. The new replacement name *Colletes octogintaleleji* **nom.n.** is proposed in this paper instead of the homonymic name. Forty-two *Colletes* species have been recorded from Azerbaijan so far [Morawitz, 1877; Noskiewicz, 1936; Warncke, 1978; Skhirtladze, 1981; Aliev, 1985; Aliev, Kirschey, 2010; Kuhlmann, Proshchalykin, 2016; Proshchalykin, Kuhlmann, 2018; Kuhlmann et al., 2026]. Some *Colletes* records published by Aliev [1985] and Aliev and Kirschey [2010] are problematic. Apart from confused nomenclature, some of the species reported in these papers are taxonomically difficult, the Caucasus region is far outside of their known range and reference specimens

could not be studied. Thus, dubious records from these publications are not included. The record of *Colletes armeniacus* (Friese, 1921) for Azerbaijan [Kuhlmann, Proshchalykin, 2016: 381, Table 1] is also erroneous and this species is not included in the final checklist.

The present work is registered in ZooBank (www.zoobank.org) under urn:lsid:zoobank.org:pub: 9A2DC0E7-8B6B-4033-BFDA-C1D78BDBE605

Checklist of *Colletes* species of Azerbaijan

Colletes albomaculatus (Lucas, 1849)

Published records. Aliev, Kirschey [2010: 35]; Kuhlmann, Proshchalykin [2016: 380]; Kuhlmann et al. [2026: 108].

Distribution in Azerbaijan. Nakhchivan AR, Quba-Khachmaz.

Colletes asiaticus Kuhlmann, 1999

Published records. Kuhlmann, Proshchalykin [2016: 379].

Distribution in Azerbaijan. Shaki-Zagatala.

Colletes bidentulus Noskiewicz, 1936

Published records. Noskiewicz [1936: 132]; Kuhlmann, Proshchalykin [2016: 369].

Distribution in Azerbaijan. Ganja-Dashkasan, Nakhchivan AR.

Colletes brevigena Noskiewicz, 1936

Published records. Kuhlmann, Proshchalykin [2016: 380].

Distribution in Azerbaijan. Shaki-Zagatala, Karabakh, Central Aran.

Colletes carinatus Radoszkowski, 1891

Published records. Noskiewicz [1936: 137]; Aliev [1985: 208]; Aliev, Kirschey [2010: 34]; Kuhlmann, Proshchalykin [2016: 370].

Distribution in Azerbaijan. Ganja-Dashkasan, East Zangezur, Nakhchivan AR, Shaki-Zagatala, Baku.

Colletes cariniger Pérez, 1903

Published records. Kuhlmann, Proshchalykin [2016: 377]; Kuhlmann et al. [2026: 108].

Distribution in Azerbaijan. Nakhchivan AR, Baku.

Colletes caskanus (Strand, 1919)

Published records. Kuhlmann et al. [2026: 107].

Distribution in Azerbaijan. Nakhchivan AR.

Colletes caspicus Morawitz, 1874

Published records. Noskiewicz [1936: 159]; Aliev [1985: 207]; Aliev, Kirschey [2010: 34]; Kuhlmann, Proshchalykin [2016: 370].

Distribution in Azerbaijan. Ganja-Dashkasan, Nakhchivan AR, Mountainous Shirvan.

Colletes chengtehensis Yasumatsu, 1935

Published records. Skhirtladze [1981: 12]; Aliev [1985: 207]; Aliev, Kirschey [2010: 35]; Kuhlmann, Proshchalykin [2016: 379].

Distribution in Azerbaijan. East Zangezur, Nakhchivan AR, Baku, Mil-Mughan, Lankaran-Astara.

Colletes comatus Noskiewicz, 1936

Published records. Noskiewicz [1936: 216]; Kuhlmann, Proshchalykin [2016: 371].

Distribution in Azerbaijan. Ganja-Dashkasan.



Fig 1. Map of regions of Azerbaijan.

Рис. 1. Карта регионов Азербайджана.

Colletes dluskyi

Kuhlmann et Proshchalykin, 2015

Published records. Kuhlmann, Proshchalykin [2015: 75].**Distribution in Azerbaijan.** Nakhchivan AR.*Colletes dorsalis* Morawitz, 1888**Published records.** Noskiewicz [1936: 502]; Kuhlmann, Proshchalykin [2016: 381].**Distribution in Azerbaijan.** Nakhchivan AR.*Colletes edentulus* Noskiewicz, 1936**Published records.** Noskiewicz [1936: 330]; Kuhlmann, Proshchalykin [2016: 374]; Proshchalykin, Kuhlmann [2018: 9]; Kuhlmann et al. [2026: 101].**Distribution in Azerbaijan.** Nakhchivan AR, Lankaran-Astara.*Colletes eous* Morice, 1904**Published records.** Noskiewicz [1936: 110], Aliev [1985: 208], Aliev, Kirschev [2010: 34]; Kuhlmann, Proshchalykin [2016: 370]; Kuhlmann et al. [2026: 97].**Distribution in Azerbaijan.** Ganja-Dashkasan, East Zangezur, Nakhchivan AR, Baku, Lankaran-Astara.*Colletes fodiens* (Fourcroy, 1785)**Published records.** Aliev [1985: 207]; Aliev, Kirschev [2010: 34].**Distribution in Azerbaijan.** Central Aran, Mountainous Shirvan.*Colletes glaber* Warncke, 1978**Published records.** Kuhlmann et al. [2026: 101].**Distribution in Azerbaijan.** Nakhchivan AR.*Colletes graeffei* Alfken, 1900**Published records.** Aliev [1985: 206]; Aliev, Kirschev [2010: 35].**Distribution in Azerbaijan.** Quba-Khachmaz.*Colletes hethiticus* Warncke, 1978**Published records.** Kuhlmann et al. [2026: 107].**Distribution in Azerbaijan.** Nakhchivan AR.*Colletes hylaeiformis* Eversmann, 1852**Published records.** Aliev [1985: 208]; Aliev, Kirschev [2010: 34]; Kuhlmann et al. [2026: 97].**Distribution in Azerbaijan.** Ganja-Dashkasan, Nakhchivan AR, Shaki-Zagatala, Central Aran, Lankaran-Astara.*Colletes idoneus* Cockerell, 1922**Published records.** Kuhlmann et al. [2026: 97].**Distribution in Azerbaijan.** Nakhchivan AR.*Colletes jovel* Kuhlmann et Proshchalykin, 2016**Published records.** Kuhlmann, Proshchalykin [2016: 372]; Proshchalykin, Kuhlmann [2018: 5].**Distribution in Azerbaijan.** Nakhchivan AR.*Colletes kozlovi* Friese, 1913**Published records.** Kuhlmann, Proshchalykin [2016: 374].**Distribution in Azerbaijan.** Shaki-Zagatala, Mil-Mughan.*Colletes longimala*

Kuhlmann et Proshchalykin, 2016

Published records. Kuhlmann, Proshchalykin [2016: 377].**Distribution in Azerbaijan.** Lankaran-Astara.*Colletes maidli* Noskiewicz, 1936**Published records.** Noskiewicz [1936: 166]; Aliev [1985: 208]; Aliev, Kirschev [2010: 34]; Kuhlmann, Proshchalykin [2016: 371]; Kuhlmann et al. [2026: 98].**Distribution in Azerbaijan.** Ganja-Dashkasan, Lankaran-Astara, Shaki-Zagatala, Baku, Shirvan-Salyan, Lankaran-Astara.*Colletes marginatus* Smith, 1846**Published records.** Skhirtladze [1981: 11]; Aliev [1985: 206]; Aliev, Kirschev [2010: 35]; Kuhlmann, Proshchalykin [2016: 379].**Distribution in Azerbaijan.** Nakhchivan AR, Shaki-Zagatala, Central Aran, Mil-Mughan, Lankaran-Astara.*Colletes meyeri* Noskiewicz, 1936**Published records.** Kuhlmann, Proshchalykin [2016: 377].**Distribution in Azerbaijan.** Lankaran-Astara.*Colletes mlokoszewiczi* Radoszkowski, 1891**Published records.** Aliev, Kirschev [2010: 35]; Kuhlmann, Proshchalykin [2016: 376].**Distribution in Azerbaijan.** East Zangezur, Nakhchivan AR, Lankaran-Astara.*Colletes morawitzi* Noskiewicz, 1936**Published records.** Noskiewicz [1936: 177].**Distribution in Azerbaijan.** Ganja-Dashkasan, Nakhchivan AR.*Colletes nasutus* Smith, 1853**Published records.** Aliev [1985: 205]; Aliev, Kirschev [2010: 35]; Kuhlmann, Proshchalykin [2016: 381]; Kuhlmann et al. [2026: 108].**Distribution in Azerbaijan.** East Zangezur, Nakhchivan AR, Mountainous Shirvan.*Colletes octogintaleleji*Kuhlmann, Proshchalykin et Maharramov, **nom.n.**<https://zoobank.org/NomenclaturalActs/23AE3D85-EA39-4944-9DBB-06B8A321B31D>*Colletes perplexus* Kuhlmann, Proshchalykin et Maharramov, 2026: 98–101, ♂, junior homonym of *Colletes perplexus* Smith, 1879: 1.**Published records.** Kuhlmann et al. [2026: 98].**Distribution in Azerbaijan.** Nakhchivan AR.**Remarks.** The species is named after a well-known Russian entomologist Prof. Arkady S. Lelej (Federal Scientific Center of the East Asia Terrestrial Biodiversity, Far East Branch of the Russian Academy of Sciences, Vladivostok, Russia) on the occasion of his 80th birthday.*Colletes ottomanus* Noskiewicz, 1958**Published records.** Kuhlmann, Proshchalykin [2016: 373].**Distribution in Azerbaijan.** Nakhchivan AR, Baku.

Colletes penulatus Noskiewicz, 1936

Published records. Noskiewicz [1936: 287]; Warncke [1978: 343].

Distribution in Azerbaijan. Nakhchivan AR.

Colletes punctatus Mocsáry, 1877

Published records. Aliev [1985: 206]; Aliev, Kirschev [2010: 35].

Distribution in Azerbaijan. East Zangezur.

Colletes roborovskyi Friese, 1913

Published records. Noskiewicz [1936: 246].

Distribution in Azerbaijan. Ganja-Dashkasan.

Colletes rubellus Noskiewicz, 1936

Published records. Noskiewicz [1936: 205]; Warncke [1978: 341].

Distribution in Azerbaijan. Ganja-Dashkasan, Nakhchivan AR.

Colletes senilis (Eversmann 1852)

Published records. Noskiewicz [1936: 341]; Kuhlmann, Proshchalykin [2016: 376]; Kuhlmann et al. [2026: 107].

Distribution in Azerbaijan. Nakhchivan AR.

Colletes similis Schenck, 1853

Published records. Aliev, Kirschev [2010: 35]; Kuhlmann, Proshchalykin [2016: 375].

Distribution in Azerbaijan. Nakhchivan AR, Lankaran-Astara.

Colletes squamosus Morawitz, 1877

Published records. Morawitz [1877: 95]; Noskiewicz [1936: 188].

Distribution in Azerbaijan. Nakhchivan AR, Mountainous Shirvan.

Colletes squamulosus Noskiewicz, 1936

Published records. Noskiewicz [1936: 195]; Kuhlmann, Proshchalykin [2016: 373].

Distribution in Azerbaijan. Ganja-Dashkasan.

Colletes succinctus (Linnaeus, 1758)

Published records. Morawitz [1877: 97]; Aliev, Kirschev [2010: 35]; Kuhlmann, Proshchalykin [2016: 380].

Distribution in Azerbaijan. Ganja-Dashkasan, Lankaran-Astara

Colletes tuberculatus Morawitz, 1893

Published records. Aliev [1985: 207]; Aliev, Kirschev [2010: 34]; Kuhlmann, Proshchalykin [2016: 375].

Distribution in Azerbaijan. Nakhchivan AR.

Colletes wollmanni Noskiewicz, 1936

Published records. Proshchalykin, Kuhlmann [2018: 6]; Kuhlmann et al. [2026: 98].

Distribution in Azerbaijan. Ganja-Dashkasan, Nakhchivan AR.

Conclusion

To date 42 *Colletes* species are currently known to occur in Azerbaijan. For comparison, 45 species have

been recorded from Iran, 28 species from Armenia, 17 species from Georgia, and 25 species from Dagestan (Russia) [Kuhlmann, Proshchalykin, 2016; Kuhlmann et al. 2023; Proshchalykin, Kuhlmann, 2025]. The largest number of species are found in the Nakhchivan Autonomous Republic (29 species), the Ganja-Dashkasan Region (13 species) and the Lankaran-Astara Region (12 species). In other regions, species diversity is lower (one to six species), and *Colletes* have not yet been recorded in the Absheron-Khizi and Qazakh-Tovuz regions.

Landscapes of the Nakhchivan Autonomous Republic are mostly xeric herb and shrub communities, with just a few trees along river valleys, which are known as favourable for the bee diversity [Orr et al., 2020]. Moreover, intensive bee collections have been carried out in this republic over the past ten years. As a result, in addition to new bee records for Azerbaijan's fauna, four new *Colletes* species have been described (*C. dlusskyi* Kuhlmann et Proshchalykin, 2015, *C. jovel* Kuhlmann et Proshchalykin, 2016, *C. longimala* Kuhlmann et Proshchalykin, and *C. octogintaleleji* Kuhlmann, Proshchalykin et Maharramov, 2026).

Therefore, we can conclude that the other territory of Azerbaijan is still poorly explored. A similar conclusion was recently made during a study of the pollen wasps [Fateryga et al., 2025a] and megachilid bees [Fateryga et al., 2025b]. Further collecting efforts may surely reveal the existence of more species in this country.

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References

- Aliev H.A. 1985. Contribution to the fauna of *Colletes* Latreille 1802 in Soviet Azerbaijan (Hymenoptera: Apoidea: Colletidae) // Senckenbergiana Biologica. Vol.65. No.3/6. P.205–210.
- Aliev H.A., Kirschev T. 2010. Beitrag zur Bienenfauna Aserbaidschans. 1. Die Gattung *Colletes* Latreille, 1802 // Insecta. Vol.12. P.33–35.
- Aliyev Kh.A., Proshchalykin M.Yu., Maharramov M.M., Huseinzade G.A. 2017. [To the knowledge of the genus *Andrena* Fabricius, 1775 (Hymenoptera: Apoidea: Andrenidae) of Azerbaijan] // Caucasian Entomological Bulletin. Vol.13. No.1. P.99–109. [In Russian] [https:// doi.org/10.23885/1814-3326-2017-13-1-99-109](https://doi.org/10.23885/1814-3326-2017-13-1-99-109)
- Astafurova Yu.V., Maharramov M.M., Proshchalykin M.Yu. 2024a. The genus *Lasioglossum* Curtis, 1833 (Hymenoptera, Halictidae) in Azerbaijan // Journal of Hymenoptera Research. Vol.97. P.849–880. <https://doi.org/10.3897/jhr.97.135381>
- Astafurova Yu.V., Proshchalykin M.Yu., Maharramov M.M. 2024b. A new species and new records of *Lasioglossum* Curtis (Hymenoptera, Halictidae) from Azerbaijan // Far Eastern Entomologist. No.513. P.1–9. <https://doi.org/10.25221/fee.513.1>
- Fateryga A.V., Mauss V., Proshchalykin M.Yu., Maharramov M.M. 2025a. Taxonomic review of the pollen wasps (Hymenoptera: Vespidae: Masarinae) from the Caucasus, with the description of two new species, new nest and flower-visiting records, and a key to the species // Zootaxa. Vol.5716. No.4. P.514–540. <https://doi.org/10.11646/zootaxa.5716.4.3>
- Fateryga A.V., Proshchalykin M.Yu., Maharramov M.M. 2020. Bees of the tribe Anthidiini (Hymenoptera, Megachilidae) of

- Nakhchivan Autonomous Republic of Azerbaijan // Entomological Review. Vol.100. No.3. P.323–336. <https://doi.org/10.1134/S0013873820030069>
- Fateryga A.V., Proshchalykin M.Yu., Maharramov M.M. 2025. A survey of megachilid bees of the Nakhchivan Autonomous Republic of Azerbaijan, with description of a new species of *Pseudoanthidium* Friese, 1898 (Hymenoptera, Megachilidae) // ZooKeys. Vol.1262. P.221–240. <https://doi.org/10.3897/zookeys.1262.173271>
- Kuhlmann M. 2014. *Colletes kinabalu* n. sp., first record of the genus for the Malay Archipelago and Southeast Asia (Hymenoptera: Anthophila: Colletidae) // Journal of Melittology. Vol.28. P.1–6. <https://doi.org/10.17161/jom.v0i28.4614>
- Kuhlmann M., Proshchalykin M.Yu. 2015. A new species of the genus *Colletes* Latreille, 1802 (Hymenoptera, Colletidae) from Azerbaijan // Caucasian Entomological Bulletin. Vol.11. No.1. P.75–77. <https://doi.org/10.23885/1814-3326-2015-11-1-75-77>
- Kuhlmann M., Proshchalykin M.Yu. 2016. The genus *Colletes* (Hymenoptera: Apoidea: Colletidae) in Caucasus // Zootaxa. Vol.4161. No.3. P.367–385. <https://doi.org/10.11646/zootaxa.4161.3.5>
- Kuhlmann M., Proshchalykin M.Yu., Maharramov M.M. 2026. New and little-known bees of the genus *Colletes* Latreille, 1802 (Hymenoptera, Colletidae) from the Nakhchivan Autonomous Republic of Azerbaijan, with descriptions of two new species // ZooKeys. Vol.1268. P.95–112. <https://doi.org/10.3897/zookeys.1268.174008>
- Kuhlmann M., Schmid-Egger C., Liebig W.-H. 2023. Three new *Colletes* species from Iran (Hymenoptera, Colletidae) // Linzer Biologische Beiträge. Bd.55. H.1. S.37–45.
- Maharramov M.M., Fateryga A.V., Proshchalykin M.Yu. 2021. Megachilid bees (Hymenoptera: Megachilidae) of the Nakhchivan Autonomous Republic of Azerbaijan: tribes Lithurgini, Dioxyini, and Megachilini // Far Eastern Entomologist. No.428. P.12–24. <https://doi.org/10.25221/fee.428.3>
- Maharramov M.M., Fateryga A.V., Proshchalykin M.Yu. 2023. New records of megachilid bees (Hymenoptera: Megachilidae) from the Nakhchivan Autonomous Republic of Azerbaijan // Far Eastern Entomologist. No.472. P.18–24. <https://doi.org/10.25221/fee.472.2>
- Michener C.D. 2007. The bees of the world. Second Edition. Baltimore, Maryland: Johns Hopkins University Press. 953 p.
- Morawitz F. 1877. Nachtrag zur Bienenfauna Caucasiens // Horae Societatis Entomologicae Rossicae. Vol.14. No.1. P.3–112.
- Noskiewicz J. 1936. Die Palearktischen *Colletes*-Arten. Lwow: Wydawnictwo Towarzystwa Naukowego we Lwowie. v + 532 p.
- Orr M.C., Hughes A.C., Chesters D., Pickering J., Zhu C.-D., Ascher J.S. 2020. Global patterns and drivers of bee distribution // Current Biology. Vol.31. No.3. P.451–458. <https://doi.org/10.1016/j.cub.2020.10.053>
- Proshchalykin M.Yu., Dathe H.H. 2021. New and little-known bees of the genus *Hylaeus* Fabricius, 1793 (Hymenoptera: Colletidae) from the Caucasus region // Journal of Hymenoptera Research. Vol.84. P.169–185. <https://doi.org/10.3897/jhr.84.68250>
- Proshchalykin M.Yu., Kuhlmann M. 2018. New records of rarely collected bees of the genus *Colletes* Latreille (Hymenoptera, Colletidae) from Asia and the Caucasus // Far Eastern Entomologist. No.355. P.1–12. <https://doi.org/10.25221/fee.355.1>
- Proshchalykin M.Yu., Kuhlmann M. 2023. New and little-known bees of the genus *Colletes* Latreille, 1802 (Hymenoptera: Colletidae) from Siberia // Journal of Hymenoptera Research. Vol.96. P.33–43. <https://doi.org/10.3897/jhr.96.101740>
- Proshchalykin M.Yu., Kuhlmann M. 2025. A new species and new records of *Colletes* Latreille (Hymenoptera, Colletidae) from Dagestan Republic, Russia // Zootaxa. Vol.5715. No.1. P.308–316. <https://doi.org/10.11646/zootaxa.5715.1.29>
- Proshchalykin M.Yu., Maharramov M.M. 2020. Additional records of osmiine bees (Hymenoptera: Megachilidae: Osmiini) from Azerbaijan // Acta Biologica Sibirica. Vol.6. P.33–42. <https://doi.org/10.3897/abs.6.e53095>
- Proshchalykin M.Yu., Maharramov M.M., Aliyev Kh.A. 2019. New data on the tribe Osmiini (Hymenoptera: Megachilidae) from Azerbaijan // Far Eastern Entomologist. No.383. P.12–20. <https://doi.org/10.25221/fee.383.3>
- Skhirtladze I.A. 1981. [The bees of the Transcaucasus (Hymenoptera, Apoidea)]. Tbilisi: Metsniereba. 148 p. [In Russian]
- Smith F. 1879. Descriptions of new species of Hymenoptera in the Collections of the British Museum. London: British Museum. xxi + 240 p. <https://doi.org/10.5962/bhl.title.60089>
- Warncke K. 1978. Über die westpaläarktischen Arten der BienenGattung *Colletes* Latr. (Hymenoptera, Apoidea) // Polskie Pismo Entomologiczne. Vol.48. P.329–370.

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