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Contribution to the bee fauna (Hymenoptera: Apoidea) of Poland. II.

Waldemar CELARY, Bogdan WIŚNIOWSKI

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Abstract. New records of eleven very rare species of short-tongued bees (Colletidae, Andrenidae and Halictidae) from Poland are given. Their localities in Poland, distribution and bionomics are presented.

Key words: Hymenoptera, Apoidea, Colletidae, Andrenidae, Halictidae, distribution, bionomics, Poland.

Waldemar CELARY, Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Sławkowska 17, 31–016 Kraków, Poland.
E-mail: celary@isez.pan.krakow.pl
Bogdan WIŚNIOWSKI, Ojców National Park, 32–047 Ojców, Poland.
E-mail: bogdan@isez.pan.krakow.pl

I. INTRODUCTION

The present paper gives new data on the distribution of 11 rare species of short tongued bees (Colletidae, Andrenidae and Halictidae) in Poland[1]. The paper also summarizes all available information concerning bionomics of these species. The partitioning of Poland into zoogeographical regions follows the one used in the "Katalog fauny Polski" (BURAKOWSKI et al. 1973). For each locality the UTM coordinates are given. Material is housed in the collection of the Museum of Ojców National Park (Ojców).

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[1]The first contribution was published in 2001 (CELARY, WIŚNIOWSKI 2001).

II. SYSTEMATIC PART

Colletidae

Hylaeus cardioscapus COCKERELL, 1924

This very rare East Palaearctic species belongs to the subgenus *Hylaeus* FABRICIUS. It inhabits Central and Eastern Europe where it was recorded from eastern parts of Austria and Germany (SCHWARZ et al. 1996), southern Poland (CELARY 1999), Ukraine (OSYTSCHNIUK 1970 – as *Prosopis annulata*), and from Slovakia (PŘIDAL 1998). The species was recorded from southern Finland up to 63°N as well (NIEMELÄ 1947). It is also known from Siberia and Russian Far East (OSYTSCHNIUK & ROMANKOVA 1995). Imagines fly from June till the end of August. *H. cardioscapus* visits blooming plants of families: Apiaceae (*Aegopodium podagraria* L., *Angelica sylvestris* L. and *Pimpinella saxifraga* L.), Asteraceae (*Achillea millefolium* L., *Cichorium intybus* L., *Crepis biennis* L., *Hieracium umbellatum* L., *Leontodon autumnalis* L. and *Solidago virgaurea* L.), Boraginaceae (*Echium vulgare* L.), Campanulaceae (*Campanula glomerata* L. and *Jasione montana* L.), Caryophyllaceae (*Stellaria graminea* L.), Crassulaceae (*Sedum acre* L. and *S. album* L.), Plumbaginaceae (*Armeria* spp.), Ranunculaceae (*Ranunculus acris* L.), Rosaceae (*Comarum palustre* L., *Potentilla argentea* L., *Rubus idaeus* L. and *Spirea* spp.), and Scrophulariaceae (*Linaria vulgaris* MILL. and *Veronica longifolia* L.). It also visits flowers of various species of mallows and phacelias. Females make nests in wooden walls, wooden bars and poles, sometimes in rotten wood (CELARY 1999, NIEMELÄ 1947, WESTRICH 1989).

Until present *Hylaeus cardioscapus* was known in Poland from three localities in the Kraków-Wieluń Upland (CELARY 1999). Recently the species was found on another stand.

New locality. **Kraków-Wieluń Upland**: DA16 Ojców (Ojców National Park), 3.06.2000 – ♂ on Apiaceae, leg. B. WIŚNIOWSKI.

Hylaeus cornutus CURTIS, 1831

This very rare Subponto-mediterranean species belongs to the subgenus *Abrupta* POPOV. It occurs in warm places of whole Europe excluding its northern part (DATHE 1980). The northernmost records come from southern parts of Great Britain and Denmark (up to 55°N). *H. cornutus* inhabits also North Africa (Morocco, Algeria, Egypt), as well as West and Central Asia (Caucasus, Turkey, Israel, Iraq, Iran and Turkestan) (CELARY & DYLEWSKA 1988, PAGLIANO 1993). Adults fly from June till the end of August. The bees visit flowering plants of families Apiaceae (*Aegopodium podagraria* L., *Daucus carota* L., and *Eryngium campestre* L.,), Brassicaceae (*Berteroa incana* (L.) DC., *Brassica elongata* EHRH., *Cardaria draba* (L.) DESV.), and flowers of various species of genus *Euphorbia* L. Females nest in hollow stems of raspberry (*Rubus* L), dock (*Rumex* L.), and sage (*Salvia* L.); nests are sometimes made in galls on *Eryngium campestre* (CELARY & DYLEWSKA 1988, OSYTSCHNIUK 1970).

Until now *Hylaeus cornutus* was known from five stands in Wielkopolska-Kujawy Lowland (XU79 Nakło – TORKA 1913; WU14 Gorzów Wielkopolski, CD09 Bydgoszcz, CD19 Bydgoszcz-Fordon, CE10 Strzelce Dolne – PAWLIKOWSKI 2000) and from single locality in Lublin Upland (EB69 Puławy – RUSZKOWSKI & GOSEK 1999). Recently the species was found on another stands in Kraków-Wieluń Upland and Eastern Beskid Mts.

New localities. **Kraków-Wieluń Upland**: DA16 Grodzisko (Ojców National Park), 21.08.2002 – ♀, leg. B. WIŚNIOWSKI; DA16 Młynnik (Ojców National Park), 9.06.2003 – ♀ and 2♂♂ on Apiaceae, leg. B. WIŚNIOWSKI. **Eastern Beskid Mts**: EV39 Pielgrzymka, 9.08.2003 – ♀, leg. A. KLASA.

Hylaeus pfankuchi (ALFKEN, 1919)

This extremely rare species belongs to the subgenus *Lambdopsis* POPOV. In Europe *H. pfankuchi* is known from France (WARNCKE 1970), Slovenia (GOGALA 1999), Switzerland, Germany, Austria (SCHWARZ et al. 1996), Czech and Slovak Republic (WARNCKE 1986), Hungary (DATHE 1980), Ukraine (OSYTSCHNIUK 1970), Poland (BANASZAK & KRZYSZTOFIAK 1996), and Finland (LOMHOLD 1989). The species was also recorded from Russian Far East – on Kurile Islands and in Primorskiy Kray (OSYTSCHNIUK & ROMANKOVA 1995).

Imagines fly from the end of May till the half of August. *H. pfankuchi* visits mainly blooming plants of families Apiaceae, Asteraceae (GOGALA 1999) and Rosaceae (OSYTSCHNIUK 1970), but in Poland it was collected on flowers of *Ranunculus* spp. (BANASZAK & KRZYSZTOFIAK 1996). Females nest in hollow stems of the reed – *Phragmites australis* (CAV.) TRIM. ex. STEUD. (WESTRICH 1989).

Until now the species was known in Poland from the only stand in Biebrza National Park in Masurian Lakeland (BANASZAK & KRZYSZTOFIAK 1996). Recently the second locality was discovered in Western Beskid Mts.

New locality. **Western Beskid Mts**: DA13 Skawina, 16.07.2001 – 2♀♀ on flowers of *Heracleum sphondylium*, leg. B. WIŚNIOWSKI.

Hylaeus variegatus (FABRICIUS, 1798)

This very rare species belongs to the subgenus *Prosopis* FABRICIUS. It inhabits warm areas of Europe except of Great Britain and Scandinavia (DATHE 1980). The species lives also in North Africa and West and Central Asia (CELARY & DYLEWSKA 1988, OSYTSCHNIUK 1970, PAGLIANO 1993). It was recorded from Siberia, Mongolia and Russian Far East as well (OSYTSCHNIUK & ROMANKOVA 1995). *H. variegatus* has two generations; the bees are on wings from June to the beginning of September. They visit mainly flowering plants of families: Apiaceae, Asteraceae, Brassicaceae, Fabaceae, Lamiaceae and Rosaceae. Females make their nests in pre-existing burrows in the ground (especially in abandoned nests of bees from the family Halictidae) (CELARY & DYLEWSKA 1988, OSYTSCHNIUK 1970).

Hylaeus variegatus is known from single stands in some regions of Poland: Pomeranian Lakeland, Wielkopolska-Kujawy Lowland, Lower Silesia, Trzebnica Hills, Western and Eastern Sudetes (CELARY & DYLEWSKA 1988), and from "Góry Pieprzowe" Hills in Małopolska Upland (BANASZAK 2003). Recently a new locality in the Małopolska Upland was discovered.

New locality. **Małopolska Upland**: DA78 Skorocice Reserve, 14.06.2002 – ♂, leg. A. KLASA.

Andrenidae

Andrena congruens SCHMIEDEKNECHT, 1883

This very rare Subponto-mediterranean species belongs to the subgenus *Simandrena* PÉREZ. It lives in South and Central Europe (no records from Netherlands, Belgium and Denmark so far), in southern England, Ukraine and in European part of Russia. The species is known also from Caucasus, Turkey, Israel and coasts of North Africa (DYLEWSKA 1987a, GOGALA 1999, PAGLIANO 1993, SCHWARZ et al. 1996, WARNCKE 1986). *A. congruens* has two generations; the bees fly from May till June and from June till August. They visit flowering plants of the following families: Apiaceae, Asteraceae, Brassicaceae, Caryophyllaceae, Fabaceae, Rosaceae, Salicaceae and Saxifragaceae. Females nest in the ground (DYLEWSKA 1987a).

Until now the species was known from single stands in Ojców National Park, Pieniny Mts. and in Beskid Sądecki Mts. (DYLEWSKA 1987b). Recently the localities in Ojców NP were confirmed, and some new stands were found in Bieszczady Mts.

New localities. **Kraków-Wieluń Upland**: DA16 Ojców (Ojców National Park), 23.06.2002 – ♀, leg. B. WIŚNIOWSKI; DA16 Grodzisko–Skały Ciche (Ojców National Park), 5.07.2002 – 2♀♀ on flowers of *Libanotis montana*, leg. B. WIŚNIOWSKI. **Bieszczady Mts**: FV04 Wetlina (Bieszczady National Park, alt. 680–700m), 17.07.1999 – ♀ and 20.07.2000, ♀ in a herb community, leg. B. WIŚNIOWSKI; FV14 Ustrzyki Górne (alt. 680m), 7.06.1999 – ♀ in herb community along Wołosatka stream, leg. B. WIŚNIOWSKI.

Andrena intermedia THOMSON, 1870

This very rare European species belongs to the subgenus *Taeniandrena* HEDICKE. It occurs in whole Europe (no records from Great Britain and European part of Russia) and in Turkey (DYLEWSKA 1987a). *A. intermedia* has one generation; adults fly from June till July. The bees visit flowering plants of family Fabaceae (oligolectic species), sometimes flowers of *Symphytum officinale* L. Females nest in the ground (DYLEWSKA 1987a, GOGALA 1999).

Until now *A. intermedia* was known only from three stands in valley of Poprad River (Western Beskid Mts.) and in Sandomierz Basin (DYLEWSKA 1987b). Recently some new localities of the species in Bieszczady Mts. were found.

New localities. **Bieszczady Mts**: FV15 Otryt, 29.06.2000 – ♀ in a quarry, leg. A. KLASA; FV04 Wetlina (Bieszczady National Park, alt. 680–700m), 26.07.2000 – ♀ in a herb community, and FV14 Wołosate (Bieszczady National Park, alt.700–720m), 7.06.1999 – ♀ on Asteraceae, leg. B. WIŚNIOWSKI.

Andrena limata SMITH, 1853

This very rare Subponto-mediterranean species belongs to the subgenus *Melandrena* PÉREZ. It inhabits Europe (except its northern part), North Africa, as well as West and Central Asia (DYLEWSKA 1987a). *A. limata* has two generations; the bees fly from the end of April to the half of June and from August to September. It is polylectic species. First generation visits mainly flowers of *Salix* spp., *Taraxacum* spp. and *Tussilago farfara* L., while the second one may be found on flowers of various plants belonging to families: Asteraceae, Brassicaceae, Campanulaceae, Ericaceae and Fabaceae. Females make their nests in the ground (DYLEWSKA 1987a).

Until recently *A. limata* was known in Poland only from few stands in south-eastern part of the country (DYLEWSKA 1987b). Two new localities of the species were discovered recently in Upper Silesia and in Kraków-Wieluń Upland.

New localities. **Upper Silesia**: CA57 Chorzów (open air museum), 25.05.2001 – ♀, leg. B. WIŚNIOWSKI. **Kraków-Wieluń Upland**: DA16 Wąwóz Jamki (Ojców National Park), 17.04.2002 – ♀ on flowers of *Petasites albus*, leg. B. WIŚNIOWSKI.

Andrena pontica WARNCKE, 1972

This extremely rare West Pontic species belongs to the subgenus *Notandrena* PÉREZ. It was recorded from Slovenia, Austria, Slovak Republik, Hungary, Rumania, and Poland (DYLEWSKA 1987ab, GOGALA 1999, SCHWARZ et al. 1996, WARNCKE 1986). *A. pontica* has two generations; the adults fly from half of May till half of July and from end of July to end of August. The species visits blooming plants of families Apiaceae, Asteraceae, and some species of Brassicaceae (DYLEWSKA 1987b, GOGALA 1999). Females nest in the ground.

Andrena pontica is known from five localities in southern Poland (DYLEWSKA 1987b). New stands of the species were found recently in Kraków-Wieluń Upland and in Małopolska Upland.

New localities. **Kraków-Wieluń Upland**: DA16 Pieskowa Skała (Ojców National Park), 7.06.2001 – ♀ in a xerothermic grassland; DA16 Grodzisko (Ojców National Park), 5.07.2001 – ♀; DA15 Skała Krzyżowa (Ojców National Park), 29.06.2001 – ♀ in a xerothermic grassland, leg. B. WIŚNIOWSKI. **Małopolska Upland**: DA27 Gołcza, 15.06.2002 – 4♂♂ on Apiaceae in an orchard, leg. B. WIŚNIOWSKI.

Halictidae

Seladonia gavarnica (PÉREZ, 1903)

This extremely rare species inhabits mainly steppe biotopes. It is known from Pyrenees, southern France, mountains of the Balkans, south-western Alps, southern Slovenia, southern Germany, eastern and south-eastern Austria, Hungary, Slovak Republik, southern Poland, Ukraine, Caucasus, Bashkir and Mongolia (EBMER 1988, 1996, GOGALA 1999, PESENKO et al. 2000). Adults fly from the end of May till the first half of September (overwintered females appear at the end of May or the beginning of June and males fly from July). *S. gavarnica* is probably eusocial species, nesting in the ground.

Until now *Seladonia gavarnica* was known in Poland exclusively from Żędowice (CB20) in Upper Silesia (PESENKO et al. 2000). Recently the second locality of the species was found in Małopolska Upland.

New locality. **Małopolska Upland**: DB96 Majków Górki by Skarżysko Kamienna, 4–15.09.2001 – ♂ in a Moericke trap placed in a grassland on sand, leg. T. KOWALSKI.

Lasioglossum sexmaculatum (SCHENCK, 1853)

This very rare species sporadically occurs in Europe and Siberia. In the East it reaches into Yakutia, Buryatia and northern China. *L. sexmaculatum* is known from north-western Spain, Switzerland, Germany, Belgium, Denmark, southern Sweden, Poland, and Czech Republic. The species was recorded also from north-western Iran and Altai Mts. (EBMER 1988, PESENKO et al. 2000, SCHWARZ et al. 1996, WARNCKE 1986). Imagines fly from June till August. *L. sexmaculatum* is probably a solitary species, nesting in the ground.

In Poland the species was known only from Żelice (XA21) in Pomeranian Lakeland and from Żędowice (CB20) in Upper Silesia (PESENKO et al. 2000). Recently the third locality of the species was found.

New locality. **Upper Silesia**: CA57 Chorzów (open air museum), 25.05.2001 – ♀, leg. B. WIŚNIOWSKI.

Evylaeus minutulus (SCHENCK, 1853)

This very rare species sporadically occurs in Central Europe. It inhabits dry and warm areas from northern Spain to Ukraine and from Greece up to Latvia (EBMER 1988). Adults fly from the end of May till August. *E. sexmaculatum* is probably a solitary species, nesting in the ground.

The species is known from single stands in some regions of Poland: Pomeranian and Masurian Lakelands, Wielkopolska-Kujawy Lowland, Western Sudetes, Lower Silesia, and from Małopolska Upland (BANASZAK 2003, PESENKO et al. 2000). Recently a new locality of the species was found in Kraków-Wieluń Upland.

New locality. **Kraków-Wieluń Upland**: DA16 Góra Koronna (Ojców National Park), 11.07.2001 – ♀ in a xerothermic grassland, leg. B. WIŚNIOWSKI.

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