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New and rare species of the genus *Hylaeus* FABRICIUS, 1793 for the fauna of Poland (Hymenoptera: Apoidea: Colletidae)

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CELARY W. 1999. New and rare species of the genus *Hylaeus* FABRICIUS, 1793 for the fauna of Poland (Hymenoptera: Apoidea: Colletidae). Acta zool. cracov., **42**(2): 259-264.

Abstract. First records of *Hylaeus cardioscapus* COCKERELL and *Hylaeus gredleri* FÖRSTER (Colletidae) from Poland are presented. New Polish localities of *Hylaeus leptocephalus* (MORAWITZ), *H. paulus* BRIDWELL and *H. rinki* (GORSKI) are given. Their morphology, distribution and bionomics are described.

Key words: Hymenoptera, Apoidea, Colletidae, *Hylaeus*, Poland.

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I. INTRODUCTION

Hylaeus (Apoidea: Colletidae) is a rather large cosmopolitan genus, whose members are known from all continents (except Antarctica). More than 400 species have been described from the world so far, of which over 100 occur in the Palaearctic, and 63 species occur in Europe (DATHE, 1980, 1996). Hitherto 26 species of *Hylaeus* have been recorded from Poland (BANASZAK, 1991; CELARY & DYLEWSKA, 1988; DYLEWSKA, 1997; RAFA & PAWLIKOWSKI, 1999). All native members of the genus belong to summer bees and have one generation.

In results of my research on wild bees (Apoidea) of the Kraków-Częstochowa Upland, two species new to Poland (*Hylaeus cardioscapus* COCK. and *Hylaeus gredleri* FÖRST.), and three very rare species (*Hylaeus leptocephalus* (MOR.), *Hylaeus paulus* BRIDW., and *Hylaeus rinki* (GOR.) were found.

In the present paper the diagnosis, distribution and bionomics data for each species are given. The systematics applied in this paper follows DATHE (1980). Information about the distribution of presented species was given after CELARY & DYLEWSKA (1988), DATHE (1980), DATHE et al. (1996), OSYTSHNJUK & ROMANKOVA (1995), RASMONT et al. (1995), SCHWARZ et al. (1996) and WARNCKE (1986). Data on the bionomics, as the food plants (flowers visited), flight season and nesting sites come from the papers of CELARY & DYLEWSKA (1988), DATHE et al. (1996) and WESTRICH (1989), and from the data on labels of the material examined. Each Polish locality has coordinates of UTM grid.

Material is housed in the Institute of Systematics and Evolution of Animals of Polish Academy of Sciences, Kraków.

A c k n o w l e d g e m e n t s. I would like to express my sincere thanks to Professor Holger H. DATHE of Deutsches Entomologisches Institut in Eberswalde (Germany) for checking the determinations.

II. SYSTEMATIC PART

Hylaeus (*Dentigera*) *gredleri* FÖRSTER, 1871

Figs 1-2

D i a g n o s i s. Males of *H. gredleri* can be distinguished from those of other species in the subgenus *Dentigera* by the swollen scapes of antennae with yellow-white apical spots (Fig. 1), densely punctured and rough fovea scapales, microsculptured first tergum of abdomen, and third sternum (sometimes fourth one, too) with a pair of small tubercles in the middle. Females can be separated from those of other species in the subgenus by tridentate mandibles, black and densely punctured clypeus, and narrow, yellow-white stripes on paraocular areas (along the inner margins of compound eyes) which extend above the antennal sockets (Fig. 2).

B i o n o m i c s. Flight season: from June till end of August. – Flowers visited: Apiaceae (*Daucus carota* L. and *Peucedanum cervaria* (L.) LAPEYR.), Asteraceae (*Achillea millefolium* L.), Resedaceae (*Reseda lutea* L.) and Rosaceae (*Potentilla argentea* L.). – Nest: in wooden walls, wooden bars and poles or in stems of blackberry (*Rubus* L.).

D i s t r i b u t i o n. Europe (Austria, Corsica, France, Germany, Switzerland, Ural) and Caucasus; northern limit distribution – 51°N. The type of distribution indicates that it is a European element in the fauna of Poland.

C o m m e n t s. Till now *Hylaeus gredleri* FÖRST. has not been recorded from Poland. Recently, the species was found in three sites of southern Poland (see below).

M a t e r i a l e x a m i n e d. Kraków-Częstochowa Upland: CB90 Mirów, 10.07.1994 – ♂ on *Potentilla argentea* L., leg. W. CELARY. DA15 Karniowice, 23.07.1988 – ♂ near nest (on wooden wall), leg. W. CELARY. DB01 Lelów: 27.07.1996 – ♀ on *Achillea millefolium* L. and ♀ on *Daucus carota* L. and ♀ on *Peucedanum cervaria* (L.) LAPEYR., 28.07.1996 – ♀♂ on *Reseda lutea* L., leg. W. CELARY

Hylaeus (*Hylaeus*) *cardioscapus* COCKERELL, 1924

Figs 3-5

D i a g n o s i s. Males of *H. cardioscapus* can be distinguished from those of other species in the subgenus *Hylaeus* by the malar areas shorter than the width of the base of the mandibles, partly yellow and cordate scapes of antennae (Fig. 3), upper part of supraclypeal area inconsiderable narrower than the lower one, a characteristic yellow ornament on the face (Fig. 4), black scutellum, flat third sternum, and polished first tergum. Females of the species can be separated by clypeus without a longitudinal concavity, the characteristic yellow ornament on the paraocular areas (Fig. 5), mesopleurons without sharp edges in the anterior parts, punctation of mesopleurons similar (only inconsiderably coarser) to the same on the mesonotum, black scutellum, black middle and hind basitarsi, and the first tergum of abdomen without lateral fasciae on the distal margin.

B i o n o m i c s. – Flight season: from June till end of August. – Flowers visited: Asteraceae (*Achillea millefolium* L., *Cichorium intybus* L., *Crepis biennis* L. and *Leontodon* sp.), Rosaceae (*Potentilla* sp.) and Boraginaceae (*Echium vulgare* L.). – Nest: in wooden walls, wooden bars and poles.

D i s t r i b u t i o n. – Central and East Europe (eastern Austria and eastern Germany, Finnland, Poland and Ukraine); Asia (Siberia, Russian Far East: Amur oblast, Khabarovsk Kray,

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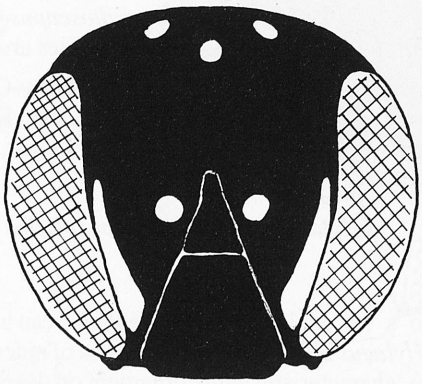

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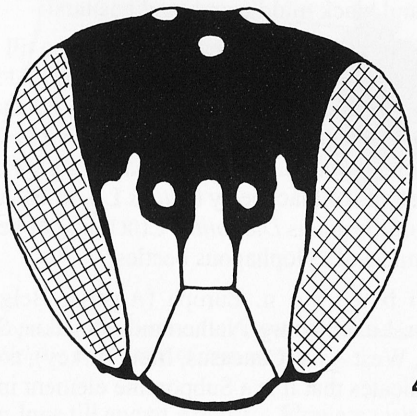

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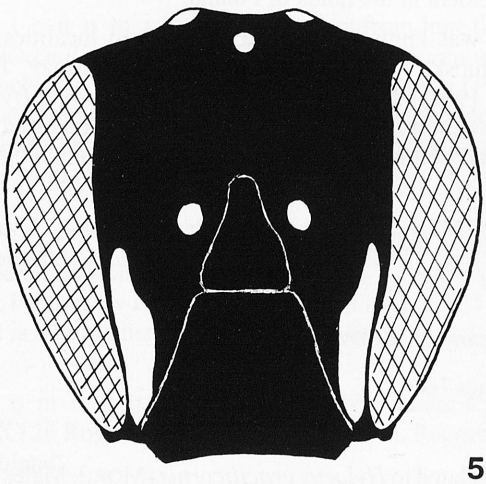

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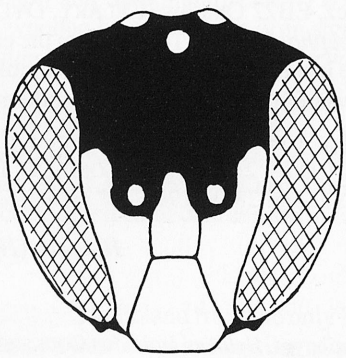

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Figs 1-6. Figs 1-2. *Hylaeus gredleri*: 1 – scape of male antenna; 2 – face of female. Figs 3-5. *Hylaeus cardioscapus*: 3 – scape of male antenna; 4 – face of male; 5 – face of female. Fig 6. *Hylaeus leptocephalus*: face of male.

Chita oblast, Kamchatka Peninsula, Primorskiy Kray, Sakhalin Island); northern limit distribution – 63°N. The type of distribution indicates that it is East Palaearctic element in the fauna of Poland.

C o m m e n t s. Till now *Hylaeus cardioscapus* COCK. has not been recorded from Poland. Three localities from southern Poland of this species are given herein.

M a t e r i a l e x a m i n e d. Kraków-Częstochowa Upland: CA98 Rodaki, 14.07.1992 – ♀ on *Crepis biennis* L., leg. W. CELARY. DA15 Karniowice, 23.07.1988 – 2♂♂ near nests (into wooden wall), leg. W. CELARY. DB01 Lelów, 27.07.1996 – 2♂♂, ♂ on *Achillea millefolium* L., leg. W. CELARY

Hylaeus (Hylaeus) leptocephalus (MORAWITZ, 1870)

Fig. 6

D i a g n o s i s. Males of *H. leptocephalus* can be distinguished from those of other species in the subgenus *Hylaeus* by the cylindrical scapes of antennae with white-yellow apical spots, white supraclypeal area, characteristic white ornament on the face (Fig. 6), malar areas shorter than width of the base of the mandibles, and flat third sternum. Females of the species can be separated by the clypeus without a longitudinal concavity, black scutellum, mesopleurons with punctation distinctly coarser than that of mesonotum, first tergum of abdomen polished and without lateral fasciae on the distal margin, and black middle and hind basitarsi.

B i o n o m i c s. Flight season: from June till end of August. – Flowers visited: Apiaceae (*Angelica sylvestris* L., *Anthriscus sylvestris* (L.) HOFFM., *Daucus carota* L., *Peucedanum cervaria* (L.) LAPEYR.), Asteraceae (*Anthemis tinctoria* L. and *Solidago gigantea* AITON), Brassicaceae (*Brassica rapa* L.), Campanulaceae (*Jasione montana* L.), Lamiaceae (*Melilotus alba* MEDIK.), Resedaceae (*Reseda lutea* L.) and Rosaceae (*Rubus fructicosus* L. NOM. AMBIG. and *Rubus idaeus* L.). – Nest: in stems of blackberry (*Rubus* L.), in banks of clay-like soil or in deserted burrows of sphecid wasps of the genus *Diodontus* CURT. and of bees of the genus *Lasioglossum* CURT.; sometimes in old tunnels of xylophagous beetles.

D i s t r i b u t i o n. Europa (Austria, Belgium, Czech, Denmark, France, Germany, southern Latvia, Luxembourg, Netherland, Slovakia, Switzerland, Ukraine, European part of Russia: Bashkiria), West Asia (Caucasus, Iran, Turkey); northern limit distribution – 57°N. The type of distribution indicates that it is a Subpontine element in the fauna of Poland.

C o m m e n t s. Till now the species was known in Poland from seven localities only (VV83 Goleniów, WV58 Karlino, XA33 Słupsk, XA82 Sierakowice, CF12 Kartuzy, DC27 Łowicz, EB22 Opatów (CELARY, DYLEWSKA, 1988)). Unfortunately, all data concerning *Hylaeus leptocephalus* (MOR.) come from the early 20th century. BANASZAK (1991) writes: "Reported from single localities by out of date entomologists. Its occurrence should be checked". Recently the species was found in two sites of southern Poland.

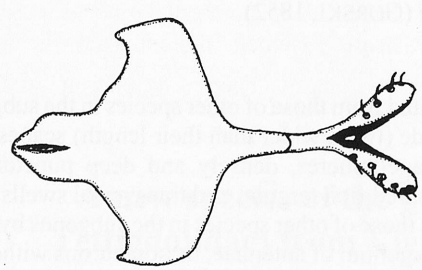
M a t e r i a l e x a m i n e d. Kraków-Częstochowa Upland: DA24 Kraków, 28.07.1921 – 2♂♂, leg. P. ŁOZIŃSKI. DB01 Lelów, 27.07.1996 – ♂ on *Peucedanum cervaria* (L.) LAPEYR. and 28.07.1996 – ♂ on *Reseda lutea* L., leg. W. CELARY

Hylaeus (Hylaeus) paulus BRIDWELL, 1919

Figs 7-9

Synonym. *Hylaeus lepidulus* COCKERELL, 1924

D i a g n o s i s. The species is closely related to *Hylaeus gracilicornis* (MOR.). Males of *H. paulus* can be separated from the males of *H. gracilicornis* (after DATHE et al., 1996) by the V-shaped apical part of median process of eighth sternum (Fig. 7), and characteristic ornament on the face (Fig. 8). Females can be told from these of *H. gracilicornis* by the deep propodeal groove without sharp lateral edges (Fig. 9).



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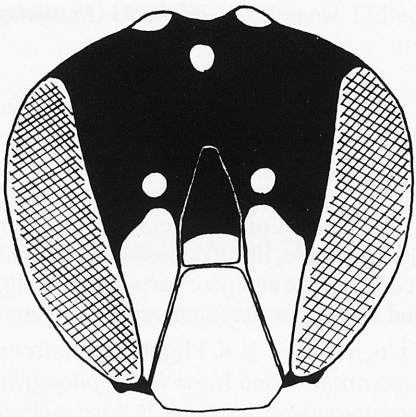

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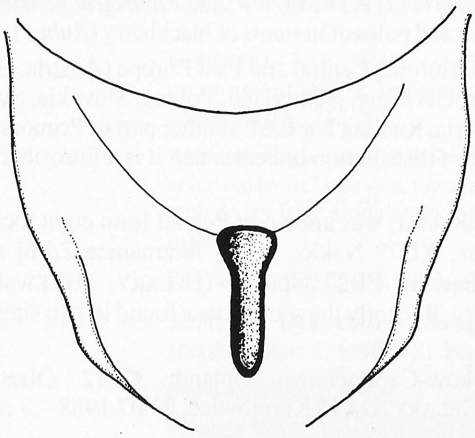

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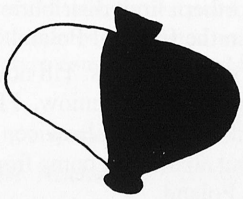

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Figs 7-10. Figs 7-9. *Hylaeus paulus*: 7 – eighth sternum of male (after DATHE et al., 1996); 8 – face of male (after DATHE et al., 1996); 9 – propodeal groove of female. Fig. 10. *Hylaeus rinki*: scape of male antenna. .

B i o n o m i c s. Flight season: from June till end of August. – Flowers visited: Asteraceae (*Achillea millefolium* L.), Brassicaceae (*Barbarea vulgaris* R. BR.), Crassulaceae (*Sedum acre* L.), Lamiaceae (*Glechoma hederacea* L.), Rosaceae (*Potentilla* sp.) and Scrophulariaceae (*Veronica chamaedrys* L. and *V. spicata* L.). – Nest: in wooden walls, wooden bars and poles or in stems of blackberry (*Rubus* L.), stems of thistle (*Carduus* L. and *Cirsium* MILL.), stems of nettle (*Urtica* L.) and of sunflower (*Helianthus tuberosus* L.).

D i s t r i b u t i o n. Southern part of West an Central Europe (Austria, Germany, Poland, Switzerland), Asia (Mongolia, Siberia, Russian Far East: Amur oblast, Khabarovsk Kray, Kurile Islands, Primorskiy Kray; Japan; northern limit distribution – 54°N. The type of distribution indicates that it is a Eurosiberian element in the fauna of Poland.

C o m m e n t s. Till now, *Hylaeus paulus* COCK. was known in Poland from the only locality – XT26 Rogaczewo (DATHE et al, 1996). Recently, the species was found in two sites of southern Poland.

M a t e r i a l e x a m i n e d. Kraków-Częstochowa Upland: CA97 Bolesław, 15.08.1986 – ♀ on *Achillea millefolium* L., leg. W. CELARY. CB91 Trzebniów, 19.06.1994 – ♀ on *Sedum acre* L., leg. W. CELARY

Hylaeus (*Lambdopsis*) *rinki* (GORSKI, 1852)

Fig. 10

D i a g n o s i s. Males of *H. rinki* can be separated from those of other species in the subgenus *Lambdopsis* by the black mandibles, extremely wide (twice wider than their length) scapes of antennae (Fig. 10), yellow-red dorsal surfaces of flagellomeres, densely and deep punctured mesonotum with a distinct microsculpture, microsculptured first tergum, and transversal swells on sterna 3-4. Females of the species can be separated from those of other species in the subgenus by an entirely black face, black or brown ventral surface of flagellum of antennae, mesopleurons without sharp edges on the anterior parts, microsculptured and densely punctured (rough) mesothorax, and polished and almost unpunctured first tergum of abdomen.

B i o n o m i c s. Flight season: from June till end of August. – Flowers visited: Apiaceae (*Daucus carota* L. and *Heracleum sphondylium* L.), Asteraceae (*Cirsium vulgare* (SAVI) TEN. and *Solidago gigantea* AITON) and Rosaceae (*Potentilla erecta* (L.) RAEUSCH. and *Rubus fructicosus* L. NOM. AMBIG.). – Nest: in wooden walls, wooden bars and poles or in stems of blackberry (*Rubus* L.).

D i s t r i b u t i o n. Eastern part of West Europe, Central and East Europe (Austria, Belgium, Czech, Denmark, southern Finnland, France, Germany, Netherland, Poland, Slovakia, Switzerland, Ukraine), Asia (West Asia, Mongolia, Siberia, Russian Far East: souther part of Primorskiy Kray); northern limit distribution – 63°N. The type of distribution indicates that it is a Eurosiberian element in the fauna of Poland.

C o m m e n t s. Till now, *Hylaeus rinki* (GORSKI) was known in Poland from eight localities only (VV83 Goleniów, FF31 Szymanowizna, XU79 Naklo, WS66 Jerzmanice Zdrój and Podgórnik, XS15 Piotrowice, XS36 Wrocław-Rędzin, EB22 Opatów (CELARY, DYLEWSKA, 1988)), but all the data come from early 20th century. Recently the species was found in two sites of southern Poland.

M a t e r i a l e x a m i n e d. Kraków-Częstochowa Upland: CB72 Olsztyn, 8.08.1994 – ♀ on *Solidago gigantea* AIT., leg. W. CELARY. DA15 Karniowice, 23.07.1988 – ♀ near nest (on wooden wall), leg. W. CELARY

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