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Notes on the occurrence of *Acetropis* Fieber, 1858 (Hemiptera: Heteroptera: Miridae) in Poland, with a key to Polish species

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Abstract: In Poland the genus *Acetropis* Fieber, 1858 is represented by three species: *A. carinata* (Herrich-Schaeffer, 1841), *A. gimmerthalii* (Flor, 1860) and *A. longirostris* Puton, 1875. The paper presents illustrated key for the identification of mentioned species, new localities in Poland and the range of their distribution in Palaearctic Region. Additional information on the biology of all species is provided.

Key words: true bugs, plant bugs, faunistics, new records, distribution, key to species

INTRODUCTION

The genus *Acetropis* Fieber, 1858 belongs to the family Miridae, the subfamily Mirinae and the tribe Stenodemiini. Six species of this genus are known in Palaearctic, five of these represent the subgenus *Acetropis*, i.e. *A. carinata* (Herrich-Schaeffer, 1841), *A. gimmerthalii* (Flor, 1860), *A. longirostris* Puton, 1875, *A. stysi* Remane & Günther, 2008 and *A. sinuata* Wagner, 1951, and a single one, namely *A. atropis* Reuter, 1895 – the subgenus *Paracetropis* (Remane & Günther 2008, Aukema et al. 2013).

Representatives of the genus *Acetropis* are characterized by the elongated head with the frons distinctly elongated forward; the first segment of the antennae is thicker than the others. The lateral margins of pronotum are flattened and semierected. Sexual dimorphism occurs: males are always macropterous while females may be macropterous, or with wings reduced to various extent (most often referred to as pseudobrachypterous) (Wagner 1970); the sexes differ also in body colouration (Wagner & Weber 1964).

These bugs occur in open habitats and feed on grasses (Poaceae) (Wachmann et al. 2004).

In the Polish fauna, the genus *Acetropis* is recently represented by three species (Fig. 1): *A. carinata*, *A. gimmerthalii* and *A. longirostris* (Gorczyca 2004, Lis & Dubiel 2013).

MATERIAL AND METHODS

During the preparation of the manuscript we used the literature data, material deposited in collection of Department of Zoology, Faculty of Biology and Environmental Protection, University of Silesia in Katowice (DZUS) and their own observations.

The maps of the occurrence of insects in Poland were obtained by using software MapaUTM v5.2 (<http://www.heteroptera.us.edu.pl/mapautm.html>). The maps of occurrence in the Western Palaearctic are based on Catalogue of the Heteroptera of the Palaearctic Region (Kerzhner & Josifov 1999, Aukema et al. 2013). The colour photographs were obtained by using the following equipment: Leica M205C (stereomicroscope), Leica DFC495 (camera), Leica application suite 4.9.0 (software), Panasonic Lumix DMC FZ-72 (camera), and free graphic editor Paint.NET 4.0.16.

The borders of the geographical regions of Poland follow the Catalogue of the Polish Fauna (Burakowski et al. 1973).

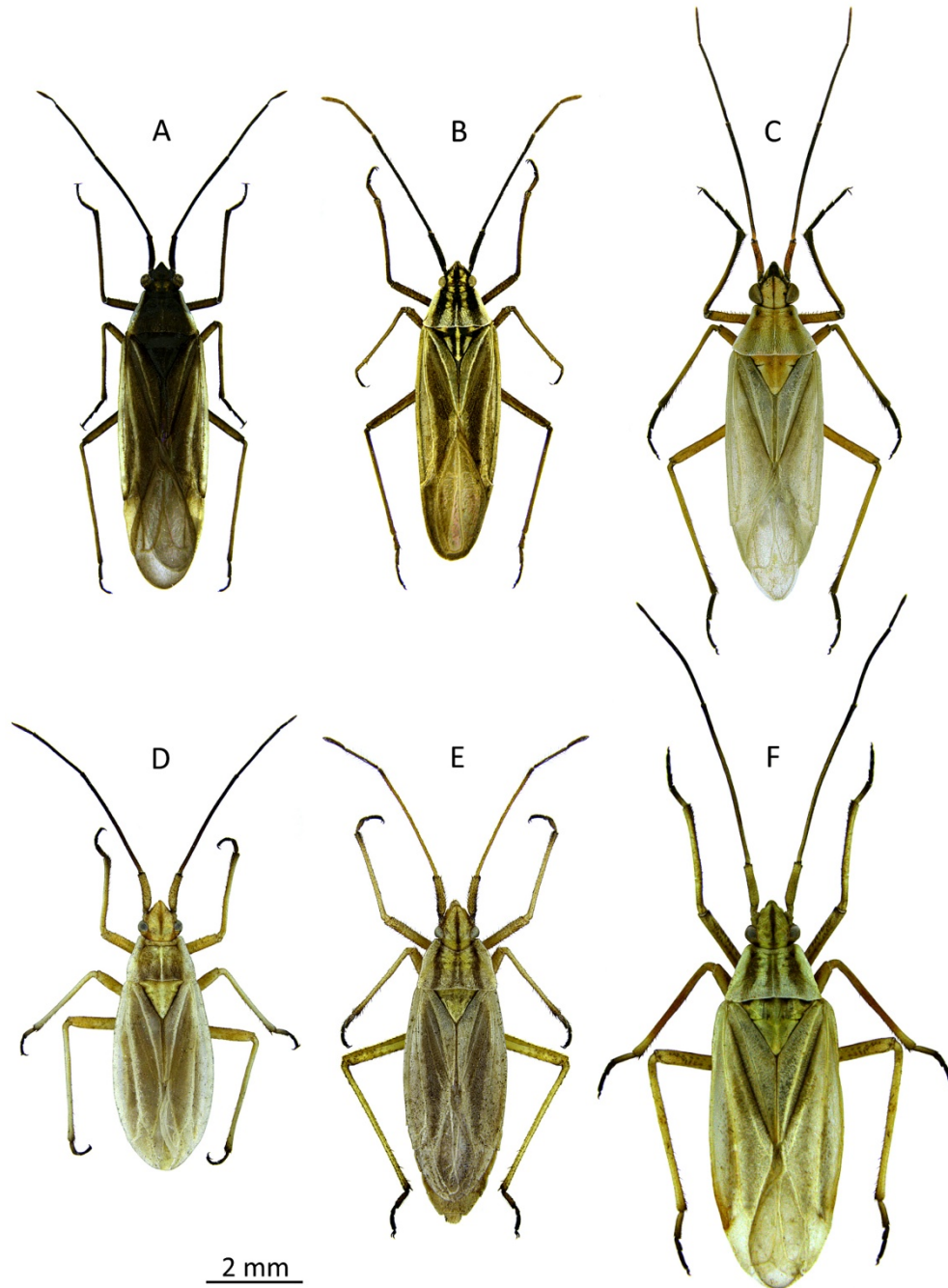


Fig 1. A–F: Habitus of the three *Acetropis* species. Upper row: males: A – *A. carinata*, B – *A. gimmerthalii*, C – *A. longirostris*. Bottom row: females: D – *A. carinata*, E – *A. gimmerthalii*, F – *A. longirostris*. Photo by A. Tazakowski.

SPECIES CHARACTERISTICS AND THEIR DISTRIBUTION

***Acetropis carinata* (Herrich-Schaeffer, 1841)**

Morphology. There is a distinct sexual dimorphism in the species (Fig. 1A, D). The male colouration is gray or almost black, vertex has two oblong spots, the middle line of scutellum, exocorium, cuneus and veins of corium are yellow. Legs are yellow-gray, tarsi and antennae are black. Female colouration is whitish or brownish-yellow. Head has three, pronotum and scutellum two oblong brown stripes. First and base of second antennae segment yellowish, the remaining segments black. Carinae of forewings with brown lines. Female most commonly pseudobrachypterous. Carina of pronotum is distinct in both sexes (Fig. 12A).

Body length. The literature (Wagner 1952, 1970, Wagner & Weber 1964) gives the following sizes: male: 6.4–6.9 mm, female: 6.0–7.0 mm (macropterous form) or 5.6–5.9 mm (pseudobrachypterous form). However some of the examined males were a little bigger – up to 7.1 mm.

Biology. Specimens of this species lives on grasses, prefer dry places, but can be found also in wetter habitats. Adults are found from June to the end of July; it overwinters as an egg, and has one generation per year (Wachmann et al. 2004).

Distribution (according to Kerzhner & Josifov 1999, Aukema et al. 2013; Fig. 2).

Europe: Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, France, Germany, Greece, Hungary, Italy, Kazakhstan (European part), Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Moldova, Netherlands, Poland, Romania, Russia (Central European Territory, South European Territory), Serbia, Slovakia, Spain, Switzerland, Ukraine. North Africa: Algeria, Tunisia (?).

Asia: Azerbaijan, Armenia, Kazakhstan (Asian part), Turkey (Asian part).

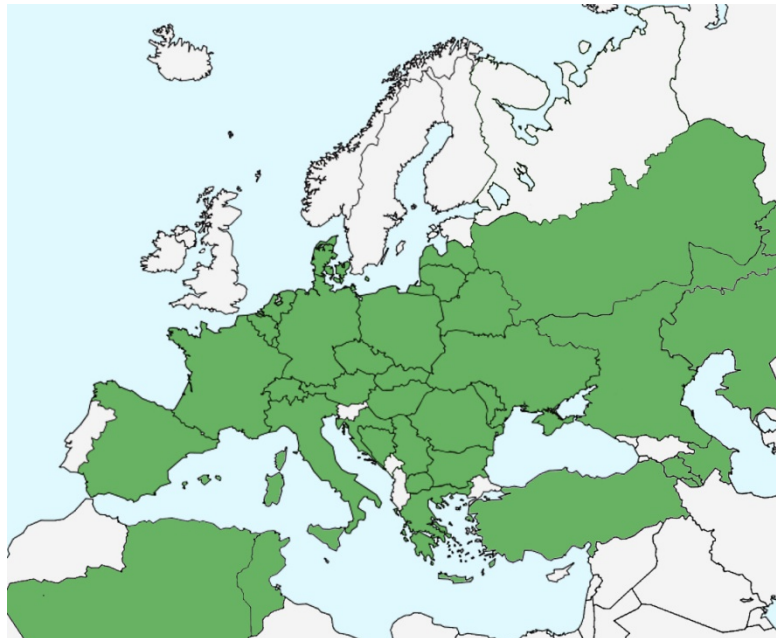


Fig. 2. Distribution of *A. carinata* in western Palearctic (orig.)

Occurrence in Poland (Fig. 3).

Literature data:

Eastern Beskidy: Przemyśl [FA21] – Smreczyński 1908, Gorczyca & Wolski 2011.

Mazowiecka Lowland: Dziekanów Leśny [DC99] – Bilewicz-Pawińska 1965, Gorczyca & Wolski 2011.

Sandomierska Lowland: Kłaj [DA53] – Stobiecki 1915, Smreczyński 1954, Gorczyca & Wolski 2011.

Wielkopolsko–Kujawska Lowland: Bydgoszcz [BD99] – Szulczewski 1913, Gorczyca & Wolski 2011; Czarnowska Góra [VU82] – Hebda & Rutkowski 2015; Duninów [CD92] – Strawiński 1965, Gorczyca & Wolski 2011; Gorzewo [XU64] – Schumacher 1913, Gorczyca & Wolski 2011; Puszcza Zielonka [XU42] – Skórka 1994, Gorczyca & Wolski 2011; Turew [XT27] – Trojan 1989.

Baltic Coast: Gdańsk [CF42] – Stichel 1960, Gorczyca & Wolski 2011; Słowiński National Park [XA46] – Korcz 2003, Gorczyca & Wolski 2011; Świnoujście [VV57] – Wagner 1941, Gorczyca & Wolski 2011.

Podlasie Lowland: Dolistowo [FE33] – Herczek 1982, Gorczyca & Wolski 2011; Kramówka Mała [FE12] – Lis et al. 1995, Gorczyca & Wolski 2011; Osowiec [FE02] – Lis et al. 1995, Gorczyca & Wolski 2011.

Mazurian Lake District: Olsztyn [DE65] – Stichel 1960, Gorczyca & Wolski 2011; Pisz [EE54] – Stichel 1960, Gorczyca & Wolski 2011; Świętajno [EE88] – Strawiński 1957, Piasecka 1960, Gorczyca & Wolski 2011.

Pomeranian Lake District: Gwda Wielka [XV15] – Burdajewicz & Nowacka 1995, Gorczyca & Wolski 2011; Kalisz Pomorski [WV60] – Herczek & Nakonieczny 1987, Gorczyca & Wolski 2011; Recz [WV30] – Karl 1935, Gorczyca & Wolski 2011; Bielinek nad Odrą reserve [VU46] – Engel & Hedicke 1934, Engel 1938, Gorczyca & Wolski 2011.

Roztocze Upland: Tartaczna Góra reserve [FB30] – Strawiński 1966, Gorczyca & Wolski 2011; Ulów [FA69] – Tenenbaum 1921, Gorczyca & Wolski 2011; Wieprzec [FB51] – Cmoluchowa & Lechowski 1994, Lechowski & Cmoluchowa 1996, Gorczyca & Wolski 2011.

Eastern Sudetes Mts: Łąka Prudnicka [XR77] – Hebda & Lis 2007, Gorczyca & Wolski 2011; Trzebinia [XR87] – Hebda & Lis 2007, Gorczyca & Wolski 2011.

Lower Silesia: Gogolin [BA89] – Hebda 2006, Gorczyca & Wolski 2011; Kamień Śląski [BB90] – Hebda 2006, Gorczyca & Wolski 2011; Legnica [WS87] – Scholz 1931, Polentz 1944, Gorczyca & Wolski 2011; Wrocław [XS46] – Polentz 1944, Gorczyca & Wolski 2011.

Upper Silesia: Bieruń [CA64] – Gorczyca & Wolski 2011; Bytom [CA58] – Lis 1989, Lis & Lis 1998, Gorczyca & Wolski 2011; Piekary Śląskie, Kocie Górki reserve [CA58] – Bugaj-Nawrocka & Gorczyca 2013; Tarnowskie Góry [CA49] – Lis 1989, Lis & Lis 1998, Gorczyca & Wolski 2011.

Krakowsko–Wieluńska Upland: Czerna [DA05] – Smreczyński 1906, Gorczyca & Wolski 2011; Kraków [DA24] – Stobiecki 1915, Strawiński 1936, Smreczyński 1954, Gorczyca & Wolski 2011; Kraków, Pychowice [DA14] – Smreczyński 1954, Gorczyca & Wolski 2011. Ojcowski National Park [DA16] – Chłond & Gorczyca 2009, Gorczyca & Wolski 2011; Olsztyn [CB72] – Gorczyca 1994, Gorczyca & Wolski 2011.

Lubelska Upland: Gołąb [EC60] – Cmoluchowa 1971, Gorczyca & Wolski 2011; Janów Lubelski [EB91] – Piasecka 1960, Gorczyca & Wolski 2011; Kazimierz Dolny [EB68] – Cmoluchowa 1964, Gorczyca & Wolski 2011, Krężnica Jara [FB06] – Cmoluchowa 1971, Gorczyca & Wolski 2011; Lublin, botanical garden [FB08] – Cmoluchowa 1960, Gorczyca & Wolski 2011; Opoka [EB63] – Cmoluchowa 1971, Gorczyca & Wolski 2011; Sawin [FB68] – Cmoluchowa & Lechowski 1992; Gorczyca & Wolski 2011; Wrotków [FB07] – Buczek 1956, Gorczyca & Wolski 2011; Wólka Profecka [EB69] – Strawiński 1963, Zaklików [EB72] –

Cmoluchowa 1971, Gorczyca & Wolski 2011; Zemborzyce [FB07] – Buczek 1956, Gorczyca & Wolski 2011.

Małopolska Upland: Pińczów [DA69] – Herczek 1987, Gorczyca & Wolski 2011, Miedzianka reserve [DB53] – Walczyk 2009.

Poland (generally): Stichel 1933, 1956, Cmoluchowa & Mielewczyk 1990, Kerzhner & Josifov 1999, Gorczyca 2004, Gorczyca & Wolski 2011.

Pomerania: Stichel 1933, Gorczyca & Wolski 2011.

Prussia: Brischke 1871, Stichel 1933, Gorczyca & Wolski 2011.

Silesia: Scholz 1931, Stichel 1933, Gorczyca & Wolski 2011.

New records:

Upper Silesia: Ruda Śląska [CA46] 3 Jun 2000, 1 ex., 6 Jun 2000, 4 exx., leg. & det. A. Kołodziej; Miasteczko Śląskie [CA59] 28 Jun 1986, 2 exx., 8 Jul 1986, 2 exx., leg & det. J. Lis; Mysłowice [CA66] 2 Jul 1985, 7 exx., leg. & det. B. Bojda; Imielin [CA75] 11 Jun 2017, 6 exx., leg. & det. A. Taszakowski; Mitręga [CA88] 5 Jun 2001, 1 ex., leg. & det. I. Romik; Lubliniec (Kokotek) [CB30] 12 Jul 1994, 2 exx., leg. & det. M. Miszok.

Małopolska Upland: Skorocice [DA78] 14 Jun 2005, 1 ex., leg. & det. P. Bętka.

Pomerania Lake District: Borne Sulinowo [XV03] 4 Jul 1997, 1 ex., leg. & det. E. Pilarska.

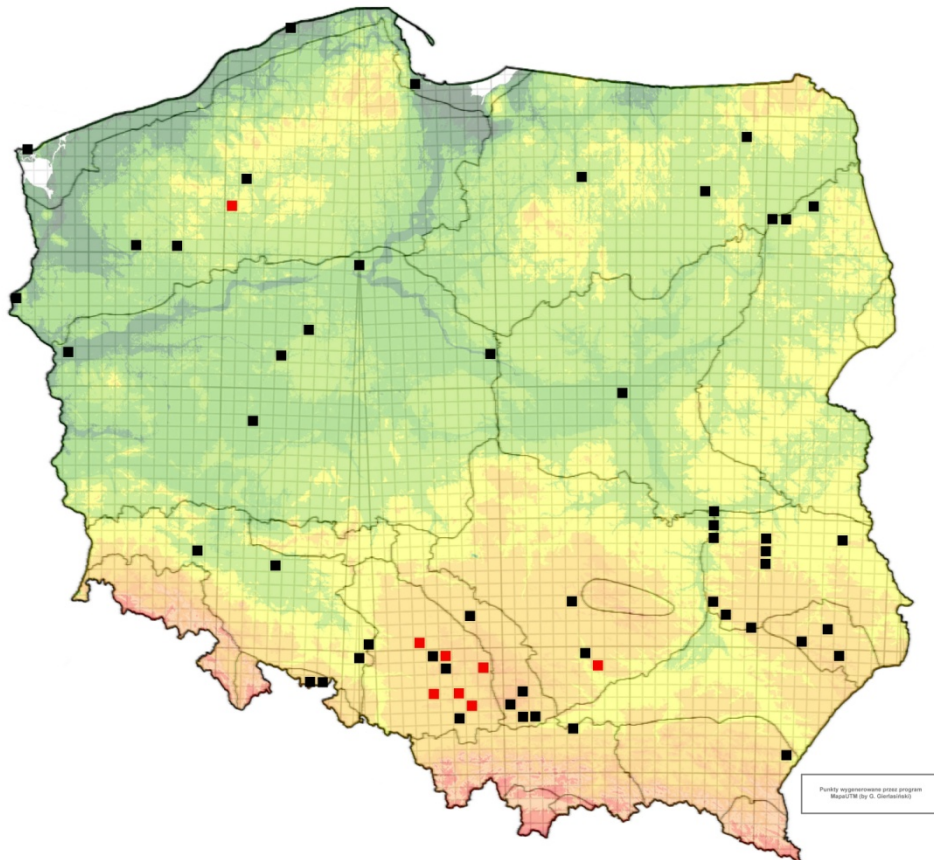


Fig. 3. Distribution of *A. carinata* in Poland; black colour – literature data, red – new records.

***Acetropis gimmerthalii* (Flor, 1860)**

Taxonomy. There are two subspecies: *A. gimmerthalii gimmerthalii* (Flor, 1860) and *A. gimmerthalii parva* (Wagner 1968). In Poland occurs the nominative subspecies.

Morphology. Colouration is similar to the previous species, but often the male is paler, same coloured, or slightly more contrasted in colour than the female (Fig. 1B, E). The second segment of the antennae is bright, except for the apical part (Fig. 10A). Legs and antennae are covered with distinct black hair (Fig. 10A). Carina of pronotum is visible only in the middle part of pronotum (Fig. 12B). Female are mostly pseudobrachypterous.

Body length (*A. gimmerthalii gimmerthalii*). The literature (Wagner 1952, 1970, Wagner & Weber 1964) gives the following sizes: male: 4.8–5.6 mm, female: 6.0–7.0 mm (macropterous form), 5.5–6.4 mm (pseudobrachypterous form). Measurements made on the basis of specimens from the authors' collection show that the males can reach up to 6.3 mm.

Biology. Like in the previous species, found in habitats of varying humidity.

Distribution (according to Kerzhner & Josifov 1999, Silfverberg 2012, Aukema et al. 2013, Lukashuk 2013; Fig. 4).

A. gimmerthalii gimmerthalii: Europe: Belarus, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Great Britain, Germany, Greece, Italy, Latvia, Lithuania, Luxembourg, Macedonia, Montenegro, Netherlands, Poland, Portugal, Russia (Central European Territory, North European Territory), Spain, Sweden, Ukraine. North Africa: Algeria, Canary Islands, Morocco.

A. gimmerthalii parva: Europe: France, Portugal.

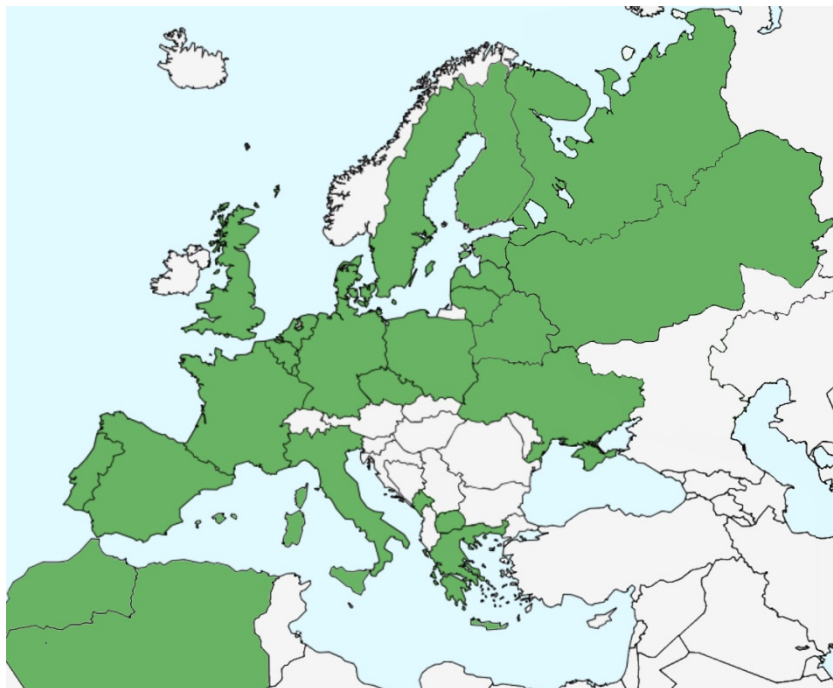


Fig. 4. Distribution of *A. gimmerthalii* in western Palearctic (orig.)

Occurrence in Poland (Fig. 5).

Literature data:

- Mazowiecka Lowland: Kampinos [DC69] – Cmoluchowa 1977, Gorczyca & Wolski 2011.
 Podlasie Lowland: neighbourhood of Mielnik (Sutno) [FC49] – Gorczyca & Herczek 1991, Gorczyca & Wolski 2011 (individuals previously mistakenly referred to as *A. carinata*).
 Pomeranian Lake District: Pomierzyn [WV51] – Cmoluchowa 1977, Gorczyca & Wolski 2011.
 Białowieża Forest: Białowieża [FD94] – Hebda 2011.
 Krakowsko-Wieluńska Lowland: Olsztyn [CB72] – Gorczyca 1994 (individuals previously mistakenly referred to as *A. carinata*); Przedmość [CB16, CB26] – Noga & Lis 2015.
 Western Beskidy: Brenna, Stary Groń Massif [CA50] – Matuszczyk & Taszakowski 2017.
 Poland (generally): Stichel 1956; Cmoluchowa & Mielewczyk 1990, Kerzhner & Josifov 1999, Gorczyca 2004, Gorczyca & Wolski 2011.

New records [asterisk (*) marks zoogeographical regions in which *A. gimmerthalii* were recorded for the first time]:

- * Wielkopolsko-Kujawska Lowland: Krośnice [XT60] 29 Jun 2017, leg. Ł. Depa, det. A. Taszakowski.
- * Baltic Coast: Bałamałek [XA35] 30 Jun 2014, 2 exx., leg. T. Rutkowski, det. G. Hebda.
- Pomerania Lake District: Drzewicz [XV66] Bory Tucholskie National Park, 5 Jul 2014, 15 exx., leg. T. Rutkowski, det. G. Hebda.

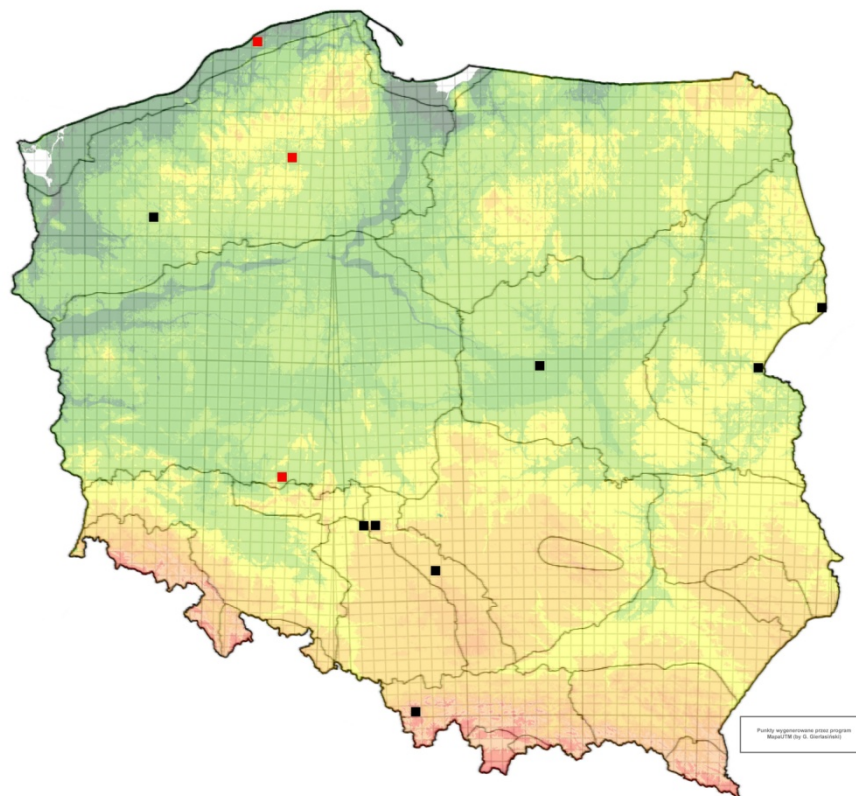


Fig. 5. Distribution of *A. gimmerthalii* in Poland; black colour – literature data, red – new records

***Acetropis longirostris* Puton, 1875**

Morphology. Sexual dimorphism is poorly marked. The colouration of females is similar to that of the previous species, the males are less contrasting in colour. Head is yellow with dark stripe running in the middle. Pronotum has three dark, longitudinal stripes, almost without carina. Scutellum, in males, is often yellow-orange (in females of the same colour as the rest of the body). Femora and tibiae are in body colour, tarsi are darker. Clypeus is short and fairly bluntly terminated, labium is not covered by apex of the clypeus, while in the two previous species the clypeus is elongated, pointed (well visible from the side) and covers the labium. Rostrum reaches at least the 2nd abdominal sternite, but sometimes can also reach the 4th abdominal sternite. Males macropterous, females pseudobrachypterous to various extent. Body length: Štys (1973) gives as follow: male (macropterous form): 6.3–7.1 mm, females (pseudobrachypterous form): 6.4–8.3 mm (up to 9 mm). However, measurements made on the basis of specimens from the authors' collection show that the size range is bigger: males can reach up to 8.0 mm, females with very shortened wings can be only 6.3 mm in length (Fig. 6) while the largest specimens can reach up to 9.1 mm.

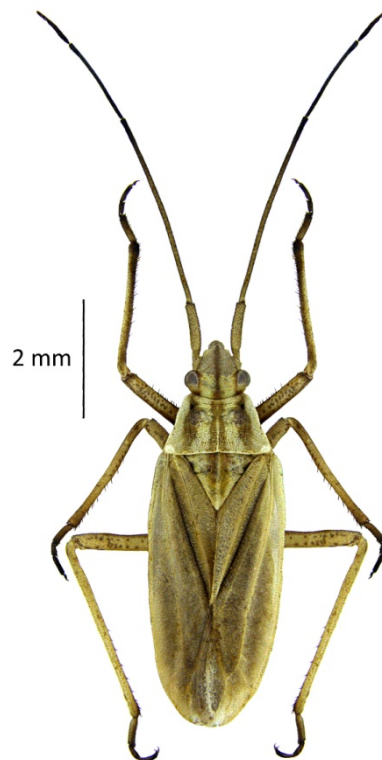


Fig. 6. *A. longirostris*, pseudobrachypterous form. Photo by A. Tazakowski.

Biology. Feeds on *Alopecurus pratensis* (L.) (Štys 1973, 1974; Wachmann et al. 2004). Adults are found from late May to early July (Fig. 7), but single specimens can be found much later (Gierlasiński 2015a).

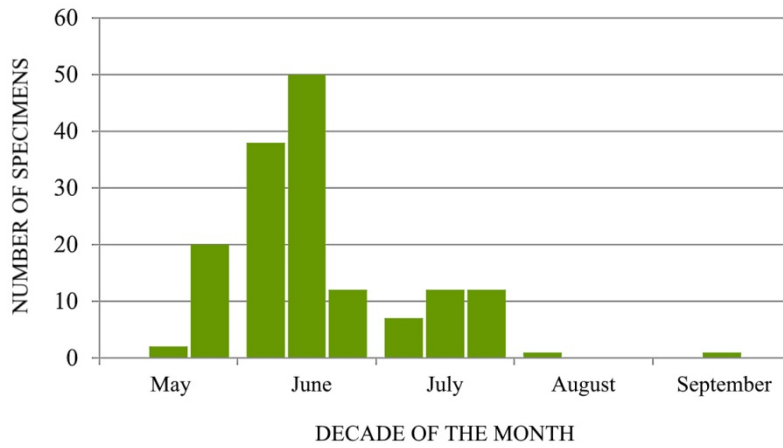


Fig. 7. Changes in the abundance of *A. longirostris*.

Distribution (according to Kerzhner & Josifov 1999, Aukema et al. 2013, Nikolaeva & Ruchin 2016; Fig. 8).

Europe: Austria, Czech Republic, Hungary, Kazakhstan (European part), Montenegro, Russia (Central European Territory, South European Territory), Serbia, Slovakia, Ukraine.

Asia: Azerbaijan, Kazakhstan (Asian part).

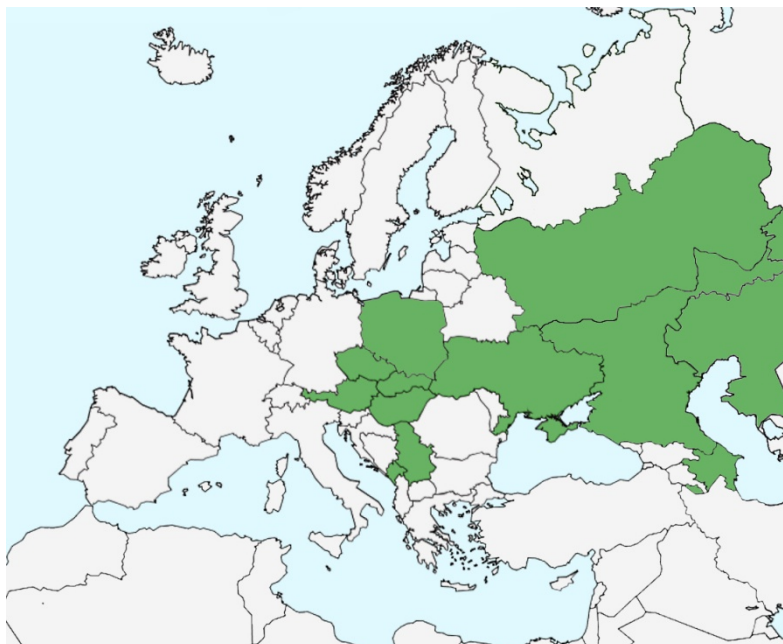


Fig. 8. Distribution of *A. longirostris* in western Palearctic (orig).

Occurrence in Poland (Fig. 9).

Literature data:

Western Beskidy: Meszna [CA51] – Lis & Dubiel 2013; Brenna, Stary Groń Massif [CA50] – Matuszczyk & Taszakowski 2017.

Eastern Beskidy: Lipniki [EA20], Dobrynia [EV39], Libusza [EA10], Nowy Żmigród [EV39] – Taszakowski & Gorczyca 2018.

Bieszczady Mts: Żebrak Pass [EV85] – Gierlasiński 2015a.

Upper Silesia: Bogacica [BB95] – Hanus & Lis 2014; Jełowa [BB93] – Cieśliczka & Lis 2015; Witkowice ad Kęty [CA73] – Gierlasiński 2015b.

Krakowsko-Wieluńska Upland: Przedmość [CB16, CB26] – Noga & Lis 2015.

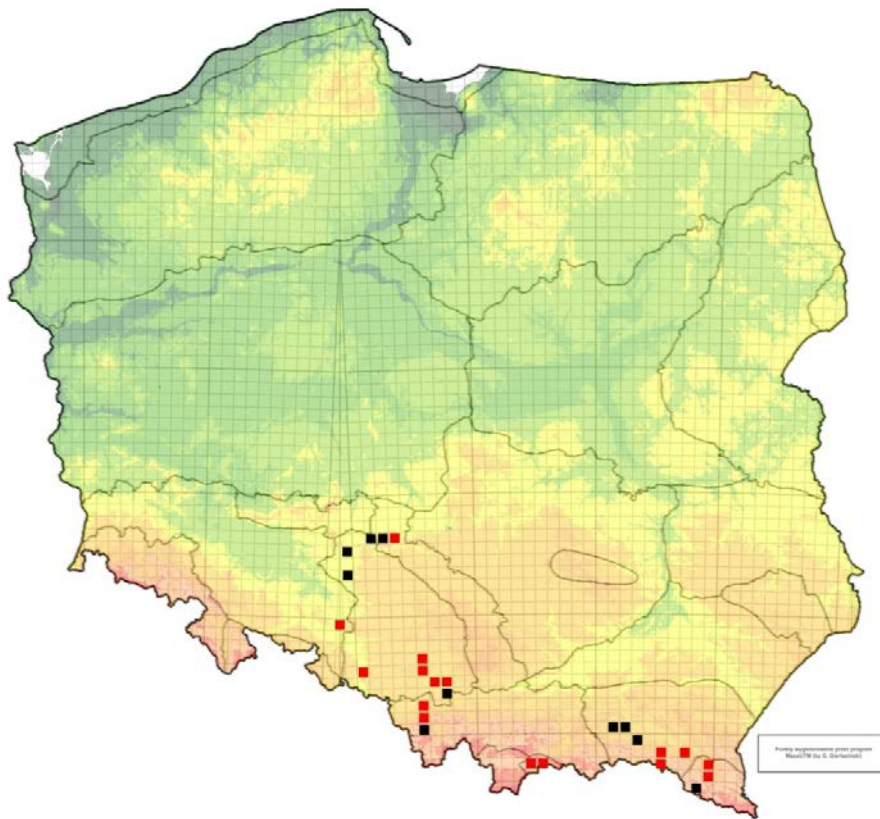


Fig. 9. Distribution of *A. longirostris* in Poland; black colour – literature data, red – new records.

New records [asterisk (*) marks zoogeographical regions in which *A. gimmerthalii* were recorded for the first time]:

Western Beskidy: Bielsko-Biała, Komorowice [CA52] 7 Jun 2016, 2 exx., 26 Jun 2016, 1 ex., leg. & det. G. Gierlasiński; Bielsko-Biała, Wapienica [CA51] 7 Jun 2016, 6 exx., leg. & det. G. Gierlasiński; Bielsko-Biała, Stare Bielsko [CA52] 9 Jun 2016, 2 exx., leg. & det. G. Gierlasiński; Bielsko-Biała, Dolina Gościńska [CA51] 28 Jun 2016, 1 ex., leg. & det. G. Gierlasiński; Rajcza [CV68] 8 Jun 2016, 7 exx., leg. & det. G. Gierlasiński; Kicznia [DV59], 11 Jun 2017, 1 ex., leg. & det. G. Gierlasiński.

Eastern Beskidy: Lipowiec [EV57] 15 Jun 2017, 5 exx., leg. & det. G. Gierlasiński; Królik Polski [EV58] 15 Jun 2017, 2 exx., leg. & det. G. Gierlasiński; Odrzechowa [EV78] 15 Jun 2017, 7 exx., leg. & det. G. Gierlasiński.

Bieszczady Mts: Mchawa [EV96] 16 Jun 2017, 2 exx., leg. & det. G. Gierlasiński; Lesko [EV97] 17 Jun 2017, 4 exx., leg. & det. G. Gierlasiński.

* Lower Silesia: Żywocice [YR19] 25 May 2009, wet meadow over Odra river, 2 exx., leg. M.A. Mazur, det. G. Hebda.

Upper Silesia: Tychy [CA55] 12 Jun 2008, 6 exx., 17 Jun 2008, 6 exx., 23 Jun 2008, 1 ex., 29 Jun 2008, 2 exx., 6 Jul 2008, 1 ex., 11 Jul 2008, 1 ex., 19 Jul 2008, 7 exx., 23 Jul 2008, 5 exx., leg. J. Kania, det. A. Taszakowski; Bieruń Nowy [CA64] 26 May 2005, 6 exx., leg. A. Kielar, det. A. Taszakowski; Łęczok reserve [CA05] 19 Jun 2006, 3 exx., leg. T. Masarczyk, det. A. Taszakowski; Brzezinka [CA74] 23 May 2009, 9 exx., 8 Jun 2009, 4 exx., leg. K. Rydzoń, det. A. Taszakowski; Katowice, Podlesie [CA56] 04 Jun 2009, 1 ex., 15 Jun 2009, 4 exx., 24 Jun 2009., 5 exx., 6 Jul 2009., 5 exx., 16 Jul 2009., 4 exx., 24 Jul 2009., 7 exx., leg. A. Kempny, det. A. Taszakowski.

* Pieniny Mts: Czorsztyn [DV57] 27 Jun 2001, 1 ex., 1 Jul 2001, 1 ex.; Falsztyn [DV47] 8 Aug 2001, 1 ex., leg. A. Fryc, det. A. Taszakowski

Krakowsko-Wieluńska Upland: Kępowizna [CB36] 22 Jun 2001, 1 ex., leg. R. Bolek, det. A. Taszakowski.

KEY TO IDENTIFICATION OF THE *ACETROPIS* SPECIES OCCURRING IN POLAND

1. Second segment of antennae (Fig. 10A) and femurs with numerous, long setae
 *A. gimmerthalii* Puton, 1875
- Second segment of antennae (Fig. 10B, C) and femurs without long setae 2
2. Rostrum reaches at most the anterior margin of the hind coxa (Fig. 11A)
 *A. carinata* (Herrich-Schaeffer, 1841)
- Rostrum reaches at least the second abdominal sternite (Fig. 11B)
 *A. longirostris* (Flor, 1860)

Notes: Pay attention to the proper arrangement (parallel to the body) of the insect's head. Due to the possible difficulties of perception and interpretation used in key features, other features that differentiate the above species have been summarized in the Table below and in the Figs 10–12.

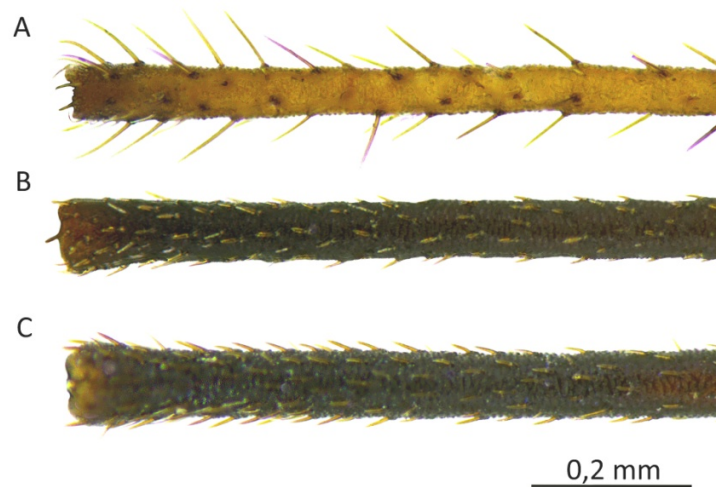
DISCUSSION

Acetropis carinata is the most common species of the genus *Acetropis* in Poland, which is known from all over Poland. *Acetropis gimmerthalii* is the least often collected, however, it seems, that it can be present also on larger territory of the country. *Acetropis longirostris* occurs only in southern Poland.

The first data on the occurrence of *A. longirostris* in Poland was presented by Lis B. & Dubiel (2013). During the analysis of material deposited in the collection of the Department of Zoology, Faculty of Biology and Environmental Protection, University of Silesia in Katowice, it turned out that *A. longirostris* specimens have already been collected many times (for the first time in 2001), however, it was mistakenly identified as *A. carinata*. The reason for this confusion was probably prosaic – the key used for the identification of the plant bugs (Wagner & Weber 1964) does not include *A. longirostris*, because this species is not present in France (this key concerns this area). Nevertheless, taking into account the long tradition of heteropterological research in Poland, it seems that *A. longirostris* appeared in Poland only in the 21st century.

Table. Summary of the features distinguishing three species of *Acetropis* occurring in Poland.

Feature	<i>A. carinata</i>	<i>A. gimmerthalii</i>	<i>A. longirostris</i>
rostrum ♀, ♂	reaches at most the anterior margin of the hind coxa	reaches at most the anterior margin of the hind coxa	reaches at least the second abdominal sternite
second segment of antennae and femurs ♀, ♂	without numerous, long setae	with numerous, long setae	without numerous, long setae
anterior margin of pronotum ♀, ♂	with distinct carina	carina visible only in the middle part of pronotum	without carina
collum ♀, ♂	posteriorly distinctly delimited by a deep transverse furrow	posteriorly not limited	posteriorly distinctly delimited by a deep transverse furrow
frons ♀, ♂	strongly produced anteriorly, completely covering the anteclypeus in dorsal view	moderately produced anteriorly, anteclypeus always exposed in dorsal view	moderately produced anteriorly, anteclypeus always exposed in dorsal view
pronotal median carina ♀, ♂	thick, percurrent, keel-like, strongly raised	distinct only in the middle	linear, almost not raised, percurrent to partly or completely reduced
body length ♀	5.6–7.0 mm	5.5–7.0 mm	6.3–9.1 mm
colouration ♂	usually gray or almost black	usually pale, little contrasting	usually pale, slightly contrasting
vesica ♂	with two spiculae	with two spiculae	with three spiculae
body length ♂	6.4–7.1 mm	4.8 – 6.3 mm.	6.3–8.0 mm

Fig. 10. Distal part of the second antennal segment: A – *A. gimmerthalii*, ♀, B – *A. carinata*, ♀, C – *A. longirostris*, ♀
Photo by A. Taszakowski.

Acetropis longirostris clearly expands its area of occurrence and it is often defined as an expansive species (Hradil et al. 2008, Rabitsch 2008, Roháčová 2011, Friess & Brandner 2014). Its dispersion center probably lies in the steppes of the Eastern Europe. The species was recorded in Slovakia (single female in 1960 and many specimens in 1973) (Štys 1974), in Austria in 1983 (Rabitsch 2008), and in the Czech Republic a year later (South Moravia)

(Stehlík 1988). Faunistic studies conducted in Austria have shown a rapid expansion of the range of this species to the west (Friess & Brandner 2014). According to Štys (1974), the drastic agricultural modification of the landscape was probably the factor responsible for population explosion of *A. longirostris* in Slovakia. However Rabitsch (2008) claims that the climate warming is a reason of expansion of this species in Austria. Recent climate changes (Kožuchowski 2011) are often postulated responsible for changes in the range of occurrence of many insects (e.g. Menéndez 2007, Rabitsch 2008, Taszakowski & Gorczyca 2018). Since the expansion in Central Europe started already in 1960s and proceeded not from south to north but from east to west, from regions with continental to oceanic climate (and then to the north), further research are still needed to determine the reasons.

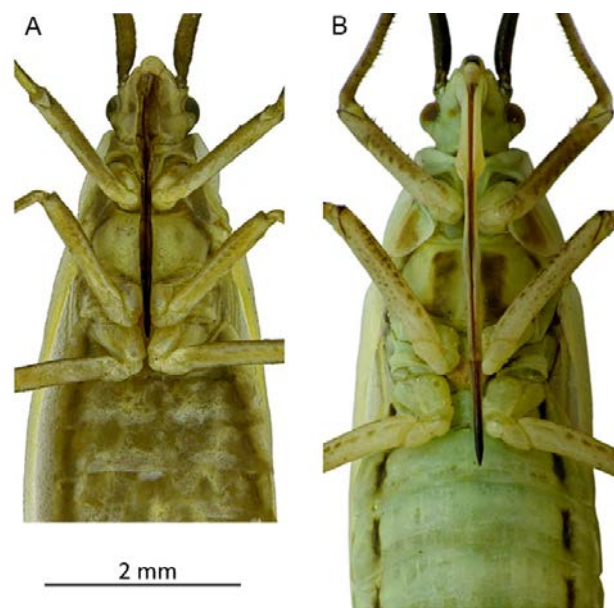


Fig. 11. Labium: A – *A. carinata*, ♀ (photo by A. Taszakowski), B – *A. longirostris*, ♀ [according to Gierlasiński (2015b), modified].

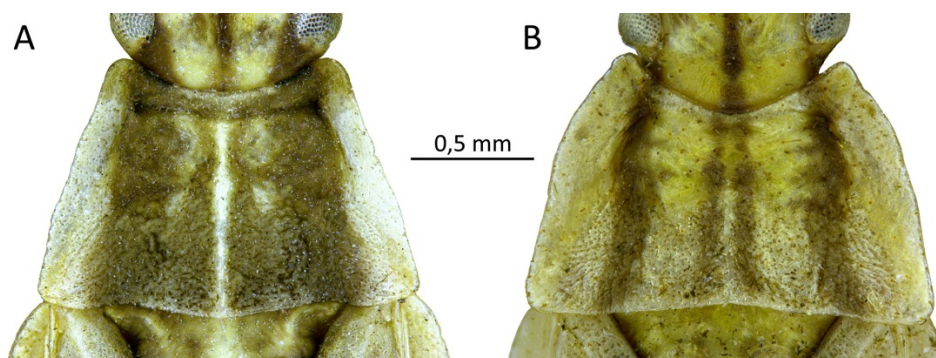


Fig. 12. Pronotum: A – *A. carinata* ♀, B – *A. gimmerthalii*, ♀. Photos by A. Taszakowski.

Analyzing the potential immigration routes of the Heteroptera species with southern type of distribution (Tazakowski & Gorczyca 2018), it seems that the Moravian, Spisz and Ondavian migratory routes are probable ways of immigration of *A. longirostris* into the territory of Poland. It is also possible that this species immigrates by the eastern way (Podolian). However, to confirm this hypothesis, it is necessary to carry out more faunistic studies, especially in the vicinity of Przemyśl.

Acetropis longirostris is likely to be found in Moldova and Romania and west: in southern Germany, western parts of France and Switzerland, as well as northern Italy, Slovenia and Croatia. Also the discovery of *A. gimmerthalii* in other Central European countries is possible.

For the better knowledge of the occurrence of representatives of *Acetropis* further faunistic studies are necessary. They should be conducted in June, because later in the year these bugs are found much less frequently. Nevertheless, collecting the adult individuals of *A. longirostris* in late July, August and even September (Gierlasiński 2015a) may indicate the second generation in a year. Changes in the phenology of species are a frequent result of climate changes and can favour the expansion of species (Musolin 2007, Lis & Ziaja 2009, Depa et al. 2015, Tazakowski & Gorczyca 2018). Unfortunately, authors of faunistic papers often do not provide the exact dates of the collecting, which causes that possibility of analyzing the phenology of species is greatly reduced.

Due to the fact that true bug species are taxa, whose changes in range of occurrence, abundance, phenology, number of generation, physiology, behaviour and structure of communities allow the assessment of the climate fluctuation and other environmental changes (Tazakowski & Gorczyca 2018), it is advisable to conduct further faunistic studies on these insects.

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STRESZCZENIE

[Uwagi na temat występowania *Acetropis* Fieber, 1858 (Heteroptera: Miridae: Stenodemini) w Polsce]

Na terenie Polski występują trzy gatunki z rodzaju *Acetropis* Fieber, 1858: *A. carinata* (Herrich-Schaeffer, 1841), *A. gimmerthalii* (Flor, 1860) i *A. longirostris* Puton, 1875. Wszystkie gatunki związane są pokarmowo z trawami (Poaceae). W pracy przedstawiono ilustrowany klucz do oznaczania wymienionych gatunków. Ze względu na częste błędy w identyfikacji przedstawicielei rodzaju *Acetropis*, zamieszczono ryciny prezentujące ich morfologię. Praca zawiera dane literaturowe, a także nowe stanowiska wszystkich gatunków na całym obszarze Polski, a także podsumowuje informacje dotyczące ich zasięgu występowania na terenie Palearktyki. Poprawne oznaczenie okazów *A. longirostris* pozwoliło stwierdzić, że ten ekspansywny gatunek dotarł do Polski znacznie wcześniej niż dotychczas sądzono.