

New records of rare migrant moths (Lepidoptera: Erebidae, Noctuidae, Geometridae, Crambidae) in Poland

Nowe dane na temat rzadkich gatunków motyli wędrownych (Lepidoptera: Heterocera) w Polsce

Jarosław BURY¹, Łukasz DAWIDOWICZ², Krzysztof MAZUR³

¹Markowa 1498, 37-120 Markowa

²Department of Zoology, Maria Curie-Skłodowska University, Akademicka 19, 20-033 Lublin, Poland

³Umieszcz 76, 38-204 Umieszcz

ABSTRACT: The paper presents records of six rarely encountered species of migrant moths from a few localities situated in the southeastern part of Poland. The species are as follows: *Dysgonia algira*, *Grammodes stolidus*, *Eublemma purpurina*, *Spodoptera exigua*, *Rhodometra sacraria*, and *Dolicharthia punctalis*.

KEY WORDS: rare species, faunistics, migrations, Poland, Lepidoptera, new records.

Migrations among Lepidoptera are well-known all over the world. This phenomenon concerns both butterflies and moths. There are many factors influencing migratory flights (DINGLE et DRAKE 2007; SPARKS et al. 2007). In case of many species, the ways of migrations and conducive weather conditions have been confirmed in some part (CHAPMAN et al. 2002; ZHENG et al. 2011). Nevertheless, many researchers still emphasize that little has been found about this phenomenon (HOLLAND et al. 2006). Apart from very common and annually appearing species in Central Europe which constitute regular migrants such as i.a. *Autographa gamma* (LINNAEUS, 1758), *Macdunnoughia confusa* (STEPHENS, 1850), *Mythimna l-album* (LINNAEUS, 1767) or *Agrotis segetum* (DENIS & SCHIFFER-MÜLLER, 1775), there is an array of moths which immigrate very rarely

and sporadically only during temporarily favourable weather conditions (this is sometimes linked with “bet-hedging strategy”) (CARDÉ 2008; GUO et al. 2015; NOWACKI 1998).

The aim of this paper is to present new data concerning the species constituting the latter-mentioned “model”, that is the moths rarely and infrequently appearing within the Polish regions. The species are as follows:

Dysgonia algira (LINNAEUS, 1767)

- EA30 Umieszcz, 20 IX 2015, 1 ex., ad lucem, leg. et coll. K. MAZUR.

A paleotropical species occurring mainly in South Europe, North Africa and Southwestern Asia. The species evinces a strong tendency for migrating flights (BUSZKO 1983; NOWACKI 1998). So far, it has been recorded from Poland twice – EV67 Wola Wyzna 2007 and EA30 Umieszcz 2011 (BURY 2011).

Grammodes stolidus (FABRICIUS, 1775)

- EA30 Umieszcz, 24 IX 2015, 1 ex., ad lucem, leg. et coll. K. MAZUR.
- DV57 Czorsztyn, 17 IX 2015, 1 ex., ad lucem, leg. Ł. DAWIDOWICZ.

This is a characteristic moth for the subtropical zone of North Africa, South Europe and South Asia. It evinces a strong tendency for migration towards the north. Thus, it is encountered in Central Europe, sometimes even in North Europe during conducive weather conditions (NOWACKI 1998). The species is extremely rarely encountered in Poland. It was first recorded in 1963 and again two years later in Bircza (BIELEWICZ 1973). The next records are as follows: Macoszyn (Polesie), Barwik (Biebrzański NP) (FRĄCKIEL et al. 1997); Woźniki and Mielnik (Podlasie) (NOWACKI et WASILUK 2004); Laski (Wielkopolska) (WAŚALA 2005); Zawoja (Małopolska), Kochanowice (Silesia) (DOMAGAŁA 2010); Podskalnia Góra (Pieniny Mts.) (WAŚALA et ZAMORSKI 2015).

Eublemma purpurina (DENIS & SCHIFFERMÜLLER, 1775)

- EA30 Umieszcz, 30 VIII 2014, 1 ex., idem. 25 VIII 2015, 1 ex., ad lucem, leg. et coll. K. MAZUR.
- EA94 Markowa, 24 IX 2015, 1 ex., ad lucem, leg. et coll. J. BURY.

A holomediterranean and centralasiatic species evincing a strong tendency for migration. Rarely encountered in Poland, predominantly in the southern part of the country (Nowacki 1998, Nowacki et Hołowiński 1999).

Spodoptera exigua (HÜBNER, 1808)

- EA94 Markowa, 01 IX 2000, 1 ex., ad lucem, leg. et coll. J. BURY.
- EA40 Glinik Polski – Pustki, 15 IX 2015, 1 ex., ad lucem, leg. et coll. K. MAZUR.
- EB68 Kazimierz Dolny, 23 IX 2015, 1 ex., ad lucem, leg. et coll. Ł. DAWIDOWICZ.

A paleotropical species with strong migratory tendencies. The species quite often appears in Central Europe during hot summers, sometimes even reaching the southern parts of Scandinavia. Rarely observed in Poland, mainly in the southern part of country (NOWACKI 1998; NOWACKI et HOŁOWIŃSKI 1999; ZHENG et al. 2011).

Rhodometra sacraria (LINNAEUS, 1767)

- EA30 Umieszcz, 23 IX 2015, 1 ex., ad lucem, leg. et coll. K. MAZUR.

A migratory species which is spread mainly in South Europe, Southwestern Asia, India and Africa. Extremely rarely encountered in Poland. There are only three contemporary records of this species in Poland: the Karkonosze Mountains in 2002 (CHRZANOWSKI 2004, BOROWIAK et CHRZANOWSKI 2003) and then two records in 2008 at Beskid Śląski and Beskid Makowski (BRZEZINA 2009).

Dolicharthia punctalis (DENIS & SCHIFFERMÜLLER, 1775)

- EA30 Umieszcz, 21 VI 2013, 1 ex., idem. 27 V 2014, 1 ex., idem. 24 VIII 2015, 1 ex., idem. 15, 19, 25 VIII 2016, 3 exx., ad lucem, leg. et coll. K. MAZUR.

A migratory crambid species which is mainly spread in South and Central Europe, Southwestern Russia, Turkey, Israel and Afghanistan. Extremely rarely encountered in Poland (BUSZKO et NOWACKI 2000). For the first time recorded in the southeastern part of the country.

STRESZCZENIE

Praca prezentuje informacje na temat sześciu rzadko spotykanych motyli wędrownych stwierdzonych na kilku stanowiskach w południowo-wschodniej części Polski. Omawiane gatunki to: *Dysgonia algira* (LINNAEUS, 1767), *Grammodes stolidus* (FABRICIUS, 1775), *Eublemma purpurina* (DENIS & SCHIFFERMÜLLER, 1775), *Spodoptera exigua* (HÜBNER, 1808), *Rhodometra sacraria* (LINNAEUS, 1767) oraz *Dolicharthia punctalis* (DENIS & SCHIFFERMÜLLER, 1775).

REFERENCES

- BIELEWICZ M. 1973: Motyle większe (Macrolepidoptera) Bieszczadów Zachodnich i Pogórza Przemyskiego. Roczniki Muzeum Górnośląskiego w Bytomiu, Przyroda, **7**: 1-170.
- BOROWIAK M., CHRZANOWSKI A. 2003: *Rhodometra sacraria* Linnaeus, 1767 (Lepidoptera, Geometridae), a new species of moth the fauna of Poland. Polish Journal of Entomology, **72**: 99-103.
- BRZEZINA H. 2009: *Rhodometra sacraria* (LINNAEUS, 1767) from Silesia (Lepidoptera: Geometridae). Acta Entomologica Silesiana, **17**: 77.
- BURY J. 2011: *Dysgonia algira* (LINNAEUS, 1767), a new species for the Polish fauna (Lepidoptera: Erebidae). Acta Entomologica Silesiana, **19**: 87-90.
- BUSZKO J. 1983: Noctuidae. Podrodziny: Acontiinae, Sarrothripinae, Euteliinae, Plussinae, Catocalinae, Rivulinae, Hypeninae i Hermininae. Klucze do oznaczania owadów Polski. Warsaw, XXVII, 53e: 109-110.
- BUSZKO J., NOWACKI J. 2000: The Lepidoptera of Poland. A distributional checklist. Polskie Towarzystwo Entomologiczne, Poznań, Toruń, 178 pp.
- CARDÉ R.T. 2008: Insect migration: Do migrant moths know where they are heading? Current Biology, **18** (11): R472-R474.
- CHAPMAN J.W., REYNOLDS D.R., SMITH A.D., RILEY J.R., PEDGLEY D.E., WOIWOD I.P. 2002: High-altitude migration of the diamondback moth *Plutella xylostella* to the U.K.: a study using radar, aerial netting, and ground trapping. Ecological Entomology, **27**: 641-650.
- CHRZANOWSKI A. 2004: New and rare butterflies (Tortricidae, Geometridae I Noctucidae) of the Karkonosze national Park. [In:] ŠTURSA J., MAZURSKI K.R., PALUCKI A. and POTOCKA J. (eds.): Geoeekologické problémy Krkonoš. Sborn. Mez. Věd. Konf., Listopad 2003, Szklarska Poręba. Opera Corcontica, **41**: 281-286.
- DINGLE H., DRAKE V.A. 2007: What is migration? Bioscience, **57**: 113-121.
- DOMAGAŁA P. 2010: *Grammodes stolidus* (FABRICIUS, 1775) (Lepidoptera: Noctuidae) – a new noctuid species for Silesian fauna. Acta Entomologica Silesiana, **18**: 88.
- FRĄCKIEL K., HOŁOWIŃSKI M., NOWACKI J. 1997: Observations of *Prodotis stolidus* (F.) (Lepidoptera, Noctuidae) in the eastern Part of Poland. Wiadomości Entomologiczne, **15** (4): 254.
- GUO J., FU X., ZHAO X., WU K. 2015: Annual migration of *Agrotis segetum* (Lepidoptera: Noctuidae): observed on a small isolated island in northern China. PLoS ONE **10** (6): e0131639.
- HOLLAND R.A., WIKELSKI M., WILCOVE D.S. 2006: How and why do insect migrate? Science, **313**: 794-796.
- NOWACKI J. 1998: The noctuids (Lepidoptera, Noctuidae) of Central Europe. Bratislava. 143 pp.
- NOWACKI J., HOŁOWIŃSKI M. 1999: The noctuids of the Lasy Sobiborskie forest on the Polish Polesie (Lepidoptera: Noctuidae). Entomological News, **18** (Supl. 1): 3-60.

- ROMANISZYN J., SCHILLE F. 1929: Fauna motyli Polski (Fauna Lepidopterorum Poloniae) 1. Prace Monograficzne Komisji Fizjograficznej, **6**: 490-491.
- Sparks T.H., Dennis R.L.H., Croxton P.J., Cade M. 2007: Increased migration of Lepidoptera linked to climate change. *European Journal of Entomology*, **104**: 139-143.
- WAŚALA R. 2005: The noctuids moths (Lepidoptera: Noctuidae) of the Experimental Forest Station Siemianice. *Entomological News*, **24** (2): 89-111.
- WAŚALA R., ZAMORSKI R. 2015: Observations of *Grammodes stolidus* (FABRICIUS, 1775) (Lepidoptera: Erebiidae) in the Pieniny Mountains. *Wiadomości Entomologiczne*, **34** (1): 56-57.
- Zheng X., Cong X., Wang X., Lei C. 2011: A review of Geographic Distribution, Overwintering and Migrations in *Spodoptera exigua* HÜBNER (Lepidoptera: Noctuidae). *Journal of the Entomological Research Society*, **13** (3): 39-48.