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**LITHOPHANE FURCIFERA (HUFNAGEL, 1766) IN NORTHEASTERN
KAZAKHSTAN (LEPIDOPTERA, NOCTUIDAE)**

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A West Palaearctic noctuid species *Lithophane furcifera* (Hufnagel, 1766) is reported from North-East Kazakhstan. This record is a first find of the species in Kazakhstan as well as the easternmost confirmed locality. The distribution of the species in eastern limits of its range is directly related to the distribution of its hostplants, species of the genus *Alnus*. The adults, male and female genitalia are illustrated.

Key words: Lepidoptera, Noctuidae, *Lithophane*, Kazakhstan, new record.

INTRODUCTION

The Holarctic genus *Lithophane* Hübner, [1821] belongs to the family Noctuidae Latreille, 1809, subfamily Xyleninae Guenée, 1837, tribe Xylenini, subtribe Xylenina (Fibiger et al., 2011). Species of the genus are distributed in North America, Europe, Central, North and East Asia. At present, the genus includes 78 described species and subdivided into 2 subgenera: *Lithophane* and *Prolitha* Berio, 1980 (Poole, 1989; Ronkay et al., 2001; Lafontaine & Schmidt, 2010; 2015). Many species of the genus were described in last three decades (Hreblay & Ronkay, 1999; Troubridge, 2006; Brou & Lafontaine, 2009; Walsh, 2009; Ronkay et al., 2010; Benedek et al., 2013).

Lithophane furcifera (Hufnagel, 1766) is widely distributed in central, western and northern Europe, northern Caucasus, European part of Russia and Ural (Ronkay et al., 2001; Kononenko, 2005; Matov et al., 2008). Eastern limits of its range are unclear. In the course of faunistical studies on Noctuidae in North-East Kazakhstan, series of *L. furcifera* have been collected by senior author in the Ekibastuz District of the



Pavlodar Region. This record is a first find of the species in Kazakhstan as well as the easternmost confirmed locality.

MATERIAL AND METHODS

The moths were collected using ultraviolet light-traps. The genitalia were dissected and mounted in euparal on glass slides. Photos of the genitalia were made using the microscope Zeiss Stemi 2000-C and the camera Zeiss AxioCam Erc 5c, and processed in Adobe Photoshop CS4® software. Photos of imago were taken using the camera Nikon D3100/AF-S Nikkor, 18–55 mm. Acronyms of collections are as follows: AVB – private collection of Anton Volynkin (Barnaul, Russia); STP – private collection of Sergey Titov (Pavlodar, Kazakhstan); ZISP – Zoological Institute of the Russian Academy of Sciences (Saint Petersburg, Russia).

RESULTS AND DISCUSSION

Lithophane (Lithophane) furcifera (Hufnagel, 1766)

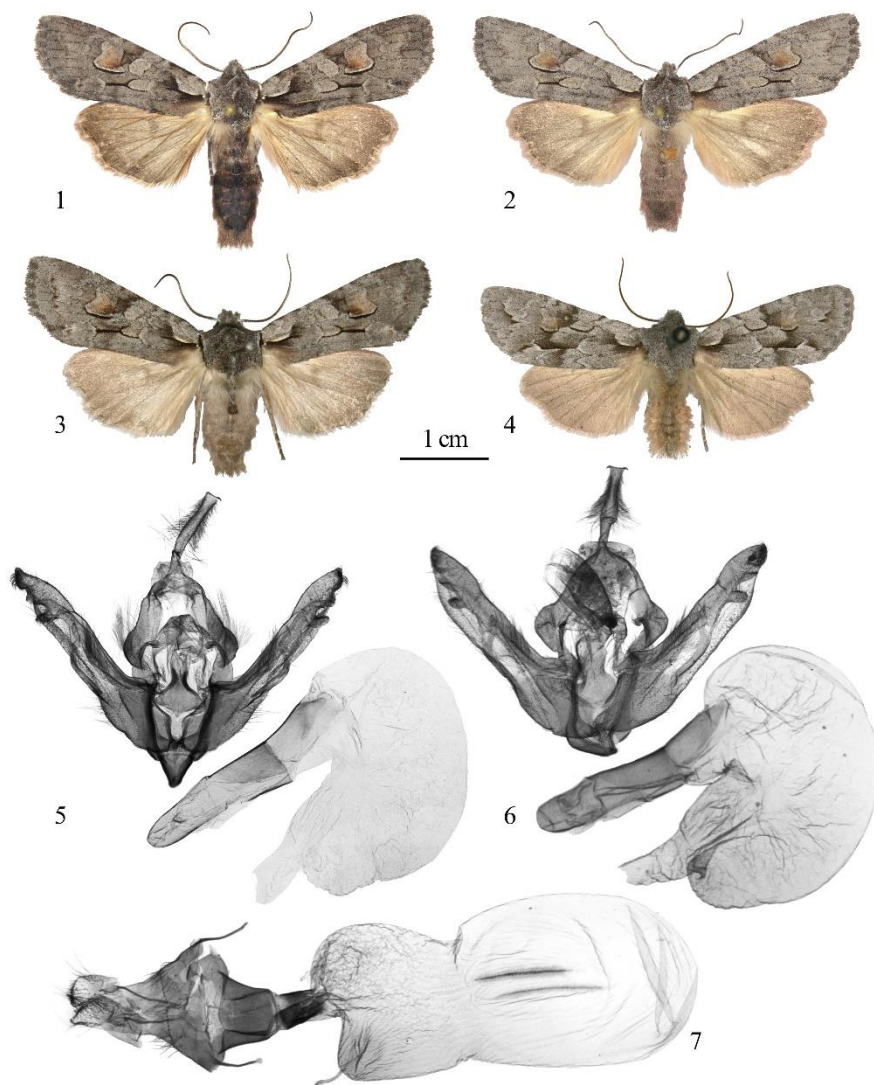
Phalaena furcifera Hufnagel, 1766, *Berlinisches Magazin* 3(3): 402 (Type locality: Germany, Berlin region).

Material examined: 14 specimens of both sexes, 12.IX.2012, NE Kazakhstan, Pavlodar Region, Bayanaul District, Bayanaul Mts., vicinity of Shonai Village, 50°48'53.88''N, 75°44'22.45''E, at UV-light trap. S.V. Titov leg. (Colls AVB, STP); 23 specimens of both sexes, IV.2012, same locality, Reznichenko S.M. leg. (Coll. STP); 7 specimens of both sexes, 01.V.2012, NE Kazakhstan, Pavlodar Region, Bayanaul District, Bayanaul Mts., Kurkeli Trakt, 50°44'34.00''N, 75°38'16.80''E, at UV-light trap. S.V. Titov leg. (Coll. STP).

Moths were collected in alder groves using UV-light traps and baits consisting of red wine and sugar. Adults fly in late autumn, and in early spring after overwintering. The Kazakhstan specimens (Figs 1, 2, 5, 7, 8) were compared with the European ones (European part of Russia and Southern Urals) (Figs 3, 6), and have no significant differences between them. This is a first report of *L. furcifera* for Kazakhstan. Earlier, the westernmost known locality of *L. furcifera* was Kurgan Region in West Siberia (Voskresensky, 1959), and Bayanaul Mts. is an easternmost confirmed locality of the species increasing the species' range of more than 600 km to the east (Fig. 9). An old record from the Altai by Spuler (1908) is erroneous and obviously belongs to externally close *Lithophane lamda* (Fabricius, 1787) or related *L. consocia* (Borkhausen, 1792).

The main host plants of *L. furcifera* are alder species (*Alnus glutinosa* and *A. incana*) (Ronkay et al., 2001), in Kazakhstan the species has been collected exceptionally in alder groves (Fig. 10), and the distribution pattern of *L. furcifera* in eastern parts of its range matches with *A. glutinosa* distribution pattern. In Russia, *Alnus glutinosa* is widely distributed in European part and Urals, eastern limits of its range are in western part of West Siberia: it is known from the vicinity of the cities of Tyumen (Krylov, 1930) and Kurgan (Semyonov, 1930), and the easternmost known

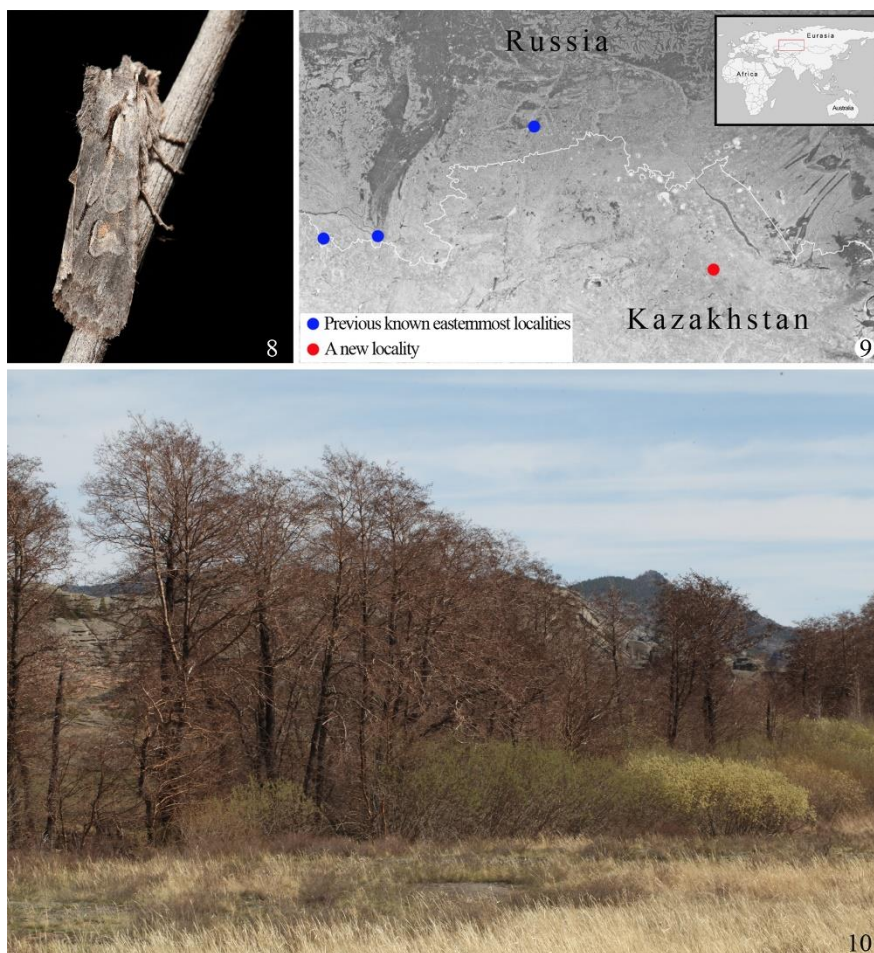
locality of *L. furcifera* in Siberia is also vicinity of the city of Kurgan (Voskresensky, 1959).



Figures 1–7. *Lithophane* spp: 1) *L. furcifera*, female, NE Kazakhstan, Pavlodar Region (coll. AVB); 2) ditto (coll. AVB); 3) *L. furcifera*, female, Russia, Moscow Region (ZISP); 4) *L. lamda*, male, Russia, St. Petersburg (ZISP); 5) *L. furcifera*, male genitalia, NE Kazakhstan, Pavlodar Region, slide AV0880 Volynkin; 6) *L. furcifera*, male genitalia, Russia, St. Petersburg, slide AV1018 Volynkin; 7) *L. furcifera*, female genitalia, NE Kazakhstan, Pavlodar Region, slide AV1019 Volynkin.

In Kazakhstan, *A. glutinosa* is distributed disjunctively in considerable isolation from the main range, and known from Bayanaul Mts. (Pavlodar Region), Karkarala Mts. (Karaganda Region), Ermentau Mts. (Akmola Region), Ilel River Valley (Aktobe Region) and the vicinity of Lake Koshmurun (Kostanay Region)

(Goloskokov, 1960; Karamysheva, Rachkovskaya, 1973). The largest population of *A. glutinosa* in Kazakhstan grows in the Bayanaul Mts., its total area reaches 459 hectares, and presence of *L. furcifera* in this mountain massif is logical.



Figures 8–10. *Lithophane furcifera*: 8) adult in nature, Bayanaul Mts; 9) map of easternmost localities of the species; 10) Bayanaul Mts, a spring alder grove, a habitat of the species.

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