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NEW DATA ON EASTERN LIMITS OF RANGES OF *EGIRA ANATOLICA* (M. HERING, 1933) AND *EGIRA CONSPICILLARIS* (LINNAEUS, 1758) (LEPIDOPTERA: NOCTUIDAE)

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The paper contains new data on the easternmost limits of distribution of the noctuid species *Egira anatolica* (M. Hering, 1933) and *Egira conspicillaris* (Linnaeus, 1758). *E. anatolica* was found in eastern and northeastern Kazakhstan for the first time. Known eastern borders of the range of another *Egira* species, *E. conspicillaris* (Linnaeus, 1758) are corrected, in addition, the species is reported for Transcaucasia (Georgia) for the first time. The map of collecting localities of *E. anatolica* is presented, adults and male and female genitalia are illustrated.

Key words: *Lepidoptera, Noctuidae, Egira, Asia, Kazakhstan, Siberia, range.*

INTRODUCTION

The Holarctic genus *Egira* Duponchel, 1845 belongs to the family Noctuidae Latreille, 1809, subfamily Hadeninae Guenée, 1852, tribe Orthosiini Guenée, 1837. The genus is distributed in North America, Europe, Central, East and South-East Asia and includes about 32 described species (Ronkay & al., 2001; Benedek & al., 2015). Many species of the genus were described in last three decades (Hacker, 1992; Hreblay, 1994; Hreblay & Ronkay, 1999; Ronkay & al., 2010; Benedek & al., 2015).

Egira anatolica (M. Hering, 1933) has been described from Turkey (Ankara) as a subspecies of European *E. conspicillaris* (Linnaeus, 1758) (Hering, 1933), and was upgraded to the specific level by Poole (1989). The species reported for South Europe (Italy and Balkans), Asia Minor, Near East, Transcaucasia and Turkmenistan by Hreblay (1994) and Ronkay & al. (2001). Later, it was also reported for South Ural (Nupponen & Fibiger, 2006), North Caucasus and south of European part of Russia (Matov & al., 2008), West Kazakhstan (Gorbunov, 2011) and Kyrgyzstan (Lehmann & Bergmann, 2005). Therefore, the easternmost known localities of the species were in South Ural, while the another species of the species group, *E. conspicillaris* was reported from West Siberia (Kurgan Region) (Zolotarenko & Dubatolov, 2000) and West Altai Mts. in eastern Kazakhstan (Lederer, 1855).

The *E. conspicillaris* species group (*Egira* s. str.) includes 6 externally very close species (Hreblay, 1994; Ronkay & al., 2001; Benedek & al., 2015), and in most of cases their correct determination is possible only by the genitalia study. The senior author of the present paper revised *Egira* material from East Kazakhstan deposited in the Siberian Zoological Museum, Institute of Animal Systematic and Ecology of the Siberian Branch of the Russian Academy of Sciences (SZMN, Novosibirsk, Russia) and determined as *E. conspicillaris*, and all the three specimens belonged to *E. anatolica* and not *E. conspicillaris*. In addition, in 2014 and 2015 the authors of the present paper collected an extensive *Egira* material in various localities of East and North-East Kazakhstan (Fig. 1). All collected specimens also belong only to *E. anatolica.*

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Figure 1. Map of easternmost known localities of *E. anatolica*.

MATERIAL AND METHODS

The moths were collected using ultraviolet and mercury light-traps. The genitalia were dissected and mounted in euparal on glass sides. 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 where taken using the camera Nikon D3100/AF-S Nikkor, 18–55 mm. Acronyms of collections are as follows: AVB – coll. Anton Volynkin (Barnaul, Russia); SKO – coll. Svyatoslav Knyazev (Omsk, Russia); STP – coll. Sergey Titov (Pavlodar, Kazakhstan); SZMN – Siberian Zoological Museum, Institute of Animal Systematic and Ecology of the Siberian Branch of the Russian Academy of Sciences (Novosibirsk, Russia).

RESULTS

Egira anatolica (M. Hering, 1933)
(Figs 1–4, 8, 9, 11)

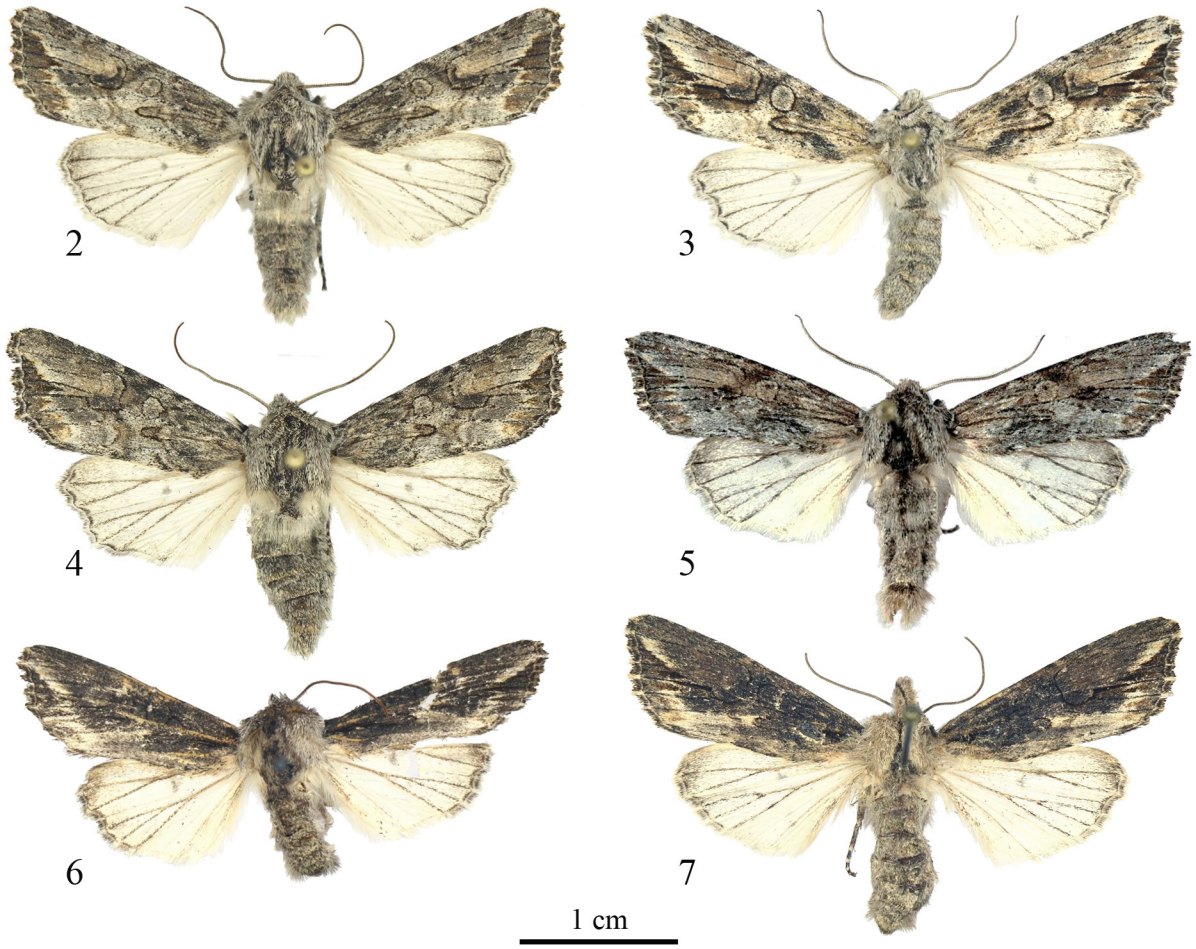
Xylomiges conspicillaris subsp. *anatolica* M. Hering, 1933, *Internationale entomologische Zeitschrift* **26**: 412 (Type-locality: Turkey, Ankara).

Material examined: EAST KAZAKHSTAN: 2 males, 6.V.1994, East Kazakhstan, 30 km NE of Ust-Kamenogorsk, Topikha vill., V.K. Zinchenko leg. (coll. SZMN); 1 female, 5.V.1994, East Kazakhstan, vic. of Glubokoe vill., at light, V.K. Zinchenko leg. (coll. SZMN); a long series of both sexes, 20.IV.2014, E Kazakhstan, Urdzhar district, spurs of Tarbagatai Mts., 1 km N of Kyzymbet (Alekseevka) village, N47°15.791', E81°32.710', h=960 m, at light. Volynkin A.V., Titov S.V. & Knyazev S.A. leg. (colls. AVB, STP, SKO); 1 male, 21.IV.2014, E Kazakhstan, Kokpekty district, 16 km SSE of Kaznakovka vill., western coast of Bukhtarma Reservoir, sands, 400 m. N48°46.250', E83°24.715', Volynkin A.V., Titov S.V. & Knyazev S.A. leg. (coll. AVB); 4 males, 1 female, 30.IV.2015, E Kazakhstan, Urdzhar district, W Tarbagarai Mts, 9.5 km ENE of Tasaryk village, 705 m. N47°08'04.6'', E081°24'51.0'', bottom of rocky slope, Volynkin A.V. & Titov S.V. leg. (coll. AVB); 5 males, 7 females, 01.V.2015, E Kazakhstan, Urdzhar district, W Tarbagarai Mts, 8 km ENE of Altynshoky (Predgornoe) village, 890 m. N 47°11.607'', E 81°10.085'', mesophilous rocky slopes of canyon, Volynkin A.V. & Titov S.V. leg. (coll. AVB); 3 males, 02.V.2015, E Kazakhstan, Ayagoz district, W Tarbagarai Mts, northern spurs, 21 km E of Ayagoz town, 810 m, N 47°58.425'', E 80°43.89'', meadow near rocks, Volynkin A.V. & Titov S.V. leg. (coll. AVB); 2

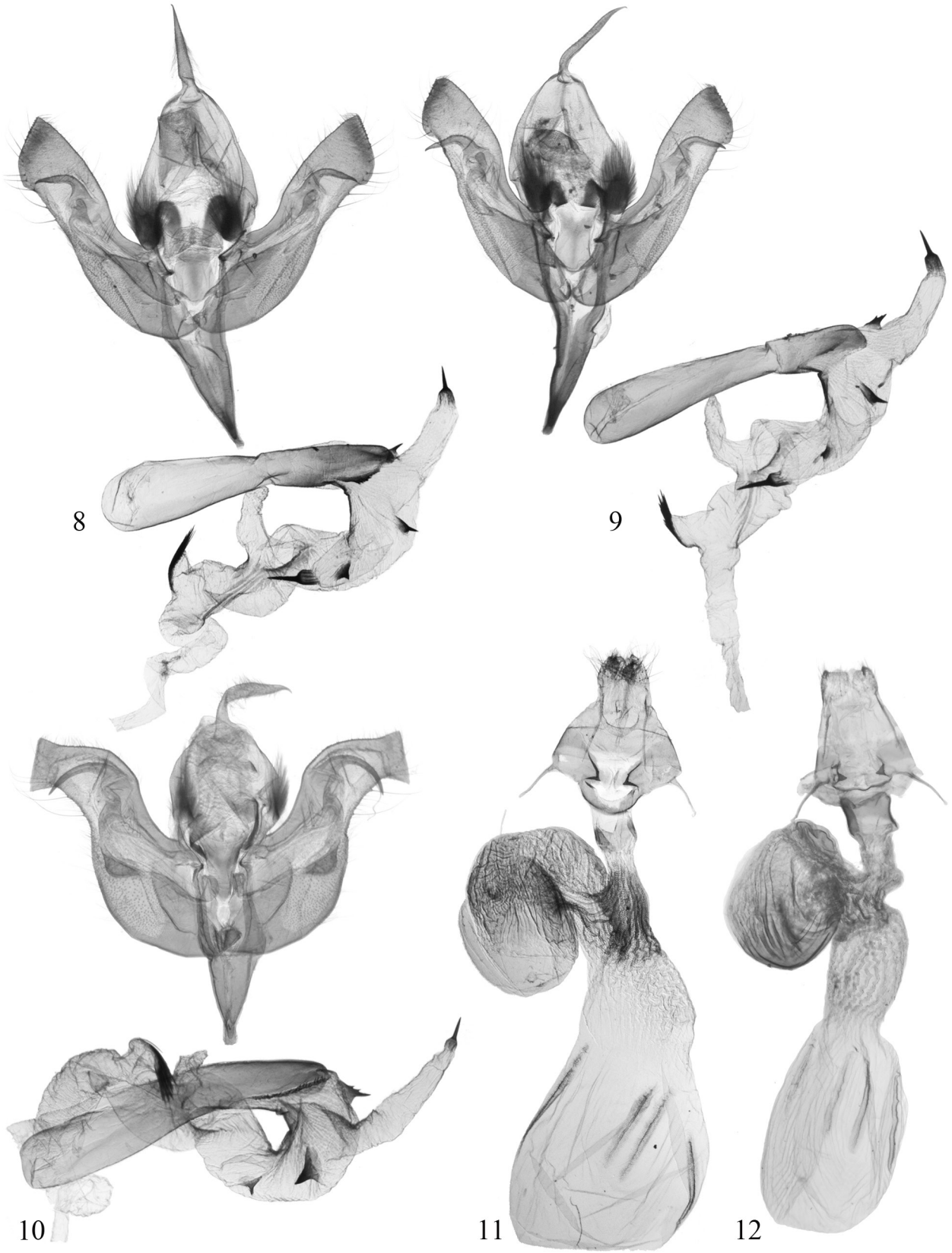
males, 3 females, 05.V.2015, E Kazakhstan, Altai Mts., Kurchum district, 26 km SE of Barak-Batyr vill., unnamed mountain massif, gravelly slopes, 610 m, 48º29’14’’N, 84º07’02’’E, Volynkin A.V. & Titov S.V. leg. (coll. AVB); 5 males, 1 female, 08.V.2015, E Kazakhstan, Ulansky district, 3 km S of Besterek village, Urunkhai river valley near rocks, 565 m, N 49°36.428’’, E 82°41.867’’, Volynkin A.V. & Titov S.V. leg. (coll. AVB); NORTH-EAST KAZAKHSTAN: 6 males, 2 females, 12.V.2015, NE Kazakhstan, Pavlodar Region, Lebyazhye district, Tuz lake, 51°17’58.24”N, 78°37’57.06”E, saline lake shore near a pine grove and dunes, Titov S.V. leg. (coll. STP).

Additional material examined: 2 males, 1 female, 21–23.IV.1991, [Turkmenistan], West Kopetdagh Mts., bottom of Aj-Dere gorge, at light, V.V. Dubatolov & V.K. Zinchenko leg. (coll. SZMN); 1 male, 18.IV.1989, [West Kazakhstan], Uralsk Region [West Kazakhstan Region], Dzhanibek (near Volga), M.L. Danilevsky leg. (coll. SZMN); 1 male, Iran, Khorasan prov., Gerivan town area, Asadi vill. vicinity, 37°13’N, 57°25’E, 03.V.2009, 1600 m, leg. Eduard Gavristchuk, ex coll. M. Dvořák (coll. AVB); 1 male, 11–12.IV.2009, Bulgaria, Kalimanci, leg. Juhász István, ex coll. M. Dvořák (coll. AVB).

Distribution. South Europe (Italy and Balkans), Asia Minor, Near East, Transcaucasia, North Caucasus European part of Russia, South Ural, Turkmenistan, Kyrgyzstan, Kazakhstan (Hreblay, 1994; Ronkay & al., 2001; Lehmann & Bergmann, 2005; Nupponen & Fibiger, 2006; Matov & al., 2008; Gorbunov, 2011).



Figures 2–7. *Egira* spp., adults. 2 – *E. anatolica*, male, 20.IV.2014, E Kazakhstan, Urdzhar district, spurs of Tarbagatai Mts., 1 km N of Kyzymbet (Alekseevka) village, N47°15.791’, E81°32.710’, h=960 m, at light. Volynkin A.V., Titov S.V. & Knyazev S.A. leg. (AVB); 3 – *E. anatolica*, female, same locality and date (AVB); 4 – *E. anatolica*, male, 08.V.2015, E Kazakhstan, Ulansky district, 3 km S of Besterek village, Urunkhai river valley near rocks, 565 m, N 49°36.428’’, E 82°41.867’’, Volynkin A.V. & Titov S.V. leg. (AVB); 5 – *E. conspicillaris*, male, Russia, S Ural, Cheliabinsk district, Miass, Ilmen State Res., 20.V.1999, K. Nupponen leg. (coll. K. Nupponen, photo by V.S. Kononenko); 6 – *E. conspicillaris*, female, 18–19.V.1999, West Siberia, vic. of Kurgan, Uval vill., at light, V.Yu. Kryukov leg. (SZMN); 7 – *E. conspicillaris*, female, 04.V.2002, Hungary, Prov. Pegt, Mt. Naszály, V.-Kút, leg. Juhász István (SZMN).



Figures 8–12. *Egira* spp., male (8–10) and female (11, 12) genitalia. 8 – *E. anatolica*, E Kazakhstan, Urdzhar district, spurs of Tarbagatai Mts., slide AV1232 Volynkin; 9 – *E. anatolica*, Bulgaria, Kalimanci, slide AV1350 Volynkin; 10 – *E. conspicillaris*, Georgia, vic. of Tbilisi, Kaspakha, slide AV1239 Volynkin; 11 – *E. anatolica*, E Kazakhstan, Urdzhar district, spurs of Tarbagatai Mts., slide AV1245 Volynkin; 12 – *E. conspicillaris*, West Siberia, vic. of Kurgan, Uval vill., slide AV2271 Volynkin.

Egira conspicillaris (Linnaeus, 1758)

(Figs 5–7, 10, 12)

Phalaena Noctua conspicillaris Linnaeus, 1758, Systema Naturae (Edn. 10) **1**: 515 (Type-locality: Europe).

Material examined: WEST SIBERIA: 1 female, 18–19.V.1999, West Siberia, vic. of Kurgan, Uval vill., at light, V.Yu. Kryukov leg. (coll. SZMN).

Additional material examined: 1 male, 6.IV.1989, [Georgia], vic. of Tbilisi, Kaspakha, M.L. Danilevsky leg. (coll. SZMN); 1 female, 04.V.2002, Hungary, Prov. Pegt, Mt. Naszály, V.-Kút, leg. Juhász István (coll. SZMN); 1 male, 25.IV.1963, Moldova, Yargara, L. Borodina leg. (coll. SZMN); 1 male, 2 females, 04.V.2010, Russia, Saratov Region, Krasnoarmeisk district, near Melovoe vill., N50°46’51.89’’, E45°38’19.89’’, steppe slope, at light, Korb S.K. leg. (coll. AVB).

Distribution. West, Central, East and South Europe, North Africa (Morocco and Algeria), Asia Minor, Caucasus, Transcaucasia (Georgia), European part of Russia, South Ural (Ronkay & al., 2001; Matov & al., 2008). The species is reported for Transcaucasia (Georgia) for the first time.

Thus, there are no confirmed records of *E. conspicillaris* to the east of western part of West Siberia (Kurgan Region, material examined, see figures 6, 12), whereas *E. anatolica* is widely distributed through all Kazakhstan territory from foothills of South Ural to West Altai Mts.

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