

***Eversmannia exornata* (Eversmann, 1837), the only known representative of the Epiplemidae family (Lepidoptera) in West Palearctic.**

***Eversmannia exornata* (Eversmann, 1837) - единственный известный представитель семейства Epiplemidae (Lepidoptera) в Западной Палеарктике.**

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KEY WORDS: Lepidoptera, Epiplemidae, *Epiplema*, *Eversmannia*, West Palearctic, Siberia.

КЛЮЧЕВЫЕ СЛОВА: Lepidoptera, Epiplemidae, *Epiplema*, *Eversmannia*, Западная Палеарктика, Сибирь.

ABSTRACT. The list of Epiplemidae species known from the territory of Russia is given. All known findings of *Eversmannia exornata* (Eversmann, 1837) in Siberia and in the European Part of Russia are enumerated. The natural conditions of the habitat of the most abundant population of the species in the Novosibirsk region are described.

РЕЗЮМЕ. В статье приводится список видов Epiplemidae, населяющих территорию России, и сообщаются все известные места сбора *Eversmannia exornata* (Eversmann, 1837) в Сибири и европейской части России, отмечаются сроки лета и дается описание местообитания, где была обнаружена наиболее многочисленная популяция. Оно расположено в непосредственной близости от Новосибирского Академгородка, в долине ручья Зырянка. Бабочки обнаружены 10 июня 1981 г. и 21-28 июня 1992 г. на небольшом участке (около 100 м) узкого разнотравного луга, тянущегося на дне долины вдоль опушки ивовых зарослей 3-4 м высотой, покрывающих заболоченный участок русла, где также встречались отдельные особи. С другой стороны луг ограничен склоном долины, покрытым разреженным березово-осиновым лесом с примесью сосны. Преобладающими растениями на лугу были *Filipendula ulmaria* (доминант), *Dactylis glomerata*, *Calamagrostis epigeios*, *Agrostis gigantea*, *Phragmites australis*, *Carex caespitosa*, *Trollius asiaticus*, *Sanguisorba officinalis*, *Aegopodium podagraria*, *Polemonium coeruleum*, *Veronica longifolia*, *Ptarmica impatiens*, *Senecio fluviatilis*, и др. Под пологом ивовых зарослей влажную почву покрывали кочки *Carex caespitosa* и, кроме того, были обильны *Filipendula ulmaria*, *Urtica dioica*, *Phragmites australis* и *Polemonium*

*coeruleum*, а в кустарниковом ярусе преобладала красная смородина *Ribes hispidulum*. Бабочки держались на нижней стороне листьев и легко вспугивались как в дневное, так и в вечернее время. В статье обсуждаются возможные причины учащения в последнее время находок этого редкого в прошлом вида.

The Epiplemidae family is widely distributed in tropical and subtropical zones of the world, mostly in South America [Fletcher, 1979], but is poorly represented at moderate latitudes. Six species inhabit the territory of Russia. Four of them, namely, *Nossa palearctica* (Staudinger, 1887), *Eversmannia exornata* (Eversmann, 1837), *E. erasaria* Christoff, 1881, and *E. illotata* Christoff, 1880 are distributed in Amurland (Primurie) and Primorie; *E. plagifera* (Butler, 1881) - in Sakhalin [Viidalepp, Remm, 1982]; *E. moza* (Butler, 1878) was recently found in the Kunashir Island (1 ♀, Alekhino, 16.07.1989, V.V. Dubatolov et O.D. Rusanov leg.). And only *E. exornata* (Eversmann, 1837) penetrates into Siberia and European Russia. The species of the genus *Eversmannia* Staudinger, 1871, are often regarded within the genus *Epiplema* Herrich-Schäffer, [1855], 1850-1858. However, the type species of *Epiplema*, *E. acutangularia* Herrich-Schäffer, [1855], is distributed in Brazil [Fletcher, 1979], and it is very improbable that Palearctic and Neotropic species are congeneric. Therefore, it is reasonable to consider the boreal and, maybe, oriental species as belonging to the genus *Eversmannia*, which was proposed by Staudinger [Staudinger and Rebel, 1901] for "*Idea exornata* Eversmann, 1837".

The only Epiplemidae species known so far to inhabit the West of Palearctic, *Eversmannia exornata*, was described by Eversmann [1837] as a Geometrid *Idea exornata* from the surroundings of Kazan [Казань] (Tatarstan, Russia); this information was also reproduced

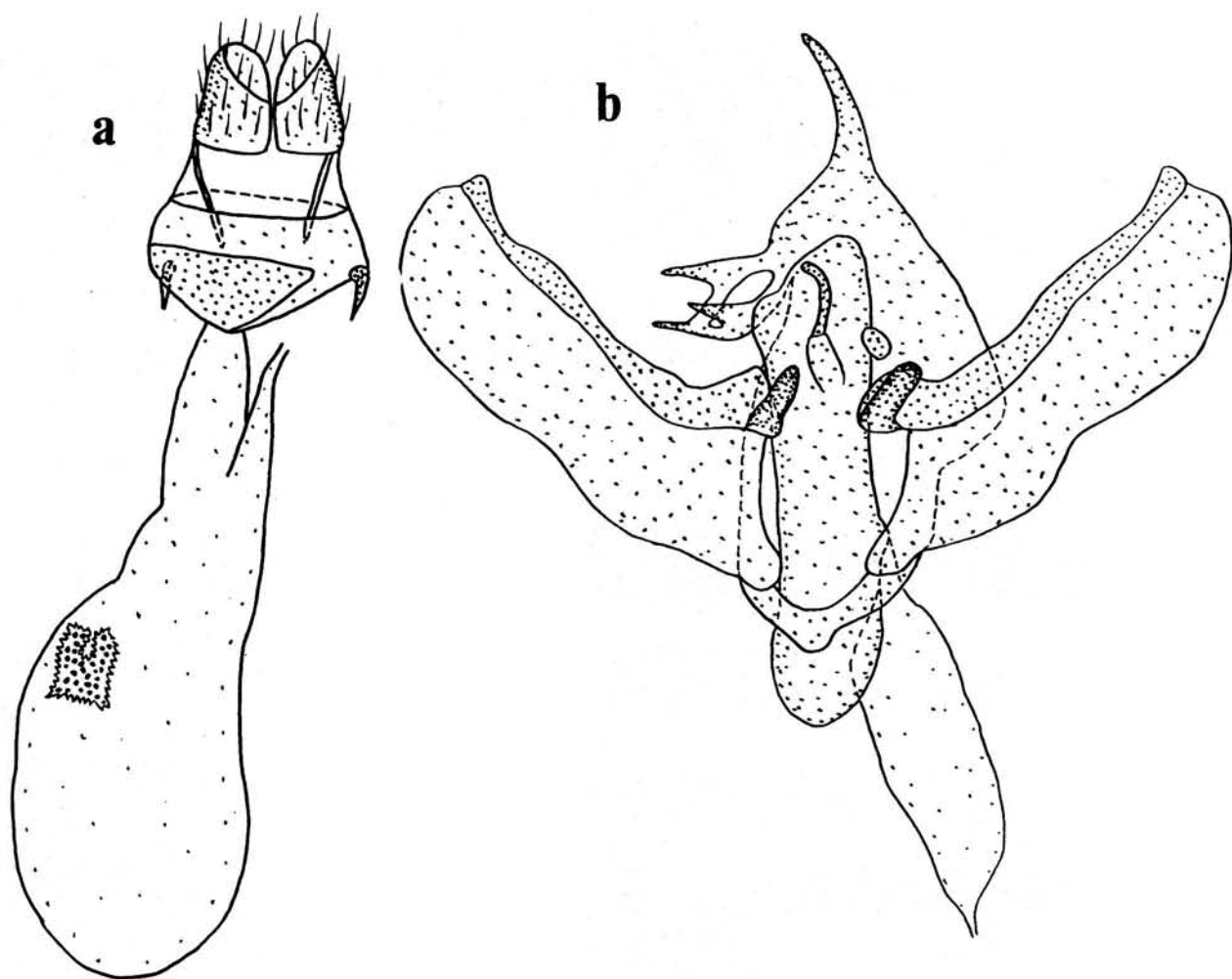


Fig. 1. *Eversmannia exornata* (Eversmann, 1837): a — female genitalia (the type specimen, "Cas" [Kazan]); b — male genitalia (Novosibirsk Region, Ordynskii District, Chingisy, 29.VI.1969).

Рис. 1. *Eversmannia exornata* (Eversmann, 1837): а — гениталии самки (типовой экземпляр, "Cas" [Казань]); б — гениталии самца (Новосибирская область, Ордынский р-н, Чингисы, 29.VI.1969).

in a later work [Eversmann, 1844]. There was no doubt about it among the researchers of the former century. Thus, this species was referenced exactly for Kazan by M.A. Guenée [1857], while F. Walker [1861] mentioned it for South Russia. However, N. Erschoff [1870], for an unknown reason, had transformed the type locality of this species into Kyakhta [Кяхта] (now - in South Buryatiya [Южная Бурятия]). This mistake was adopted by a great number of later catalogues, atlases and guides, such as O. Staudinger, M. Wocke [1871]; O. Staudinger, H. Rebel [1901]; A. Seitz [1913]; H. Inoue [1982]. The Epiplemidae family was completely missed in "Identification book of Insects of the European Part of the USSR" [Zagul'jaev et al., 1978], although K.W. von Dalla Torne [1924] had

included South Russia, together with East and Middle Siberia, Amurland, Primorie, Japan, and East Asia, into the known range of *E. exornata*. The type locality was also correctly specified in the last catalogue "The Generic Names of Moths of the World" [Fletcher, 1979].

So, the question arises where exactly *E. exornata* is distributed in West Palearctic? In Europe, except for the type locality of Kazan (the type specimen, a female, with a label "Cas" written probably by E. Eversmann himself, is preserved in Zoological Institute of Russian Academy of Sciences, Sanct-Petersburg; its genitalia are shown in Fig. 1), this species was known by a single specimen from Saratov Region [Саратовская губерния] [Kroulikovsky, 1902]. Since "Kyakhta" is an erroneous locality resulting

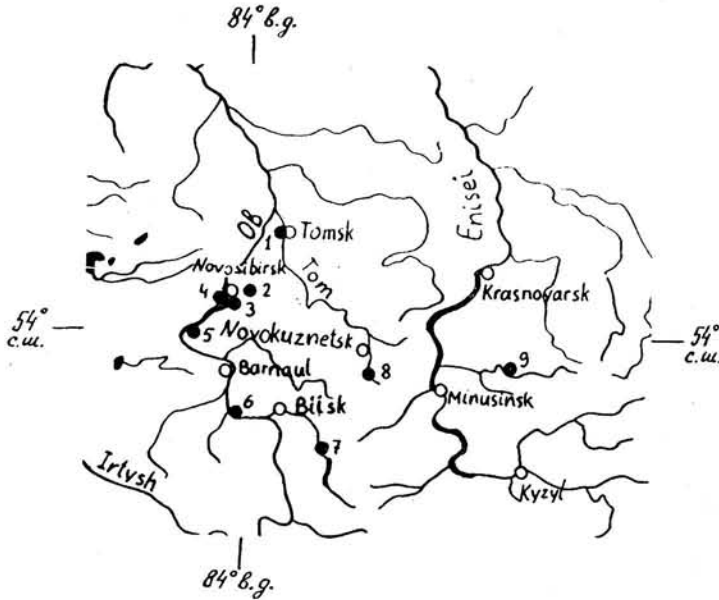


Fig. 2. The points of findings of *Eversmannia exornata* in Siberia. 1 — Timiryazevskii; 2 — Shelkovichikha; 3 — Akademgorodok; 4 — Obges (a town of Ob electric power station, according to the personal communication of Mr. P.Ya. Ustyuzhanin); 5 — Chingisy; 6 — Soldatovo; 7 — Artybash; 8 — Osman; 9 — the Tridtsatye Lakes.

Рис. 2. Точки находок *Eversmannia exornata* в Сибири. 1 — Тимирязевский; 2 — Шелковичиха; 3 — Академгородок; 4 — Обгэс (город Обской гидроэлектростанции, по личному сообщению П.Я. Устюжанина); 5 — Чингисы; 6 — Солдатово; 7 — Артыбаш; 8 — Осман; 9 — Тридцатые озера.

from Erschoff's [1870] transformation of "Kazan", we know the only reliable record of this species for Siberia: the Sayan Mts., where it was found in the vicinity of the Tridtsatye ["30th"] Lakes [Тридцатые озера] in the middle reaches of the Kazyr [Казыр] river (the South of Krasnoyarsk Territory [Красноярский Край - "Krasnoyarskii Krai"]) [Kozhantschikov, 1924]. These specimens were described as a distinct subspecies *Epiplema exornata sibirica* Kozhantschikov, 1924; that, to our mind, was not necessary.

In 1980, while examining old untreated materials collected in various points of West Siberia, V.V. Dubatolov discovered the specimens of *Eversmannia exornata* originating from the western surroundings of Tomsk [Томск] and from the South-East of Novosibirsk Region [Новосибирская область]. Later, the species was found in several localities near Novosibirsk, in Altai Region [Алтайский край - "Altayskii Krai"], in north-east of the Altai Mountains, and in Gornaya Shoriya. [Горная Шория] (south of the Kemerovo Region [Кемеровская область]). In recent decades, *E. exornata* was also rediscovered by collecting it in numerous sites in European Russia, namely, in Moscow, Ryazan, Ivanovo, Bryansk, and Tula Regions [Московская, Рязанская, Ивановская, Брянская и Тульская области].

Materials. "Cas" [Kazan], 1 ♀ - the type specimen, being kept in Zoological Institute of Russian Academy of Sciences, Sanct-Petersburg. The following specimens are kept in Zoological Museum of Moscow State University, Moscow. Moscow Region: Orekhovo-Zuevo District [Орехово-Зуевский район], the Maiskii settlement [поселок Майский], 14.VI.1987, 1 specimen, A. Devyatkin leg.; Voskresensk District [Воскресенский район], the

Fosforitnyi settlement [поселок Фосфоритный], 12.VII.1983, 1 specimen, L. Solntsev leg.; Prioksko-Terrasnyi Reserve, Luzhki [Лужки], 18.VI.1983, 1 specimen, A. Pokidov, leg.; id., Danki [Данки], 27.VI.1987, 1 specimen, I. Osipov, leg. Ryazan Region: Shilovo District [Шиловский район], the Rubetskoe village [село Рубецкое], 27.VI.1991, 1 specimen, I. Kusnetsov leg. Ivanovo Region: Kineshma District [Кинешемский район], Krasnogorskii [Красногорский], 25.VI.1988 1 specimen, A. Tikhomirov leg. Bryansk Region: 15 km south-east of Bryansk [Брянск], Poluzhye [Полужье], 5-17.VII.1982, 2 specimens, A. Aniskovich leg. Tula Region: Shulgino [Шульгино], 19.VI.1990, 3 specimens, 29.VI.1992, 4 specimens, 1.VII.1990, 10 specimens, L. Bolshakov leg. The following specimens are preserved in Zoological Museum of Biological Institute of Siberian Division of Russian Academy of Sciences, Novosibirsk. Tomsk Region: Tomsk surroundings, Timiryazevskii [Тимирязевский], 2.VII.1969, 1 ♀, N. Kolomiets leg. Novosibirsk Region: Ordynskii District [Ордынский район], Chingisy [Чингисы], 6.VII.1960, 1 ♀; 29.VI.1972, 1 ♂, V. Menyailo leg.; 2 km north-east of the Shelkovichikha [Шелковичиха] railway station (40 km east of Novosibirsk), 28.VI.1981, 1 specimen, V. Ivonin leg.; Akademgorodok [Академгородок - Novosibirsk Academy Town], the Zyryanka [Зырянка] stream, 21.VI.1992, 2 ♂♂ 3 ♀♀, V. Dubatolov, O. Kosterin leg.; Altai Region: 100 km south of Barnaul [Барнаул], Soldatovo [Солдатово], 26.VI.1990, 1 ♂ 1 ♀, S. Vasilenko leg. North-East of the Altai Mountains: the Lake Teletskoe [Телецкое озеро], Artybash [Артыбаш], 16.VII.1992, 1 ♀, V. Dubatolov leg. Gornaya Shoriya: the Osman [Осман] railway station (5 km south of the Kuzedeevo [Кузедеево]

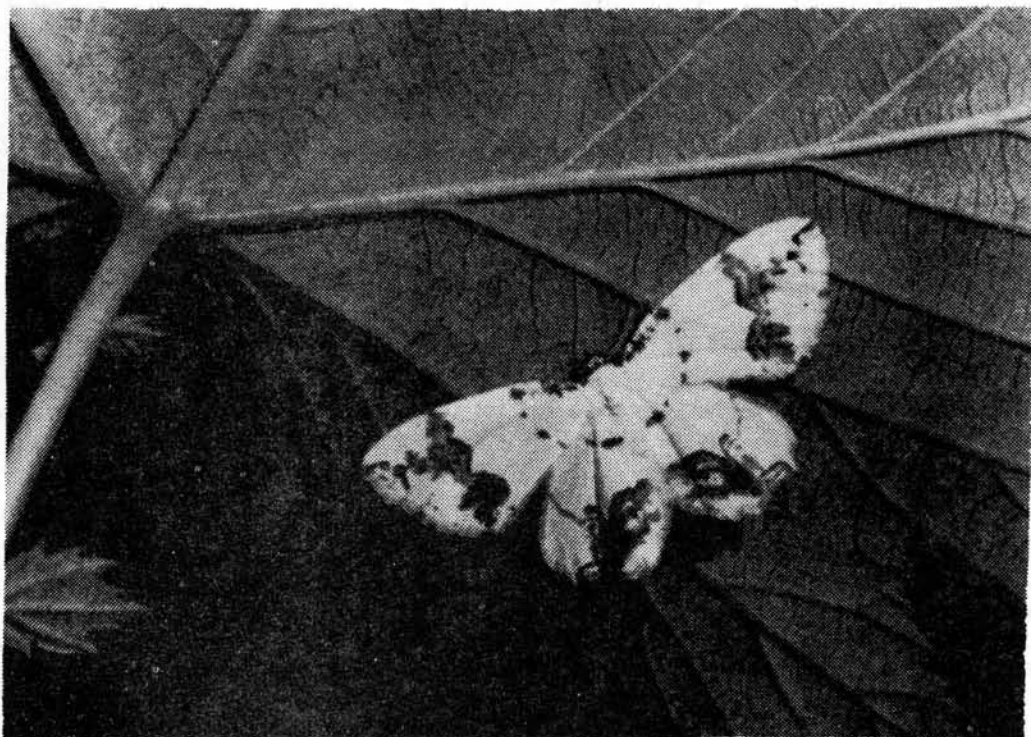


Fig. 3. Individual of *Eversmannia exornata* sitting on the underside of the leaf of *Filipendula ulmaria* (natural positions).  
Рис. 3. Экземпляр *Eversmannia exornata*, сидящий на нижней стороне листа *Filipendula ulmaria* (естественная поза).

railway station), 1.VII.1992, 1 ♀ (P. Ustyuzhanin leg.). The points of finding *Eversmannia exornata* in Siberia are shown on the map of Fig.2.

Since all known so far findings of *E. exornata* concern imagines, the biology of the species in the region in question remains poorly studied. It is possible only to outline its flying period and to characterize its habitats based on the data from West Siberia. There the majority of the findings of imagines of this species happened in the interval June 20th - July 10th. They are always met with near rivers or small streams in wet meadow openings in woodland. The most abundant population was found by O.E. Kosterin in a close vicinity of Novosibirsk Akademgorodok [Academy Town] in the valley of the Zyryanka stream. This habitat of *E. exornata* is described below in detail.

Although Novosibirsk resides in the forest-steppe zone of the West-Siberian Lowland, the Ob valley, due to its sandy soils, was naturally covered with pine forests, which have been to a great extent cut or replaced by the secondary birch forests. The exact locality is situated 9 km east of the former left bank of Ob river, that is 3 km from the recent bank of the Novosibirsk Water Reservoir. Although the altitude of this point is only 150 m, there is a very mild land elevation outlined by the Ob river, which is the west extreme of the Altai-Sayan Mountain System. Therefore, the small (about 1 m wide and 8 km long) stream of Zyryanka has a rather well developed valley, the bottom level of which is 20 to 50 m lower than

that of the surrounding plain. In several points the meandering stream discloses the rocks composed by the alternating Devonian aleurolites and argilites, which form the detritus locally covering the stream bed. In other sections of the valley, the stream crosses small tussock swamps.

Firstly an individual of *E. exornata* was photographed (but not collected) on June 10th, 1981, on meadow vegetation near the thicket of willow trees 3-4 m high (several species, mostly *Salix cinerea* L., and also *S. pyrolifolia* Ledeb. and *S. pentandra* L.), covering this boggy part of the valley. On June 21th, 1992, seven imagines were found in exactly the same very restricted (about 100 m long) section of the edge of the thicket. The neighboring rich forb meadow, 5-10 m wide, covers the space of the valley bottom between the thickets and the southern slope, covered by open birch (*Betula verrucosa* Ehrh.) / asp (*Populus tremula* L.) forest with several individuals of *Pinus silvestris* L. The moths were met with at this meadow within 3-6 metres of the willow bushes, some individuals penetrated 1-2 m under their canopy. They mostly sat on the underside of the leaves of *Filipendula ulmaria* (L.) Maxim. or other herbs (Fig.3). Disturbed, as a man came near, they easily got into the air, both in the middle of the sunny day and in the cloudy dusk of the same day. On 28th of June this locality was visited again, but only one individual of the species was observed.

The meadow where the moths were observed is composed



of the following plant species: *Filipendula ulmaria* is a dominant; *Dactylis glomerata* L., *Calamagrostis epigeios* (L.) Roth, *Agrostis gigantea* Roth, *Phragmites australis* (Cav.) Trin. ex Steudel, *Carex caespitosa* L., *Trollius asiaticus* L., *Sanguisorba officinalis* L., *Aegopodium podagraria* L., *Polemonium coeruleum* L., *Veronica longifolia* L., *Parmica impatiens* DC., *Senecio fluviatilis* Wallr., are abundant; *Equisetum pratense* Ehrh., *Trisetum sibiricum* Rupr., *Brachypodium pinnatum* (L.) Beauv., *Poa sibirica* Roshev., *Phleum pratense* L., *Veratrum lobelianum* Bernh., *Ranunculus propinquus* C.A.Mey., *Thalictrum simplex* L., *Geum rivale* L., *Rubus saxatilis* L., *Vicia cracca* L., *Lathyrus pratensis* L., *Geranium silvaticum* L., *Lysimachia vulgaris* L., *Galium boreale* L., *G. uliginosum* L., *Cirsium heterophyllum* (L.) Hill., *C. setosum* (Willd.) M.B., *Crepis sibirica* L. are sparse; *Equisetum palustre* L., *E. hiemale* L., *Festuca pratensis* Huds., *F. rubra* L., *Lychnis chalconica* L., *Delphinium elatum* L., *Aconitum septentrionale* Koelle, *Agrimonia pilosa* Ledeb., *Vicia sepium* L., *Astragalus glycyphyllos* L., *Origanum vulgare* L., *Scutellaria galericulata* L., *Scrophularia nodosa* L., *Pedicularis incarnata* L., *Orobancha alsatica* Kirschl., *Inula salicina* L., *Centaurea scabiosa* L., *Serratula coronata* L., and others, are solitary. It should be taken into account that the vegetation of the described meadow stripe continuously but rapidly (within several meters) changes along the transversal profile of the valley, so, the relative abundance of species cannot be estimated unambiguously.

Many of these plant species grow also on a wet ground with *Carex caespitosa* tussocks under the canopy of the willow thicket. Besides *C. caespitosa*, the predominating ones are *Filipendula ulmaria*, *Urtica dioica* L., *Phragmites australis*, *Polemonium coeruleum*. The bush layer is composed by juvenile willows, numerous bushes of the red currant (*Ribes hispidulum* Pojark.), and solitary individuals of the black currant (*R. nigrum* L.) and juvenile bird-cherry trees (*Padus racemosa* (Lam.) Gilib.). The food plant species of the larvae of *Eversmannia exornata* is not known, but *Viburnum* has been reported as a food plant of some Japanese species of the genus. No individual of the guelder rose (*V. opulus* L.), which is quite common in this zone, has been found in the site described. We failed to isolate any factor which could restrict the presence of *E. exornata* to this short section of the valley, since superficially the same conditions extend to a much longer distance along the stream.

The fact of multiple findings of *E. exornata* in European Russia and West Siberia, after its almost century-long absence, is undoubtedly an entomological sensation. It is difficult to suppose that lepidopterologists merely missed this species, as Russian faunistics until 1930-ies had been actively developing, whereas since 70-ies its new rise started. It is noteworthy that in 1902, 1924, 1960, and 1969, only solitary findings of *E. exornata* took place, while in 1981-1992 a steady increase of both the number of sites and the number of specimens collected was observed. Some objective reasons should exist for such a phenomenon.

One of us (E.M. Antonova) supposes that a hypothesis by an outstanding paleontologist V.V. Zherikhin [1979]

on an abrupt enriching fauna with relic elements during global biocenotic crises seems to be helpful in this regard. Because it is dominants of the biotic communities that undergo a depletion under conditions of the crisis of the cenose, some accessory species, and especially cenophobs, could be of advantage. Such species, which are often weekly connected with their communities, might have acquired mechanisms of persisting with low density. So, the increase of the role of relic groups, the rise of vigor and number of relics and the expansion of their ranges can be an important indicators of profound changes of ecosystems. V.V. Zherikhin gave a number of impressive examples of this kind, coming from the history of the Cretaceous Crisis and as well from the second half of the XX century. Thus, it is not excluded that numerous recent findings of an obvious relic *Eversmannia exornata* in West Palearctic can be a manifestation of the increasing disturbance of recent ecosystems.

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