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THREATENED BEETLE SPECIES (COLEOPTERA) ON THE TERRITORY OF THE KALININGRAD REGION, INCLUDING THOSE LISTED IN THE RED DATA BOOK OF LITHUANIA

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Abstract. Nineteen species of the order Coleoptera listed in the Red Data Book of Lithuania (2007) are known to exist on the territory of the Kaliningrad Region: 17 of them were recorded in the Kaliningrad Region during the investigation conducted by the author in 1989–2009, while the presence of two other species in the region is known only from oral reports. The current paper presents information on sampling locations of the above-mentioned 19 species and six other beetle species that are rare in the region. Also, the article discusses some problems associated with the compilation of threatened insects' list and surveys potential measures for protecting vanishing beetle populations in the Kaliningrad Region.
Key words: beetles, Red Data Book of Lithuania, Kaliningrad Region

Introduction

This article is a sequel to a series of publications devoted to rare insect species and those in need of protection in the Kaliningrad Region. To date, there are only three papers published on this topic. One of them deals with protected insect species of the Kaliningrad Region listed in the Red Data Book of the USSR (Sakhnov 1989). The other two are devoted to insect species of the Curonian Spit (Alekseev 2007a) and those of the whole Kaliningrad Region (Alekseev 2008a), both of which are listed in the Red Data Book of the Russian Federation. However, this information is clearly insufficient for the compilation of the Red Data Book of the Kaliningrad Region. One of the principles underlying the provision of legal protection for insect species is the priority of Regional Red lists over the Red Data Book of the whole country (in our case the Red Data Book of Russia). Extinct and endangered species on a concrete territory should be given legal protection. The future Kaliningrad Red Data Book (like Red Data Books of Leningrad, Archangelsk, Lipetsk, Saratov, Moscow and other regions of Russia) should primarily list species which are: naturally rare, decreasing in abundance and population numbers, locally distributed and stenotopical in the region. When proposing protection measures for insects of the Kaliningrad Region, it is necessary to have in mind that they constitute an integral part of the whole Baltic fauna, which should be treated as a unit. The detailed analysis of Red Lists of the neighbouring Baltic States is logical and obligatory not only because of topical, orographical or faunistical similarities of our territories. Another reason why the Red Lists of Lithuania, Poland, Latvia and Belarus are of so great importance (and possibly even greater than that of the Russian Red Data Book) for the compilation of the Red Data Book of the Kaliningrad Region is the possibility of consolidating biodiversity preservation efforts. The key to insect protection is protection of their micro- and macrohabitats. Species protection measures can be effective only if they are implemented on the total territory of the species range, which may spread over a number of countries with different political, administrative and legal systems. Fragmentary protection, be it protection of species that are rare only in the Kaliningrad Region or protection of unique and threatened ecosystems, microhabitats and species living therein only on the small isolated territory of the Kaliningrad Region is impossible.

Material and methods

The author collected the major part of the presented material during the 1989–2009 period in all parts of the Kaliningrad Region, including the territory of the Curonian Spit. The material was collected using standard entomological methods: sweeping, stone turning, ground pitfall trapping, hand-searching, sampling in winter sheltering in moss and wood and collecting on the shores of water bodies. Beetles were identified with the help of standard identification keys (Bey-Bienko1965;

Freude *et al*. 1965–1989). The list of species was prepared using the commonly accepted nomenclature (Silfverberg 2004).

Results and discussion

At present the list of protected species on the territory of the Lithuanian Republic contains 128 insect species (The List …2003; Red Data Book of Lithuania 2007). Beetles (29 taxa) constitute 23% of species included in this list. The number of beetles listed in the Red Data Book is increasing: the previous issue of the Lithuanian Red Data Book (Red Data Book of Lithuania 1992) included 17 species of the order Coleoptera.

During the study period, 17 out of the 29 beetle species listed in the Lithuanian Red Data Book (Red Data Book of Lithuania 2007) were recorded by the author on the territory of the Kaliningrad Region. The current article presents information on these beetles in the form of an annotated checklist with the finding data and general distribution in the Kaliningrad Region indicated for each species (Fig. 1). The habitation of two more species *Gnorimus variabilis* (Linnaeus, 1758) and *Necydalis major* Linnaeus, 1758 in the region is evidenced by the material which was collected by Mr Nikolay I. Sakhnov (†) in the vicinity of the Bogatovo settlement (Polesky district). The species *Dytiscus latissimus* Linnaeus, 1758 was reported from Kaliningrad in the 1970s (oral report by Prof. Dr Rudolf N. Burukovsky) and the ground beetle *Carabus nitens* Linnaeus, 1758 – from the plateau bog Zehlau (Gvardeysky district) in the 1980s (N. I. Sakhnov's comm.). To confirm and specify the information on the distribution of these species, further investigations are needed.

There have been no reliable data on the presence of eight species listed in the Lithuanian Red Data Book in our region since 1945. The following beetle species were not found: *Carabus intricatus* Linnaeus, 1761, *Melanophila acuminata* (DeGeer, 1774), *Anostirus purpureus* (Poda, 1761), *Cucujus cinnaberinus* (Scopoli, 1763), *Cucujus haematodes* (Erichson, 1845), *Boros schneideri* (Panzer, 1795), *Ergastes faber* (Linnaeus, 1761), *Cassida margaritacea* (Schaller, 1783). The majority of these species were not recorded on this territory by German scientists before 1945 (Bercio & Folwaczny 1979), although investigations had been conducted therein even for two hundred years. Nevertheless, these taxa (or at least some of them) are expected to be detected during future faunistic investigations in the Kaliningrad Region. In the author's opinion, the Krasny Forest [earlier Romintenheide] in the Nesterovsky district (possibly habitats for *Dytiscus latissimus* and *Ergastes faber*) and the Nemansky Forest (possibly the habitat for *Boros schneideri*) are expected to be the most promising sampling locations. Two beetle species (*Calosoma sycophantha* Linnaeus, 1758 and *Lucanus cervus* Linnaeus, 1758) are not included in the Lithuanian list of endangered beetles. On the territory of Lithuania, these species are considered to be extinct. The information on these beetles in the Kaliningrad Region (its distribution in the past and at present) is surveyed by the author in another paper (Alekseev 2008a).

Annotated checklist of Coleoptera included in the Lithuanian Red Data Book and found on the territory of the Kaliningrad Region (1989–2009)

Family Carabidae Latreille, 1802

1. *Calosoma inquisitor* (Linnaeus, 1758) (Fig. 1A). This species of ground beetles is characterised by sharp fluctuations in population density with a periodicity of 4–5 or more years. Fluctuations in the abundance of this entomophagous species correlate with those of its basic prey (arboreal caterpillars and pupae). Most likely, the total numbers of the species are not decreasing in the region and all density changes have a cyclic and particular character. The species was recorded in a deciduous park in Chernyakhovsk (25 May 1989, 1 specimen), in a mixed forest near the Ryabinovka settlement (18–19 May 2002, the highest occurrence of imagoes observed in the region was: 6–10 specimens / 1 km of route; 22 May 2002, 9 May 2004), in a deciduous park in Kaliningrad (10 June 2003, 1 specimen), in a mixed forest and on the Baltic Sea shore near Svetlogorsk city (2 June 2003, 15 specimens; 2 June 2009, 2 specimens), 3 km NE of Zelenogradsk (26 May 2009, 1 specimen). This species is not threatened with extinction in the region, but it could be an indicator species for the protection of humid broad-leaved forests (mostly different associations of Quercetum and Alnetum) and the same parts of mixed forests.

2. *Carabus coriaceus* Linnaeus, 1758 (Fig. 1B). Stable but not numerous populations of this species were recorded during the research period in mixed and broad-leaved parks and forests in western districts of the Kaliningrad Region (Alekseev 2008b). The most distant from the seashore sampling location is the Strel'nya-Novaya settlement in the Bagrationovsk district (30 March 1999), but the occurrence of the population in the southeastern part of the region (the Nesterovsky district) is highly probable too. The highest frequency (2–3 specimens / 3 km of route) was noted near the settlement Lesnoe in the Zelenogradsk district (8 August 2008) and near Mamonovo in the Bagrationovsk district (14 September 2008). Beetles of this

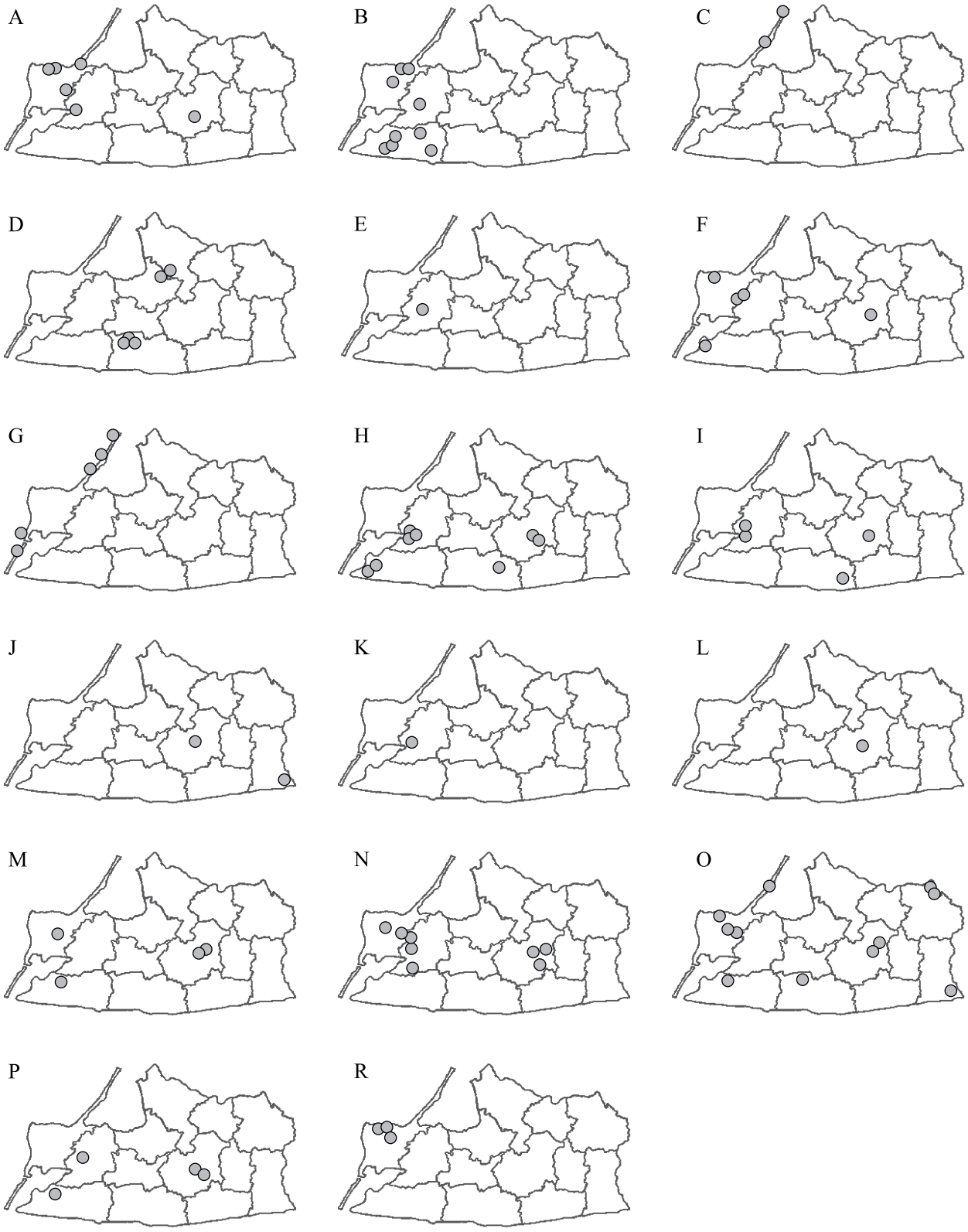

Figure 1. Sampling locations in the Kaliningrad Region: A – *Calosoma inquisitor*, B – *Carabus coriaceus*, C – *Cicindela maritima*, D – *Agonum ericeti*, E – *Graphoderus bilineatus*, F – *Dendroxena quadrimaculata*, G – *Polyphylla fullo*, H – *Protaetia marmorata*, I – *Osmoderma barnabita*, J – *Ceruchus chrysomelinus*, K – *Stenagostus rufus*, L – *Ovalisia rutilans*, M – *Xestobium rufovillosum*, N – *Peltis grossa*, O – *Ostoma ferruginea*, P – *Uloma culinaris*, R – *Prionus coriarius*.

species (imagoes) captured by pit-fall trapping (2 km E of Ladushkin, 19 May – 8 June 2009) constitute 6% of all the captured specimens of the genus *Carabus*. Thus, the most numerous in the region ground-beetle species is quite abundant in congenial ecosystems and could be legally protected as indicator species of mature broad-leaved and mixed forests.

3. *Cicindela maritima* Latreille & Dejean, 1822 (Fig. 1C). This species of sandy beaches of the Baltic Sea and the Curonian Lagoon (Alekseev 2003) and bents of white dunes of the Curonian Spit is not naturally numerous. It is locally distributed, and during the research period, solitary specimens were regularly observed only in the North-Lattenwald and Pillkoppen Dunes (the Curonian Spit). According to the latest German catalogue (Bercio & Folwaczny 1979), this tiger beetle often occurs along the entire seaside. At present the species might also occur on the Sambian peninsula and on the Baltic Spit (seashores). The occurrence and numbers of the species, which are presumably closely related with clean and seldom visited sandy ecosystems of shores, sharply decreased as a result of tourist industry development in the last 2–3 decades.

4. *Agonum ericeti* (Panzer, 1809) (Fig. 1D). It is a stenotopical beetle species of big untransformed sphagnous bogs (the Zehlau bog, Bol'shoe Mokhovoe bog) sporadically distributed in the region. The species occurs abundantly and constantly in open parts of plateau bogs in June–July and is one of the most common species in these ecosystems. These beetles could be included in the Kaliningrad Red Data Book only as indicator species of a few transformed key habitats but not as a rare species.

Family Dytiscidae Leach, 1815

5. *Graphoderus bilineatus* (De Geer, 1774) (Fig. 1E). Before 1945 (Bercio & Folwaczny 1979), it was reported from Königsberg (Kaliningrad), Insterburg (Chernyakhovsk) and the northern coast of the Sambian peninsula. During the research period, the species was only once collected on the northwestern outskirts of Kaliningrad (Severnaya gora) in a silted pond with water-surface area of about 20 m². The imago occurs from April till June and July. The distribution of the species in the Kaliningrad Region is presumably wider, and it could be found in eastern and central districts of the region as well. This species can be regarded as an insufficiently investigated species in the region.

Family Silphidae Latreille, 1807

6. *Dendroxena quadrimaculata* (Scopoli, 1772) (Fig. 1F). The beetle inhabits humid broad-leaved and mixed forests (with *Carpinus*, *Quercus*, *Fagus*) and shows quite sharp fluctuations in population density just like *Calosoma investigator*, which sometimes shares the same habitats. The abundance of *D. quadrimaculata* like that of *Calosoma investigator* depends on the abundance of the basic prey (arboreal caterpillars) of this entomophagous species and increases in dry years. The species was found on the Sambian peninsula (Ryabinovka, 8 May 2002, 22 May 2002, 18 June 2002, Svetlogorsk, June 2004), on the shore of the Kaliningrad Gulf (the settlement Veseloe, June 2002) and also at the location 7 km NE from Chernyakhovsk (13 May 2007, 1 specimen).

Family Scarabaeidae Latreille, 1802

7. *Polyphylla fullo* (Linnaeus, 1758) (Fig. 1 G). The species is common and even numerous in some years, but occurs only locally in western parts of the Kaliningrad Region (the Curonian Spit, the Baltic Spit, southwestern parts of the Sambian peninsula). This beetle is closely associated with dry young pine forests and their edges on sandy soils of the Baltic Sea coast and dune complexes. In the period before 1945 (Bercio & Folwaczny 1979), it was considered harmful to forestry and was exterminated *en masse* (e.g. more than 16,000 specimens were exterminated in 1899). It can be inferred from these data that the occurrence and numbers of the species have sharply declined since XIX century (as a result of loss of necessary microhabitats due to artificial afforestation of the Spits, in the first place, and the recently dominant stage of forest succession on the seashores of the Baltic Sea).

8. *Protaetia marmorata* (Fabricius, 1792) (Fig. 1H) **[= *lugubris* (Herbst, 1786) nec (Fabricius, 1775)].** It is a widespread and, on the whole, not rare in the region flower chafer. The species occurs in old parks and abandoned gardens, at forest edges and roads lined with broad-leaved trees. The larva develops in hollows of limes, oaks, apple trees, maples and poplars. The beetles are seldom visible to collectors because the imago is usually located in the arboreal layer (feeds mostly on effluent tree sap), and the larva lives in hollow wood at the height of 2–4 m above soil. The imago occurs from April till September; the life cycle is 2–3 years. The limiting factor for the species in the region is cutting of old hollow trees in parks and along roads, which has significantly increased in the last decades due to the construction and road-construction boom in the Kaliningrad Region.

9. *Osmoderma barnabita* Motschulsky, 1845 (Fig. 1I). Like the beetle species discussed above, this species is relatively synanthropic in our region and occurs mostly not far from human settlements: old abandoned farmsteads, broad-leaved parks and recreational forests, alleys and country roads lined with old lime and oak

trees. The species inhabits predominantly old hollow oaks and limes. The imago can be found in July–August on effluent sap of these trees. According to Ranius *et al*. (2005), the beetle can inhabit willow, beech, apple and pear trees. In the Kaliningrad Region, the species is known only from three localities at present: Chernyakhovsk (leg. P. Alekseev, 18 July 1997, 1 specimen), NE of Kaliningrad (3 January 2008, remains of imago; 3 August 2008, 1 specimen) and the Podlipovo settlement in the Pravdinsky district (August 1994, 2 specimens). Before 1989 (Sakhnov 1989), the species was recorded in Kaliningrad every year. Only one population (in NE of Kaliningrad) can be considered to be stable at present.

Family Lucanidae Latreille, 1806

10. *Ceruchus chrysomelinus* (Hochenwarth, 1785) (Fig. 1J). This rare species develops in humid wood with brown rot of fallen trunks and stumps of spruce trees and, more seldom, pines. The beetle is associated with humid mature forest ecosystems, in the first place, with old spruce and mixed forest of the western-taiga type. The life cycle is 3–4 years. Before 1945 (Bercio & Folwaczny 1979), it was reported from Preussisch-Eylau (Bagrationovsk) and Tilsit (Sovetsk); during the investigation period it was recorded in the vicinity of the Mezhdurech'e settlement in the Chernyakhovsky district (June 2000, 1 specimen) and in the vicinity of the Pugachevo settlement in the Nesterovsky district (30 June 1998, 1 specimen). The species is known from the Romincka Forest, close to the border with the Kaliningrad Region (Gutowski J. M. – orig. inf.; Kucharski *et al*. 2007).

Family Elateridae Leach, 1815

11. *Stenagostus rufus* (DeGeer, 1774) (Fig. 1K). Before 1945 (Bercio & Folwaczny 1979), it was reported from Insterburg (Chernyakhovsk) only. Only two specimens (Kaliningrad, 28 June 2002 and 10 July 2004) of the species were collected during the study period. These specimens seem to have been accidentally introduced into Kaliningrad city together with timber. The species inhabits dry mature pine forests and could occur in northeastern districts (Nemansky, Krasnoznamensky) of the region or along the Baltic Sea coast.

Family Buprestidae Leach, 1815

12. *Ovalisia rutilans* (Fabricius, 1777) (Fig. 1L). This monophagous and termophilous species develops under the bark of old lime trees (*Tilia cordata* Mill.) with the trunk circumference of 1.2–1.5 m (Oleksa *et al*. 2009). The Kaliningrad Region and central Lithuania are the northern limit for its distribution area. Before 1945, it was reported (Bercio & Folwaczny 1979) from the vicinity of Königsberg (Kaliningrad) only; during the study period the imago was captured once in a deciduous park in Chernyakhovsk (5 June 1993, 1 specimen).

Family Anobiidae Fleming, 1821

13. *Xestobium rufovillosum* (DeGeer, 1774) (Fig. 1M). This sporadically occurring species is known from western and central parts of the region, but it is possibly more widespread. Three stable populations were found during the study period: 6–7 km NE of Chernyakhovsk, 2–3 km W of the railway station Kolosovka-Zapadnaya in the Zelenogradsky district and 2–3 km E of Ladushkin in the Bagrationovsk district. The beetle inhabits the wood of dry and dead but standing oaks, which are often more than 100 years old (but once it was observed on the tree with the diameter of 0.3 m only) and grow at forest margins. The period of imago emergence lasts from the beginning of May till the end of June; the number of imagoes can reach several hundred per tree. This beetle could be regarded as an indicator species of the key microhabitat (mature oaks) but not as a rare species.

Family Trogossitidae Latreille, 1802

14. *Peltis grossa* (Linnaeus, 1758) (Fig. 1N). This species is widespread in the Kaliningrad Region; it more often occurs under the dead bark and in dry-rot of sap-wood of deciduous trees (birch, oak trees) and more seldom – under the bark of spruce. This species is repeatedly found in city outskirts (Kaliningrad, Chernyakhovsk) and in mixed forests. The imago usually occurs from March till May under the bark of standing and dry trees with the diameter of 0.3–0.5 m. The density of imagoes is 1–3 specimens per tree. In the Kaliningrad Region, the beetle could be regarded as an indicator species of key ecosystems (mixed forests).

15. *Ostoma ferruginea* (Linnaeus, 1758) (Fig. 1O). this species is widespread in the region and is not decreasing either in the number of localities or in abundance. It is reported from all parts of the Kaliningrad Region and is usually found in mixed forests under the bark of spruce and pine, more seldom on tree fungi on birch, beech and spruce trees. The imago is active from June till August. In our region this species could be regarded as a marker (target) species of the key habitat (mixed forests with European spruce).

Family Tenebrionidae Latreille, 1802

16. *Uloma culinaris* (Linnaeus, 1758) (Fig. 1P). At present, this species is reported from four localities on the territory of the region; in three of them it occurs repeatedly or every year. Before 1945 (Bercio &

Folwaczny 1979), the species was reported only from the former Eastern Prussia, the present-day northern Poland. In contrast to the related species *U. rufa* (Piller & Mitterpacher, 1783), which is trophically associated with pine wood, *U. culinaris* (L.) feeds and develops in rotten wood of old broad-leaved trees, first of all – oaks. During the study period, the species was collected in: Chernyakhovsk (a mound of rotten wood shavings, 12 June 1995, 1 specimen), 3 km SE of Chernyakhovsk (under the bark of an old oak with the diameter of 0.8 m, 21 April 2009, 2 specimens), N of Kaliningrad (under the bark of an old oak, 3 January 2008, 1 specimen; in rotten sap-wood of poplar, 2 September 2008, 1 specimen; in brown wood of an old oak tree hollow, 1 April 2009, 2 specimens), Kaliningrad (a big branch of oak, 2 June 2009, 2 specimens; stump of poplar, 7 October 2009, 1 specimen), 2 km E of Ladushkin in the Bagrationovsk district (under the bark of an oak stump with the diameter of 1.5 m, 5 October 2008, 3 specimens; under the beech stump with the diameter of 1.2 m, 19 May 2009, 2 specimens; window trap on an old dry beech, 2 specimens). Both the imago and larva can winter in our region. In the Kaliningrad Region, there is no need to include this species in Red Lists, but it could be regarded as indicator species of the endangered habitat (mature mixed and broad-leaved parks and forests).

Family Cerambycidae Latreille, 1802

17. *Prionus coriarius* (Linnaeus, 1758) (Fig. 1R). This primeval forest relict is distributed locally and is not numerous in the region (Alekseev & Sakhnov 2002; Alekseev 2007b). The larva feeds on rotten roots and the subterranean butt part of oak, birch and spruce trees in the course of four years. The aphagous imago comes out in July and August. Only one stable population has been recorded on the territory of the region since XIX century. Its location is in the northern part of the Sambian peninsula in the forest between Lesnoe and Svetlogorsk (the former Forst Warnicken). Outside this place the species has been observed only once – in the vicinity of the Sosnovka settlement in the Zelenogradsk district (6 July 2007, 1 specimen).

In conclusion, 19 out of the 29 beetle species included in the Lithuanian Red Data Book were recorded in the Kaliningrad Region area. The currently available data on the distribution and occurrence frequency are insufficient for the following six taxa: *Graphoderus bilineatus*, *Gnorimus variabilis*, *Necydalis major*, *Dytiscus latissimus*, *Carabus nitens* and *Stenagostus rufus*. Specific protection of seven beetle species is reasonable only for the purpose of ecosystem conservation: these species are indicators of rare and endangered natural key habitats, where they are common or numerous. The above-mentioned species include: *Carabus coriaceus*, *Calosoma inquisitor*, *Agonum ericeti*, *Ostoma ferruginea*, *Peltis grossa*, *Xestobium rufovillosum* and *Uloma culinaris*. The ground beetle *Agonum ericeti* is abundant on open sphagnous plateau bogs, *Carabus coriaceus* and *Calosoma inquisitor* are not rare in broad-leaved mature forests, *Peltis grossa* and *Ostoma ferruginea* are not rare in mixed fir-deciduous forests, *Xestobium rufovillosum* and *Uloma culinaris* inhabit mixed and broad-leaved forests and are closely associated with old oaks. All the above-mentioned ecosystems should be protected. However, in theory, other beetle species could serve as indicators.

Other species listed in the Red Data Book of Lithuania are vulnerable in our region too. Therefore, they are worth including in the Kaliningrad Red Data Book and habitat protection list. Besides, their protection does not require special allocations. For instance, several xylophage beetles occur in human-transformed forests and can be found not far from settlements or even in central parts of big cities (e.g. *Protaetia marmorata*), *Uloma culinaris*, *Osmoderma barnabita*. To maintain the population density and numbers of the potentially red-listed species in the Kaliningrad Region, the following measures are recommended:

1) Preservation of the largest number possible of old, decaying, dry and dead broad-leaved trees (oaks, beeches, hornbeams, ashes, elms, limes, poplars and maples) in forests as well as in parks and along roads. This measure of microhabitat protection is the most significant and sometimes quite sufficient for *Ceruchus chrysomelinus*, *Protaetia marmorata*, *Osmoderma barnabita, Gnorimus variabilis*, *Necydalis major*, *Prionus coriarius*, *Uloma culinaris*, *Xestobium rufovillosum* and *Ovalisia rutilans*. Dead wood and dust in hollows of old trees are very important for the functioning of forest and park ecosystems and species-rich ecological niches. One cubical decimetre of rotten wood can be inhabited by some dozens of different beetle species at one time.

2) Refraining from insecticide use for the control of forest and agricultural pests or ticks. The use of insecticide sprays in park zones of Kaliningrad and other regional cities (and in the national park of the Curonian Spit!), so popular recently, is hardly justifiable. These chemicals are not only ineffective and useless as far as tick-borne disease control is concerned, evidently harmful to ecosystems and biodiversity, but are also costly. Such non-selective use of pest annihilation measures is fatal to all species and their balance in nature and most of all to apex predators that are at the top of the food chain (e.g. such threatened species as *Calosoma inquisitor*, *Carabus nitens*, *Carabus coriaceus*, *Cicindela maritima*, *Agonum ericeti* and *Dendroxena quadrimaculata*).

3) Refraining from land amelioration and human economic activities in some faunistically valuable water and wetland ecosystems. Implementation of these measures would facilitate the maintenance of *Graphoderus bilineatus*, possibly also *Dytiscus latissimus* and such a rare beetle species in the region as *Deronectes latus*.
4) Protection of some vanishing ecosystems, representing the whole Baltic region (sandy dunes of the seaside, mature broad-leaved and mixed forests, sphagnous untransformed bogs), limitation of tourist visits and non-use of economic activities therein. In the author's opinion, the Red Data Book of Lithuania could be used as a taxonomic basis for the compilation and elaboration of the would-be Kaliningrad Red Data Book. Constructive and just criticism of the present-day Lithuanian Red lists of beetles (Tamutis 2005) and criteria of extinction risk assessment (Buchholz *et al*. 2000) certainly must be taken into consideration. The small area of the Kaliningrad Region offers the necessary prerequisites for the protection of species with restricted ecological niches, although the abundance of species on the border of the distribution range is not small in the region. The following rare beetle species registered in the Baltic region could be included (in addition to the majority of endangered species in Lithuania and in addition to all species distributed in the region that are listed in the Red Data Book of Russia) in the future Red Data Book of Kaliningrad.

Family Staphylinidae Latreille, 1802
1. *Emus hirtus* (Linnaeus, 1758). This species is included in the Red Data Book of Latvia (Spuris 1998) and Red Data Book of Belarus (2006). In the Kaliningrad Region it was recorded on the Baltic Sea and the Kaliningrad Gulf coasts (near Zelenogradsk and near Mamonovo) only. The beetle is a coprophilous predator of dung beetles of the genus *Aphodius*.

Family Scarabaeidae Latreille, 1802
2. *Gnorimus nobilis* (Linnaeus, 1758). The beetle is very rare in Belarus (one known locality), still not found in Lithuania and is included in the Red Data Book of Latvia (Spuris 1998). Only one stable population of the beetle is known in the region (Alekseev & Nikitsky 2008). The imago feeds on the flowers of meadowsweet and Umbelliferae in broad-leaved parks and forests. The larva lives in rotten wood of oak, lime, ash and willow.
3. *Copris lunaris* (Linnaeus, 1758). The beetle is included in the Red Data Book of Latvia (Spuris 1998). In the Kaliningrad Region it occurs in the valley of the Angrapa River (the Chernyakhovsk and Ozersk districts) and in dry meadows of the Sambian peninsula. Both the imago and larva are coprophagous on cow dung. Beetles occur in summer and exhibit complex nurturing behaviour.

Family Lucanidae Latreille, 1806
4. *Dorcus parallepipedus* (Linnaeus, 1758). This species is included in the Red Data Book of Latvia (Spuris 1998). In the Kaliningrad Region it is widespread (in western, southeastern and northeastern districts) and could be regarded as indicator species of an endangered habitat (mature mixed and broad-leaved parks and forests). The generation lifespan is three years. The larva feeds on rotten wood of broad-leaved trees (oak, elm, poplar and beech). Imagoes are active from the end of May till the middle of August.

Family Oedemeridae Latreille, 1810
5. ***Ditylus laevis* (Fabricius, 1787).** This species is included in the Red Data Book of Poland (Głowaciński & Nowacki 2004) as an extinct species. It has not been found in the present-day Kaliningrad Region till now, but was recorded on the territory of our region before 1945 (Bercio & Folwaczny 1979): in Labiau [Polessk] and Romintenheide [Krasny Les]. This xylophagous species occurs at forest edges and inhabits moist or submerged trunks and stumps of spruce and alder. The lifespan of one generation is two years; the imago is active from May till June. The occurrence of the species in Kaliningrad is expected, but needs confirming.

Family Cerambycidae Latreille, 1802
6. ***Cerambyx cerdo* Linnaeus, 1758**. The species is included in the Red Data Books of Lithuania (2007), Latvia (Spuris 1998), and Red Data Book of Belarus (2006) and Poland (Głowaciński & Nowacki 2004). Data on the occurrence of the species in the present-day Kaliningrad Region (Svetlogorsky and Ladushkinsky Forests) need confirming. In Poland it is noted close to the border with the Kaliningrad Region (Gutowski 1995). The species inhabits old, sunlit oaks. The larva feeds on wood of live trees, imago – on effluent oak sap. The generation lifespan is 3–4 years.
The expediency of including these or other species (e.g. from the Polish Red Data Book) in the Kaliningrad Red Data Book should be discussed and argued. The category or status of protection, the list composition and the number of species included should be given thorough consideration and should be predetermined by the objectives of a document. Educational, scientific or nature-conservation aims should be coordinated to reach a compromise, as the final result may not satisfy any of them. Regardless of the problems that the compilation of the Regional Red Lists poses, it should be borne in mind that the Red Data Book is not

an end in itself but rather an instrument for nature and biodiversity conservation. The compilation of the Red Book is only a stage in the development of the most appropriate measures for the conservation of ecosystems and various territories. And in this regard, the neighbouring Baltic States (Latvia, Lithuania) can set an example to the Kaliningrad Region and, possibly, to the whole of Russia. On the territory of only two administrative districts of central Lithuania (the Kaunas and the Kaišiadorys districts) there are 16 environmental conservation areas established: 11 nature reserves, 1 biosphere range, 3 forest reserves and 1 oak grove (Vaivilavičius 2008). This number is twice as big as the number of reserves in the whole Kaliningrad Region with its 13 administrative districts.

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Į Lietuvos raudonąją knygą įrašyti vabalai Kaliningrado srityje

V. I. Alekseev

Santrauka

Kaliningrado srities teritorijoje aptinkamų 19 vabalų (Coleoptera) būrio rūšių yra įrašytos į Lietuvos raudonąją knygą (2007); iš jų 17 buvo registruotos per tyrimus, atliktus autoriaus Kaliningrado srityje 1989–2009 metais, tuo tarpu apie dar 2 jų rūšių buvimą yra žinoma iš žodinių pranešimų. Straipsnyje pateikiama informacija apie 19 minėtų bei kitų 6 retų regione vabalų rūšių radimvietes. Straipsnyje aptariamos kai kurios nykstančių rūšių sąrašo sudarymo problemos bei apžvelgiamos galimos Kaliningrado srityje nykstančių vabalų populiacijų apsaugos priemonės.

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