

## Fauna of click beetles (Coleoptera: Elateridae) in the interfluvium of Rivers Moksha and Sura, Republic of Mordovia, Russia

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**Abstract.** Ruchin AB, Egorov LV, Semishin GB. 2018. Fauna of click beetles (Coleoptera: Elateridae) in the interfluvium of Rivers Moksha and Sura, Republic of Mordovia, Russia. *Biodiversitas* 19: 1352-1365. The results of the study of fauna of click beetles in the Republic of Mordovia are presented. By now, 58 species of click beetles have been recorded here. *Adrastus pallens* is a new record for the republic. As per the literature information, 6 species of click beetles (*Agriotes pilosellus*, *Melanotus crassicornis*, *Melanotus fusciceps*, *Liotrichus affinis*, *Pseudanostirus globicornis*, *Stenagostus rufus*) are known and these indications require confirmation. Two species (*Agriotes acuminatus*, *Limoniscus suturalis*) are excluded from the fauna. Taking into account the literary information in the fauna of Mordovia, 64 species of Elateridae are known. *Agrypnus murinus*, *Agriotes lineatus*, *Agriotes obscurus*, *Agriotes sputator*, *Dalopius marginatus*, *Ampedus balteatus*, *Ampedus pomorum*, *Hemicrepidius niger*, *Athous subfuscus*, *Prosternon tessellatum*, *Selatosomus aeneus* are among the mass species. A list of the species is presented, which with a high degree of probability can still be found in the republic.

**Keywords:** Click beetles, Coleoptera, Elateridae, fauna, Republic of Mordovia, Russia

### INTRODUCTION

The Republic of Mordovia is located in the center of the East European Plain between 42°11' and 46°45' east longitude and 53°38' and 55°11' north latitude in the southwestern periphery of the Volga basin in the interfluvium of rivers Moksha and Sura. The territory includes forest and forest-steppe zones of Central Russia. The eastern part of Mordovia occupies the northwest of the Volga Upland and the western part of the Oka-Don lowland. In this regard, a variety of habitats is observed in the area of study. Broad-leaved forests cover the central and eastern parts. In the east and south-east predominate forest-steppe landscapes (Yamashkin 1998). The variety of landscapes determines the diversity of entomofauna, in which, in addition to the typically nemoral and forest-steppe, taiga and steppe species have been actively detected in recent years (Egorov and Ruchin 2010; Ruchin and Kurmaeva 2010; Ruchin and Artaev 2016; Legalov et al. 2014; Ruchin and Egorov 2017b, 2018a, 2018b; Ruchin and Grishutkin 2018; Ruchin and Makarkin 2017; Chursina and Ruchin 2018).

Click beetles (Coleoptera: Elateridae) is one of the largest families within Coleoptera, including more than 10 thousand species (Bouchard et al. 2017), of which 467 species are reported from Russia (Prosvirov 2017, 2018). Many species are serious polyphagous pests and therefore of great economic importance (Morris 1951, Subchev et al. 2010; Mulerčikas et al. 2012; Baalbergen et al. 2014; Traugott et al. 2015). Information on the species diversity of click beetles in the Republic of Mordovia is extremely scarce. Plavilshchikov (1964) published the first fairly

representative list of insects of the Mordovia Reserve, where 14 species of click beetles were recorded. Several species of the family are mentioned in the work on forest pests (Bondarenko 1964). Timraleev et al. (2007) identified 41 species of Elateridae for Mordovia. Thus, before the beginning of our investigations, the fauna of this family in the region has not been studied enough.

### MATERIALS AND METHODS

Materials for this paper were collected during seasons in 2006-2017 (most intensively since 2008) using known methods of field entomological research (Fasulati 1971). In total, about 100 localities were studied in all regions of the Republic of Mordovia. In figure 1 the points indicate the collecting grounds. During the research the most diverse biotopes characteristic of the republic were studied: open landscapes (various meadows, cultivated fields, overgrown with birch fields, floodplains of rivers) and afforested (mixed forests, small-leaved forests, pine forests, etc.). The window traps, manual collection, mowing of vegetation were used for the collection of imago. In some cases, imago fell into soil traps (plastic cups). Special soil collections of larvae and imagos were not carried out.

The collections of 2017 from 19 window traps installed in the Mordovia Reserve were studied (cf. Table 1) - 11 km NNW of Temnikov, 54°43'56" N, 43°09'29" E, quarter 436, mixed forest. In total, more than 2,000 specimens were examined during the study.



**Figure 1.** Study sites of click beetles in the Republic of Mordovia in 2006-2017 (red dots)

There are given references to the literature on the species from the territory of Mordovia (in case there is a reliable indication of the point of discovery it is mentioned either), new collection sites (previously unpublished information), collection date, number of collected specimens, surname of the collector, notes (if any) for each species in the annotated list below. In the absence of new unpublished material of the authors, the section "Material" is not given in the article.

In the section "Habitat" the original information of the authors received during the research on the territory of the

republic is given. In the same section information on biotopes, preferred habitats, numbers and flight dates is presented. The section "Remark" provides general comments on the distribution, taxonomy or biology of the species. The section "Distribution" means distribution in Mordovia.

When the collector is not mentioned it means that material was collected by the first author. The original information on the biology of Elateridae, species habitats description and certain observations in nature are given separately. The names of new species (new record) for the

Republic of Mordovia are marked with an asterisk (\*). The sign «-» indicates the species, which, for various reasons, we excluded from the list of Republic of Mordovia click beetles. The sign «?» indicates that the findings of the species require confirmation by additional recent.

The nomenclature of Elateridae is given after the *Catalogue of Palaearctic Coleoptera* (Cate et al. 2007). The dates for the description of some species are specified in accordance with the work (Bousquet 2016). All materials are deposited in the funds of Zoological Museum of Moscow State University (Moscow), Zoological Institute of Russian Academy of Sciences (St. Petersburg), and Museum of Mordovia State Nature Reserve (Pushta) and in the personal collections of authors.

The abbreviations used are MSNR - Mordovia State Nature Reserve, NPS - National Park «Smolny», quarter - quar., cordon - cord., ex. - exemplar(s) (specimen(s)).

## Elateridae Leach, 1815

### Subfamily Agrypninae Lacordaire, 1857

*Agrypnus murinus* (Linnaeus, 1758)

**Distribution.** Temnikov Dist. (Plavilshchikov 1964; Timraleev and Chikina 1991; Kurmaeva et al. 2008; Egorov and Ruchin 2012, 2013, 2014; Egorov et al. 2015, 2016, 2017). Zubova Polyana Dist. (Timraleev et al. 2000). Bolshoe Ignatovo Dist., Ichalki Dist., Lyambir Dist. (Ruchin and Alekseev 2008). Atyashevo Dist. (Timraleev et al. 2004). Ruzaevka Dist. (Timraleev and Chikina 1991). Bolshie Berezniki Dist. (Timraleev and Chikina 1991).

**Materials.** Tengushevo Dist., Barashevo, V.2008, 4 ex. Zubova Polyana Dist., Tenishevo, 2.V.2008, 1 ex.; 5 km SW Bystrischi, 1.V.2008, 1 ex.; Vysha, VI.2008, 2 ex.; Zhuravkino, 16.VII.2008, 1 ex.; Mordovskaya Polyana, 7.VI.2008, 1 ex. Temnikov Dist., MSNR, Pushta, VII.2008, 30.V.2008, 15 ex.; quar. 443, VI-VII.2012, 1 ex.; quar. 420, 16-17.VI.2017, 2 ex.; cord. Podrubnyi, 4.VIII.2017, 1 ex., G.B. Semishin, 20.V.2017, 1 ex.; cord. Drozhdenovski, 18.VI.2017, 1 ex.; quar. 408, 11.VII.2017, 1 ex.; quar. 324, 13.VII.2017, 1 ex.; quar. 351, 15.VII.2017, 1 ex.; cord. Inorski, 12.VII.2008, 15.VI.2017, 26.VII.2017, 4 ex.; same label, 15-29.VI.2017, 1 ex., L.V. Egorov, G.B. Semishin; cord. Zhegalovski, V-VI.2012, 1 ex. Temnikov Dist., Tarkhany, V.2009, 1 ex.; Temnikov, V.2009, 1 ex.; Polyanki, 24.VII.2016, 1 ex.; Russkoe Karaevo, 21.V.2017, 1 ex. Atyurevo Dist., Chudinka, 7.VI.2008, 1 ex.; Mordovskaya Kozlovka, VI-VII.2012, 5 ex.; Dmitriev Usad, VI-VII.2012, 33 ex. Elniki Dist., Novye Shaly, V-VI.2014, 8 ex.; Peredovoi, VI-VIII.2014, 6 ex.; Novye Pichingushi, IV-VI.2014, 31 ex.; Cherlyai, 23.VII.2016, 1 ex.; Malye Mordovskie Poshaty, 22.VII.2017, 2 ex. Krasnoslobodsk Dist., Belikovskie Vyselki, VI-VII.2012, 2 ex. Kovytkino Dist., Novoe Mamangino, 6.V.2008, 4 ex. Staroe Shaigovo Dist., Nikolskaya Salovka, 8.VII.2017, 1 ex. Ichalki Dist., Sosnovka, 3.VII.2008, 1 ex.; Ichalki, 9.VIII.2013, 1 ex.; 3 km NE Lobaski, 9.VIII.2013, 2 ex. Ichalki Dist., NPS, Barakhmanovskoe forestry, quar. 108, 20.VI-28.VIII.2017, 8 ex., G.B. Semishin, same label, quar. 112, 20.VI.- 30.VIII.2017, 16 ex., G.B. Semishin, same

label, quar. 113, 20.VI.-4.VII.2017, 1 ex., G.B. Semishin; Lvovskoe forestry, quar. 53, 24.V.2017, 7.VI.2017, 22.VI.2017, 3.VI-31.VII.2017, 15 ex., G.B. Semishin; Kemlyanskoe forestry, quar. 66, 27.VII.2017, 1 ex. Ardatovo Dist., Svetotekhnika, 18.V.2008, 1 ex.; Turgenevo, 19.V.2008, 1 ex. Romodanovo Dist., Pushkino, VIII.2013, 1 ex. Ruzaevka Dist., Streletskaya Sloboda, 19.V.2009, 2 ex. Chamzinka Dist., Komsomolski, VI.2008, VIII.2009, 2 ex., M.K. Ryzhov; Alekseevka, 12.VI.2017, 1 ex., M.K. Ryzhov; Bolshoe Maresevo, 13.VI.2008, 4 ex. Bolshie Berezniki Dist., Simkino, 9.VII.2009, 1 ex. Kochkurovo Dist., Starye Turdaki, VI-VII.2008, 1 ex.; Podlesnaya Tavla, 8.V.2016, 1 ex.

**Habitat.** Beetles were found on grassy and arboreal vegetation (Figure 2). The species occurs in a wide variety of biotopes (in mixed, deciduous forests, alder forests, floodplain and dry meadows, in pine forests of various types and ages, on the outskirts of marshes, steppe slopes, in vegetable gardens and orchards, agrocenoses, forest shelterbelts, parks and squares of cities). The number of gatherings in soil traps in different biotopes is approximately the same: in the deciduous forest - 1.4 ex./100 trap-days, in the mixed forest - 1.2, in pine forests - 1.1, in birch wood - 1.4.

*Danosoma conspersa* (Gyllenhal, 1808)

**Distribution.** Temnikov Dist. (Egorov et al. 2016). Ichalki Dist. (Egorov and Ruchin 2009).

**Materials.** Ichalki Dist., NPS, Lvovskoe forestry, quar. 53, 5.VI-31.VII.2017, 5 ex., G.B. Semishin.

**Habitat.** According to our observations the main habitats are mixed forests. Beetles were found under the bark of pine logs frequently.

*Danosoma fasciata* (Linnaeus, 1758)

**Distribution.** Temnikov Dist. (Timraleev and Chikina 1991; Kurmaeva et al. 2008; Feoktistov 2011; Egorov et al. 2016).

**Habitat.** According to our observations the species occurs in pine forests and mixed forests. Beetles were found under the bark of dead fir trees.

*Lacon lepidopterus* (Panzer, 1800)

**Distribution.** Temnikov Dist. (Egorov and Ruchin 2014; Egorov et al. 2015, 2016, 2017). Found only in the Mordovia Reserve.

**Materials.** Temnikov Dist., MSNR, cord. Valzenski, 18.IV.2017, 1 ex.; Pushta, 22.V.2017, 1 ex.

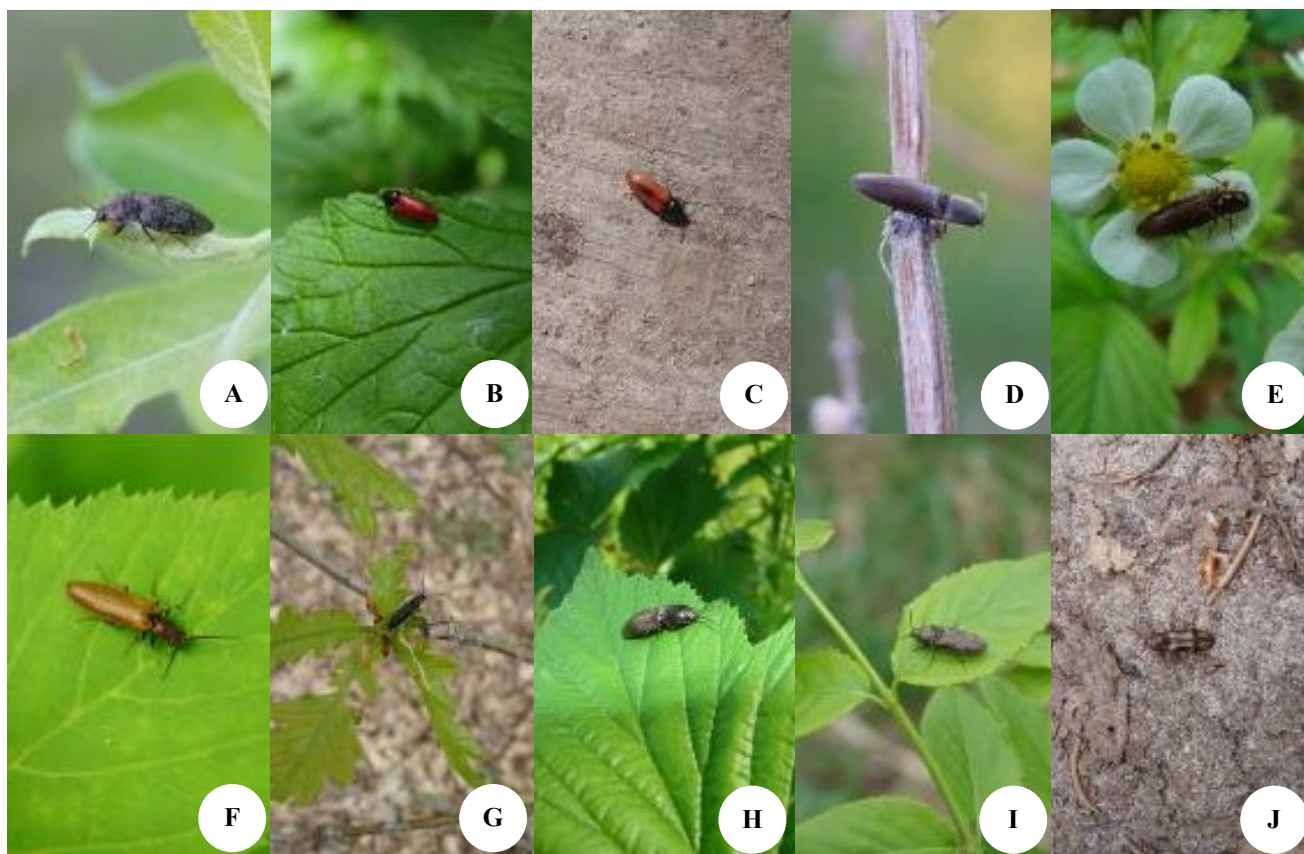
**Habitat.** Inhabits spruce forests, pine forests, mixed forests, floodplain forests. Beetles were found under the bark of pine logs.

### Subfamily Elaterinae Leach, 1815

\**Adrastus pallens* (Fabricius, 1792)

**Materials.** Ichalki Dist., NPS, Barakhmanovskoe forestry, quar. 112, 1-15.VIII.2017, 1 ex., G.B. Semishin.

**Habitat.** It is caught at the edge of mixed forest in soil traps.



**Figure 2.** Photo of click beetles. A. *Agrypnus murinus* (Chamzinka Dist., Alekseevka, photograph by M.K. Ryzhov); B. *Ampedus pomonae* (Temnikov Dist., MSNR, quar. 408, photograph by O.N. Artaev); C. *Ampedus sanguinolentus* (Temnikov Dist., MSNR, quar. 408, photograph by O.N. Artaev); D. *Athous haemorrhoidalis* (Chamzinka Dist., Alekseevka, photograph by M.K. Ryzhov); E. *Athous subfuscus* (Temnikov Dist., MSNR, quar. 408, photograph by O.N. Artaev); F. *Denticollis linearis* (Chamzinka Dist., Alekseevka, photograph by M.K. Ryzhov); G. *Limonius minutus* (Temnikov Dist., MSNR, cord. Inorski, photograph by A.B. Ruchin); H. *Hemicrepidius niger* (Bolshie Berezniki Dist., 9 km S Simkino, photograph by A.B. Ruchin); I. *Prosternon tessellatum* (NPS, Barakhmanovskoe forestry, quar. 108, photograph by A.B. Ruchin); J. *Selatosomus cruciatus* (Temnikov Dist., MSNR, cord. Inorski, photograph by A.B. Ruchin)

*Synaptus filiformis* (Fabricius, 1781)

**Distribution.** Bolshie Berezniki Dist. (Timraleev and Chikina 1991).

**Materials.** Zubova Polyana Dist., Kargashino, 29.VII.2009, 1 ex.

**Habitat.** The species was caught once in a floodplain.

- *Agriotes acuminatus* (Stephens, 1830)

**Distribution.** Lyambir Dist. (Loginova et al. 2006).

**Remark.** It is not included in the list of fauna of the Russian beetles (Guryeva 1979; Prosvirov 2018). The area is located much to the west (Merkl and Mertlik 2005; Tolasch et al. 2010; Németh et al. 2014).

*Agriotes lineatus* (Linnaeus, 1767)

**Distribution.** Temnikov Dist. (Timraleev and Chikina 1991; Kurmaeva et al. 2008; Feoktistov 2011; Egorov and Ruchin 2013, 2014; Egorov et al. 2015, 2016). Elniki Dist. (Timraleev and Chikina 1991). Staroe Shaigovo Dist. (Timraleev and Chikina 1991). Bolshoe Ignatovo Dist. (Ruchin and Alekseev 2008). Ardatov Dist. (Timraleev and

Chikina 1991). Atyashevo Dist. (Timraleev et al. 2004). Dubenki Dist. (Timraleev and Chikina 1991). Ruzaevka Dist. (Timraleev and Chikina 1991; Ruchin and Alekseev 2008). Lyambir Dist. (Timraleev and Chikina 1991). Bolshie Berezniki Dist. (Timraleev and Chikina 1991; Ruchin and Alekseev 2008).

**Materials.** Temnikov Dist., MSNR, cord. Steklyannyi, 28.V.2013, 1 ex.; cord. Inorski, 12.V.-1.VI.2017, 2.VI.2017, 2 ex., G.B. Semishin. Zubova Polyana Dist., Vysha, VI.2008, 1 ex. Elniki Dist., Novye Pichingushi, IV-VI.2014, 3 ex. Bolshoe Ignatovo Dist., NPS, Aleksandrovsкое forestry, Lesnoi, IV-V.2008, 6 ex.; Barakhmanovskoe forestry, quar. 108, IV-V.2008, 2 ex., Lvovskoe forestry, quar. 53, IV-V.2008, 1 ex. Ardatovo Dist., Svetotekhnika, 18.V.2008, 1 ex. Romodanovo Dist., Pushkino, VIII.2013, 6 ex. Chamzinka Dist., Komsomolski, VIII.2009, 1 ex., M.K. Ryzhov. Ruzaevka Dist., Levzhenskiy, V.2007, 2 ex. Bolshie Berezniki Dist., Simkino, 9.VII.2009, 1 ex. Kochkurovo Dist., Kochkurovo, VII.2009, 1 ex., L. Timoshkina.

**Habitat.** The species occurs in various biotopes: birch forests, aspen forests, forest shelterbelts, deciduous and mixed forests, floodplain and dry meadows, steppe slopes, spruce groves.

*Agriotes obscurus* (Linnaeus, 1758)

**Distribution.** Temnikov Dist. (Kurmaeva et al. 2008; Feoktistov 2011; Egorov and Ruchin 2013 2014; Egorov et al. 2015, 2017). Bolshoe Ignatovo Dist., Ruzaevka Dist. (Ruchin and Alekseev 2008).

**Materials.** Tengushevo Dist., Barashevo, V.2008, 2 ex. Temnikov Dist., Tarkhany, V.2009, 1 ex. Temnikov Dist., MSNR, quar. 86, VI-VII.2011, 24 ex.; quar. 34, VI-VII.2011, 1 ex.; quar. 114, V-VI.2014, 1 ex. Torbeevo Dist., Vindrey, 6.VI.2008, 1 ex. Elniki Dist., Novoyamskaya Sloboda, 22.VII.2017, 1 ex. Krasnoslobodsk Dist., Selishchi, V.2009, 5.VI.2009, 2 ex. Bolshoe Ignatovo Dist., NPS, Aleksandrovskoe forestry, Lesnoi., V.2007, 37 ex. Ichalki Dist., NPS, Lvovskoe forestry, quar. 53, 21.V.2008, 27.VI.2008, IV-V.2008, 3-17.VII.2017, 9.VI.2017, 19 ex.; Kemlyanskoe forestry, Smolny, V.2009, 1 ex. Insar Dist., Kochetovka, 2015, 3 ex. Ruzaevka Dist., Levzhenskiy, V.2007, 6 ex.; Streletskaya Sloboda, V-VI.2009, 1 ex. Saransk, V.2015, 3 ex.

**Habitat.** The species occurs in floodplain high-grass meadows, in willow thickets along river banks, in pine forests, in aspen forests, in mixed forests, on steppe slopes, near vegetable gardens. It was also noted on the fumes (in the place of last year's grassroots fire, the number of species in the soil traps reached 6.7 ex. Per 100 trap-days).

? *Agriotes pilosellus* (Schönherr, 1817)

**Distribution.** Bolshie Berezniki Dist. (Timraleev and Chikina 1991). It was noted without indicating the localities of the findings (Timraleev 1992 1996; Timraleev et al. 2001).

**Remark.** Occurrence of the species should be confirmed by recent material (Timraleev and Chikina 1991).

*Agriotes sputator* (Linnaeus, 1758)

**Distribution.** Temnikov Dist. (Egorov and Ruchin 2012, 2013, 2014; Egorov et al. 2015, 2016, 2017). Bolshoe Ignatovo Dist., Ichalki Dist. (Egorov and Ruchin 2009). Lyambir Dist. (Ruchin and Alekseev 2008). Ruzaevka Dist. (Antsiferova, Dobrosmyslov 1966; Ruchin and Alekseev 2008).

**Materials.** Temnikov Dist., Tarkhany, V.2009, 1 ex. Temnikov Dist., cord. Inorski, 12.V.-1.VI.2017, 1 ex., L.V. Egorov, G.B. Semishin. Atyurevo Dist., Chudinka, 7.VI.2008, 1 ex. Torbeevo Dist., Surgod, 21.VI.2016, 1 ex.; Drakino, 26.VI.2017, 1 ex. Elniki Dist., Starye Shaly, V-VI.2014, 1 ex. Krasnoslobodsk Dist., Krasnoslobodsk, 5.VI.2009, V.2009, 2 ex. Staroe Shaigovo Dist., Konopat, 9.VII.2016, 1 ex.; Staroe Shaigovo, V.2008, 5 ex. Ichalki Dist., 3 km NE Lobaski, VI-VII.2009, 4 ex.; NPS, Barakhmanovskoe forestry, quar. 112, 19.VII.-1.VIII.2017, 1 ex., G.B. Semishin. Ardatovo Dist., Olevka, 26.V.2017, 1 ex. Kadoshkino Dist., Latyshovka, 4.VI.2016, 1 ex. Insar Dist., Kochetovka, 4.VI.2016, 1 ex.; Novley, 27.V.2017, 1 ex. Ruzaevka Dist., Boldovo, 4.VI.2016, 1 ex. Lyambir

Distr., Ekaterinovka, V.2009, 1 ex. Oktyabrskiy Distr., Monastyrskoe., 12.VI.2017, 3 ex. Bolshie Berezniki Dist., Simkinskoe Lesnichestvo, 12.VIII.2017, 1 ex. Saransk, 21.V.2007, 17.V.2017, 3 ex.

**Habitat.** The species occurs on the fringes of birch forests, mixed and deciduous forests, on meadows, on steppe slopes, in burrows of marmots, in tidal spruce forests with alder, birch, in pine-spruce forests with birch. The number of soil traps for different biotopes is approximately similar: in the birch forest - 2.5 ex./100 trap-days, on the dry meadow - 1.8, on the steppe slope - 1.5, in the deciduous forest - 0.4.

*Agriotes ustulatus* (Schaller, 1783)

**Distribution.** Bolshie Berezniki Dist. (Timraleev and Chikina 1991).

**Materials.** Bolshie Berezniki Dist., Simkino, 9.VII.2009, 1 ex.

**Habitat.** The species occurs in the steppe areas.

*Dalopius marginatus* (Linnaeus, 1758)

**Distribution.** Temnikov Dist. (Plavilshchikov 1964; Timraleev and Chikina 1991; Kurmaeva et al. 2008; Egorov and Ruchin 2012, 2013, 2014; Egorov et al. 2015, 2016, 2017). Ichalki Dist. (Egorov and Ruchin 2009). Ardatov Dist. (Timraleev and Chikina 1991). Ruzaevka Dist. (Timraleev and Chikina 1991).

**Materials.** Temnikov Dist., MSNR, Pushta, 3.V.2008, V.2009, 2 ex.; quar. 424, 13.V.2017, 1 ex.; quar. 425, 13.V.2017, 1 ex., L.V. Egorov; quar. 426, 13.V.2017, 1 ex., L.V. Egorov, G.B. Semishin; quar. 436, 12.V.-15.VI.2017, 26 ex., L.V. Egorov, G.B. Semishin; quar. 442, 3.VI.2017, 2 ex.; quar. 437, 29.VI.2017, 1 ex.; cord. Drozhdenovski, 18.VI.2017, 1 ex.; cord. Pavlovskiy., 6.VIII.2017, 1 ex., G.B. Semishin. Zubova Polyana Dist., Tenishevo, 2.V.2008, 1 ex.; 5 km SW Bystrischi, 1.V.2008, 2 ex.; Izvest, 8.VI.2008, 1 ex. Ichalki Dist., NPS, Kemlyanskoe forestry, Smolny, V.2009, 1 ex.; Barakhmanovskoe forestry, quar. 108, 20.VI.-4.VII.2017, 1 ex., G.B. Semishin, Lvovskoe forestry, quar. 53, 7.VI.2017, 19.VI.2017, 2 ex., G.B. Semishin. Ruzaevka Dist., Streletskaya Sloboda, V-VI.2009, 1 ex.

**Habitat.** It is forest species. Every year, in mass, it is found in the forests of the Mordovia Reserve. It occurs in glades, fringes, glades, roads in various types of forests (floodplain deciduous, mixed, pine forests of various types and ages, spruce forests). According to the data of catches in the window traps the main number of beetles came from 12<sup>th</sup> May to 15<sup>th</sup> June, and after flight was not observed (cf. Table 1). Sometimes it flies into the light.

*Ectinus aterrimus* (Linnaeus, 1760)

**Distribution.** Temnikov Dist. (Timraleev and Chikina 1991; Kurmaeva et al. 2008; Feoktistov 2011; Egorov and Ruchin 2012, 2013, 2014; Egorov et al. 2015, 2016, 2017). Bolshoe Ignatovo Dist. (Ruchin and Alekseev 2008).

**Materials.** Zubova Polyana Dist., 5 km SW Bystrischi, 1.V.2008, 2 ex. Temnikov Dist., MSNR, cord. Inorski, 12.V.-1.VI.2017, 1-15.VI.2017, 8 ex., L.V. Egorov, G.B. Semishin.

**Table 1.** Seasonal dynamics of the number of click beetles from window traps in the Mordovia Reserve (2017)

Species	Time for collection					
	12.V.-1.VI	1-15.VI	15-29.VI	29.VI.-13.VII	13-27.VII	27.VII.-6.VIII
<i>Athous subfuscus</i>	19	14	1	1	1	
<i>Athous vittatus</i>	6	1				
<i>Hemicrepidius niger</i>				1	4	2
<i>Diacanthous undulatus</i>		4				
<i>Denticollis linearis</i>	2	13	6	1		
<i>Limonius minutus</i>	2	1	3			1
<i>Anostirus castaneus</i>			1			
<i>Ampedus balteatus</i>		1				
<i>Ampedus nigerrimus</i>	6	2	1	2	2	
<i>Ampedus erythrogonus</i>		1	1	1		
<i>Ampedus nigrinus</i>	2					
<i>Ampedus pomonae</i>		1		1		
<i>Ampedus pomorum</i>	4	1	3	1	1	1
<i>Ampedus praeustus</i>			2		1	
<i>Melanotus castanipes</i>	22	1				
<i>Agriotes lineatus</i>	1					
<i>Ectinus aterrimus</i>	7	1				
<i>Dalopius marginatus</i>	18	8				
Total, ex.	89	49	18	8	9	4
Number of species	11	13	8	7	5	3

**Habitat.** The species occurs in wet meadows, in ripe spruce forests with pine, in tidal fir groves with alder, in floodplain deciduous forests with prevalence of aspen, in ripe pine forests with spruce, birch. According to the data of catches in the window traps, the main number of beetles came from 12<sup>th</sup> May to 15<sup>th</sup> June, after that flight was not observed (cf. Table 1).

*Ampedus balteatus* (Linnaeus, 1758)

**Distribution.** Temnikov Dist. (Timraleev and Chikina 1991; Kurmaeva et al. 2008; Feoktistov 2011; Egorov and Ruchin 2012, 2013, 2014; Egorov et al. 2015, 2016, 2017). Ichalki Dist., Bolshoe Ignatovo Dist. (Egorov and Ruchin 2009).

**Materials.** Temnikov Dist., Temnikov, V.2009, 1 ex. Temnikov Dist., MSNR, Pushta, 3.V.2008, 27.IV.2017, 2 ex.; quar. 420, 4.V.2008, 1 ex.; quar. 437, 12.V.2017, 1 ex., L.V. Egorov; cord. Inorski, 1-15.VI.2017, 1 ex., L.V. Egorov, G.B. Semishin, same label, 2.VII.2017, 1 ex. Ichalki Dist., NPS, Lvovskoe forestry, quar. 53, 22.V.-5.VI.2017, 2 ex., G.B. Semishin. Chamzinka Dist., Komsomolski, VIII.2009, 1 ex., M.K. Ryzhov.

**Habitat.** The species inhabits forests: mixed, pine forests of various types and ages, ripe spruce forests with birch. Adults visit the inflorescence of Umbelliferae. According to the data of catches in the window traps, the peak of the imago flight was in the first half of June (cf. Table 1).

*Ampedus cinnabarinus* (Eschscholtz, 1829)

**Distribution.** Temnikov Dist. (Plavilshchikov 1964; Egorov and Ruchin 2014; Egorov et al. 2016). Elniki Dist. (Timraleev and Chikina 1991). Ichalki Dist. (Andreichev and Loginova 2005; Ruchin et al. 2007).

**Materials.** Temnikov Dist., Veselyi, 25.V.2013, 1 ex. Temnikov Dist., MSNR, Pushta, 19.VI.2017, 1 ex.

**Habitat.** The species occurs in ripe pine forests with spruce, birch, aspen, in mature pine forests with spruce and birch. Imago was found in a rotten birch log.

*Ampedus elongatus* (Fabricius, 1787)

**Distribution.** Temnikov Dist. (Plavilshchikov 1964; Egorov and Ruchin 2012; Egorov et al. 2016, 2017). Ichalki Dist. (Egorov and Ruchin 2009).

**Materials.** Temnikov Dist., MSNR, cord. Inorski, 9.V.2009, 1 ex.; cord. Pavlovskiy, 16.VI.2017, 1 ex., G.B. Semishin; cord. Drozhdenovskiy, 18.VI.2017, 1 ex. Torbeevo Dist., Vindrey, 6.VI.2008, 1 ex. Kadoshkino Dist., Latyshovka, 4.VI.2016, 1 ex. Ruzaevka Dist., Khovanshchina, 12.VI.2017, 1 ex.

**Habitat.** The species occurs in mixed and deciduous forests along the fringes and glades.

*Ampedus erythrogonus* (P.W. Müller, 1821)

**Distribution.** Temnikov Dist. (Egorov et al. 2016). Temnikov Dist. (Egorov et al. 2017). Elniki Dist. (Timraleev and Chikina 1991). Staroe Shaigovo Dist. (Timraleev and Chikina 1991). Lyambir Dist. (Timraleev and Chikina 1991). Bolshie Berezniki Dist. (Timraleev and Chikina 1991).

**Materials.** Temnikov Dist., MSNR, cord. Inorski, 1.VI.-13.VII.2017, 3 ex., L.V. Egorov, G.B. Semishin.

**Habitat.** Mostly in coniferous, floodplain deciduous and mixed forests. According to the data of catches from the window traps the highest activity from 1<sup>st</sup> June to 13<sup>th</sup> July (cf. Table 1).

*Ampedus karpathicus* (Buysson, 1886) (= *Ampedus suecicus* Palm, 1976)

**Distribution.** Temnikov Dist. (Egorov et al. 2015, 2016, 2017).

**Habitat.** The species was repeatedly noted only in the territory of the Mordovia Reserve in ripe spruce forests with pine, birch.

**Remark.** In our early publications, it is shown as *A. suecicus*. In the work of Mertlik (2018) it is shown that *Ampedus suecicus* Palm, 1976 is the younger synonym of *Ampedus karpathicus* (Buysson, 1886).

*Ampedus nigerrimus* (Lacordaire, 1835)

**Distribution.** Temnikov Dist. (Ruchin and Egorov 2017a).

**Materials.** Temnikov Dist., MSNR, cord. Inorski, 12.V.-27.VII.2017, 13 ex., L.V. Egorov, G.B. Semishin.

**Habitat.** According to the data of catches in the window traps in the mixed forest, the main number of beetles fell from 12<sup>th</sup> May to 1<sup>st</sup> June, then the number decreased, but the imago flew until the end of July (cf. Table 1).

Table 1). A rare European species, a denizen of rotten wood (De Zan et al. 2014).

**Remark.** It is known in Russia from the Krasnodar territory, Voronezh region, Tatarstan (Guryeva 1979).

*Ampedus nigrinus* (Herbst, 1784)

**Distribution.** Temnikov Dist. (Timraleev and Chikina 1991; Kurmaeva et al. 2008; Feoktistov 2011; Egorov and Ruchin 2014; Egorov et al. 2016, 2017).

**Materials.** Temnikov Dist., MSNR, cord. Inorski, 12.V.-1.VI.2017, 2 ex., L.V. Egorov, G.B. Semishin.

**Habitat.** The species occurs in mixed forests, mature pine forests with spruce, birch, ripe spruce forests with pine, birch, floodplain oak forests, and linden. According to the data of catches in the window traps, the peak of the imago flight was in the second half of May (cf. Table 1).

*Ampedus nigroflavus* (Goeze, 1777)

**Distribution.** Temnikov Dist. (Egorov et al. 2016).

**Habitat.** Single finds are made in a ripe sphagnum pine with spruce, birch and mature spruce with pine.

*Ampedus pomonae* (Stephens, 1830)

**Distribution.** Temnikov Dist. (Plavilshchikov 1964; Timraleev and Chikina 1991; Kurmaeva et al. 2008; Egorov and Ruchin 2012, 2013, 2014; Egorov et al. 2016, 2017).

**Materials.** Temnikov Dist., MSNR, cord. Inorski, 1-15.VI.2017, 29.VI.-13.VII.2017, 2 ex., L.V. Egorov, G.B. Semishin; quar. 395, 18.VI.2017, 1 ex., G.B. Semishin. Torbeevo Dist., Vindrey, 6.VI.2008, 1 ex.

**Habitat.** The species occurs in pine forests with spruce, birch, riparian spruce grove, birch, birch forests with pine, aspen, linden, mixed forests, floodplain oak forests with lindens, wet deciduous forests (Figure 2).

*Ampedus pomorum* (Herbst, 1784)

**Distribution.** Temnikov Dist. (Egorov and Ruchin 2012, 2013, 2014; Egorov et al. 2015, 2016, 2017). Ardatov Dist. (Ruchin et al. 2009).

**Materials.** Temnikov Dist., Kitsaevka, 12.V.2013, 1 ex.; Andreevka, 11.V.2013, 1 ex. Temnikov Dist., MSNR, quar. 34, VI-VII.2011, 1 ex., quar. 358/389, 20.V.2013, 1 ex.; quar. 424, 13.V.2017, 1 ex., L.V. Egorov; quar. 354, 20.V.2017, 1 ex.; quar. 357, 4.VII.2017, 1 ex.; cord. Inorski, 2.VI.2017, 1 ex., G.B. Semishin, same label, 12.V.-27.VII.2017, 11 ex., L.V. Egorov, G.B. Semishin. Bolshie Berezniki Dist., 9 km S Simkino, 10.VII.2009, 1 ex. Kochkurovo Dist., Podlesnaya Tavla, 8.V.2016, 1 ex.

**Habitat.** It is confined to forest biotopes. It occurs in clearings, fringes, glades in different types of forest: mixed, birch forests, pine forests of various types, lime trees, floodplain foliage. According to the data of catches in the window traps, the main number of beetles came from 12<sup>th</sup> May to 29<sup>th</sup> June, the flight lasted until the first half of August (cf. Table 1). Adults visit the inflorescence of Umbelliferae, and also occur under the bark of birch and aspen stumps and logs. It occurs on the fire sites.

*Ampedus praeustus* (Fabricius, 1792)

**Distribution.** Temnikov Dist. (Egorov and Ruchin 2013, 2014; Egorov et al. 2015, 2016, 2017). Staroe Shaigovo Dist. (Timraleev and Chikina 1991). Bolshoe Ignatovo Dist. (Egorov and Ruchin 2009). Bolshie Berezniki Dist. (Timraleev and Chikina 1991).

**Materials.** Temnikov Dist., MSNR, Pushta, 11.IV.2008, 14.VI.2017, 2 ex.; quar. 319, 13.VII.2017, 1 ex.; cord. Inorski, 15-29.VI.2017, 13-27.VII.2017, 3 ex., L.V. Egorov, G.B. Semishin. Staroe Shaigovo Dist., Staroe Akshino, 11.V.2008, 1 ex. Bolshoe Ignatovo Dist., NPS, Aleksandrovscoe forestry, quar. 10, 22.V.2008, 1 ex. Ichalki Dist., NPS, Lvovskoe forestry, quar. 53, 5-19.VI.2017, 1 ex., G.B. Semishin.

**Habitat.** The species occurs in deciduous and mixed forests, ripe spruce forests with pine, birch, mature pine forests with spruce, birch, aspen, in floodplain oak forests with lime trees.

*Ampedus sanguineus* (Linnaeus, 1758)

**Distribution.** Temnikov Dist. (Ruchin et al. 2009; Egorov and Ruchin 2013; Egorov et al. 2015, 2016). Zubova Polyana Dist. (Ruchin et al. 2009).

**Habitat.** The species occurs in ripe pine forests with spruce, birch, aspen, ripe sphagnum pine forests with spruce, birch, mixed forests.

*Ampedus sanguinolentus* (Schrank, 1776)

**Distribution.** Temnikov Dist. (Egorov and Ruchin 2012; Egorov et al. 2015, 2016, 2017). Ichalki Dist. (Egorov and Ruchin 2009). Bolshie Berezniki Dist. (Timraleev and Chikina 1991).

**Materials.** Temnikov Dist., Andreevka, 11.V.2013, 1 ex.; Mikhailovka, VI-VII.2012, 1 ex. Temnikov Dist., MSNR, Pushta, 27.IV.2009, 1 ex. Zubova Polyana Dist., Tenishevo, 2.V.2008, 1 ex.; Yavas, V.2008, 1 ex. Staroe Shaigovo Dist., Staroe Akshino, 11.V.2008, 1 ex. Ichalki Dist., NPS, Lvovskoe forestry, quar. 53, 18.VI.2008, 1 ex. Chamzinka Dist., Komsomolski, VI.2008, 1 ex., M.K. Ryzhov. Bolshie Berezniki Dist., 9 km S Simkino, 28.VI.2009, 1 ex., D.K. Kurmaeva. Saransk, 22.IV.2008, 28.V.2009, 2 ex.

**Habitat.** The species occurs in floodplain forests, small-leaved forests and broad-leaved forests with predominance of aspen, in pine forests with spruce (Figure 2).

*Ampedus tristis* (Linnaeus, 1758)

**Distribution.** Temnikov Dist. (Egorov and Ruchin 2012; Egorov et al. 2016, 2017).

**Habitat.** As the previous species, it was repeatedly noted only in the territory of the Mordovia Reserve in pine forests with spruce, mixed forests, ripe spruce forests with pine, birch. Imago was found under the bark of a spruce log. It visits inflorescences Umbelliferae.

*Sericus brunneus* (Linnaeus, 1758)

**Distribution.** Temnikov Dist. (Timraleev and Chikina 1991; Kurmaeva et al. 2008; Feoktistov 2011; Egorov and Ruchin 2012, 2013; Egorov et al. 2015, 2016, 2017).

**Materials.** Temnikov Dist., MSNR, quar. 424, 13.V.2017, 1 ex., L.V. Egorov; cord. Inorski, 3.VI.2017, 3 ex., G.B. Semishin.

**Habitat.** The species is constantly found in the Mordovia Reserve. It inhabits on the fringes, clearings, glades in pine forests, mixed forests, spruce forests. It is often wiped out from young pines. It is noted on the fumes.

#### Subfamily Melanotinae Candèze, 1859 (1856)

*Melanotus brunnipes* (Germar, 1823)

**Distribution.** Republic of Mordovia (Timraleev 1992, 1996; Timraleev et al. 2001, 2007).

**Habitat.** Steppe view.

**Remark.** The species is known from Chuvashia (Egorov 2013), Ulyanovskaya (Isayev 2000), Tula and Lipetsk regions (Dorofeev 2006; Tsurikov 2009), the Middle Volga region (Dolin 1988).

*Melanotus castanipes* (Paykull, 1800)

**Distribution.** Temnikov Dist. (Egorov and Ruchin 2013, 2014; Egorov et al. 2015, 2016, 2017). Ichalki Dist., Chamzinka Dist., Kochkurovo Dist. (Ruchin et al. 2009).

**Materials.** Temnikov Dist., MSNR, cord. Inorski, 12.V.-15.VI.2017, 23 ex., L.V. Egorov, G.B. Semishin.

**Habitat.** The species occurs in ripe spruce forests with pine and birch, deciduous forests, floodplain deciduous forests with predominance of aspen, mixed forests, pine forests with spruce. According to the data of catches in the window traps, the main number of beetles came from 12<sup>th</sup> May to 1<sup>st</sup> June, from the second half of June the flight ceased (cf. Table 1). It flies into the light.

? *Melanotus crassicollis* (Erichson, 1841)

**Distribution.** Temnikov Dist. (Plavilshchikov 1964). Bolshie Berezniki Dist. (Timraleev and Chikina 1991).

**Remark.** The species is known from the Brest region (Belarus) (Alexandrovich 1995), Tula (Dorofeev 2006), Ulyanovsk (Isayev 2000) regions, from the Moscow region on the discovery of the end of the XIX century (Nikitsky et al. 1996). Instructions for Mordovia likely refer to *M. castanipes*. It is possible to live in the republic, but it needs confirmation.

? *Melanotus fusciceps* (Gyllenhal, 1817)

**Distribution.** Temnikov Dist. (Plavilshchikov 1964).

**Remark.** The species is shown for the adjacent Ulyanovsk region from the Cretaceous steppes (Isaev 2000), therefore the indication of Plavilshchikov (1964) is likely erroneous. It is possible to live in the republic, but it needs confirmation.

*Melanotus villosus* (Geoffroy, 1785)

**Distribution.** Temnikov Dist. (Plavilshchikov 1964; Timraleev and Chikina 1991; Kurmaeva et al. 2008). Bolshie Berezniki Dist. (Timraleev and Chikina 1991).

**Materials.** Saransk, 3.VI.2009, 1 ex.

**Habitat.** The species was caught at the edge of a deciduous forest.

#### Subfamily Hypnoidinae Schwarz, 1906

*Hypnoidus riparius* (Fabricius, 1792)

**Distribution.** Temnikov Dist. (Egorov and Ruchin 2014).

**Habitat.** It was caught in mixed forests near water bodies.

#### Subfamily Denticollinae Stein & J. Weise, 1877 (1856)

*Athous haemorrhoidalis* (Fabricius, 1801)

**Distribution.** Temnikov Dist. (Plavilshchikov 1964; Egorov and Ruchin 2014; Egorov et al. 2015, 2017). Bolshie Berezniki Dist. (Timraleev and Chikina 1991).

**Materials.** Ichalki Dist., NPS, Lvovskoe forestry, quar. 53, 9.VI.2017, 1 ex., G.B. Semishin. Ardatovo Dist., Svetotekhnika, 18.V.2008, 1 ex. Bolshie Berezniki Dist., окр. д. Нерлей, 5.VI.2016, 1 ex. Saransk, 31.V.2009, VI.2014, 2 ex. Chamzinka Distr., Alekseevka, 12.VI.2017, 1 ex., M.K. Ryzhov.

**Habitat.** The species was noted along the fringes of deciduous forests, in linden trees with aspen, pine and spruce, in floodplain oak forests with lime trees, on floodplain meadows (Figure 2).

*Athous subfuscus* (O.F. Müller, 1764)

**Distribution.** Temnikov Dist. (Plavilshchikov 1964; Timraleev and Chikina 1991; Kurmaeva et al. 2008; Egorov and Ruchin 2012, 2013, 2014; Egorov et al. 2015, 2016, 2017). Bolshoe Ignatovo Dist., Ichalki Dist. (Egorov and Ruchin 2009).

**Materials.** Temnikov Dist., MSNR, Pushta, 30.V.2008, IV-V.2008, V.2009, 7 ex.; cord. Inorski, 12.V.-27.VII.2017, 36 ex., L.V. Egorov, G.B. Semishin. Torbeevo Dist., Vindrey, 6.VI.2008, 1 ex. Ichalki Dist., NPS, Kemlyanskoe forestry, Smolny, V.2009, 1 ex. Bolshie Berezniki Dist., 9 km S Simkino, 5.VIII.2013, 1 ex.

**Habitat.** The species occurs in a wide variety of forest biotopes (mixed, deciduous forests, pine forests of various types and ages, forest shelter belts) (Figure 2). Beetles often visit the inflorescence of Umbelliferae. According to the data of catches in the window traps, the main number of beetles fell from 12<sup>th</sup> May to 15<sup>th</sup> June (cf. Table 1). The number of different biotopes from the data of catches into soil traps varies: in the spruce forest - 0.6 ex./100 trap-days, in the mixed forest - 0.2, in pine-trees - 0.4.

*Athous vittatus* (Fabricius, 1792)

**Distribution.** Temnikov Dist. (Plavilshchikov 1964; Timraleev and Chikina 1991; Kurmaeva et al. 2008; Egorov et al. 2017). Ichalki Dist. (Egorov and Ruchin 2009).

**Materials.** Temnikov Dist., Tarkhany, V.2009, 5.VI.2009, 2 ex. Temnikov Dist., MSNR, cord. Inorski, 12.V.-15.VI.2017, 7 ex., L.V. Egorov, G.B. Semishin. Ardatovo Dist., Bolshoe Kuzmino, 26.V.2017, 1 ex.; Svetotekhnika, 18.V.2008, 1 ex. Insar Dist., Kochetovka, 4.VI.2016, 1 ex. Chamzinka Dist., Bolshoe Maresevo, 13.VI.2008, 1 ex. Lyambir Distr., Ekaterinovka,



29.V.2008, 2.VI.2009, 2 ex. Ruzaevka Dist., Streletskaya Sloboda, 19.V.2009, 1 ex.

**Habitat.** The species was found on the fringes and glades of deciduous forests (including floodplain forests, secondary forests of sprouts, etc.), in pine forests and mixed forests. According to the data of catches in the window traps, the main number of beetles fell from 12<sup>th</sup> May to 15<sup>th</sup> June (cf. Table 1).

*Limoniscus suturalis* (Gebler, 1845)

**Distribution.** Temnikov Dist. (Timraleev and Chikina 1991).

**Remark.** In the Volga region habitation the species is known in the Saratov, Volgograd, and Astrakhan regions (Kovalev et al. 2001; Komarov 2002). An inhabitant of virgin steppes is associated with rodent burrows (Komarov 2002). Being in Mordovia is very unlikely, therefore we exclude the species from the composition of the fauna of the republican click beetles.

*Limonius minutus* (Linnaeus, 1758)

**Distribution.** Temnikov Dist. (Egorov and Ruchin 2012, 2013, 2014; Egorov et al. 2016, 2017). Ichalki Dist. (Egorov and Ruchin 2009).

**Materials.** Temnikov Dist., Temnikov, 1.VI.2008, V.2009, 2 ex. Temnikov Dist., MSNR, quar. 437, 29.VI.2017, 5 ex.; cord. Inorski, 9.V.2009, 21.V.2017, 12.VII.2017, 4 ex., same label, 13.V.2017, 2 ex., L.V. Egorov; same label, 12.V.-6.VIII.2017, 7 ex., L.V. Egorov, G.B. Semishin. Ichalki Dist., NPS, Barakhmanovskoe forestry, quar. 74, 6.VI.2017, 1 ex., G.B. Semishin; Lvovskoe forestry, quar. 53, 23.V.2017, 9.VI.2017, 24.V.2017, 22.V.-5.VI.2017, 7.VI.2017, 9 ex., G.B. Semishin. Ruzaevka Dist., Levzhenskiy, 9.VI.2009, 1 ex.

**Habitat.** The species occurs in mixed, deciduous forests, pine forests with spruce, birch, floodplain aspen (Figure 2). According to the data of catches in the window traps, the flight of imago was stretched from the middle of May to the end of June (Table 1).

*Pheletes aeneoniger* (DeGeer, 1774)

**Distribution.** Temnikov Dist. (Egorov and Ruchin 2014).

**Habitat.** The species found once in the Mordovia Reserve in a pine forest with spruce.

*Denticollis borealis* (Paykull, 1800)

**Distribution.** Temnikov Dist. (Timraleev and Chikina 1991; Kurmaeva et al. 2008; Feoktistov 2011; Egorov et al. 2016). Lyambir Dist. (Timraleev and Chikina 1991).

**Materials.** Ichalki Dist., NPS, Lvovskoe forestry, quar. 53, 24.V.2017, 1 ex., G.B. Semishin.

**Habitat.** The species is caught in ripe spruce forests with pine, birch and mixed forests.

*Denticollis linearis* (Linnaeus, 1758)

**Distribution.** Temnikov Dist. (Egorov and Ruchin 2012, 2013, 2014; Egorov et al. 2015, 2016, 2017). Zubova Polyana Dist., Lyambir Dist., Saransk (Ruchin et al. 2009).

**Materials.** Temnikov Dist., MSNR, cord. Inorski,

12.V.-13.VII.2017, 15.VI.2017, 22 ex., L.V. Egorov, G.B. Semishin. Saransk, V-VI.2014, 1 ex. Chamzinka Distr., Alekseevka, 11.VI.2017, 1 ex., M.K. Ryzhov.

**Habitat.** The main habitats are forests: floodplain deciduous forest with aspen, floodplain oak with lime, mixed, pine forests with spruce, birch, deciduous forest (Figure 2). According to the data of catches in the window traps, flight began from the middle of May and its peak occurred in the first half of June (cf. Table 1). Imago was often found on the inflorescences of Umbelliferae. Larvae were found in a rotten tinder fungus from a birch log.

*Diacanthous undulatus* (DeGeer, 1774)

**Distribution.** Temnikov Dist. (Timraleev and Chikina 1991; Kurmaeva et al. 2008; Feoktistov 2011; Egorov and Ruchin 2013; Egorov et al. 2016, 2017).

**Materials.** Temnikov Dist., MSNR, cord. Inorski, 1-15.VI.2017, 4 ex., L.V. Egorov, G.B. Semishin.

**Habitat.** The species occurs in ripe spruce forests with pine, birch, in floodplain deciduous forests with aspen predominance, in mixed forests. According to the data of catches in the window traps, the peak of the imago flight was in the first half of June (cf. Table 1). It is considered a stenotope forest species inhabiting old-broad leaved growth forests and pine forests (Mitter 1989; Nitcis and Barševskis 2011). In Europe the species is classified as indicator of forest ecosystems (Nieto, Alexander 2010).

*Hemicrepidius hirtus* (Herbst, 1784)

**Distribution.** Temnikov Dist. (Egorov et al. 2015). Ichalki Dist. (Egorov and Ruchin 2009).

**Materials.** Ardatovo Dist., Probuzhdenie, 2.VII.2008, 1 ex. Bolshie Berezniki Dist., 9 km S Simkino, 24.VI.2009, 29.VI.2009, 4 ex. Kochkurovo Dist., Starye Turdaki, 8.VII.2008, 1 ex. Saransk, 2014, 1 ex.

**Habitat.** The species was noted in deciduous and mixed forests, in floodplain oak forests, in floodplain meadows.

*Hemicrepidius niger* (Linnaeus, 1758)

**Distribution.** Temnikov Dist. (Egorov and Ruchin 2013, 2014; Egorov et al. 2015, 2016, 2017). Zubova Polyana Dist. (Timraleev et al. 2000). Ichalki Dist. (Timraleev, Aryukov 2001; Andreichev, Loginova 2005; Ruchin et al. 2007; Timraleev, Aryukov 2001). Saransk (Ruchin and Alekseev 2008).

**Materials.** Temnikov Dist., MSNR, quar. 376, 15.VII.2017, 2 ex.; quar. 437, 29.VI.2017, 1 ex., G.B. Semishin; cord. Inorski, 29.VI.-6.VIII.2017, 7 ex., L.V. Egorov, G.B. Semishin. Elniki Dist., Malye Mordovskie Poshty, 22.VII.2017, 1 ex. Ichalki Dist., NPS, Lvovskoe forestry, quar. 53, 7.VII.2017, 18.VII.2017, 4 ex., G.B. Semishin. Bolshie Berezniki Dist., 9 km S Simkino, 29.VI.2009, 2 ex.; Degilevka, 12.VI.2015, 1 ex. Saransk, 20.VI.2009, 1 ex.

**Habitat.** The species occurs in various forest biotopes (in small-leaved and broad-leaved forests, flooded oak forests), as well as in floodplain meadows and steppe slopes (Figure 2). According to the data of catches in the window traps, flight began from the end of June and its peak occurred in the second half of July (cf. Table 1).

? *Stenagostus rufus* (DeGeer, 1774)

**Distribution.** It was noted without specifying the locality of the findings (Timraleev et al. 2007).

**Remark.** A saproxial species confined to forests (Lukin 2010; Mertlik 2017). Inhabitation in the republic is unlikely, but it is possible and requires confirmation.

*Actenicerus sjaelandicus* (O.F. Müller, 1764)

**Distribution.** Temnikov Dist. (Feoktistov 2011; Egorov and Ruchin 2012, 2013, 2014; Egorov et al. 2016). Bolshoe Ignatovo Dist. (Ruchin and Alekseev 2008). Ichalki Dist. (Andreichiev and Loginova 2005; Ruchin et al. 2007). Bolshie Berezniki Dist. (Timraleev and Chikina 1991).

**Materials.** Temnikov Dist., MSNR, quar. 86, VI-VII.2011, 1 ex.; quar. 114, VI-VII.2014, 1 ex. Ichalki Dist., NPS, Lvovskoe forestry, quar. 53, 21.V.2008, IV-V.2008, 17.VI.2008, 3 ex., same label, quar. 53, 24.V.2017, 1 ex., G.B. Semishin. Ardatovo Dist., Svetotekhnika, 18.V.2008, 1 ex.

**Habitat.** The species occurs in relatively moist biotopes: meadows, sphagnum pine forests with spruce, birch, floodplain deciduous forests, alders. It was also noted in the gardens and fire sites.

*Anostirus castaneus* (Linnaeus, 1758)

**Distribution.** Temnikov Dist. (Timraleev and Chikina 1991; Kurmaeva et al. 2008; Feoktistov 2011; Egorov and Ruchin 2012, 2013, 2014; Egorov et al. 2015, 2016, 2017). Bolshoe Ignatovo Dist., Ichalki Dist. (Egorov and Ruchin 2009).

**Materials.** Temnikov Dist., MSNR, Pushta, 11.IV.2008, 3.V.2008, 4 ex.; quar. 420, 4.V.2008, 1 ex.; cord. Inorski, 15-29.VI.2017, 1 ex., L.V. Egorov, G.B. Semishin. Zubova Polyana Dist., 5 km SW Bystrischi, 1.V.2008, 1 ex. Kochkurovo Dist., Kochkurovo, 8.V.2016, 1 ex.

**Habitat.** With regard to distribution, the species is mainly restricted to forest biotopes (mixed and deciduous forests, spruce forests with pine, birch, aspen). Adults were found on the inflorescences of Umbelliferae.

*Aplotarsus incanus* (Gyllenhal, 1827)

**Distribution.** Temnikov Dist. (Timraleev and Chikina 1991; Kurmaeva et al. 2008; Feoktistov 2011; Egorov and Ruchin 2012, 2013; Egorov et al. 2015, 2016, 2017).

**Materials.** Temnikov Dist., MSNR, quar. 408, 13.V.2017, 1 ex., L.V. Egorov; quar. 403, 20.V.2017, 1 ex.; cord. Pavlovskiy, 16.VI.2017, 1 ex., G.B. Semishin.

**Habitat.** The species inhabit humidified biotopes (floodplain meadows, sphagnum pine forests, moistened spruce forests, deciduous wet forests along the banks of water bodies). Imago is often on the inflorescences of Umbelliferae.

*Ctenicera pectinicornis* (Linnaeus, 1758)

**Distribution.** Temnikov Dist. (Egorov and Ruchin 2013; Egorov et al. 2015, 2016, 2017). Bolshoe Ignatovo Dist., Kochkurovo Dist. (Ruchin and Alekseev 2008).

**Materials.** Temnikov Dist., MSNR, Pushta, IV-V.2008, 2 ex. Bolshoe Ignatovo Dist., NPS, Aleksandrovske

forestry, quar. 10, 22.V.2008, 1 ex. Ichalki Dist., NPS, Lvovskoe forestry, quar. 53, 21.V.2008, 21.VI.2008, 3 ex., same label, 24.V.2017, 23.V.2017, 2 ex., G.B. Semishin. Ardatovo Dist., Bolshoe Kuzmino, 26.V.2017, 2 ex. Chamzinka Dist., Bolshoe Maresevo, 13.VI.2008, 1 ex.

**Habitat.** The main habitats are the fringes and glades of forest tracts: mixed, pine forests with spruce, birch, spruce forests with pine and birch, deciduous.

? *Liotrichus affinis* (Paykull, 1800)

**Distribution.** Ruzaevka Dist. (Antsiferova and Dobrosmyslov 1966).

**Remark.** Palearctic taiga and forest-tundra species (Gurieva 1989; Medvedev 2005; Delnatte et al. 2013). Inhabitation in the republic requires confirmation.

*Orithales serraticornis* (Paykull, 1800)

**Distribution.** Temnikov Dist. (Timraleev and Chikina 1991; Feoktistov 2011).

**Habitat.** The species occurs mainly on the fringes, roadsides on the shoots of young pines, and also on floodplain meadows in the grass stand (Medvedev 2005, Mertlik 2015).

*Paraphotistus impressus* (Fabricius, 1792)

**Distribution.** Temnikov Dist. (Plavilshchikov 1964; Timraleev and Chikina 1991; Kurmaeva et al. 2008; Egorov et al. 2016, 2017). Bolshoe Ignatovo Dist. (Ruchin and Alekseev 2008).

**Materials.** Temnikov Dist., MSNR, quar. 361, V-VI.2011, 1 ex. Staroe Shaigovo Dist., Staroe Akshino, 11.V.2008, 1 ex. Ichalki Dist., NPS, Kemlyanskoe forestry, Smolny, V.2009, 1 ex.

**Habitat.** The species occurs on wet meadows, in ripe sphagnum pine forests with spruce, birch, deciduous forests, mixed forests. It was noted on the fire sites.

*Paraphotistus nigricornis* (Panzer, 1799)

**Distribution.** Temnikov Dist. (Timraleev and Chikina 1991; Kurmaeva et al. 2008; Feoktistov 2011; Egorov and Ruchin 2012; Egorov et al. 2015, 2016, 2017). Ruzaevka Dist. (Ruchin and Alekseev 2008).

**Materials.** Temnikov Dist., Tarkhany, 5.VI.2009, 1 ex.

**Habitat.** The species was recorded in the floodplain oak with linden, in birch forest with pine, aspen, linden, and also on the steppe slope.

*Prosternon tessellatum* (Linnaeus, 1758)

**Distribution.** Temnikov Dist. (Bondarenko 1964; Plavilshchikov 1964; Kurmaeva et al. 2008; Egorov and Ruchin 2012, 2013, 2014; Egorov et al. 2015, 2016, 2017). Ichalki Dist. (Ruchin et al. 2007). Bolshoe Ignatovo Dist., Ruzaevka Dist. (Ruchin and Alekseev 2008).

**Materials.** Temnikov Dist., Temnikov, 10.V.2009, 1 ex.; Andreevka, 11.V.2013, 2 ex.; Kitsaevka, 12.V.2013, 1 ex.; Russkoe Karaevo, 21.V.2017, 2 ex. Temnikov Dist., MSNR, quar. 354, 20.V.2017, 5 ex.; quar. 437, 29.VI.2017, 2 ex.; quar. 357, 4.VII.2017, 1 ex.; quar. 420, 6.VIII.2017, 1 ex.; cord. Drozhdenovskiy, 18.VI.2017, 3 ex.; cord. Inorski, 14.VI.2017, 1 ex.; cord. Pavlovskiy, 17.VI.2017,

6.VIII.2017, 2 ex.; cord. Podrubnyi, 4.VIII.2017, 2 ex. Zubova Polyana Dist., 5 km SW Bystrischi, 1.V.2008, 2 ex.; Mordovskaya Polyana, 7.VI.2008, 1 ex. Atyurevo Dist., Chudinka, 7.VI.2008, 1 ex.; Mordovskaya Kozlovka, VI-VII.2012, 15 ex.; Dmitriev Usad, VI-VII.2012, 1 ex.; Kamenka, 21.VI.2016, 1 ex. Elniki Dist., Novye Pichingushi, IV-VI.2014, 26 ex.; Novye Shaly, V-VI.2014, 2 ex. Krasnoslobodsk Dist., Belikovskie Vyselki, VI-VII.2012, 1 ex. Kovylnino Dist., Andreevka, 30.VII.2008, 1 ex. Staroe Shaigovo Dist., Lesnichestvo, 17.VII.2009, 1 ex.; Nikolskaya Salovka, 8.VII.2017, 4 ex. Ichalki Dist., Khanineevka, V-VI.2009, 3 ex.; 3 km NE Lobaski, 9.VIII.2013, 3 ex.; NPS, Barakhmanovskoe forestry, quar. 108, IV-V.2008, 3 ex., 20.VII.2007, 1 ex., same label, quar. 74, 6.VI.2017, 1 ex., G.B. Semishin. Ardatovo Dist., Oktyabrskiy, 19.V.2008, 1 ex. Dubenki Distr., 8 km SE Engalychevo, 1.VII.2009, 1 ex. Romodanovo Dist., Pushkino, VIII.2013, 10 ex. Ruzaevka Dist., Levzhenskiy, 7.VI.2005, 1 ex. Bolshie Berezniki Dist., 5 km SE Permisi, 24.VII.2008, 1 экз D.K. Kurmaeva; 9 km S Simkino, 30.VI.2009, 2 ex.

**Habitat.** The species occurs in a wide variety of open and forest habitats (mixed forests, deciduous forests, alder forests, floodplain and meadow meadows, pine forests of various types and ages, orchards and gardens, steppe slopes, agrocenoses, forest shelterbelts) (Figure 2). The species flies into the light.

? *Pseudanostirus globicollis* (Germar, 1843)

**Distribution.** Temnikov Dist. (Timraleev and Chikina 1991; Kurmaeva et al. 2008; Feoktistov 2011).

**Remark.** So far, the most northern finds have been indicated from the Brest (Belarus), Kursk, Ulyanovsk, Samara and Tula oblasts (Alexandrovich 1995; Guryeva 1989; Isaev 2000; Dorofeev 2006). It is confined to broad-leaved forests (Gurieva 1989). In the light of recent findings in the territory of Mordovia similar species of Coleoptera found in broad-leaved forests (Ruchin and Egorov 2018; Tomaszewska et al. 2018), the presence of the habitat of *P. globicollis* is likely to be found, but it requires additional studies.

*Selatosomus aeneus* (Linnaeus, 1758)

**Distribution.** Temnikov Dist. (Bondarenko 1964; Pavilshchikov 1964; Kurmaeva et al. 2008; Egorov and Ruchin 2012, 2013, 2014; Egorov et al. 2015, 2016, 2017). Bolshoe Ignatovo Dist., Ichalki Dist. (Ruchin and Alekseev 2008). Ichalki Dist. (Andreichev, Loginova 2005; Ruchin et al. 2007). Lyambir Dist. (Loginova et al. 2006). Ruzaevka Dist. (Antsiferova, Dobrosmyslov 1966).

**Materials.** Tengushevo Dist., Barashevo, V.2008, 1 ex. Temnikov Dist., Kitsaevka, 12.V.2013, 1 ex. Temnikov Dist., MSNR, Pushta, 3.V.2008, 30.V.2008, IV-V.2008, 4 ex.; cord. Inorski, 9.V.2009, 21.V.2017, 2 ex.; quar. 84, VI-VII.2014, 1 ex.; quar. 59, VII-VIII.2015, 2 ex.; quar. 408, 11.VII.2017, 1 ex.; quar. 324, 13.VII.2017, 1 ex.; cord. Pavlovskiy, 17.VI.2017, 1 ex., G.B. Semishin. Zubova Polyana Dist., 5 km SW Bystrischi, 1.V.2008, 2 ex.; Tenishevo, 2.V.2008, 1 ex. Elniki Dist., Starye Shaly, V-VI.2014, 3 ex. Bolshoe Ignatovo Dist., NPS,

Aleksandrovskoe forestry, quar. 10, 22.V.2008, 1 ex. Ichalki Dist., NPS, Barakhmanovskoe forestry, quar. 108, IV-V.2008, 1 ex.; Kemlyanskoe forestry, Smolny, V.2009, 1 ex.; Lvovskoe forestry, quar. 53, 9.VI.2017, 1 ex., G.B. Semishin. Ardatovo Dist., Turgenevo, 19.V.2008, 1 ex.; Oktyabrskiy, 19.V.2008, 1 ex. Dubenki Distr., Yavleika, V.2008, 1 ex. Chamzinka Dist., Komsomolski, VI.2008, 1 ex., M.K. Ryzhov. Kochkurovo Dist., Podlesnaya Tavla, 8.V.2016, 1 ex. Saransk, 8.V.2009, V.2015, 3 ex.

**Habitat.** Adults were found in a variety of biotopes: pine forests of various types and ages, spruce forests, floodplain meadows, thickets along river banks, broad-leaved forests, deciduous forests of secondary origin, steppe slopes with carbonate outcrops. The number in soil traps in different biotopes is the following: in the spruce forest - 0.2 ex./100 trap-days, in the mixed forest - 0.2, in the deciduous forest - 0.4.

*Selatosomus cruciatus* (Linnaeus, 1758)

**Distribution.** Temnikov Dist. (Timraleev and Chikina 1991; Kurmaeva et al. 2008; Feoktistov 2011; Egorov and Ruchin 2013, 2014; Egorov et al. 2015, 2016, 2017). Zubova Polyana Dist. (Ruchin and Alekseev 2008). Bolshie Berezniki Dist. (Timraleev and Chikina 1991).

**Materials.** Temnikov Dist., Bochino, VII.2008, 1 ex., S.V. Susarev; Andreevka, 11.V.2013, 2 ex.; Kitsaevka, 12.V.2013, 1 ex. Temnikov Dist., MSNR, quar. 79, V-VI.2014, 4 ex.; quar. 58, V-VI.2014, 1 ex.; quar. 439, V-VI.2014, 1 ex.; quar. 403, 20.V.2017, 1 ex.; окр. Podrubnyi, 20.V.2017, 1 ex.; cord. Inorski, 12.V.-1.VI.2017, 15 ex., L.V. Egorov, G.B. Semishin. Ichalki Dist., NPS, Barakhmanovskoe forestry, quar. 108, IV-V.2008, 3 ex.; Kemlyanskoe forestry, Smolny, V.2009, 1 ex. Ardatovo Dist., Oktyabrskiy, 19.V.2008, 2 ex.

**Habitat.** The species occurs in clearings, glades, fringes in forest habitats (in mixed, deciduous forests, in alder forests, in riparian spruce grove, in pine forests of various types and ages).

*Selatosomus latus* (Fabricius, 1801)

**Distribution.** Temnikov Dist. (Egorov et al. 2015). Lyambir Dist. (Loginova et al. 2006; Ruchin and Alekseev 2008). Ichalki Dist. (Andreichev, Loginova 2005; Ruchin et al. 2007).

**Materials.** Krasnoslobodsk Dist., Selishchi, 5.VI.2009, 1 ex. Ichalki Dist., NPS, Barakhmanovskoe forestry, quar. 108, IV-V.2008, 1 ex.; Lvovskoe forestry, quar. 53, IV-V.2008, 3 ex. Ardatovo Dist., Svetotekhnika, 18.V.2008, 1 ex. Ruzaevka Dist., Levzhenskiy, 9.VI.2009, 1 ex. Oktyabrskiy Distr., Monastyrskoe, 12.VI.2017, 1 ex.

**Habitat.** The species occurs more often in sparse forests (birch forests, mixed and deciduous forests) and open biotopes (dry and floodplain meadows).

#### Subfamily Negastrinae Nakane & Kishii, 1956

*Negastrius pulchellus* (Linnaeus, 1760)

**Distribution.** Temnikov Dist. (Kurmaeva et al. 2008; Feoktistov 2011). Lyambir Dist. (Timraleev and Chikina 1991). Bolshie Berezniki Dist. (Timraleev and Chikina 1991).

**Materials.** Bolshie Berezniki Dist., 9 km S Simkino, 29.VI.2009, 2 ex.

**Habitat.** The species occurs in the aquatic biotopes.

*Oedostethus quadripustulatus* (Fabricius, 1792)

**Distribution.** Temnikov Dist. (Egorov and Ruchin 2013; Egorov et al. 2016).

**Materials.** Temnikov Dist., MSNR, quar. 427, VI.2014, 1 ex. Saransk, 2014, 1 ex.

**Habitat.** The species occurs both in the forests (a ripe spruce forest with a pine, birch, mixed forest), and on floodplain meadows.

### Subfamily Cardiophorinae Candeeze, 1859

*Cardiophorus asellus* (Erichson, 1840)

**Distribution.** Zubova Polyana Dist. (Ruchin et al. 2009).

**Habitat.** The species was found in a mixed forest.

*Cardiophorus ebeninus* (Germar, 1823)

**Distribution.** Temnikov Dist. (Egorov et al. 2016).

**Habitat.** One specimen was caught in a ripe sphagnum pine with spruce, birch.

*Cardiophorus ruficollis* (Linnaeus, 1758)

**Distribution.** Temnikov Dist. (Timraleev and Chikina 1991; Kurmaeva et al. 2008; Feoktistov 2011; Egorov and Ruchin 2013, 2014; Egorov et al. 2016, 2017). Ichalki Dist. (Egorov and Ruchin 2009).

**Materials.** Tengushevo Dist., Barashevo, V.2008, 1 ex. Temnikov Dist., Andreevka, 11.V.2013, 1 ex. Temnikov Dist., MSNR, cord. Inorski, quar. 424, 13.V.2017, 1 ex.; cord. Dolgyi Most, 13.V.2017, 1 ex., L.V. Egorov; quar. 408, 11.VII.2017, 1 ex. Ichalki Dist., NPS, Barakhmanovskoe forestry, quar. 108, 5-20.VI.2017, 2 ex., G.B. Semishin; Barakhmanovskoe forestry, quar. 112, 4-19.VII.2017, 1-15.VIII.2017, 2 ex., G.B. Semishin.

**Habitat.** The species occurs in clearings, fringes, glades and roads in various types of forests (floodplain deciduous, mixed, pine forests of various types and ages, spruce forests, near forest marshes). The amount of the specimens in the soil traps was low: in the deciduous forest - 0.4 ex./100 trap-days, in the mixed forest - 0.2. The species flies into the light.

*Dicronychus equiseti* (Herbst, 1784)

**Distribution.** Temnikov Dist. (Egorov and Ruchin 2013, 2014; Egorov et al. 2015, 2017). Ichalki Dist. (Egorov and Ruchin 2009).

**Habitat.** The species occurs in pine forests, mixed forests along fringes and glades, rarely on floodplain meadows.

### Discussion

On the territory of the Republic of Mordovia 58 species of click beetles have been recorded so far. *Adrastus pallens* is a new record for the republic. For 6 species of click beetles (*Agriotes pilosellus*, *Melanotus crassicollis*, *Melanotus fusciceps*, *Liotrichus affinis*, *Pseudanostirus*

*globicollis*, *Stenagostus rufus*), known only from the literature, confirmation of findings with new material from the territory of the republic is required. Two species (*Agriotes acuminatus*, *Limoniciscus suturalis*) are probably excluded from the fauna of the republic. Mass species that occur in various biotopes include *Agrypnus murinus*, *Hemicrepidius niger*, *Prosternon tessellatum*, and *Selatosomus aeneus*. In addition to them, the most common species that live in a limited number of biotopes are *Agriotes lineatus*, *Agriotes obscurus*, *Agriotes sputator*, *Dalopius marginatus*, *Ampedus balteatus*, *Ampedus pomorum* and *Athous subfuscus*.

In general, the number of species of click beetles in Mordovia is comparable to that in adjacent regions. So, in the Ulyanovsk region 69 species are known (Isaev 2000), in Chuvashia - 66 species (according to L.V. Egorov), in Nizhny Novgorod - 62 species (Anufriev et al. 1981). In other adjacent regions (Penza and Ryazan regions) the fauna of this family has not been adequately studied.

In greater degree it was studied in the Tula region - 57 species (Dorofeev 2009; Dorofeev et al. 2015), the Republic of Komi - 56 species (Medvedev 2005), Lipetsk region - 49 species (Tsurikov 2009). In the fauna of the click beetles of the Republic of Komi, Tula region species associated with forest habitats predominate. This is understandable in consideration of high afforestation of these regions. On the other hand, the inhabitants of steppe biotopes appear in the fauna of click beetles of the Ulyanovsk region (Aleinikova 1962). In the Lipetsk region the species diversity of the click beetles decreases, with decrease in the number of boreal species.

Thus, the high species diversity of the click beetles in Mordovia, Chuvashia, Ulyanovsk and Nizhny Novgorod regions is explained by the forest-steppe character of their territories. In these regions, the fauna of click beetles has a "transitional" character and includes boreal, nemoral and steppe elements. Therefore, it is possible that in the Republic of Mordovia other representatives of both the forest and steppe fauna of the click beetles will be found, e.g., *Agriotes gurgistanus* (Faldermann, 1835), *Sericus sulcipennis* (Buysson, 1893), *Elater ferrugineus* (Linnaeus, 1758), *Cidnopus aeruginosus* (Olivier, 1790), *Cidnopus pilosus* (Leske, 1785), *Oedostethus tenuicornis* (Germar, 1823), *Drapetes mordelloides* (Host, 1789), and some species of *Cardiophorus* (Eschscholtz, 1829).

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