

The Ladybird Beetles (Coleoptera, Coccinellidae) of Moscow Province

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Abstract—Data on the fauna and ecology of the ladybird beetles (Coleoptera, Coccinellidae) of Moscow Province are summarized. In total, 60 species of 29 genera are recorded for this region. The paper is provided with 30 original color photographs of 29 species representing all the genera known from Moscow Province.

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As our long experience shows, the fauna of many groups of insects, including ladybird beetles, has been incompletely studied in Moscow Province. Our paper continues the series of publications with results of the investigation of the beetles of Moscow Province which was started by Dwigubsky (1802) and is still being continued (Nikitsky et al., 2013; Troshkova et al., 2015; Troshkov and Nikitsky, 2015).

MATERIALS AND METHODS

Our target investigation of the coleopterous fauna of Moscow Province started in the 1960th and has become especially intensive since 1993. In the present study, in addition to the authors' collections other material was used, first of all, the specimens deposited in the Zoological Museum of M.V. Lomonosov Moscow State University (ZMMU) (including a part of N.N. Filippov's collection of ladybirds; the other part of the collection being deposited in the Zoological Institute of the Russian Academy of Sciences, St. Petersburg (ZIN)), in Moscow Pedagogical State University (MPSU), and also material from various private collections which have been made since the second half of the XIX century.

The nomenclature and data on the distribution of ladybirds are mainly based on the latest edition of the Palaeartic catalogue (Kovář, 2007) and, for some species, according to S.M. Iablokoff-Khnzorian (1983). The collection information and also some literature data (for example, Ukrainsky and Shapovalov, 2010) were used in certain cases, especially in relation

to the territory of the Northern Caucasus (referred to as "the Caucasus" in the paper), which was not separated in the Palaeartic catalogue from the south of the European territory of Russia.

For each species, the publications in which it was recorded for Moscow Province are cited. Labels are not listed for the species very widely distributed in the territory of Moscow Province. The Transcaucasia is accepted here within the traditional borders: including Georgia, Armenia, Azerbaijan, and the Black Sea part of Krasnodar Territory.

Photographs of all the ladybird species are of the same size.

Annotated List of the Species

Family **COCCINELLIDAE** Latreille,
1807—Ladybirds

These are usually small or rather small (in the European part of Russia, up to 10 mm long), but occasionally rather large beetles (the body length varies from 0.8 to 28 mm) (Ślipiński and Tomaszevska, 2010) frequently with bright coloration warning of their inedibility. The majority of ladybirds are predators; many species are widely known as effective entomophages on aphids (Aphididae), psyllids (Psylloidea), whiteflies (Aleurodidae), bark lice (Coccoidea), scales (Diaspididae), and mites (Acarina). Mycetophagous and phytophagous habits also occur. The insects overwinter at the adult stage. The world fauna of ladybirds comprises about 360 genera and 6000 species (Ślipiński and Tomaszevska, 2010); a little more than 160 species are known in Russia (Ukrainsky, 2007a, 2007b).

[†] Deceased.

Subfamily **EPILACHNINAE** Mulsant, 1846

Genus ***Subcoccinella*** Agassiz, 1845

Subcoccinella vigintiquatuorpunctata (Linnaeus, 1758) (= *globosa* (Schneider, 1792))
(Fig. 1)

Dwigubsky, 1802; Lindeman, 1871; Melgunov, 1892; Shcherbakov, 1905.

The species is widely distributed in Moscow Province.

Biology. For Central Europe, it is reported as a eurytopic, mainly xerophilous herbivore (Koch, 1989). It occurs in fields, meadows (including floodplain ones), meadow-steppe and ruderal areas (including mounds and slopes), on wastelands, in kitchen gardens, on open areas near rivers, occasionally in marshes and on open areas in forests. The insects feed on the peas (*Pisum*), vetch (*Vicia*), *Polygonum aviculare*, sweet clover (*Melilotus*), nettle (*Urtica*), sorrel (*Rumex*), soapwort (*Saponaria*), campion (*Silene*), and carnation (*Dianthus*). They harm the lucerne (*Medicago*), clover (*Trifolium*), beet (*Beta*) (Zaslavskiy, 1974), potato (*Solanum tuberosum*), aubergine (*Solanum melongena*), and turnip (*Brassica rapa*). The beetles can be found in dry grass and detritus. The eggs are laid on the underside of a leaf. The larvae develop for about 3 weeks. The beetles and larvae skeletonize leaves, leaving the epidermis untouched on one side. Usually adults overwinter. In Moscow Province, the insects are most abundant in the southern areas, including the forest-steppe.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, the Transcaucasia, Kazakhstan, Middle Asia; Europe, North Africa, Western Asia, Mongolia, Northern China, North America (introduced to the USA).

Subfamily **COCCINELLINAE** Latreille, 1807

Genus ***Anisosticta*** Chevrolat in Dejean, 1836

Anisosticta novemdecimpunctata (Linnaeus, 1758)
(Fig. 2)

Dwigubsky, 1802; Lindeman, 1871; Melgunov, 1892; Mosolov, 1902; Shcherbakov, 1905.

The species is widely distributed in Moscow Province.

Biology. In Central Europe is known as a stenotopic helobious aphidophagous species occurring on grasses; it most frequently occurs on marsh plants, on boggy margins of water bodies, in meadows, and in

swamps with alder thickets (Koch, 1989). In the territory of European Russia, this is rather a mesophilous species which occurs in river floodlands, on shores of lakes and marshes, and in wet meadows. It feeds on aphids on gramineans and sedges. In Europe, it was found on *Carex*, *Phragmites*, and *Glyceria*, occasionally on willows (*Salix*) and on dead grasses where it feeds on aphids (Koch, 1989). The adults fly at light. The beetles occur from spring to October, but a new generation most frequently emerges from the second half of July to August. It is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, the Transcaucasia, Kazakhstan, Middle Asia; Europe, North Africa, Western Asia, Mongolia.

Genus ***Coccinula*** Dobrzhansky, 1925

Coccinula quatuordecimpustulata (Linnaeus, 1758)
(Fig. 3)

Dwigubsky, 1802; Lindeman, 1871; Melgunov, 1892; Mosolov, 1902; Shcherbakov, 1905.

This species is widely distributed in Moscow Province.

Biology. In Central Europe, this is a eurytopic xerophilous aphidophagous species usually living in herbage (Koch, 1989). It occurs in dry meadows, fields, including those with the lucerne, at forest edges, in steppe biotopes, on sandy areas with the heather (*Calluna*), on clearings, and in light forests (Iablokoff-Khnzorian, 1983; Koch, 1989). The insects feed on aphids on gramineans, on the lucerne, wormwood (*Artemisia*), nettle, on *Carduus* and *Cirsium*, occasionally on bushes. The beetles occur from April to October, but most frequently in July and August. The beetles overwinter in litter and in dry plant debris, especially in pine field woodlands. This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia; Belarus, Ukraine, Moldova, the Transcaucasia, Kazakhstan, Middle Asia; Europe, North Africa, Western Asia, Mongolia, China, Tropical Africa.

Genus ***Tytthaspis*** Crotch, 1874

Tytthaspis gebleri (Mulsant, 1850)
(= *lineola* (Gebler, 1843))

Material. Serpukhovskii District, Prioksko-Terrasnyi Biosphere Reserve (S.V. Sharova), 1 specimen (MPSU).

Biology. The species rather frequently occurs in the steppes, birch outliers, on moor edges. It feeds on fungi of the family Erysiphaceae (Iablokoff-Khnzorian, 1983) on Gramineae and Compositae. This is a rare species.

Distribution. Russia: the middle zone and the south of the European part, the Caucasus, Siberia; Kazakhstan, Middle Asia.

Tytthaspis sedecimpunctata (Linnaeus, 1760) (Fig. 4)

Melgunov, 1892; Jacobson, 1905–1915; Plavilshchikov, 1913; Iablokoff-Khnzorian, 1983.

This species is widely distributed in Moscow Province.

Biology. This species is more likely eurytopic, but usually psammophilous, an inhabitant of the grass layer. It mainly occurs on dunes, sandy shores, in steppes or on wastelands, in dry meadows, on areas with limestone yields, on sunny slopes and mounds, salted areas, and occasionally in marshy meadows (Koch, 1989). It usually occurs in the near-ground part of grasses. Koch (1989) classifies it as an aphidophage; according to other literature data, it feeds on Pucciniales and Erysiphales, on the pollen on Gramineae, Compositae, and Convolvulaceae, and also on mites and thrips (Thysanoptera) (Turian, 1969; Ricci, 1986). The beetles occur from spring to autumn. Adults overwinter. In Moscow Province, the insects are more common in the southern areas, in particular, in the forest-steppe.

Distribution. Russia: the middle zone and the south of the European part, the Caucasus; Belarus, Ukraine, Moldova, the Transcaucasia, Northern Kazakhstan; Europe, North Africa, Western Asia, Northwestern China.

Genus *Calvia* Mulsant, 1846

Calvia decemguttata (Linnaeus, 1767)

Dwigubsky, 1802; Lindeman, 1871; Melgunov, 1892; Mosolov, 1902; Jacobson, 1905–1915; Iablokoff-Khnzorian, 1983.

This species is widely distributed in Moscow Province.

Biology. In Central Europe, it is reported as a stenotopic hygrophilous, usually forest species mainly inhabiting trees and bushes, aphidophagous (Koch, 1989). The species occurs at wet forest edges, in

glades, and in meadows (Koch, 1989), and occasionally in gardens. The insects feed on aphids on the linden (*Tilia*), maple (*Acer*), oak (*Quercus*), elm (*Ulmus*), hazel (*Corylus*), mock orange (*Philadelphus*), robinia (*Robinia pseudoacacia*), and birch (*Betula*) (Dyadechko, 1954). The beetles are recorded from spring to autumn, overwinter in the litter and detritus and among mosses. The adults fly at light. This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, the Transcaucasia; Europe, Asia Minor, Mongolia, China, North and South Korea, Japan.

Calvia quatuordecimguttata (Linnaeus, 1758) (Fig. 5)

Dwigubsky, 1802; Lindeman, 1871; Melgunov, 1892; Mosolov, 1902; Zhantiev and Tshernyshev, 1960; Samkov and Belov, 1988; Zakharov et al., 1989.

This species is widely distributed in Moscow Province.

Biology. This is a eurytopic, usually forest inhabitant of trees, an aphidophage. In Europe, it more frequently occurs in deciduous, but also in mixed forests, treelines, at forest edges, in gardens, and also near rivers and in dry meadows. The insects feed on psyllids on the apple-tree (*Malus*), elm, alder (Sem'yanov, 1965), and also on aphids on the oak, elm, maple, robinia, birch, and hazel (Dyadechko, 1954). The beetles overwinter in forest litter, in moss, and under peeled-off bark. The adults fly at light. This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, Moldova, the Transcaucasia, Kazakhstan; Europe, Asia Minor, Mongolia, China, the Korean Peninsula, Japan, Nepal, Bhutan, Northern India, Southeast Asia, North America.

Calvia quindecimguttata (Fabricius, 1777)

Material. Solnechnogorskii District, Chashnikovo Vill., VI.1958 (S.V. Sharova), 1 specimen (MPSU). Sergievo-Posadskii District, environs of Snyatinka Vill., flight intercept trap (FIT) on pine, 26.V–29.VI.2005 (N.B. Nikitsky), 2 specimens (ZMMU). Odintsovskii District, environs of Volkovo Vill., Setun River, 16 and 23.VII.2012 (R.V. Markov), 2 specimens (ZMMU).

Biology. For Central Europe, it is reported as a stenotopic swamp species mainly living on trees,

an aphidophage; it most frequently occurs in wet forests, meadows, and on shores of ponds (Koch, 1989) and other water bodies. It is also recorded from deciduous and mixed forests, treelines, and gardens. The insects feed on leaf-beetle larvae (Chrysomelidae) (Iablokoff-Khnzorian, 1983), aphids, and psyllids (Savoiskaya, 1983) on the oak, linden, maple, elm, hazel, mock orange, willow, and alder. The insects fly at light. This is a rare species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, the Transcaucasia; Europe, Mongolia, China, North and South Korea, Japan.

Genus *Propylea* Mulsant, 1846

Propylea quatuordecimpunctata (Linnaeus, 1758)
(Fig. 6)

Dwigubsky, 1802; Melgunov, 1892; Mosolov, 1902; Palenko et al., 2004.

This species is widely distributed in Moscow Province.

Biology. The species is a ubiquitous, an inhabitant of grassy and wood layers, aphidophagous (Koch, 1989). The species occurs in deciduous and mixed forests (wet and moderately dry), on ruderal areas, in parks, gardens, and meadows on grasses, bushes, and trees. It is also found in forest litter, on brushwood, on wood dust, in moss, in straw in sheds, in detritus and alluvial soil, in rotten plant residues and compost (Koch, 1989). This entomophagous insect feeds on aphids, whiteflies, coccids, and on larvae and eggs of some beetles and butterflies (Dyadechko, 1954). This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, Moldova, the Transcaucasia, Kazakhstan; Europe, North Africa, Cyprus, Western Asia, Pakistan, Mongolia, China, North and South Korea, Japan, North America (introduced to the USA).

Genus *Harmonia* Mulsant, 1846

Harmonia axyridis (Pallas, 1773)

Zakharov, 2015.

Material. Moscow, Vorobievskaya Embankment, on balustrade, 7.X.2013 (D.V. Vlasov), 1 ♀ with elytral ridge, f. *succinea* (ZMMU).

Biology. The species occurs in deciduous and mixed forests and in gardens. It is entomophagous, feeds on aphids, coccids, and on larvae and eggs of

some beetles and butterflies. The adults can damage apples, pears (*Pyrus*), and grapes (*Vitis*); they do harm to humans and pets as they can concentrate in high abundance inside dwelling houses for overwintering and can bite and provoke allergic reactions. The insects fly at light. In Moscow Province, this species has been recorded only in Moscow.

Distribution. Russia: Moscow, the middle zone and the south of the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, Moldova, the Transcaucasia, Kazakhstan, Middle Asia; Mongolia, China, North and South Korea, Japan, Southeast Asia; introduced to Europe, the USA, Canada, South America and South Africa (Ukrainsky, 2013) and New Zealand.

Harmonia quadripunctata (Pontoppidan, 1763)
(Fig. 7)

Dwigubsky, 1802; Lindeman, 1871; Melgunov, 1892; Jacobson, 1905–1915; Iablokoff-Khnzorian, 1983.

This species is widely distributed in Moscow Province.

Biology. For Central Europe, it is reported as a stenotopic forest inhabitant of trees and an aphidophage. The species occurs in coniferous and mixed forests, frequently in pine forests. The insects feed on the aphids *Pineus pini* Koch and *Cinara pinicola* Kaltenbach on pines (Dyadechko, 1954) and on young shoots of spruces (Koch, 1989). The insects fly at light. This is a rather rare species.

Distribution. Russia: the European part, the Caucasus, Siberia; Belarus, Ukraine, the Transcaucasia; Europe, North Africa, Western Asia (Iablokoff-Khnzorian, 1983), China, North and South Korea, North America (introduced to the USA).

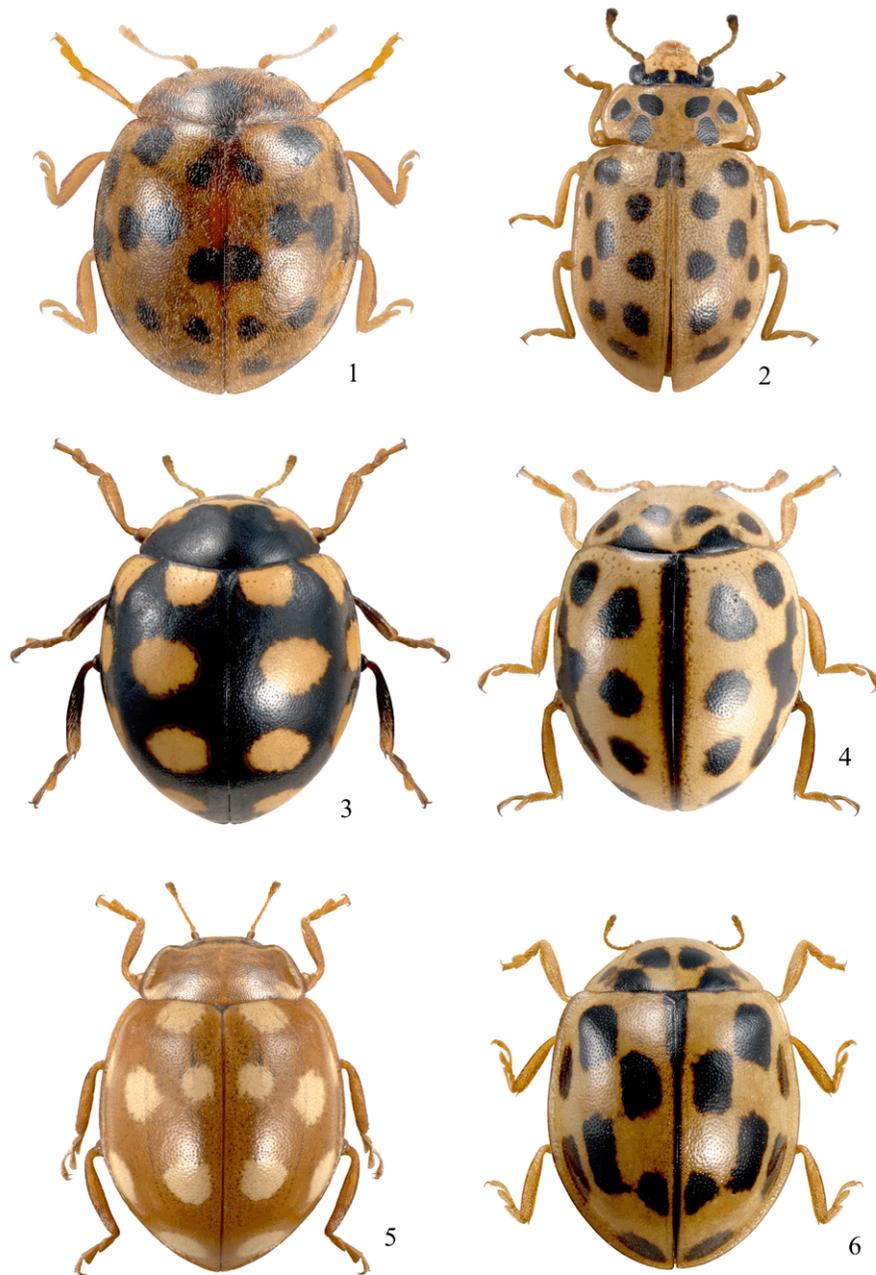
Genus *Oenopia* Mulsant, 1850

Oenopia conglobata (Linnaeus, 1758) (Fig. 8)

Lindeman, 1871.

Material. Moscow: Vorobyovy Hills, “Sportivnaya” Metro Station, 1 specimen (ZMMU); Mytishchi, Northern forest park, 1 specimen (ZMMU).

Biology. This is a eurytopic aphidophagous inhabitant of trees (Koch, 1989). It occurs in dry and wet biotopes near streams and rivers, in wet deciduous forests, at forest edges and in light forest, in marshy



Figs. 1–6. (1) *Subcoccinella vigintiquatuorpunctata* (L.), (2) *Anisosticta novemdecimpunctata* (L.), (3) *Coccinula quatuordecimpustulata* (L.), (4) *Tythaspis sedecimpunctata* (L.), (5) *Calvia quatuordecimguttata* (L.), (6) *Propylea quatuordecimpunctata* (L.).

alder thickets and in marshes, occasionally on wastelands and in parks and gardens (Koch, 1989). The insects feed on aphids on the poplar (*Populus*) and elm (Dyadechko, 1954), and also on willows, plum (*Prunus*), birch, and oak. It occasionally occurs in moss on tree trunks and under bark. According to some reports, two generations can develop per year. Adults overwinter in cracks of bark of poplar

trunks and branches, under bark of spruces and other trees, in hollows, and in houses (Savoiskaya, 1983). The species is common in Moscow in poplar plantings.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, Moldova, the Transcaucasia, Kazakhstan; Europe, Western Asia, Afghanistan, Pakistan, Mongolia, China, North Korea.

Genus *Myrrha* Mulsant, 1846

Myrrha octodecimguttata (Linnaeus, 1758) (Fig. 9)

Dwigubsky, 1802; Lindeman, 1871; Melgunov, 1892; Plavilshchikov, 1913; Belov and Krauklis, 1991.

This species is widely distributed in Moscow Province.

Biology. This is a stenotopic aphidophagous forest inhabitant of trees (Koch, 1989). The species occurs in coniferous (mainly pine) and mixed forests, more frequently at forest edges, and also in high bogs. The insects inhabit the upper part of the canopy, rather frequently on old pines, and feed on aphids; adults fly at light. The beetles usually overwinter aggregating under peeled-off bark at the bases of pine trunks. This is a rather rare species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, the Transcaucasia, Kazakhstan; Europe, North Africa, Western Asia, Mongolia.

Genus *Sospita* Mulsant, 1846

Sospita vigintiguttata (Linnaeus, 1758) (Fig. 10)

Lindeman, 1871; Melgunov, 1892.

Material (ZMMU). Taldomskii District, environs of Okoemovo Vill., FIT on northern marsh, 4.X.2003 (V.B. Semenov), 1 specimen. Orekhovo-Zuevskii District, environs of Podosinki Railway Station, Kostino Vill., southern edge of pine forest, on mountain ash, 3.X.2003 (K.P. Tomkovich), 1 specimen. Voskresenskii District: environs of Konobeevo Railway Station: 22.V.2004 (N.B. Nikitsky), 1 specimen; 24.IX.2005 (D.A. Demidov), 1 specimen; environs of Trofimovo Railway Station, FIT, 11.VI–21.VII.2010 (N.B. Nikitsky), 1 specimen. Lukhovitskii District, environs of Beloomut Vill., pitfall trap, 26.VIII–8.X.2009, 24.IX–4.XI.2012 (N.B. Nikitsky), 2 specimens.

Biology. For Central Europe, it is reported as a stenotopic hygrophilous, mainly forest species inhabiting trees, bushes, and grasses, an aphidophage (Koch, 1989). It occurs in marshes, on wet meadows, at forest edges, in flood-plain forests, swamped alder thickets, and peatbogs. In wetland biotopes, it was found on the alder, willow, Umbelliferae, and some other plants; in particular, it was recorded from the oak and hazel (Koch, 1989). According to Dyadechko (1954), the species feeds on aphids more frequently on the alder

and also on some other trees. The insects fly at light. This is a rather rare species.

Distribution. Russia: the European part, the Caucasus; Belarus, Ukraine, the Transcaucasia; Europe, Asia Minor.

Genus *Myzia* Mulsant, 1846

Myzia oblongoguttata (Linnaeus, 1758) (Fig. 11)

Dwigubsky, 1802; Lindeman, 1871; Melgunov, 1892; Mosolov, 1902; Plavilshchikov, 1913.

This species is widely distributed in Moscow Province.

Biology. This is a stenotopic forest dendrophilous, aphidophagous species (Koch, 1989). The species occurs in coniferous and mixed forests and in birch outliers. Adults were found on pines and spruces, more frequently during their producing pollen, feeding on aphids. The adults fly at light. The beetles overwinter under peeled-off bark and in coniferous litter. The adults occur from spring to July. The new generation usually emerges in August (Burakowski et al., 1986). This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, the Transcaucasia, Kazakhstan, Middle Asia; North Africa, Europe, Asia Minor, Mongolia, North and South Korea, Japan.

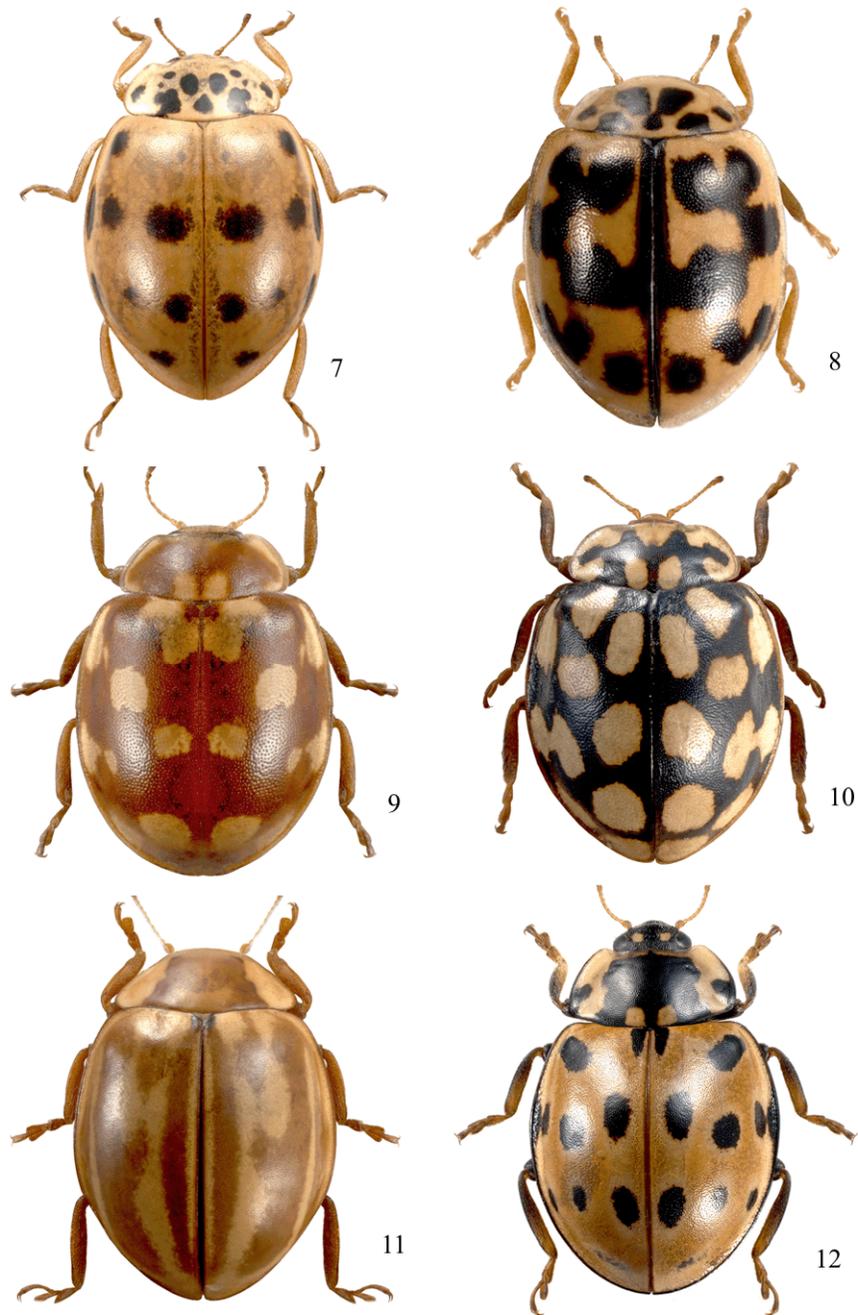
Genus *Anatis* Mulsant, 1846

Anatis ocellata (Linnaeus, 1758) (Fig. 12)

Dwigubsky, 1802; Lindeman, 1871; Melgunov, 1892; Mosolov, 1902; Zhantiev and Tshernyshev, 1960; Belov and Krauklis, 1991.

This species is widely distributed in Moscow Province.

Biology. This is a stenotopic, mainly forest dendrobiont, an aphidophage (Koch, 1989). It occurs in coniferous and mixed forests, on wastelands, in marshes, near rivers, frequently on pines and spruces during pollen producing period, less frequently on herbs, occasionally in brushwood, in coniferous litter, and on dead grass. Adults are entomophagous, mainly feeding on aphids on coniferous trees (Dyadechko, 1954), more frequently on pines and also on spruces, birches, and aspens. The adults and larvae also feed on leaf-



Figs. 7–12. (7) *Harmonia quadripunctata* (Pont.), (8) *Oenopia conglobata* (L.), (9) *Myrrha octodecimguttata* (L.), (10) *Sospita vigintiguttata* (L.), (11) *Myzia oblongoguttata* (L.), (12) *Anatis ocellata* (L.).

hopper larvae on aspen (Savoiskaya, 1983). The adults fly at light and overwinter. This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus (Aleksandrovich et al., 1996), Ukraine, Kazakhstan, Middle Asia; Europe, Mongolia, China, North and South Korea.

Genus *Aphidecta* Weise, 1903

Aphidecta obliterated (Linnaeus, 1758) (Fig. 13)

Material. 1 specimen with a doubtful label “? Mosk. Prov.” (ZMMU).

Biology. For Central Europe, it is reported as a eurytopic, mainly forest species inhabiting trees,

an aphidophage. It occurs in coniferous and mixed forests, especially in pine forests, also in marshes, occasionally in gardens and parks. It is mainly found on the pine and spruce, occasionally under flakes of bark, under bark, or in moss on the trunks.

Distribution. Russia: the European part, the Caucasus; Belarus, Ukraine, the Transcaucasia; Europe, Asia Minor.

Genus *Adalia* Mulsant, 1850

Adalia bipunctata (Linnaeus, 1758) (Figs. 14, 15)

Dwigubsky, 1802; Lindeman, 1871; Melgunov, 1892; Zolotarev et al., 1907; Zakharov, 1992, 2001, 2002; Hurst et al., 1995, 1999; Zakharov et al., 1996, 1998; Zakharov and Eidelberg, 1997; Majerus et al., 2000; Schulenburg et al., 2000, 2002; Sokolova et al., 2002; *Insects in Moscow*, 2004; Palenko et al., 2004.

This species is widely distributed in Moscow Province.

Biology. This is a ubiquitous, an inhabitant of trees and grasses, an aphidophage (Koch, 1989). The species occurs in deciduous and mixed forests, parks, gardens, and treelines. It was found on various grasses, trees, and bushes, also under the friable bark, in moss on the trunks, in litter, in wood dust, and on brushwood. The insects feed on aphids frequently on fruit-trees, the bird cherry (*Padus*), hawthorn (*Crataegus*); in summer, they occur on roses, on the mock orange, Siberian pea shrub, elm; towards autumn, they frequently occur on weeds (Iablokoff-Khnzorian, 1983). Two generations per year are recorded. The species overwinters in the litter in gardens, parks, forests, occasionally in cracks of the tree bark and in houses. This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, the Transcaucasia, Kazakhstan, Middle Asia; Europe, North Africa, Western Asia, Afghanistan, Mongolia, China, Japan, Northern and South America, Tropical Africa, Australia.

Adalia conglomerata (Linnaeus, 1758)

Dwigubsky, 1802; Mosolov, 1902 (“Mikhailovskoe, Podolskii Uezd”); Zolotarev, 1902; Jacobson, 1905–1915.

Material (ZMMU). Moscow, 27.IV.1968 (E.Ya. Berlov), 1 specimen; Khimki, Skhodnya Rail-

way Station (“Moscow Uezd, Skhodnya”), 22.V.1902, 20.V.1904, 1907 (I. Shchukin), 3 specimens. Zelenograd, shore of Chudinov pond, swept, 15.XI.2010 (A.O. Bieńkowski), 1 specimen. Odintsovskii District, environs of Lutsino Vill., Zvenigorodskaya Biological Station of Moscow State University: 9.V.1970 (V.V. Belov), 2 specimens; 4.VI.1994 (K.P. Tomkovich), 1 specimen; 1–4.V.1996 (K.P. Tomkovich), 1 specimen. Pushkinskii District: Pravda Railway Station, 13.V.1970 (V.D. Kravchenko), 1 specimen. Istrinskii District, Pavlovskaya Sloboda, area of Agro-Biological station, 16.VI.1976, 1 specimen; field, 17.VI.1976 (Karasev), 1 specimen. Mozhaiskii District, Semenovskoe Vill., on spruce stub, 6.V.1981 (V.B. Semenov), 1 specimen. Serebryano-Prudskii District, environs of Lishnyagi Vill., FIT on spruce, 23.IV–2.VI.2005 (N.B. Nikitsky), 1 specimen.

Biology. This is a stenotopic aphidophagous species preferring peat areas, inhabiting trees, more frequently pines and spruces (Koch, 1989). The species occurs in high bogs, coniferous and mixed forests; it was also recorded for dry biotopes. The insects feed on Chermesidae and other aphids on pines (Iablokoff-Khnzorian, 1983) and spruces (Dyadechko, 1954). The adults overwinter in litter and under peeled-off bark. This is a rather rare species.

Distribution. Russia: the north and the middle zone of the European part, Siberia, the Far East; Belarus, Ukraine; Europe, Mongolia, China, Japan.

Adalia decempunctata (Linnaeus, 1758)

Dwigubsky, 1802; Lindeman, 1871; Melgunov, 1892, 1894; Mosolov, 1902; Zolotarev et al., 1907; Palenko et al., 2004.

This species is widely distributed in Moscow Province.

Biology. This is a eurytopic, mainly forest species, more frequently inhabiting trees, an aphidophage (Koch, 1989). It occurs in light deciduous forests, groves, at forest edges, in parks and gardens, occasionally near rivers, in fields and on wastelands or in steppified biotopes. It was found on bushes and deciduous trees, occasionally on grasses, under bark, in moss on trees, in leaf litter, on brushwood and in alluvial soil (Koch, 1989). The insects feed on aphids on trees and bushes (Savoiskaya, 1983). The adults overwinter in litter and among fallen leaves. This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia; Belarus, Ukraine, Moldova, the Transcaucasia; Europe, North Africa, Western Asia.

Genus *Coccinella* Linnaeus, 1758

Coccinella hieroglyphica Linnaeus, 1758

Dwigubsky, 1802; Lindeman, 1871; Melgunov, 1892; Mosolov, 1902; Plavilshchikov, 1913.

This species is widely distributed in Moscow Province.

Biology. For Central Europe, it is reported as a stenotopic species, a frequent inhabitant of peat areas; it is associated with trees and grasses, mainly with the heather, less frequently with the pine and birch; it is aphidophagous (Koch, 1989). This is a mesophilous species occurring in wet meadows, marshes, peatbogs, on wastelands, and in mixed forests. Within the former USSR, it is aphidophagous on willows, birches, and bushes (Iablokoff-Khnzorian, 1983) and also on alder and grasses. The beetles are found from spring to autumn, but most frequently in June. The insects mainly overwinter in detritus under pines and birches. This is a common species.

Distribution. Russia: the European part, Siberia, the Far East; Belarus, Ukraine, Kazakhstan; Europe, Mongolia, China, North and South Korea, North America.

Coccinella magnifica Redtenbacher, 1843
(= *distincta* Faldermann, 1837;
= *divaricata* auct. nec A.G. Olivier, 1808)

Lindeman, 1871; Melgunov, 1892.

This species is widely distributed in Moscow Province.

Biology. For Central Europe, it is reported as a eurytopic thermophilic species inhabiting the grassy and wood layers, an aphidophage (Koch, 1989). The species occurs in warm places, dry meadows, stepped biotopes, dry and warm forests, on clearings, in sandy ruderal biotopes, on wastelands, and also in marshes. The insects are aphidophagous on gramineans and field cultures (the buckwheat, beet, potato, vetch, peas, cotton, etc.) (Dyadechko, 1954), also on the nettle, wormwood, heather, *Carduus* and *Cirsium*, on bushes, on the birch, plum-tree, and pine. This is a myrmecophilous (trophobiont) species mainly associated with representatives of the genus *Formica* and it is usually

recorded near ant hills (Donisthorpe, 1919, 1920; Savoiskaya, 1983; Iablokoff-Khnzorian, 1983; Majerus, 1989; Sloggett et al., 1998, 2002; Sloggett and Majerus, 2000, 2003; Godeau et al., 2003). Two generations per year are reported. The beetles overwinter in litter. The species is rather rare.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, the Transcaucasia, Kazakhstan, Middle Asia; Europe, Mongolia, China.

Coccinella quinquepunctata Linnaeus, 1758

Dwigubsky, 1802; Lindeman, 1871; Melgunov, 1892; Mosolov, 1902; Shcherbakov, 1905; Plavilshchikov, 1913; Samkov and Belov, 1988; Palenko et al., 2004.

This species is widely distributed in Moscow Province.

Biology. For Central Europe, it is reported as a stenotopic on-shore species inhabiting the grass layer and aphidophagous. It was found on shores, more frequently on sandy areas near rivers, in dry places, in biotopes with limestone yields and at dry forest edges, and also in stone quarries (Koch, 1989). In European Russia, it occurs in both dry and wet biotopes, in particular, in meadows, fields, groves, gardens, young pine forests, steppes. The insects are aphidophagous on gramineans and on field and garden cultures (the beet, cotton, peas, clover, lucerne, vetch, etc.) (Dyadechko, 1954); they also feed on leaf beetles (Iablokoff-Khnzorian, 1983). The species produces two generations per year, overwinters in forests under fallen leaves and moss (Savoiskaya, 1983). This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, the Transcaucasia, Kazakhstan; Europe, North Africa, Asia Minor, Mongolia, Northern China.

Coccinella septempunctata Linnaeus, 1758 (Fig. 16)

Dwigubsky, 1802; Lindeman, 1871; *The Main Representatives of the Beetles ...*, 1875; Melgunov, 1892; Mosolov, 1902; Shcherbakov, 1905; Plavilshchikov, 1913; Zhantiev and Tshernyshev, 1960; Samkov and Belov, 1988; Insects in Moscow, 2004.

This species is widely distributed in Moscow Province.

Biology. This is a ubiquitous inhabiting trees, bushes, and grasses, mainly aphidophagous (Koch, 1989). The

species occurs in meadows, fields, steppes, gardens, deciduous and mixed forests. The insects are aphidophagous on grasses and bushes; they also feed on thrips, whiteflies, on larvae of psyllids and small leafhoppers, and on eggs and larvae of some beetles and butterflies (Savoiskaya, 1983). One or two generations per year are recorded. The adults overwinter in the litter of treelines, parks, gardens, and forest edges and under the tree bark and rocks. This species is common.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, Moldova, the Transcaucasia, Kazakhstan, Middle Asia; Europe, North Africa, Cyprus, Western Asia, Afghanistan, Mongolia, China, North and South Korea, Pakistan, Nepal, Northern India, Japan, Southeast Asia, North America (the species was introduced to the USA), Tropical Africa.

Coccinella undecimpunctata Linnaeus, 1758

Melgunov, 1894 (Tarasovka (now Pushkinskii Distr.) (K.A. Greve)).

Material. Moscow: Ostankino, 29.VI.1923 (S.V. Nikulin), 1 specimen (ZMMU); Kolomna, VIII.1882 (K.A. Greve), 1 specimen (ZMMU).

Biology. For Central Europe, it is reported as a eurytopic species resistant to salification, mainly inhabiting grass, aphidophagous (Koch, 1989). It occurs in Europe near rivers, in fields, on mounds and in ruderal biotopes, in stone quarries, on wastelands, at dry forest edges and in meadows, in open habitats with grasses, frequently in biotopes with *Ammophila arenaria*; it also occasionally occurs in alluvial soil, detritus, on dead grass, frequently in biotopes with *Salix purpurea*. The insects feed on aphids inhabiting *Atriplex tatarica* and a number of other grasses occurring on salted areas (Dyadechko, 1954). In Moscow Province, this species is very rare.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Ukraine, Moldova, Kazakhstan, Middle Asia; Europe, North Africa, Western Asia, Afghanistan, Mongolia, China, Pakistan, Northern India; introduced to the USA and Australia.

Genus *Hippodamia* Chevrolat in Dejean, 1836
(= *Adonia* Mulsant, 1846)

Hippodamia septemmaculata (De Geer, 1775)

Lindeman, 1871; Melgunov, 1892; Mosolov, 1902 (Mikhailovskoe, Podolskii Uezd; now within administrative district of Moscow); Plavilshchikov, 1913.

Material. Moscow, 3.V.1955 (S.V. Sharova), 1 specimen (MPSU). Dmitrovskii District: Nikolo-Peshnoshskii Monastery, VIII.1897, 1 specimen (ZMMU); Lake Nerskoe, at forest edge, 15.IV.1930. 1 specimens (ZMMU). Sergievo-Posadskii District: Lake Ozeretskoe, 29.VIII (G.A. Kozhevnikov), 1 specimen (ZMMU). Mytishchinskii District, Perlovka, 17.IV.1930 (S.V. Nikulin), 1 specimen (ZMMU). Ruzskii District, Lake Glubokoe, 6.VI.1912 (N.N. Plavilshchikov), 1 specimen (ZMMU). Odintsovskii District, Nikolina Gora Vill., 26.VIII.1944, IX.1944, 23.VI.1946, IX.1947, 2.VII.1954, 7.IX.1955, 9.IX.1955 (S.V. Nikulin), 7 specimens (ZMMU). Solnechnogorskii District, Chashnikovo Vill., 2 specimens (ZMMU).

Biology. For Central Europe, it is reported as a stenotopic, mainly marsh species inhabiting trees, bushes, and grasses, aphidophagous (Koch, 1989). The species occurs in marshes, including peatbogs, at wet forest edges, and in wet meadows. The insects are aphidophagous on sedges, gramineans, and some other plants (Dyadechko, 1954). Among the marsh plants, it was recorded from *Menyanthes* and willows; the species also occasionally occurs on *Sarothamnus*, *Hypericum*, *Rubus*, and on the birch and coniferous trees. The beetles occur from spring to autumn, overwinter in litter and among dry plants. For Moscow Province, this is a rather rare species; it has not been found in the south of the province.

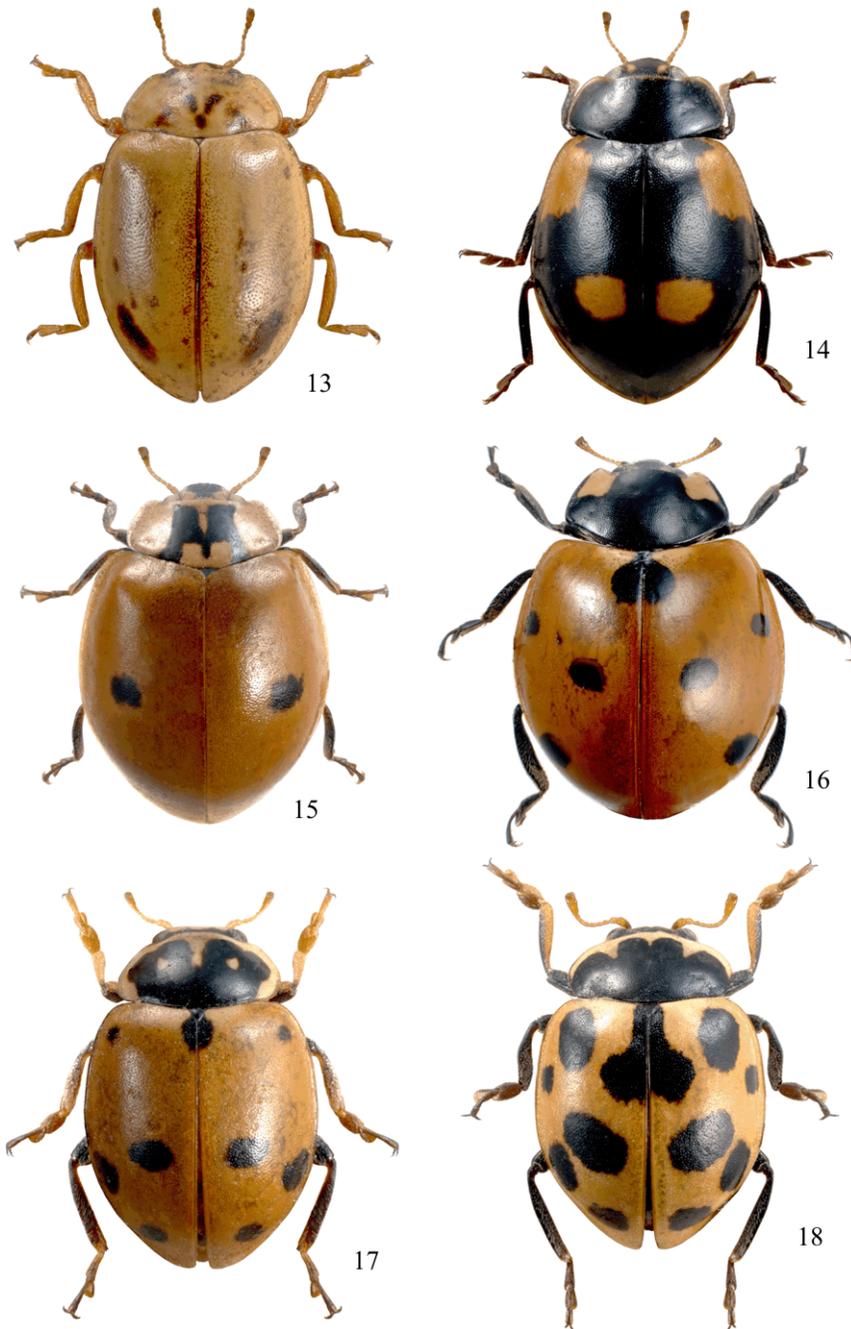
Distribution. Russia: the north and the middle zone of the European part, Siberia, the Far East; Belarus, Ukraine, Kazakhstan; Europe, Mongolia, Northern China, the Korean Peninsula.

Hippodamia tredecimpunctata
(Linnaeus, 1758)

Dwigubsky, 1802; Lindeman, 1871; Melgunov, 1892; Mosolov, 1902; Shcherbakov, 1905; Plavilshchikov, 1913; Samkov and Belov, 1988.

This species is widely distributed in Moscow Province.

Biology. For Central Europe, it is reported as a stenotopic marsh species inhabiting the herbage layer, an aphidophage (Koch, 1989). The species occurs in wet meadows near lakes, marshes, and rivers, in marshes, in marshy alder thickets, more frequently on *Carex*, *Sparganium*, *Phragmites*, and on willows (Koch, 1989b); it frequently feeds on the aphids *Aphis*



Figs. 13–18. (13) *Aphidecta obliterata* (L.), (14, 15) *Adalia bipunctata* (L.), (16) *Coccinella septempunctata* (L.), (17) *Hippodamia variegata* (Gz.), (18) *Ceratomegilla notata* (Laich.).

farinosa. The species occurs on grasses and sedges associated with the aphid *Sipha glyceriae*. It also feeds on aphids on Gramineae, Umbelliferae, and some other plants (Sem'yanov, 1965); it also feeds on Erisyphaceae on the reed, especially in spring, before the emergence of aphids (Savoiskaya, 1983). It was also found on the cane, rotten hay, detritus, and under peeled-off bark. The insects fly at light. This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, Moldova, the Transcaucasia, Kazakhstan, Middle Asia; Europe, North Africa, Western Asia, Afghanistan, Mongolia, China, the Korean Peninsula, Japan, North America.

***Hippodamia variegata* (Goeze, 1777) (Fig. 17)**

Lindeman, 1871; Melgunov, 1892; Plavilshchikov, 1913; Iablokoff-Khnzorian, 1983.

This species is widely distributed in Moscow Province.

Biology. For Central Europe, it is reported as a eurytopic xerophilous inhabitant of grasses, trees, and bushes, an aphidophage (Koch, 1989). It more frequently occurs on sandy areas and in meadows, in dry ruderal biotopes, pine forests, at sunny forest edges, mainly on grasses and bushes. It frequently occurs on flowers (Iablokoff-Khnzorian, 1983). The insects are aphidophagous on gramineans, on the lucerne, field cultures, and some other plants. The insects fly at light. The insects overwinter at the adult stage, frequently under dry plants. In Moscow Province, the species more frequently occurs in the southern areas.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, Moldova, the Transcaucasia, Kazakhstan, Middle Asia; Europe, North Africa, Western Asia, Afghanistan, Mongolia, China, North and South Korea, Pakistan, Nepal, Bhutan, Northern India, Southeast Asia, North America (introduced to the USA), Tropical Africa.

Genus *Ceratomegilla* Crotch, 1873

Ceratomegilla notata (Laicharting, 1781)
(Fig. 18)

Melgunov, 1894; Plavilshchikov, 1913; Jacobson, 1905–1915; Iablokoff-Khnzorian, 1983; Palenko et al., 2004.

The record of *Semiadalia undecimnotata* (Schneider, 1792) by K.A. Satunin from the Vorobiev Hills also probably refers to this species (Kozhevnikov, 1897).

This species is widely distributed in Moscow Province.

Biology. This is a stenotopic, mainly forest species inhabiting grasses, an aphidophage. For Central Europe, it is recorded for dry forest slopes, illuminated areas and clearings, dry meadows, and heathlands (Koch, 1989). In more eastern regions, this species frequently occurs in wet places in flood-plain meadows and at the edges of mixed forests, also in gardens. The insects are aphidophagous on the nettle and willows (Iablokoff-Khnzorian, 1983), and also on *Epilobium* and *Carduus* (Koch, 1989). In Moscow Province, the species is common.

Distribution. Russia: the European part, the Caucasus, Siberia; Belarus, Ukraine, the Transcaucasia, Kazakhstan, Middle Asia; Europe, Asia Minor, Mongolia.

Genus *Halysia* Mulsant, 1846

Halysia sedecimguttata (Linnaeus, 1758)
(Fig. 19)

Lindeman, 1871; Melgunov, 1894; Mosolov, 1902; Plavilshchikov, 1913; Belov and Krauklis, 1991.

This species is widely distributed in Moscow Province.

Biology. This is a stenotopic forest inhabitant of trees and bushes; it is mainly reported as a mycetophagous, but occasionally also as an aphidophagous species (Dyadechko, 1954). The species is mesophilous more frequently occurring on rather dry areas, mainly in deciduous forests and in parks, at forest edges, and on green fences. It feeds on Erysiphaceae infesting trees and bushes (Iablokoff-Khnzorian, 1983), in particular, *Phyllactinia guttata* (= *suffulta*) and *Podosphaera mors-uvae* (= *Sphaerotheca mors-uvae*) (Burakowski et al., 1986). The adults can also feed on aphids on the oak, linden, elm, maple, hazel, ash-tree, alder, and on coniferous trees (Dyadechko, 1954; Koch, 1989). Adults fly at light, overwinter in dry places and in leaf litter. This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, the Transcaucasia, Kazakhstan; Europe, Asia Minor, Mongolia, Northern China, Japan.

Genus *Thea* Mulsant, 1846

Thea vigintiduopunctata (Linnaeus, 1758) (Fig. 20)

Dwigubsky, 1802; Lindeman, 1871; Melgunov, 1892; Mosolov, 1902; Plavilshchikov, 1913.

This species is widely distributed in Moscow Province.

Biology. This is a eurytopic, occasionally xerophilous, mycetophagous species (Koch, 1989). It occurs in dry meadows and near rivers, on sunny mounds and slopes, in stone, clay, and sandy quarries, on wastelands, on dry ruderal areas and in fields, in treelines, occasionally in mixed forests. It feeds exclusively on the mycelium of Erysiphales (mainly of the

genus *Podosphaera* (= *Sphaerotheca*) on trees (in particular, the oak and ash-tree), bushes (Iablokoff-Khuzorian, 1983), and grasses (for example, the astragals (*Astragalus*), peas, and species of the family Boraginaceae) (Burakowski et al., 1986). The insects carry spores of these fungi (Dyadechko, 1954). The adults are found from spring to autumn, fly at light. This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, Moldova, the Transcaucasia, Kazakhstan, Middle Asia; Europe, North Africa, Western Asia, Afghanistan, Mongolia, China, North and South Korea.

Genus *Vibidia* Mulsant, 1846

Vibidia duodecimguttata (Poda, 1761) (Fig. 21)

Mosolov, 1902 (Podolskii Uezd, Mikhailovskoe (now within the borders of Moscow)); Zolotarev, 1902 (Mikhailovskoe, Podolskii Uezd) (now within Moscow).

Material. Odintsovskii District, Nikolina Gora Vill., 10.VIII.1932 (S.V. Nikulin), 1 specimen (ZMMU). Solnechnogorskii District, Chashnikovo Vill., VII.1958 (S.V. Sharova), 1 specimen (MPSU). Moscow Province, VIII.1958 (S.V. Sharova), 1 specimen (MPSU).

Biology. For Central Europe, *Vibidia duodecimguttata* is reported as a stenotopic thermophilic, usually forest, mycetophagous species (Koch, 1989). It occurs at forest edges and in open biotopes, on wastelands, and near rivers. Adults are found on flowering plants, frequently on bushes (*Cornus*, *Viburnum*) and trees (the oak, poplar, ash-tree, and plum) (Koch, 1989). For European Russia, it is reported as a mesophilous species which occurs in deciduous forests on trees, especially on flowering ones. The insects feed on Erysiphales infesting the birch, hawthorn, and apple-tree (Savoiskaya, 1983); *Phyllastinia suffulta* and *Podosphaera pannosa* (= *Sphaerotheca pannosa*) are given in the literature (Koch, 1989). The adults fly at light. In Moscow Province this species occurs very rarely.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, the Transcaucasia, Kazakhstan; Europe, Western Asia, Mongolia, China, North and South Korea, Japan, Southeast Asia.

Subfamily COCCIDULINAE Mulsant, 1846

Genus *Coccidula* Kugelann, 1798

Coccidula rufa (Herbst, 1783) (Fig. 22)

Lindeman, 1871; Melgunov, 1892.

This species is widely distributed in Moscow Province.

Biology. This is a eurytopic inhabitant of the grass layer and detritus, an aphidophage (Koch, 1989). *Coccidula rufa* prefers wet biotopes (slack, marshes, including peatlands), but also occurs in dry biotopes (fields, meadows, sandy river banks, sandy and clay quarries, mounds, and gardens) (Koch, 1989). The insects feed on the cane, reed, sedges, and gramineans, more frequently on *Glyceria* and *Elymus*. This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, Moldova, the Transcaucasia, Kazakhstan, Middle Asia; Europe, North Africa, Western Asia, Afghanistan, Mongolia.

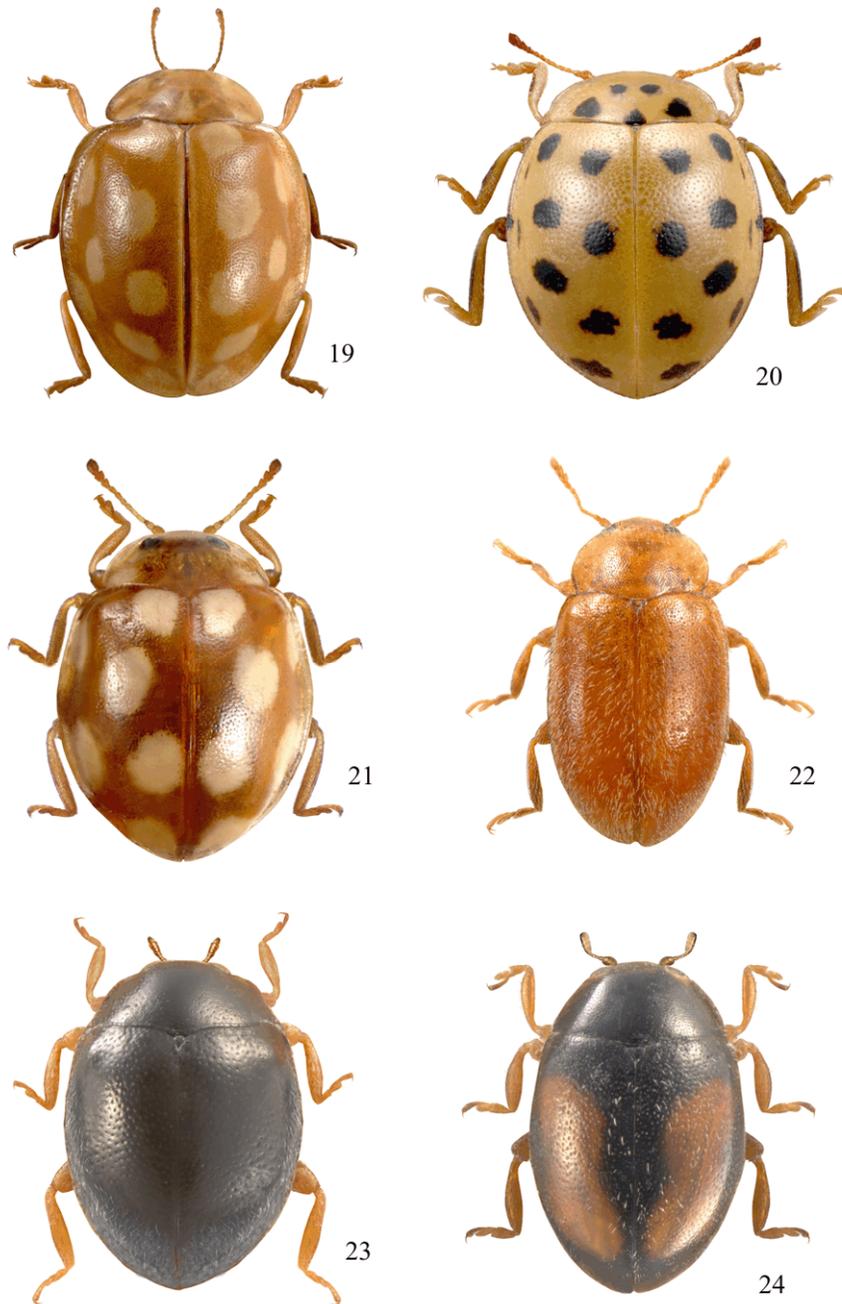
Coccidula scutellata (Herbst, 1783)

Iablokoff-Khuzorian, 1983.

Material (ZMMU). Volokolamskii District, 25 km N of Volokolamsk, Teryaev Vill., 21–28.VI.1984 (V.V. Belov), 1 specimen. Istrinskii District, environs of Novorakovo Vill., shore, 14.VI.1992 (K.V. Makarov), 1 specimen. Kolomenskii District, environs of Konev Bor Railway Station, 13.VI.1998 (V.B. Semenov), 1 specimen. Lukhovitskii District, environs of Chernaya Railway Station, in litter of spruce forest, 6.X.2000 (N.B. Nikitsky), 1 specimen. Ruzskii District, Tuchkovo Vill., 28.VII.2010 (A.A. Zarodov), 1 specimen.

Biology. This is a stenotopic helophilous aphidophagous species living on grasses (Koch, 1989). It occurs on the banks of rivers and on the shores of lakes and marshes, in particular, in peatbogs. The insects attack aphids on the cane, reed, sedges, *Acorus*, and *Glyceria* (Burakowski et al., 1986). The beetles are found from spring to autumn; the new generation usually appears in June–July. *Coccidula scutellata* overwinters as adults. In Moscow Province, it is very rare.

Distribution. Russia: the middle zone and the south of the European part (approximately as far to the north as Moscow Province), the Caucasus, Siberia; Belarus, Ukraine, Kazakhstan; Europe, North Africa.



Figs. 19–24. (19) *Halyzia sedecimguttata* (L.), (20) *Thea vigintiduopunctata* (L.), (21) *Vibidia duodecimpunctata* (Poda), (22) *Coccidula rufa* (Hbst.), (23) *Stethorus pusillus* (Hbst.), (24) *Nephus redtenbacheri* (Muls.).

Subfamily **SCYMNINAE** Mulsant, 1846

Genus *Stethorus* Weise, 1885

Stethorus pusillus (Herbst, 1797)
(= *punctillum* Weise, 1891) (Fig. 23)

It was presumably reported by K.E. Lindeman (1871) as *Scymnus minimus* Payk.; Melgunov, 1892.

This species is widely distributed in Moscow Province.

Biology. This is a eurytopic species usually inhabiting trees and bushes, a predator of spider mites (Koch, 1989). The species more frequently occurs in deciduous forests, including swamped ones, and in gardens, less frequently, in the steppe and fields, at forest edge-

es, on glades, in parks, on green fences, in fruit gardens, meadows, near streams and rivers, and in ruderal biotopes. It occurs on bushes, mainly fruit ones, and also on trees, especially on lindens, and occasionally on coniferous trees, on brushwood, in moss, frequently on chopped branches of deciduous trees, in leaf litter and under dead bark (Koch, 1989). The insects feed on spider mites and thrips. In contrast to the other ladybirds, *Stethorus pusillus* attaches the eggs on plants horizontally and one by one. The adults overwinter in litter and under peeled-off bark. This is a rather rare species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, Moldova, the Transcaucasia, Kazakhstan, Middle Asia; Europe, North Africa, Western Asia, Mongolia, China, North America.

Genus *Nephus* Mulsant, 1846

Nephus bipunctatus (Kugelann, 1794)

Material. Moscow: 24.VI.1912 (N.N. Plavilshchikov), 1 specimen (ZMMU). Losinyi Island, 16.VII.1906, 1 specimen (ZMMU); Ostankino, 18.X.1906, 1 specimen (ZMMU); Sokolniki, 1958 (S.V. Sharova), 1 specimen (MPSU); Khimki ("Moskovskii Uezd, Skhodnya"), 27.IV.1906 and 1907 (I. Shchukin), 2 specimens (ZMMU). Odintsovskii District, Nikolina Gora Vill., 30.V.1945 (B.V. Stark), 1 specimen (ZMMU); environs of Razdory Railway Station, 6.V.1973 (V.B. Semenov), 1 specimen (ZMMU). Pushkinskii District, Klyazma Vill., in room, 9.VII.1948 (B.V. Stark), 1 specimen (ZMMU). Orekhovo-Zuevskii District, environs of Filippovo Vill., pitfall trap, 6.VI–16.VII.2008 (N.B. Nikitsky), 1 specimen (ZMMU). Lukhovitskii District: environs of Beloomut Vill., FIT on old oak, 26.IV–31.V.2008 (N.B. Nikitsky), 1 specimen (ZMMU); environs of Alpat'evo Railway Station, FIT, 30.IV–5.VI.2012 (N.B. Nikitsky), 1 specimen (ZMMU); environs of Kadanok Vill., FIT, 29.VI–12.VIII.2012 (N.B. Nikitsky), 1 specimen (ZMMU); environs of Chernaya Railway Station: FIT, 14.VI–22.VII.2012 (N.B. Nikitsky), 1 specimen (ZMMU); FIT, 2004 (N.B. Nikitsky), 1 specimen (ZMMU); pitfall trap, 15.VIII–6.X.2010 (N.B. Nikitsky), 1 specimen (ZMMU). Serebryano-Prudskii District: environs of Stolbovka Vill., FIT, 30.V–5.VII.2012 (N.B. Nikitsky), 1 specimen; environs of Kurebino Vill., FIT, 26.IV–30.V.2012 (N.B. Nikitsky), 1 specimen.

Biology. For Central Europe, it is reported as a stenotopic, frequently forest inhabitant of trees, an aphidophage (Koch, 1989) and (or) coccidophage feeding on bark lice on gramineans and occasionally on bushes. It frequently occurs in dry deciduous forests and at their edges, but also in marshes, near rivers, in swamped forests, on dry slopes, in steppeified meadows, occasionally in gardens. Among the deciduous trees, it is mainly found on the poplar, willow, birch, and oak; occurs also on grasses, occasionally in forest litter, in moss on trees and under the rotten bark (Koch, 1989). This is a rather rare species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, Kazakhstan, Middle Asia; Europe, Afghanistan, Mongolia (Iablokoff-Khnzorian, 1983).

[*Nephus quadrimaculatus* (Herbst, 1783)
(= *pulchellus* (Herbst, 1797);
= *quadrilunulatus* (Illiger, 1798))]

[Lindeman, 1871, as *Scymnus quadrilunulatus* (Illiger, 1798); Melgunov, 1892, as *Scymnus pulchellus* (Herbst, 1797); Jacobson, 1905–1915; Iablokoff-Khnzorian, 1983].

Material. No specimens from Moscow Province have been examined by us. The old records might be based on misidentifications, as this species is not recorded for Russia in the latest Palaeartic catalogue and is mainly distributed in the south of the Palaeartic Region though it also occurs in the south of the European part of Russia.

Biology. For Central Europe, it is reported as a stenotopic thermophilic inhabitant of trees (frequently on *Hedera helix*), bushes, and grasses (Koch, 1989) in forests and parks, wet meadows, on limestone areas, and in gardens. This is a rare coccidophagous (in particular, on *Phenacoccus aceris*) and aphidophagous species (Koch, 1989).

Distribution. Russia: the Caucasus; Belarus (Aleksandrovich et al., 1996), Ukraine, the Transcaucasia, Kazakhstan; Europe, Western Asia, China (Taiwan Island).

Nephus redtenbacheri (Mulsant, 1846) (Fig. 24)

Lindeman, 1871; Melgunov, 1892; Mosolov, 1902.

This species is widely distributed in Moscow Province.

Biology. For Central Europe, it is reported as a stenotopic species mainly inhabiting the grass layer and detritus, coccidophagous and aphidophagous. It attacks, in particular, bark lice on gramineans, occasionally also on bushes (Koch, 1989). *Nephus redtenbacheri* occurs in marshes, including peatbogs, on marshy shores, in meadows, at wet forest edges, in flood-plain forests, and also in dry biotopes: on limestone areas, in sandy and stone quarries, on sandy shores, wastelands, and in fields (Koch, 1989). It was found on grasses and also on *Humulus*, frequently in the detritus of *Phragmites*, on alluvial soil, in moss, at the roots of grasses, and under leaves. This is a rather rare species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, Moldova; Europe, North Africa, Western Asia.

Genus *Scymnus* Kugelann, 1794

Scymnus abietis Paykull, 1798

Material (ZMMU). Tsaritsino (now within Moscow), 2.VII.1933, 1 specimen. Odintsovskii District, Podlipki, 6.VII.1945 (S.V. Nikulin), 1 specimen. Ramenskii District, environs of Otdykh Railway Station, pitfall trap, 23.VI.1965 (N.B. Nikitsky), 1 specimen. Lyuberetskii District, environs of Kraskovo Railway Station, 21–23.V.1981 (V.V. Belov), 1 specimen. Likhovitskii District, environs of Alpat'ev Railway Station: pitfall trap, 21.IX–24.X.2001 (N.B. Nikitsky), 7 specimens; FIT, 6.VI–11.VII.2001 (N.B. Nikitsky), 1 specimen; FIT, 6.VII–5.VIII.2002 (N.B. Nikitsky), 1 specimen. Solnechnogorskii District, Nikol'skoe Vill., at light, 3.VII.2002 (A.O. Bieńkowski), 1 specimen.

Biology. For Central Europe, it is reported as a stenotopic aphidophagous forest species living on trees (Koch, 1989). It occurs in coniferous (in particular, spruce) and mixed forests and in high bogs (Koch, 1989). It occurs on spruces, less frequently, on pines (in particular, during the flowering period), occasionally in coniferous litter, in moss under trees (Koch, 1989). It usually feeds on aphids infesting branches of spruces and other Pinaceae trees; it occasionally feeds on *Phenacoccus aceris* in gardens on apple-trees (Sem'yanov, 1965). The larvae are observed in May–June; the adults of this generation were found from June–July. This is a rather rare species.

Distribution. Russia: the European part, Siberia, the Far East; Belarus, Ukraine; Europe, Mongolia.

Scymnus apetzii Mulsant, 1846

Material. Moscow, near buildings of Moscow State University, V.1982 (V.V. Belov), 1 ♂ (ZMMU).

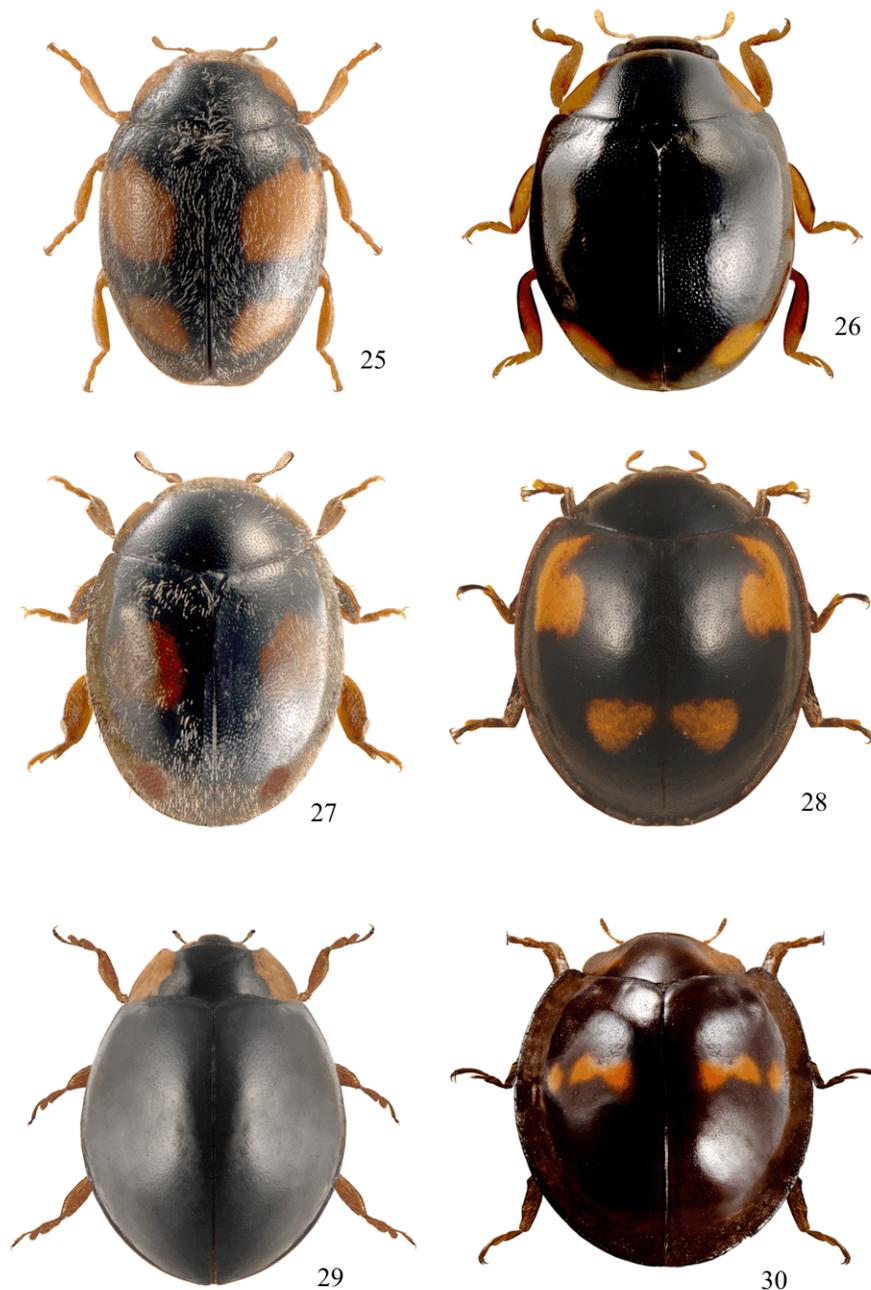
Biology. For Central Europe, it is reported as a stenotopic thermophilic inhabitant of the grass layer, an aphidophage (Koch, 1989). It occurs in warm and dry biotopes (on slopes), on limestone yields in Central Europe (Koch, 1989), on wastelands, in sandy quarries, in steppified meadows, and in light deciduous forests. The insects are aphidophagous on *Carduus* (Iablokoff-Khuzorian, 1983) and *Cirsium* (Koch, 1989). In Moscow Province, the species is very rare.

Distribution. Russia: the European part, the Caucasus, Siberia; Ukraine, Moldova, the Transcaucasia, Kazakhstan, Middle Asia; Europe, Western Asia.

Scymnus ater Kugelann, 1794

Material (ZMMU). Voskresenskii District, environs of Konobeevo Railway Station: 28.V–14.VI.1997 (N.B. Nikitsky), 1 specimen; 29.VIII.2000 (N.B. Nikitsky), 2 specimens; FIT, 20.IV–22.V.2004 (N.B. Nikitsky), 1 specimen; environs of Trofimovo Railway Station, 8.V.2007 (N.B. Nikitsky), 1 specimen. Serebryano-Prudskii District, environs of Lishnyagi Vill., pitfall trap, 9.VI–13.VII.2002 (N.B. Nikitsky), 1 specimen. Likhovitskii District: environs of Chernaya Railway Station, pitfall traps, 2.V–1.VI.2002, 8.VI–21.VII.2003, 22.IX–1.XI.2004, 17.IV–19.V.2004, 19.V–22.VI.2004 (N.B. Nikitsky), 5 specimens; FIT, 17.IV–19.V.2004 (N.B. Nikitsky), 5 specimens; environs of Alpat'ev Railway Station, pitfall trap, 18.IV–14.V.2003 (N.B. Nikitsky, V.B. Semenov), 1 specimen; environs of Beloomut Vill.: FIT on oak, 26.IV–31.V.2008 (N.B. Nikitsky, D.A. Demidov, A.S. Vlasenko), 1 specimen; pitfall trap, 26.IV–31.V.2008, 26.VIII–8.X.2009 (N.B. Nikitsky), 2 specimens; 8.X.2009 (N.B. Nikitsky), 10 specimens; FIT, 6.V–16.VI.2009 (N.B. Nikitsky), 2 ♂. Orekhovo-Zuevskii District, environs of Antsiferovo, 3.IX–12.X.2002 (N.B. Nikitsky), 1 specimen.

Biology. For Central Europe, it is reported as a stenotopic forest species mainly preferring deciduous forests (especially oak groves), less frequently, mixed forests, living on trees, coccidophagous (it was observed feeding on the scale *Chionaspis salicis*: Koch, 1989) and aphidophagous (Burakowski et al., 1986). It quite frequently occurs on the shores of water bodies, including streams and rivers. *Scymnus ater* occurs on



Figs. 25–30. (25) *Scymnus frontalis* (F.), (26) *Hyperaspis reppensis* (Hbst.), (27) *Platynaspis luteorubra* (Gz.), (28) *Exochomus quadri-pustulatus* (L.), (29) *Parexochomus nigromaculatus* (Gz.), (30) *Chilocorus bipustulatus* (L.).

the willow, hazel, linden, oak, fruit trees, less frequently, on spruces, occasionally in dust of tree hollows, in leaf litter and detritus, occasionally on hard bracket fungi. This is a rather rare species.

Distribution. Russia: the European part; Belarus, Ukraine; Europe.

Scymnus auritus Thunberg, 1795

Lindeman, 1871; Plavilshchikov, 1913; Jacobson, 1905–1915; Iablokoff-Khnzorian, 1983.

Material (ZMMU). Moscow, 22.VI.1931 (N.N. Filippov), 1 ♀; Khimki, Skhodnya Railway Station,

VI.1905, 1 ♀. Ruzskii District, Lake Glubokoe, 1913 (N.N. Plavilshchikov), 1 ♂. Zvenigorod, 6–7.VI.1973 (A.V. Sakharova), 1 ♀. Odintsovskii District, Nikolina Gora Vill., mountain-ash flowers, 29.V.1947 (V.S. Myasnikov), 1 ♂. Ramenskii District, environs of Otdykh Railway Station, 22.V.1965 (N.B. Nikitsky), 2 specimens. Lyuberetskii District, environs of Kraskovo Railway Station, on linden, 23.V.1971 (V.V. Belov), 1 ♂. Orekhovo-Zuevskii District, environs of Filippovo Vill., 12.VI.2002 (N.B. Nikitsky), 1 ♂, 1 ♀. Serebryano-Prudskii District, environs of Lishnyagi Vill., FIT, 9.VI–13.VII.2002 (N.B. Nikitsky), 1 ♀. Serpukhovskii District, Prioksko-Terrasnyi Nature Reserve, swept, 5.VI.2003 (A.V. Ivanitsky), 1 ♀. Naro-Fominskii District, environs of Alabino Vill., FIT, 18.V–24.VI.2010 (N.B. Nikitsky), 1 ♀.

Biology. For Central Europe, it is reported as a eurytopic, mainly forest species inhabiting trees and feeding on aphids. The species occurs in deciduous forests, groves, and light forests. In spring, the beetles were found on the flowering bird cherry and hawthorn and later, on oaks and lindens. The insects are aphidophagous on oaks (Dyadechko, 1954), less frequently on other trees. *Scymnus auritus* was also reported as a predator of mites occurring on the underside of oak leaves; it also feeds on Phylloxeridae (Burakowski et al., 1986; Koch, 1989). This species is rather rare.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, Moldova, the Transcaucasia, Middle Asia (Iablokoff-Khnzorian, 1983); Europe, Cyprus, Western Asia, China.

Scymnus doriae Capra, 1924

Material (ZMMU). Lukhovitskii District, environs of Chernaya Railway Station, pitfall trap, 22.VI–11.VIII.2004 (N.B. Nikitsky, V.B. Semenov), 2 ♂, 1 ♀. Orekhovo-Zuevskii District, environs of Dorogali 2 Vill., FIT, 16.V–18.VI.2010 (N.B. Nikitsky), 1 ♀.

Biology. This is a stenotopic aphidophagous species (Koch, 1989). It frequently occurs on grasses in warm sunlit meadows. In Mongolia, it was mainly found on the flowering nettle in the mountain steppe (Bielawski, 1984). In Moscow Province the species is rare.

Distribution. Russia: the middle zone of the European part, Yakutia (Novopokrovskoe Vill. on the Am-

ga River); Ukraine (Kherson), Kazakhstan (the environs of Uralsk); Central and Southeastern Europe, Mongolia.

Scymnus femoralis (Gyllenhal, 1827)

This species is widely distributed in Moscow Province.

Biology. For Central Europe, it is reported as a stenotopic xerophilous aphidophagous species occurring on wastelands, sandy areas near rivers, on dry areas, at warm forest edges, and in light forests (Koch, 1989). *Scymnus doriae* is usually found on grasses, occasionally in leaf litter, rotten grass, and on the edges of straw clamps. This is a common species.

Distribution. Russia: the European part; Europe.

Scymnus ferrugatus (Moll, 1785)

Lindeman, 1871; Melgunov, 1892; Samkov and Belov, 1988.

This species is widely distributed in Moscow Province.

Biology. This is a eurytopic aphidophagous species inhabiting trees, bushes, and the grass layer (Koch, 1989). It occurs in wet meadows, at forest edges, on green fences and bushes, in dry biotopes (especially, on slopes). The insects are aphidophagous on flowering bushes and trees (in particular, on *Padus*, *Betula*, *Prunus*, *Acer*, *Salix*), on grasses, occasionally at their roots, in moss and detritus (Iablokoff-Khnzorian, 1983; Koch, 1989). The beetles overwinter in litter, under bark, among mosses, in parks near roads. This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, Kazakhstan; Europe, Mongolia, China.

Scymnus frontalis (Fabricius, 1787) (Fig. 25)

Lindeman, 1871; Melgunov, 1892.

Material (ZMMU). Ramenskii District, environs of Otdykh Railway Station, 22.VI.1965 (N.B. Nikitsky), 1 ♀. Serebryano-Prudskii District, environs of Lishnyagi Vill., 24.V.2003 (N.B. Nikitsky, V.B. Semenov), 1 ♀; 30.V–5.VII.2012 (N.B. Nikitsky), 1 ♀; FIT, 3.VIII–12.IX.2012 (N.B. Nikitsky), 1 ♂. Lukhovitskii District, environs of Beloomut Vill., pitfall trap, 27.IV–3.VI.2011 (N.B. Nikitsky), 1 ♀.

Biology. This is a eurytopic xerophilous species inhabiting the grass layer and trees, an aphidophage (Koch, 1989). It usually occurs in dry sunny biotopes: on mounds and slopes, in stone quarries, on wastelands, on dry areas in fields and meadows, on sandy shores of rivers, at forest edges warmed by the sun, on dry pastures, and in kitchen gardens. *Scymnus frontalis* is usually found on grasses, occasionally in detritus and along the edges of straw congestions in fields and in dwellings (Koch, 1989), also on coniferous and deciduous trees (Burakowski et al., 1986). Adults overwinter in litter, under dry leaves, and among roots and dry grasses. In Moscow Province, this species is rather rare.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, the Transcaucasia, Kazakhstan, Middle Asia; Europe, Western Asia, Mongolia, China.

Scymnus haemorrhoidalis Herbst, 1797

Shcherbakov, 1905; Zolotarev, 1905.

This species is widely distributed in Moscow Province.

Biology. This is a eurytopic species, more frequently inhabiting trees, an aphidophage (Koch, 1989). It occurs in wet meadows, near streams and rivers, in ruderal biotopes, stone quarries, at forest edges, in steppes. It was found on trees, bushes (usually on the alder, willow, flowering bird cherry, hawthorn, and black elder, but occasionally on coniferous trees) and grasses, less frequently in leaf litter, dead grass, alluvial soil, and along the edges of straw congestions (Koch, 1989). The beetles overwinter under fallen leaves and among mosses. This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, the Transcaucasia, Kazakhstan, Middle Asia; Europe, Madiera Island, Western Asia.

Scymnus limbatus Stephens, 1832

Material (ZMMU). Voskresenskii District, environs of Trofimovo Railway Station: 15.VII.2002 (N.B. Nikitsky, V.B. Semenov), 1 specimen; 23.VI.2004 (N.B. Nikitsky), 1 specimen; FIT, 21.VI–2.VIII.2006 (N.B. Nikitsky), 1 specimen; 2.VIII–2.IX.2006 (N.B. Nikitsky), 1 specimen; 4.VIII–14.IX.2011 (N.B. Nikitsky), 1 specimen; environs of

Konobeevo Railway Station, 4.V.2004 (N.B. Nikitsky), 1 specimen. Serebryano-Prudskii District, environs of Lishnyagi Vill., FIT, 26.IV–30.V.2012 (N.B. Nikitsky), 1 specimen. Taldomskii District, environs of Meldino Railway Station, 20.VI.2012 (N.B. Nikitsky), 1 specimen.

Biology. For Central Europe, it is reported as a stenotopic species usually found near streams and rivers, in willow stands, marshy meadows, marshes, on wet areas in stone quarries; this is an inhabitant of trees, an aphidophage (Koch, 1989). The species occurs on willows, poplars (Iablokoff-Khnzorian, 1983), occasionally under bark and in wood dust of tree hollows, in rotten brushwood, and in leaves at the bases of the willow and poplar trunks. This is a rather rare species.

Distribution. Russia: the north and the middle zone of the European part, Siberia, the Far East; Belarus, the Transcaucasia; Europe, North Africa, Western Asia.

Scymnus nigrinus Kugelann, 1794
(= *ater* Thunberg, 1795)

Lindeman, 1871; Melgunov, 1892.

This species is widely distributed in Moscow Province.

Biology. This is a stenotopic forest species more frequently inhabiting trees, an aphidophage (Koch, 1989). It occurs in coniferous (mainly pine) and mixed forests and also in marshes and on the areas with dolomite chips (Koch, 1989). The insects feed on Chermesidae and on other aphids mainly on pines. The beetles overwinter in litter, under fallen needles and leaves, among mosses. This is a common species.

Distribution. Russia: the European part, Siberia, the Far East; Belarus, Ukraine, Kazakhstan; Europe, Mongolia.

Scymnus rubromaculatus (Goeze, 1777)

This species is widely distributed in Moscow Province.

Biology. This is a eurytopic, usually xerophilous species mainly inhabiting grasses, an aphidophage. It occurs on wastelands, in dry biotopes (especially on slopes), in dry meadows and on ruderal areas, in

stone and sandy quarries and in gravel pits, on sandy shores, at forest edges warmed by the sun, in treelines, illuminated forests, gardens, and parks (Burakowski et al., 1986; Koch, 1989). It occurs on grasses (including *Humulus*), trees, and bushes (Rosaceae, oaks, hazels), occasionally in litter, brushwood, dead grass, and detritus (Koch, 1989). This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, Moldova, Kazakhstan; Europe, North Africa, Asia Minor, Tropical Africa.

Scymnus schmidti Fürsch, 1958
(= *mimulus* Capra et Fürsch, 1967)

Iablokoff-Khnzorian, 1983.

This species is widely distributed in Moscow Province.

Biology. For Central Europe, it is reported as a stenotopic thermophilic species more frequently inhabiting grass, an aphidophage (Koch, 1989). In Poland, it was recorded as a moderately xerophilous species (Burakowski et al., 1986). It occurs in warm and usually dry biotopes (especially on slopes), in stone and sandy quarries, on wastelands and steppefied areas (Koch, 1989), and also at the edges of deciduous forests. This is a rather rare species.

Distribution. Russia: the middle zone of the European part; Belarus, Ukraine; Middle and Southern Europe, Asia Minor, Afghanistan, China.

Scymnus suturalis Thunberg, 1795

Samkov and Belov, 1988.

This species is widely distributed in Moscow Province.

Biology. For Central Europe, it is reported as a stenotopic, usually forest species, mainly inhabiting trees, a coccidophage—it was recorded as entomophagous on the scale *Chionaspis salicis* (Koch, 1989). *Scymnus suturalis* occurs in coniferous (especially pine) and mixed forests, marshes, gardens, and parks. According to Russian and Polish researchers, the species feeds on Chermesidae and other aphids on pines, less frequently, on the birch and privet (Iablokoff-Khnzorian, 1983; Burakowski et al., 1986). It was also found under flakes of bark, in moss on the trunks, in

the litter of coniferous trees, and at the trunk butts. This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, Moldova, the Transcaucasia; Europe, North Africa, Western Asia, Mongolia, North America (introduced to the USA).

Subfamily **HYPERASPIDINAE** Mulsant, 1846

Genus *Hyperaspis* Chevrolat in Dejean, 1836

Hyperaspis campestris (Herbst, 1783)

Material. Moscow: Sokolniki, 1958 (S.V. Sharova), 1 ♂ (MPSU); Vatutinki, (“Podolskii Uezd of Moscow Gubernia”), 21.V.1917 (N.N. Plavilshchikov), 1 ♂ (ZIN, from N.N. Filippov’s collection).

Biology. For Central Europe, the species is indicated as a stenotopic xerophilous inhabitant of grasses, trees, and bushes, an aphidophage and coccidophage (Koch, 1989). It was found there in dry grassy biotopes, on the areas with limestone yields, in vineyards, in pine forests, at forest edges warmed by the sun, and on open areas more frequently in dry forests (Koch, 1989). It was recorded from various plants, including bushes (the hawthorn). The insects feed on aphids and coccids (in particular, on pulviniarias). In Moscow Province, it is very rare.

Distribution. Russia: the European part, the Caucasus, Siberia; Belarus, Ukraine, the Transcaucasia; Europe, North Africa.

Hyperaspis concolor (Suffrian, 1843)

(= *inexpectata* Günther, 1959 (Kovář, 2007))

Iablokoff-Khnzorian, 1971, 1983.

Material. Moscow, 31.V.1922 (S.V. Nikulin), 1 ♂ (ZMMU). Domodedovskii District, Belye Stolby Railway Station, 10.VI.1973 (V.P. Shelepov), 1 ♀ (ZIN). Serpukhovskii District, Pushchino, 2–12.VI.1987 (MPSU), 1 ♀. Voskresenskii District: environs of Konobeevo Railway Station: 24.VI–5.VIII.1990 (N.B. Nikitsky), 1 ♂ (ZMMU); FIT, 30.V–11.VI.1998 (N.B. Nikitsky), 1 ♂ (ZMMU); FIT on birch, 11–30.VI.1998 (N.B. Nikitsky), 1 ♀ (ZMMU); environs of Trofimovo Railway Station, pitfall trap, 2.IX–30.X.2007 (N.B. Nikitsky), 2 ♂ (ZMMU); 25.V–25.VI.2011 (N.B. Nikitsky), 1 specimen (ZMMU); FIT, 5.V–8.VI.2008 (N.B. Nikitsky), 3 ♂, 2 ♀ (ZMMU). Orekhovo-Zuyevskii District: en-

virons of Antsiferovo Railway Station, 14.VII.2007 (V.B. Semenov), 1 ♀ (ZMMU). Ramenskii District: environs of Otdykh Railway Station, FIT, 10–28.VI.1999, 1 ♀ (ZMMU); 23.V–28.VI.2009, 1 ♂ (ZMMU); 8.VII–23.VIII.2010, 1 ♂ (ZMMU) (all, N.B. Nikitsky); Bykovo Vill., territory of All-Russia Plant Quarantine Center, FIT, 16.V.2012, 1 ♂; 21.V.2012, 1 ♀; 30.V.2012, 1 ♀; 4.VI.2012, 1 ♂; 2.VII.2012, 1 ♂, 3 ♀ (All-Russia Plant Quarantine Institute) (all, S.A. Kurbatov). Solnechnogorskii District, Nikolskoe Vill., by sweeping, 5.VI.2000 (A.O. Bienkowski), 1 ♀ (ZMMU). Istrinskii District: environs of Pavlovskaya Sloboda Vill., 10.VI.1998, 1 ♀; 9–10.VI.2005, 1 ♂ (K.V. Makarov) (MPSU). Lkhovitskii District: environs of Beloomut Vill.: pitfall trap, 21.IV–26.V.2007 (N.B. Nikitsky), 1 ♂ (ZMMU); FIT on oak, 21.IV–26.V.2007 (N.B. Nikitsky), 3 ♀ (ZMMU); FIT on alder, 26.IV–31.V.2008 (N.B. Nikitsky), 2 ♀ (ZMMU); FIT, 29.VI–12.VIII.2012 (N.B. Nikitsky), 1 ♂ (ZMMU); environs of Chernaya Railway Station, FIT, 1.VI–6.VII.2002, 5 specimens; 2.V–6.VI.2010, 1 ♀; 6.VI–16.VII.2010, 1 ♂; 8.V–15.VI.2011, 1 ♀; 14.VI–22.VII.2012, 1 ♂ (ZMMU) (all, N.B. Nikitsky); environs of Alpat'evoye Railway Station, 30.IV–5.VI.2012, pitfall trap, (N.B. Nikitsky), 1 ♀ (ZMMU). Odintsovskii District, environs of Karinskoe Vill., Zvenigorod Biological Research Station of Moscow State University, right bank of Moskva River, floodplain meadow, swept, 2.VII.2008 (T. Maslova), 1 ♂ (ZMMU). Serebryano-Prudskii District: environs of Lishnyagi Vill., FIT on spruce, 23.IV–2.VI.2005 (N.B. Nikitsky), 1 ♀ (ZMMU); environs of Kurebino Vill., FIT, 21.IV–27.V.2010 (N.B. Nikitsky), 1 ♀ (ZMMU); environs of Stolbovka Vill., FIT, 27.IV–3.VI.2011 (N.B. Nikitsky), 1 ♂ (ZMMU).

Biology. For Central Europe, it is reported as a stenotopic thermophilic species more frequently occurring in dry biotopes and on steppefied areas or wastelands (Koch, 1989). In Moscow Province, it also occurs in rather light deciduous forests and in open forests, mainly on grasses. The insects are coccidophagous and probably aphidophagous. The species is rather rare.

Distribution. Russia: the European part; Europe.

Hyperaspis erythrocephala (Fabricius, 1787)

Material (ZMMU). Serebryano-Prudskii District: environs of Lishnyagi Vill.: 8.VI.2004 (V.B. Semenov), 1 ♀; FIT on oak, 7.V–8.VI.2004 (N.B. Nikit-

sky), 1 ♀; pitfall trap, 21.IV–27.V.2010 (N.B. Nikitsky), 1 ♀; environs of Petrovo Vill., FIT on oak, 26.IV–1.VI.2007 (N.B. Nikitsky), 1 ♀.

Biology. For Central Europe, it is reported as a stenotopic thermophilic species, occurring in meadows and steppes (Koch, 1989) on gramineans, and also, according to our observation, at the edges of deciduous (more frequently broadleaf) forests and in bushes. The insects feed on *Pulvinaria* and other coccids (Dyadechko, 1954). In Moscow Province, this species was recorded only from the extreme south in Serebryano-Prudskii District.

Distribution. Russia: the middle zone and the south of the European part, the Caucasus, Siberia; Ukraine, the Transcaucasia, Kazakhstan; Central Europe, Mongolia, China, North Korea.

Hyperaspis reppensis (Herbst, 1783) (Fig. 26)

Material. Solnechnogorskii District, Chashnikovo Vill., 1958 (S.V. Sharova), 1 ♀ (MPSU). Taldomskii District, environs of Okoemovo Vill., FIT, 1.V–14.VI.2003 (N.B. Nikitsky), 1 ♀ (ZMMU). Lkhovitskii District, environs of Beloomut Vill., 26.IV–31.V.2008, FIT on old oak (N.B. Nikitsky), 1 ♀ (ZMMU); FIT, 26.VIII–8.X.2009 (N.B. Nikitsky), 1 ♀ (ZMMU). Orekhovo-Zuevskii District, environs of Filippovo Vill., FIT on spruce, 21.V–25.VI.2009 (N.B. Nikitsky), 1 ♀ (ZMMU). Ozerskii District, environs of Emel'yanovka Vill., pitfall trap, 4.VII–18.VIII.2010 (N.B. Nikitsky), 1 ♀ (ZMMU). Serpukhovskii District, environs of Nikiforovo Vill., FIT, 29.IV–3.VI.2010 (N.B. Nikitsky), 1 ♀ (ZMMU).

Biology. For Central Europe, it is reported as a stenotopic thermophilic species mainly inhabiting the grass layer, an aphidophage (Koch, 1989). It was found in dry and slightly humidified biotopes, at sunny forest edges, in sandy quarries, on dry pastures, and in marshes dominated by *Molinia* and *Eriophorum*. The species mainly occurs on grasses and also on bushes, including the flowering *Sarothamnus* (Burakowski et al., 1986; Koch, 1989). In the European part of Russia, it was most frequently found at the edges of deciduous and mixed forests and on bushes in open biotopes, less frequently, in steppes on gramineans. The insects feed on *Pulvinaria* and other coccids (Dyadechko, 1954); in Central Europe, it also feeds on aphids (Koch, 1989). In Moscow Province, the species is rather rare.

Distribution. Russia: the European part, the Caucasus, Siberia; Belarus, Ukraine, Moldova, Kazakhstan; Europe, North Africa.

Subfamily **CHILOCORINAE** Mulsant, 1846

Genus *Platynaspis* Redtenbacher, 1843

Platynaspis luteorubra (Goeze, 1777) (Fig. 27)

Lindeman, 1871; Melgunov, 1892; Shcherbakov, 1905.

This species is widely distributed in Moscow Province.

Biology. For Central Europe, it is reported as a stenotopic thermophilic species, an inhabitant of the grass layer and trees, an aphidophage (Koch, 1989) (in particular, feeding on *Dactynotus sonchi* was recorded: Burakowski et al., 1986). It occurs in warm biotopes (especially, on slopes), on dry areas with grasses and in steppeified biotopes, on dunes and sandy riverside areas, in dry ruderal biotopes, in dry meadows, at forest edges, in pastures, in fruit gardens (Burakowski et al., 1986; Koch, 1989), in deciduous forests, more frequently on glades, in light forests and in forest-steppes. The species was found on grasses and bushes, under flakes of bark of willows, poplars, and fruit trees, and also on the wormwood and on *Hordeum*, occasionally in rotten leaves, under moss and large roots. The species is myrmecophilous (Völkl, 1995; Dekoninck et al., 2004). This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia; Belarus, Ukraine, Moldova, the Transcaucasia, Kazakhstan, Middle Asia; Europe, North Africa, Western Asia, Afghanistan, Mongolia, Pakistan (Tyumaseva and Guskova, 2008).

Genus *Exochomus* Redtenbacher, 1843

Exochomus quadripustulatus (Linnaeus, 1758)
(Fig. 28)

Lindeman, 1871; Melgunov, 1892; Plavilshchikov, 1913.

This species is widely distributed in Moscow Province.

Biology. This is a eurytopic, usually forest aphidophagous and coccidophagous dendrobiont (Burakowski et al., 1986; Koch, 1989). It occurs in open forests, most frequently in pine forests, but also in mixed forests, gardens, and parks, occasionally in

marshes. The species was found on coniferous trees, more frequently on the pine, but also on the hawthorn, maple, linden, buckthorn (*Rhamnus*), birch, willow, and some others, occasionally in litter and on brushwood. The beetles overwinter in litter, among mosses, and under peeled-off bark. This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, Moldova, the Transcaucasia, Kazakhstan; Europe, North Africa, Cyprus, Western Asia, Mongolia, North America (introduced to the USA).

Genus *Parexochomus* Barovsky, 1922

Parexochomus nigromaculatus (Goeze, 1777)
(= *flavipes* auct. nec Thunberg, 1781) (Fig. 29)

Material. Moscow: VII.1958 (S.V. Sharova), 1 ♂ (MPSU); Lyuberetskii District, Ukhtomskaya Railway Station, 30.VI.1924 (S.V. Nikulin), 1 ♀ (ZMMU).

Biology. This is a stenotopic xerophilous species mainly inhabiting trees, aphidophagous and coccidophagous. In Central Europe, it was found on wastelands, in pine forests on the sandy soil, and in low moors, less frequently, on warm slopes and in stone quarries (Koch, 1989). The species occurs in steppes on herbs and also at the edges of deciduous forests on trees and bushes (Iablokoff-Khinzorian, 1983). In Central Europe, it was recorded from *Calluna*, *Erica*, and *Sarothamnus*, less frequently, from the pine trees and willows (Koch, 1989). The insects feed on scales and aphids. In Moscow Province, this species is rare.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Ukraine, the Transcaucasia, Kazakhstan, Middle Asia; Europe, Cyprus, Western Asia, Afghanistan, Mongolia, China, Pakistan (Bielawski, 1984).

Genus *Chilocorus* Leach in Brewster, 1815

Chilocorus bipustulatus (Linnaeus, 1758) (Fig. 30)

Dwigubsky, 1802; Melgunov, 1892.

Material (ZMMU). Moscow, Izmailovskii Park, 16.XII.1958 (D. Pupavkin), 1 ♂. Odintsovskii District, Nikolina Gora Vill., 26.VIII.1934 (S.V. Nikulin), 1 ♀. Solnechnogorskii District, Chashnikovo Vill., 22.VI.1958 (S.V. Sharova), 1 ♂. Lyuberetskii District, environs of Kraskovo Railway Station, 10.VI.1984 (V.V. Belov), 1 ♀. Likhovitskii District, environs of Alpat'evoye Railway Station, 28.IV.2006 (N.B. Nikit-

sky), 1 ♂. Serebryano-Prudskii District, environs of Petrovo Vill., 5.V.2006 (V.V. Yanushev), 1 ♀. Orekhovo-Zuevskii District, environs of Topolinyi Vill. (A. Ponomarev), 2 specimens.

Biology. This is a eurytopic species, an aphidophagous and coccidophagous inhabitant of the grass layer and trees (Koch, 1989). In Central Europe, it more frequently occurs at forest edges, in fruit gardens, pine forests, and stone quarries (Koch, 1989). It was found on grasses and bushes, frequently on heath lands, also under flakes of bark on pines and fruit trees, less frequently, of other deciduous trees, occasionally in leaf litter and in moss (Burakowski et al., 1986; Koch, 1989). The insects feed on aphids and scales. In France, it is considered a useful species in the citrus orchards. In Moscow Province it is a rare species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, Moldova, the Transcaucasia, Kazakhstan, Middle Asia; Europe, North Africa, Cyprus, Western Asia, Afghanistan, Mongolia, China, North America, Tropical Africa.

Chilocorus renipustulatus (L.G. Scriba, 1790)

Lindeman, 1871; Melgunov, 1892; Plavilshchikov, 1913; Palenko et al., 2004.

In our opinion, the record of *Ch. similis* (Rossi, 1790), endemic to Italy, made for Moscow Gubernia and based on one specimen collected from a fruit garden in Mikhailovskoe Vill. of Podolskii Uezd and identified by E. Reitter (Mosolov, 1902; Zolotarev, 1902) should also be referred to *Ch. renipustulatus*.

This species is widely distributed in Moscow Province.

Biology. For Central Europe, it is reported as a hygrophilous species frequently inhabiting trees, coccidophagous and aphidophagous (Burakowski et al., 1986; Koch, 1989). It more frequently occurs in wet deciduous forests and parks, on the banks of streams and rivers, at wet forest edges, and in marshes (Koch, 1989), also in kitchen gardens. It occurs on deciduous trees, most frequently on the alder, willow, poplar, birch, ash-tree, and also on coniferous trees, more frequently on the pine (Koch, 1989), occasionally in leaf litter. This is a common species.

Distribution. Russia: the European part, the Caucasus, Siberia, the Far East; Belarus, Ukraine, the Transcaucasia; Europe.

The ladybird fauna of Moscow Province seems to be thoroughly studied and rather species-rich due to a great biotopical diversity of this territory situated in the area of contact of two natural zones. In total, 60 species are reliably recorded by us, among which 16 are recorded for this territory for the first time in the present paper. *Scymnus doriae* is recorded for the first time for the European part of Russia; *Tytthaspis gebleri*, also recorded for Moscow Province for the first time, is unknown in Central Europe. The ladybird fauna of Moscow Province comprises species with 18 types of the range. Though the widely distributed species quite frequently transferred far beyond their natural ranges dominate the fauna, it also includes species known only from Europe, for example, *Scymnus ater*, *S. femoralis*, and *Hyperaspis concolor*.

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