

The first record of *Cepaea vindobonensis* (Pfeiffer, 1828) (Stylommatophora: Helicidae) in the central part of European Russia

ROMAN EGOROV

Chkalova str. 5-32, RU-141732 Lobnya, Moscow Region, Russia, e-mail: colus2004@yandex.ru

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I present a report of the European species *Cepaea vindobonensis* in the Moscow region of Russia. This is the first known population of this species in the central part of European Russia. Possible methods of dispersal and introduction are discussed, and comparisons are made with the introduction of other Helicidae species.

Key words: distribution, introduced species, Helicidae, Moscow

Introduction

The study of terrestrial malacofauna of Moscow and the Moscow region has intensified in the past 30 years. Since 1982, the inventory of land snails in the region has increased dramatically, partly due to introduced species. SCHILEYKO (1982) noted four introduced species which form stable populations within the Moscow region: *Boettgerilla pallens* Simroth, 1912, *Oxychilus draparnaudi* (Beck, 1837), *Arianta arbustorum* (Linnaeus, 1758), and *Helix pomatia* (Linnaeus, 1758). The latest survey of the regional malacofauna (TAPPERT 2009) confirmed these, and other introduced species were added: *Oxychilus alliarius* (Miller, 1822), *Deroceras caucasicum* (Simroth, 1901), and *Cepaea nemoralis* (Linnaeus, 1758). Since 2010, other introduced species *Arion vulgaris* Moquin-Tandon, 1855 has been noted to have formed stable population. This study report *Cepaea vindobonensis* (C. Pfeiffer, 1828) from the Moscow region.

Cepaea vindobonensis (C. Pfeiffer, 1828) is spread widely in southern and central to eastern Europe; know from Italy and Moldova to Austria, the Czech Republic, Slovakia, Poland and Ukraine (KERNEY & CAMERON 1979, STAIKOU 1998, WIKTOR 2004, SVERLOVA & KIRPAN 2004, MIERZWA 2009). The natural population in Germany is extinct, although there is an introduced population in Bayern (NEUBERT 2011). The species has also been introduced in Latvia (STALAŽS et al. 2008).

Native and relict populations of *C. vindobonensis* live in steppe and forest-steppe areas of the south of European Russia (Orel and Belgorod regions, SNEGİN 2005), steppe Crimea, and northern Caucasus (Krasnodarskij Kraj and Daghestan, KURTAEV et al. 2012). In the south of the Central Russian Upland the species is confined solely to relict communities of the pre-glacial and glacial periods, such as the *Pinus sylvestris* var. *cretacea* forests and upland oak woods. It has been noted in the Oskol River valley (Stenki-Izgorya reserve), on the left bank of the Nezhegol

River, in the Vorskla River valley, in the Ostrasevy Yary protected area, and around the Solokha settlement (SNEGİN 2005). The further spread of *C. vindobonensis* may be due to accidental dispersal by humans. The species has been introduced in the Penza and Tambov regions, where it forms stable populations (STOIKO & BULAVKINA 2010). According to unconfirmed reports, it is also found to the South of St. Petersburg, near the Izhorskie hills.

Material examined

The first live adult individual of *C. vindobonensis* in the Moscow region was found in 2013, near the playground in the city park of Lobnya town (Fig. 1). The park is located in the central part of Lobnya, between the Bukino and Moskvich microdistrict building estates. The snail was active, and was found at 10:15 on May 13, in the grass near the asphalt path (Fig. 2). The air temperature was 22 °C. The next day one empty adult shell was found, about 100 m north of the initial discovery.

A second live specimen was found on September 5, 2013, in the Bukino microdistrict on the lawn on the left side of Bukinskoe Shosse Street (towards the Depovskii microdistrict building estate), between the car repair shop and the narrow gauge railway. This subadult specimen was collected on moss among grass, at 08:27, after raining. The air temperature was 8 °C and it was cloudy. The locality was 1.7 km from the initial discovery.

The search for *C. vindobonensis* continued in April/May 2014. The area adjacent to the location of the initial discovery was searched, revealing a large population live specimens, both adults and young. Empty shells of the species were also seen. This population is in a vacant lot near the town industrial area, in the grass among bushes along the concrete fence (Fig. 3, 4). Because of the mass quantity both living and dead snails, this location can be considered as the center of distribution of *C. vindobonensis* in Lobnya.

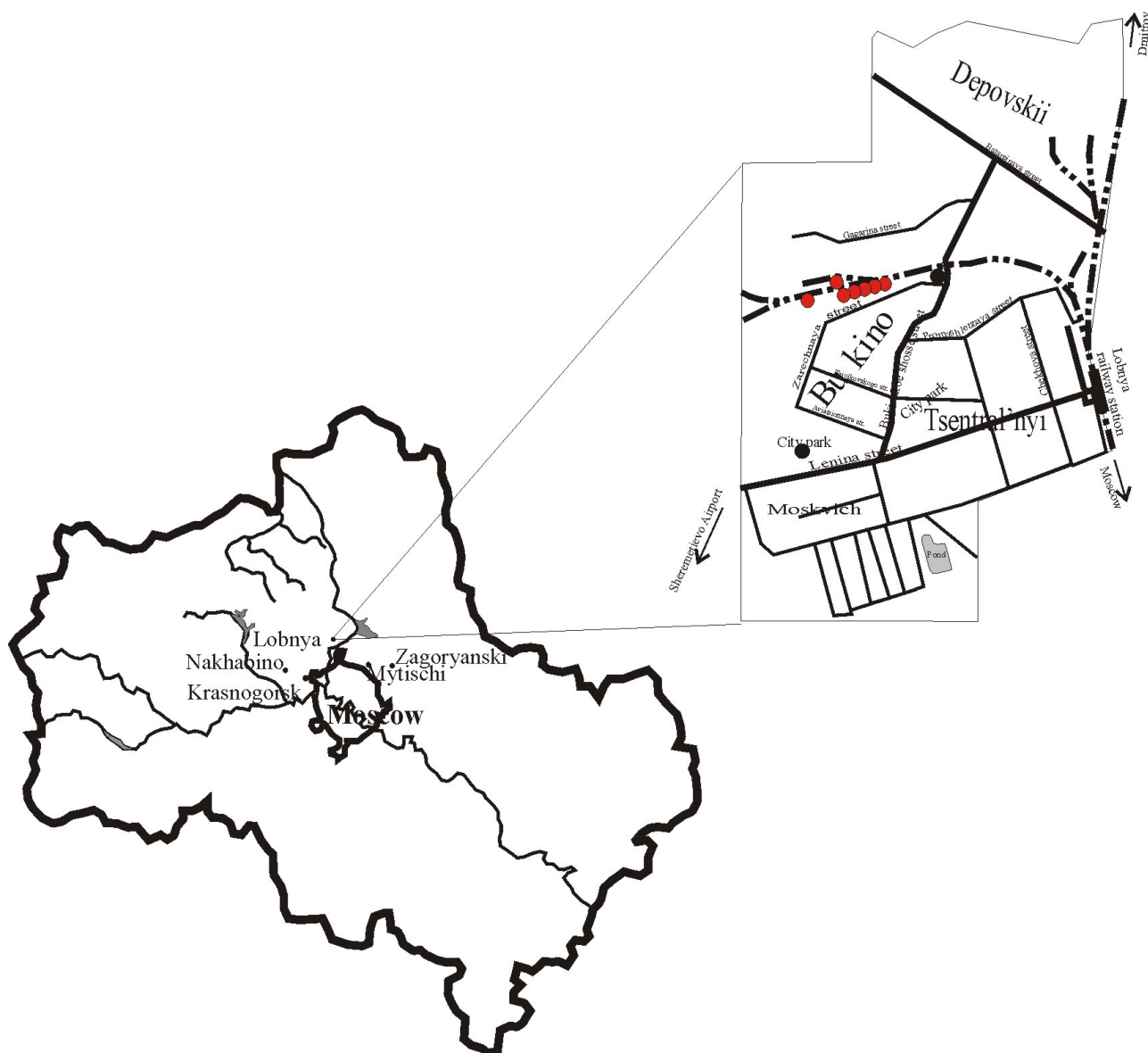


Fig. 1. The position of Lobnya in the Moscow region and the two collecting locations for *Cepaea vindobonensis* in Lobnya: the first findings in 2013 (black circles) and in April–May 2014 (red circles).

Discussion

These findings are supported by anecdotal accounts. According to local residents, *C. vindobonensis* is found in the central and western parts of Lobnya. In the last 2–3 years they have occasionally been found under bushes and in domestic waste. A. Matalin has found similar individuals near the Nekrasovskaya railway platform (Troitse-Sel'tso village, ca 10 km north of Lobnya; personal communication).

Cepaea vindobonensis is easily distinguishable from *C. nemoralis*, another introduced species. *Cepaea nemoralis* was first found in the Moscow region in 1986, 30 km northeast of Moscow (between the Zagoryanskiy and Valentinovka settlements; Tschelkovo district), by A. Zubarev (EGOROV 2008). The history of that colony is known. A local resident had received a few dozen of these bright-colored snails from East Berlin in mid-1985, and released them in a garden. The snails acclimatised, and numerous generations followed. Subsequently, *C. nemoralis* was recorded northwest of Moscow, in the

Nakhbino settlement (Krasnogorsk district), where they now form a massive colony (SVERLOVA 2007). This species adapted successfully to the climatic conditions of central Russia, which are more 'continental' than in the natural habitat of *C. nemoralis* (no further east than Hungary, the Czech Republic, Poland, Latvia and Eastern Prussia). Given this precedent, the discovery of an isolated stable population of *C. vindobonensis* in the Moscow region is not surprising.

There are also parallels between the introduction of *C. vindobonensis* and the introduction of *Arianta arbustorum*. The latter was first found in 1982 in Valentinovka (Tschelkovo district), in high numbers (SCHILEYKO 1982). Subsequently, *A. arbustorum* became widely spread in the parks (Izmailovo, Botanicheskiy Sad, park of Timiryazev's Agricultural Academy) and the nearby suburbs of Moscow, which now have small but stable populations. All of the studied colonies were founded by relatively small numbers of individuals which were originally imported, probably on garden plants.

KHOKHUTKIN (1984) suggested that a fertilised individual



Fig. 2. The first discovered living specimen of *C. vindobonensis* from the Moscow region; collected in Lobnya, in the park between the Bukino and Moskvich microdistricts; May 13, 2013 at 10:15, on grass; temperature 22 °C.

(or a few individuals) of *Fruticicola fruticum* can form a new colony within 1–2 years, if conditions are favorable. This may also be true for *Cepaea*, as the example of *C. nemoralis* suggests (SVERLOVA 2007). It is also possible that a population could be introduced by snail eggs in soil, rather than by fertilised individuals. The source of the *C. vindobonensis* population in Lobnya could be ornamental shrubs, planted along the park paths and roadsides. These are the typical methods of land snail introduction (LIKHAREV 1965), but the “children factor” is a third possibility. For instance, the spread of *Cepaea nemoralis* in the Moscow region was aided by children, attracted by the brightly colored shells. They collected the snails, played with them, and transferred them relatively large distances. The snails were sometimes kept in homes and then “thrown out” when children tired of them (SVERLOVA 2002). Snails may therefore appear in unexpected places – on streets without vegetation, on lawns, and in yards and house porches. Most of these animals die of course, but some individuals may find suitable environments and form new colonies. Given the attractive pattern of *C. vindobonensis*, dispersal by children may have played a role in establishing the Lobnya population. Amateur naturalists may also cause dispersal of ‘exotic’ molluscs, if they keep snails in terrariums. Surplus snails are sometimes released into the environment. The number of amateur naturalists may be showing an upward trend (FLINT et al. 2002).

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Fig. 3. The location of the mass population of *C. vindobonensis* in Lobnya, near the industrial zone.

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Fig. 4. Live specimen of *C. vindobonensis* from Lobnya, near the industrial zone. Collected on May 22, 2014, between 6:15 and 7:05, on grass; temperature 18 °C.

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