

Terrestrial mollusca on the Kuril Islands: previous records and problems for study

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Literature data on the Kuril Archipelago terrestrial malacofauna are reviewed. Records of land snails occurrences on the Kuril Islands compiled from literature are listed. The compiled list of mollusc species includes 44 species in 22 genera and 15 families. The main taxonomic problems needing attention are emphasized.

Наземные моллюски Курильских островов: предварительные итоги и проблемы исследования

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Дан краткий критический обзор литературы, содержащей данные о нахождении наземных моллюсков на Курильских островах. На основании этого обзора составлен видовой список наземной малакофауны с указанием островов-местонахождений. Список насчитывает 44 вида, принадлежащих 22 родам и 15 семействам наземных легочных и жаберных моллюсков. Определены основные таксономические проблемы, которые предстоит решить в ходе дальнейшего изучения наземной малакофауны Курильского архипелага и прилегающих территорий.

INTRODUCTION

The Kuril Island Archipelago, forming an arc between the Kamchatka Peninsula and Hokkaido Island in Far Eastern Asia, is difficult to reach from the mainland and consequently has been rarely studied by scientists. The islands are sparsely populated by humans at least in part because the harsh weather includes heavy fog, rain, wind, and snow, and the volcanic origin of many of the islands

has created rugged topography with steep, nearly inaccessible shores. As a result of this isolation, the biota has existed largely undisturbed, and contains relatively few species introduced by humans.

Terrestrial molluscs on the remote Kuril Islands are some of the least studied molluscs in Far Eastern Asia. There are no literature records on the molluscan fauna for most of the islands. In contrast to the better-known Shikotan, Iturup, and Kunashir Islands in the southern part of the island chain, the smaller and more northern islands are practically unstudied malacologically. Consequently, there is a need for coordinated study of the terrestrial molluscs on all parts of the Kuril Island Archipelago.

The International Kuril Island Project (IKIP) has been an international effort, funded by the U.S. National Science Foundation, to survey the biota of the Kuril Islands intensively, to promote study of the organisms living there. As part of this international effort to improve knowledge of Kuril Island biota we are conducting an in-depth study of the land molluscs on the Kuril Islands. In this paper, we compile previous literature records of terrestrial molluscs from the Kuril Islands, we summarize some new data and we identify taxonomic problems needing further study.

LITERATURE REVIEW

Study of the Kuril Islands molluscs started at the beginning of this century by H. Pilsbry and S. Hirase [1903]. They revealed in Japan American genus *Pristiloma* Ancey and described new species *P. japonica* Pilsbry et Hirase, occurring on the Kuril Islands and Hokkaido. In 1904, these famous malacologists, in their works on Japanese molluscs, described two new species from Kunashir Island: *Bradybaena chishimana* (Pilsbry et Hirase) (as *Eulota* Hartman) [Pilsbry, Hirase, 1904a] and *Striatura chishimana* (Pilsbry et Hirase) (as *Zonitoides* Baker) [Pilsbry, Hirase, 1904b]. In 1927, Pilsbry described *Bradybaena urupensis* (Kuroda) (as *Eulota*) from Urup Island [Pilsbry, 1927]. Later Kuroda [1936] described the new subspecies *B. chishimana sasamorii* (Kuroda) (as *Fruticicola* Held) from Iturup Island. In the northern Kuril Islands nine species were recorded by T. Kuroda and K. Koba [1933]. For the southern Kurils, a list of species was reported from Iturup and Shikotan Islands by I.M. Likharev [1957]. He listed 20 species in 15 genera in 11 families from those islands. Later, using data obtained from IKIP expeditions, 32 species were listed for Kunashir Islands only [Prozorova, 1999].

The most interesting record reported by I.M. Likharev [1957] was *Hemipoma hakodadiense* (Hart.) from Iturup Island. Previously, the furthest north

known occurrence of this family was *Hemipoma sadoense* (Pilsbry et Hirase) on Sado Island in Japan [Pilsbry, Hirase, 1903]. During the second expedition of the IKIP we found this species on the Urup Island, which is the most northern occurrence in the eastern hemisphere of the tropical family Helicinidae.

In 1952 I.M. Likharev and Rammel'meier described *Bradybaena strelkovi* (Likharev et Rammel'meier) (as *Eulota*) from southern Sakhalin, and A.A. Schileyko [1978] added the record of this species to the fauna of the Kuril Islands. During IKIP, this species was found on the Kunashir Island [Prozorova, 1999]. L.A. Prozorova [2000] also reported another species of *Bradybaena* from the Kunashir, *B. duensis* (Westerlund), which was described from southern Sakhalin.

In his revision of the superfamily Helicoidea, A.A. Schileyko [1978] described the new species *Bradybaena vulcanica* A.A. Schileyko from Kunashir. During IKIP, we found that the species also inhabits Zelyeni Island, the largest island of the Habomai group [Prozorova, 2000]. The two species, *B. chishimana* and *B. urupensis*, were considered by A.A. Schileyko [1978] to be synonyms of *B. weyrichii bocageana* Crosse, occurring in the Kuril Islands and northern Hokkaido. According to A.A. Schileyko [1978], the nominative subspecies *B. weyrichii weyrichii* (Schrenck) inhabits Sakhalin only. In all, A.A. Schileyko [1978] recorded three species of Bradybaenidae on the Kuril Islands. We report four species of Bradybaenidae from the Kuril Islands.

When A.A. Schileyko [1984] revised suborder Pupillina, he added one additional species of *Vertigo* Muller to the Kuril Islands species list of Likharev: *V. japonica* (Pilsbry et Hirase), and he described two new species, *V. circumlabiata* Schileyko, and *V. microsphaera* Schileyko. A second slug species was added to the faunal list in 1980 by I.M. Likharev and A. Wiktor: *Deroceas altaicum* (Simroth). A.A. Schileyko and I.M. Likharev [1986], working in the family Succineidae, transferred *Succinea lyrata* (Gould), which had been described from the Okinawa Islands, to the genus *Novisuccinea* Pilsbry and reported it from Kunashir. The most recent information for the family Cochlicopidae is from Ya.I. Starobogatov [1996]. Using the comparative method, he found that the southern Kuril Islands are inhabited not by *Cochlicopa lubrica* (Mull.), but by two new species endemic to the southern Kurils – *C. shikotanica* Star. and *C. kurilensis* Star. Two species, *C. kurenkovi* Star. and *C. kamchatica* Star., described from Kamchatka Peninsula were found on the northern Kuril Islands during IKIP expeditions [Prozorova, 2000]. Some information on the Kuril terrestrial malacofauna is included also in Japanese malacological catalogues [Kuroda, 1963; Higo, Goto, 1993]. The first new data obtained from IKIP expeditions are reported in three regional Russian publications [Prozorova, 1998, 1999, 2000]. These papers include the first records on the Kurils of the genera *Arion* Ferussac,

Vallonia Risso, and *Pupilla* Turton. Below is a table summarizing the species and the islands where they have been reported to occur. We compiled the table from the literature cited above.

RECORDS OF TERRESTRIAL MOLLUSC OCCURRENCES ON THE KURIL ISLANDS COMPILED FROM LITERATURE

HELICINIDAE

Hemipoma hakodadiense (Hartman, 1890): Iturup [Likharev, 1957; Kuroda, 1963; Higo, Goto, 1993], Urup [Prozorova, 1998, 2000]

CARYCHIIDAE

Carychium sibiricum Westerlund, 1897: Shikotan, Iturup [Likharev, 1957]
C. sp.: Kunashir [Prozorova, 1999]

COCHLICOPIDAE [=CIONELLIDAE]

Cochlicopa lubrica (Müller, 1774): Shikotan [Likharev, 1957]; Paramushir, Atlasova [Kuroda, Koba, 1933, as *Cionella lubrica*]
C. kamchatica (Starobogatov, 1996): northern islands [Prozorova, 2000]
C. kurenkovi (Starobogatov, 1996): northern islands [Prozorova, 2000]
C. kurilensis (Starobogatov, 1996): Shikotan, Zelyeni, Kunashir, Iturup [Starobogatov, 1996; Prozorova, 1999]
C. shikotanica (Starobogatov, 1996): Shikotan, Iturup, Kunashir, Zelyeni [Starobogatov, 1996; Prozorova, 1999]

PUPILLIDAE

Pupilla sp.: southern islands [Prozorova, 1998, 1999, 2000]

VERTIGINIDAE

Columella edentula (Draparnaud, 1805): Iturup, Shikotan [Likharev, 1957]; Paramushir [Kuroda, Koba, 1933]; Kuril Islands [Likharev, Rammel'meier, 1952; Prozorova, 1999, 2000]
Vertigo modesta (Say, 1824): Shikotan, Iturup [Likharev, 1957]; Kuril Islands [Prozorova, 1999, 2000]
V. eogea Pilsbry, 1919: Paramushir, Shumshu, Atlasova [Kuroda, Koba, 1933]
V. hirasei Pilsbry, 1901: Shikotan [Likharev, 1957; Schileyko, 1984]; southern islands [Prozorova, 1999, 2000]

V. hydrophila (Reinhardt, 1877): Iturup [Likharev, 1957; Schileyko, 1984]; Kunashir [Prozorova, 1999]

V. japonica Pilsbry et Hirase, 1904: southern islands [Schileyko, 1984; Prozorova, 1999]

V. microsphaera Schileyko, 1984: Shikotan [Schileyko, 1984]; Kunashir [Prozorova, 1999]

V. circumlabiata Schileyko, 1984: Kunashir [Schileyko, 1984; Prozorova, 1999]

VALLONIIDAE

Zoogenetes harpa (Say, 1824): Shikotan, Iturup [Likharev, 1957, as *Acanthinula*]; Kunashir [Prozorova, 1999]

Vallonia excentrica Sterki, 1892: Kunashir [Prozorova, 1999]

V. kamchatica Likharev, 1963: Kunashir, Simushir [Gerber, 1996]

V. pulchella (Müller, 1774): Kunashir [Prozorova, 1999]

PUNCTIDAE

Punctum boreale (Pilsbry et Hirase, 1905): Shikotan [Likharev, 1957]

P. apertum Pilsbry et Hirase, 1904: Iturup [Likharev, 1957]; Kunashir [Prozorova, 1999]

P. pygmaeum (Draparnaud, 1801): Shikotan, Iturup [Likharev, 1957]; Kunashir [Prozorova, 1999]

P. conspectum (Bland, 1865): Kunashir [Prozorova, 1999]

DISCIDAE

Discus pauper (Gould, 1859): Shikotan, Iturup [Likharev, 1957, as *Goniodiscus ruderatus pauper*; Uminski, 1962]; Paramushir, Shumshu, Atlasova (Kuroda et Koba, 1933, as *G. pauper*); Kuril Islands [Prozorova, 1999, 2000]

ARIONIDAE

Arion sp.: Kunashir, Shikotan, Zelyeni [Prozorova, 1998, 1999, 2000]

SUCCINEIDAE

Succinea lauta Gould, 1859: Shikotan [Likharev, 1957, as *S. putris lauta*]; southern islands [Schileyko, Likharev, 1986; Gusarov, 1999; Prozorova, 1999, 2000]

Novisuccinea lyrata (Gould, 1859): Kunashir [Schileyko, Likharev, 1986; Gusarov, 1999; Prozorova, 1999]

Oxyloma sp.: Kunashir [Prozorova, 1999]

O. ajanica Schileyko et Likharev, 1986: Iturup [Gusarov, 1999]

O. retusa (Lea, 1834): Iturup [Gusarov, 1999]

HELICARIONIDAE

Euconulus fulvus (Müller, 1774): Shikotan, Iturup [Likharev, 1957]; Paramushir, Shumshu, Atlasova [Kuroda, Koba, 1933, as *Kaliella affinis* Pilsbry et Hirase]; Kuril Islands [Prozorova, 1999, 2000]

ZONITIDAE

Nesovitrea hammonis (Ström, 1765): Iturup, Shikotan [Likharev, 1957, as *Retinella Shutt.*]; Paramushir [Kuroda et Koba, 1933, as *Retinella Shutt.*]; Kuril Islands [Prozorova, 1999, 2000]

Pristiloma japonica Pilsbry et Hirase, 1903: Shikotan, Iturup [Likharev, 1957], Paramushir, Shumshu, Atlasova [Kuroda, Koba, 1933]; Kunashir [Prozorova, 1999]; Kuril Islands [Kuroda, 1963; Likharev, 1963, as *P. arcticum* (Lehnert) with *P. japonica* as synonym]

Striatura chishimana (Pilsbry et Hirase, 1904): Kunashir [Pilsbry, Hirase, 1904b, as *Zonitoides chishimanus*; Kuroda, 1963; Higo, Goto, 1993; Prozorova, 1999]

Zonitoides arboreus (Say, 1816): Kunashir [Prozorova, 1999] (introduced)

VITRINIDAE

Vitrina exilis Morelet, 1858: Iturup [Likharev, 1957]; Paramushir, Shumshu, Atlasova [Kuroda, Koba, 1933]; Kuril Islands [Kuroda, 1963; Prozorova, 2000]

AGRIOLIMACIDAE

Deroceras agreste (Linnaeus, 1758): Shikotan [Likharev, 1957, as *Agriolimax*]; Kuril Islands [Likharev, Wiktor, 1980; Prozorova 1999, 2000; Wiktor, 2000]

D. altaicum (Simroth, 1886): Kuril Islands [Likharev, Wiktor, 1980; Prozorova, 1999, 2000; Wiktor, 2000]

BRADYBAENIDAE

Bradybaena (Karaftohelix) weyrichii (Schrenck, 1967): Shikotan [Kuroda, 1936, as *Fruticicola chishimana*; Likharev, Rammel'meier, 1952, as *Eulota (Karaftohelix) weyrichii* (Schr.); Likharev, 1957, as *Eulota weyrichii*; Schileyko, 1978, as *B. weyrichii bocageana* Crosse, 1864]; Kunashir [Pilsbry, Hirase, 1904a, as *Eulota chishimana* Pilsbry et Hirase; Pilsbry, 1927, as *Eulota (Karaftohelix) chishimana*; Kuroda, 1936, as *F. chishimana*; Likharev, Rammel'meier, 1952, as *Eulota (Karaftohelix) weyrichii* (Schr.); Likharev, 1957, as *Eulota weyrichii*; Schileyko, 1978, as *B. weyrichii bocageana* Crosse, 1864; Egorov, Ivanov, 1997, as *B. bocageana chishimana* (Pilsbry et Hirase, 1904); Prozorova, 1999, as *B. weyrichii bocageana* Crosse, 1864]; Iturup [Kuroda, 1936, as *Fruticicola*

(*Karaftohelix chishimana sasamorii* n.sp.); Urup [Pilsbry, 1927, as *Eulota (Karaftohelix) urupensis* n.sp.; Kuroda, 1936, as *Fruticicola urupensis* (Pilsbry, 1927)]; Atlasova [Kuroda, Koba, 1933, as *Fruticicola urupensis* (Pilsbry, 1936)]; Kuroda, 1936, as *Fruticicola urupensis* (Pilsbry, 1936)]; southern islands [Likharev, Rammel'meier, 1952, as *Eulota weyrichii* (Schr.)]; northern islands [Kuroda, 1936, as *Fruticicola urupensis* (Pilsbry, 1936)]; Kuril Islands [Kuroda, 1963, as *Fruticicola miranda* (A. Adams); Higo, Goto, 1993, as *Karaftohelix blakeana* (Newc.); Prozorova, 2000]

B. strelkovi Likharev et Rammel'meier, 1952: Shikotan, Iturup [Likharev, Rammel'meier, 1952, as *Eulota (Karaftohelix) strelkovi* n.sp.; Likharev, 1957, as *Eulota strelkovi*; Schileyko, 1978; Egorov, Ivanov, 1997]; Kunashir [Prozorova, 1999]

B. duensis (Westerlund, 1897): Kunashir [Prozorova, 2000]

B. vulcanica Schileyko, 1978: Kunashir [Schileyko, 1978; Egorov, Ivanov, 1997; Prozorova, 1998, 1999]

DISCUSSION AND PROBLEMS FOR STUDY

The list of land snail species reported from the Kuril Islands consists of 44 species, in 22 genera and 15 families. Of the species reported on the Kuril Islands, most part (41) have been recorded from the southern islands. There are greater numbers of species reported from the southern islands in comparison with northern islands (14 species) probably because the southern islands have received more study, and also because the malacofauna of this area is indeed more diverse. Two factors that probably influence the greater diversity on the southern islands are (1) the warmer climate allows more species to exist, and (2) more species disperse from nearby cool-temperate Japan, whose fauna is rich in taxa. The many records of the large species such as *Bradybaena* suggests that larger species have received more attention. This pattern emphasizes the need for future surveys to pay particular attention to the smaller species.

Surely, the list of taxa previously reported from the Kuril Islands is not a complete list of species for the islands because the biota of the islands, including the molluscan fauna, has received little study. Two areas needing more work are (1) intensive surveys to discover other species of molluscs, especially the minute forms, occurring on the islands, and (2) systematic work to sort out which of the named species are valid and which are synonyms, and to recognize and name new species. Here we discuss some of the taxonomic problems needing attention.

The genus *Hemipoma* Wagner on the southern Kuril Islands, and the genus *Hendersonia* Wagner in northern North America are temperate-climate members of the otherwise tropical or subtropical family Helicinidae. Their occurrence in similar climates suggests the possibility that their species may be closely related, a hypothesis needing study.

As to *Carychium*, study of material from both mainland and island territories suggests that this genus may be more diverse in eastern Asia than it has been regarded. *Carychium* needs further study, especially anatomical study. One of the numerous questions is whether *Carychium boreale* should be regarded as a junior synonym of *C. sibiricum*?

Regarding *Cochlicopa*, we already cited Ya.I. Starobogatov [1996] as the most recent paper on species in the genus *Cochlicopa*. He used the comparatorial method (method, described in B.M. Logvinenko and Ya.I. Starobogatov [1971] and Kruglov and Starobogatov [1985, p. 24]) to discover two new species of *Cochlicopa* for the southern Kuril Islands and two new species from Kamchatka. In our field research we have found specimens in the southern Islands that the comparatorial method suggests are two additional new species. Further examination of the comparatorial method, such as that of I.V. Muratov [1990], and detailed research such as that of G. Armbruster [1995] could further examine the relationship of these populations of *Cochlicopa* to each other, and to study whether these several populations are indeed separate species, or if they represent intraspecific variation within a single species.

We are puzzled that the Kuril Islands have so few literature records for *Vertigo modesta*, a species that is one of the most abundant and widely distributed snails in northern areas [Pilsbry, 1948, p. 983]. Three possibilities might explain the small number of literature records: perhaps the small shell of *V. modesta* has been overlooked by previous collectors, perhaps actual *V. modesta* have been mistakenly described as new species, thus masking the broad distribution of this species on the Kuril Islands, or perhaps what is presently called *V. modesta* actually is a complex of cryptic species that have not been well recognized throughout the Northern Pacific.

The taxonomy of the genus *Vertigo* needs work, not just naming species by their differences in shell morphology as has been done in the past, but integrating soft part anatomy, shell morphology using large population sizes, biological information, and biochemical information if possible. In the mean time, we follow I.M. Likharev and E.S. Rammel'meier [1952] and A.A. Schileyko [1984] in placing both *Vertigo arctica* Wallenbaum and *V. borealis* Morelet in synonymy with *V. modesta*. Dall [1905, p. 30] also suggested that possible synonymy for *V. borealis*. *V. circumlabiata* Schileyko might be a synonym of *V. kushiroensis* Pilsbry

et Hirase from Hokkaido, but we have kept it separate for now. *Vertigo eogea* might be restricted to Hokkaido and possibly the southern Kuril Islands, so the records of *V. eogea* by T. Kuroda and K. Koba [1933] from three northern Kuril Islands might be a misidentification for *Vertigo modesta*. Future work needs to evaluate these synonymies and other taxonomic decisions, and to examine numerous populations of *Vertigo* from areas around the Northern Pacific to address whether observed differences in shell morphology represent variation within one species, multiple similar species, or both.

There are many questions in the Valloniidae, for example are whether *Vallonia patens* (Reinhardt) from Hokkaido and *V. amurensis* Sterki are synonyms, and whether *V. pulchella* inhabits the southern Islands. The species, reported to be *V. excentrica* Sterki by L.A. Prozorova [1999] might be *V. pulchellula* (Heude, 1882); the species identification needs to be verified.

As to Discidae, W.H. Dall [1905] and J.C. Bequaert and W.B. Miller [1973] remarked on the similarity of *Discus cronkhitei* (Newcomb) to the Palaearctic *D. ruderatus* (Studer) reported from Kamchatka by I.M. Likharev [1963]. W.J. Eyerdam [1939] compared *Discus cronkhitei* from Kodiak Island and *Discus* from Kamchatka. He wrote, «It may be quite justifiable to describe the northern form as a new sub-species and the one from Kamchatka as a variety, but whoever undertakes a revision of the western form of the species should have a great many specimens at hand for comparison from many localities.»

In the family Punctidae, further study of type specimens should address whether the so-called *Striatura chishimana* is a form of *Punctum*, as it seems very similar to *Punctum pygmaeum*, and whether the so-called *Punctum apertum* might be a form of *Striatura*. Regarding *Helix flocculus* Morelet, I.M. Likharev and E.S. Rammel'meier [1952] used it as a junior synonym of *Punctum pygmaeum*. The original description of 4 whorls and 2 mm diameter matches dimensions of *Punctum*, so we followed I.M. Likharev and E.S. Rammel'meier [1952].

The family Succineidae has also many taxonomic problems. The family includes several genera having similar shell morphology but distinguished from each other by internal anatomy. For all succineid species, specimens should be dissected to determine their identity. Three genera of this family have been reported on the southern Kuril Islands. Further study may show that not three, but four genera of Succineidae occur on the Kuril Islands.

Euconulus trochiformis (Montagu) might be a synonym of *E. fulvus alaskensis* Eyerdam [Eyerdam 1939, p. 63; Roth, Lindberg, 1981]. Taxonomic challenges occur also in the family Zonitidae. Some genera, for example, *Nesovitrea* Cooke, have many synonyms. Furthermore, specialists disagree on the specific content of genera, and on names of species and subspecies. The

Nesovitrea species, which are widespread on the Kuril Islands, have been referred to as *N. hammonis hammonis* [Likharev, 1957; Likharev, Rammel'meier, 1952], *N. hammonis radiata* (Pilsbry et Hirase) [Kuroda, Koba, 1933] and *N. radiatula radiata* (Pilsbry et Hirase) [Kuroda, 1963]. Also, the European genus *Oxychilus* Fitz., which was recorded on Hokkaido as *O. hokkaidensis* Pilsbry [Pilsbry, 1928; Kuroda, 1963; Higo and Goto, 1993] may be a mistaken identification. Further study may show that this species should be transferred to *Zonitoides* or to *Nipponochlamys* Habe in Helicarionidae. The relationship between *Pristiloma japonica* and *P. arctica* needs study. Likharev [1957, p. 79] noted that they may be synonyms and Likharev [1963] used *P. japonica* as a junior synonym of *P. arctica*.

The relationship between *Vitrina exilis* and *V. pellucida* (Muller) needs study. B. Roth and D.R. Lindberg [1981] used *V. pellucida* for Eurasian specimens and commented on the taxonomy of this group. A.A. Schileyko [1986] distinguished Palaearctic *V. pellucida pelucida* and *V. pellucida alaskana* Dall from North America and Komandor Islands.

Species of slugs in the genus *Deroceras* Rafinesque from the Kuril Islands need taxonomic study to determine which of the named forms are valid species, and which are synonyms. For example, I.M. Likharev and E.S. Rammel'meier [1952] considered *Deroceras varians* (A. Adams) from Sakhalin, to be a variety of *D. agreste* but Pilsbry [1902] considered it to be a full species. I.M. Likharev and E.S. Rammel'meier [1952] suggested that *D. altaicum* [as *Agriolimax altaicus*] may possibly be a subspecies of *D. agreste*. Later, I.M. Likharev and A.I. Wiktor [1980] regarded *D. agreste* and *D. altaicum* to distinguished species. Further study is needed to determine which of the species reported from Hokkaido and Kamchatka also occur on the Kuril Islands.

There are quite a few works on *Bradybaena* species occurring on the Kuril Islands, Sakhalin Island, and Hokkaido. Many different synonyms are used by malacologists for the species *B. (Karaftohelix) weyrichii*. In our opinion, further study of the species boundaries in this group should continue. Although H.A. Pilsbry [1927] and T. Kuroda [1936] used *B. urupensis* as a full species, we follow Shileyko [1978] in using it as a junior synonym of *B. weyrichii*, but whether it is a synonym needs further study. Further study should address whether *B. strelkovi* might be unicolored, unbanded form of *B. weyrichii*, and whether *B. duensis* might be a synonym of *B. weyrichii*. Some workers have used the specific name *bocageana* Crosse, 1864 and other workers have used the name *weyrichii* Schrenck, 1867 for the same species of *Bradybaena*. We note that *bocageana* was described from China, so we are considering it to be a separate species from *weyrichii*, but whether the two taxa are synonyms requires further study, and we note that *bocageana* is

the prior name. Further study should address whether *Bradybaena vulcanica* Schileyko, 1978 (the name currently used by Russian malacologists) is a synonym of *Ezohelix gainesi* (Pilsbry, 1890) (the name currently used by Japanese malacologists). *Bradybaena*, like other Kuril Island molluscan genera, needs further study, especially anatomical study.

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