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Oxyloma sarsii ***tulomica*** subsp. nov. (Gastropoda: Pulmonata: Succineidae) from the Kola Peninsula

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ABSTRACT. *Oxyloma sarsii* ***tulomica*** subsp. nov. is described from the Kola Peninsula. The subspecies differs from the nominative subspecies, described from the Northern Norway in having predominately transverse folds in the inner penis wall, different shape of the crystals inside the penis. Data on variability and biology of the subspecies are presented, some problems of taxonomy of *O. sarsii* are discussed.

Introduction

Oxyloma sarsii (Esmark in Esmark et Hoyer, 1886) in the current sense is distributed in the northern Europe and Siberia from the British Isles to the Lena River [Wiktor, 2004; Sysoev, Schileyko, 2009]. Whereas shell shape of this species is quite variable, *O. sarsii* may be identified only by proportions of parts of reproductive system and by having thin longitudinal folds in the inner part of the penis wall [Odhner, 1949; Schileyko, Likharev, 1986].

In 2008 population of molluscs belonging to Oxylominae Schileyko et Likharev, 1986 were found in the NW of the Kola Peninsula. This was the first record of the representatives of the subfamily in the Kola Peninsula despite several previous investigations [Schileyko, 1967; Kornyushin, 1986]. Majority of the specimens collected belongs to *Oxyloma sarsii* described from the Northern Norway. While the original description of *Succinea pfeifferi* var. *sarsii* is rather brief and does not contain any data on reproductive morphology [Esmark, Hoyer, 1886], anatomy of topotypic specimens was studied by Odhner [1949]. Specimens of *Oxyloma sarsii* found in the Kola Peninsula differ from the typical form of the species in some anatomical characters.

The aim of this paper is to describe a new subspecies of *Oxyloma sarsii* from the Kola Peninsula.

Materials and methods

Material was collected in northern part of the Kola Peninsula in the tidal zone of estuary of the Tuloma River in the vicinities of the Murmashi Town (68°49.6'N, 032°50.3'E) (Fig. 1A). Estuary of the Tuloma River is about 10 km long with upper border at the barrage near the Murmashi Town and extends to inflowing in the Kola Inlet near the Kola Town. The studied area is located in the northern taiga zone with relatively warm climate. The average monthly temperature above zero usually occurs from May to October, maximal mean temperature is observed in July (+12.8° C) [Yakovlev, 1972]. Snow cover on the coast of the Tuloma River is thicker than 1-1.5 meters, the coastal part of estuary of the Tuloma River covers by fast ice up to 2 meters thick. Ice and snow usually melt completely by the middle of May.

Tidal range in estuary of the Tuloma River is about 2.5-3 m. The upper part of the tidal zone is submerged for about 1-2 hours twice per day. Nonetheless the water in the studied area is fresh. The coast is abrupt, covered by birch and willow forest (Fig. 1B). The upper part of the tidal zone is stony, covered by mosses (Fig. 1C). Also flowering plants as *Filipendula ulmaria* (L.) Maxim, *Ranunculus ficaria* L., *Caltha palustris* L., *Cicuta virosa* L. and *Barbarea vulgaris* R. Br. occur.

The snails were collected on 1 of July 2008; 57 specimens were studied, 18 of them were dissected by the first author. Morphology was studied under the MBS-9 stereomicroscope. Reproductive system was photographed and then drawings were made. The scanning electron microscopy images of jaws and radulae were taken with a CamScan S2. The measurement scheme is on the Fig. 2A.

Syntypes of *Succinea pfeifferi* var. *sarsii* stored

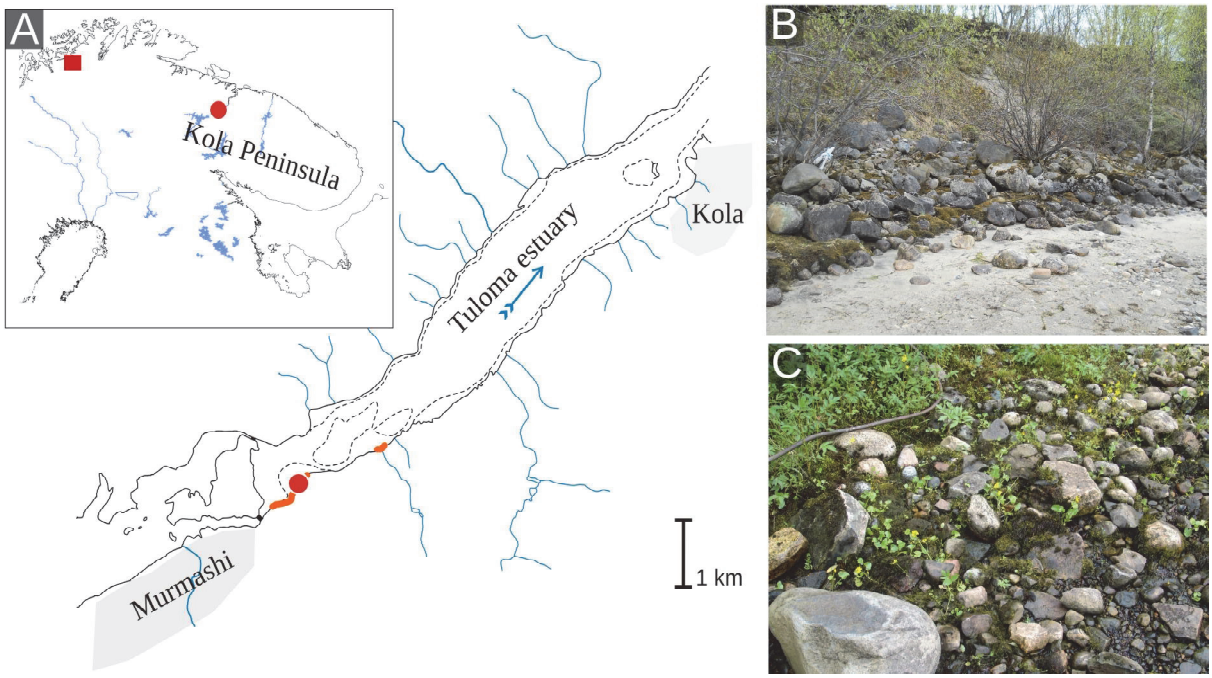

FIG. 1. Collection site of *Oxyloma sarsii* ***tulomica*** subsp. nov. **A.** Type localities of *Oxyloma sarsii* ***tulomica*** subsp. nov. (circles) and *Oxyloma sarsii sarsii* (square). Bold line indicates zone, occupied by population of *Oxyloma sarsii* ***tulomica*** subsp. nov. Dashed line marks littoral during ebb tide. **B.** Habitat of *Oxyloma sarsii* ***tulomica*** subsp. nov. near the Murmashi town, 29.052011; **C.** The same locality, 1.07.2007.

РИС. 1. Место сбора *Oxyloma sarsii* ***tulomica*** subsp. nov. **A.** Карта расположения типовых местонахождений *Oxyloma sarsii* ***tulomica*** subsp. nov. (точки) и *Oxyloma sarsii sarsii* (квадрат). Жирной линией показана зона, занятая популяцией *Oxyloma sarsii* ***tulomica*** subsp. nov. Пунктиром обозначена граница литорали во время отлива. **B.** Местообитание *Oxyloma sarsii* ***tulomica*** subsp. nov. рядом с посёлком Мурмаши, 29.05.2011; **C.** Там же, 1.07.2007.

in the University Museum of Bergen, Norway and Finnish Museum of Natural History were studied. The classification follows that of Sysoev and Schileyko [2009].

Abbreviations: a – atrium, ah – aperture height, al – aperture length, AN – accession number, app – penial appendix, aw – aperture width, dh – hermaphrodite duct, e – epiphallus, FMNH – Finnish Museum of Natural History, ga – albumen gland, gh – hermaphrodite gland, h – shell height, ov – oviduct, p – penis, pr – prostate, ps – penial sheath, ro – ocular retractor, rp – retractor of penis, sp – bursa copulatrix, spd – bursa copulatrix duct, u – uterus, v – vagina, vd – vas deferens, w – shell width, WhoNo — whorls number, ZMB – Zoological Museum of Bergen University.

Results

Succineidae Beck, 1837
Oxylominae Schileyko et Likharev, 1986
Oxyloma Westerlund, 1885

Oxyloma sarsii ***tulomica***
Schikov et Nekhaev subsp. nov.
(Figs. 2 B-G; 3 A-F; 5-6)
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Type material. Holotype (1/508-2015) shell and soft body (not dissected), h – 7.85 mm, w – 5.8 mm, ah – 5.6 mm, aw – 3.8, WhoNo – 2.25 (Fig. 2 B-G), and 5 paratypes (2/508-2015) Zoological Institute of Russian Academy of Sciences; 5 paratypes (№№ Lc-40351, Lc-40352) Zoological Museum of the Moscow University; 6 paratypes (SNSD Moll S7920 – S7925) in the Senckenberg Natural History Collections Dresden; 5 paratypes (Mollusca - ISEA/4954) in the Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Krakow, Poland; 3 paratypes (3623) in State Museum of Natural History, National Academy of Sciences of Ukraine, Lvov; 3 paratypes (IZAN GT 5116 (dry) and 5117 (wet)) in National Museum of Natural History of the National Academy of Sciences of Ukraine, Kiev; 12 paratypes in the personal collection of Eugenij Schikov; 10 paratypes in the personal collection of Ivan Nekhaev. All from the type locality, 1.07.2008.

Type locality. Kola Peninsula, vicinities of Murmashi town, upper littoral of the estuary of the Tuloma river, 68°49.6'N, 032°50.3'E.

Shell oval-pointed, thin, glossy, semitransparent, grayish-yellow (Figs. 2 B-G, 3 A-E). Embryonic shell of 1.2-1.3 whorls covered by weak dotted spiral riblets, often poorly visible (Fig. 4 A-C). Later whorls from moderately convex to convex with spiral sculpture of weak numerous lines visible under stereomicroscope at 16x and growth lines. Few colored bands probably correspond to cessation of growth in winter, strongly marked. Suture marginate. Aperture oval usually with marked angle in upper part. Mean values of shell measurements

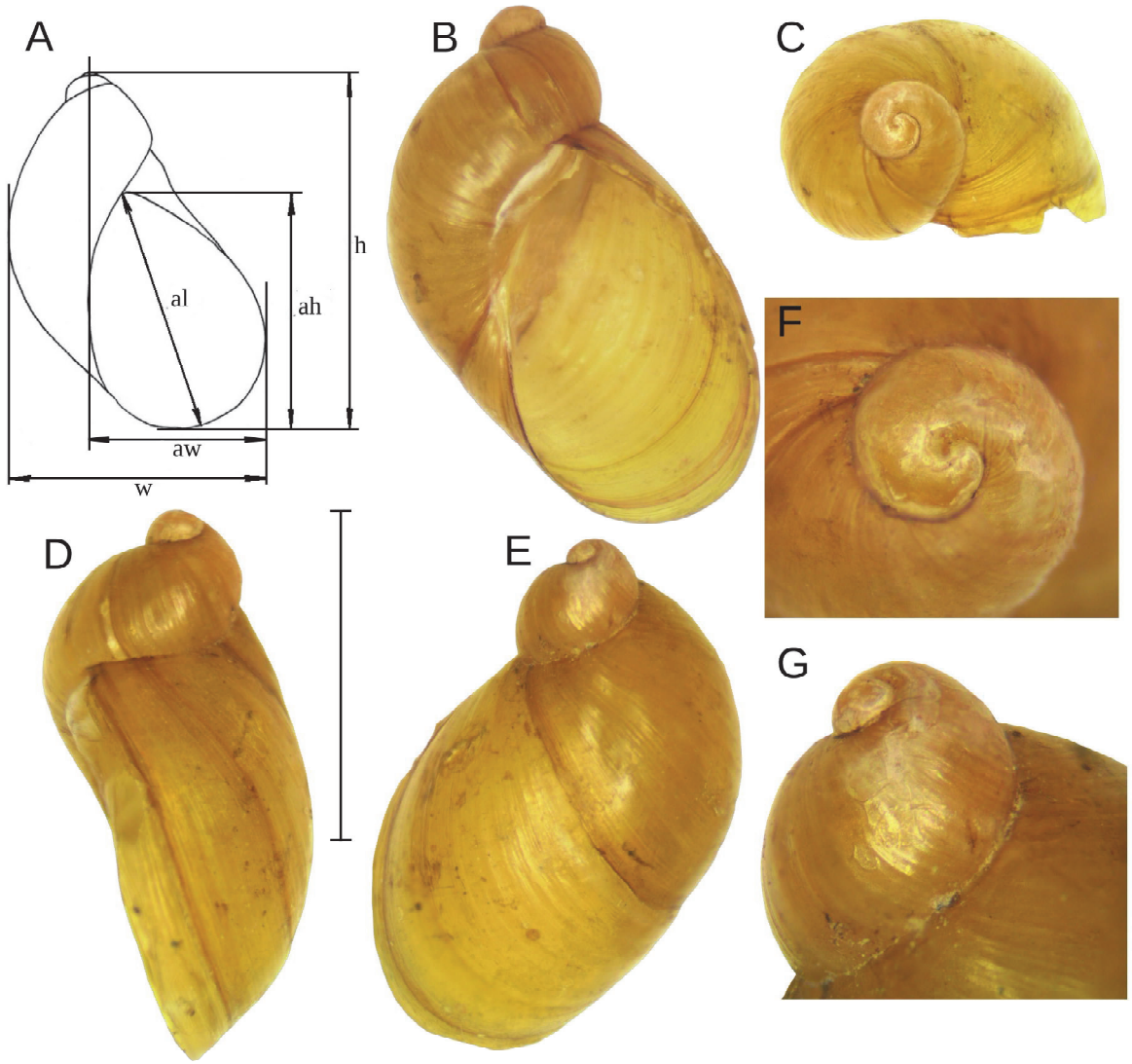

FIG. 2. Раковины *Oxyloma sarsii* ***tulomica*** subsp. nov. **A.** Measurements scheme of studied shells. **B-G.** Holotype of *Oxyloma sarsii* ***tulomica*** subsp. nov. Scale bar for **B-E** = 5 mm, **A, F, G** – not scaled.

РИС. 2. Раковины *Oxyloma sarsii* ***tulomica*** subsp. nov. **A.** Схема промеров изученных раковин. **B-G.** Голотип *Oxyloma sarsii* ***tulomica*** subsp. nov. Масштаб **B-E** = 5 мм, **A, F, G** – не масштабированы.

of 24 specimens (all in mm): h = 8.04±0.15 (6.7-9.8), w = 5.47±0.11 (4.15-6.5), ah = 5.63±0.11 (4.7-7), al = 5.71±0.11 (4.7-7), aw mm = 3.8±0.13 (3-6.1), WhoNo = 2.4±0.003 (2.2-2.75).

Animal dark grey to black. Sole tripartite (Fig. 3F), its marginal parts darkish-gray covered by numerous minute black spots, rare or absent on white or whitish-yellow central part. Borders between parts distinct even in cross section. Two snails had uniformly white sole.

Jaw. Outer edge of main plate with single rounded cusp. Surface of main plate irregularly transversely undulate with peaks corresponding to bulges at the outer edge (Fig. 4F).

Radula. Rachidian tooth usually with three denticles: prominent central and a pair of smaller marginal. Single rachidian tooth had one more smaller denticle perpendicular to others (Fig. 4D). Lateral tooth usually with two denticles, inner larger than outer. Marginal teeth with 5-7 denticles (usually 5) (Fig. 4 D,E).

Reproductive system. Hermaphroditic gland large, compact. Hermaphrodite duct coiled, strongly pigmented. Fertilization chamber located in lower part of albumen gland, poorly colored, consists of two parts: fertilization chamber and two storing tubules. Albumen gland triangular, rounded, flattened in upper part, consists of numerous small acini. Uterus strongly folded. Oviduct short, with one or two bends. Vagina elongated slowly bended with

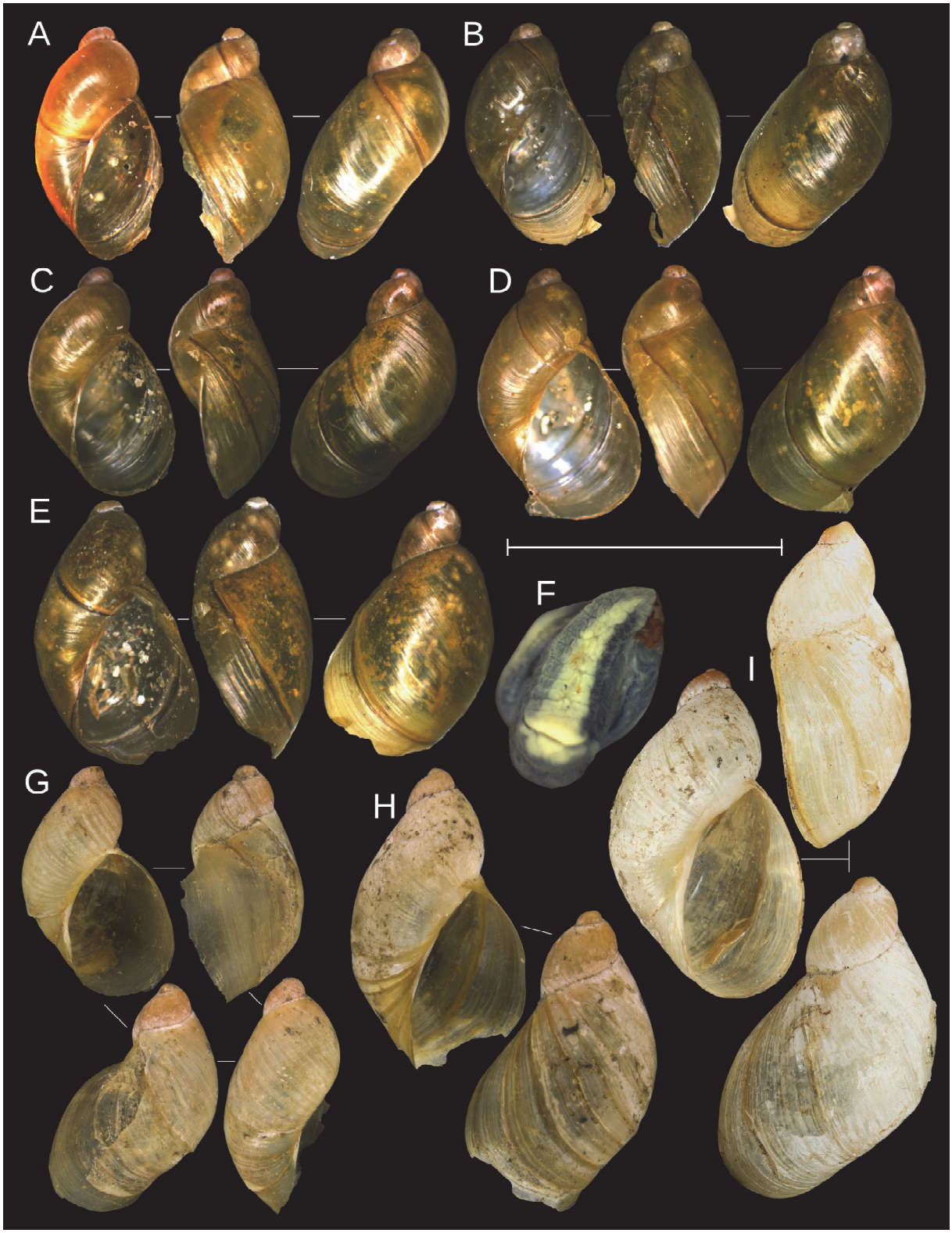

FIG. 3. Shells of *Oxyloma sarsii* ***tulomica*** and *Oxyloma sarsii sarsii.* **A-E.** Shell variation of *Oxyloma sarsii* ***tulomica*** subsp. nov., paratypes. **F.** Sole of *Oxyloma sarsii* ***tulomica*** subsp. nov. **G-I.** Syntypes of *Succinea pfeifferi* var. *sarsii.* **G, H**, ZMB 37536; **I**, FMNH 114548 (photo by Ritva Talman). Scale bar **A-E, G-I** = 10 mm, **F** – not to scale.

РИС. 3. Раковины *Oxyloma sarsii* ***tulomica*** и *Oxyloma sarsii sarsii.* **A-E.** Изменчивость раковин *Oxyloma sarsii* ***tulomica*** subsp. nov., паратипы. **F.** Подошва *Oxyloma sarsii* ***tulomica*** subsp. nov. **G-I.** Синтипы *Succinea pfeifferi* var. *sarsii.* **G, H**, ZMB 37536; **I**, FMNH 114548 (автор фото – Ritva Talman). Масштаб **A-E, G-I** = 10 mm, **F** – не масштабировано.

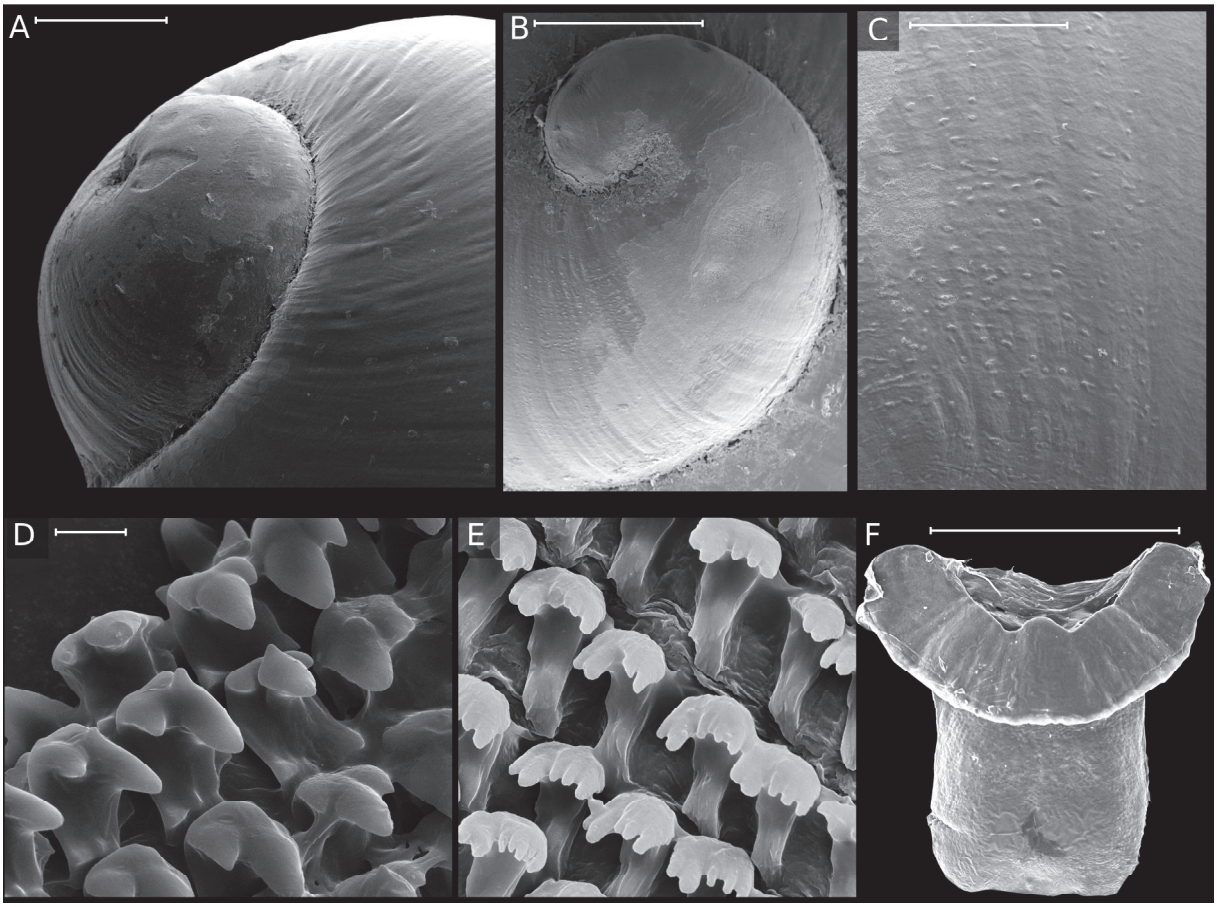

FIG. 4. Morpological details of *Oxyloma sarsii* ***tulomica*** subsp. nov. **A-C.** Protoconch **D, E.** radula **D.** Rachidian and lateral teeth; **E.** Marginal teeth. **F.** Jaw. Triangular cuttings on the cutting edge are probably caused by accidental damage. Scale bars: **A, B** = 300 мм; **C** = 150 мм. **D-E** = 10 мм, **F** = 300 мм.

РИС. 4. Детали строения *Oxyloma sarsii* ***tulomica.*** **A-C.** Протоконх. **D, E.** Радула; **D.** рахидальные и латеральные зубы; **E.** маргинальные зубы. **F.** Челюсть. Треугольные зазубрины на краях режущей пластинки вероятно вызваны случайным повреждением. Масштаб **A, B** = 300 мм; **C** = 150 мм. **D-E** = 10 мм, **F** = 300 мм.

prominent bend at the end (Figs. 5 B,G; 6 B,E,H). Inner surface of vagina with folds of different thickness (Figs. 5A; 6 A,F,G) which form irregular web of thin bended folds during expansion (Fig. 5F).

Bursa copulatrix egg-shaped. Bursa copulatrix duct opens to distal bend of vagina, its diameter either constant (Figs. 5G; 6B) or increasing distally (Figs. 5B; 6E).

Prostate gland large, elongated, flattened, abutted on uterus. Long, thin vas deferens starts from uterus. Its proximal part lies along vagina, than it firmly attached to vagina and penis by thin tissue connectives; distal part lies along penis and epiphallus. Vas deferens opens into epiphallus near retractor muscle (Figs. 5 B,G; 6 B,E,H).

Both penis and epiphallus covered by thin semitransparent pear-shaped sheath (Figs. 5D; 6B). Inner surface of penis walls covered with different, predominately transversal folds and protuberances. Epiphallus thin, tube-shaped, coiled (Figs. 6 B,I), coils firmly attached to each other by thin connectives. Epiphallus whether coiled into regular spire (Fig. 6I) or its bends lie chaotically (Fig. 5D; 6B). Distal part of epiphallus expanded before penis border (Fig. 6J).

Appendix on border between penis and epiphallus usually well developed; its cavity connected with penial cavity (Figs. 6 C,J); in case of rudimentary appendix cavity absent (Fig. 5E). One specimen lacks appendix (Fig. 5C).

Inner part of penis wall with flexuous folds of different thickness (Figs. 5C; 6 C,D). Irregularly shaped crystals occur within penial folds (Fig. 5H). Right ommatophoran retractor crossed penis and vas deferens (Fig. 5B). Atrium short.

[**Раковина** заострённо-овальная, тонкая, блестящая, полупрозрачная, серовато-жёлтая (Рис. 2 B-G, 3 A-E). Эмбриональная раковина состоит из 1,2-1,3 оборотов, покрытых тонкими прерывистыми спиральными рёбрыш-

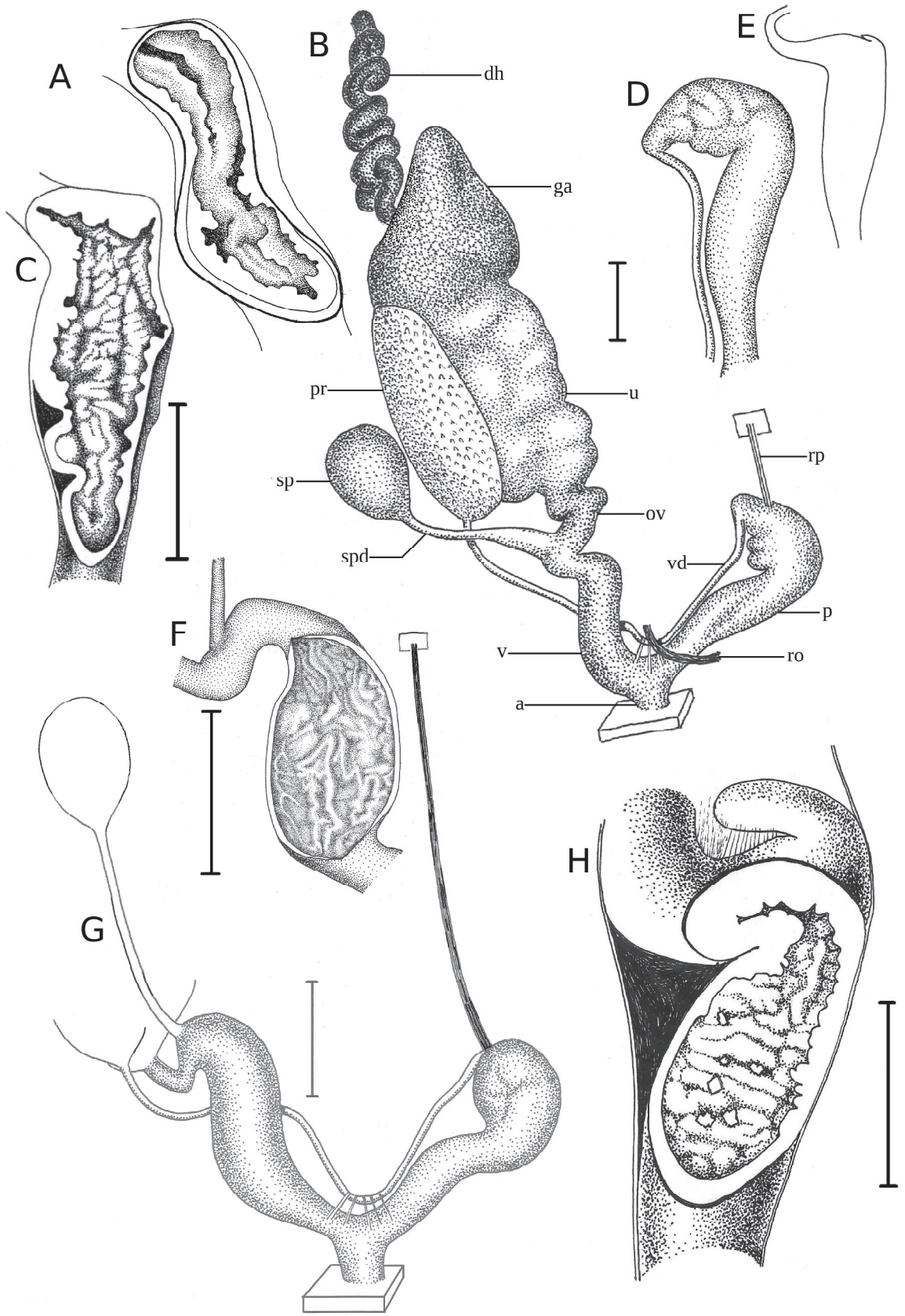

FIG. 5. Genitals of *Oxyloma sarsii* ***tulomica*** subsp. nov. **A.** Longitudinal section of vagina, paratype. **B.** General view of genitalia (same individual as in Fig. 5A). **C.** Longitudinal section of penis (same individual as in Fig. 5A). **D.** Bends of epiphallus (same individual as in Fig. 5A). **E.** Rudimentary penial appendix (same individual as in Fig. 5A). **F.** Vagina with thin walls, paratype. **G.** Distal part of the genitalia (same individual as in Fig. 5F). **H.** The crystals inside the penis, paratype. Scale bars **B, C, F, H** = 1 mm, **A, D, E, G** not scaled.

ками, часто плохо различимыми (Рис. 4 A-C). Обороты взрослой раковины от умеренно выпуклых до выпуклых со скульптурой из очень тонких многочисленных спиральных линий, видимых на стереомикроскопе под увеличение 16х и линий роста. Сильно выражено несколько цветных линий, вероятно соответствующих остановкам роста в зимний период. Средние значения промеров раковин для 24 экземпляров (в мм): h = 8,04±0,15 (6,7-9,8), w = 5,47±0,11 (4,15-6,5), ah = 5.63±0,11 (4,7-7), al = 5,71±0,11 (4,7-7), aw mm = 3,8±0,13 (3-6,1), WhoNo = 2,4±0,003 (2,2-2,75).

Тело от тёмно-серого до чёрного. Подошва состоит из трёх долей, её краевые части тёмно-серые, покрыты многочисленными мелкими чёрными точками, которые редки или отсутствуют на белой или светло-жёлтой центральной части (Рис. 3F). Границы долей различимы даже на продольном срезе. Два изученных моллюска имели однородно окрашенную белую подошву.

Челюсть. Внешний край основной пластинки с единственным закруглённым выступом. Поверхность основной пластинки волниста, с выступами, соответствующими бугоркам на внешнем режущем крае (Рис. 4F).

Радула. Рахидальный зуб обычно с тремя зубчиками: выдающимся центральным и парой боковых, меньшего размера. Один из рахидальных зубов имел также небольшой зубец, перпендикулярный остальным (Рис. 4D). Боковые зубы, обычно с двумя зубчиками, при том что внутренний больше внешнего. Маргинальные зубы с 5-7 зубчиками (обычно с 5) (Рис. 4 D,E).

Половая система. Гермафродитная железа крупная, компактная. Гермафродитный проток извитой, интенсивно пигментированный. В нижней части белковой железы располагаются слабо пигментированные камера оплодотворения с двумя пальцевидными резервуарами. Белковая железа треугольная, округлая, уплощённая в верхней части, состоит из многочисленных маленьких ацинусов. Матка сильно извитая. Яйцевод короткий с одним или двумя изгибами. Влагалище удлинённое, с плавными изгибами и одним резко выраженным изгибом на конце (Рис. 5 B,G; 6 B,E,H). Внутренняя поверхность вагины со складками разной толщины (Рис. 5A; 6 A,F,G), которые при расширении растягиваются в неправильную сеть изогнутых складок (Рис. 5F).

Семяприёмник яйцевидный. Проток семяприёмника открывается в дистальный изгиб влагалища, его диаметр может быть постоянным (Рис. 5G; 6B) или плавно возрастать к дистальной части (Рис. 5B; 6E).

Простата крупная, удлинённая, округлая, уплощённая, прилегает к матке. Длинный тонкий семяпровод отходит от её нижней части. Его проксимальная часть проходит вдоль влагалища, затем он плотно прикрепляется к влагалищу и пенису тонкими связками; его дистальная часть проходит вдоль пениса и эпифаллуса (Рис. 5 B,G; 6 B,E,H).

Пенис и эпифаллус покрыты тонким полупрозрачным булавовидным чехлом (Рис. 5D; 6B). Внутренняя поверхность стенок пениса покрыта разнообразными, преимущественно поперечными складками и возвышениями. Эпифаллус тонкий, трубкообразный, сильно извитой (Рис. 6 B,I), его изгибы плотно скреплены между собой тонкими связками. В одних случаях эпифаллус свёрнут в аккуратную спираль (Рис. 6I), а в других случаях его изгибы лежат хаотично (Рис. 5D; 6B). Дистальная часть эпифаллуса расширяется перед переходом в пенис (Рис. 6J).

На границе пениса и эпифаллуса находится слепой отросток, как правило, хорошо развитый; его полость соединена с полостью пениса (Рис. 6 C, J); если слепой отросток рудиментарный, то полость внутри него отсутствует (Рис. 5E). Один экземпляр был полностью лишён отростка (Рис. 5C).

Внутренняя часть стенки пениса покрыта волнистыми складками различной толщины (Рис. 5C; 6 C,D). Среди складок пениса имеются кристаллы неправильной формы (Рис. 5H). Ретрактор правого омматофора перекрещивается с пенисом и семяпроводом (Рис. 5B). Атриум короткий.]

Physiological variability. During spermatogenesis uterus coils well developed, prostate gland increasing in size. Vagina slightly coiled. Before oviposition uterus becomes to rise, its folds poorly marked. Bends of vagina and acini of albumen gland increase in size. During oviposition uterus saccular, conspicuously increased: it reaches from albumen gland to atrium. Vagina expanded, prostate significantly flattened. Bursa copulatrix and its duct often transparent, empty.

At the same time the state of snails differs: both specimens at the stage of spermatogenesis and specimens at the stage of oviposition were observed in the sample studied.

Ecology. Close to barrage near the Murmashi Town snails live on upper part of littoral on and under the stones and on moss together with pond snail *Stagnicola* sp. Downstream they were found only in mouths of small rivulets, where snails lived among stones and silty sand.

Guts of the snails dissected were filled by detritus and sand; almost every specimen had chitinous remains of Diptera and Coleoptera in its stomach.

Distribution. Known only from the type locality in the northern part of the Kola Peninsula. Nominative subspecies was reported from Europe: from Northern Norway to Austria, including British Isles and Iceland, Urals and Siberia eastward to Yakutsk [Gittenberger *et al.*, 1970; Jackiewicz, 1978, 2003; Sysoev, Schileyko 2009]. However distribution of the subspecies in Siberia needs confirmations.

Remarks. Due to high variability of shell shape, identification of *Oxyloma sarsii* is possible only with use of anatomy. Main diagnostic characters of *Oxyloma sarsii* ***tulomica*** are both predominantly transverse folds in the inner penis wall. Moreover,

РИС. 5. Гениталии *Oxyloma sarsii* ***tulomica*** subsp. nov. **A.** продольный разрез вагины, паратип. **B.** Общий вид половой системы (тот же экземпляр, что и на Рис. 5A). **C.** Продольный разрез пениса (тот же экземпляр, что и на Рис. 5A). **D.** Изгибы эпифаллуса (тот же экземпляр, что и на Рис. 5A). **E.** Рудиментарный слепой отросток (тот же экземпляр, что и на Рис. 5A). **F.** Вагина с тонкими стенками, паратип. **G.** Дистальная часть гениталий (тот же экземпляр, что и на Рис. 5F). **H.** Кристаллы внутри пениса, паратип. Масштаб **B, C, F, H** = 1 мм, **A, D, E, G** не масштабировано.

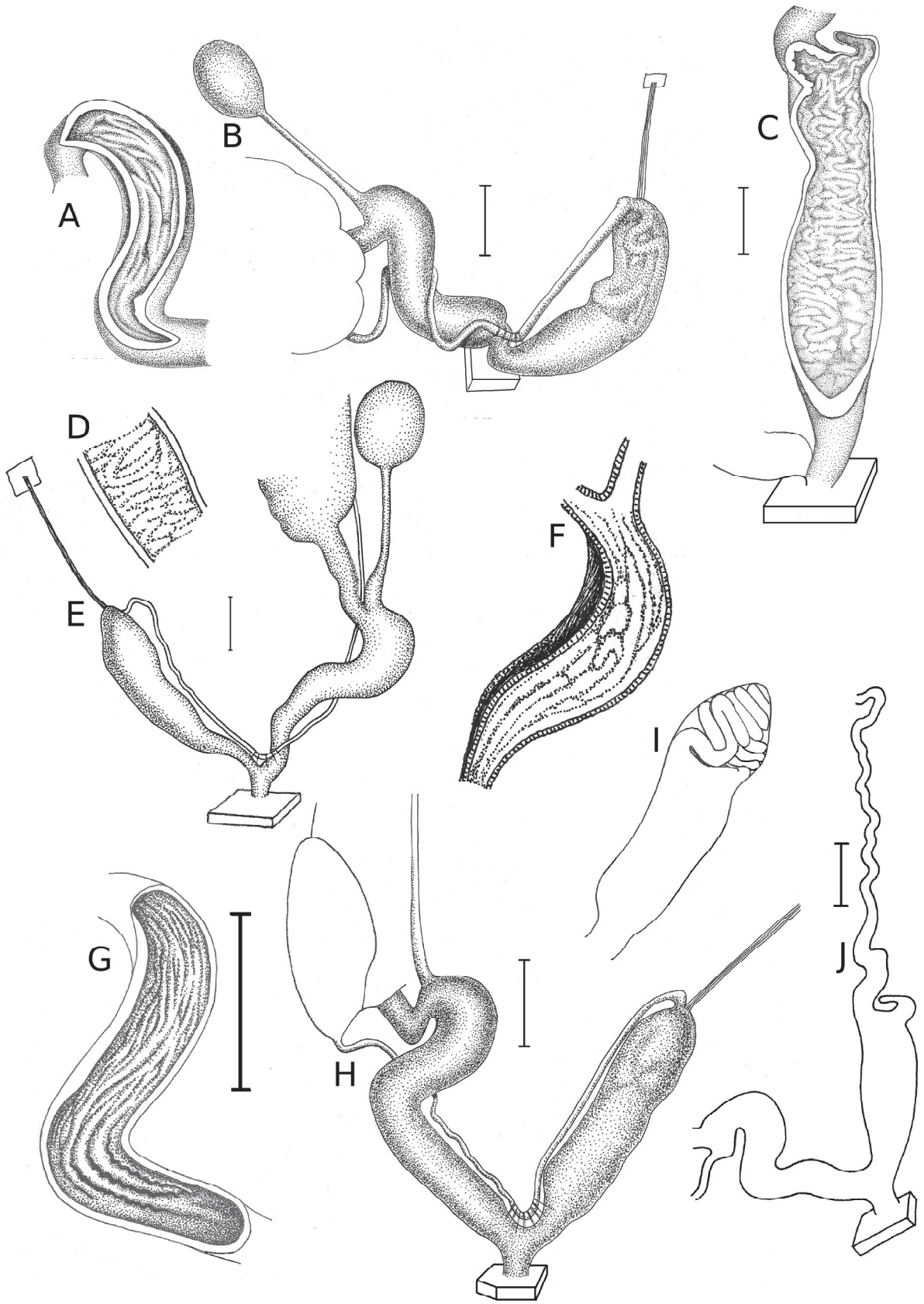

FIG. 6. **A-J.** Genitals of *Oxyloma sarsii* ***tulomica***. **A.** Vagina with longitudinal folds, paratype. **B.** Distal part of the genitalia (same individual as in Fig. 6A). **C.** Longitudinal section of penis, penial sheath is removed (same individual as in Fig. 6A). **D.** Fragment of a longitudinal section of the penis, paratype. **E.** Distal part of the genitalia (same individual as in Fig. 6D). **F.** Longitudinal section of vagina with thick folds (same individual as in Fig. 6D). **G.** Longitudinal section of the vagina, paratype. **H.** Distal part of the genitalia (same individual as in Fig. 6G). **I.** Penis, penial sheath cut lengthwise, but not

crystals inside the penis of *O. sarsii* ***tulomica*** are of hexahedron shape, whereas *O. sarsii sarsii* has thin crystals aggregated in druses. Thin spiral striation of the shell surface is also still known only on *O. sarsii* ***tulomica***. Despite the high variability of *O. sarsii* ***tulomica***, these characters seem to be constant in all studied specimens.

Etymology. The species is named after the type locality – the Tuloma river.

Discussion

In 1933 Quick thoroughly described *Succinea elegan*s (Risso, 1826) and *Succinea pfeifferi* (Rossmässler, 1835) from Britain. Later Odhner [1949] demonstrated that external characters of *S. elegans* sensu Quick [1933] coincide with those in original description of *Succinea pfeifferi var. sarsii* B. Esmark as well as with material from the type locality. He also pointed that *S. pfeifferi* sensu Quick [1933] is actually *S. elegans*. The latter suggestion was also confirmed by Forcart [1956], but the names *S. pfeifferi* and *S. elegans* had been used simultaneously sensu Quick and sensu Odhner for a long time. This caused a great confusion. Waldén [1976] suggested to use the names *S. pfeifferi* and *S. sarsii* only, therefore name *S. sarsii* became to be used for the species described by Quick as *S. elegans*. Schileyko and Likharev [1986] revised the species of the family Succineidae living within Russia and adjacent countries without emphasis on the epiphallus length. *Oxyloma sarsii* described by them did not correspond to *S. elegans* described by Quick [1933] non Rossmässler, 1835 (= *O. sarsii*). Modern concept of *O. sarsii* is based on its comprehension by Gittenberger *et al.* [1970], Jackiewicz [1978, 2003], Schileyko and Likharev [1986], Šatkauskienė [2007], Wiktor [2004] and etc. However, it is not fully conforms with the original description [Esmark, Hoyer, 1886] as well as with data on morphology of topotypic population [Odhner, 1949].

The type material of *Oxyloma sarsii* had not been described in literature. We found two shells (syntypes) collected and identified by Esmark as *Succinea pfeifferi* var. *sarsii* in ZMB with AN 37536 (Figs. 3G, H). The sampling site is specified as "Altenelven" (the grammatical form of Altaelva = Alta river), the date of collection was not mentioned. Also single specimen (empty shell) identified as *Succinea pfeifferi* var. *sarsii* by Esmark is kept in the FMNH with AN 114548 (Fig. 3I). According to hand-writing catalog of FMNH this specimen was donated by Esmark in 1890 together with the large collection of Scandinavian land and freshwater molluscs. No data on locality or collecting date are available for that specimen. Nonetheless there is no evidence that Ms B. Esmark dealt with more than one population of *Succinea pfeifferi* var. *sarsii*, and it is likely that this specimen also belongs to syntype sample.

In the estuary of the Tuloma River, apart of *Oxyloma sarsii* ***tulomica***, single adult specimen and two juveniles of another species of *Oxyloma* was found. The adult specimen had following anatomical features: thin longitudinal folds in the penis, short and stunted epiphallus and uniformly gray sole, which is in accordance with the description of *Oxyloma sarsii* by Schileyko and Likharev [1986]. On the other hands, Quick [1933] pointed on elongated epiphallus which was also confirmed by Odhner [1949] who dissected snails from the type locality. Hence, it is likely that *Oxyloma sarsii* sensu Schileyko and Likharev is not conspecific to *O. sarsii* sensu Esmark and therefore it is likely needs in new name.

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removed, epiphallus in a native position, its tube is connected by ligaments and orderly rolled into a tight ball (same individual as in Fig. 6G). **J.** Distal part of the genitalia. Penial sheath is removed, epiphallus deployed (same individual as in Fig. 6G). Scale bars **B, C, E, G** = 1 mm, **A, D, F, H, I, J** not scaled.

РИС. 6. **A-J.** Гениталии *Oxyloma sarsii* ***tulomica***. **A.** Вагина с продольными складками, паратип. **B.** Дистальная часть гениталий (тот же экземпляр, что и на рис. 6A). **C.** Продольный разрез пениса, мешок пениса удалён (тот же экземпляр, что и на рис. 6A). **D.** Фрагмент продольного разреза пениса, паратип. **E.** Дистальная часть половой системы (тот же экземпляр, что и на рис. 6D). **F.** Продольный разрез вагины с толстыми стенками (тот же экземпляр, что и на рис. 6D). **G.** Продольный разрез вагины, паратип. **H.** Дистальная часть половой системы (тот же экземпляр, что и на рис. 6G). **I.** Пенис, мешок пениса продольно разрезан, но не удалён, эпифаллус в естественном положении, его покровы соединены лигаментом и скручены в крепкий шар (тот же экземпляр, что и на рис. 6G). **J.** Дистальная часть половой системы, мешок пениса удалён, эпифаллус развёрнут (тот же экземпляр, что и на рис. 6G). Масштаб **B, C, E, G** = 1 mm,

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Oxyloma sarsii ***tulomica*** subsp. nov. (Gastropoda: Pulmonata: Succineidae) с Кольского полуострова

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РЕЗЮМЕ. Приводится описание *Oxyloma sarsii* ***tulomica*** subsp. nov. с Кольского полуострова. Подвид отличается от номинативного подвида, описанного из Северной Норвегии, наличием преимущественно поперечно ориентированных складок на внутренней стороне пениса, иной формой кристаллов внутри пениса. Приведены данные по изменчивости и биологии нового подвида, обсуждается таксономия *O. sarsii.*