**Supplementary materials for Andreeva et al. ‘A new species of the family Bithyniidae (Gastropoda: Littorinimorpha) from Russia, with remarks on some genera of this family’**

**Supplementary Table S1.** List of localities of *Opisthorchophorus confusus* **sp. n**., known to date (N indicates the number of specimens in a given museum lot)

|  |  |  |
| --- | --- | --- |
| No | Museum label (in brackets – the collector’s name) | *N* |
|  | European Russia |  |
| 1 | Bryansk Region, vicinities of Surazh Town, an oxbow of the Iput’ River, 25.05.2009 (M.V. Vinarski) | 7 |
| 2 | Moscow region, the Konobeevo floodplain, a temporary waterbody at the mouth of Nerskaya River, 25.06.2009 (D.M. Palatov) | 1 |
| 3 | Moscow region, Lyubozhikha River below the water reservoir, at the bridge of the highway to Pushchino, 27.09.2017 (D.M. Palatov) | 5 |
| 4 | Moscow region, vicinity of Yurovo village, water reservoir on Treshnya River, 03.10.2017 (D.M. Palatov) | 3 |
| 5 | Moscow region, water reservoir on the Solovka River near the village of Pokrovskoye, 03.10.2017 (D.M. Palatov) | 2 |
| 6 | Moscow region, vicinity of the village of Bogoyavlenie, water reservoir on the Lopasnya River, 04.10.2017 (D.M. Palatov) | 5 |
| 7 | Moscow Region, a pond in Sharapova Okhota settlement, 22.08.2016. (M.V. Vinarski, D.M. Palatov) | 3 |
| 8 | Moscow region, water reservoir on the Lubaynka River, 03.10.2017 (D.M. Palatov) | 4 |
| 9 | Yaroslavl Region, Sunoga River, unknown date (S.N. Perova) | 14 |
| 10 | Yaroslavl Region, Shumarovka River, 2014 (S.N. Perova) | 2 |
| 11 | Perm Region, vicinity of Sasykovo village, right bank of Sylva River, near the mouth of Istekaevka River, bank deposits, 23.09.2017 (M.E. Grebennikov) | 2 |
|  | The Urals |  |
| 12 | Sverdlovsk Region, vicinity of Krasnoufimsk Town, an Ufa River oxbow, 10.08.1887 (S.I. Korzhinskiy) | 4 |
| 13 | Sverdlovsk Region, vicinity of Tavda Town, a swamped oxbow, 16.07.1982 (I.M. Khokhutkin) | 4 |
| 14 | Sverdlovsk region, Verkhnyaya Sysert settlement, left bank of the pond, 0.8 km above the dam, 04.05.2006 (N.G. Erokhin) | 7 |
| 15 | Sverdlovsk Region, mouth of Bolshaya Kushva River, 03.09.2009 (D.A. Akilov) | 3 |
| 16 | Sverdlovsk Region, Bolshaya Kushva River, 03.09.2009 (М.А. Dyakova) | 2 |
| 17 | Sverdlovsk region, vicinity of Novaya Yelnya settlement, Serga River, 05.2014 (M.E. Grebennikov) | 1 |
| 18 | Sverdlovsk region, vicinity of Russky Ust-Mash village, stream mouth, 04.08.2015 (N.G. Erokhin) | 2 |
| 19 | Orenburg Region, Malaya Urtazymka River, 1 km above the mouth, 03.07.2009 (N.G. Erokhin) | 2 |
| 20 | Orenburg region, vicinity of Tamar-Utkul village, left bank of the dam on the brook flowing into Ilek River, 18.05.2010 (M.E. Grebennikov) | 15 |
| 21 | Orenburg Region, Ushkota River, below the dam of Ushkotinskoye water reservoir, river deposits, 15.05.2012 (M.E. Grebennikov) | 1 |
| 22 | Chelyabinsk Oblast, south-eastern shore of the Yuzhnoural’skoye water reservoir, coastal deposits, 17.07.2009, 15.05.2012 (M.E. Grebennikov) | 6 |
| 23 | Chelyabinsk Region, bank deposits of the Urlyada River, 15.05.2007 (M.E. Grebennikov). | 7 |
| 24 | Chelyabinsk region, vicinity of Astafievskiy settlement, left bank of Kyzyl-Chilik River, 03.08.2005 (N.G. Erokhin) | 5 |
| 25 | Chelyabinsk region, 3 km south-west of the village of Kichigino, Uvelka River, bank deposits, 28.05.2007 (M.E. Grebennikov) | 2 |
| 26 | Chelyabinsk region, 10 km to the east of Varshavka settlement, Karagailyayat, bank deposits, 05.08.2008 (N.G. Erokhin) | 5 |
| 27 | Chelyabinsk Region, vicinity of the Arkaim reserve, left bank of Bolshaya Karaganka River, 20.05.2010 (M.E. Grebennikov) | 2 |
| 28 | Chelyabinsk Region, the Yalshanka River pond, shore deposits, 06.2014 (A.V. Lugas’kov) | 6 |
|  | Northern and Central Kazakhstan |  |
| 29 | Aktobe Region, bank deposits of the Irgiz River, 1 km downstream from bridge on Aralsk-Aktobe road, 24.05.2015 (M.E. Grebennikov) | 6 |
| 30 | Akmola Region, Korgalzhyn Nature Reserve, the shore deposits of the Kara-Koga Lake, 18.08.2013 (N.I. Andreev, M.V. Vinarski) | 7 |
|  | Western Siberia |  |
| 31 | Kurgan Region, the SE shore of the Kurtan Lake, from lake deposits, 07.05.2013 (M.E. Grebennikov) | 1 |
| 32 | Kurgan Region, vicinity of Ozerny Settlement, Lake Sashkino, 18.10.2002 (M.E. Grebennikov) | 2 |
| 33 | Tyumen Region, vicinity of Gayevo settlement, Iryum River, 15.06.2012, 02.07.2015 (R.G. Fattakhov) | 41 |
| 34 | Tyumen Region, an unnamed lake, 3.5 km from Abatskoye settlement, 08.2004 (A.V. Karimov) | 8 |
| 35 | Tyumen Region, floodplain waterbodies of Bolshoy Balyk River, 20.08.2014, 02.06.2019 (T.V. Sharafutdinova) | 49 |
| 36 | Tyumen Region, a dam on the Panovka River, 14.10.2021. 11.10.2022 (I.M. Uslanina) | 11 |
| 37 | Omsk Region, vicinity of Druzhino village, dam on Kamyshlovka River, 23.05.2003, 01.07.2012 (N.I. Andreev, S.I. Andreeva, A.V. Karimov) | 17 |
| 38 | Omsk region, a floodplain waterbody of the Irtysh Irtysh near Omsk bus station, 12.06.2005 (A.V. Karimov) | 8 |
| 39 | Omsk Region, an impoundment on the Maly Uchug River (Lake Shatalovskoye), 05.07.2012, 21.08.2017, 17.06.2022, 07.07.2023, 28.08.2024 (A.V. Karimov) | 44 |
| 40 | Omsk Region, Atachka River, 17.06.2022 (A.V. Karimov) | 3 |
| 41 | Omsk Region, vicinity of Chashchino village, the Tyukalka River, 13.07.2023 (A.V. Sverdlova) | 2 |
| 42 | Novosibirsk Region, the Kargat River mouth, 09.06.2012, 10.06.2012, 16.06.2012, 20.06.2012 (Е.А. Serbina) | 23 |
| 43 | Novosibirsk Region, Lake Chany, Chernenkiy Cape, 18.06.2012 (Е.А. Serbina) | 1 |
| 44 | Novosibirsk Region, River Tarka near Ust’-Tarka settlement, 20.07.2022 (A.V. Sverdlova) | 3 |
| 45 | Tomsk Region, vicinity of Tomsk City, a floodplain waterbody of the Tom River, 06.06.1953 (M.P. Miroshnivhenko). **The type locality.** | 11 |
| 46 | Tomsk Region, Lake Mochishche, 09.08.2006 (N.I. Andreev, M.V. Vinarski, A.V. Karimov) | 4 |
| 47 | Tomsk Region, River Yaya, 10.08.2006 (N.I. Andreev, M.V. Vinarski, A.V. Karimov) | 3 |
| 48 | Tomsk Region, vicinity of Tegul’det settlement, an oxbow of Tom’ River, 11.08.2006 (N.I. Andreev, M.V. Vinarski, A.V. Karimov) | 6 |
| 49 | Tomsk region, vicinity of Novoshumilovo village, a waterbody in the Chulym River, 13.08.2006 (N.I. Andreev, M.V. Vinarski, A.V. Karimov) | 9 |
| 50 | Tomsk Region, vicinity of Tomsk City, Lake Toyanovo, 16.08.2006 (N.I. Andreev, M.V. Vinarski, A.V. Karimov) | 12 |
| 51 | Tomsk Region, a channel of the Tom’ River upstreams of Kolarovo settlement, 18.08.2006 (N.I. Andreev, M.V. Vinarski, A.V. Karimov) | 26 |

**Supplementary Table S2.** List of *COI* sequences of Bithyniidae speciesused in this study. Newly obtained sequences are given in red

| **Genus** | **Current name of the species** | ***COI* GenBank**  **acc. no.** | **Country** | **Reference** |
| --- | --- | --- | --- | --- |
| *Wattebledia* Crosse, 1886 | *Wattebledia crosseana* | KY118792 | Thailand | Kulsantiwong et al. (2013) |
| *W. crosseana* | KY118781 | Thailand | Kulsantiwong et al. (2013) |
| *W. crosseana* | KY118773 | Thailand | Kulsantiwong et al. (2013) |
| *W. crosseana* | KY118786 | Thailand | Kulsantiwong et al. (2013) |
| *W. crosseana* | KY118776 | Thailand | Kulsantiwong et al. (2013) |
| *W. siamensis* | KY118804 | Thailand | Kulsantiwong et al. (2013) |
| *W. siamensis* | KY118799 | Thailand | Kulsantiwong et al. (2013) |
| *W. baschi* | KY118769 | Thailand | Kulsantiwong et al. (2013) |
| *W. baschi* | KY118771 | Thailand | Kulsantiwong et al. (2013) |
| *Digoniostoma* Annandale, 1920 | *Bithynia siamensis* | KY118652 | Thailand | Kulsantiwong et al. (2013) |
| *B. siamensis* | KY118659 | Thailand | Kulsantiwong et al. (2013) |
| *B. siamensis* | KY118658 | Thailand | Kulsantiwong et al. (2013) |
| *B. funiculata* | KY118590 | Thailand | Kulsantiwong et al. (2013) |
| *B. funiculata* | KY118596 | Thailand | Kulsantiwong et al. (2013) |
| *B. funiculata* | MT379922 | Thailand: Phayao Province | Bunchom et al. (2020) |
| *B. funiculata* | MT379921 | Thailand: Phayao Province | Bunchom et al. (2020) |
| *Gabbia*  Tryon, 1865 | *Gabbia wykoffi* | KY118740 | Thailand | Kulsantiwong et al. (2013) |
| *G. wykoffi* | KY118738 | Thailand | Kulsantiwong et al. (2013) |
| *G. wykoffi* | KY118736 | Thailand | Kulsantiwong et al. (2013) |
| *G. pygmaea* | KY118683 | Thailand | Kulsantiwong et al. (2013) |
| *Boreoelona* Starobogatov & Streletzkaja, 1967 | *Boreoelona contortrix* | MW138427 | Russia: Buryatia Republic | NCBI GenBank |
| *B. contortrix* | **PV037655** | Russia: Republic of Sakha (Yakutia) | This study |
| *Bithynia misella* | KF966538 | South Korea | NCBI GenBank |
| *Gabbia kiusiuensis* | LC779814 | Japan: Aichi | NCBI GenBank |
| *Codiella* Locard, 1894 | *Bithynia leachii* | MT410857 | Denmark | NCBI GenBank |
| *B. leachii* | MW138414 | Russia: Leningrad Oblast | NCBI GenBank |
| *B. leachii* | MW138418 | Italy: Province of Viterbo | NCBI GenBank |
| *B. leachii* | MW138419 | Italy: Province of Viterbo | NCBI GenBank |
| *Pseudobithynia panetolis* | OP339800 | Greece | Wilke et al. (2023) |
| *P. trichonis* | OP339802 | Greece | Wilke et al. (2023) |
| *Opisthorchophorus* Beriozkina & Starobogatov, 1995 | *G. cubensis* | OP339801 | Turkey | Wilke et al. (2023) |
| *Bithynia transsilvanica* | OP339799 | Germany | Wilke et al. (2023) |
| *B. troschelii* | MW138411 | Russia: Komi Republic | NCBI GenBank |
| *B. troschelii* | MW138409 | Russia: Ryazan Oblast | NCBI GenBank |
| *B. troschelii* | MW138405 | Russia: Ryazan Oblast | NCBI GenBank |
| *B. troschelii* | MW138394 | Russia: Bashkortostan Republic | NCBI GenBank |
| *Opisthorchophorus confusus* | **PV037647** | Russia: Krasnodar Krai | This study |
| *O. confusus* | **PV037648** | Russia: Omsk Oblast | This study |
| *O.* ***confusus*** | **PV037651** | Russia: Omsk Oblast | This study |
| *O.* ***confusus*** | **PV037652** | Russia: Tyumen Oblast | This study |
| *O.* ***confusus*** | **PV037653** | Russia: Tyumen Oblast | This study |
| *O.* ***confusus*** | **PV037654** | Russia: Tyumen Oblast | This study |
| *Parafossarulus* Annandale, 1924 | *Boreoelona ussuriensis* | OR990564 | China: Inner Mongolia Autonomous Region | Hu et al. (2024) |
| *Parafossarulus* sp. | HQ623174 | China: Anhui Province | Wilke et al. (2013) |
| *P. manchouricus* | OP339803 | Japan | Wilke et al. (2023) |
| *Bithynia* s. str. | *Bithynia tentaculata* | OP339798 | Croatia | Wilke et al. (2023) |
| *B. tentaculata* | AF367643 | Croatia | Wilke et al. (2001) |
| *B. tentaculata* | MK308073 | USA: District of Columbia | NCBI GenBank |
| *B. tentaculata* | JX970605 | USA: New York | Wilke et al. (2013) |
| *B. tentaculata* | MK308052 | USA: District of Columbia | NCBI GenBank |
| *B. tentaculata* | MW139681 | Romania | NCBI GenBank |
| *B. tentaculata* | **PV037649** | Russia: Omsk Oblast | This study |
| *B. tentaculata* | **PV037650** | Russia: Omsk Oblast | This study |
| Hydrobiidae  *Bythiospeum*  Bourguignat, 1882 | *Bythiospeum acicula\** | KX374151 | Germany: Bavaria | Richling et al. (2017) |
| Amnicolidae *Colligyrus*  Hershler, 1999 | *Colligyrus* sp.\* | KT248029 | USA: Washington | Liu et al. (2015) |

\* - these species were used as outgroups for Maximum likelihood analysis.

Bunchom, N., Agatsuma, T., Suganuma, N., Andrews, R. H., Petney, T. N., & Saijuntha, W. (2020). Characterisation of arginine kinase intron regions and their potential as molecular markers for population genetic studies of *Bithynia* snails (Gastropoda: Bithyniidae) in Thailand. Molluscan Research, 40(4), 354-362.

Hu, Z., Tong, Q., Chang, J., Xu, J., Wu, B., Han, Y., ... & Niu, H. (2024). Host species of freshwater snails within the same freshwater ecosystem shapes the intestinal microbiome. Frontiers in Ecology and Evolution, 12, 1341359.

Kulsantiwong, J., Prasopdee, S., Ruangsittichai, J., Ruangjirachuporn, W., Boonmars, T., Viyanant, V., ... & Tesana, S. (2013). DNA barcode identification of freshwater snails in the family Bithyniidae from Thailand. PLoS One, 8(11), e79144.

Liu, H. P., Hershler, R., & Rossel, C. S. (2015). Taxonomic status of the *Columbia duskysnail* (Truncatelloidea, Amnicolidae, Colligyrus). ZooKeys, 514, 1-13.

Richling, I., Malkowsky, Y., Kuhn, J., Niederhöfer, H. J., & Boeters, H. D. (2017). A vanishing hotspot—the impact of molecular insights on the diversity of Central European *Bythiospeum* Bourguignat, 1882 (Mollusca: Gastropoda: Truncatelloidea). Organisms Diversity & Evolution, 17(1), 67-85.

Wilke, T., Davis, G. M., Falniowski, A., Giusti, F., Bodon, M., & Szarowska, M. (2001). Molecular systematics of Hydrobiidae (Mollusca: Gastropoda: Rissooidea): testing monophyly and phylogenetic relationships. Proceedings of the Academy of natural Sciences of Philadelphia, 151(1), 1-21.

Wilke, T., Haase, M., Hershler, R., Liu, H. P., Misof, B., & Ponder, W. (2013). Pushing short DNA fragments to the limit: phylogenetic relationships of ‘hydrobioid’gastropods (Caenogastropoda: Rissooidea). Molecular phylogenetics and evolution, 66(3), 715-736.

Wilke, T., Kehlmaier, C., Stelbrink, B., Albrecht, C., & Bouchet, P. (2023). Historical DNA solves century-old mystery on sessility in freshwater gastropods. Molecular Phylogenetics and Evolution, 185, 107813.

**Supplementary Table S3.** Coexisting of *Opistorchophorus* ***confusus***sp. nov. with other species of the family Bithyniidae in selected waterbodies of European Russia and Western Siberia

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Bithyniid species | European Russia | | | | Western Siberia | | | |
| Small streams | | Impoundments | | Small streams | | Impoundments | |
| Moscow region, River Lubozhikha | Yaroslavl Region, River Shumarovka | Moscow Region, on River Lopasnya | Moscow River, on River Lubyanka | Novosibirsk Region, River Tarka | Tyumen Region, River Iryum | Omsk region, On River Malyi Ichug | Tuymen Region, on River Panovka |
| *Bithynia tentaculata* s. lato |  | + | + | + |  | + | + |  |
| *Boreoelona contortrix* |  |  |  |  | + |  | + |  |
| *Boeroelona sibirica* |  |  |  |  |  | + | + |  |
| *Digyrcidum bourguignati\** |  |  |  | + |  |  |  |  |
| *D. starobogatovi\** |  |  | + |  |  | + |  | + |
| *Opisthorchophorus troschelii* (including *O. baudonianus* sensu Starobogatov) | + | + | + | + | + | + |  | + |

\* The generic status of the genus *Digyrcidum* as well as the identity of the two species included to it raise some doubts; possibly, this genus is a full synonym of *Bithynia* s. str. (See the main text of our article).