

NEW CHAROPHYTE RECORDS (CHARACEAE) IN EUROPEAN RUSSIA

© 2021 V. S. Vishnyakov^{a,#}, R. E. Romanov^{b,c,##}, A. S. Komarova^a, E. A. Belyakov^a,
D. S. Moseev^d, E. Yu. Churakova^e, A. B. Czhibadze^f, and D. A. Philippov^{a,###}

^a Papanin Institute for Biology of Inland Waters, Russian Academy of Sciences
Borok, 109, Nekouzskiy District, Yaroslavl Region, 152742, Russia

^b Komarov Botanical Institute RAS
Prof. Popov Str., 2, St. Petersburg, 197376, Russia

^c Institute for Water and Environmental Problems of the Siberian Branch of RAS
Molodezhnaya Str., 1, Barnaul, 656038, Russia

^d Shirshov Institute of Oceanology RAS
Nahimovskiy Ave., 36, Moscow, 117997, Russia

^e N. Laverov Federal Center for Integrated Arctic Research of the Ural Branch of RAS
Severnaya Dvina Emb., 23, Arkhangelsk, 163000, Russia

^f Vologda State University
Lenina Str., 15, Vologda, 160000, Russia

#e-mail: aeonium25@mail.ru

##e-mail: romanov_re@ngs.ru

###e-mail: philippov_d@mail.ru

The article presents new data associated with 110 records of 16 charophyte species from some regions of the Northern European Russia, Arkhangelsk, Vladimir, Vologda, Kostroma, Leningrad, Moscow, Ryazan, Tver, Yaroslavl Regions and the Republic of Karelia. The rare species of the particular interest are *Chara aculeolata*, *C. papillosa*, *C. strigosa*, *C. tomentosa*, *Nitella confervacea*, *N. syncarpa*, *N. wahlbergiana* and *Tolypella prolifera*. The new data increase knowledge on distribution of charophytes on the northeastern edge of Europe, especially those near the northern (e.g., *C. aculeolata*, *N. mucronata*, *N. syncarpa*, *T. prolifera*) or the southern (*N. wahlbergiana*) borders of their ranges. In the light of the presented results, *C. papillosa*, *C. subspinosa*, and *N. wahlbergiana* have been included in the Red Data Book of Arkhangelsk Region. Several species are suggested for regional protection, e.g. *N. confervacea* – as endangered in Vologda Region, *C. aculeolata* in Vologda Region, *C. papillosa* in Leningrad Region, and *C. tomentosa* in Arkhangelsk Region – as rare, *N. wahlbergiana* – as near threatened in Vologda Region and Republic of Karelia.

Keywords: *Chara*, *Nitella*, *Tolypella*, new records, species conservation, European Russia

DOI: [10.31857/S0006813621010117](https://doi.org/10.31857/S0006813621010117)

ACKNOWLEDGEMENTS

This study was carried out as a part of the state assignment of Papanin Institute for Biology of Inland Waters RAS, no. AAAA-A18-118012690096-1, AAAA-A18-118012690099-2; the state assignment of Komarov Botanical Institute RAS, no. AAAA-A18-118030790036-0; the state assignment of Institute for Water and Environmental Problems SB RAS, scientific program 134.1; the state assignment of FCIARctic, no. AAAA-A17-117122990042-2. The study was finalized with the financial support of the Russian Foundation of Basic Research, grant no. 20-04-00280.

D.A. Philippov and A.S. Komarova thank I.V. Filonenko, K.N. Ivicheva, A.V. Leostrin, O.V. Galanina and A.M. Chernova for assistance during sampling. R.E. Romanov is grateful to M.V. Markov for providing photos of the *Chara* specimens allowed to clarify species identification, T.A. Mikhailova and M. Koistinen for the opportunity to check herbarium specimens. D.S. Moseev thanks A.V. Bragin and S.I. Drovkina, the colleagues at the Kenozersky National Park, for help during field research, charophytes sampling and assistance, as well as L.V. Puchnina, a head of the Pinezhsky State Reserve.