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ANIKIEVA L.V. Nematodes of native and introduced populations of the European smelt *Osmerus eperlanus* L.

The nematode fauna of native populations of the European smelt includes 20 species of nematodes. The nematode fauna of the migratory smelt ecoforms is the most diverse and includes 14 species: parasites of marine mammals *Contracaecum osculatum*, *Anisakis simplex*, *Pseudoterranova decipiens*, tuna fishes *Hysterothylacium cf. cornutum*, aquatic and terrestrial vertebrates *Spinitectus* sp., fish-eating birds *Eustrongylides mergorum*, *Porrocaecum* spp., *Cosmocephalus obvelatus*, *Paracuaria tridentate*, sea fishes (Clupeidae, Gadidae, Gobiidae fishes, *etc.*) *Hysterothylacium aduncum*, freshwater fishes *Camallanus lacustris*, *C. truncatus*, *Cystidicola farionis*, and the eel parasite *Anguillicoloides crassus*. The nematode fauna of lake smelt includes eight species that are parasites of Salmonidae, Percidae, Esocidae, and Cyprinidae – *Pseudocapillaria salvelini*, *Pseudocapillaria tomentosa*, *Raphidascaris acus*, *C. lacustris*, *C. truncatus*, *Philonema sibirica*, *C. farionis*, *Cystidicoloides ephemeridarum*. The nematode fauna of Dwarf Lake smelt *Osmerus eperlanus* morpha *spirinchus* includes three species of nematodes *Raphidascaris acus*, *C. farionis*, *C. truncatus*. The nematode fauna of the introduced smelt populations is poor. In Lake Segozero there is only one nematode species registered, a parasite of salmonoids *C. farionis*, in Lake Vygozero – two species, *C. farionis* and *C. lacustris*, and in Lake Syamozero – three species, *C. lacustris*, *C. truncatus* and *R. acus*. Monitoring of the parasitic fauna of smelt, which had spontaneously invaded Lake Syamozero, showed that it takes from 1 to 10 years for this alien species to become a host for indigenous nematodes (Support: State Order 0218-2019-0075). – **Institute of Biology, Karelian Research Centre, RAS, Petrozavodsk, 185910, Russia; e-mail: anikieva@krc.karelia.ru.**

BESPYATOVA L.A. & BUGMYRIN S.V. Trombiculid mites (Acariformes: Trombiculidae) hosted by bank voles in the Republic of Karelia.

This is the first report on the fauna and relative abundances of trombiculid mites (Acariformes: Trombiculidae) from the bank vole (*Myodes glareolus* Schreber, 1780) from the Republic of Karelia. The data were collected through many years of surveys of small mammal ectoparasites. Small mammals were sampled from 21 places in the republic between 1992 and 2018. Mites were retrieved from 45 vole individuals, which yielded 662 larvae of trombiculid mites. Trombiculid mites were represented by two species: *Hirsutiella zachvatkini* (Schluger, 1948) and *Neotrombicula (Digenualea) uliginosa* Kudryashova, 1998. Numerically, the mite *H. zachvatkini* dominated, accounting for 99% of the total abundance. *H. zachvatkini*, parasitic on the bank vole, was found only in southern districts of Karelia at 10.5% prevalence. The northernmost finding of this species in Karelia comes from Kizhsky Archipelago (Medvezhjegorsky District), where after long-term monitoring and with a large number of vole individuals from different islands examined, the mite was found only on Island Malyi Lelikovsky (N 61.989°; E 35.15°). The relative abundance of *H. zachvatkini* was the highest in the south-west of the republic, in Lahdenpohsky District (Lumivaara, N 61.437°; E 30.247°), 30 km north of the border with the Leningrad Region, where the mite's prevalence was 91%, and the abundance index (AI) was 44.5. The other trombiculid – *N. uliginosa* was found on the bank vole only in one spot in northwestern Karelia (Muezersky District, N 65.046°, E 30.603°) with 4.4% prevalence and AI of 0.13 ind. Research on the fauna and occurrence of trombiculid mites on small mammals will be continued, including more accurate determination of their distribution across Karelia. The authors are much obliged to Dr A.A. Stekolnikov, Leading Researcher at the Zoological Institute RAS for verifying the results of identification of mite specimens (Support: State Order 0218-2019-0075). – **Institute of Biology, Karelian Research Centre, RAS, Petrozavodsk, 185910, Russia; e-mail: gamasina@mail.ru.**

BUGMYRIN S.V.[1] & SPIRIDONOV S.E.[2] First record on the infestation of small rodents by *Baylisascaris transfuga* (Ascaridoidea: Nematoda) in natural habitats.

The intestinal parasitic nematode, *Baylisascaris transfuga* (Rudolphi, 1819), was recorded in murids for the first time. Representatives of four murid species (15 specimens of *Myodes rufocanus*, 10 *M. rutilus*, 3 *M. glareolus* and 27 *Microtus oeconomus*) were collected in the White Sea coastal habitats in the south of the Kola Peninsula in July 2015 and examined for the presence of parasites. Encapsulated nematode larvae were detected in the mesentery and the large intestine wall of a single specimen of grey-sided vole (*M. rufocanus*) and one of tundra vole (*M. oeconomus*). Based on morphology, the larvae were identified as belonging to the genus *Baylisascaris* Sprent, 1968. The partial 18S rDNA sequence of the larvae from the voles was obtained and fully corresponded to the sequence of *Baylisascaris transfuga* in the NCBI GenBank. The ITS rDNA and CoxI mtDNA sequences from the present study were also similar to the *B. transfuga* from GenBank. It can be assumed that the presence of *B. transfuga* in small rodents in the wild populations indicates a possible participation of rodents in the nematode's life cycle (Support: State Order 0218-2019-0075, State Academic Program FSR AAAA-A18-118042490057). – **[1]Institute of Biology, Karelian Research Centre, RAS, Petrozavodsk, 185910, Russia; e-mail: sbugmyr@mail.ru; [2]A.N. Severtsov Institute of Ecology and Evolution, RAS, Moscow, 119071, Russia; e-mail: s_e_spiridonov@rambler.ru.**

BUTENKO K.O.[1], KOROBUSHKIN D.I.[2], GONGALSKY K.B.[1, 2], SAIFUTDINOV R.A.[2, 3], SHESTEPEROV A.A.[4] & ZAITSEV A.S.[2] Parasitic nematodes of rice in Russia.

Rice growing in Russia has some peculiarities, *e.g.*, cultivation of a single crop per year and application of multiannual crop rotation cycles. Phytoparasitic nematodes have been previously found on rice crops in Russia: *Aphelenchoides besseyi*, as well as *Hirschmanniella* sp., *Longidorus* sp., *Paratylenchus* spp., *Paraphelenchus*, *Aphelenchus*, *Aphelenchoides*. Nematodes in rice agroecosystems are known to damage crops by feeding on roots and shoots. However, we do not know how nematodes react to crop rotation and across different soil types. To shed some light on this issue we performed a field study and collected soil samples using standard methods in four habitat types: flooded rice paddies, drained rice fields with upland crops, paddy bunds and seminatural grasslands across three major rice-growing regions of Russia: Krasnodar, Kalmykia and Primorye. In flooded rice, the relative abundance of soil nematode feeding groups was significantly modified. Namely, plant feeders' density increased. Specifically, representatives of *Pratylenchus*, *Ditylenchus*, *Rotylenchus* and *Helicotylenchus* genera dominated, which are known for high ecological plasticity and low selectivity of host taxa (both weeds and agricultural crops: wheat, soybean and corn). Their density was independent of edaphic parameters (pH, bioavailable nutrients, or litter depth). Simultaneously, increased abundance of plant feeders in Krasnodar and Primorye and their decreased numbers in Kalmykia reflected phytomass fluctuations across regions due to aridity of the latter region. We conclude that in Russia the climate and habitat type, as a proxy of a plant community characteristics, act as the leading drivers explaining the various plant feeding nematode abundances. This provides the basis for developing optimised regional strategies for plant protection in temperate rice agroecosystems (Support: RSF 16-14-00096). – **[1]Biological Faculty, Lomonosov Moscow State University, Moscow, 119991, Russia; e-mail: k002@yandex.ru; [2]A.N. Severtsov Institute of Ecology and Evolution, RAS, Moscow, 119071, Russia; [3]Kazan Federal University, Kazan, 420008, Russia; [4]K.I. Skryabin and Ya.R. Kovalenko All-Russian Scientific Research Institute of Fundamental and Applied Parasitology of Animals and Plants, Branch FSBSI "FSC – ARSRIEVM RAS", Moscow, 117218, Russia.**

CLAEYS M.[1], HANDAYANI N.D.[1, 2], LESTARI P.[1, 2], YUSHIN V.V.[3], DIKIN A.[2], HELDERS J.[4] & BERT W.[1] Ultrastructure of unhatched cyst nematodes *Globodera rostochiensis* and *Heterodera schachtii* revealed by self-pressurised rapid freezing.

Ultrastructural analysis of nematode eggs poses a considerable problem due to the impermeability of the eggshell. In high pressure freezing, a physical cryo-fixation method, a much faster rate of fixation is obtained and the eggshell does not form a barrier resulting in superior preservation of fine structure. Self-Pressurised Rapid Freezing (SPRF), an alternative low-cost cryo-fixation method, was evaluated based on an ultrastructural study of the eggshell and the cuticle of the second-stage juveniles of *Globodera rostochiensis* and *Heterodera schachtii* in their unhatched native state. The obtained results are also compared with conventional (chemical) fixation. This study clearly demonstrates that SPRF fixation results in a very well-preserved ultrastructure of the entire, intact egg, from the eggshell to the cell details of developing embryos and juveniles. Therefore, SPRF fixation is proposed as a very accurate, relatively easy-to-use, low-cost and rapid technique to study the ultrastructure of unhatched eggs of nematodes. The method may be helpful in a variety of nematology studies, including embryology, functional morphology based on immunolocalisation of cell proteins, characterisation of vector viruses and symbiotic bacteria, nematicide targets and efficiency (Support: UGhent TEM-Expertice center, life sciences, RFBR 17-04-00719-a). – **[1]Nematology Research Unit, Department of**