

Newsletter of the Russian Society of Nematologists

70th Anniversary of Dr. Alexander Yurjevich Ryss

On March 7, 2024, Doctor Alexander Yurievich Ryss celebrated his 70th anniversary. Alexander Ryss was born in 1954 in the city of Zmeinogorsk, Altai Territory of Russia, in the family of geologists. Soon his family moved to Leningrad (St Petersburg), where he graduated from school.

In 1971 he entered the Leningrad State University and successfully graduated from the Department of Invertebrate Zoology with a thesis on the topic “*Biology and morphology of the hermaphroditic generation of two species of trematodes of the family Echinostomatidae*” under the scientific guidance of Dr. A. A. Dobrovolsky. From October 1976, Alexander Ryss began working at Institute of the USSR Academy of Sciences, first as a trainee-researcher under the supervision of Dr Ekaterina S. Kirjanova, and then Dr Eino L. Krall. After completing his postgraduate studies at the same institute, Alexander Ryss was awarded the academic degree of Candidate of Biological Sciences in the specialty “Zoology” in 1983 by the Dissertation Council of Leningrad State University. The topic of his defended dissertation was “*Root parasitic nematodes of the family Pratylenchidae and problems of evolution of the superfamily Hoplolaimoidea (Tylenchida)*.”

In 2009, by decision of the Higher Attestation Commission, Alexander Ryss was awarded the academic degree of Doctor of Biological Sciences in the specialty “Zoology”, for defending a dissertation on the topic: “*Classification, morphology and evolution of plant nematodes of the families Pratylenchidae (order Tylenchida), Aphelenchoididae and Parasitaphelenchidae (order Aphelenchida)*.” Currently, Dr Alexander Ryss works as the Chief Researcher at the Zoological Institute of the Russian Academy of Sciences.

At the Zoological Institute Dr Alexander Ryss provides scientific supervision of topics on phytonematodes, which have both fundamental (for studying the origin of parasitism) and applied significance (as pathogens of forests and parks, as well as agricultural crops). He participates in the formation of plans and programmes of research work of the Zoological Institute of the Russian Academy of Sciences on plant parasitic nematodes, determines the methods and means of their implementation. Dr Alexander Ryss, as a principal investigator, took part in numerous domestic and international grants.

Dr Alexander Ryss is widely known specialist in Russia and foreign countries as one of the world leading specialist in the field of systematics, phylogenetics, ecology, evolution and biogeography of nematodes. His wide erudition and high scientific authority are confirmed by his numerous contacts with domestic and foreign nematologists and multiple requests to him for qualified advisory assistance. He willingly shares his experience with colleagues and students and successfully supervises undergraduate and graduate students.

Dr Alexander Ryss is the author of more than 200 scientific publications, including chapters in monographs and one book, *Root parasitic nematodes of the family Pratylenchidae (Tylenchida) world fauna*. Leningrad: Science, 368 pp. The publications of Dr Alexander Ryss are published in high-ranking international scientific journals and are actively cited. Dr Alexander Ryss has presented more than a hundred reports at international and Russian meetings.



The scientific interests of Dr Alexander Ryss are wide and cover various aspects of Nematology - morphology, systematics, evolution of nematodes and peculiarities of their relationships with host plants and insect carriers. He has revealed the main features of the evolution of phytonematods: 1) independent increase of specialisation to hosts in various phyletic lines: the transition from ectoparasitism to endoparasitism on plants and insects, from temporary to obligatory parasitism; 2) uneven evolution of topical and trophic bonds in root nematodes with their host plant; 3) origin of nematodes as parasites of terrestrial plant organs from mycophagus ancestors, the inclusion of insect vectors in their life cycle, their development in internal tissues of the host, thus bypassing ectoparasitism; 4) increasing importance of the plant hosts and the insect vectors as factors for the formation of major directions of evolution, and for the divergence of species and phytonematode genera. He concluded that the leading speciation factors in primitive nematodes of the family Pratylenchidae were soil and climatic conditions, and in the highly specialised phytonematodes of the order Tylenchida - phylogenetic lineages of plants-hosts; in the higher nematodes of the order Aphelenchida - combinations of insects-vectors and their feed plants.

Dr Alexander Ryss advanced original concepts: changes in speciation factors in the evolution of phytonematid (soil→ plants; or soil→ vectors→ plant); the role of symbiotes in the evolution of parasitic-host relationships between phytonematology and plants (from 'gardening' to symbiosis in mixed plant infections with bacteria and fungi); three stages of succession in poor nematode communities of Antarctic mosses and lichens. He has developed text and computer keys of genera and species of the families Pratylenchidae and Aphelenchoididae. In addition, he formulated proposals of the historical origin of wood-inhabiting nematodes of the genus *Bursaphelenchus*, as well as of the order Aphelenchida.

Over the past few years, Dr Alexander Ryss has been actively researching a group of wood-inhabiting nematodes, among which are the causative agents of wilt diseases of conifers and dieback diseases of deciduous trees. He performed a series of taxonomic studies, conducted their phylogenetic analysis and described several new species. The study of wood-inhabiting nematodes of natural foci allowed Dr Ryss to develop methods of estimating the probability of opportunistic pathogens turning into true pathogens of forest and park communities. He also identified nematode antagonists, which can be used as agents of the biological method of plant protection. The analysis of the huge data set allowed Dr Ryss to form new ideas about the evolution of the life cycles of stem nematodes, substantiate their origin from the participants of the detrital food web and reconstruct the possible stages of the formation of life cycles in co-adaptation with insect vectors and host plants.

Dr Alexander Ryss was one of the founders of the Russian Society of Nematologists and its first President (1994-1995). He made a huge contribution to the formation and development of the Society and the organisation of its numerous international meetings. From 2004 to 2013, Dr Alexander Ryss also served as the Scientific Secretary of the Parasitological Society at the Russian Academy of Sciences. As a member of the Editorial Board of the *Russian Journal of Nematology*, Dr Ryss takes an active part in the work of the Journal. He is also a member of the Editorial Board of *Parazitologiya* and *Zoosystematica Rossica*. By his many years of social and scientific work, Dr Alexander Ryss has earned the great respect of nematologists and parasitologists worldwide.

We congratulate Doctor Alexander Ryss on his anniversary and wish him good health and many years of fruitful work.

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