

V Eurasian Symposium on Hymenoptera V Евроазиатский симпозиум по перепончатокрылым насекомым

On August 21–25, 2023, the V Eurasian Symposium on Hymenoptera was held in Novosibirsk, Russia. It was organized by Novosibirsk State University (NSU) together with the Institute of Animal Systematics and Ecology of the Siberian Branch of the Russian Academy of Sciences (SB RAS) as well as with the Russian Entomological Society. More than 120 people participated in this meeting. V.A. Reznikov, the Dean of the NSU Faculty of Natural Sciences, extended his greetings to the participants. The Symposium was then opened by M.G. Sergeev, the co-chair of the Organizing Committee.

At the plenary session (chaired by M.G. Sergeev, A.S. Lelej and V.E. Gokhman) 6 reports were presented: “News of the taxonomy of Hymenoptera” (A.P. Rasnitsyn); “Miniature hymenopterans as model biological objects” (A.A. Polilov); “What do (and don’t) we know about hymenopteran chromosomes?” (V.E. Gokhman); “What did the integrated method achieve in the study of phylogeny and classification of Mutillidae (Hymenoptera)?” (A.S. Lelej); “The current state of the problem of maternally inherited symbionts of Hymenoptera” (Y.Y. Ilinsky, R.A. Bykov, A.S. Ryabinin, M.A. Demenkova); “Physiological interactions in the system: parasitoid *Habrobracon* – host *Galleria mellonella* – entomopathogenic fungi – bacterial associates” (V.Y. Kryukov, N.A. Kryukova, M.V. Tyurin, U.N. Rotskaya, O.V. Polenogova et al.).

During the Palaeontology section (chaired by A.P. Rasnitsyn and E.V. Tselikh), 4 reports were made: on the so-called “cyber types” in palaeoentomology (D.M. Zharkov, D.A. Dubovikoff), systematic position of the genus *Paraphaenogaster* (Formicidae) (V.O. Dorofeev, D.A. Dubovikoff, K.S. Perfilieva), state and prospects of research on the Ichneumonidae in Baltic amber (A.R. Manukyan), as well as on the fossil Hymenoptera in the collection of the Kaliningrad Amber Museum (A.V. Smirnova).

At the section “Evolution, morphology and systematics” (chaired by A.S. Lelej, D.A. Dubovikoff, A.A. Polilov and E.V. Tselikh), 13 reports were presented: on the chromosomes of Symphyta (V.E. Gokhman), comparative analysis of the fauna of the family Pteromalidae of the Western and Eastern Palaearctic (E.V. Tselikh), the so-called “Holarctic” species of wasps of the family Vespidae (A.V. Fateryga), faunistic review of the tribe Podagrionini (Torymidae) of Russia and neighboring countries (S.V. Tyulina), taxonomy of the genus *Prionyx* (Sphecidae) (Y.N. Danilov), the structure of the genitalia of argid sawflies (S.A. Basov), the study of immature stages of parasitoids of the genus *Trimorus* (Scelionidae) (A.V. Timokhov), as well as on the accumulation of microplastic particles in the intes-

tines of Vespidae (M. Lee, A.V. Simakova, R.T. Bagirov, Y.A. Frank). A significant part of the reports at this section was dedicated to the study of the smallest Trichogrammatidae: the metamorphosis of their nervous system (E.N. Veko, A.A. Makarova, A.A. Polilov), the anatomy of the head of *Megaphragma viggianii* (I.A. Desyatirkina, A.A. Polilov), flight kinematics of *Trichogramma telengai* (N.A. Lapina, S.E. Farisenkov, E.O. Shcherbakov, D.S. Kolomenskiy, A.A. Polilov), the study of anucleate neurons of these insects, also found in the family Mymaridae (A.A. Makarova, K.D. Hakimi, A.A. Polilov), as well as on the ultrastructural organization of their antennal sensory system (A.V. Diakova, A.A. Makarova, A.A. Polilov).

Presentations at the section “Biochemistry, genetics, breeding and practical importance” (chaired by A.A. Polilov and S.N. Panteleeva) included 4 reports: on the foraging activity of the bumblebee, *Bombus terrestris* (A.V. Lopatin), parasitoids of the cabbage moth, *Plutella xylostella* (E.I. Shatalova, A.V. Khodakova, I.V. Andreeva), the gene pool of local populations of the honeybee (R.A. Ilyasov, V.N. Danilenko, V.N. Sattarov, D.V. Boguslavsky), as well as on the development of a technology for breeding egg parasitoids of the genus *Trissolcus* (Scelionidae) (I.V. Andreeva, A.V. Khodakova).

The section “Faunistics and zoogeography” (chaired by M.Y. Proshchalykin, A.V. Fateryga, A.S. Lelej and A.M. Byvaltsev) caused undoubted interest. 14 reports were presented: on the bumblebees of the fauna of Russia (A.M. Byvaltsev, V.V. Molodtsov), kleptoparasitic bees of the Central and Eastern Palaearctic (Y.V. Astafurova, M.Y. Proshchalykin), members of the families Melittidae, Colletidae, Megachilidae and Apidae in the fauna of Mordovia (T.V. Levchenko, A.B. Ruchin), bees of the genus *Andrena* of Transbaikalia (D.A. Sidorov), wasps of the Khing Nature Reserve (D.N. Kochetkov), parasitoids of the families Eulophidae and Eupelmidae of the same territory (O.V. Kosheleva), distribution of ants of the genus *Formica* in the Tigireksky Nature Reserve (T.M. Krugova, M.V. Zarubich, S.V. Chesnokova), corrections and additions to the catalogue of bees of Russia (M.Y. Proshchalykin, Y.V. Astafurova), a complex of Siberian ant species, *Formica gagatoides* and *F. kozlovi* (S.V. Chesnokova, O.V. Vaulin, Z.A. Zhigulskaya, T.A. Novgorodova), study of the chorological structure of the red wood ants (V.A. Zryanin, A.A. Kozlova), distribution of genera of the family Pompilidae of the world fauna (V.M. Loktionov), as well as about nematodes parasitizing the chalcid wasp, *Eurytoma strigifrons* (N.N. Butorina, S.E. Spiridonov, V.E. Gokhman), about the subfamily Pimplinae (Ichneumonidae) of the fauna of Mexico (A.I.

Khalaim, E. Ruíz-Cancino, J.M. Coronado-Blanco) and species of Scoliidæ in the fauna of the Ryazan region (A.M. Nikolaeva).

At the section “Ecology, physiology and behavior” (chaired by V.E. Gokhman, D.A. Dubovikoff, A.M. Byvaltsev and A.V. Fateryga), 17 reports were presented: on the study of the flight and swimming of the parasitoid *Tiphodytes gerriphagus* (Scelionidae) (S.E. Farisenkov, N.A. Lapina, E.O. Shcherbakov, A.V. Timokhov, A.A. Polilov), study of the role of body size in the functioning of the nervous system of Hymenoptera (M.A. Fedorova, S.E. Farisenkov, A.A. Polilov), behavioral tactics of saving brood in ants (A.Y. Golovachev, S.N. Panteleva), nutrition as a factor of formation of behavioral and cognitive traits in social Hymenoptera (I.K. Yakovlev), as well as on the study of hymenopteran pollinators associated with orchids in the Vologda region (N.S. Kolesova, Y.N. Belova, A.B. Czobadze, A.A. Shabunov), the bumblebee population of forest biotopes of the Leningrad region (M.V. Baykov), details of nest organization of *Vespa crabro* (S.D. Guselnikov, A.Y. Kosyakova, L.Y. Rusina), the relationships between *Polistes* wasps (Vespidae) and spiders (A.I. Rusin, A.A. Nadolny, N.A. Litvinyuk, I.F. Valyukh, I.B. Popov et al.), the first discovery of phorid flies parasitizing ants of the genus *Camponotus* in Russia (D.M. Shevchenko, D.A. Dubovikoff), expression of transcription factors in the brain of the honeybee (T.G. Zachepilo, A.K. Pribyshina, N.G. Lopatina), grass-dwelling sawflies of Yakutia (A.A. Popov), assessment of the biological features and indicators of economic value of the honeybees of Siberia (S.A. Rosseykina, N.V. Ostroverkhova), relationships of the bee *Osmia cornuta* (Megachilidae) with flowering plants (A.V. Amolin, N.N. Kuzicheva, I.N. Ogor), study of colonies of *Ropalidia magnanima* (Vespidae) in Vietnam (S.A. Bykovskii), spatial distribution of the nests of *Polistes nimpha* (Vespidae) in the Sengileevskie Mountains National Park (A.Y. Kosyakova), as well as on actinobacteria associated with the honeybee (Y.V. Zakalyukina, D.V. Verevochnikov), and on members of the same group of organisms associated with ants (Y.V. Zakalyukina).

During the Symposium, V.E. Gokhman and E.V. Tselikh presented information reports about the X Congress of the International Society of Hymenopterists, held in July 2023 in Iasi (Romania). At the final meeting, the chairmen, V.E. Gokhman and A.P. Rasnitsyn, as well as D.A. Dubovikoff, A.S. Lelej, M.Y. Proshcha-

lykin, A.M. Byvaltsev and others contributed to the final discussion. On the last day of the Symposium, an excursion to the Central Botanical Garden of SB RAS was organized for the participants.

A total of 58 oral presentations were made at the Symposium, including 6 plenary and 52 sectional ones; some of the reports were presented in an online format (Y.N. Danilov and V.V. Molodtsov chaired the online sessions). The abstracts of the Symposium (79 reports by 134 authors from Russia and foreign countries) are published as an e-book in October 2023. Based on the results of the Symposium and the final general discussion, a resolution was accepted. In particular, this resolution concludes:

“The participants of this Symposium note that certain positive changes are being observed in the study of Hymenoptera in our country. Young specialists are emerging, studying new groups; promising interdisciplinary research is carried out; modern methods are intensively used, including the use of high technologies; the geography of work remains quite diverse. The high quality of research is maintained, as well as, in many cases, traditional international contacts and publications in top-rated journals.

The participants of the Symposium highlight as a priority task the further development of modern research in the fields of systematics, morphology, ecology and genetics of various groups of Hymenoptera, as well as the training of specialists in the relevant field, primarily on the basis of university departments. It is necessary to actively conduct research in the fields of palaeontology, zoogeography, biochemistry, physiology, ethology and practical use of Hymenoptera. Russian hymenopterists should make every effort to maintain and develop fruitful cooperation with specialists both within the country and abroad.

The participants of the Symposium hope that all the most important areas of research on Hymenoptera will continue to develop in our country. This will allow us to successfully obtain new results that have important fundamental and practical implications. The next Eurasian Symposium on Hymenoptera is expected to be held in Saransk (Mordovia, Russia) in 2025”.

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