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HELD BY:
Far Eastern Branch of Russian Academy of Sciences (FEB RAS),
A.V. Zhirmunsky National Scientific Center of Marine Biology, NSCMB FEB RAS,
Federal Scientific Center of Biodiversity of East-Asia Land Biota FEB RAS,
Far Eastern Federal University,
Vladivostok Public Foundation for Development of Genetics

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ОРГАНИЗАТОРЫ:
Дальневосточное отделение РАН (ДВО РАН),
Национальный научный центр морской биологии им. А.В. Жирмунского ДВО РАН,
ФНЦ биоразнообразия наземной биоты восточной Азии ДВО РАН,
Дальневосточный федеральный университет,
Владивостокский общественный фонд развития генетики

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MOLECULAR OR CHROMOSOMAL SPECIATION IN THE "MAXIMOWICZII" SPECIES GROUP OF THE GENUS ALEXANDROMYS?

Irina V. Kartavtseva
Federal Scientific Center of the East Asia Terrestrial Biodiversity, Far Eastern Branch of the Russian Academy of Sciences, 690022 Vladivostok, Russia

Speciation often occurs during periods of isolation. Isolation itself is not the cause of speciation. Mutations in DNA and chromosomes, as well as isolation of gene flow, can be the causes of reproductive isolation and speciation. The type of differentiation (genetic or chromosomal) determines the nature of speciation. As a rule, species or chromosomal races with a short period of isolation are distinguished by insignificant genetic and morphological differentiation or its complete absence (King, 1995). Such species are an excellent model for studying microevolutionary processes at the stage of speciation.

The species of the "maximowiczii" group of the genus *Alexandromys* - *A. maximowiczii* (2n=38) and *A. evoronenesis* (2n=34-41), *A. mujanensis* (2n=38) - inhabit various geographical regions of the southern Russian Far East. These species are ideal for studying microevolutionary processes at the initial stages of speciation. If the first species (*A. maximowiczii*) enters the territory of Russia with the northeastern part of its range (Buryatia, Zabaikalsky Krai, Amur Oblast, Jewish Autonomous Oblast, Khabarovsk Krai), then the other two species are located entirely on the territory of Russia: *A. mujanensis* inhabits the intermountain basins of northern Buryatia; *A. evoronenesis* inhabits three isolated mountain basins of Amur Oblast and Khabarovsk Krai. The karyotypes of these species differ in the number and morphology of chromosomes. For *A. mujanensis*, multiple chromosomal polymorphisms by pericentric inversions have been described. For *A. maximowiczii* and *A. evoronenesis*, in addition to chromosomal inversions, intra- and interpopulation polymorphism by multiple chromosomal rearrangements (inversions, Robertsonian and tandem fusions) has been identified. While polymorphism by Robertsonian fusions is relatively common in mammal populations, tandem fusions are rare. Five chromosomal forms have been described for *A. maximowiczii*, and two chromosomal races for *A. evoronenesis*. Despite the fact that, according to mt DNA data, these species have distances at the level of interpopulation, structural rearrangements are different for each species, and first-generation hybrids are sterile. Morphologically, the species are almost indistinguishable, which may indicate rapid speciation.

In this report I will provide an overview of chromosomal, molecular and morphological data showing the taxonomic independence of the three species and the leading role of chromosomal rearrangements in the speciation of the three species under consideration.