

Alien 2022: researchers teamed up to save the world from invasions

The research team, which includes representatives of 17 scientific institutions around the world, [published data](#) showing that preventing the spread of invasive species could save trillions. The study is published in the journal *Science of the Total Environment*.



Invaders are the types of organisms (animals, plants, pathogens) that are found in areas where their early "residence" was not recorded. The spread of invasive species largely is provoked by human activity. People may transport them intentionally for introduction for economic purposes. At the same time, the introduction of alien species can occur randomly, for example, with transport, cargo, plants and plant products, etc.

Scientists are sure that invasive species pose a great threat to the biodiversity of ecosystems.

*"Up until recently, researches on the economic impact of invasive species have been limited", notes **Natalia Kirichenko**, Cand.Sc., lead researcher at Siberian Federal University. "And if researchers focused mainly on documenting new cases of invasions, studying the biology and geography of invasive species earlier, today more and more work is devoted to the consequences of invasions, including the assessment of the monetary costs incurred by countries when alien species are introduced into their ecosystems. Our international team has joined forces to assess the economics of combating invasive organisms at the earliest stages before they are introduced and spread in new ecosystems."*



Scientists have analyzed data for more than half a century. Thus, since 1960, 95 billion USD have been spent on combating invasions in the world, while for comparison, the cost of damage over the same 60-year period was at least 1100 billion USD. Misunderstanding of the problem and delays in the management of invasive species have led to huge losses in both agriculture and forestry, as well as damage to infrastructure and the health system due to the spread of invasive organisms that can spread infections.

Scientists' calculations prove the effectiveness of preventive approaches to preclude the emergence of invasive species, i.e. timely implementation of measures aimed at enhancing biological safety.

"Once invasive species enter and settle in a new region, they are difficult to eradicate. Delayed control measures are costly and may not work in the long run. It is necessary to prevent the emergence of invasive species as early as possible, then agriculture and forestry, as well as other industries, will not suffer multimillion-dollar losses," emphasizes Natalia Kirichenko.

The research team includes representatives from: Queen's University Belfast, Helmholtz Centre for Ocean Research Kiel (GEOMAR), Paris-Saclay University, Carleton University, Gulf University for Science and

Technology, University of Aberdeen, University of Vienna, University of South Bohemia, Sukachev Institute of Forest, Siberian Federal University, Senckenberg Research Institute and Natural History Museum Frankfurt, University of Montpellier, Saint-Petersburg State Forestry University, University of Southern Denmark, Woods Hole Oceanographic Institution, Hellenic Centre for Marine Research and University of South Florida. On the Russian side, the work was partially supported by grants from the Russian Foundation for Basic Research (No. 0287-2021-0011) and the Russian Science Foundation (No. 21-16-00050).

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