

Drivers and impacts of the spread of alien species in Europe

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Species occurring outside their natural range due to human facilitation are called alien (synonyms: non-native, exotic). While most of these species integrate into native ecosystems without causing (major) problems, some of them can have considerable impacts on native biodiversity, ecosystems, human infrastructure and/or health, thus causing environmental or economic harm [1].

During my talk, I will specifically review the situation in Europe with a focus on plant species. Most of the plant species in Europe were introduced intentionally (e.g., as agricultural crop or forestry tree or for ornamental purposes [2] and then escaped [3]. Exchange across biogeographic barriers largely increased with human travel, transport and trade. Several environmental factors are related to spread of these species, such as rivers and canals, roads and railways. Furthermore, habitat disturbance and climate change are now known to increase invasibility [4, 5].

From an ecological point of view, this spread is most interesting and there are several methods to model spread under static and dynamic conditions. During my talk I will therefore provide an overview on the variety of model. Some of these models are based on ecological processes such as meta-population dynamics, colonization and extinction probability related to habitat characteristics, dispersal abilities related to species traits or using physical principles based on diffusion models [e.g., 6].

References

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