



Species' geographic distribution is the result of the interaction between their niche requirements and environmental conditions. Among these, the influence of climatic factors on both species' growth and global distribution is well known. Moreover, ecological and biogeographical barriers, such as oceans and large mountain ranges, allowed ecosystems to evolve independently. Therefore, species occurring in these ecosystems are adapted not only to the local climate, but also to each other, interacting in a delicate balance. Climate change is expected to cause shifts in the current geographic distribution of species, because their optimal habitat will likely change as a result of the re-arrangement of climatic zones. In addition, ecosystem balance can be severely disrupted in cases where species, for several reasons, cross the currently established ecological and biogeographical barriers.

The expansion of plant and animal species outside their natural distribution is a worldwide and common phenomenon. This is done either naturally, in a slow gradual way, or more rapidly, assisted by humans. These alien species adapt well if they are introduced in sites with climate similar to that in their natural distribution. Historically, humankind has greatly benefited from the introduction of alien species (e.g. potatoes and maize in Europe). In modern times, the rates of introduction and establishment of alien species are continuously rising due to globalization.

Among these species, a large number has been "naturalized" in their new environments, and they can be found in several natural habitats. Although many alien species have difficulties growing and reproducing in areas away from their natural range, some others are surprisingly favored by the new environments and rapidly expand as, in most cases, they do not have natural enemies. These species have become invasive, having multiple negative ecological, economic and human health impacts.



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The monitoring scheme of the IASON project includes five spatially distanced deltaic study areas, sharing common characteristics, but with different environmental management backgrounds.

- Danube Delta (Ukraine & Romania)
- Nestos Delta (Greece)
- Kizilirmak or Halys Delta (Turkey)
- Chorokhi & Kolkheti Deltas (Georgia)

Cover photo

Amorpha fruticosa an invasive alien species recorded in Nestos river

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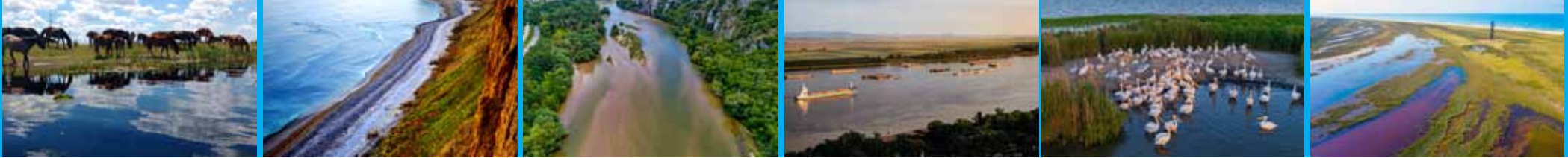
Common borders. Common solutions.



IASON

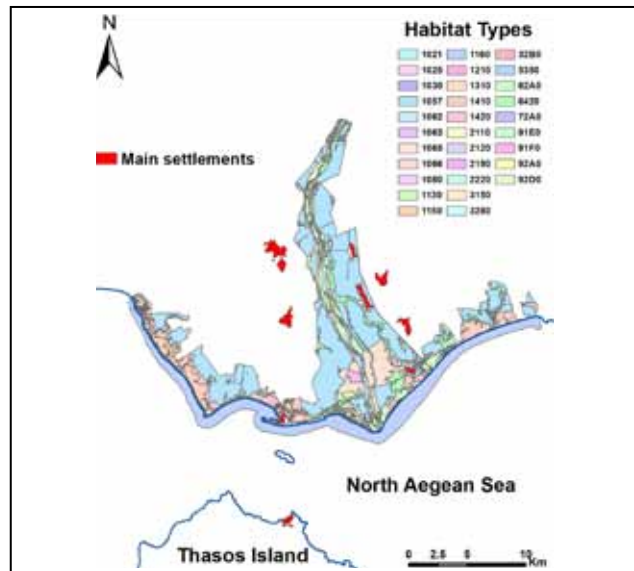
Invasive Alien Species Observatory
 and Network Development for the Assessment
 of Climate Change Impacts in Black Sea Deltaic
 Protected Areas





The adaptation and thus the distribution of invasive alien species (IAS) is mainly climate driven and this is why they can be found in a number of countries that are far from their native distribution range.

It is well known that invasive alien species are among the main drivers of species extinction and global biodiversity loss. More specifically, IAS represent a threat to native fauna and flora, while they can also greatly impair ecosystem function and health and cause the loss of goods and services. Specifically in Europe, they cause damages amounting to many billions of euros. Increasing pressures on ecosystems, caused mainly by the destruction of habitats, spread of IAS, over-exploitation and pollution, are weakening ecosystem resilience and the ability to adapt to new conditions under climate change, and thus the capacity for providing ecosystem services is continuously declining. Within the changing global environment, the Black Sea is located between the European and Asian crossroad and in the transition between the Mediterranean and North Eurasia.



A great number of stakeholders have developed economic activities around the Black Sea coastline, especially at deltaic areas, which are known for their density in population and growth potential (fishing and fisheries, aquaculture, tourism and recreation, farming, etc.).

Historically, the Black Sea has been invaded by alien species from the Indian Ocean in the East and the Mediterranean Sea in the West due to various reasons. Invasive Alien Species (IAS) is the central theme of this project, because they may dramatically alter not only ecosystem balance, but also a range of already well-established socio-economic activities, if not sufficiently monitored and assessed.

The overall objective of the project is to establish and carry out joint monitoring actions on IAS in the Black Sea deltaic ecosystems of five countries (Georgia, Greece, Ukraine, Romania and Turkey) and assess their response under current and predicted climatic conditions.

The specific objectives of the project are to:

- ➔ Develop and implement the joint monitoring and risk assessment procedures on IAS in the project's nature protected areas and motivate and assist countries in creating their IAS inventories.
- ➔ Improve long-term cross-border collaboration, dissemination of information and research capacity through the use of innovative IAS monitoring technologies.
- ➔ Improve cooperation on IAS monitoring through public involvement at various levels of the project.



Alien species are species that have been introduced by human action, accidentally or intentionally, outside their natural distribution.

Invasive alien species are species whose introduction and/or spread by human action, accidentally or intentionally, outside their natural distribution threatens biological diversity, food security, and human health and well-being.