

Activity 04: Endemism and Cosmopolism

Endemic and cosmopolitan plants in the context of human influence



Objective: Learners get to know humans' influence on ecosystem on the example of shipping and the related effects onto endemic and cosmopolitan species.

Learning outcomes: Learners are able to analyze a text and depict its content. They are able to explain the problem that's presented and critically reflect upon its effects. They are able to state their own opinion reasonably and discuss measures for improvement.

Previous knowledge: Factors influencing endemic and cosmopolitan species; biological invasion

Duration: 60 min

Materials / Conditions: Text (cf. Material 1, Resources section), internet access

Methods / Techniques: description, discussion, creative thinking

Learning subject: Biodiversity / Module I: Introduction to biodiversity / Level: Expert learning

Introduction:

Is the distribution of cosmopolitan species and the related elimination of endemic species a man-made problem?

Instruction:

1. Read the following text on ballast water (Material 1, Resources section). Analyse the problem related to it.
2. Explain the problem that arises for endemic plants when cosmopolitan species migrate into their habitats. As an example, you might want to choose a coral reef which is a very sensitive ecosystem.
3. Discuss how one should handle this issue.

Resources:

Own Text: The Problem with ballast water

In the modern shipping, the ship is loaded with water to compensate the imbalance or to complain empty freighters, called ballast water. This water is usually taken from the start-harbor and therein are a lot of organism, which accumulate near the coast. With the beginning of the trip in direction goal-harbor, a stressful trip for the stowaways, which are unintentionally in the ballast water, apart from those, who carried on the outer wall or on board. Arrived at the port of destination, the entrained water is released back into the sea. For new loadings get new water from this harbor into the interior from the ship, so there is a balance. The organisms that have survived such a stressful trip, are now placed in a new foreign ecosystem. Are these organisms cosmopolitans or genes realists who could survive in many places of the world, they come as an additional species in the ecosystem. This can bring serious consequences, especially for sensible ecosystems and for endemics therein.

Possible results / Results:

- Cosmopolitan species intrude ecosystems and disturb their balance
- Cosmopolitan species can be predators of endemic species or feed on the same nutrition which

leads to an increased competition

- Endemic plants are highly affected by stress
- Students will come up with different solutions

Related activities:

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