Activity 15: Human being and Biodiversity

The use of bees in the USA

Objective: Getting to know effects oft he wrong use of bees Students learn about the importance of bees for ecosystems and biodiversity.
Learning outcomes: Learners are able to explain and systematically reflect upon the effects oft he use and design os space. They are able to analyse spatial processes and structures and their effects on society andf environment and think in alternatives.
Previous knowledge: Learners know about the importance of bees and are able to describe their habitats
Duration: approx. 35 min.
Materials / Conditions: cf Resources
Methods / Techniques: description, text work, Gruppenarbeit möglich, Transferdenken
Learning subject: Biodiversity / Module I: Introduction to biodiversity / Level: expert learning

---

Introduction:
Every year at the time the almond blossoms bloom almost the entire amount of bee colonies in the USA is brought tot he almon plantations in California. The increasing size of cultivated land demands for an enormous amount of bees to reach the best yield. At the same time the USA are facing a huge amount of dying bees (resulting in colony collapse disorder) which could pose a real threat. Could there be a correlation between these two facts?

Instruction:
1. Based on your pre-knowledge or a research on the internet, explain the importance of bees and their usual natural environment.

2. Based on the text „Honeybee in the USA“ (Material 1, Resources section) explain the use of bees for the almond production and for humans in general.

3. Use the information provided in that text to describe the effects of the way bees are used here.

4. Discuss alternatives how to handle the way bees are treated here.

Resources:
Material 1: The Honeybee in the USA

The honeybee was introduced tot he US not before the 17th century by European settlers, which is why the US-American honeybee possesses a very limited gene pool only.
While there was a sufficient amount of bees to polenize 60,000 hectares of almond tree plantations in California in the 1960s, nowadays a huge amount oft he entire US American bee colonies hast o be transported to California fort he dusting of almond trees. The almond production takes up a total size of approx. 300,000 hecatres.
Plantation owners rent beehives from industrially organized beekeepers which are then delivered from all parts oft he US, travelling hundreds of kilometres. Those mobile beekeepers recently ensure the dusting of all arable land in the US. The junction between colonies with pesticied from different

regions is a major threat. The numerous transports and nonstop swarming on plantations cause a huge amount of stress. They lose their orientation or knowledge about seasons. Queens die earlier and are often substituted when they do not work efficiently enough anymore.
Beekeepers act more and more like cattle breeders, their plantation feeding and therefore necessary supply of medecine correspond to a very aggressive form of beekeeping: bees are exploited until death. Their survival in ensured by short stays in each plantation (almond tree, apple tree) but their livespan is definitely reduced in any case. That way, the honeybee becomes a disposable worker.

Source: http://www.salzburg.com/wiki/index.php/Bienensterben (Abgerufen am 31.08.2015)

Possible results / Results:
1. Dusting of plants → development of fruit etc. production of honey, bee wax, pollen and bee venom; bees live in a natural environment with many different species

2. Controlled dusting of almond trees through bee = increase in production and plantation size, therefore higher yield and turnover

3. Loss of genetic diversity, spread of pesticides, monocultures, dying of bee colonies through exploitation, no more dusting humans have to take over the bees‘ work

4. E.g.: Small plantations with a natural environment and many plants, avoid long transportation routes

Related activities:

Author: Hirthe, Johanna
Aus dem Deutschen übersetzt von Jana Prokaka