A list of invasive plant species with non-agricultural impact

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Invasive plants, which consequences ?

In France, according to the Centre de Ressources des Espèces Exotiques Envahissantes (Resource Centre for Invasive Alien Species), there are 248 species of introduced plants in mainland and overseas France. Some of these species have an agricultural impact, while others have a significant impact on human health, biodiversity and landscapes. The economic costs associated with these invasive species are also considerable. According to a study published in 2021, the cost of invasive species, both animal and plant, is estimated at between 1.14 and 10.2 billion euros over 25 years (Renault et al., 2021). In addition, it shows that a large number of species remain poorly known and that, as a result, the costs and damage caused by them are very difficult to measure. This poster describes a number of invasive species in terms of their impact on human health, biodiversity and the landscape.

Health

Generalities

Few invasive plants can have consequences on human's health. Among them, the Ambrosia genus with the most problematic : *Ambrosia artemisiifolia*. Ambrosia can cause allergic reactions. One other plant causes health issues, *Heracleum mantegazzianum*, which is toxic by simple contact with the skin.

Consequences

Allergic conjunctivitis
Brown spots on the skin
Asthma
Dermatitis, Itching
Skin burns
Eczema
Tracheitis
Allergic rhinitis, sneeze and cough

Repartition of *A. artemisiifolia* (INPN)

Repartition of *H. mantegazzianum* (INPN)

In French population, 6% to 12% is sensitive to *Ambrosia* pollen (FREDON Bourgogne Franche-Comté, 2019)

Ambrosia artemisiifolia

H. mantegazzianum can cause second degree burns

Origin

H mantegazzianum is originary from East-Europa, near to Caucasus mountain. It has been introduced during the 19th century as an ornemental plant. *A artemisiifolia* is originary from North America and has been introduced in 1823 in Germany. Today both plants are wide spread in mainland France.

***Ambrosia* species cost 40 million euros per year** (Courchamp, 2021)

Heracleum mantegazzianum

Biodiversity

Mode of action & consequences: *Ailanthus altissima* [1] and *Humulus japonicus* [2], are invasive plant species that aggressively colonize natural habitats, disrupting the balance of local ecosystems and diminishing biodiversity. *A. altissima* have allelopathic activity with other plants, which inhibits their germination and growth , while *H. japonicus* smothers native plants, altering wildlife habitat and the local plant community. Similarly, *Solidago canadensis* [3] and *Phyllostachys aurea* [4] can significantly impact ecosystems by outcompeting native species and reducing habitat diversity. *S. canadensis* can alter soil nutrient levels, while *P. aurea* forms dense monocultures, displacing native vegetation.

Invasive species, including plants, are the second most important cause of biodiversity loss (Bellard et al, 2016)

Landscape

L. grandiflora, an aquatic plant, can cause :

- **Impeded flow of the water**
- **Filling in of ecosystem** --> Plants reduce sedimentation and contribute to organic mater accumulation
- **Altering water quality** --> alter pH and oxygen concentration

Ludwigia grandiflora

Reynoutria japonica

R. japonica can destabilize river banks and contribute to their destruction

Tree : Deep and permanent roots

R. japonica : Superficial roots and rhizomes

Plants control

How to control invasive plants ?

1. **Monitoring :** Carry out monitoring on affected plots and randomly survey of the territory to detect invasive species.

2. **Managing :**

Physically or mecanically uprooting or cutting the plant

Usage of chemicals

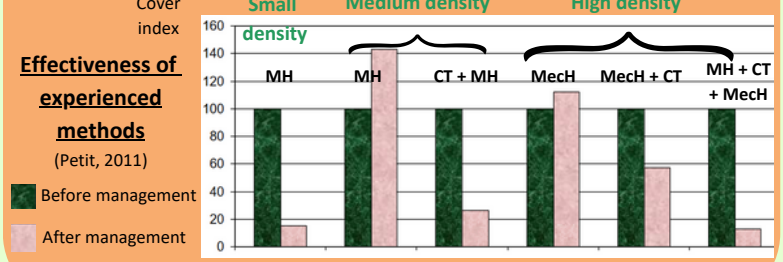
Introduction of biological control agent

Integrated management : combining multiple methods

Example of *L. grandiflora* in Poitevin marshes

First detection in the marshes in 1991 --> important issues and nuisances
Control plan started in 1994 for 4 years --> observation and cartography
Management plan started in 1999 --> 3 methods developped (Results below)

Effectiveness of experienced methods (Petit, 2011)



MH : Manual Harvesting **CT** : Chemical treatment **MecH** : Mecanical harvesting

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