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Pollen concentration of invasive tree of heaven (*Ailanthus altissima*) on the Southern Great Plain region, in Hungary between 2019 and 2020

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Ailanthus altissima

Bálványfa, tree of heaven, ghetto palm



Introduction

- *Ailanthus altissima* is an invasive and allergenic¹ plant.
- In areas where the tree of heaven (*Ailanthus altissima*) appears and multiplies, the original vegetation degrades and transforms.
- The highlight invasive tree of heaven is also of great importance in urban environments, where it causes building damage, static problems and endangers utilities.

¹Mousavi et al. (2016)

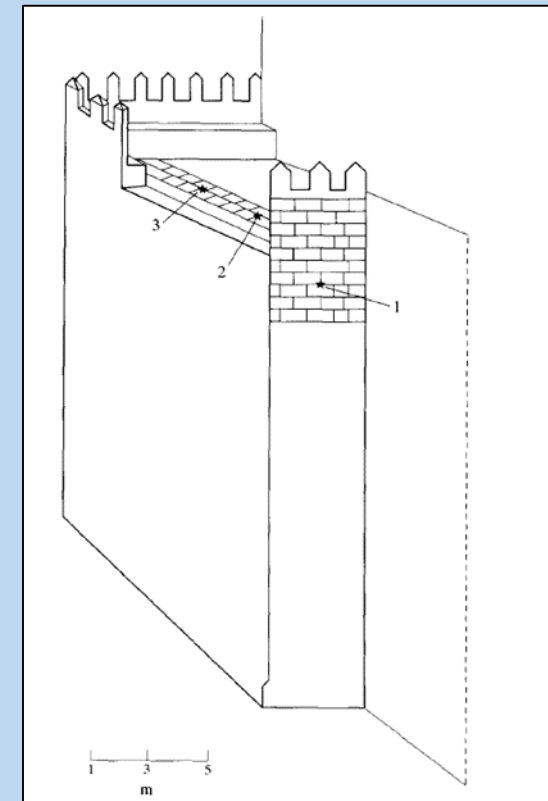


Bari, Italy
Casella, F., & Vurro, M. (2013)



It causes 35 types of damage:

- aesthetic,
- health,
- safety,
- environmental (allelopathy) risks



Coimbra, Portugal
Almeida et al. (1994)

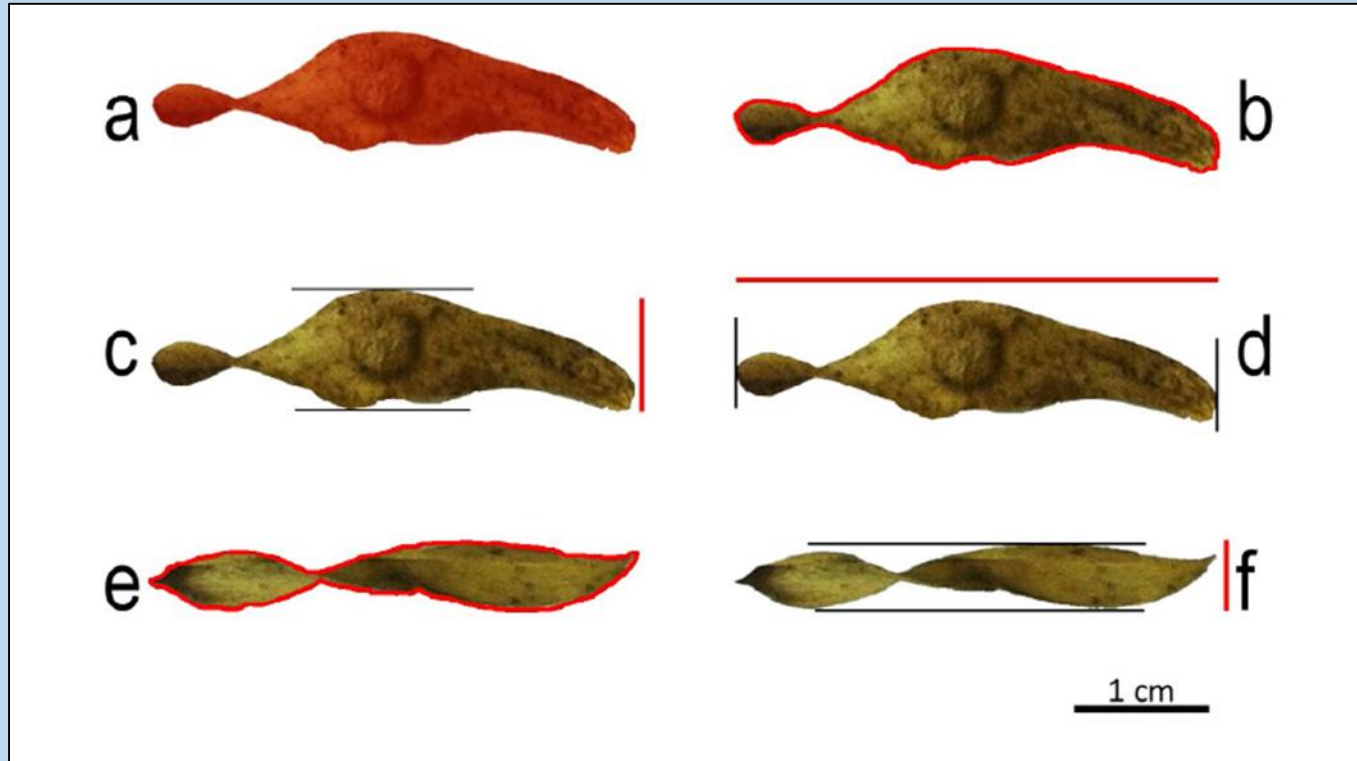
Monument protection:

- Root exudates break down limestone
- Root growth stretches the facade elements



Spread I.

325,000 crops / year / tree



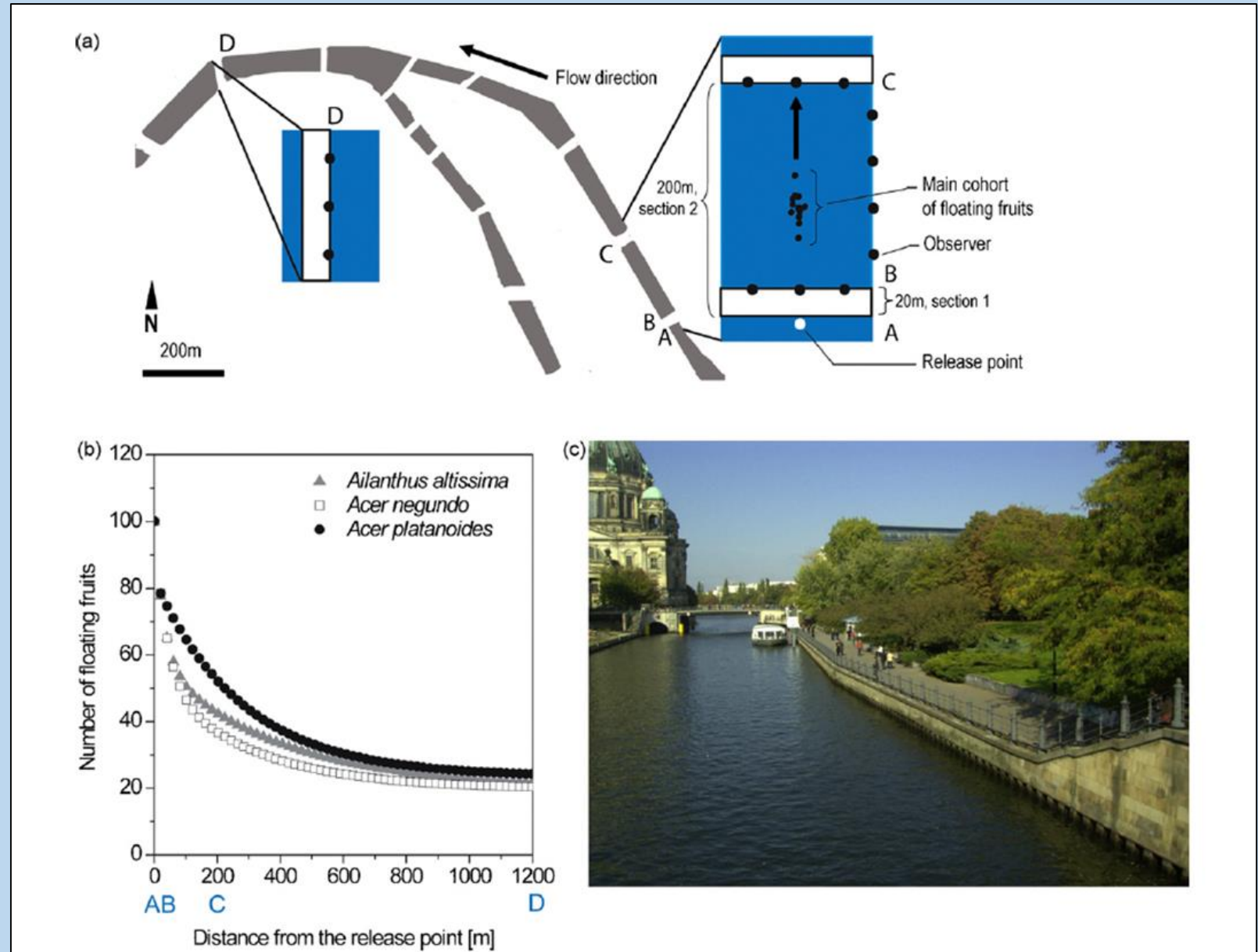
Anemochor: spreads effectively with the wind.

The 3-dimensional shape of the crop ensures efficient and long-distance spread with the wind.

Its fruits can travel up to several kilometers by wind.

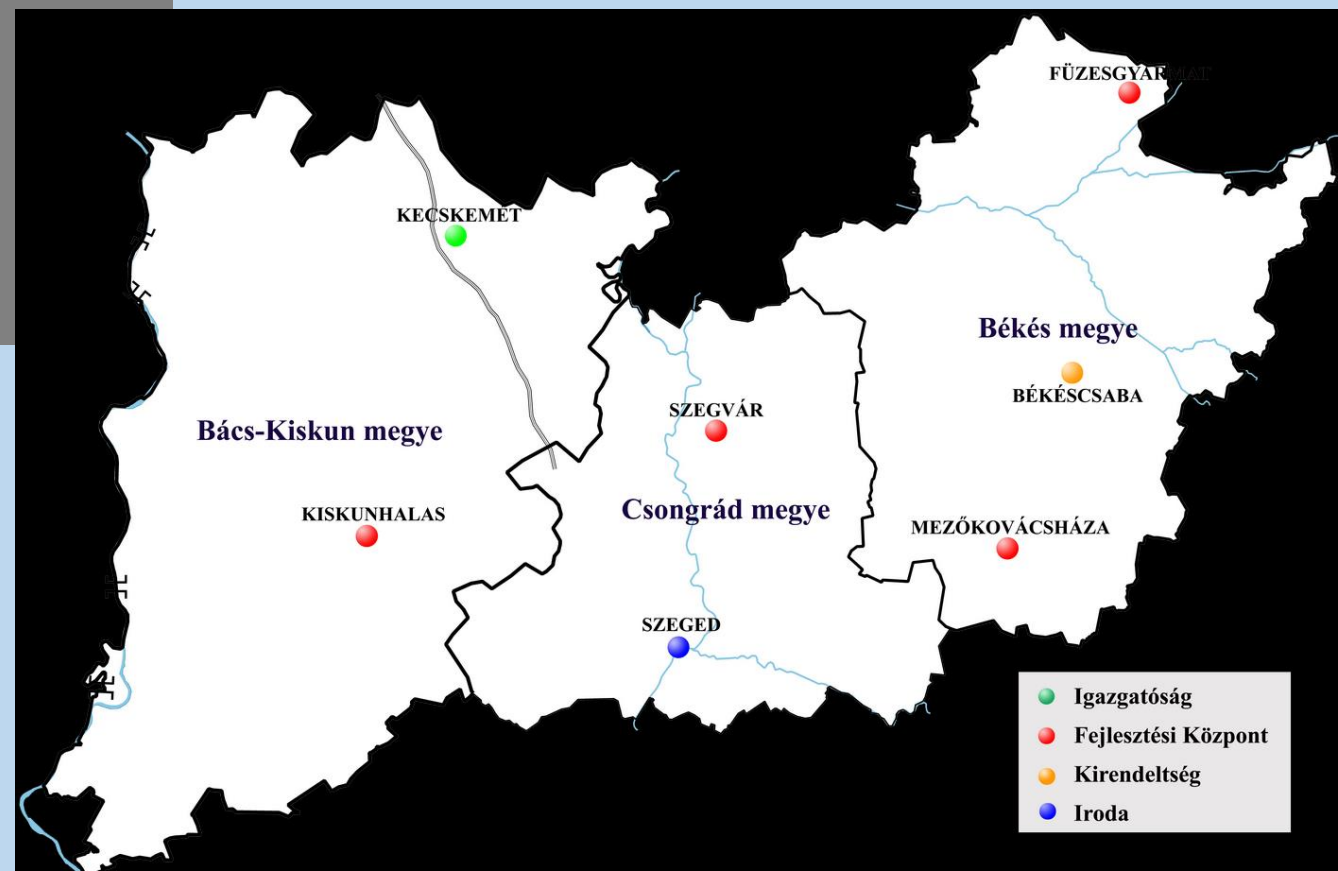
Hydrochor: spreads very effectively along rivers

Spread II.

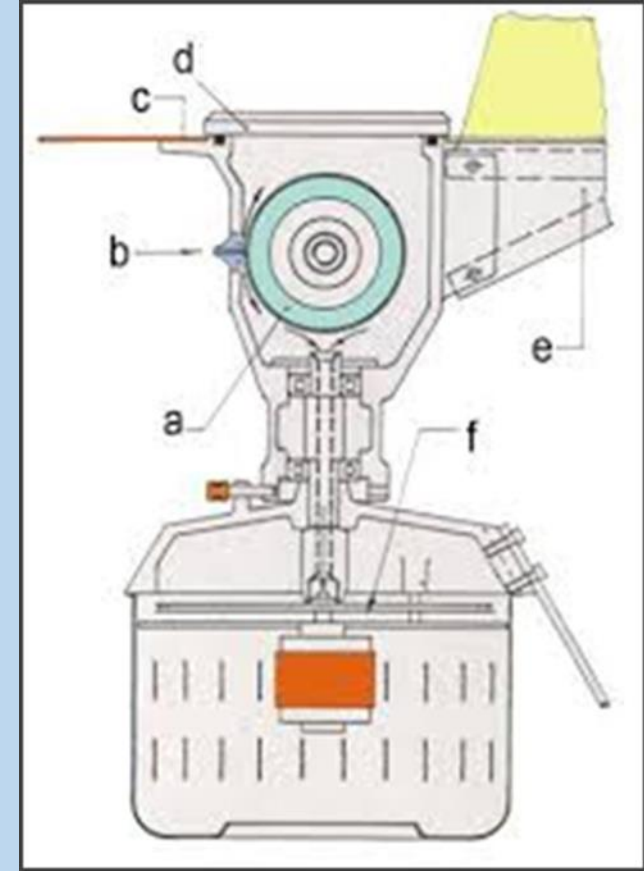
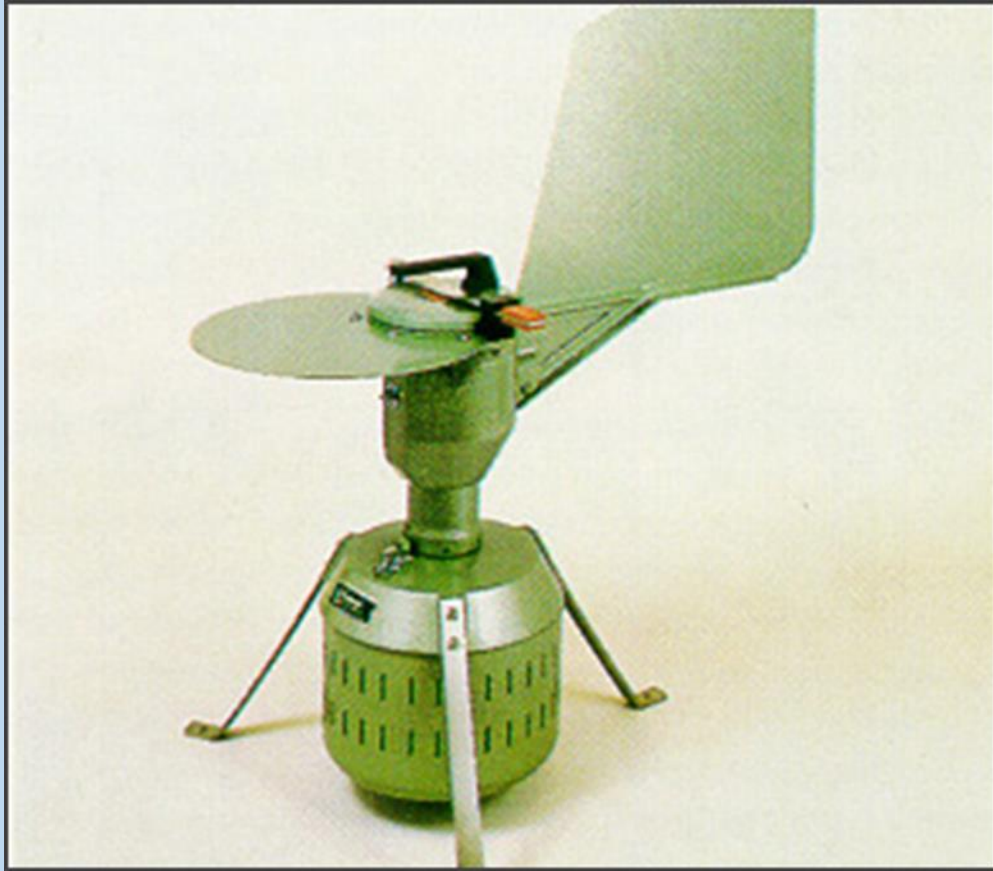


Material and Methods

- Pollen concentration was measured with a 7-day Hirst-type (Burkard) pollen trap.
- Pollen concentration measurement time:
 - ❖ 2019
 - ❖ 2020
- Location of pollen concentration measurement:
 - Kecskemét (Bács-Kiskun county)
 - Szeged (Csongrád-Csanád county)
 - Békéscsaba (Békés county)



A 7-day Hirst-type (Burkard) pollen trap



Results (Kecskemét)

Years	Annual total pollen count (pcs)	The day of the highest pollen concentration	Maximum daily pollen concentration (pollen / m ³)	Number of pollen days
2019	66	7 th June	14	13 days
2020	54	11 th June	7	21 days

Results (Szeged)

Years	Annual total pollen count (pcs)	The day of the highest pollen concentration	Maximum daily pollen concentration (pollen / m ³)	Number of pollen days
2019	36	7 th June	15	6 days
2020	33	24 th June	4	17 days

Results (Békéscsaba)

Years	Annual total pollen count (pcs)	The day of the highest pollen concentration	Maximum daily pollen concentration (pollen / m ³)	Number of pollen days
2019	0			
2020	16	18 th June	3	9 days

Conclusions

- The extent of the prevalence of *A. altissima* can be deduced from the pollen concentration. For this purpose, multi-year pollen data are displayed on a result map in which areas characterized by different pollen concentrations are represented by colour codes.
- The mass appearance of *A. altissima* is a serious problem in almost all areas (National Parks, forestry, inner city zones and towns), where its control/eradication would cost millions of euros.
- In the solution, we provide useful data with pollen monitoring.

THANK YOU FOR YOUR ATTENTION!

