



**Strategies to eradicate
Ailanthus altissima
and break its life
cycle.**

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Budapest, avril 2016.

How to clean the inert waste?



Area to area, everything can get cleaned.

Start wherever you want, they don't decide the agenda.

But *Ailanthus* does

Proposed strategy to prevent the *Ailanthus* biological cycle

1.- Attila: Kill all *Ailanthus* fast.

Females are a priority



2.- Herod: Disable seeds where Attila has been applied.



3.- Alice: speed up. Attila all year long.



4.-maybe *Verticillium* (?!)

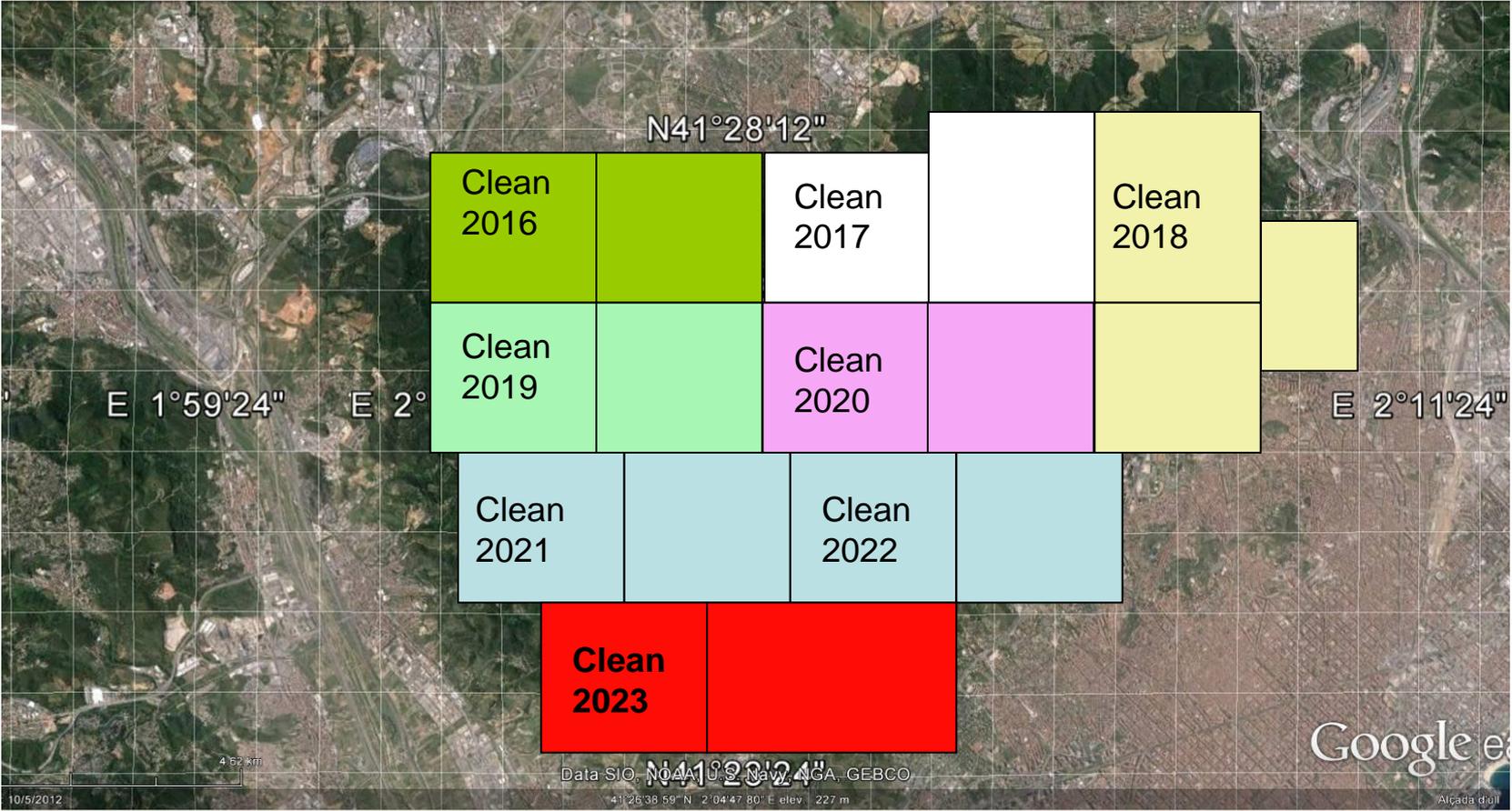


1.-Operation Attila

*“ There, where I have passed,
the **grass** will never grow again.”*

Systematic action: Area after
area, year after year: No
roots or specimens are left
alive

Attila: killing 100% *Ailanthus* in each 8 color sections. So in 8 years the *Ailanthus* problem will be finished?



Results “Attila” in 2023 : *Ailanthus* is growing again in **ALL** sections.



2016..2023
New trees with seeds

2018..2023
Few seeds

2021... 2023
shoots



2023 ..Seeds in the ground



Because many *Ailanthus* seeds rest in ground ... (how many years?)

And may be it's worst...

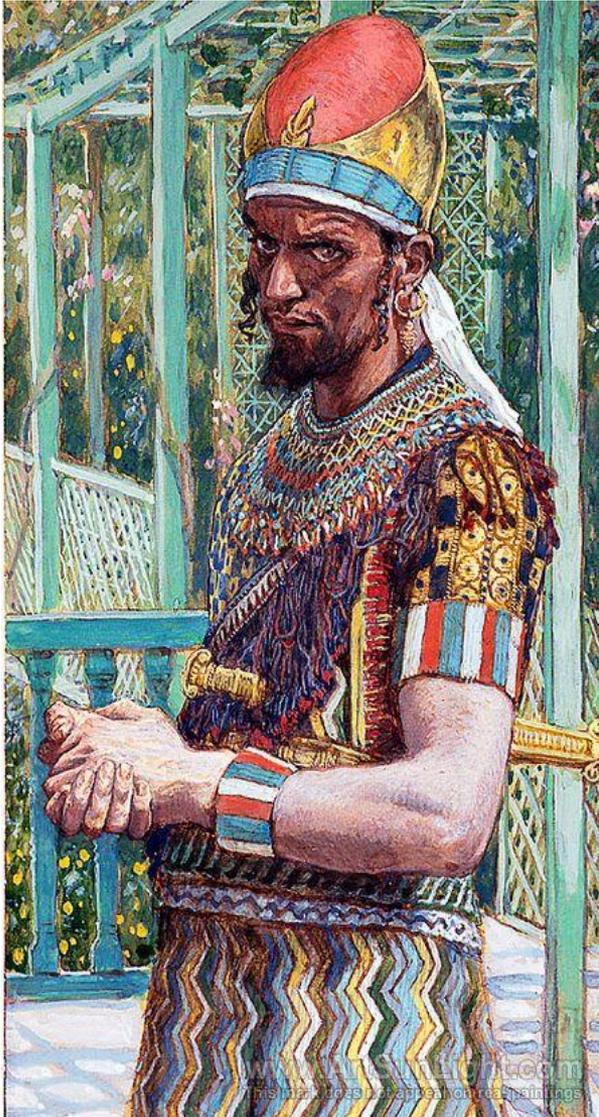
Tree of Heaven - Biological Highlights



- 2 to 3 yr old plants can produce viable seed
- Up to 300,000 seeds / yr for mature tree
- Seeds disperse up to 330 ft from parent
- Sprouts can grow 10 to 14 ft tall in first year and maintain this growth rate for up to 4 yrs

Interventions slower than their reproduction speed will not end the problem. It results in a waste of money





2-Operation Herod:

“Slaughter of the innocents”

The viability of the seeds seems decline after one year, but isn't zero.....

Herod must be used when **EVERY** seed has already sprouted.

After July, not before.

Herod: hand pulling or foliar herbicide spraying



Ready for **hand pulling**



Herod: spray carefully
when there are many...



Alice "Through the Looking Glass"



- The Red Queen was right:
- “We have to run *FAST* to keep only in place against *Ailanthus!*”

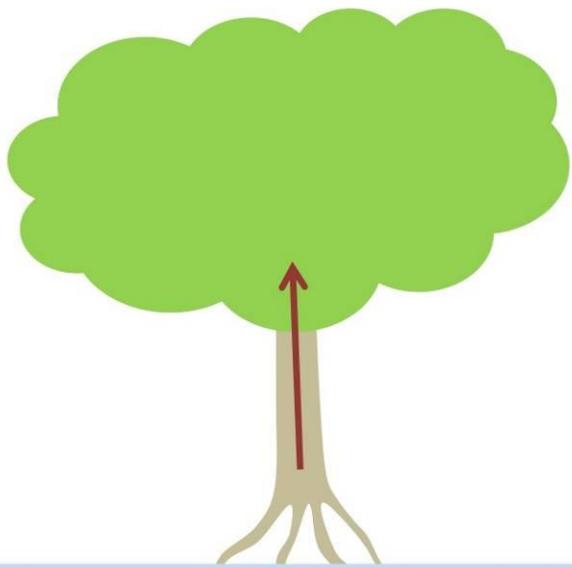
3.- Speed up: Alice



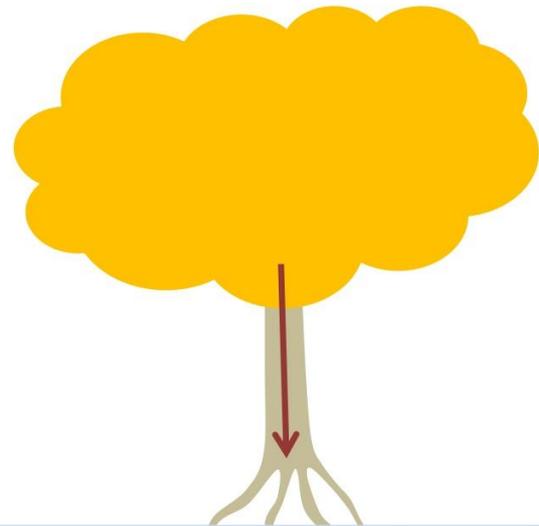
Interventions can be performed all year long, including winter, eliminating trees and roots

- Cutting trees before drilling (!)
- Hand pulling young trees

But... In *winter* it works?



Spring and early summer – sap flowing up, and systemic herbicides cannot easily reach roots.



Late summer and fall – sap flowing down and systemic herbicides can reach roots.

**You must apply herbicide
only near the roots**

In winter better drill roots too.

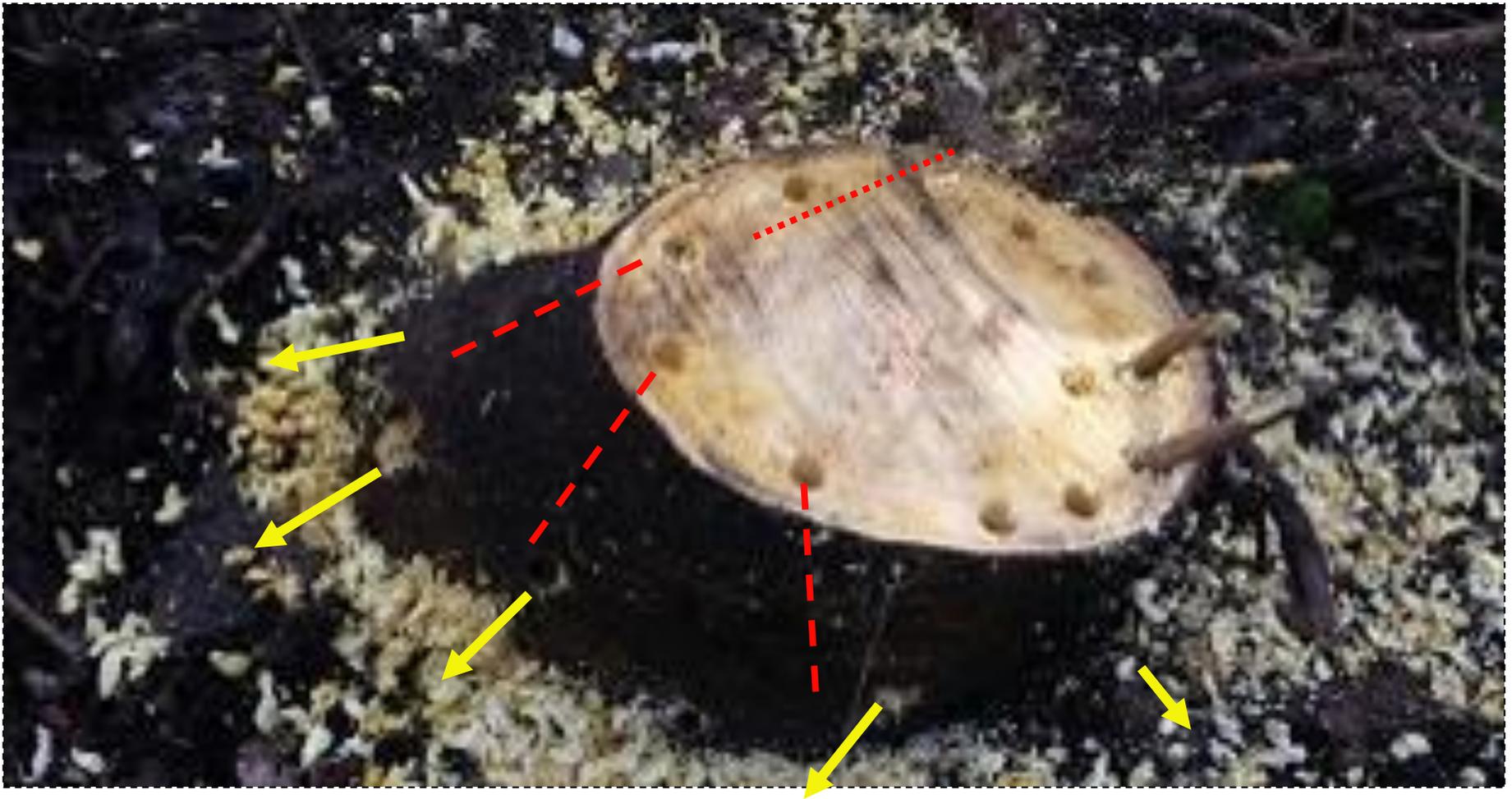
Drilling sloping deep holes in the last ring floema. Herbicide can't be lost to the aerial section of the tree. Only near a key place: roots



Winter: Comparing absorption herbicide between center and floema.

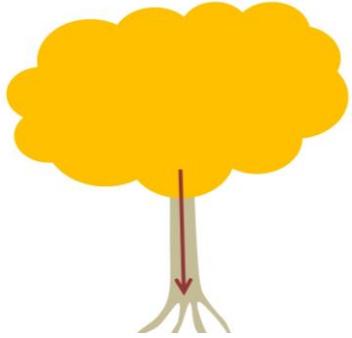


Drill deep inclined holes in order to reach as many floema "pipelines" as possible.
Repeat near the ground. A big dose will reach the root .



Action herbicide

Fall



Winter



Cutting tree and drilling section)

Drilling trunk



** Optimus translocation

** Easy positioning of the holes

** A small dose of herbicide is enough

** The herbicide is very concentrated in the roots

4.-Verticillium ... Can help?

Mix some soil from the forest with water and leftovers from dead Ailanthus with an orange colour. Inject or apply to wounds. Not as effective as american *Verticillium albo atrum* but remains in the ground for years and weakens them (50% mortality in some areas)



White = Healthy



Orange = infected

The End: Red Queen was right



*We have to run VERY FAST to keep in place... and WON **Ailanthus!***