

Overview of non-patented techniques used to control *Reynoutria japonica*

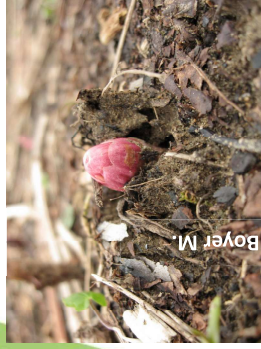
Mireille BOYER, Head of the Invasive Species Division at
AQUABIO and President of the Invasive Species Working
Group of UPGE.



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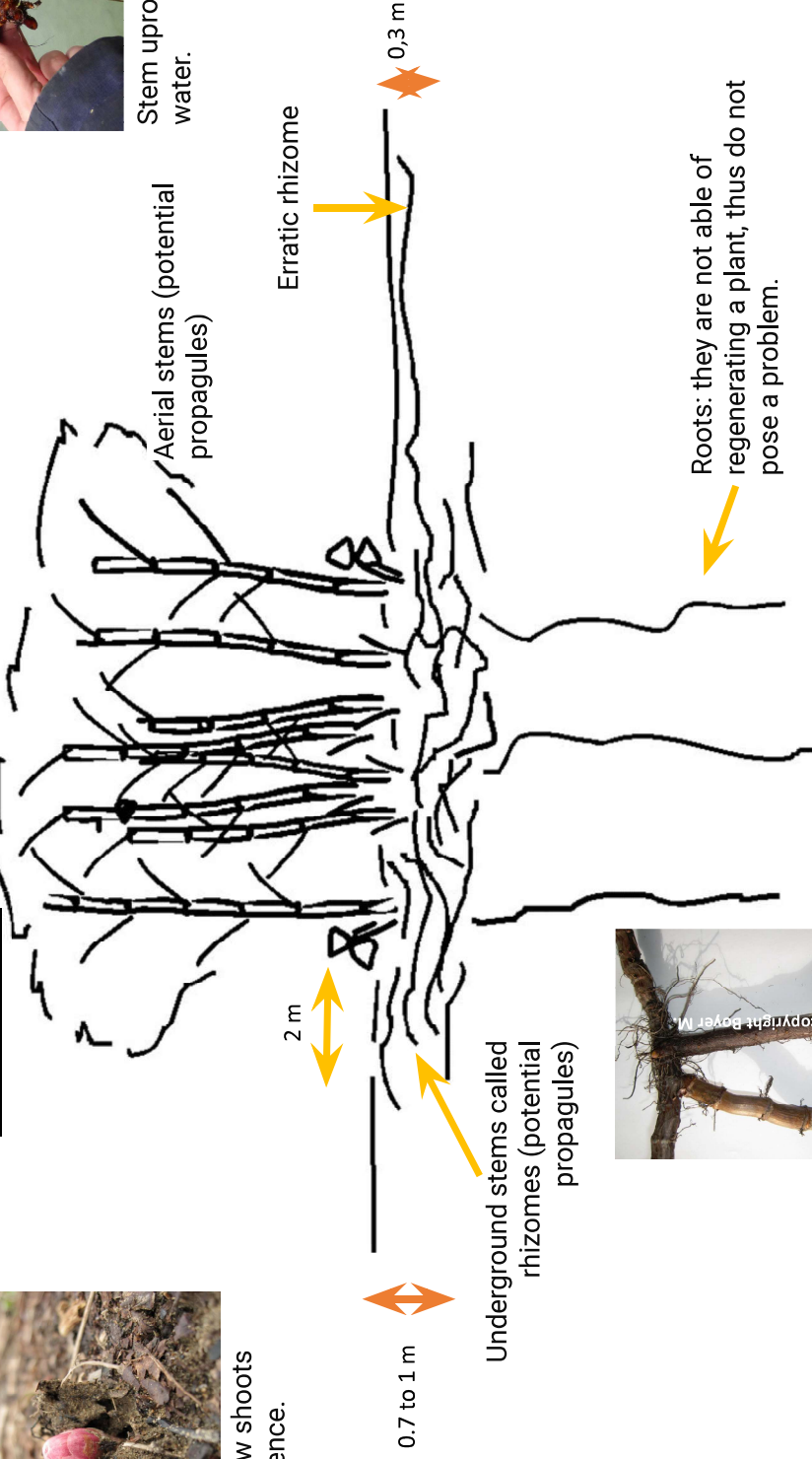


Some characteristics of the plant



Spring's new shoots emergence.

Cross-sectional view



rhizome → roots



Stem uprooted and transported by water.

Soil invaded by rhizomes



Earth-moving produces
80 to 600 vegetative
propagules (rhizome
fragments) per cubic
meter of terraced soil

**Rhizomes = 63 % of dry weight
and 86 % of soil volume**

Sexual reproduction: very inefficient



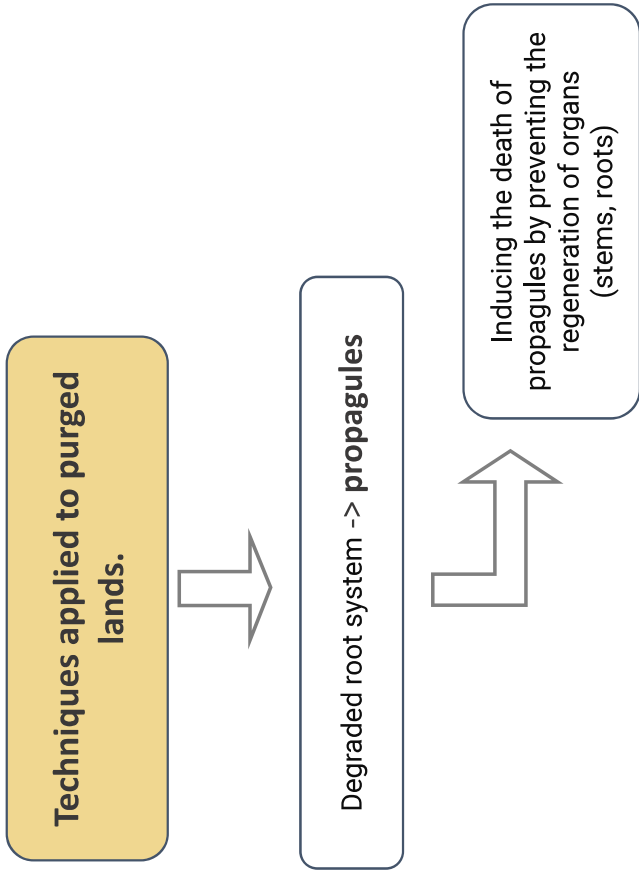
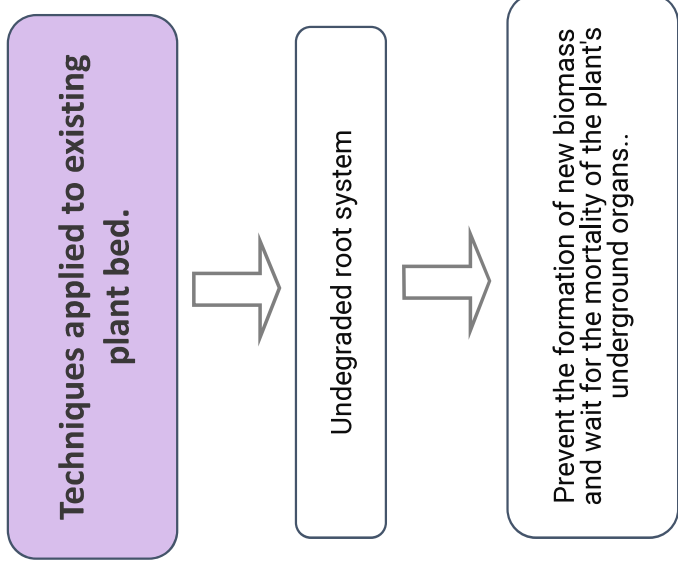
Japanese knotweed seedlings sown in June compared to other seedlings of local species

The risks of plant control

- Any direct management of the plant carries a risk of dispersion. This risk must be assessed before and during the work.
- Mechanical interventions represent the highest risk. Large areas or large volumes of soil can easily be 'contaminated' by handling errors.



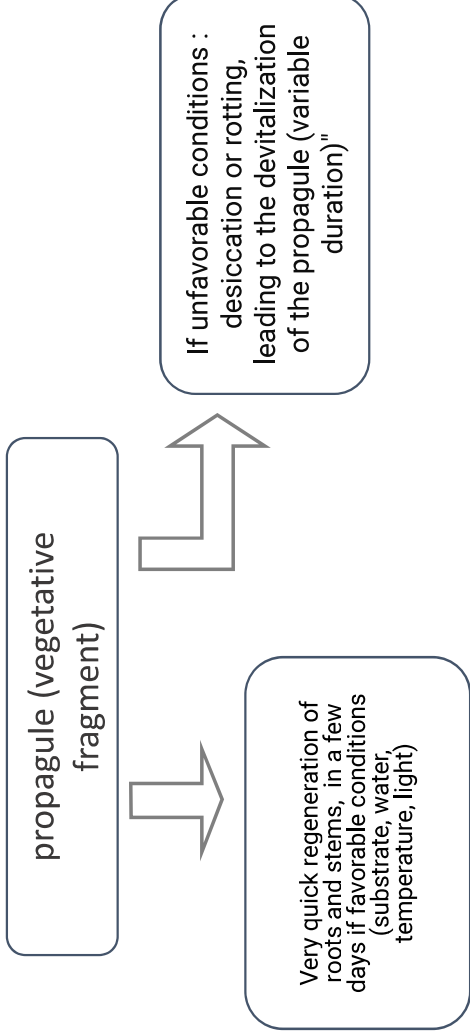
Understanding the effects of the techniques used



The propagules resulting from rhizome fragmentation



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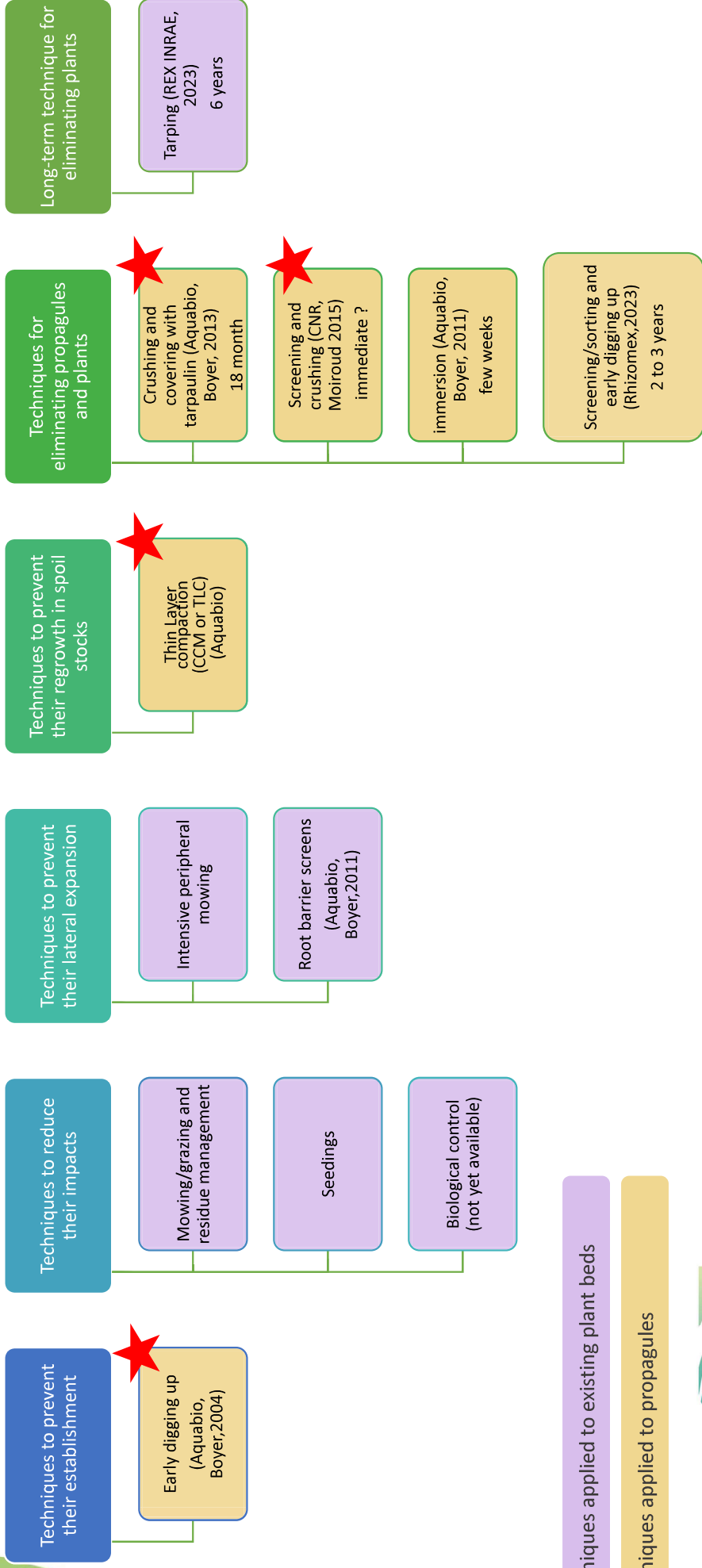


Very small rooted rhizome fragment



What management? For what objectives?

Non-patented techniques



Technique to prevent their establishment

Early digging-up



Manual technique with complete removal of the seedling

applications :

- On watercourses to combat the natural dispersion of Japanese knotweed
- On construction sites to control unintentional soil losses



Techniques to prevent their regrowth in spoil stocks

Thin Layer Compaction
« TLC or CCM »

Treatment of debris invaded by plants on earthworks
construction sites



BOYER (AQUABIO), 2012

Compaction, grinding of rhizomes with the tracks of machinery:

- No regrowth (anoxia) and very slow decay of rhizomes
- Does not work for the upper soil horizon!
- Only if soils buried deeper than one meter



Techniques for eliminating plants



Crushing and Tarping

application :

- several hundred to thousand cubic meters of soil to be treated



Living rhizomes

Crushing soil + rhizomes



Tarping (black plastic tarp) - 18 month



Dead rhizomes

Treatment of debris invaded by plants on earthworks construction sites



Techniques for eliminating plants



Crushing and tarping

Tarping for 18 month



Control



Techniques for eliminating plants



Crushing and tarping

Moiroud (CNR), 2012-2015

- Usse (essais)
- Yzeron : 21 500 m³
- Romanche : 18 000 m³
- Rhône : 20 000 m³

Excavated soil

Screening 0-10 mm

thin reusable soil



application :

- For a few thousand to ten thousands of cubic meters of soil to be treated
- ! developed in Rhône-Alpes (Fr), to be tested in other regions

Rejects : coarse elements, rhizomes, woody elements

Crushing 0-10 mm

Screening 0-10 mm

Rejects > 10 mm

Devitalization of propagules

