

Phoenix One Sterility and Invasiveness summary

This paper sets out the evidence to support the sterility, non invasiveness of Phoenix One (the cultivar to be planted in this project) alongside the management and risk assessment approaches to monitor.

Summary

Continuous trial work over the past 7 years at the University of Bonn trial site for the Phoenix One cultivar has demonstrated the cultivar does not produce fruits and wind dispersing seeds and is sterile. Any breakout (invasiveness risk) is limited to the potential for root suckering and/or vegetative propagation only and this has not been recorded as an issue during the 7 years of active trial.

Paulownia plant breeding

WeGrow GmbH supply the trees with over 10 years experience in propagation and growing Paulownia in Europe. Phoenix one is a cross between Elongata and Fortunei, therefore a hybrid. Each Paulownia plant is propagated using micro-cuttings from the parent tree under laboratory conditions and supplied with all relevant phytosanitary documentation conducive to EU legislation which renders the plants sterile. Due to this process, each plant is identical to its parent generation and so by definition, these hybrid plants are infertile and cannot reproduce.

Paulownia plantation management

The management of the plantation considers Invasiveness very carefully. Vegetative propagation and root suckering are unwanted in creating a new productive woodland and whilst there has been no evidence of this that we are aware of in managed European plantations, mitigation measures are designed into the woodland plan to counter this eventuality.

Within the plantation and around the Phoenix One root stock these consist of producing a fine seedbed to provide an unhindered growing medium, ensuring a stress-free management regime to alleviate the cause and need for root suckering, periodic mowing in between rows to encourage grass suppression of unwanted volunteer weeds, quarterly monitoring of the entire plantations to identify any new propagation around existing root stocks and applying spot contact herbicide treatment should this become necessary. The tree is apically dominant and once this is asserted then the tree would have no requirement to sucker.

Around the plantation perimeter buffer zones will be in place. These will ensure open areas between historic boundaries, hedges, transport routes, native woodland and water courses to allow for regular mowing and monitoring. The buffers will always be above 6 m and much wider (up to 70 m) in some cases to ensure complete demarcation from more potentially sensitive or higher risk features.

Invasiveness can not occur through sexual reproduction (seed, bud, pollen) as the plants themselves are infertile as evidenced by the trial work at the University of Bonn, Germany. Even if this were the case the conditions unto which seedlings require to germinate are not natural UK climatic conditions of low humidity, high heat and sunlight.

Invasiveness through vegetative means has also not occurred over the 7 years of trial work at the University of Bonn. Mitigation measures will be in place for good practice. Monitoring of invasiveness is a natural part of the woodland management plan and so should this become necessary spot herbicides would be used or offending root stock removed.

A risk register, available for others to view, will be an integral part of plantation management. This will include documentation of the key risks associated with invasiveness and clear management practise and mitigating actions.

Management practise will include:

- Inspections at least 4 times per year, noting any abnormality in tree growth.
- Monitoring of the plantation and open areas for seedlings.
- Open areas will be mown annually.
- Perimeter buffers will be inspected monthly monitoring any signs of suckering and the integrity of the deer fencing.

Remedial and mitigating actions

- Any plants suckering within the plantation will have the sucker removed & monitored and marked by geo tagging and revisited within 2 months of the initial siting.
- Plants that did happen to consistently sucker will be removed.
- Seedlings if seen will be destroyed.

The work at Bonn is ongoing and the most recent paper from 2020 is titled below:

Comparison of Inflorescence and Infructescence Within Different Paulownia Genotype Lines

Dipl.-Ing. agr. Peter Maximilian Diessenbacher

Data sampling took place at:

The Institute of Crop Science and Resource Conservation,
Rheinische-Friedrich-Wilhelms Universität Bonn, Germany