



IPSN

Building capacity for ash pest and disease surveillance in Eastern Europe: Botanic gardens as sentinel sites



BGCI

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Background

Ash trees (*Fraxinus* spp.) across Europe face significant pressure from two major threats:

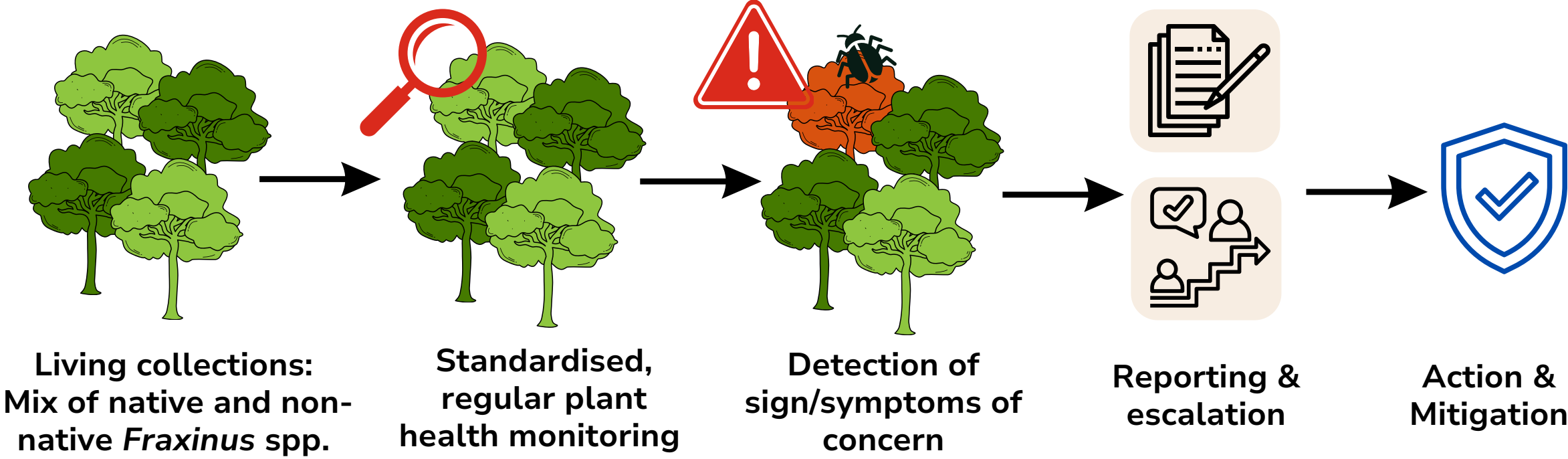
- The invasive Emerald Ash Borer (*Agrilus planipennis*)
- The fungus (*Hymenoscyphus fraxineus*) causing Ash Dieback

Early detection is critical for effective management. However, surveillance is often concentrated in forestry systems, leaving gaps in other landscapes.

Botanic gardens and arboreta — through their curated living collections — offer a unique opportunity to strengthen surveillance capacity.

Botanic Gardens as Sentinel Plant Systems

Botanic gardens' living collections act as sentinel plants, enabling early observation of pest-host interactions and providing an early warning system for emerging plant health threats.



Why Botanic Gardens?

Botanic gardens are vulnerable to pest & disease introductions due to their proximity to high-risk areas, movement of plant material, and high visitor traffic.

However, are also uniquely positioned to contribute to plant health surveillance through:

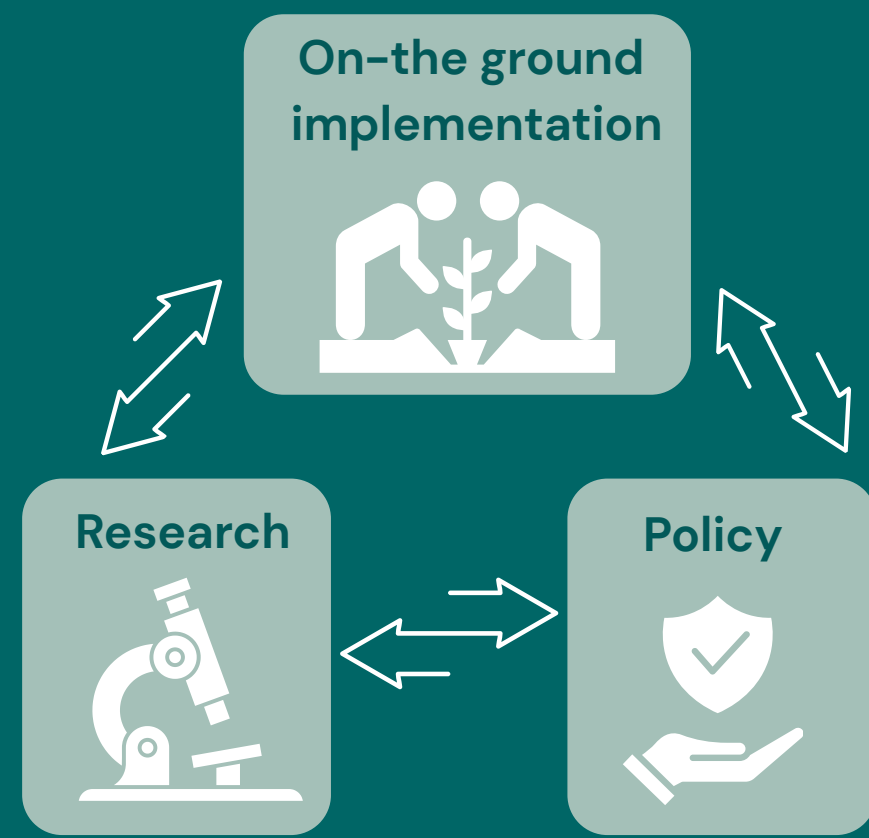
- Diverse, documented collections, including *Fraxinus* species
- Skilled horticultural and scientific staff
- Geographic distribution across Europe
- Established monitoring and record-keeping systems
- Public engagement spaces, supporting awareness

Botanic gardens can function as distributed early warning systems across Europe.

The IPSN Approach and Project overview

The International Plant Sentinel Network (IPSN) aims to safeguard global plant health and strengthen plant biosecurity by:

- Promoting and supporting the role of botanic gardens in plant health monitoring as early warning systems.
- Fostering and facilitating collaboration among diverse stakeholders.



During 2020-2025, the IPSN worked with botanic gardens in eastern Europe and scientific partners to:



The Resources

Tools to enable engagement by Botanic Gardens and Arboreta

Information Posters & Factsheets



Purpose: Support visual recognition, staff training and public engagement.

This block contains two information posters. The first is for the Emerald Ash Borer (*Agrilus planipennis*) on ash trees (*Fraxinus* spp.), showing the insect and its damage. The second is for Ash Dieback (*Hymenoscyphus fraxineus*) on ash trees, showing symptoms like leaf wilting and dieback.

Survey forms



Purpose: Enable standardised monitoring and data collection across institutions and countries.

This block shows two survey forms. The first is a general form for reporting sightings, and the second is a more detailed form for Emerald Ash Borer sightings, including fields for location, date, and photos.

Trapping protocol



Purpose: Build practical skills, confidence, and consistency in survey methods.

This block contains a trapping protocol guide for Emerald Ash Borer. It includes a checklist of materials, a step-by-step procedure for setting and checking traps, and a section on specimen collection and identification.

Video resources



Purpose: Provide accessible training across institutions with varying expertise.

This block shows two video resources. The first is a video titled 'To jest zaatakowane pizez - emerald ash borer' (This is being attacked by the emerald ash borer) showing the insect on a tree. The second is a video titled 'Emerald Ash Borer - Trapping' showing a person using a trap.

In-person training

Purpose: Improve field skills in surveillance and and improve the ability to pest and disease threats.

This block contains two photographs showing in-person training sessions. The first shows a group of people in a field setting, and the second shows a person demonstrating a trapping technique to a group.

Implementation & Reach



Participating gardens:

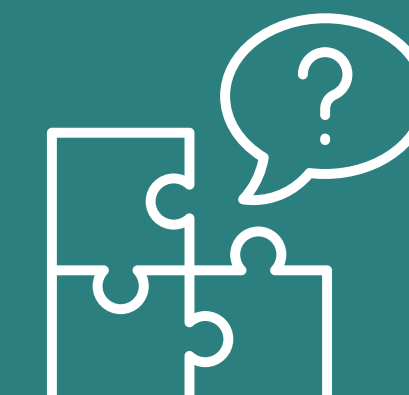
- Conducted visual health assessments
- Implemented EAB trapping
- Applied standardised protocols
- Contributed monitoring data

Impact



- Increased awareness of Ash Dieback, Emerald Ash Borer and *Agrilus* spp.
- Strengthened the role of gardens as sentinel sites
- Improved early detection beyond forestry systems
- Enhanced stakeholder engagement
- Supported preparedness for pest and disease outbreaks

Challenges



- Variable capacity across participants
- Sustained engagement required
- Integration into official reporting systems
- Need for simple, practical monitoring tools

Conclusions



- Botanic gardens and arboreta are more than plant collections—they function as living sentinel systems for early warning of plant health threats. Their diverse living collections, skilled staff, and wide geographic distribution make them valuable for plant health surveillance.
- Effective engagement in monitoring depends on access to practical tools, appropriate guidance, and targeted training.
- The IPSN approach demonstrates that with appropriate support, botanic gardens can contribute to coordinated surveillance and early detection efforts.
- Strengthening collaboration between botanic gardens, researchers, and plant protection organisations is essential for enhancing plant health preparedness across Europe.

Acknowledgements

We gratefully acknowledge the participation, engagement, and enthusiasm of botanic gardens and arboreta across eastern Europe, whose contributions were essential to the success of this work.

We also thank the project's scientific advisor, Neil Audsley (Fera Science Ltd), and the scientists who generously shared their knowledge and expertise during training sessions, including, Zoltán Imrei, Iryna Matsiakh and James Connell.



This project was funded by the Department for Environment, Food & Rural Affairs (DEFRA, UK).