Plant Health – an update from the front line

Landscape Institute, Healthy Plants, Healthy Places: Embedding biosecurity in landscape projects

RBG Kew
14th June 2019

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Overview

• Examples of recent major outbreaks

• The costs and consequences of getting it wrong

• Recent Government initiatives & sources of information

• Legislation versus the inspection reality

• Some current threats on the horizon – yes, do have nightmares!

• How industry can help with good practice and biosecurity
Some recent examples of major outbreaks....
The real cost of a major outbreak

- **Oak Processionary Moth**
- Egg masses imported in 2006 on semi-mature Oaks used to landscape a housing scheme
- Now established in Greater London and surrounding counties
- Major defoliation damage on a range of Oak species
- Human and animal health impacts including respiratory problems
- Local authorities, public attractions and parks engaged in costly annual spray control programmes
- **Annual Operational budget £1.2M+ Ongoing indefinitely**

Images courtesy of Forest Research
The real cost of a major outbreak

- **Asian Longhorn Beetle** adult found in 2009 at a stone importer in Kent

- Follow up surveys conducted for several years with small outbreak found in 2012

- Sanitary felling and disposal of 2166 host trees / plants

- Restrictions on replanting of host species

- Intensive follow up surveillance activity for 7 years to confirm outbreak eradicated, including APHA & FC Inspectors, contracted tree climbers and tree surgeons

- **Total cost of outbreak £2M**
Ash dieback expected to cost British economy nearly £15bn

Biggest cost of tree disease will be loss of benefits such as clean air and water, study finds

Palmageddon? Britain's palm trees face extinction after killer beetle discovered

An ash tree showing symptoms of ash dieback near Canterbury, Kent. Photograph: Gareth Fuller/PA
What are the consequences of Xylella?

• Value that could (in theory) be damaged by Xylella:
  - **Around £500m per year quantifiable** (£160m Sycamore trees, £320m Oak trees, £25m Prunus sp.) Many other potential hosts not included in this estimate
  - 7% of this £500m per year is susceptible to Xylella if the outbreak is either small scale or wide scale with a timely response (~£30m/year is protectable)
  - Only 1% of this £500m per year is protectable if the outbreak is wide scale with containment or delayed response (~£5m/year is protectable)

(Source Defra Plant Health Economist)

• An single infected plant outbreak could lead to ‘host’ destruction within 100m, and a 5km-wide zone banning all specified plant movements for five years.

• Currently 60+ genera/species listed as EU host plants; 300+ listed as specified plants worldwide
What are the consequences of *Xylella*?

- **Plant movement and waste disposal restrictions** will apply to all premises in demarcated areas including nurseries, retailers, parks, residential gardens, historic properties, shows, events...?

- **Restrictions** will remain in force for a minimum of **5 years** after official surveys have confirmed that *X. fastidiosa* is not present.

- **Restrictions on replanting** of host plants in infected areas – what’s *not* on the list?

- New hosts would be added to plant passporting, some could be prohibited from import

- Implications for UK exports of becoming an ‘infected country’ – increased testing and certification costs for exports, prohibitions on some trades

- All ‘professional operators’ i.e. landscapers, designers, and anyone importing plants into the UK are now subject to the same stringent conditions as growers
Are you worried yet?

There are 47 other known tree pests and diseases that could arrive in Britain and which may cost an additional £1 billion or more

- Benefits of trees and plants is valued in the millions of £’s
- Most benefits provided by plants/trees are derived from e.g. social well being, water & air purification and carbon sequestration
- Additional risk associated with food security as some plant pests endanger food crops
- Early intervention, if successful, has significant positive cost/benefits
Recent Government Initiatives

• EU Plant & Tree Notification scheme – requires notification of first arrival into UK of all:
  • **Castanea** (Chestnut Blight, Oriental Chestnut Gall Wasp)
  • **Fraxinus** (*no movement as no UK Ash dieback disease free areas*)
  • **Quercus** (Oak Processionary Moth, Chestnut Blight, Oak Lace Bug)
  • **Olea** since Nov 2018 (**Xylella**)
  • **Pinus** (Pine Processionary Moth, Pine Wood nematode, Red & Brown needle blights)
  • **Platanus** (Plane Wilt)
  • **Prunus** (**Xylella**, Red-necked longhorn, **Xanthomonas arboricola pruni**)
  • **Ulmus** (Elm Yellows Phytoplasma, Elm Zig Zag sawfly, Oak Lace Bug)

• Notifications selected for physical inspections will continue after EU-Exit
Legislation versus the inspection reality….
Legislation versus the inspection reality….

• Semi mature trees are imported dormant = out of main season for symptom expression for most pests and diseases, latency periods vary

• Physical size and weight of specimens = access and health & safety issues, affects quality of inspection possible on site

• Impossible to inspect all imported consignments = risk based selection criteria applied

• Rapid speed of trade movements = resource intensive and time consuming to trace

• Distribution chain is non-linear = one consignment, multiple recipients across the UK

• **The bigger the plant specified, the bigger the ecosystem that travels with it** e.g. nematodes; termites; flatworms; poisonous spiders, scorpions and millipedes; tree frogs….

• Packing material, pallets and wooden bracing can also pose a risk of **hitch hikers** – think longhorn beetles, Asian Hornet, Pine Wood nematode, non native species
Sources of Information

• UK Plant Health Portal – latest info and pest factsheets
  • https://planthealthportal.defra.gov.uk/

• UK Plant Risk Register – more than 1000 pests and diseases risk assessed with country distributions
  • https://secure.fera.defra.gov.uk/phiw/riskRegister/

• APHA Topical Issues pages https://www.gov.uk/guidance/protecting-plant-health-topical-issues

• Forestry Commission Pest & Disease resources:
  • https://www.forestreresearch.gov.uk/tools-and-resources/pest-and-disease-resources/

• Observatree – pest field identification guides, webinars, top 21 priority P&D for citizen science
  • https://www.observatree.org.uk/
Sources of information

Search for ‘UK Plant Health Portal’ https://planthealthportal.defra.gov.uk/
Sources of information

• APHA Topical web pages on gov.uk

**UK Plant Health Guidance Document**

*Xylella fastidiosa* Implications for importers and users of trees, shrubs and herbaceous plants

This guide is intended for growers, retailers, landscapers, garden designers, traders and anyone involved in importing and professional use of plants, including from within the EU.

**Key Points**

- There are known outbreaks of *Xylella fastidiosa* in Italy, France (Corsica and mainland France), Germany and the Spanish islands of Mallorca and Ibiza.
- An outbreak in the UK could lead to destruction of host plants within 100 m, and a 10 km movement ban for host plants for five years.
- The host list is likely to increase and includes trees, shrubs and herbaceous. Keep checking: http://ec.europa.eu/food/plant/plant_health_biosecurity/legislation/emergency_measures/index_en.htm
- Landscapers, designers, retailers and anyone directly importing plants are now subject to the same stringent measures as growers and suppliers. A new plant passporting obligation for all ‘professional operators’ has been introduced, which requires that the movement of all ‘host plants’ across the EU must be accompanied by a plant passport.
- Anyone importing host plants from the EU needs to ensure they are accompanied by a plant passport confirming they have been sourced from disease free areas/sites.
- Be vigilant for signs of *X. fastidiosa* and report any sightings.
Current threats on the horizon: *Xylella fastidiosa*

- Check the EU commission website for the latest maps of the outbreak demarcated areas updated 10th April 2019

**Current outbreaks:**
- Italy (Apulia and **NEW Tuscany**)
- France (Cote’s d’Azure, Corsica)
- Spain (Valencia and Madrid), all Balearic Islands
- **NEW Portugal** (Norte)
- **KNOW THE HIGH RISK SPECIES** – can you substitute?
Current threats on the horizon: *Xylella fastidiosa*

- Scale of demarcated area in Spain Valencia is 80,000 Ha, with all the implicit official controls in place

- **Recent Interceptions:**
  - Intercepted on olive plants in Belgium autumn 2018
  - Intercepted in a growing crop of *Polygala* in Almeria, Spain in Spring 2018

- EFSA opinion highlights concerns that Xf sits within olive for long periods asymptomatic. Latency is years rather than months.
Current threats on the horizon: Granulate ambrosia beetle

*Xylosandrus crassiusculus*

- Very small (2-3 mm) beetle that is a pest of many broadleaved trees. Introduced to Italy in 2003 and has now spread to France.
- Attack usually kills younger trees, prior to or during leafing up
- Infestation leads to distinctive toothpick strands of frass
- Pest Alert released Nov 2015 asking for signs of the pest to be reported
Current threats on the horizon: Oak Lace Bug

- **Corythucha arcuata**

- First found in Italy in 2000, now in 11 EU countries and spreading

- Attacks *Quercus* and other broadleaved trees including *Acer, Carpinus, Fagus, Tilia, Ulmus*

- Symptoms: yellowing and browning of foliage then premature leaf drop, reduced vigour

- Pathway is imported trees – check undersides of leaves for nymphs and adults
Current threats on the horizon: Red Necked Longhorn Beetle

- *Aromia bungii*
  - Wood boring pest of *Prunus* (apricot, peach, plum, cherry inc *P. cerasifera*)
  - Outbreaks under eradication in Germany and Italy. Widespread outbreak around Naples area, Italy.
  - Pathway: imported trees. Adults may also hitchhike on wood pallets and packaging
  - Long larval life cycle up to 3 years
  - Larvae push out copious frass on top of pots or soil
How the industry can help with good practice

• For **contractors/designers**, ensure that plants you use have been ordered early and **monitored** for disease in a low risk area, before being planted at their final destination.

• When purchasing from other EU member states or 3rd countries, think about quarantine **pest presence** – Defra risk register can help.

• Do you really need a very high risk species (e.g. mature Olives!) or can you specify a lower risk alternative? Educate yourself and your clients about the risks.

• **Source** from known suppliers and/or visit suppliers to view their processes, procedures, bio-security arrangements and the plants they grow.

• Ask! Are plants coming direct from your chosen supplier or being topped up from a third party grower? Trade will always find a way to meet an order if they don’t have the stock themselves.

• Make sure that imported plants both originate from and are sourced from **disease free areas**. Details on infected areas for a range of outbreaks on EU Commission web pages at [http://ec.europa.eu/food/plant/plant_health_biosecurity/legislation/emergency_measures/index_en.htm](http://ec.europa.eu/food/plant/plant_health_biosecurity/legislation/emergency_measures/index_en.htm)
How the industry can help with good practice

• When buying / planning contracts in advance, build in plant health to your quality standards and audit processes.

• Build monitoring for pest and disease into maintenance contracts after planting – consider length of pest lifecycle & disease latency.

• Comply with the UK national requirements to notify the UK Plant Health Service about certain species of plants under the ‘EU Plant and Tree Notification Scheme’.

• Complete the plant healthy self assessment which set out key questions for trade to answer (20 or so) to self-asses their biosecurity [https://hta.org.uk/assurance-compliance/plant-healthy.html](https://hta.org.uk/assurance-compliance/plant-healthy.html)

• Use the assessment to join the Plant Health Assurance Scheme that Defra seed funded last year with HTA [https://hta.org.uk/assurance-compliance/plant-health-assurance-scheme.html](https://hta.org.uk/assurance-compliance/plant-health-assurance-scheme.html) to develop and improve your biosecurity. Industry lead scheme (supported by Defra and APHA) and looks to all in procurement to ask for in future.
How the industry can help with good practice

• Ensure that plant passports arriving with plants are correct and keep the plant passport to aid trace back if necessary.

• Label and keep records of the identity of all received batches of plants including: where the plants came from and when

• Isolate or quarantine new batches of plants and monitor them during the growing season for signs of the disease – whilst not a legal requirement it is good practice to place ‘imported’ hosts of Xylella in a quarantine area – ideally a good distance away from other host plants and if possible place under physical protection. If any outbreak is confirmed all ‘host’ material within 100m will need to be destroyed.

• Stock control and separation; internal plant movements between sites.

• Incorporate plant health into in house training and skills with QA/QC systems and agronomists. Have a ‘what to do if….’ and ‘who to contact if….’

• Raise P&D alerts at your internal team briefings – retail level, buyers, QA/QC, maintenance crews.
How the industry can help with good practice

• Have a set feed back route for staff queries or suspect problems and include details of the ‘goods’: label, plant passport or batch details, genera, pot size, bar code, ‘returns’ and trace back etc.

• Seasonality and don’t let quarantine pests and disease ‘drop off the radar’, as plants move from warmer countries or protected environments to cooler countries for retail or growing on.

• Destroy old or unusable plants – methods you use?

• Maintain records of any pesticide treatments

• Attend events such as this to raise awareness of the risks
Bio-security

• Before arrival
SOURCING PLANTS – Suppliers (visit them),
Origin, Plant type, Assurance schemes,
Check supplier/country plant health status

• At arrival
QUARANTINE – inspection on arrival/ QC,
holding period, traps

• On site
MANAGEMENT - Plant culture, hygiene,
water, waste, self monitoring, recording, training
Thank you!