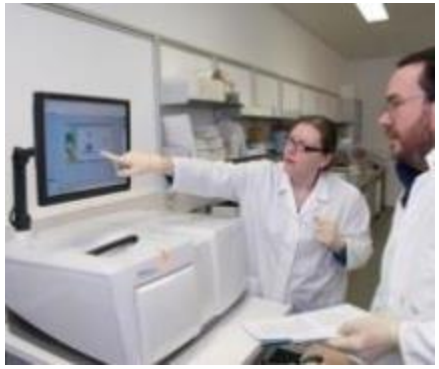
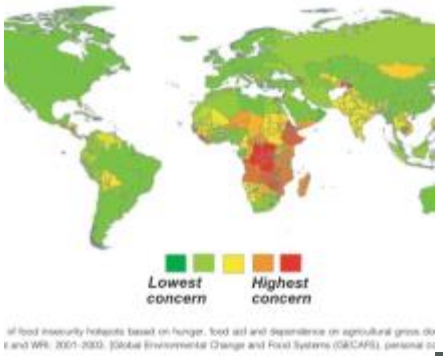
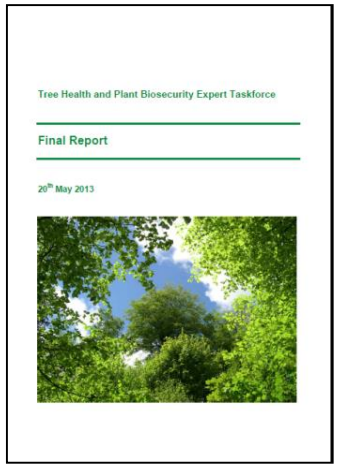




Plant and Tree Health early warning systems - working with Citizen Scientists

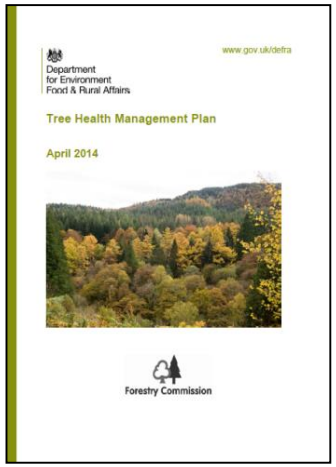
Dr Charles Lane, Consultant Plant Pathologist
charles.lane@fera.co.uk @cobwebdr

Tree Health and Plant Biosecurity Strategy



Expert Taskforce Report 2013

Plant Biosecurity Strategy 2014



Tree Health Management Plan 2014

Ash dieback found in the UK in the 'wild' in October 2012

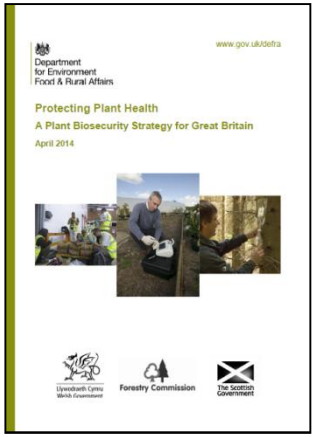
Protecting Plant Health: A Plant Protection Strategy 2014

Raising Awareness and Involvement

Ensure all those with a role in plant health are more aware of plant health risks and know what they can do to reduce them. Ensure that, where appropriate, responsibility sits with those who benefit from the reduction in risk.

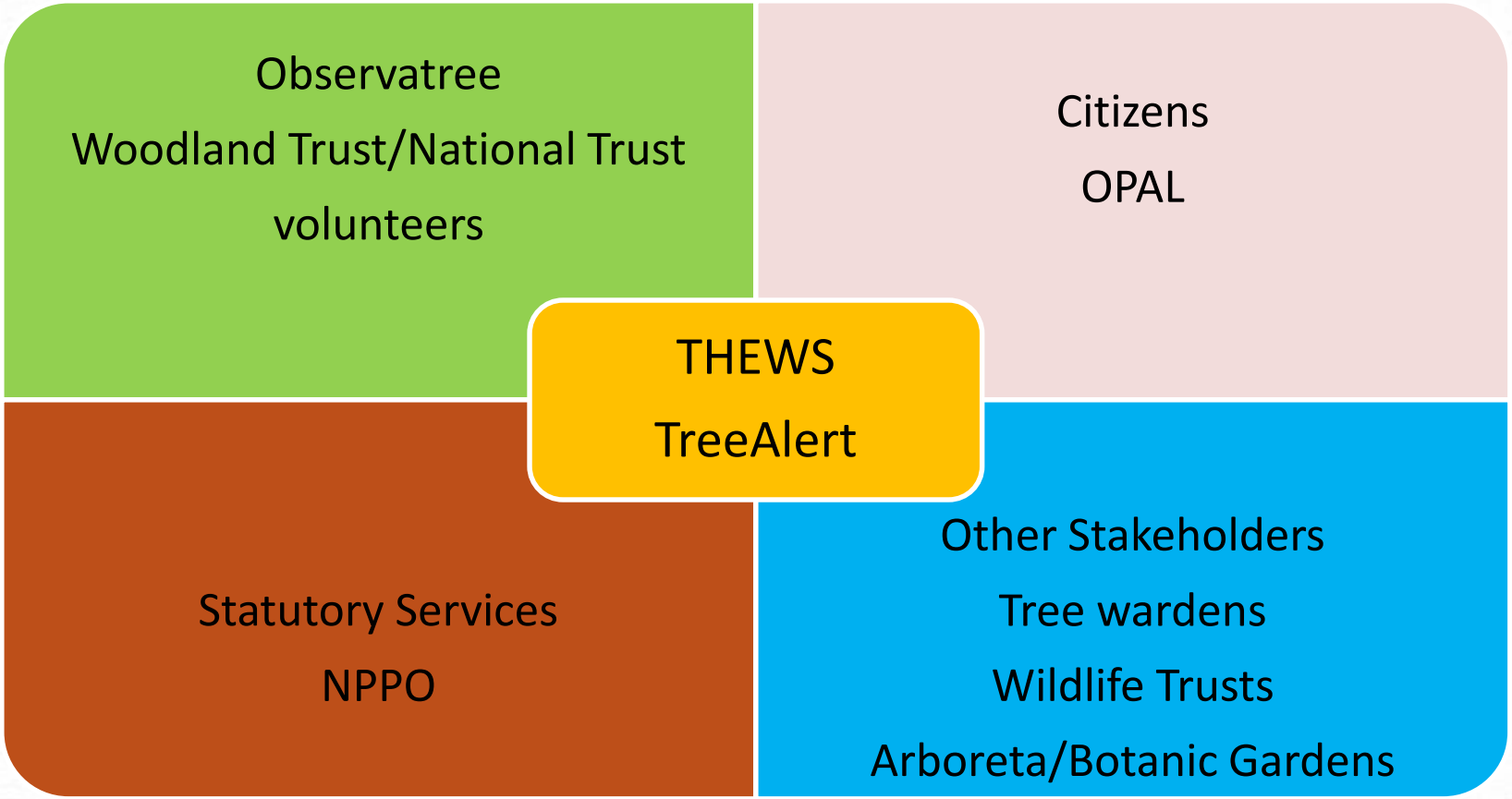
The value of the input from public and industry was highlighted during the response to *Chalara fraxinea* (ash dieback), when they made a major contribution to the effort to identify its extent. Raising awareness of plant biosecurity and developing an integrated package of measures to mobilise people to act (drawing on a range of policy and communications tools to influence behaviour) is therefore a key element of this strategy.

Make use of and support existing networks of individuals with an interest in plant health. Including supporting public participation in scientific research (citizen science) through initiatives such as Open Air Laboratories (OPAL) and ObservaTREE which seek the public's help in identifying tree pests. These will provide a cadre of trained members of the public able to spot outbreaks of plant pests thereby increasing capability and capacity. We will ensure that these individuals are aware of biosecurity and plant hygiene to avoid spreading pests through their own activities.



THEWS - Triage

Tree Health Early Warning System (THEWS) Relationships



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Soil


Air


Water


Biodiversity


Climate

The OPAL Tree Health Survey – pioneering engagement of the public to support tree health policy needs

Dr David Slawson
OPAL, Imperial College, London

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LOTTERY FUNDED

Soil

Air

Water

Biodiversity

Climate

OPAL EXPLORE NATURE

Survey Design

Activity 1 Get to know your trees (Outreach – learning/awareness/stewardship)

Activity 2 How healthy are your trees? (Research)

6 "Most Unwanted" (Research/evidence)

Chalara ash dieback, Asian longhorn beetle, Citrus longhorn beetle, Emerald ash borer, Oak processionary moth, Pine processionary moth

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Soil

Air

Water

Biodiversity

Climate

OPAL EXPLORE NATURE

Open Air Laboratories (OPAL)
"Citizen science for everyone"

- Over **900,000** participants
- **20%** from hard to reach communities
- More than **3,500** schools involved
- **2,800** organisations engaged
- Over **54,000** surveys completed

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Soil


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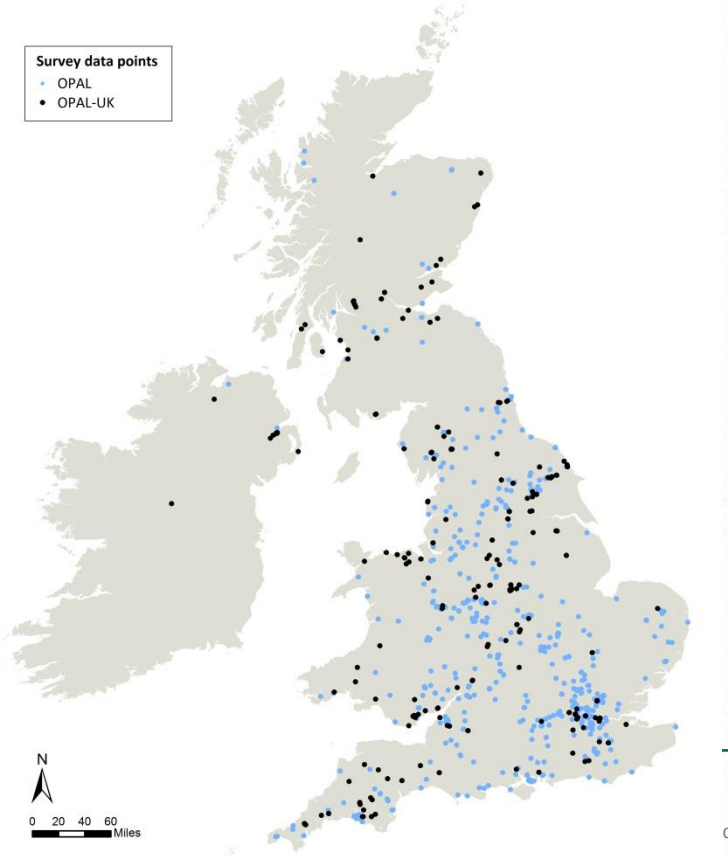
Water


Biodiversity


Climate

OPAL EXPLORE NATURE

Impacts – research/evidence



- **1741** survey forms (sites) submitted
- Across the whole of the UK
- **2483** trees surveyed
  - Oak (28%)
  - Ash (22%)
  - Horse Chestnut (14%)
  - Sycamore (6%)
  - Beech (4%)

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BIG LOTTERY FUND
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Soil


Air


Water


Biodiversity


Climate

OPAL EXPLORE NATURE

Impact - Outreach

Participants:

- 28.1% Friends and family
- 48.2 % Education (Primary 16.7%; Secondary 28.0%; College/university 3.5%)
- 19.3% Adult volunteer group
- 3.5% Tree Buddy initiative

Outreach (learning/awareness)

- 92% learnt something new
- 86% developed new skills

Outreach(stewardship/behaviour change)

- 64% changed the way they think about the environment
- 59% changed their behaviour towards the environment

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Department for Environment Food & Rural Affairs

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Forestry Commission Forest Reseα

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International Plant Sentinel Network



An International Plant Sentinel Network as an early-warning system for future pest threats

fera

BGCI
Plants for the Planet

International Network & Collaboration

Dept. Plant Protection, FCA/UNESP - Campus de Botucatu

www.plantsentinel.org

Who?

- Global network:
- Botanic Gardens & Arboreta
- Plant Health Scientists
- National Plant Protection Organisations
- Plant Health Policy Makers

What?

- Evidence gathering
- Education and awareness – pest & disease recognition, biosecurity
- Capability and capacity building
- International & local collaboration

Role

Predict √

Prevent

Protect √

Prepare

Partnering √

Conclusion - protecting the value: The 5 precepts of Plant Health

Predict
- Systematic and proactive screening of new and emerging risks – UK PH Risk Register
- International Plant Sentinel Network of botanical gardens and arboreta

Prevent
- Targeted inspections at the border to intercept high risk trades
- Protected zones to restrict the movement and import of high risk species

Protect
- Aerial and ground based surveillance for high priority pests
- Eradication and control programmes

Prepare
- Generic and pest-specific contingency plans
- World leading research and modelling

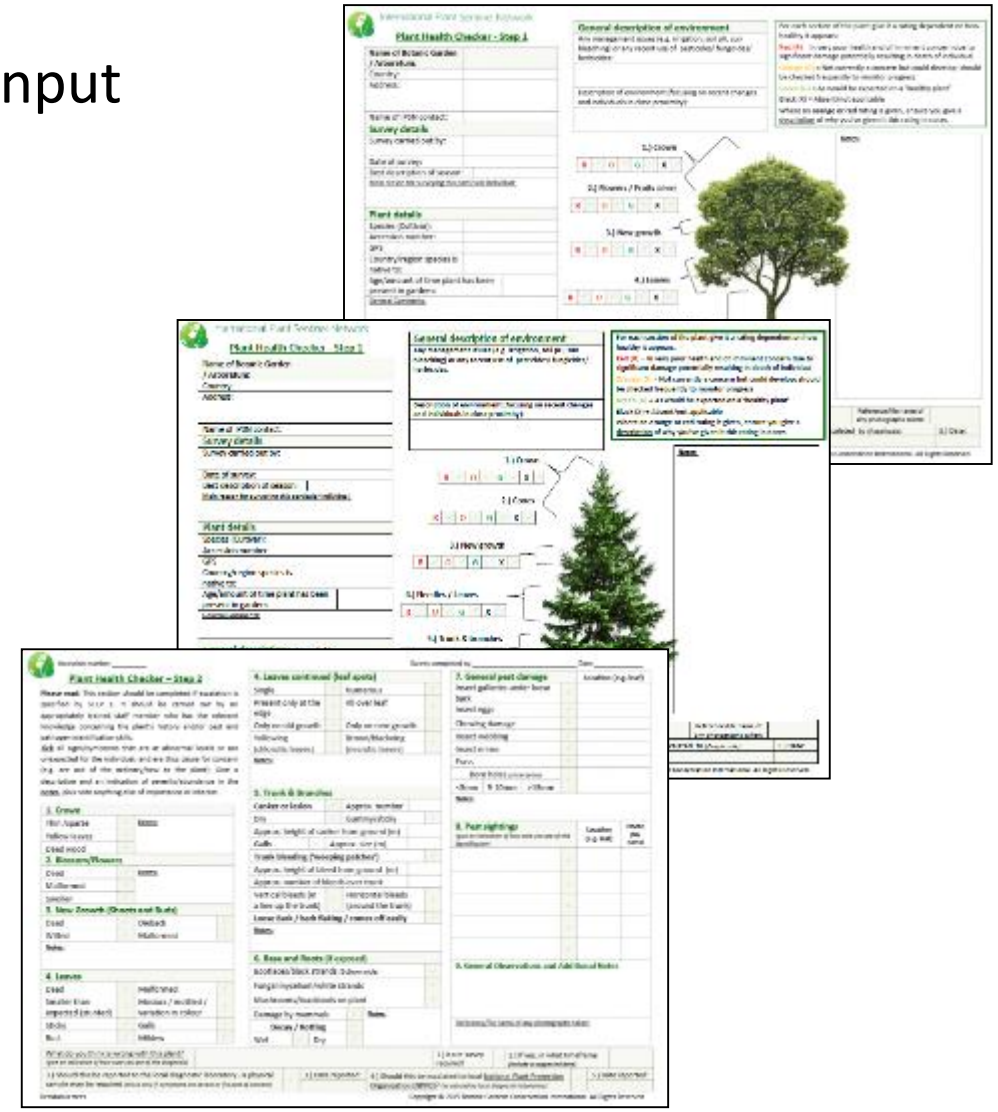
Partnering
- Biosecurity advice and good practice, increasing skills
- Shared responsibilities and expertise

Contact:
Katherine O'Donnell, BGCI katherine.o'donnell@bgci.org
Charles Lane, Fera charles.lane@fera.co.uk

Developing and Sharing Best practice

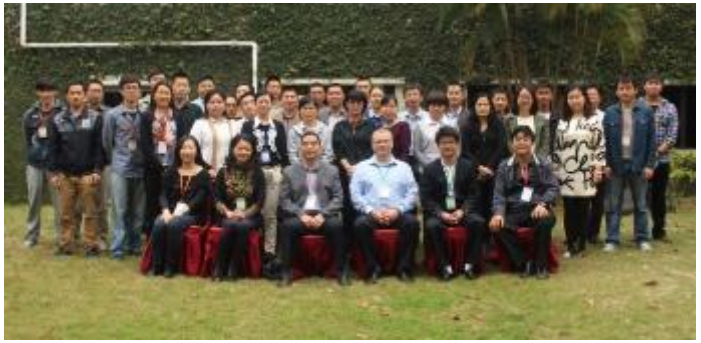
- Pest and Disease Technical Input

- Plant Health Checker
- Guides
- Posters



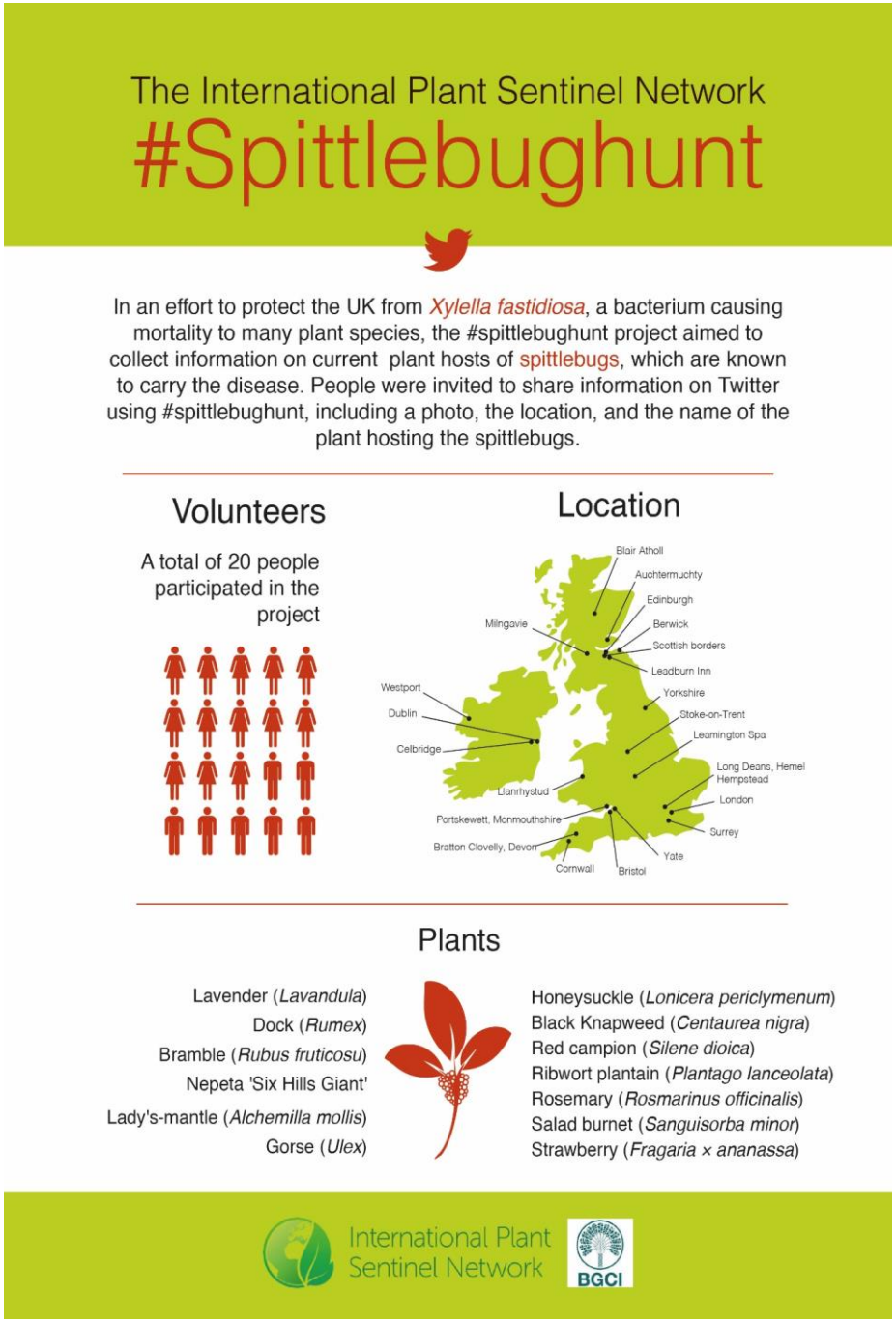
P&D Workshops & training

Huntington Library, Art Collections and Botanical Gardens, U.S.



Shenzhen Fairy Lake Botanical Garden (CAS), China

Royal Botanic Gardens Kew, UK



#spittlebughunt

May to June 2017

IPSN Information Poster

Web based resources

Twitter for data recoding

65 tweets; 20 participants

80 host records

Reciprocal identification skills – plants and cuckoo spit

BGCI
Plants for the Planet

Observatree

Observatree volunteer network

Volunteer activity to date:
13,670 hours logged

2,996 site surveys (1,046 finding a tree pest or disease)

- Oriental chestnut gall wasp
- Acute oak decline
- Suspected European mountain ash ringspot
- Chalara
- Horse chestnut leaf miner
- Various *Phytophthora* species

Observatree monitoring tree health

Funded by the EU's LIFE programme

Department for Environment Food & Rural Affairs · fera · Forestry Commission · Forest Research · National Trust · Cyfoeth Naturiol Cymru Natural Resources Wales · Woodland Trust

Priority pests and diseases

1. Chalara Dieback of Ash
2. Dothistroma Needle Blight
3. Acute Oak Decline
4. *Phytophthora lateralis*
5. Oak Processionary Moth
6. Great Spruce Bark Beetle
7. Mountain Ash Ring Spot Virus
8. Horse Chestnut Leaf Miner
9. Chestnut Blight (South)
10. *Phytophthora austrocedri*
11. Citrus Longhorn Beetle
12. Asian Longhorn Beetle
13. Oriental Chestnut Gall Wasp
14. Emerald Ash Borer
15. Red-necked Longhorn Beetle
16. Plane Lace Bug
17. Pine Processionary Moth
18. Oak Lace Bug
19. Plane Wilt
20. Bronze Birch Borer
21. *Sirococcus tsugae*

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Information Portal « Observatr...

www.observatree.org.uk/public-information-portal/

Search

Observatree
monitoring tree health

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Search...

About Tree health Latest News Blog FAQ Contact us

Information Portal

Home → **Information Portal**

Welcome to Observatree's information portal – a central directory that will help lead you to a wealth of further online material related to tree pests and diseases. Please contact us if you find a link not working or you need information you cannot find.

Tree Health

- General Tree health
- Tree Health Citizen Science Projects

Biosecurity

- General biosecurity
- Measures and guidance

Biggest threats - priority pests and diseases

Click on names for more information.

Acute Oak Decline

Chalara Dieback of Ash
(Hymenoscyphus fraxineus)

Asian Longhorn Beetle
(Anoplophora glabripennis)

Bronze Birch Borer
(Agrilus anxius)

Chestnut Blight
(Cryphonectria parasitica)

Oriental Chestnut Gall Wasp
(Dryocosmus kuriphilus)

11:57
23/09/2015

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Observatree
monitoring tree health

TOOLKITS LOGIN SUBSCRIBE

About Us Tree Health News

An Introduction to recording the location of a tree

Home → Resources → Watch and Learn → **An Introduction to recording the location of a tree**

Digital Learning Resources

Digital Learning

An Introduction to recording the location of a tree (12.21 mins)

Recording the location of a tree (19.31 mins)

Methods and technologies (15.49 mins)

Returning to a tree (13.56 mins)

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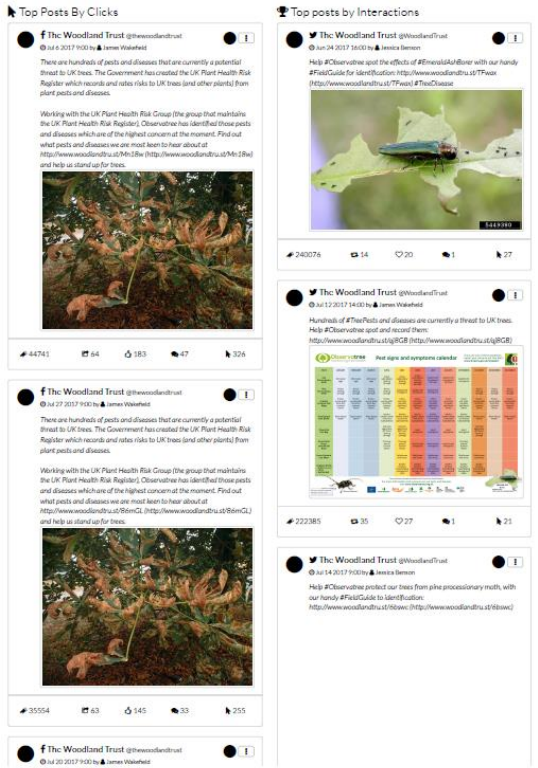
Observatree Media



June/July 2017 multi media campaign achieved:

- Highest ever web sessions in one month (2,748)
- Highest ever number of web visitors via social media (36%)
- Number of resources watched in one month doubles to 1,000

Forestry Commission Scotland Coimisean na Coilltearachd Alba | Forest Research | fera | Forestry Commission | National Trust | Woodland Trust | Animal & Plant Health Agency | Department for Environment Food & Rural Affairs | Cyfoeth Naturiol Cymru Natural Resources Wales

Citizen Science

Plant Health Scientists : Citizen Scientists

Reciprocal benefits
Co-created project design
Understand each others motivations and desired outcomes

Citizen Science - issues

Challenges

- ‘Big’ data sets
- Verification
- Value
- Integration into statutory surveillance data
- Investment in co-ordination, training, feedback, rewarding Citizen science inputs
- Sustained and long term commitment

Rewards

- Large network of hard working, passionate, highly engaged people
- Training and interactions are inspiring and fun
- Raised awareness and understanding of plant health and biosecurity – ambassadors
- Improved networking amongst Statutory bodies, NGOs, stakeholders, public

The original Citizen Scientist?

Charles Darwin

It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change, that lives within the means available and works co-operatively against common threats.

AZ QUOTES