Department
for Environment
Food & Rural Affairs

The UK's response to European and International plant health matters, and coordinated initiatives on Plant Health in Europe

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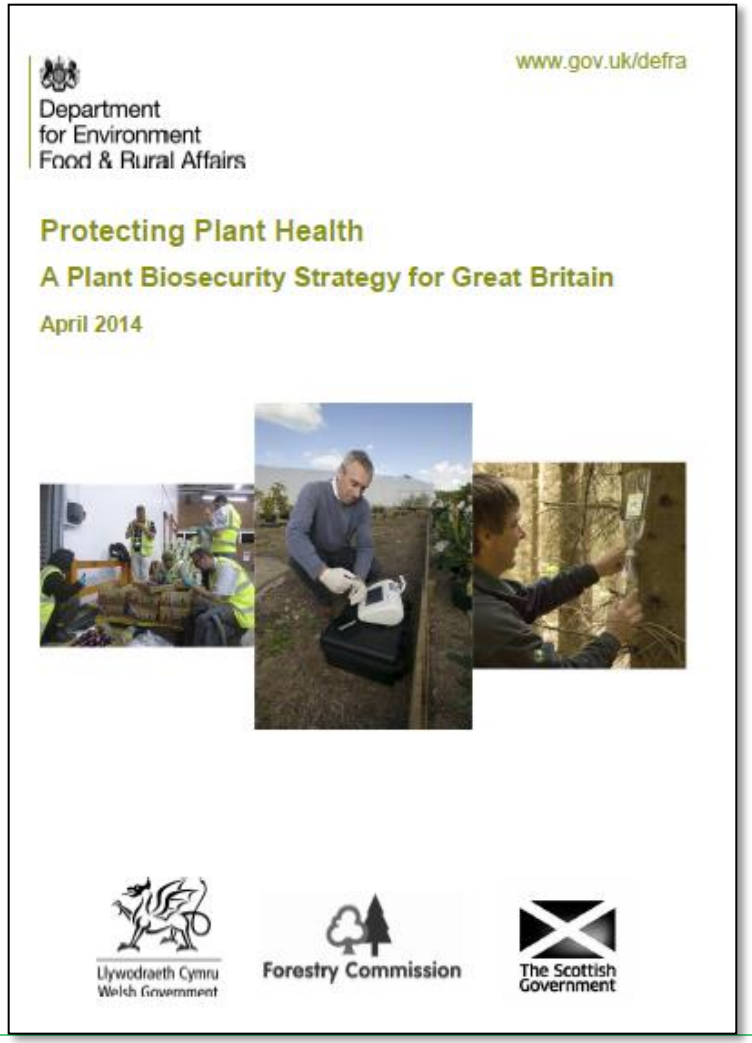
@plantchief

Forestry Commission England | NATURAL ENGLAND | Environment Agency

Defra's Strategy : Creating a great place for living 2016-2020

- A cleaner, healthier environment, benefiting people and the economy
- A world-leading food and farming industry
- A thriving rural economy, contributing to national prosperity and wellbeing
- A nation better-protected against floods, animal and plant diseases and other hazards, with strong response and recovery capabilities

Delivering the GB Plant Biosecurity Strategy



The Five P's of Plant Health

Predict
- Systematic and proactive screening of new and emerging risks
- International Plant Sentinel Network of botanical gardens and arboreta

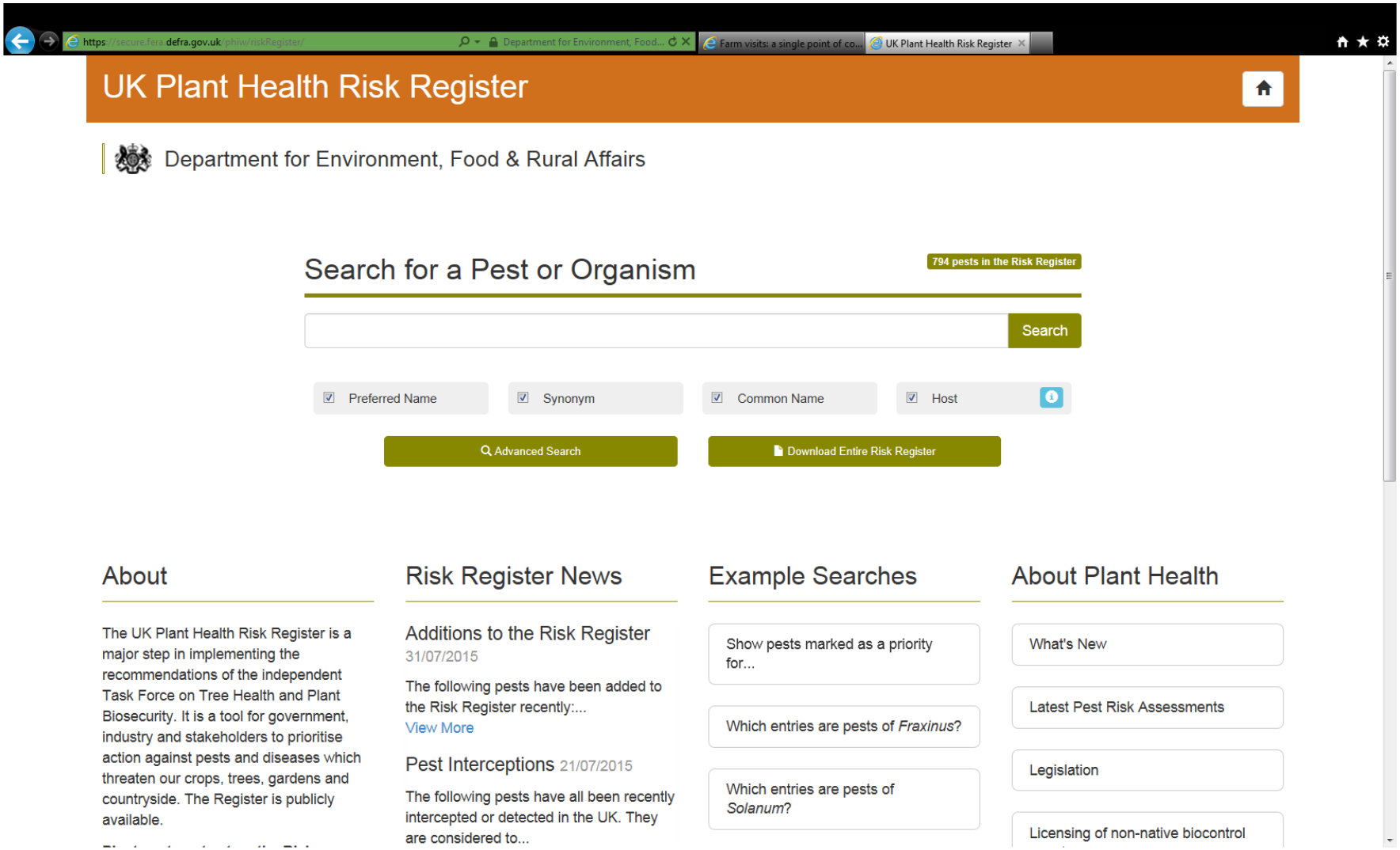
Prevent
- Targeted inspections at the border to intercept high risk trades
- Restrictions on movement and import of high risk species and products

Protect
- Aerial and ground based surveillance for high priority pests
- National control programmes for Phytophthora and Ash dieback

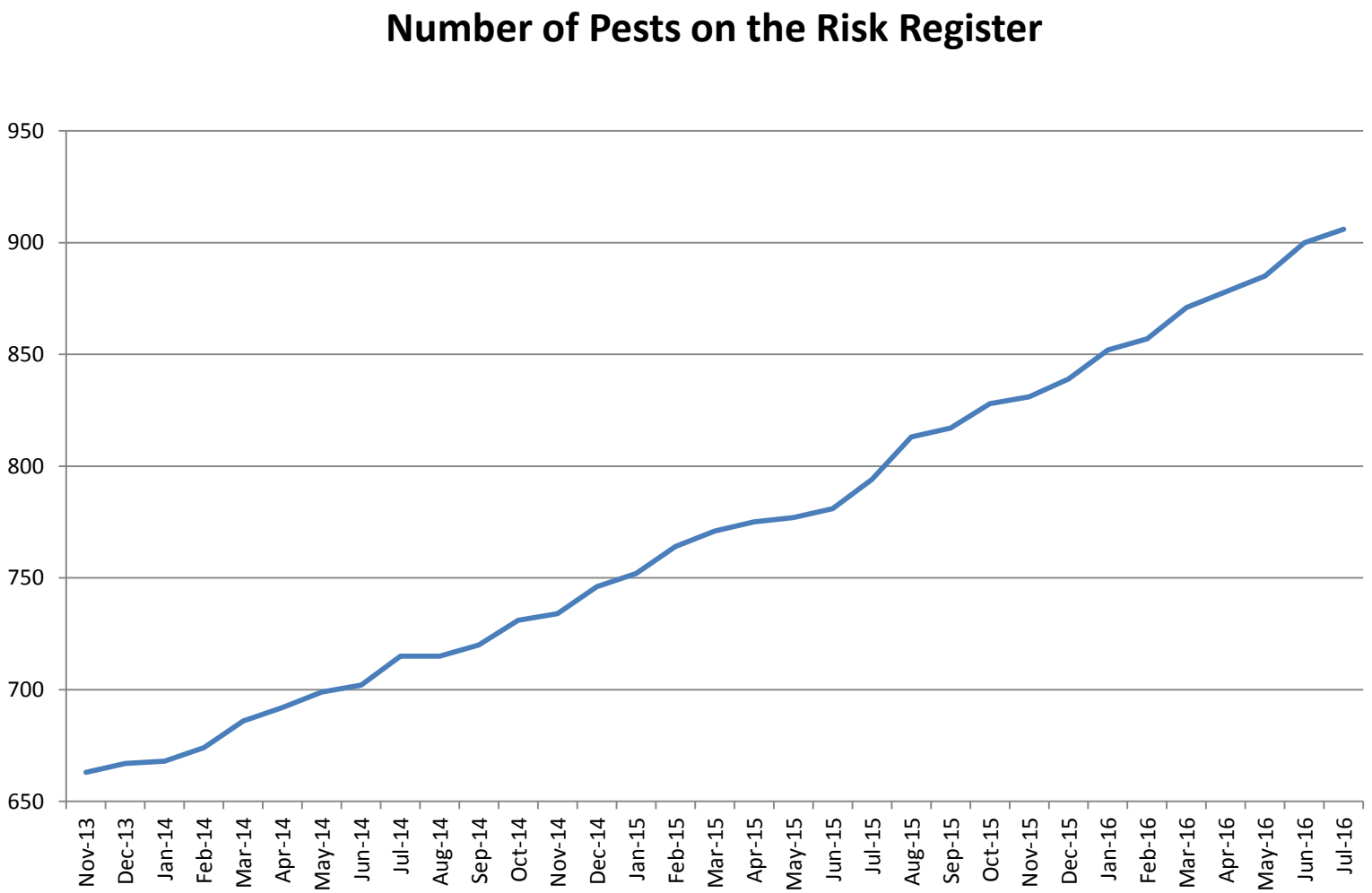
Prepare
- Generic and pest-specific contingency plans to strengthen our response
- World leading research and modelling to support response and recovery

Partnering
- Sharing information and responsibilities with communities and businesses
- A nationwide network of trained citizen scientists

Predict

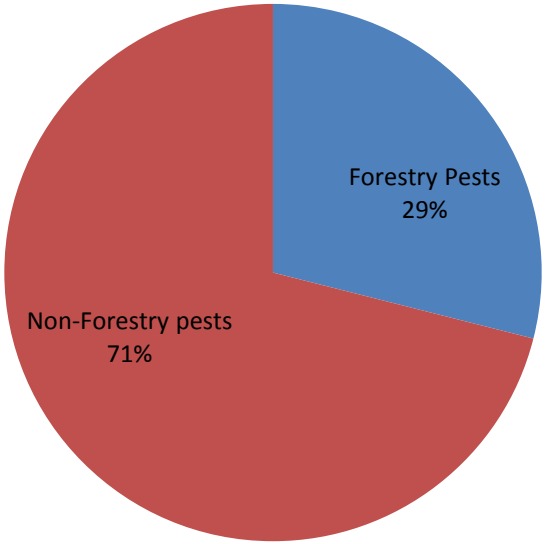

https://secure.fera.defra.gov.uk/phiw/riskRegister/
Department for Environment, Food...
Farm visits: a single point of co...
UK Plant Health Risk Register
UK Plant Health Risk Register
Department for Environment, Food & Rural Affairs
Search for a Pest or Organism
794 pests in the Risk Register
Search
Preferred Name
Synonym
Common Name
Host
Advanced Search
Download Entire Risk Register
About
The UK Plant Health Risk Register is a major step in implementing the recommendations of the independent Task Force on Tree Health and Plant Biosecurity. It is a tool for government, industry and stakeholders to prioritise action against pests and diseases which threaten our crops, trees, gardens and countryside. The Register is publicly available.
Risk Register News
Additions to the Risk Register
31/07/2015
The following pests have been added to the Risk Register recently:...
View More
Pest Interceptions 21/07/2015
The following pests have all been recently intercepted or detected in the UK. They are considered to...
Example Searches
Show pests marked as a priority for...
Which entries are pests of Fraxinus?
Which entries are pests of Solanum?
About Plant Health
What's New
Latest Pest Risk Assessments
Legislation
Licensing of non-native biocontrol

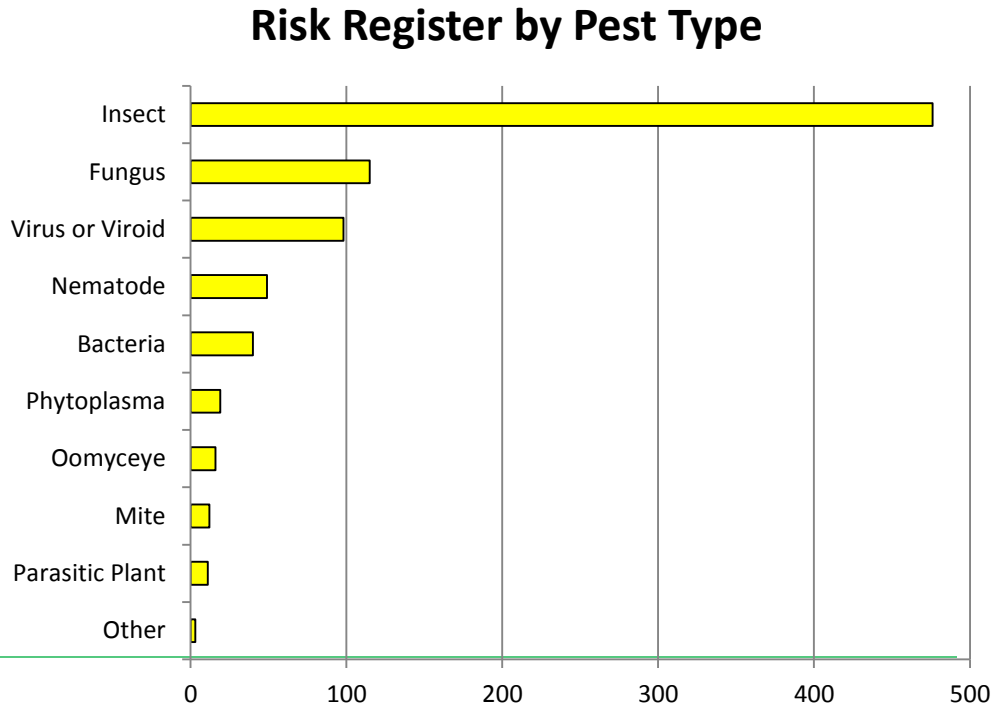
Risk register progress



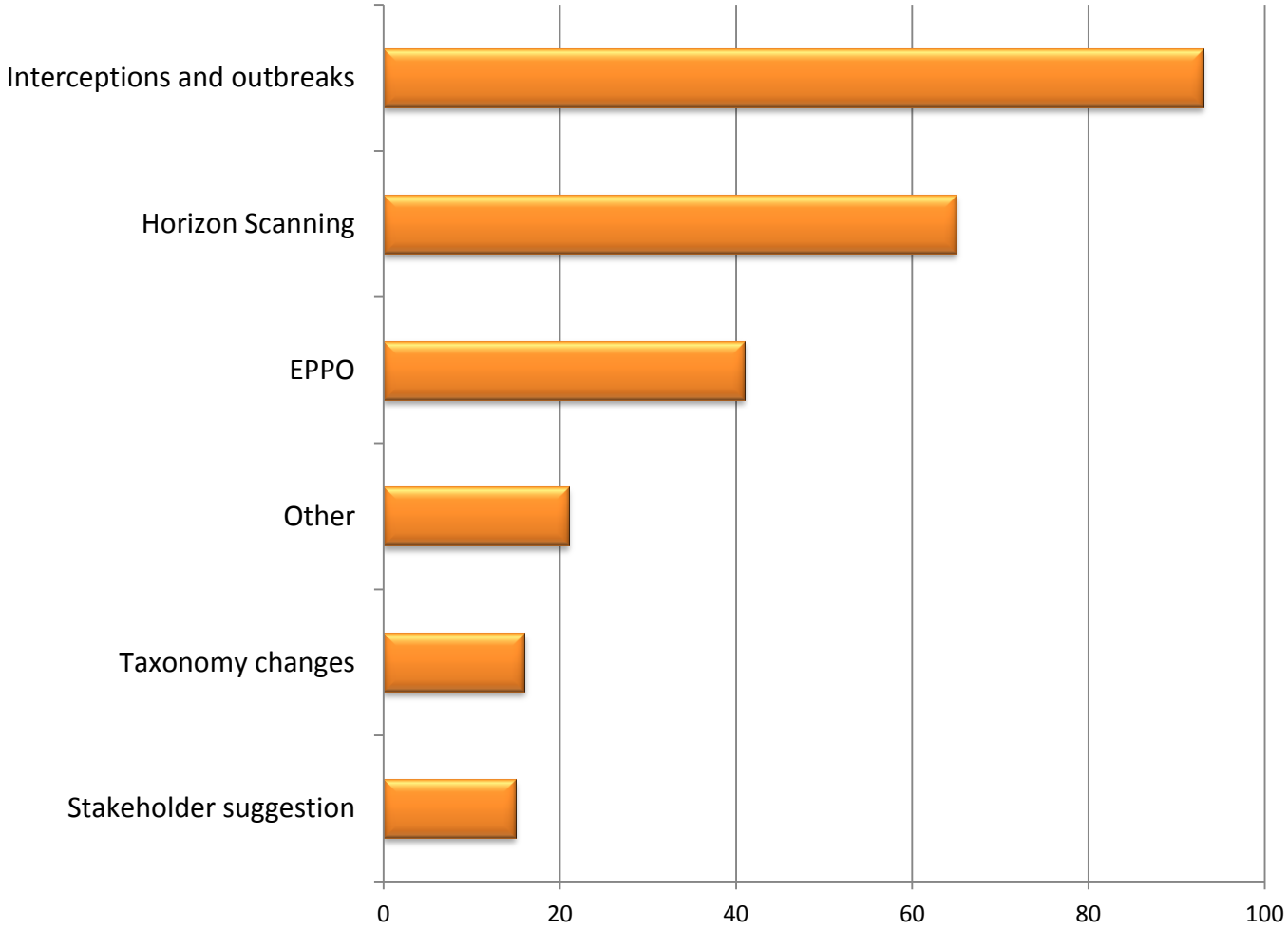
Priority pests

Forestry versus Non-Forestry

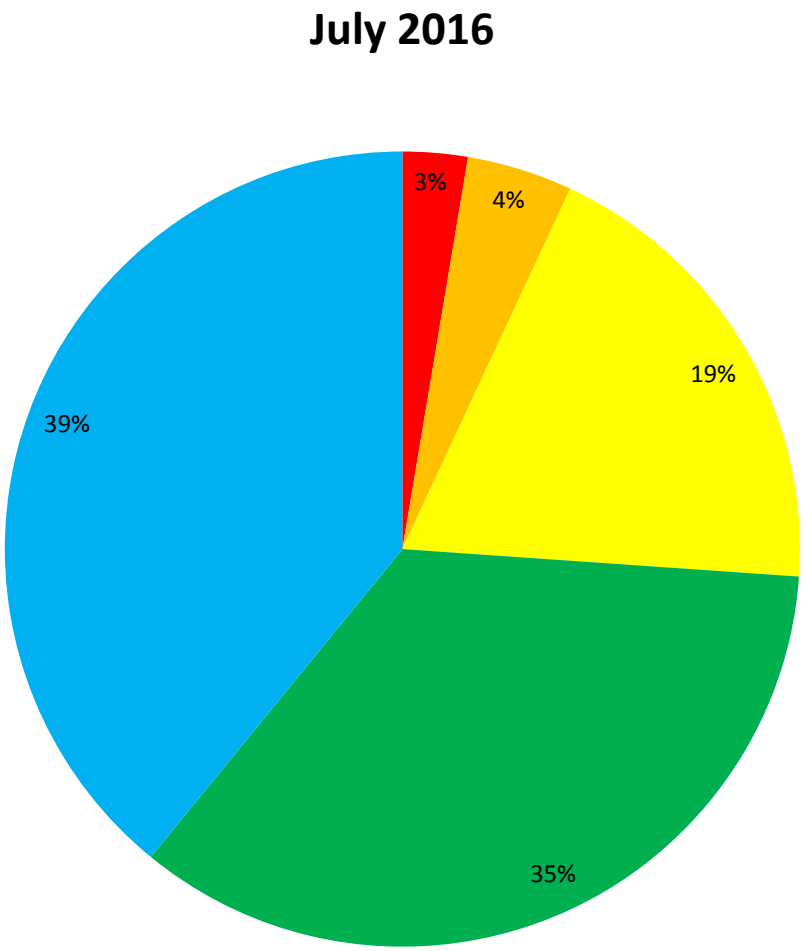




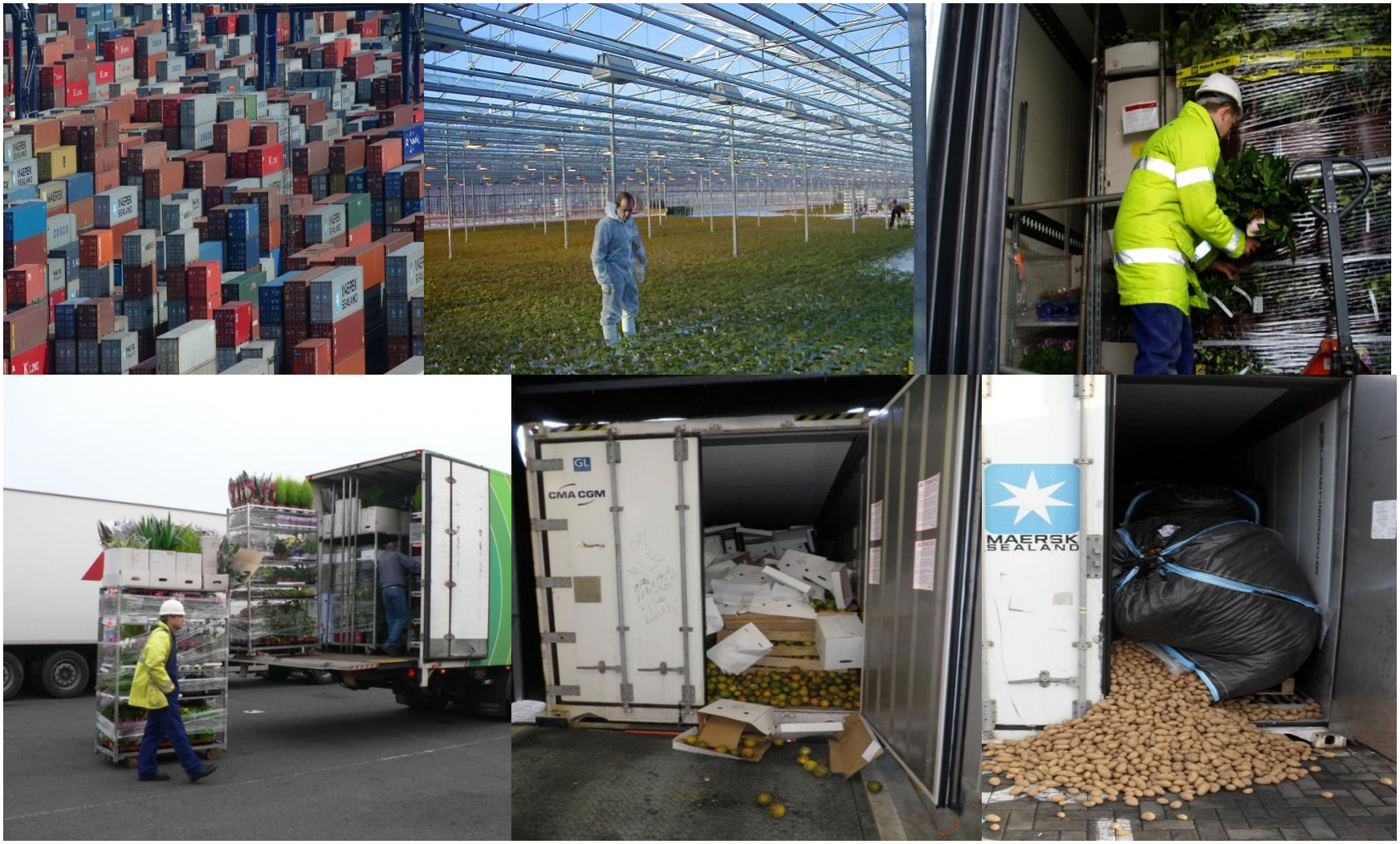
Reasons for new risks



Percentage of pests in each risk category of risk ratings 0 - 125



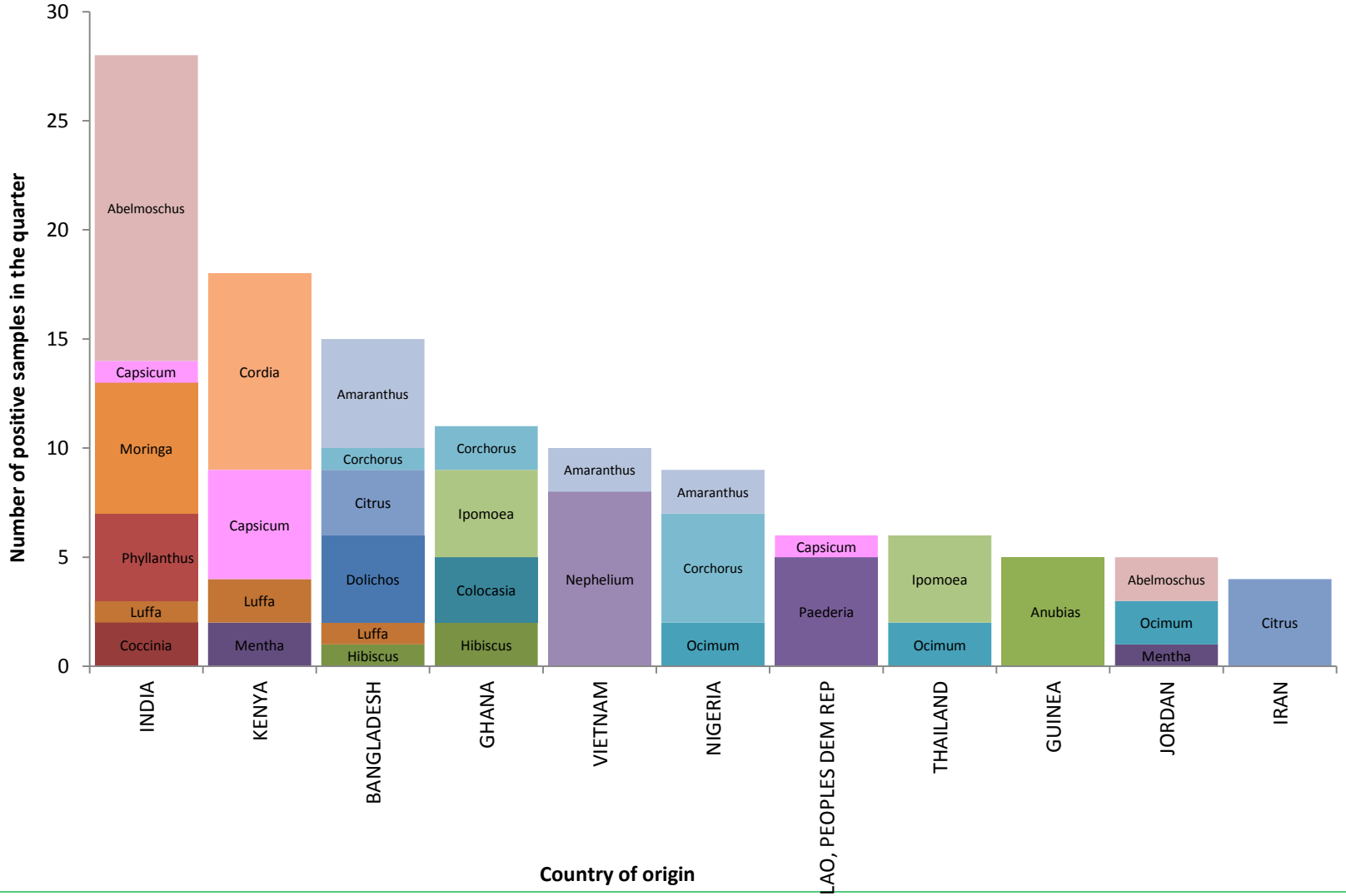
Prevent



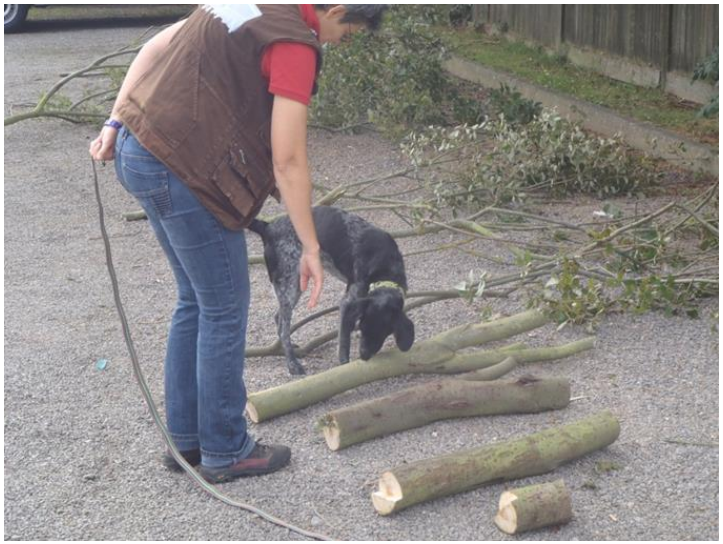
Prevent

Non-compliant wood packaging

Third country interceptions



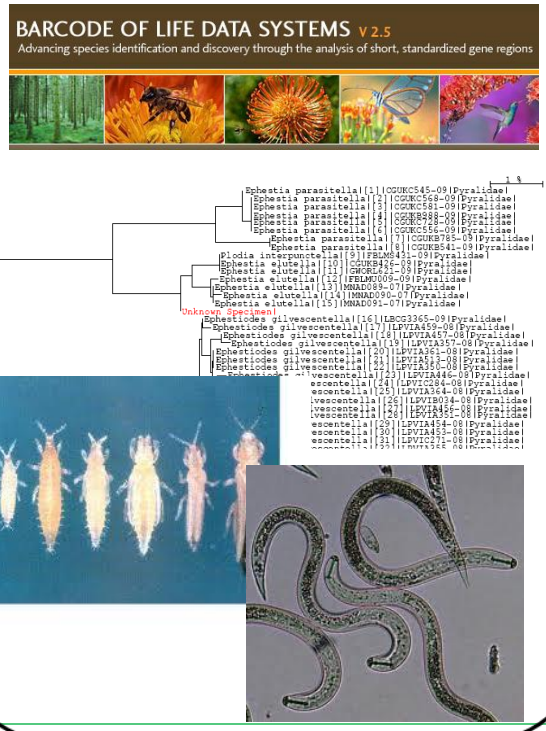
Protect



Protect

Real-time PCR = high throughput

DNA barcoding = identification



LAMP - Genie = on-site

Prepare

Mail Online — Science & Tec

Deadly ash disease found in Britain puts 80 MILLION trees at risk

- Ash dieback has been discovered at countryside sites in East Anglia
- Ash trees make up 30 per cent of the UK's wooded landscape
- Forestry Commission declares national emergency quarantine
- Government will ban ash imports on Monday and introduce tight restrictions on movements of the tree around the country

The Sun

Fears as ash tree disease is found

theguardian

opinion culture economy lifestyle fashion environment tech

development

Dieback has affected 90% of Denmark's ash trees. Britain faces a similar threat

A killer fungus has attacked ash trees across northern and central Europe, prompting pleas for the UK to ban sapling imports. But it may already be too late

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NEWS

The ash is history — oak could be next

Dieback disease will be followed by other disasters unless we take action soon, say experts

News > UK > Home News

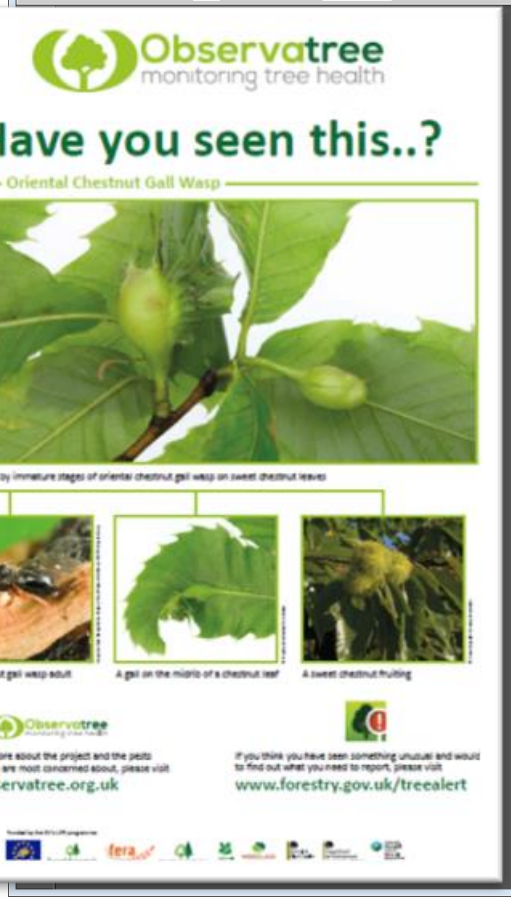
Deadly ash tree 'dieback' disease now found in 115 sites and a further six counties

HOMELESS VETERANS

Partnering

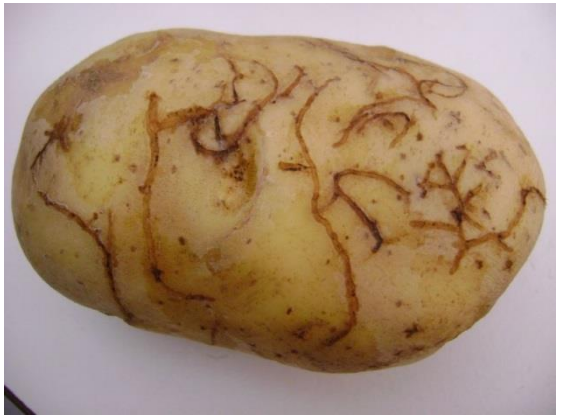
Funded by the EU's LIFE programme

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



Potato flea beetles: *Epitrix* spp.

Key risks	
What is the threat?	Larvae of these beetles could damage UK potato crops if introduced from Europe (Portugal and Spain) or the Americas.
How would/does it get here?	Larvae and adults could travel with ware potatoes from Portugal or Spain.
How does it affect potatoes?	Larvae feed on the tubers, producing both surface tunnelling, but also deeper holes.
Other impacts	Yield is not affected, but commercial value is. Damage can be so severe that crops become unmarketable.
How quickly does it spread?	Natural spread is likely to be local, between fields. Long distance spread more likely via infested tubers.
How controllable is it?	Insecticide treatments are used for control in Europe and North America. Eradication difficult unless detected very early.
Current and proposed actions	Potato tubers are prohibited from the Americas. Tubers imported from Spain and Portugal are pre-notified and a proportion are inspected.

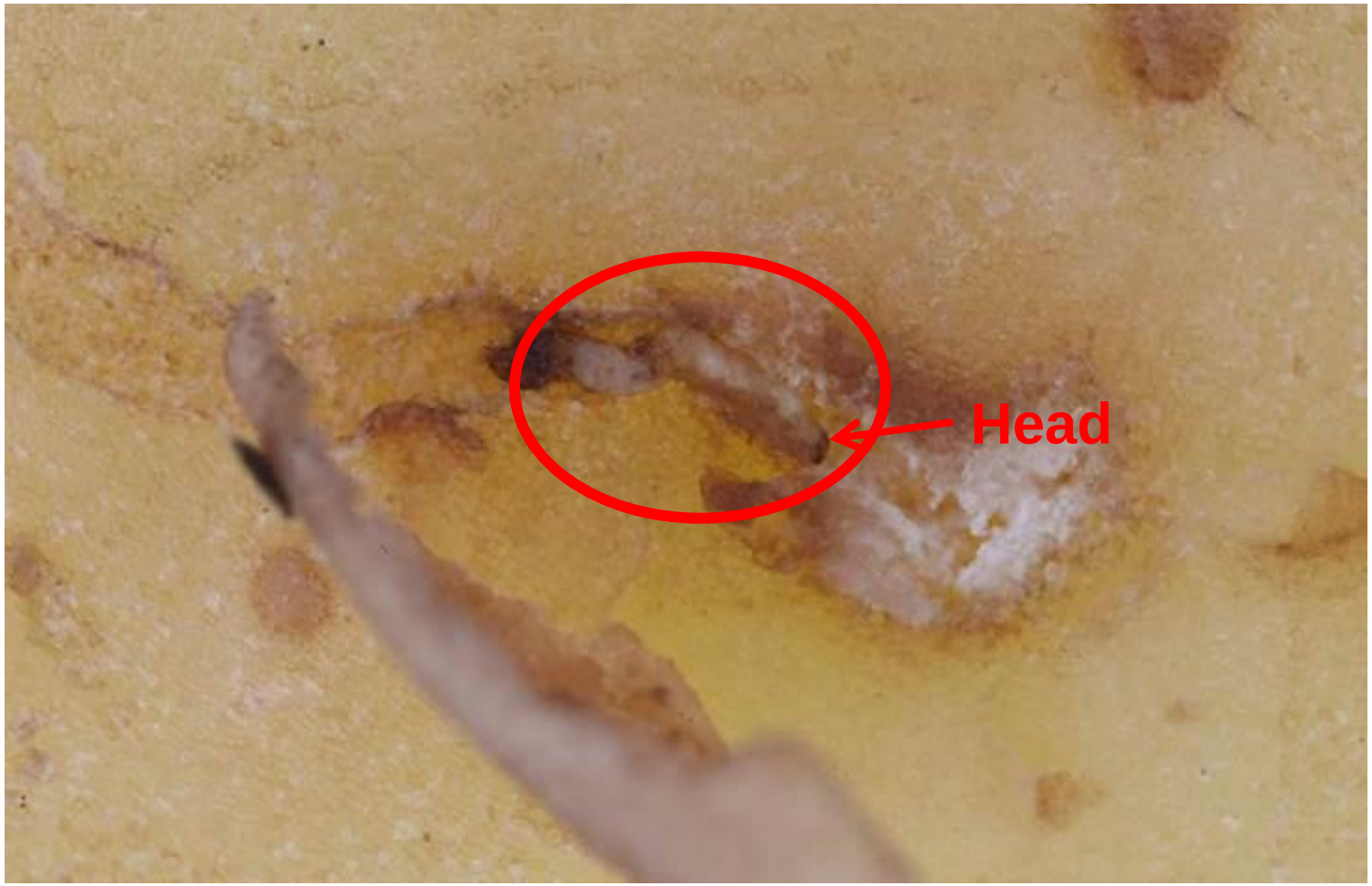


Potato tuber showing feeding damage by *Epitrix* larvae

Potato flea beetle adults are about 2 mm in length. Potato leaves show characteristic 'shot-hole' adult feeding damage.

Interception of *Epitrix sp.* In UK 2015

- 9 UK interceptions in 2015 (185 loads inspected ~ 5% intercepted)
- Dead larvae were found



Additional risk factors

Larvae in galleries in washed potatoes calls into question whether brushing would have been an effective disinfestation technique

	Feeding damage	Washed	Dead larva
20 April 2015	Yes	Yes	Yes
30 April 2015	Yes	Yes	Yes
6 May 2015	Yes	Yes	Yes
26 May 2015	Yes	No	No
2 June 2015	Yes	Yes	No
3 June 2015	Yes	Yes	No
5 June 2015	Yes	Yes	No
10 June 2015	Yes	Yes	No
16 July 2015	Yes	No	No

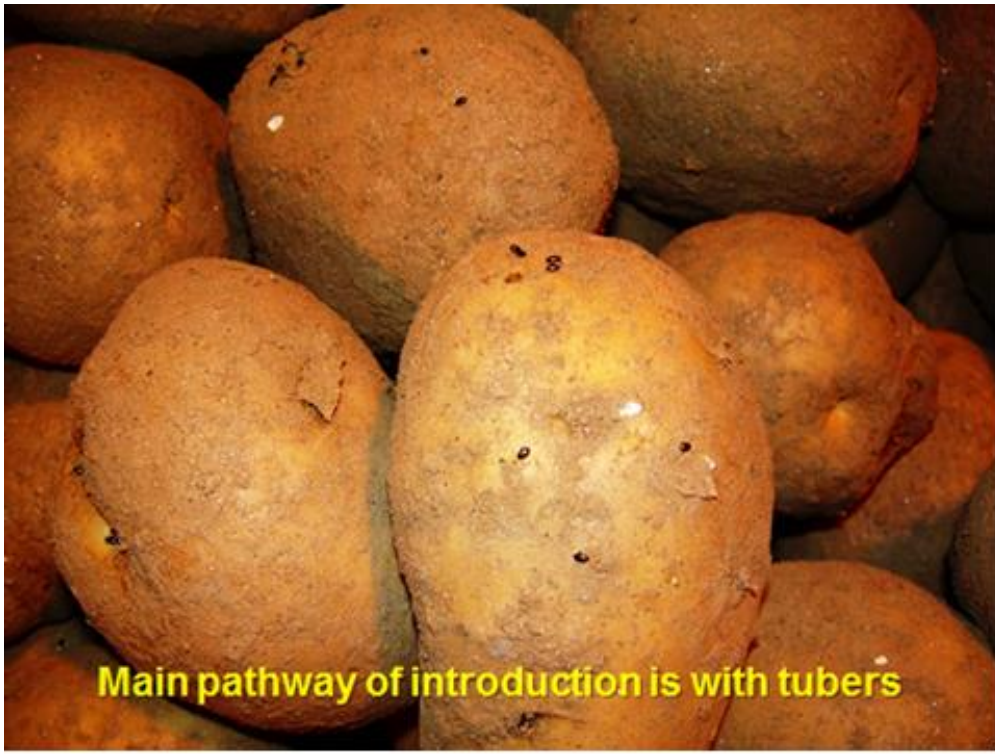
Greater risk of pest presence in unwashed potatoes

Concerns about extent of spread

- All interceptions were from non-demarcated areas in Andalucía (300 km from the closest known outbreak in Portugal and 900km from closest known outbreaks in Spain)

Uncertainties

- Source of infestation unknown
- Reason for spread unexplained
- Outbreak not detected through surveillance
- Tubers are the main pathway for spread but no control in non-demarcated areas
- Presence of larvae



Progress towards national measures

Date	Action
November 2015	UK consultation, extended to EUROPATAT
16 December 2015	UK verbally notifies SCOPAFF of intention to proceed with national measures
25 January 2016	UK verbal update to SCOPAFF; national measures requiring washing of potatoes close to approval
28 January 2016	Bilateral correspondence between UK/Spain NPPOs explaining content of proposed measures
3 February 2016	National measures approved by UK Ministers
4 February 2016	Written confirmation of measures provided to Commission and Member States
11 February 2016	UK-Spain bilateral meeting
24 February 2016	National measures take effect ahead of imports of new potatoes from March

The future

- Welcome actions by Spain, but too many uncertainties remain, highlighting ongoing risk
- Interceptions and FVO findings confirm that application of EU Decision alone is insufficient
- Additional protection needed now, given impending rise in imports
- Actions needed to reduce uncertainty on pest distribution and correct deficiencies seen by FVO
- Period without interceptions needed and resolution of brushing issue
- Further FVO mission useful, to assess changes

Epitrix: preventing introductions and ensuring preparedness in the event of a UK finding

Predict

- EPPO A2 listed pest and EPPO PRA (2010), following UK recommendations.
- Watching brief on ongoing outbreaks elsewhere in EU.
- Regular review of UK Plant Health Risk Register.

Prevent

- EU emergency measures. Potatoes from demarcated areas in Portugal and Spain must be brushed or washed, and from non-demarcated areas in Spain must be washed (<0.1% soil).

Protect

- Targeted APHA surveillance: 50% of all Spanish and Portuguese notified washed ware consignments. 100% of unwashed potatoes. Surveys of secondary pathways: peppers, aubergines and tomatoes. Surveys of weeds around importers where evidence of Epitrix has been found.

Prepare

- Generic and pest-specific contingency plans; Research – Epitrix species life cycles and detection methods. EPPO Standard.

Partnering

- Defra factsheet and pest alert for industry. Public engagement, articles keeping industry informed of developments.

Colorado beetle: *Leptinotarsa decemlineata*

Key risks	
What is the threat?	Serious pest of potatoes widely present in continental Europe.
How would/does it get here?	Adults have been found entering the UK on potatoes from Europe. Also regularly intercepted as a hitchhiker on non-host plant material (often salads).
How does it affect potatoes?	If not controlled, feeding on potato leaves can lead to large scale defoliation and massive crop losses.
Other impacts	Introduction would result in increased use of insecticides and a rise in production costs for farmers.
How quickly does it spread?	When first introduced, spread was rapid in Europe, but has been slowed by efforts to control the pest.
How controllable is it?	Colorado beetle has developed resistance to various chemical controls. Control options are available in the event of an outbreak, but if spreads to weeds eradication may be difficult.
Current and proposed actions	The UK has a Protected Zone and annual surveys are carried out. Good industry awareness. Obtaining approvals for plant protection products for emergency use.

Adult Colorado beetle: 10-12 mm long

Larvae of Colorado beetle: approx. 15 mm long

Colorado beetle: pest is introduced to the UK

Predict

- EPPO A2 listed pest.
- Quarantine pest in the UK for decades.
- Regular review of UK Plant Health Risk Register.

Prevent

- EU regulated pest (Annex IB). The UK is a Protected Zone for this pest. Requirement that plant material originates from a Pest Free Area or that plant products are suitably treated. EPPO Standard for commodity specific phytosanitary measures.

Protect

- Official targeted annual surveillance for this pest. Exporters to the UK should ensure goods are free from Colorado beetle.

Prepare

- Pest specific contingency plan.

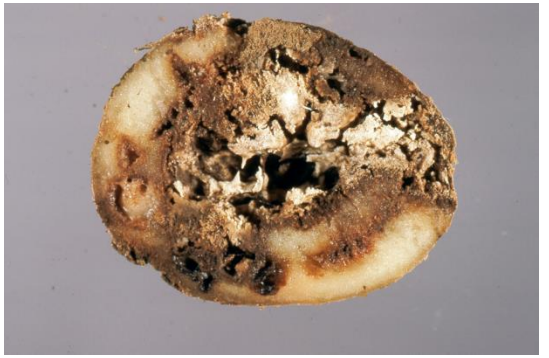
Partnering

- Publicity, including a Defra pest alert (2015), and update of factsheet to distinguish Colorado beetle from other insects (2016) to raise awareness among industry and others.

Ring rot of potato: *Clavibacter michiganensis* subsp. *sepedonicus*

Key risks	
What is the threat?	A regulated bacterial plant pathogen of potato, establish in North America and parts of Europe.
How would/does it get here?	The disease would most likely enter on contaminated seed potatoes. Contaminated potato waste is another possible source of infection.
How does it affect potatoes?	Yield losses are caused by tuber rotting and in individual U.S. crops have been as high as 50%.
Other impacts	The disease was recently found infecting tomatoes for the first time in Belgium.
How quickly does it spread?	Spread is largely through contaminated seed potatoes, especially via latently (non-symptomatic) infected tubers.
How controllable is it?	Using certified seed, practising good hygiene can help prevent outbreaks.
Current and proposed actions	Yearly surveys, import inspections, publicity.

Early tuber symptoms. Crown Copyright Fera.



Late stages of rotting in potato tubers. Crown Copyright Fera.

Ring rot of potato: pest is introduced

Predict
- EPPO A2 pest
- UK Plant Health Risk Register entry

Prevent
- EU regulated pest, including specific control directive (Commission Directive 2006/56/EC)
- Import surveys

Protect
- Annual field surveys for the pest
- Testing and seed and ware potatoes to monitor for latent infection

Prepare
- UK experience of eradicating outbreaks
- Contingency plan

Partnering
- Publicity to raise awareness with industry
- Industry accreditation scheme

Brown rot of potato: *Ralstonia solanacearum*

Key risks	
What is the threat?	*Ralstonia solanacearum* is a regulated and damaging bacterial pathogen that causes brown rot of potatoes.
How would/does it get here?	*Ralstonia solanacearum* is present in some river systems and could enter fields via irrigation or flooding. It could also enter on seed potatoes.
How does it affect potatoes?	Yields losses are caused by tubers rotting, wilting of potato plants may also be seen.
Other impacts	If the pest were to establish in seed potato production, exports by the seed potato industry would be severely effected. Tomatoes can also be infected.
How quickly does it spread?	The pest could spread quickly if contaminated seed potatoes were to be used.
How controllable is it?	Planting only with certified seed and avoiding irrigating with contaminated water will help prevent outbreaks.
Current and proposed actions	Annual surveys of potato crops and water courses. Pre-import notification of potatoes from higher risk areas.

Brown rot symptoms in a potato tuber. Photo Crown Copyright Fera/

Wilting of an infected potato plant in the field. Photo Crown Copyright Fera.

Brown rot of potato: pest spreads into crops

Predict
- UK Plant Health Risk Register Entry
- EPPO A2 pest

Prevent
- EU regulated pest
- Pre-notification scheme for import of potatoes from higher risk areas
- Inspection of potatoes at import

Protect
- Yearly surveys of seed and ware crops and sampling and testing of tubers
- Surveys of contaminated water courses and controls on irrigation

Prepare
- Contingency plan for outbreaks

Partnering
- Industry accreditation scheme
- Publicity to raise awareness

Zebra chip: *Candidatus* Liberibacter solanacearum (Lso)

Key risks	
What is the threat?	The quality of UK crops could be affected if this bacterium were to be introduced from the Americas or New Zealand.
How would/does it get here?	Spread by a psyllid vector *Bactericera cockerelli*, which is not present in the EU. It is unclear if European psyllids could be vectors.
How does it affect potatoes?	Growing potato plants show stunting, chlorosis, upward rolling and scorching of leaves. Tubers show discolouration which is accentuated by frying.
Other impacts	Losses to tomatoes and pepper crops.
How quickly does it spread?	Spread is dependent on the vector psyllids, and these may move long distances.
How controllable is it?	Eradication of the psyllid would be very difficult, thus disease control would also be challenging.
Current and proposed actions	Solanaceous imports, including potato tubers and all plants for planting, are prohibited from countries where it is found, but vector and bacterium could be introduced with fruit.

Raw and fried potato slices infected with Lso. Photo courtesy of Joe Munyaneza, USDA/ARS

Lso symptoms in potato. Note leaf curl and discoloration. Photo courtesy of Joe Munyaneza USDA/ARS

Zebra chip: pest is introduced to the UK

Predict
- EPPO Pest Risk Analysis (2010), UK PRA (2014)
- EPPO A1 pest list
- UK Plant Health Risk Register entry

Prevent
- EU controls on the import (from third countries) of potato tubers and Solanaceae plants for planting
- Proposed EU regulation of the vector and possibly the bacterium

Protect
- Surveys for symptoms on growing potato crops and harvested tubers are carried out annually

Prepare
- Development of field diagnostic capability
- Develop a UK contingency plan

Partnering
- Publicity, including a Defra pest alert in 2015, to raise awareness among industry and others

Guatemalan potato tuber moth: *Tecia solanivora*

Key risks	
What is the threat?	Larvae could damage UK crops if introduced from South America, the Canary Islands or an outbreak in mainland Spain.
How would/does it get here?	Larvae could travel inside infested potatoes, or in associated packing materials.
How does it affect potatoes?	Larvae tunnel into the tubers, feeding inside and creating tunnels. Both field crops and stored potatoes are vulnerable.
Potential UK impacts	The moth is currently found in countries which are warmer than the UK, and high levels of damage may not occur here.
How quickly does it spread?	Natural spread is quite slow. Spread in trade with infested tubers could be faster.
How controllable is it?	Pheromone traps are available. Cultural practices help to manage pest populations. Chemicals are generally ineffective.
Current and proposed actions	Potato tubers are prohibited from South America and the Canary Islands. Tubers from mainland Spain are controlled.

Cut open potato tubers showing larval feeding damage

Larvae inside a damaged potato tuber

Guatemalan potato moth: pest is introduced to the UK

Predict
- UK Pest Risk Assessment (2001), EPPO PRA (2002)
- EPPO A2 pest list (which led to EU regulation)
- UK Plant Health Risk Register

Prevent
- It is a quarantine pest for the EU: it is prohibited on potato tubers

Protect
- Due to *Epitrix*, 100% inspection of unwashed and 50% inspection of washed Spanish potatoes

Prepare
- Official and industry targeted surveillance for this pest

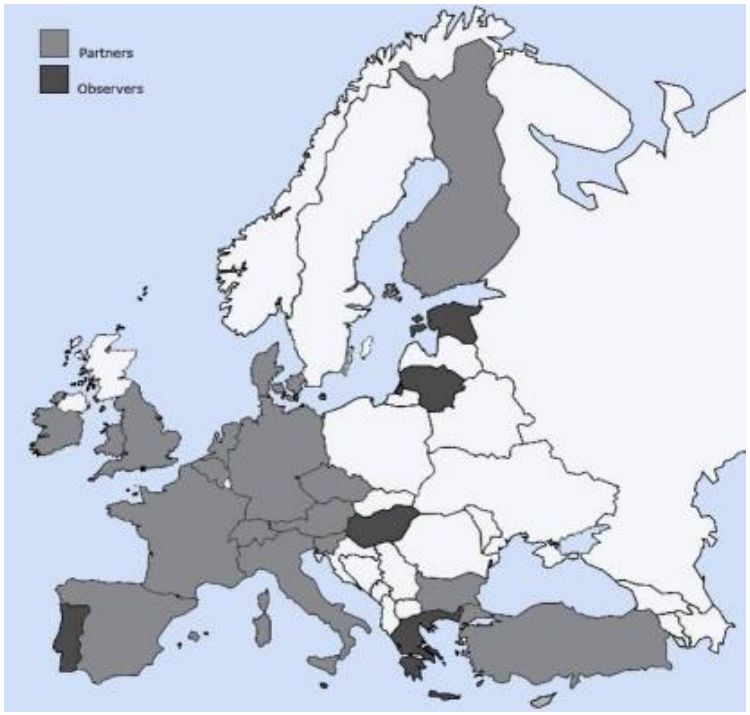
Partnering
- Publicity, including a Defra pest alert in 2015, to raise awareness among industry and others

Euphresco - European Phytosanitary Research Coordination

- Euphresco, an EU-funded project was launched in 2006 in response to:
  - increasing threats from plant pests and diseases
  - limited and decreasing resources and erosion of the scientific basis
- 2.63M€ funding, 23 partners, 6 observers which aimed to:
  - Improve plant health research coordination at European level
  - Optimise the use of limited resources (funding and expertise)
  - Provide better research outputs that support plant health policy
  - Support Europe's phytosanitary scientific capability

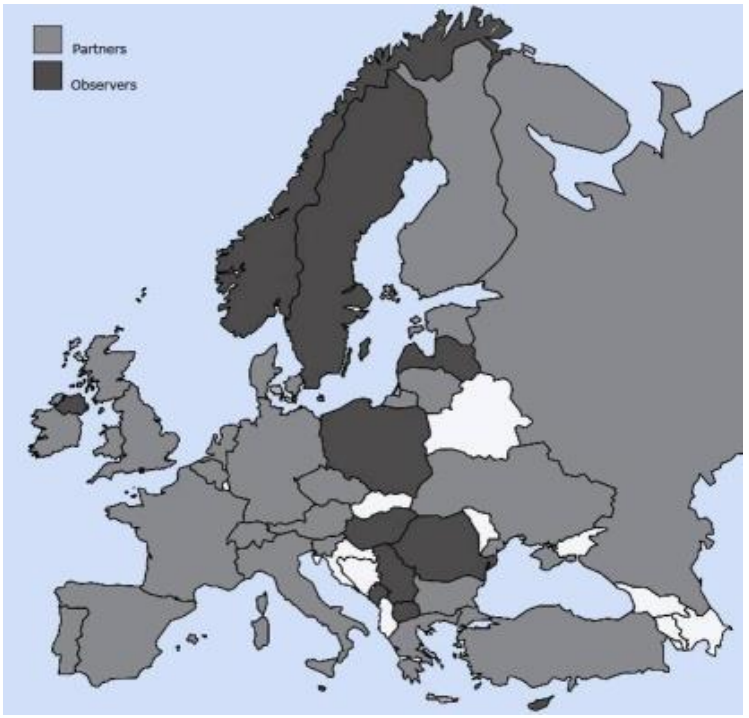
Euphresco 2

- 1M€ EU funding, 31 partners, 14 observers which aimed to:
  - Enlarge the Network and increase transnational research
  - Work towards a long-term self-sustainable Network



EUPHRESCO 1

23 partners and **6** observers

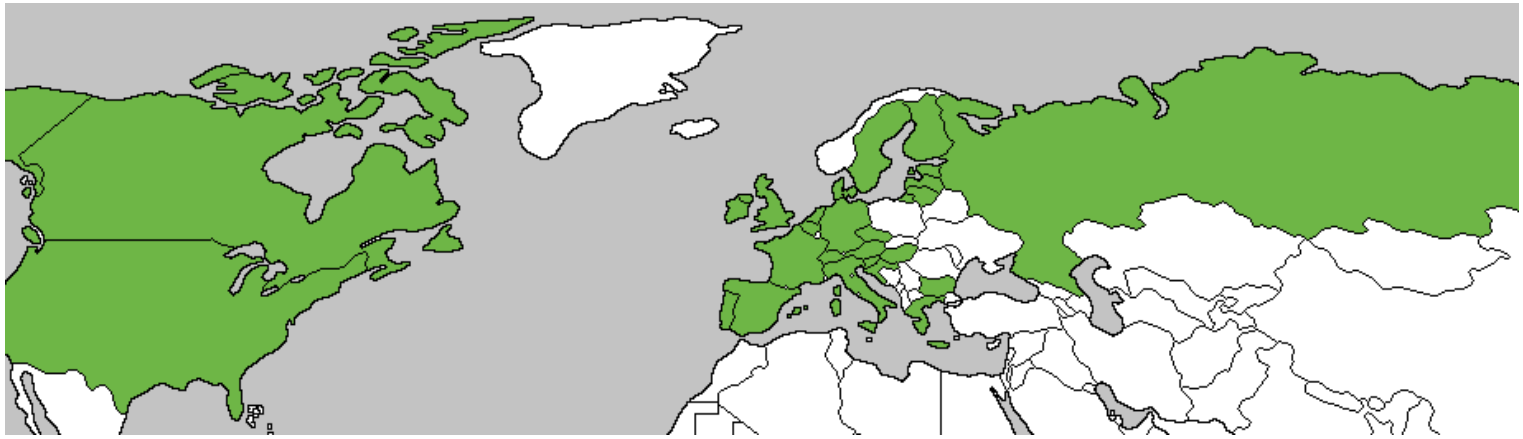


EUPHRESCO 2

32 partners and **14** observers

The Euphresco Network

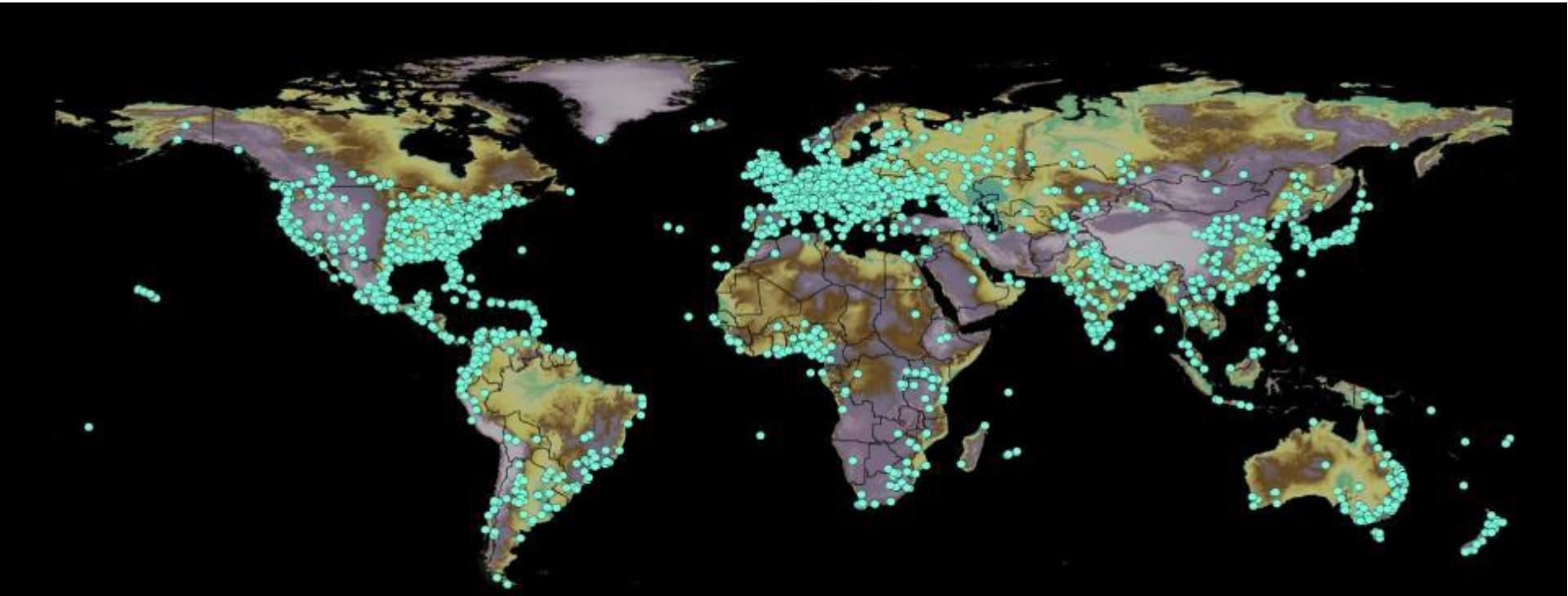
- Euphresco, a self-sustainable network was launched in 2014
  - Network secretariat provided by EPPO
  - 60 research projects funded so far with a total budget of 12.5M€
  - 15 research projects funded in 2015 and 24 in 2016
- 32 partners around the world including USA and Canada
  - Pools funds and expertise, generates critical mass and increases research capacity and preparedness
  - Reduces duplication of effort and improves focus and standards



International Plant Sentinal Network – Coordinated by Botanic Gardens Conservation International

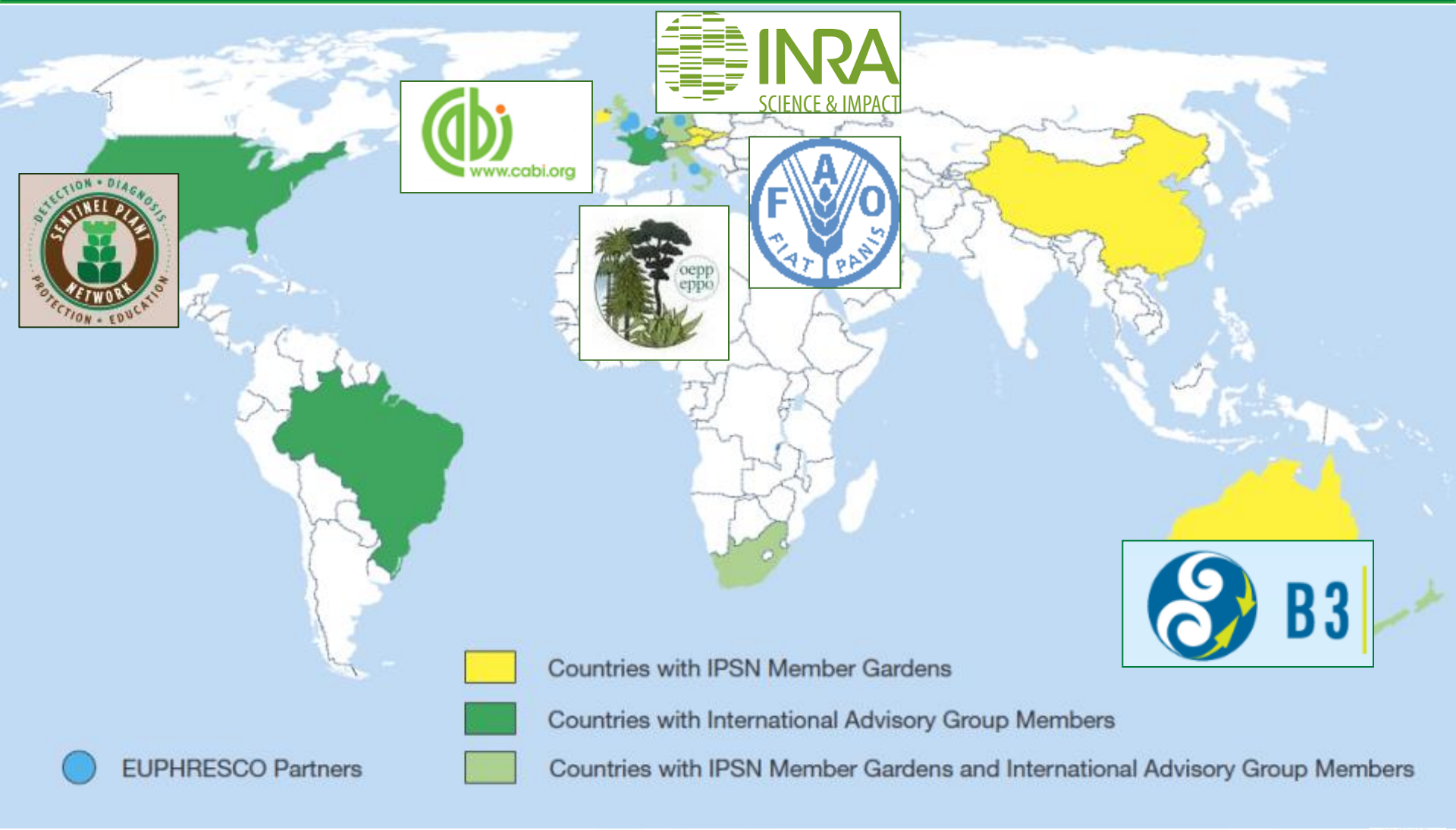
BGCI
Plants for the Planet

- Over 2,500 botanic gardens worldwide
- Collections include 30-40% of known plant species
- Presence of non-native species in collections
- A EUPHRESCO project



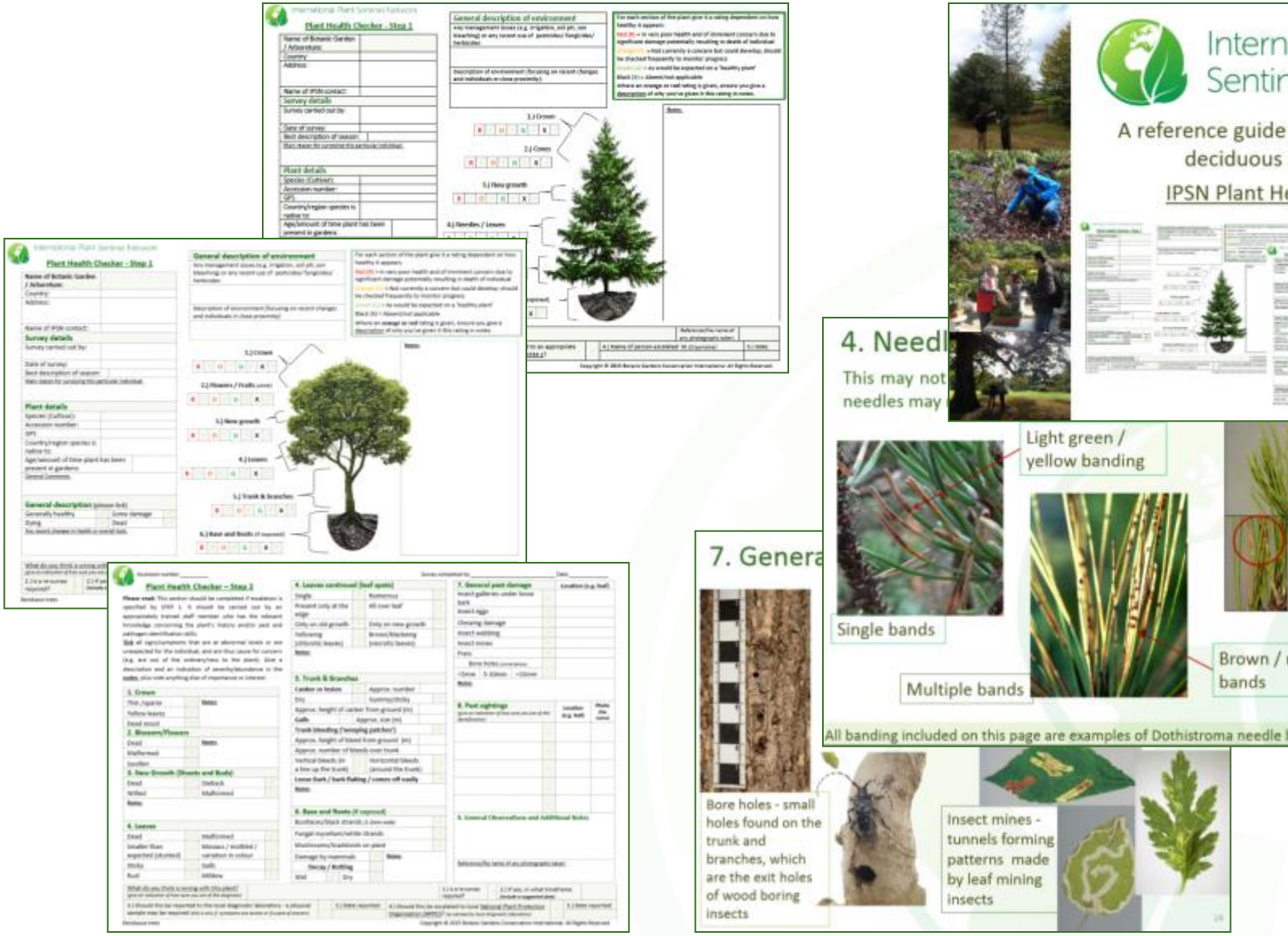
Map of known botanic gardens courtesy of BGCI's GardenSearch database - http://www.bgci.org/garden_search.php

International Network and Collaboration



defra fera JKI DIBAF Forest Research Plant Protection Service Ministry of Economic Affairs, Agriculture and Innovation www.cabi.org BGCI

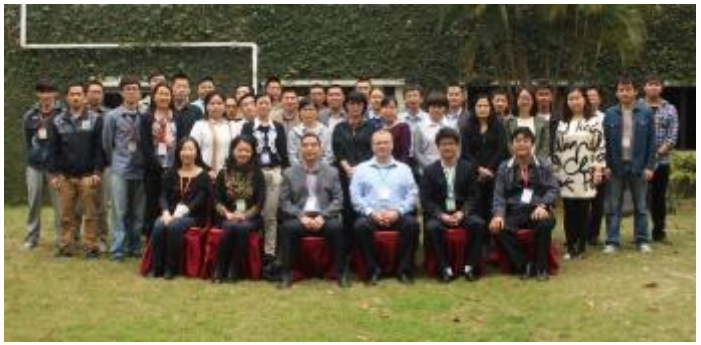
Surveying Materials and Guidance



Training Materials and Resources

Workshops & training

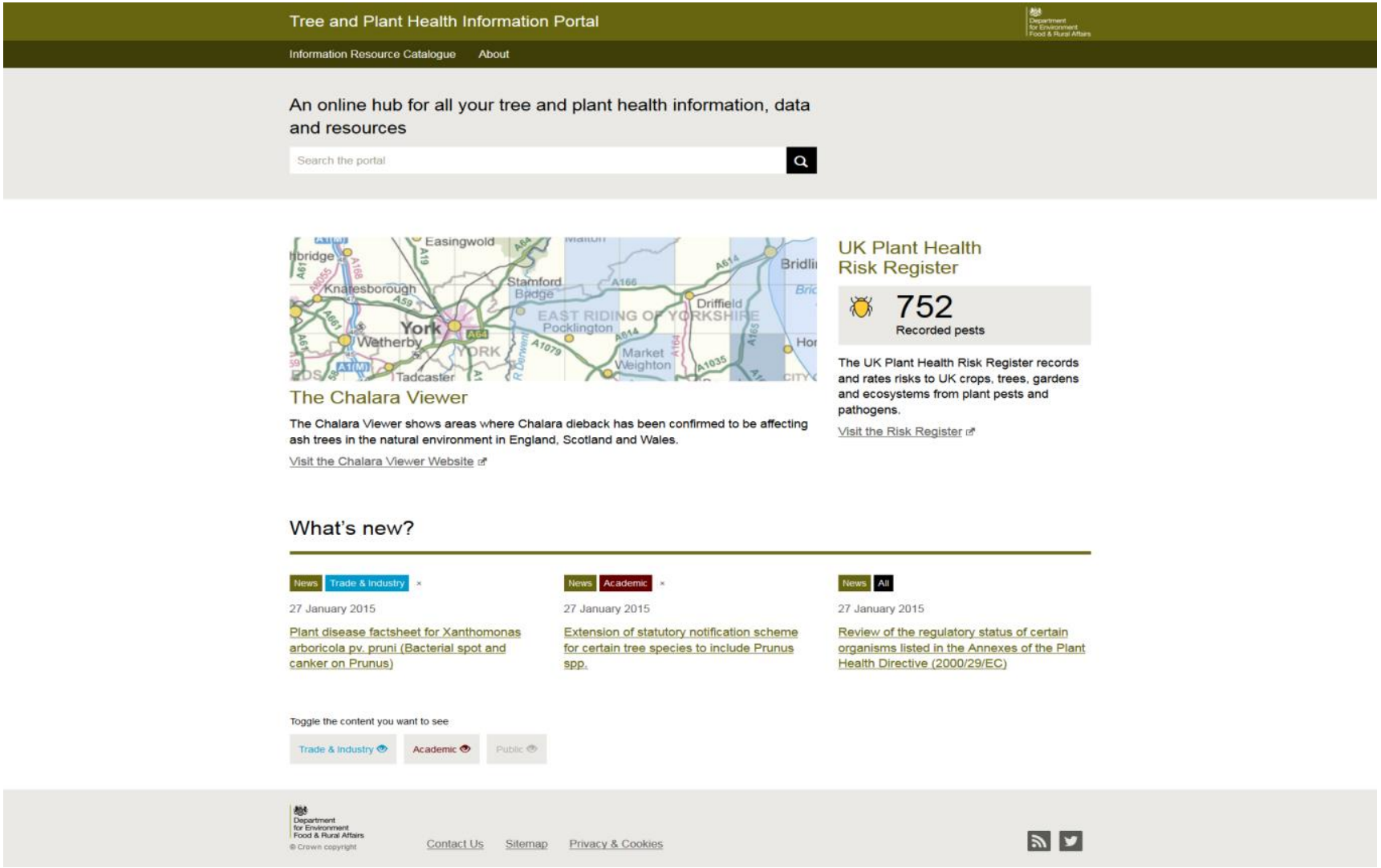
Huntington Library, Art Collections and Botanical Gardens, U.S.



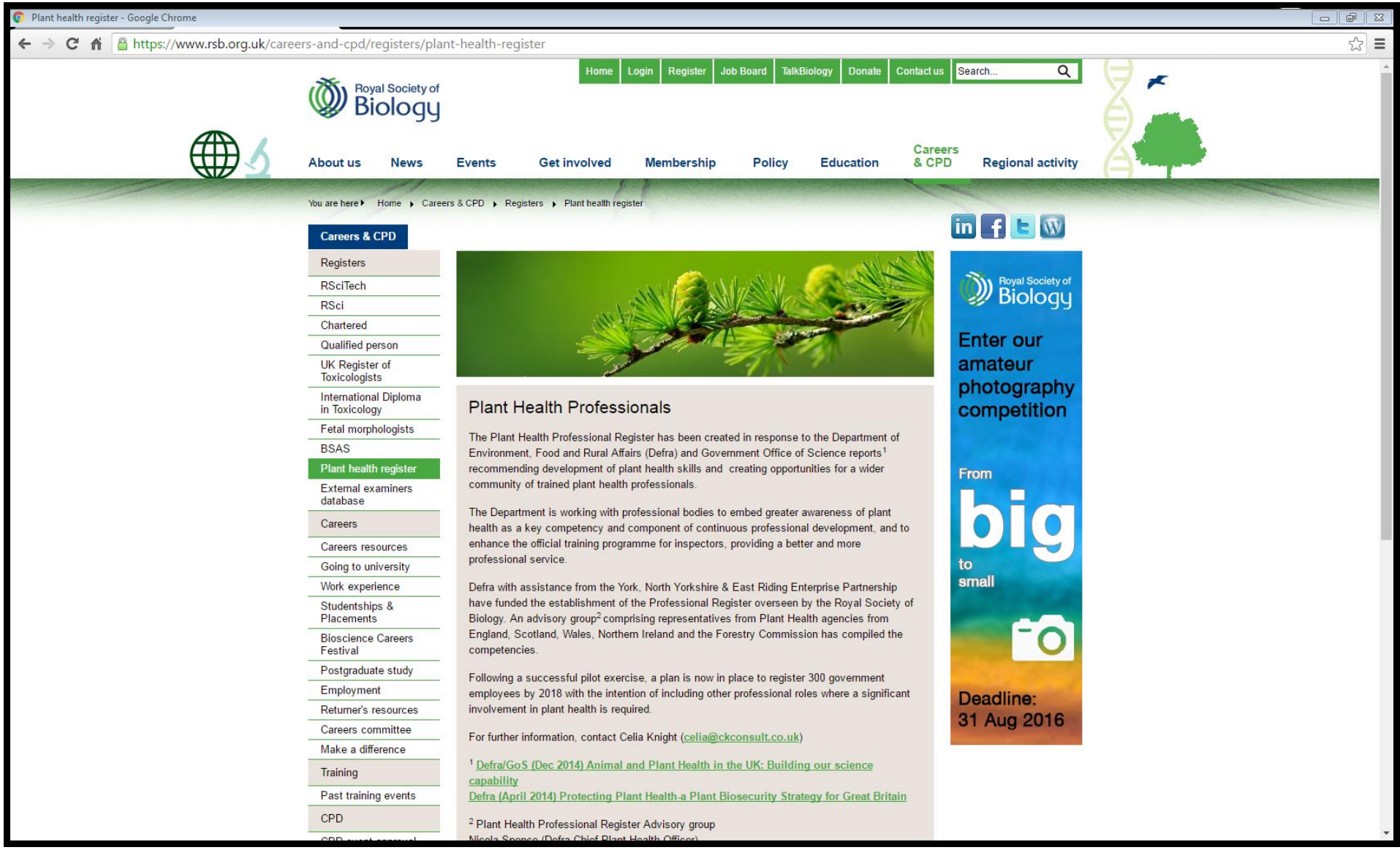
Shenzhen Fairy Lake Botanical Garden (CAS), China

Royal Botanic Gardens Kew, UK

Coming soon: Plant Health Information Portal



UK Register of Plant Health Professionals



THANK YOU