

Third Annual John MacLeod Lecture

DR KEN THOMPSON, SENIOR RESEARCH fellow and honorary senior lecturer at the University of Sheffield, will be this year's guest speaker at the John MacLeod Annual Lecture.

Author of *Do We Need Pandas?*; *The Uncomfortable Truth About Biodiversity*, Dr Thompson will speak on biological invasions and what they mean for gardens and gardeners. He will cover both aspects of the non-native invasive species debate: the impact of invasive plants such as *Rhododendron × superponticum* and *Impatiens glandulifera*, and incoming plants and diseases such as recently arrived Ash dieback (*Hymenoscyphus pseudoalbidus*).

For more information:

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Dr Ken Thompson, this year's speaker at the John MacLeod Annual Lecture.

The lecture takes place before an invited audience on Thursday 21 November at Broadway House, SW1. Says RHS Chief Scientist Dr John David, "The aim of this topic is to highlight the nature and impact of biological invasions, the process where organisms that are not indigenous become established in a new environment and may cause unwanted changes. Horticulture is seen as a major pathway of introduction, especially as gardens

may contain largely non-native plants. The debate around the problems of invasive organisms is often dominated by entrenched opinions that are not always evidence-based. This lecture is intended to challenge preconceived views and stimulate debate around this often controversial issue."

As with the previous lecture, a video will be made available on the website shortly after the event. ■

New role to address gardeners' pest and disease concerns



Gerard Clover, new Principal Scientist for Plant Health

IN SEPTEMBER GERARD CLOVER JOINED RHS Science as Principal Scientist – Plant Health. This new role recognises the increasing threat from new pests and diseases and is intended to help coordinate RHS work in this area with that of other organisations.

Gerard has 20 years' experience in plant health, and previously managed

the New Zealand government's Plant Health & Environmental Laboratory in Wellington. Speaking after his appointment, he said: "I'm tremendously excited about working for the RHS. I believe my experience, coupled with the skills of the hugely talented team at the RHS, will mean that we will be able to help even more gardeners identify and control garden pests." ■

PHOTOS: NEIL HEWORTH (TOP); GERARD CLOVER (BELOW).

News in brief

SECOND BRITISH RECORD OF NEW

MEALYBUG. Golden root mealybug (*Chryseococcus arecae*; right), first recorded in the UK in 2012 in Perthshire, has now been identified from a garden in Ross-shire. A native of New Zealand, it has only been found so far in the UK on *Meconopsis* and *Primula*, but can feed on the roots of a wide range of plants likely to be grown in UK gardens. The insect is 2–3mm long, and is usually covered in a sulphur-yellow wax. This distinguishes it from other pests found on roots such as root aphids and other root mealybugs, which are usually white. The RHS is asking gardeners who find this pest to send samples to Entomology at RHS Wisley so that its spread can be monitored.

BOX MOTH CONTINUES TO SPREAD. The box tree moth, *Cydalima perspectalis* (below), is now established in London.

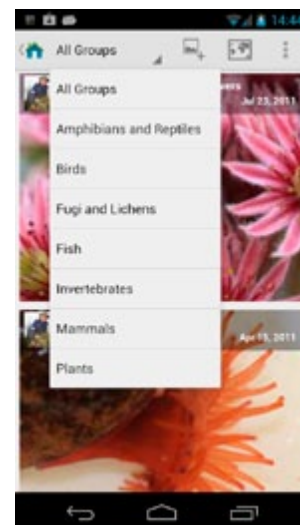


Several sightings of caterpillars have been reported to Advisory Services from north-east London, as well as parts of Surrey and Hampshire. The caterpillars of this non-native species can completely strip box (*Buxus*) plants. A native of south-east Asia, the moth arrived in Europe in 2007, and adult moths have been recorded in England since 2008, but it was not until 2011 that caterpillars were found in a private garden in the UK. More information can be found [on the RHS website](#).

NEW CITIZEN SCIENCE INITIATIVE. Representatives of RHS Science have met with Professor Jonathon Silvertown of the Open University to discuss RHS participation in the iSpot project. The [iSpot website](#) allows people to post images of living

Left. **Box tree moth caterpillar larva spinning a cocoon before pupating.** Above. **Golden root mealybug, a native of Australasia, which infests the roots of a range of garden plants.**

things for identification by an online community of enthusiasts. To date this service has been largely limited to wild organisms but collaboration with the RHS would enable garden plants to be included. A pilot project is being designed and if launched on a wider scale it is hoped much knowledge could be gained about what is being cultivated in British gardens and how garden plants are interacting with native wildlife.

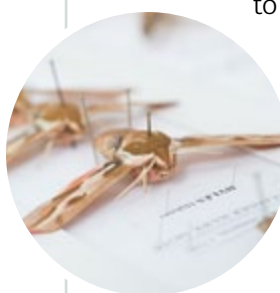


Above. **The iSpot smartphone app, which allows users to upload photos of flora and fauna and get help with identification.**

Bug Club resumes

The Wisley Bug Club resumed in September after a short hiatus following Andrew Halstead's retirement. From March to October, Bug Club is held most Thursdays at 16:15 in the Entomology Department for the Wisley trainees. The students have an opportunity to see insects and samples of pest damage sent to

the Entomologists through the Advisory Services and also to bring samples of their own for identification. As well as learning about pest identification, methods of control and lifecycles are also discussed. The aim of Bug Club is to aid the trainees both in their pest collection coursework and during their future careers. For more information, contact [Anna Platoni](#).



For more information:

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Building on RHS Science in 2014



by **Alistair Griffiths**

HEAD OF SCIENCE

I am pleased to be leading and working with the Science Dept to develop our new science strategy and science facility. I have digested the team's great ideas and thoughts and incorporated them wherever possible. This new draft strategy is as yet not complete and will be submitted to Council in January 2014.

I am enjoying leading a team that undertakes scientific research and provides members and gardeners with relevant information to create sustainable gardens that maximise environmental benefit and human well-being. I also look forward to continuing through our work to influence

government in developing policies to advance horticultural science and gardening.

Our new strategy will build upon the already fantastic work that every individual undertakes in our Science team.

Currently I am working with the Director General, the Senior Science Management Team,

the Leadership Team, the Science Advisory Committee and the Horticultural Board to ensure that we have the best possible science strategy for our future. Furthermore, I will soon present the strategy to the whole Science team for further comments before I send it to Council.

I hope that you are as excited as I am about the promising future of horticultural science at RHS Wisley. Our new strategy will build upon the already fantastic work that every individual undertakes in our Science team. By working and collaborating with other RHS divisions and like-minded institutions I believe that we can deliver a strategy that makes a significant difference to our profession, to gardeners and to our planet. ■

Third successful IAESTE student internship

RHS Science hosted its third IAESTE (International Association for the Exchange of Students for Technical Experience) internship this summer. **Romina Gehler** (right), a Geoecology graduate from Potsdam, spent ten weeks working in Horticultural Informatics and the Herbarium, digitising data from nursery catalogues and preparing new specimens. She also assisted in research in Plant Soils Interactions and Pathology, and spent time with Curatorial working in the Fruit Field.

Romina will now continue her studies in Germany with a Master's in environmental management or climate change. Of her time at Wisley,



she says, "I had taken a course in biogeochemistry and soil science, and it was interesting to gain some practical experience. This has given me a lot of different ideas for my future. I always had fun and I will miss everybody."

During her stay, Romina took part in a programme on Wisley for German television, talking about the IAESTE scheme and her experiences as a Wisley intern. It will be aired on RBB tv in Berlin during 2014.

Above: Romina prepares a dahlia specimen in Wisley Herbarium.

In October, International Registrar Alan Leslie (Hort Informatics) completed 35 years at the RHS. During this time, he has acted as registrar for several plant groups and served on various bodies such as the Nomenclature and Taxonomy Advisory Group and the editorial board of the International Code of Nomenclature for Cultivated Plants. As well as numerous papers, his publications include floras of Cambridgeshire and Surrey, and the 1544-page 2004 *International Rhododendron Register & Checklist*. Alan currently works part-time from home in Cambridge, and is registrar for *Dianthus* and *Rhododendron*.



PHOTOS: TIM SANDALL (ALISTAIR GRIFFITHS); BARRY PHILLIPS (ROMINA GEHLER); JANET CUBEY (ALAN LESLIE).

Changing Climate survey: initial findings



by Claudia Bernardini

PLANT SCIENCES

AS PART OF A JOINT project between the RHS and the University of Reading, a 'Gardening in a Changing Climate' survey was conducted in spring 2013.

The main goal was to understand how British gardens and gardening are coping with changes in the global climate and more recent changes in weather patterns.

The survey had two phases. One stage was an online questionnaire, which collected more than one thousand responses from members of the public. The second stage consisted of face-to-face interviews with nearly 30 key representatives of gardening institutions (botanic and historic gardens, National Trust and English Heritage properties, etc.) and industry (plant nurseries, garden retailers, the Horticultural Trades Association, etc.).

The two parts of the survey show that both gardening sectors, private and public, are sometimes struggling to keep up with recent changes in the climate and are suffering from extreme weather events. Both are feeling the effects of changes that require a certain level of adaptation. For example, several members of the public commented that they had struggled



Above. Climate change is likely to increase the risk of flash flooding. Bottom. Some respondents to the survey said that in the current climate growing your own food is no longer an attractive option.

Both gardening sectors, private and public, are sometimes struggling to keep up with recent changes in the climate and are suffering from extreme weather events.



with their allotments and vegetable plots, since the combination of a higher incidence of pests and diseases and very cold and unusual springs had damaged their crops. Many said that under current conditions growing your own food has proved much more difficult, and some have abandoned this activity because of recurrent failures in the last few years.

The garden industry has also been affected in part as a consequence of the public's response to climate and weather changes. Plant growers and retailers are experiencing difficulties, since it is much harder to plan the size and variety of plant stocks and sales are becoming more unpredictable.

Historic gardens and properties are mainly dealing with the environmental damage caused by unpredictable weather and affecting garden features and infrastructures, sometimes with costly consequences.

The survey provides an insight on the way changes in the climate and weather patterns are affecting the garden and horticulture sectors. The outcome of the study will be published in the RHS report on climate change, to be launched in February 2014. ■

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PHOTOS: ADRIAN BLOOM (FLOODING); JULIAN WEIGALL (ALLOTMENTS).

Spreading the science: a new initiative with Curatorial



by **Béatrice Henricot**

PLANT SCIENCES

FOLLOWING A WORKSHOP WITH MEMBERS of Curatorial and Science on possible collaborations across our respective areas, a project involving both teams was set up to monitor the fungus-like pathogen *Phytophthora* at RHS Wisley Garden.

The project uses both high and low level rain traps to identify hot spots and periods of high risk of inoculum production and dispersal which should be prioritised for the management of the disease. This is especially important with the quarantine pathogen *Phytophthora ramorum*, which has been confirmed in several locations at Wisley since 2003 but has not been detected since 2010.

Starting in March 2013, the combined team did not detect any *P. ramorum* but identified *P. plurivora* in samples collected in April, May and October from the high and low level traps on Battleston Hill, Seven Acres, and in the Wild Garden and conservation area. *P. psychrophila*, a species that affects mainly European oaks, was found in October on Battleston Hill. These areas have good tree cover and their humid microclimate is conducive to the disease.

P. gonapodyides was also confirmed during the dry month of July in most locations. This is not considered a risk for plants. However, *P. plurivora* has been recorded on stems, leaf lesions and dying roots from around 100 species of flowering plant and conifer. ■

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What is *Phytophthora*?

Phytophthora diseases are among the most frequently diagnosed causes of plant death in gardens. These fungus-like pathogens cause a wide range of symptoms including leaf blight, root and stem base decay and bleeding cankers.



The Science–Curatorial team consists of Principal Research Scientist Béatrice Henricot, horticulturist Stewart Hall, who works in the Woodland Ornamental team, and horticultural trainee Carly Manning. Says Stewart: “We hope that the results of monitoring will establish whether removal of soil and leaf litter and selective pruning to increase ventilation is necessary to reduce the risk of infection by *Phytophthora*”.

In the picture above, Carly and Stewart are extracting DNA from the water collected from rain traps (bottom) around Wisley. “This project is a fantastic opportunity to learn new laboratory skills and talk to the plant pathologists about what they do, as well doing something useful for the garden”, says Carly.



Left. High- and low-level rain trap on Battleston Hill. The higher level catches rainfall, while the lower level catches water splashed from the ground.

PHOTOS: NICOLAS PORTER (RAIN TRAP); BEATRICE HENRICOT (CARLY AND STEWART); TIM SANDALL (BÉATRICE).

One China, many pathologists

At the end of August Liz Beal and Geoff Denton attended the International Congress of Plant Pathology (ICPP) in Beijing, China.

A key focus of the meeting was global food security, but other topics included disease control, biosecurity and molecular diagnostics. Liz gave a presentation on the pathogenicity and control of *Armillaria mellea* and *A. gallica*, reporting strawberry as a suitable susceptible host for future trials and the possible use of allicin (garlic extract) to inhibit *Armillaria*. Geoff presented a poster on *Pythium* as a cause

of foliar blight of mature woody plants and also gave a talk about his *Pythium* research at the pre-conference workshop on *Phytophthora*, *Pythium* and related genera.

Liz also attended a post-congress forest pathology excursion,

which included visits to Fragrant Hills Park to see vascular wilt of smoke bush (*Cotinus coggygia*) and the Beijing University of Forestry, where there was an opportunity

to view the university's diseases collection (see below). ■

Inset. **Rust (*Gymnosporangium* sp.) on *Malus micromalus*, identified during the forest pathology excursion.**



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Plants for Bugs well received by landscape professionals

On 25 September **Helen Bostock** (above, right) and **Andrew Salisbury** (left) gave a joint presentation on the 'Plants for Bugs' project to an audience of nearly 300 landscapers, garden designers and the horticultural media.

The research talk helped inform the topic 'Native or non-native: which one's best', the theme for the Soft Landscape workshop 2013 organised by Palmstead Nurseries, at the Ashford International Hotel. Extracts were tweeted even during the talk, with Helen and Andrew kept busy fielding questions during the breaks for the rest of the day.

Other speakers included Sarah McCarrick from BRE (Buildings Research Establishment) on native plants and their importance for BREEAM and biodiversity, Kate Bradbury on planting for moths, Prof. Nigel Dunnett (Sheffield University) on non-native species and biodiversity in designed landscapes, Tony Kirkham (RBG Kew) on tree establishment and Prof. Chris Baines on striking a balance for wildlife. ■

PHOTOS: LIZ BEAL (CHINA); PALMSTEAD (PRESENTATIONS); SMALL SKIPPER (CAROL SHEPPARD).

RHS Horticultural Informatics collaborate with Botanic Gardens Conservation International on Plant Search

Since 2006 the Horticultural Informatics team have been regularly updating the Botanic Gardens Conservation International (BGCI) Plant Search website with living collection information from the four RHS gardens.

Originally intended as a way of allowing researchers to locate rare and threatened plant species in cultivation around the world, [BGCI Plant Search](#) now contains over one million records supplied by the world's botanic gardens. Once submitted, plant names are automatically cross-referenced with the International Plant Names Index (www.ipni.org) and any that do not correspond to IPNI or Plant Search databases are rejected.

However, since IPNI does not record plants that have arisen in cultivation,



Above. *Rhododendron* 'Totally Awesome'. The RHS will be helping BGCI check their *Rhododendron* cultivar names against the RHS Horticultural Database.

many submitted entries may be excluded. Nevertheless the BGCI Plant Search database is able to handle cultivar-level names, and over time numerous cultivars have been submitted, often unchecked against any suitable authority list. During the summer John David was approached by Suzanne Sharrock (Director of Global Programmes) and Meirion Jones of BGCI in order to explore the possibility of using the RHS Published Names dataset contained within the RHS Horticultural Database as a means of screening cultivar-level names in BGCI Plant Search. Both parties have now signed a data licence agreement which will allow BGCI to begin work on a pilot project to reconcile their *Rhododendron* cultivar names with an extract of published names from the RHS Horticultural Database. It is hoped that the pilot will be extended to cover more genera in 2014. ■

Threatened plants with accessions in RHS Gardens highlighted in RHS Horticultural database

For the past three years the Horticultural Informatics team has been supporting the Plant Heritage [Threatened Plants Project](#) by providing annual updates of cultivars with suppliers in *RHS Plant Finder*.

So far, Plant Heritage has put more than 1,100 plants on its list of plants assessed as rare enough to be threatened in cultivation (THRic). After searching the

collections of many notable gardens throughout the British Isles, some 642 cultivars have been found only in the four RHS Gardens.

The RHS Horticultural Database has now been updated to highlight these THRic cultivars within the living collections tables, making it easier for gardeners, curators and Plant Records officers

to keep track of this valuable genetic resource. In addition, the keyword THRic has been added to the RHS Images Database (iBase). This makes it easier to find pictures of these threatened plants within a particular plant group or genus. For instance, searching on **pulmonaria** THRic will bring up pictures of *Pulmonaria* 'Red Freckles' (right), the subject of a news item in *The Garden*, June



2012 (p.9; 'Breath of life for lost lungwort') when it was rediscovered in cultivation at Wisley. ■

For more information about either of these stories:

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Revision of Hillier almost complete

The two-year joint RHS–Hillier Nurseries project to revise the *Hillier Manual of Trees and Shrubs* has reached the proofing stage. Some 1,500 new entries have been written by the **Botany team** in collaboration with **Roy Lancaster** and **John Hillier**, enlarging the book by around 10%, while the existing text has been updated and brought into line with the RHS horticultural database.

Once proofing is complete, **Richard Sanford** of Horticultural Informatics will prepare the various working documents for typesetting. Publication is scheduled for March 2014. Said **James Armitage**, Principal Botanist, “Updating the Hillier Manual has been an enormous undertaking, but the result is a book to be proud of, detailing an astonishingly diverse woody garden flora. This work will confirm the RHS’s position as world leader in the field of horticultural taxonomy.”



Clockwise from top left. Wisley botanists **James Armitage**, **Dawn Edwards** and **Neil Lancaster**, with **Richard Sanford** (Hort Informatics), who with **Roy Lancaster** (below, left) and **John Hillier** (below, right) are preparing the new edition of the *Hillier Manual* for publication in March 2014.



Silence, ça tourne!

As part of a programme on the work of the RHS, a French television crew visited Wisley herbarium in September. **Christopher Whitehouse** and **Barry Phillips** were filmed as they collected plants from the Country Garden, before returning to the herbarium, where Barry explained the process of converting a living plant into a pressed specimen.

The crew also filmed Christopher as he discussed the importance of the herbarium to the everyday gardener. While most gardeners are unlikely to use a herbarium directly, they will benefit from the use botanists make of specimens when identifying plant material, for instance when responding to gardeners’ queries.

The footage will eventually be aired on France 5’s programme ‘Silence, ça pousse!’ (‘Quiet, it’s growing!’).

Recent publications by Science staff

- Armitage, J.D.** (2013). Perfectly Formed. *Garden Design Journal* **135**: 28–29.
- Armitage, J.D. & Phillips, B.W.** (2013). *Wild Flowers of Wisley*. 3rd Suppl. *Gardens Club Journal* 2013: 28–31.
- Armitage, J.D., Könyves, K., Bailey, J.P., David, J.C. & Culham, A.** (2013). A molecular, morphological and cytological investigation of the identity of non-native *Ludwigia* (Onagraceae) populations in Britain. *New Journal of Botany* **3** (2): 88–95.
- Denton, G.J., Denton, J.O., Cook, R.T.A.** (2013). First report of powdery mildew on *Sorbaria*. *New Disease Reports* **28**: 15.
- Donald, D.R.** (2013). Montanas and other *Clematis* raised by Robin Mitchell. *The Clematis* 2013: 150–159.
- Donald, D.R.** (2013). *Clematis* registered July 2012–June 2013. *The Clematis* 2013: 173–177.
- Henricot, B.** (2013). Another year with box blight and box tree moth. *Topiarus* **17**: 30–32.
- Henricot, B.** (2013). *Phytophthora*. *The Garden* **138** (9): 72–73.
- Henricot, B., Scrace, J., Spooner, B.** (2013). First record of smut caused by *Entyloma eschscholziae* on California poppy in the United Kingdom. *New Disease Reports* **28**: 10.
- Henricot, B., Wedgwood, E.** (2013). Evaluation of foliar fungicide sprays for the control of boxwood blight, caused by the fungus *Cylindrocladium buxicola*. [Plant Health Progress](#).

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