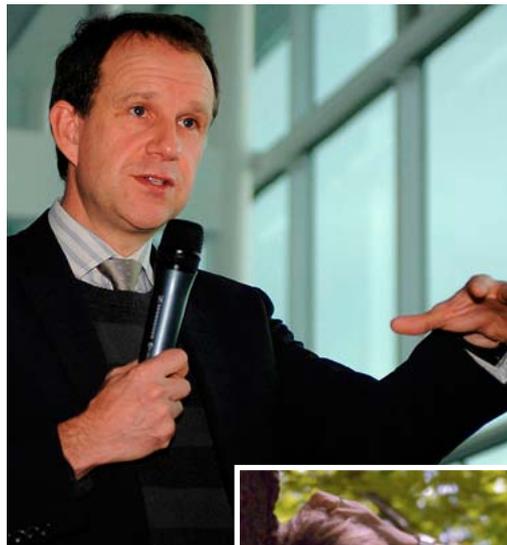


## Focus on health, horticulture and well-being in fourth John MacLeod Lecture

THIS YEAR'S JOHN MACLEOD LECTURE will look at the benefits gardens and gardening provide to people's health and well-being, and will be given jointly by Dr William Bird MBE and Dr Matilda van den Bosch.

Dr Bird was Strategic Health Advisor to Natural England between 2006 and 2011, and developed the Natural Health Service in conjunction with the Department of Health. A general practitioner and consultant to the World Health Organisation (WHO) for the Middle East, he is currently co-editing *The Oxford Textbook of Nature and Public Health*. Dr van den Bosch is also a consultant for the WHO, and is President Elect of the Swedish



**Dr William Bird MBE (above) and Dr Matilda van den Bosch, who will jointly present the 2014 John MacLeod Lecture.**



Society of Behavioural Medicine. She is currently researching interactions between public health and natural environments at the Swedish University of Agricultural Sciences.

The event takes place at the Lindley Hall on Thursday 13 November from 4pm. If you would like to attend, contact [scienceadmin@rhs.org.uk](mailto:scienceadmin@rhs.org.uk) for tickets. This year's **Marsh Horticultural Science Award**, which recognises the work of new postgrad scientists and encourages them to develop careers in horticultural science, will be presented at the lecture. Previous winners have included RHS PhD students **Madalena Vaz Monteiro, Lionel Smith** and **Kálmán Könyves** (see p.5). ■

## More power to Wisley's FRF

Development of the Field Research Facility continues. Two growth rooms (inset) have been installed inside the building, which will allow RHS scientists to undertake experiments that require control over light, temperature and humidity. A solar panel array has also been put in place, to reduce the RHS's electricity bill and further improve the sustainability of the building. ■



For more information about stories in this newsletter ► [johndavid@rhs.org.uk](mailto:johndavid@rhs.org.uk)

**NEW HOMES, NEW MEMBERS.** In partnership with Barratt Manchester, the Great Gardens Advice Pack has been made available to home-buyers in the north of England. It includes the new *Great Gardens* magazine, written by Principal Horticultural Advisor **Leigh Hunt**, and containing practical tips on how to tackle a bare plot, along with environmental information on encouraging biodiversity and sustainability. The latter is largely based on the work of RHS Senior Horticultural Scientist **Tijana Blanuša**. Devised by RHS Corporate Partnerships, the pack also includes RHS membership, so provides access to free RHS gardening advice. It is hoped that this combination will provide the new home-owners with their first taste of rewarding gardening.

**ADVISORS ON TRACK FOR NEW RECORD FIGURES.** **RHS Gardening Advice recorded its highest ever number of enquiries for September this year, with 11,417 in total, against 8,631 for September 2013. This makes the projected total of advisory questions answered at Wisley for the year nearly 63,000. Figures for advice at RHS shows are also on course for a record year, with around 21,000 enquiries so far, and 23,000 projected for 2014. Advisory's Guy Barter cautions that everything still depends on the weather, but describes the projected overall total of 86,000 as "highly satisfactory" and a good target to aim for.**

**TABLETS SOLVE PLANT FINDER HEADACHE.** This year *RHS Plant Finder* nurseries can make their returns using a new online system. Developed for the RHS by Strange Software, the web-based data capture (DCAP) system enables suppliers to go online and update their listings with a few mouse clicks. Previously the DCAP software was distributed on CD-ROM, which the nurseries had to install on their PCs. The new system works in all modern web browsers and on all platforms, so now nurseries that prefer to use Apple Macs or tablets can make their return electronically. "The online DCAP is a win-win solution," says Principal Data Manager Rupert Wilson. "It not only gives nurseries greater access to *RHS Plant Finder*, but also streamlines the compilation process and reduces our mailing costs." ■

## Laboratory open house a great success

Feedback from the second monthly "Behind the Scenes" tour of Wisley's Laboratory has been overwhelmingly positive, with 100% "very good/excellent" ratings for value for money and quality of staff, and 87.5% for tour content. 100% of respondents also said they would recommend the event.

Ten garden visitors booked places on the tour, which included an introduction to the RHS's scientific work in Pathology, Entomology and the Herbarium, as well as a visit to the Lab Library. Led by volunteer **Martin Hulse**, the tour lasted just over an hour, and cost £10 per person. Samples and items of interest were displayed for visitors to look at, and Science staff were also on hand to answer any questions.



Said Plant Health's **Ian Waghorn**, who organised the Science schedule, "Although the tours are still at an early stage, they're already a useful additional way to make visitors aware of the scientific work that goes on at Wisley. A big thank you to Martin for leading the tours and thank you too to all the staff involved." ■

## Media interest brings B&Q into the mix

As reported in issue 20, this spring Horticultural Scientist **Gracie Barrett** established 800 *Viburnum* and 800 *Hebe* (right) at Deers Farm in 15 different peat-reduced and peat-free media mixes, as part of an RHS–Horticultural Development Company Fellowship. Since then she has been assessing plant performance and how it relates to the chemical and physical properties (e.g. density and water retention) of each mix. Over the summer the experiment has been viewed by a number of visitors from the commercial sector, including growers, growing media manufacturers and buyers from B&Q, who were keen to observe and discuss plant quality, the mixes and the work in general. Interest from retailers is an important development, since the purpose of the project is to provide amateur and professional growers alike with information about effective, sustainable alternatives to peat-based growing media.



PHOTOS: RACHAEL TANNER (HEBE); GEORGI MABEE (LAB).

## Goodbye to Wisley's molecular pioneer

In September we said goodbye to Dr Béatrice Henricot, Principal Scientist – Plant Pathology. During her 16 years at Wisley she worked on some major fungal problems for gardeners, including honey fungus (*Armillaria* spp.), blights such as sudden oak death (*Phytophthora ramorum*) and her main claim to fame, the causal fungus box blight (*Cylindrocladium buxicola*), which she described as a species new to science in 2002. This blight has spread rapidly through countries where box is grown for hedging, and most recently has had a devastating impact in the US. Béatrice led the implementation of molecular techniques in plant pathology diagnostics and research at the RHS, and through her efforts the lab was set up to use these techniques on a routine basis. Much though we may miss the row of apples in the lab window, used for isolating *Phytophthora* cultures, the techniques used today are far more accurate and reliable. Béatrice is also a keen ornithologist and could be seen regularly with her binoculars looking for unusual birds around Wisley during her lunch breaks. ■



**Béatrice Henricot (top), who left Plant Health in September, and Louise O'Beirne, who has joined the Herbarium.**

## Staff boost for RHS digitisation programme

**Louise O'Beirne** joined the team in the Herbarium in September, in a new post as Herbarium Digitisation Technician. She is working alongside **Mandeep Matharu**, who has been in this role for over three years, during which time she has managed to capture images of over 15% of our herbarium specimens. With Louise in post we are looking to significantly increase the rate of digitisation with the aim of completing the process far sooner than originally planned.

Louise was one of the last people to graduate with a degree in Botany from the University of Reading, after which she spent just under a year at the Sir Harold Hillier Gardens as a volunteer and then supported by the Hampshire Gardens Trust, where she gained valuable experience with BG-BASE. Since then Louise has had a number of jobs, including a spell in Australia where she obtained her Barista Certificate. We are hoping for great coffee in the Lab from now on! ■

PHOTOS: BARRY PHILLIPS (BEA); RHS (LOUISE)

## Finding a happy medium: new training for RHS PhD students

For many scientists, communicating their interests – let alone their findings – to a non-scientific audience is a challenge. To help correct this, RHS PhD students recently attended a day's workshop in Peterborough with the RHS Media and Press teams.

Colleagues from *The Garden*, *The Plantsman*, RHS Books, RHS Online and the Press Office supported the day and helped advise the students on what works and what doesn't in print, presentations and online media. Said Head of Horticultural and Environmental Science Paul

Alexander, who organised the visit, "We had a thoroughly interesting and entertaining day. We hope this workshop has helped our students be more aware of the needs of different audiences and different media opportunities. It will also have given our Media and Press colleagues an improved insight into the minds of our students as well as the projects they are undertaking."

Students will have a chance to put their new media awareness into practice at this year's RHS PhD Symposium, which will be held at Wisley on 25 November. ■

## Two new root rots described by Wisley's pathologists

Two new species of *Phytophthora* are described [in a forthcoming paper](#) produced by RHS pathologists in collaboration with the Plant Protection Services, Wageningen, the Netherlands.

*Phytophthora occultans* is predominately found affecting the roots of *Buxus* plants, but has also been detected on *Taxus*, *Choisya* and *Acer*. The name derives from the Latin *occultare* meaning "to hide", as this species disappeared for ten years in the Netherlands, after it was first observed there in 1998.

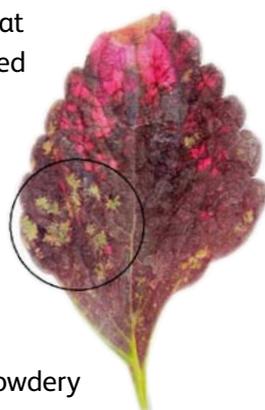
The main host of the second species, *Phytophthora terminalis*,

is *Pachysandra terminalis*, but it is also recorded on *Sarcococca* (also in *Buxaceae*). The species has been named *terminalis* to match the epithet of the principal host. It also indicates the untreatable nature of the infection.

Both species produce oospores (sexual spores) in single culture, which can last for over three years in the absence of a host. As with all other *Phytophthora* species, no fungicides are available to the home gardener, but what appears to be a limited host range may make them easier to control. ■

## First record of powdery mildew on *Solenostemon* (coleus)

During 2013, a trial of *Solenostemon* was set up in the RHS Garden, Wisley, UK. Throughout the trial it was noted that the leaves of many of the plants were discoloured and spotted. On some *Solenostemon* plants, particularly purple- and red-leaved cultivars, profuse white mycelium of powdery mildew was observed on both leaf surfaces. Molecular and morphological analysis identified the species as *Golovinomyces biocellatus*, a species previously recorded infecting other plants in *Lamiaceae*. However, this is the first record of powdery mildew associated with *Solenostemon*. ■



Above. Some coleus leaves have two layers of tissue. Here, the green marks (circled) show where the top red tissue infected with powdery mildew has died, revealing the green tissue underneath.



## New Advisory process for overseas members

In response to customer suggestions, Advisory have upgraded the introductory advice pages online ([RHS Gardening Advice](#) and [sending samples](#)) to make them clearer and more accessible.

The RHS plant health policy has become stricter and formalised so overseas members are now required to send photographs rather than samples. "This is all part of RHS policy that also embraces gardens and shows to demonstrate good practice in protecting the UK from pests, diseases and invasive plants," says Senior Horticultural Advisor Helen Bostock.

For UK members, Japanese knotweed samples are a special case; strictly speaking they are "controlled waste" that can only be disposed of in registered landfill, which is costly and scarce. "Disposal of samples would pose a problem for the Advisory team," says Helen. "Therefore we require members seeking identification of this weed to send photographs instead. Samples received in the Plant Centre are taken home by members and, we trust, destroyed as per [our web page](#)."

## Give me the student and I'll give you the horticultural scientist

As part of the RHS "Horticulture Matters" initiative, which seeks to encourage careers in horticultural science, this summer the RHS Botany team played host to Jonathan Griffin, a BSc Biology student at Southampton University, and GCSE student George Garnett, author of a popular plant-themed twitter account ([@george\\_garnett](https://twitter.com/george_garnett)).

Jon spent five weeks working with Botanist Dawn Edwards on *Ligustrum* (privet). The research involved investigating the parentage of cultivars and preparing a dichotomous key to privets in cultivation. "This involved both molecular and morphological investigations," says Dawn. "The project developed to elucidate much more than was initially anticipated."

Jon is keen to continue his involvement with the *Ligustrum* study through to publication, and writes, "I've been able to practice useful skills in the lab and have learned new techniques. Having my name on published material before I graduate will be a fantastic addition to my CV."

George meanwhile had the opportunity to help investigate the true identity of *Persicaria alpina* in gardens and try his hand at some complex *Salix* synonymy. He reports that his ambition to make plant taxonomy his career has been strengthened by his experience at Wisley.

"The visits were a great success," says Principal Scientist James Armitage. "Training the next generation of botanists is a vital element in safeguarding the future of horticultural taxonomy." ■



PHOTOS: JORRAINE WILLIAMS (JON GRIFFIN); RHS; LINDLEY LIBRARY (DAFFODIL).

Above. Jon Griffin, who recently completed a 5-week internship in Wisley Herbarium, with Botanist Dawn Edwards. The work involved molecular and morphological investigations, and included the preparation of a key to cultivated *Ligustrum*.



Hoop petticoat daffodil. Kálmán's work investigated whether particular regions of DNA could be used to distinguish between cultivars.

## Viva la différence

OVER THE PAST FOUR YEARS the RHS has been supporting a PhD studentship to investigate the relationships between wild and cultivated plants of hoop petticoat daffodils (*Narcissus* sect. *Bulbocodii*). This relatively small group of daffodils was chosen as a model to determine whether it is possible to develop molecular markers that could be used to identify cultivars, which might be scaled up to work for larger groups of daffodils, such as the trumpet types (sect. *Pseudonarcissus*). The research is also part of a wider RHS-led project to prepare a monograph of the genus based on detailed scientific work being undertaken in laboratories in a number of countries. The student working on this project was Kálmán Könyves who submitted his thesis in the summer. He passed his viva in August and is currently writing up his results for publication. ■

## The Growing Together Club



by **Tony Dickerson**

RHS GARDENING ADVICE

The Growing Together Club is one of the many initiatives creating a very different vibe to the new Secret Garden Sunday shows at Vincent Square, and consists of a series of activities for children of all ages from 5 to 105 who are keen to try their hand at growing plants but uncertain about how to start. The only prerequisites being a sunny windowsill and a bit of enthusiasm.



***Crocus sativus*, the subject of the September Growing Together Club. The spice saffron is derived from its dried stigmas. Painting by Pierre Joseph Redouté, 1827.**

The first few Secret Garden Sundays got people growing a variety of veg, from the tiny windowsill tomato 'Sweet 'n' Neat' to a range of microgreens. Participants were able to sow from seed or pot up transplants to take home to grow on and given a GTC passbook with further guidance and the opportunity to return each month with their success stories or to seek help to tackle any problems or queries.

Gardening is about feeding the soul as well as filling the stomach, so in September we potted up autumn-flowering *Crocus sativus* corms for some autumn cheer and a valuable harvest of three strands of saffron! The year will end with a practical workshop on the world's most popular plant, *Phalaenopsis*, with Rob Stirling. ■

## New online Advisory survey to monitor plant tolerance

The RHS Gardening Advice team is calling upon the gardening public and horticultural professionals to share their experiences of plants that fare well in both wet winters and dry summers. With more uneven weather patterns predicted in the future, more tolerant plants may be needed in gardens.

A short survey has been sent out to garden professionals, to be followed by a similar survey to the wider gardening public and RHS members. "A wealth of knowledge regarding which plants work well in specific sites lies with gardeners and we aim to capture the essence of this," says Jenny Bowden, who created the survey. "It should sit

well alongside our lab-based PhD scientific research into this subject."

The results of the survey will be made available on the RHS website. "This will provide practical planting inspiration that will help guide gardeners towards sustainable and creative garden planting."

Members of staff are also encouraged to complete the survey, which can be found at: [www.surveymonkey.com/s/Plantsforchangingconditions](http://www.surveymonkey.com/s/Plantsforchangingconditions) ■

Inset. ***Liquidambar* is more tolerant of waterlogged conditions.**



## Tree training for professionals

On 4–5 December **Tony Dickerson** will be running a two-day event on tree issues at Wisley. Intended for those who work professionally in amenity horticulture, including head gardeners, arborists, garden designers and contractors involved in garden maintenance, the first day will include lectures and demonstrations on new pests and diseases, tree selection, and buying and planting trees. The second day covers designing with trees and trees in the built environment, as well as tree-related legal issues. Subject to availability, RHS staff are welcome to attend free of charge, but will need to book places with Tony. ■

## Addressing pressing concerns in Panama



by **Mandeep Matharu**

HORT TAXONOMY

In September I attended the 7th Annual Meeting of the Global Plants Initiative (GPI), held in Panama. The GPI is an international partnership of more than 330 herbaria in 75 countries with the goal of digitising and providing access to type and standard specimens of plants, fungi and algae via the [JSTOR interface](#). The RHS plays a crucial role in this project by being the only organisation to submit cultivated plant specimens. This year's main objective was to explore how the GPI community can collaborate and support one another in the future. Plans were also made to complete, improve and augment the database.

Around 140 partners representing 40 different countries participated in the meeting. There were some 60 poster presentations with details of progress on GPI projects at various herbaria. I presented a poster (co-produced with John David, Head of Horticultural Taxonomy) on the RHS cultivated fern collection and its importance to the horticultural community. These meetings give an insight into how other organisations are dealing with the demands of the digitisation programme. They are also an invaluable platform for promoting the RHS and its work in an international context. ■

## Pests, diseases and plant records

RHS Science recently ran two events in association with PlantNetwork, the national network of botanic gardens, arboreta and other plant collections.

**On 31 July, the RHS hosted a training day on pests and diseases that affect horticultural plants in the UK. The training was provided by Andrew Salisbury, RHS Senior Entomologist, John Scrace, RHS Senior Plant Pathologist and Gerard Clover, Head of Plant Health. The workshop covered a range of subjects, including the most common pests and diseases in the UK, their detection, identification, epidemiology and control, and potential new pest and disease problems. The day also included a tour of RHS Wisley to show pest and disease problems in context and their control. The workshop was fully**

**booked and 40 people from a range of organisations (Cambridge University, Chelsea Physic Garden, English Heritage, National Trust, Plant Heritage, Sir Harold Hillier Gardens and Windsor Great Park) attended.**

**On 1 October RHS Principal Data Manager Rupert Wilson led a one-day workshop entitled "Rethinking Plant Records" at Harlow Carr. The fully booked meeting was attended by 40 people holding plant collections across the UK, including all four RHS gardens. The workshop covered new technologies that could help staff manage plant records in the garden and make collection information available to visitors, as well as drawing attention to the Nagoya Protocol and highlighting the need to conserve threatened cultivars. ■**

## Dutch delegation visits Wisley

On the 21st and 22nd of August the RHS hosted a visit by the representatives of Naktuinbouw and the Dutch Ministry of Economic Affairs to continue the UK–Netherlands liaison discussion begun in January. UK delegates included representatives of HDC, NFU, Defra, Fera/PHSI and Plant Heritage, as well as John David for the RHS. While the main topic on the agenda was the EU Plant Reproductive Materials legislation, we discussed a wide range of policy and horticultural issues. Before the formal meeting there was a tour of the Laboratory and afterwards they were given a tour of RHS Plant Trials by Andrew McSeveney. The greater co-ordination between the UK and the Netherlands on horticulture has already been valuable in the debate over EU PRM, and there are now plans to involve other EU member states in the liaison group. ■

## Recent publications by Science staff

- Armitage, J.D. et al.** (2014). *Populus tomentosa*. *International Dendrology Society Yearbook 2013*: 36–45.
- Armitage, J.D. & Phillips, B.W.** (2014). *Wild Flowers of Wisley*. Fourth Supplement. *RHS Gardens Club Journal* **106**: 65–67.
- Henricot, B.** (2014). Box Summit 2014. Le sommet du buis. *Topiarus* **18**: 48–49.
- Leslie, A.C.** (2014). *The International Rhododendron Register & Checklist (2004)*, Ninth Supplement.
- Nilsson, R.H. et al, incl. **Henricot, B.** (2014). Improving ITS sequence data for identification of plant pathogenic fungi. *Fungal Diversity* (in press, DOI: [10.1007/s13225-014-0291-8](https://doi.org/10.1007/s13225-014-0291-8)).
- McDonald, S.** (2014). Additions to the International Conifer Register 2008–2012. *Conifer Quarterly*. **31**(2): 30–39.
- Salisbury, A. et al.** (2014). The establishment of Fuchsia gall mite, *Aculops fuchsiae* Keifer (Eriophyidae), in England. *British Journal of Entomology and Natural History* **27**:145–150.
- Shaw, J.M.H.** (2014). *Orchid Review Supplement* [includes OHRAG newsletter] **122**(1307): 41–58.

## Conferences in August and September

During the first week of August the RHS Entomologists attended the 10th European Congress of Entomology (ECE) at the University of York.

With five parallel sessions running each day there were talks on a wide range of fascinating topics, including insects and climate change, integrated pest management, invasive species, and aphids and their natural enemies.

**Andy Salisbury** presented a poster with a progress update on the RHS Plants for Bugs project, which proved very popular. **Anna Platoni** gave a talk in the “Outreach Entomology” session about how the RHS uses the Advisory Service for public outreach and science. The event also included insect-themed social activities, such as an “entomology cinema” and a Beatles tribute band.

Said Anna, “It was good to meet colleagues from Fera, RBG Kew, the Natural History Museum, Rothamsted Research and many other institutes and organisations. We made many

new contacts, which may lead to more collaborations in the future.”

In September **Liz Beal** and **Geoff Denton** attended the British Society for Plant Pathology (BSPP) Presidential conference at the University of St Andrews, Scotland, and presented a poster about emerging diseases detected in UK gardens by RHS Gardening Advice.

The conference covered a broad range of topics including global food security and the impact of disease, abiotic and biotic stresses and genetic resistance, as well as an insight into the UK Plant Health Risk register, explaining the UK’s work in protecting itself from emerging diseases.

“The conference was an excellent opportunity to network with people in our field,” said Liz. The event included delegates from the University of Reading, East Malling Research, The James Hutton Institute, John Innes Centre and Science and Advice for Scottish Agriculture (SASA).

## RHS Science in the media

- **Robin Lane Fox**, historian and garden writer, wrote about [his enthusiasm](#) for *RHS Plant Finder* in the *Financial Times*.
- **Guy Barter** (right) appeared in most national newspapers advising on the reasons for Wisley’s early autumn crop.
- **Andy Salisbury** was interviewed on the subject of alien pests for the autumn 2014 issue of [Cropsafe News](#).
- **Guy Barter** responded to widespread media alarm about corncockle in August, with appearances in the *Mail*, *Express*, and *Telegraph*, pointing out the unlikelihood of anyone being harmed by this plant.
- **Andrew Salisbury** (right) discussed [insect life in borders](#) on *Gardener’s World* (22 Aug 2014).
- In September, on BBC Radio 4’s ‘World at One’, **Guy Barter** advised on the most humane controls for moles.
- **Alistair Griffiths** (right) told *Horticulture Week* (19 Sept) an evidence base was needed to convince Government to help overcome barriers to competitiveness in the ornamentals sector.
- **Anna Platoni** (left) featured in [a profile piece](#) in the *Guardian*, 4 October, in which she talked about her role and encouraged readers not to overlook the diversity of insect life in gardens.



**For more information on any stories in this newsletter:**

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