Royal Horticultural Society

# RHS SCIENCE News

Advisory | Horticultural Informatics | Plant Sciences

## 40 Years at the RHS

In January, **Andrew Halstead** (Principal Scientist – Entomology) completed forty years at the RHS. This remarkable achievement was celebrated with a party in the Wisley Glasshouse Gallery and a special award ceremony with Director General Sue Biggs. See page 2 for further details.

**One of the many unusual invertebrates Andrew has encountered in his time at Wisley: a knotgrass moth caterpillar, from June 2011.**

**Photos:**
Clockwise from above: Andrew Halstead; © Catherine Lewis; Barry Phillips; Neil Hepworth

# Building on RHS Science in 2012

**Above: click for slide show**

## Science outreach in the coming year:

- March – National Science Week
- March – Fundraising lecture on daffodils in the Glasshouse
- April – National Gardening Week
- April – Phytodiagnosticians' meeting at Wisley
- April – International Box Summit in London
- May – opening of the Field Research Facility
- May to July – RHS Experience at RHS shows
- October – Urban Greening Workshop in London
- November – 2nd John MacLeod Annual Lecture

Roger Williams, Head of Science

"2011 stood out for me as a remarkable year of new things in Science. To name just a few: commencing construction of the Field Research Facility, completely overhauling our online Plant Selector, beginning digitisation of our unique herbarium collection, starting three new PhD projects with leading universities, attracting 30,000 visitors to our Plants for Bugs project blog, as well as answering a record 60,000 advisory enquiries.

These achievements, and many others not mentioned here, are not just a testament to the hard work of the Science team: they reflect the energetic support the department has received from colleagues across the RHS and beyond. In particular, the KTP project with Reading University (see page 4) has catalysed a great deal of new collaborative activity.

So for 2012 we're going to continue to develop our unique brand of collaborative plant science focused on our passion for gardening. We're going to provide access to evidence-based gardening advice to more people than ever; we will work even harder at raising our profile with plans for a wide range of outreach activities targeted at the diverse audiences we have for our work. And as we complete construction of the Field Research Facility, we begin the exciting task of creating a world-class science centre for gardening as part of the Society's investment programme. On reflection, 2011 was limbering up."

**Roger Williams**

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**Plant Sciences** Botany | Entomology | Pathology | PSI

RHS Science News (page 2)

The RHS Fellowship for the Reading University Plant Diversity MSc was awarded this year to **Lucy Wenger**. Lucy has had a variety of experience in the horticultural world, from a horticultural traineeship at Kew to helping on stands at Chelsea Flower Show for Hyde Lilies. She hopes that the MSc course will further broaden her knowledge and skills of botany, enabling her to combine her interest in horticulture with her concern for conservation of species in the wild. During the second half of the year, she will carry out a project on behalf of the RHS looking at putative hybrids of *Cordyline*.

**Photos:** Lucy Wenger (above); Andrew Halstead (top right); David Batt (right)

## Andrew Halstead: 40 years of entomology at the RHS

On 3rd January 2012 Andrew Halstead (Principal Scientist – Entomology) completed 40 years of continuous service at the RHS.

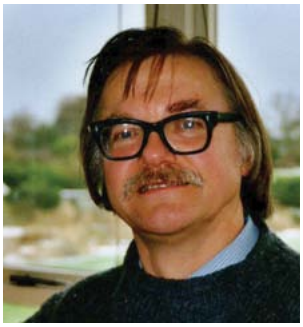
He joined the RHS as Assistant Entomologist in 1972, working in the Laboratory and steadily progressing to his current position, a remarkable achievement these days. With natural modesty, he attributes his length of service to "keeping his head down and getting on with the job".

Andrew is well known both within and outside the Society, not only as a regular contributor to books and journals (including his monthly 'Wildlife' page in *The Garden*), but also for the many lectures he gives to local societies and through his role in organising talks for the Surrey Horticultural Progress Club. To mark his achievement, friends and colleagues (including Keith Harris, his former boss from when he came to the RHS) joined him in the Glasshouse Gallery on 23rd January for a celebration. Sue Biggs presented Andrew with an RHS long service medal and life membership, as well as gifts of a more practical nature, including a specially commissioned mug which Andrew soon put to good use.

**"With natural modesty, he attributes his length of service to keeping his head down and getting on with the job."**

Andrew's achievement has also featured in a recent BBC Radio 4's 'Material World' programme (see page 6), and in a four-page spread in *Amateur Gardening*.


**Arsenate of lead, Paris green, and Cyanoids: insecticides used at Wisley in the 1940s, and inherited by Andrew Halstead (right) when he first arrived in 1972.**



### New PhD studentship at Wisley

We have just heard that a joint application for a four-year PhD studentship on the diversity, distribution and diagnostics of the powdery mildews made to the Biotechnology and Biological Sciences Research Council by Béatrice Henricot (Pathology) and Alastair Culham (University of Reading) has been successful. The PhD student will be jointly supervised by Reading and Wisley, and will study molecular variation in powdery mildews on different kinds of host (e.g. oak, wisteria).

**John David**

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# Plant Sciences Botany | Entomology | Pathology | PSI

RHS Science News (page 3)

## Volunteer profile

**Philippa Gibson** joined the Science department 15 years ago, as one of a group of volunteers collecting plant specimens for the Herbarium. She has since contributed nearly 4,500 new specimen records to the RHS Horticultural Database. More recently, she has produced impressive photographic records of the RHS's substantial collections of *Hepatica* and *Nerine* (left), which can be viewed in iBase. Philippa's plant photographs also regularly appear in the *Garden* and on posters in the Wisley Plant Centre.

**Photos:** Carol Sheppard (top); Leigh Hunt (bottom right); © Paul Alexander (top right)

## New group formed to advance RHS "urban greening" profile

The RHS Urban Greening Communications Group (UGCG) was formed 18 months ago, with the aim of advancing the RHS's "urban greening" profile. The members of the group are drawn from across the Society, and are listed in the right-hand panel.

### Why "urban greening"?

The phrase "urban greening" (UG) means the growing of plants wherever possible in towns and cities. The concept is simple, but the benefits are immense. The RHS Science Review *Gardening Matters: Urban Greening* (May 2011) suggested the following four key areas:

- moderating urban temperature (by protecting us from extreme heat and cold)
- preventing flooding (as gardens soak up water, unlike hard surfaces such as paving)
- supporting biodiversity (as gardens are akin to nature reserves)
- improving human health both psychologically and physically (gardening gets you fit and can be a stress reliever)

### Progress so far

Notable achievements of the group in 2011 were the creation of info and advice webpages, the review of the scientifically proven benefits (Gardening Matters: Urban Greening), and a feature in *The Garden* on the practical steps individuals can take to get the benefits of UG. Public attitudes towards UG were surveyed (see *The Garden*, January 2012); we also showcased UG using interactive displays in the RHS Experience at Chelsea, Hampton Court and Tatton. More exciting developments are planned, such as the UG workshop later this year.

**Urban greening in Hong Kong and London W3. As well as improving psychological and physical health, urban greening can moderate urban temperature and support biodiversity.**

## Membership of the UGCG

- **Leigh Hunt** (Chair; Advisory)
- **Dr Tijana Blanusa** (Science)
- **Sophie Dawson** (Community Horticulture)
- **Eoin Redahan** (PR)
- **Dr Roger Williams** (Science)
- **Chris Young** (RHS Media)

Additional co-opted members include **Alex Denman** (Chelsea Show Manager) and **Sarah Easter** (Deputy Show Manager).

**Tijana Blanusa, Leigh Hunt**

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# Science Updates

RHS Science News (page 4)

## Computerisation of RHS Registers complete

After several years' work by various hands, with particular contributions from **Caroline Hall** and **Vicki Coupland**, the task of inputting the 20,000+ entries of the 1983 *International Dianthus Register* into the registration database is now complete. This significant achievement means that all the published registers for which the RHS acts as the International Cultivar Registration Authority are now fully computerised. These are accessible to staff through RHS Orchard; please contact **Rupert Wilson** if you would like access and training.

**Photos:**
RHS, Lindley Library (above);
Carol Sheppard (right)

## Raising the profile of RHS Science: the first 18 months of the KTP

In the July 2010 newsletter, we introduced our Knowledge Transfer Partnership (KTP) project with the University of Reading. KTP projects are a part government-funded initiative designed to transfer skills and knowledge between universities and industry. The aim of our KTP has been to increase the profile of RHS Science so that we can raise awareness of the importance of science to gardening. This being a partnership, the University of Reading also benefits by enhancing its business-relevant research.

Eighteen months on, the project has helped to increase internal communication of our research activities through a series of workshops and informal seminars. Through Reading, we are adopting academic practices and principles to develop and standardise how we manage research projects, using the Plants for Bugs experiment as a case study illustrating best practice. We are also increasing the places we publish our research, from gardening magazines and the popular press to peer-reviewed scientific journals.

In addition to our expanding PhD programme, we have hosted students from local universities to conduct research projects within the Department. Involvement in the IAESTE (International Association for the Exchange of Students for Technical Experience) and GCA (Garden Club of America) work experience schemes has also enabled us to encourage overseas students to contribute to our research activities. This collaboration contributes to the students' degrees, adds value to our existing research and increases the profile of RHS Science. Crucially, this also provides us with increasing opportunities to secure external research funding so that we can remain at the forefront of gardening research.

**KTP Associate Sarah Al-Beidh measuring vegetation density for Plants for Bugs.**

### Knowledge Transfer Partnerships: FAQs

- **What is a KTP?**

A relationship designed to transfer skills and knowledge between a company (in this case, the RHS) and an academic institution.

- **Who funds the RHS/Reading project?**

Partly the Government, partly the RHS.

- **How does the RHS benefit?**

By adopting academic practices and principles that make us more widely recognised as an important scientific research organisation in our own right.

- **How do gardeners benefit?**

Increased funding will mean we can provide evidence-based advice on more topics of relevance to gardeners.

This Partnership received financial support from the KTP programme which helps businesses to improve competitiveness and productivity through better use of the expertise which resides within the UK knowledge base.

**Sarah Al-Beidh**



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# Advisory & Diagnostic Services

RHS Science News (page 5)


**2011 was Advisory's busiest year ever**, with the team answering over 60,000 enquiries for the first time. This equated to just over 4% more enquiries being answered in 2011, compared to the previous highest grossing year (2008). In real terms, this meant the team handled 8,594 more enquires than in 2010 – a staggering 860 extra per person.

These figures exclude show and event activities. Just over 15% more people asked gardening questions at RHS flower shows and events, while 13,862 visitors to Chelsea, Hampton and Tatton were helped by staff in the Science and Advice area of the RHS Experience.

**Photos:** Annabelle Taylor (above); Carol Sheppard (right); Neil Hepworth (far right)

## Significant increase in reports of unseasonable flowering

Reports have flooded into the Advisory team about plants flowering out of season. Top of the list are apples, exochorda and primroses, all of which have been producing flowers since December.

The reason behind these plants blossoming is simply that they are taking advantage of the favourable conditions, trying to flower and set seed (so ensuring the next generation). It probably won't greatly affect the blossom this spring but, unfortunately for the plants, is unlikely to result in seed as the conditions will become too cold.

If the milder winter continues, we are likely to see earlier flowering of spring plants. Snowdrops can often begin to bloom in early January and crocus in early February, rather than later in the month. Advisor Tony Dickerson adds, "We often get reports of extraordinarily early-flowering daffodils, too. But, as many RHS horticulturists will know, these are usually regular early-flowering species and cultivars such as 'Rijnveld's Early Sensation', which often flowers outdoors around Christmas."

**Snowdrops are increasingly flowering in early January**

For more examples of changes in plants' timing, see the Woodland Trust's website at www.naturescalendar.org.uk

**Filling a butt with water from a bath. "Grey water" use is not subject to the usual water restrictions in time of drought.**

## New advice on water use

With gardeners potentially facing a tough year in 2012, the Advice and Science teams are planning to overhaul their guidance in a new *Gardening Matters: Water in the Garden* booklet. As well as including practical tips, it will contain an update on the new water regulations. These include changes such as the option for water companies to use a wider range of control measures, rather than blanket hose-pipe bans, and to target wasteful activities such as washing cars and filling swimming pools. The new booklet should be available by late spring 2012, primarily as a download on the RHS website.

**Guy Barter, Leigh Hunt**

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# Communicating our Science

RHS Science News (page 6)


## Science in the media

**Andrew Halstead** of Entomology appeared on BBC Radio 4's 'Material World' on the 12 January to talk about his 40 years at the RHS and the Top Ten Pest enquiries from 2011. The programme can be heard on BBC iPlayer at www.bbc.co.uk/iplayer/console/b0194kz4 (go to 23:00 for the relevant segment). The day before, Advisory's **Guy Barter** (above) was interviewed on BBC1's 'The One Show' on the subject of unseasonably early-flowering plants, and in particular *Camellia*.

**Photos:**
Guy Barter (above);
APPGHG (right)

## RHS Science under peer review

The 15 members of the **All-Party Parliamentary Gardening and Horticulture Group**, which comprises MPs and members of the House of Lords, came to Wisley on 6th December to improve their awareness of the breadth of work undertaken by the RHS. As part of their visit members of the Group were shown the work of the science teams in the Laboratory.

**Helen Bostock** (Advisory) gave a presentation on the Plants for Bugs project, providing a context for the research, and an insight into the questions we are aiming to answer. This was followed by **Chris Whitehouse** (Plant Sciences), who demonstrated the work the RHS is undertaking with the digitisation of the herbarium. The visit ended with a tour of Plant Pathology, which sparked much interest in the issues of plant health and disease control.

**John David**, Chief Scientist, said, "It was clear that the Group were fascinated and impressed by all that they saw on the day. It was only the pressing need to catch the train back to London that brought the visit to a close."

## Recent Science publications

**Armitage, J.D.** (2011). The fertility of Leyland cypress. *The Plantsman*, n.s. **10**(4): 254–256.

**Armitage, J.D. & Bailey, J.P.** (2011). A first chromosome count for *Ludwigia* × *kentiana* (Onagraceae). *New Journal of Botany* **1**(2): 137.

**David, J.C.** (2011). A review of plant hardiness in the UK. *The Plantsman*, n.s. **10**(4): 222–231.

**Salisbury, A. & Halstead, A.J.** (2011). *Galeruca tanaceti* (Linnaeus) (Chrysomelidae), a pest on potato foliage. *Coleopterist* **20**: 117–118.

**Salisbury, A., Malumphy, C. & Halstead, A.J.** (2011). First incursions of *Aloea australis* (Hemiptera: Miridae) and *Pulvinaria delottoi* (Hemiptera: Coccidae) in Europe, and three other hemipteran insects imported from South Africa. *British Journal of Entomology and Natural History*. **24**: 217–220.

**Shaw, J.M.H.** (2011). New introductions from northern Vietnam. *The Plantsman*, n.s. **10**(4): 232–237.

## National Science Week (12–13 March)

**A full report on the RHS's involvement in National Science Week will appear in Science News issue 11.**

**John David**

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