House of Commons
Science and Technology Committee

Funding the Royal Botanic Gardens

Correspondence received relating to the evidence hearing on 17 December 2014
I am writing to express my very great concern about the radical restructure at the Royal Botanic Gardens, Kew, in which the greatest job losses are falling on the science teams; 125 science jobs are to be lost overall. Surely this represents a catastrophic and irretrievable loss of expertise and it will do irreparable damage to the long term capability of Kew to deliver its high level, international, top class scientific work in such vital areas as sustainability, biodiversity, conservation and crop improvement. Furthermore, as a UK taxpayer, I feel I have a right to have a say in all this, as I make a direct contribution to the funding of Kew.

This goes against Kew’s core ethos and against its own Mission Statement. Kew cannot ‘inspire and deliver science-based plant conservation worldwide, enhancing the quality of life' when it is deliberately losing of a third of its scientists. Even worse, I believe there may be plans afoot to lose a further third of scientific staff in the intermediate future.

Furthermore, I believe that the Royal Botanic Gardens would also be going dangerously close to failing in its statutory obligations to deliver scientific work (notably “carrying out research, caring for the collections and keeping the collections as national collections”) under the 1983 National Heritage Act, as this could no longer be done properly under a much reduced scientific workforce.

The collections, the research, and the services Kew undertakes and provides WILL suffer, and none of this work can be done properly if the scientific staff are cut. No doubt surviving staff will be under massive pressure to meet impossible targets and generate funding, instead of carrying out the scientific work they normally do. I know only too well how this goes; I have seen it over and over again in organisations as diverse as museums and conservation bodies. Some aspects will not be done properly, some work will be abandoned, there will be delays in delivering projects, work etc. It is unacceptable that scientists should be bearing the brunt of job cuts in an organisation that delivers world class science-based work.

The scientific work at Kew is core to what the organisation does, and it seems to me that there is a very real danger here of losing the balance of what the Royal Botanic Gardens does. Kew should be concentrating on what the serious work of the organisation is, and presenting that to the public, without compromising that work. We now live in a world where increasingly everything is being “dumbed down”, and messages are reduced to a series of sound bites. It would be tremendously sad to see the Royal Botanic Gardens go down that road. Once the scientific infrastructure of Kew is demolished, it will be forever, and we will all lose a national treasure.

Can you do something about this? The restructuring is happening now, and it will soon be too late to do anything about it.

November 2014
Correspondence submitted by Ruth Savery (KEW002)

As a frequent visitor to Kew I was so impressed I became a humble but keen patron. Since then I have had the privilege of hearing world class science being discussed - of vital importance for other (often very much poorer parts of the world) who partner Kew in their research yet rely on Kew’s expertise.

In my view the impact of large cuts in staff will be irreversible if research and expertise at Kew and Wakehurst should be dispersed. I am confident I am far from alone in this view.

November 2014

Correspondence submitted by Daniel Slack, The Kew Gardner (KEW003)

May I suggest you attend a meeting tomorrow evening (Thursday November 13th) at The Jodrell Lecture Theatre at The Royal Botanic Gardens, Kew. The Director is to defend the cuts to the staff apparently. I will be attending.

I think it immensely important that you get to hear for yourselves what the staff have to say, rather than just listening to the Trustees and Management. Critical in fact.

I am a graduate of Kew, having first moved to Kew to study in 1994. I was mad on plants. If you are mad on plants, Kew is where you come to. I own the garden centre and gardening business The Kew Gardener, next to Kew Gardens Tube Station. I recently returned from The Amazon where I witnessed first hand the destruction there caused by huge hydro electric dam projects, agriculture and such like. I also spent a year in Mauritius working on endangered plants. I am hugely passionate about plants.

Quite simply, the world needs many many more great plant scientists right now. Kew should be aiming to multiply it's scientific staff many times over. It should NOT be cutting scientists at all. We urgently need credible scientists, of which Kew has many, to confront government and corporate interests and stand up for the environment. The Belo Monte Dam near Altamira, Para, Brazil for example will destroy 2-3 times the size of Greater London worth of rainforest. One dam! They want to build more than 60! Scientists putting a credible case across powerfully can stop such things. They won't if there aren't any. I don't think I need to explain to you the importance of keeping The Amazon standing.

If I was in charge of Kew, I would be banging down the doors of Parliament to get you to vastly 'increase' our funding. I would also be exploring and getting other avenues of funding in place. Given the make up of Kew's Board I find it utterly astonishing to put it politely, that The Gardens finds itself in this situation. These people need to be held accountable. There is no aspiration, and most importantly no passion. That is why Kew has a problem. There is a lack of appreciation or understanding of what Kew really is. It's become more of a 'theme park', get bums on seats at all costs sort of place, instead of being a centre for scientific excellence....the rest is fine but don't forget the core value. Without it, the rest crumbles, and this is what I am very afraid of.

The vision the current management has for the future of Kew is lacklustre. Kew is the greatest in the world at what it does. Nowhere in the world does Plants better than Kew. Nowhere. Yet, it feels as if they are scared to shout about it. The Director should be doing TV and radio interviews every single day. That one act alone would bring the attention of Kew to a far wider audience and also increase visitor numbers. Just doing that. The Director of Kew should be a
household name. You should be able to name him as you can The Prime Minister. Sadly, there is no fire, ambition and drive to achieve such great things.

I love Kew so much, I'd run it for free. I have the passion that's why. The evidence is laid bare to show that the current people in charge do not possess such passion.

May I also add that many staff in Kew are frightened to speak out as they fear it may jeopardise their chances in this job re application procedure where trusted colleagues are being pitched against each other. A student from South America described the break time in The Jodrell as being in a mortuary!

Kew's greatest asset are it's staff. They are specialists. It's not like firing 120 cashiers from Barclays, or 120 shelf stackers at Tescos. You can get such job roles filled easy again if need be. These are niche, specialist people. Irreplaceable. Those that don't retire will move elsewhere and 'compete' with Kew with their knowledge. Again where is the desire to keep Kew top of the tree? I don't see it.

After an earlier public meeting in which I spoke, James Wong, a journalist from Horticulture Week and half a dozen Kew staff met for a drink afterwards. One member of staff, who I won't name, works in the herbarium. A very quiet but professional and dedicated man. He sat on his own in the pub after the meeting. I wasn't having that so dragged him to sit at the table with us. You know what happened.....someone asked him his opinion. I have known this guy 20 years and I have never seen him smile like he did. A passionate leader of Kew would get so so much more from the staff as he would automatically do such things. Right now morale is on the floor and it's devastating for me to see Kew this way.

I look forward to hearing from you and am more than happy to be of any assistance.

Please don't let Kew go to the dogs. Give them the £5m (with certain conditions) - it really is a tiny sum of money in the grand scheme of things.

November 2014

Correspondence submitted by Melanie Schori (KEW004)

Dear Chairman Miller and members of the Science and Technology committee:

I would like to address the permanent detrimental effects that cuts to the science directorate will have on the research program at Kew. I spent 10 months as a post-doctoral fellow at the Jodrell Laboratory in 2010 and 2011. My time at Kew was supported by a fellowship from the US National Science Foundation, which provided funds for graduates to pursue training they would not be able to receive in the US. There are several reasons why the science program at Kew is quite possibly the best in the world, and why cuts will have a negative impact for botanical research around the globe.

1. Kew fosters interdisciplinary research to the greatest extent.
2. Kew has incredible resources to support research.
3. Kew has a strong outreach program, which is integrated with science.
4. Kew provides a cornerstone of international education and collaboration.
5. Kew has key intellectual capital in its staff.

1. While at Kew, I was able to work with staff from the Micromorphology and Molecular Systematics sections at the Jodrell Laboratory, members of the Southeast Asian team from the
Herbarium, grounds staff from different sections of Kew Gardens, and scientists at the Millennium Seed Bank at Wakehurst Place. I also worked with undergraduate sandwich course students, PhD students from many countries, and visiting researchers. There is no other place with so much integration between different aspects of botanical research, where it is possible to combine laboratory bench work with horticultural experiments and herbarium research at the same location. No other place allows equal access to undergraduates and distinguished senior researchers at the same time, regardless of their area of interest.

2. The scientific resources at Kew are priceless for those of us who conduct botanical research. The library is one of the foremost in the world for botanical literature. The herbarium contains millions of specimens that are the foundation for how plants are classified and named. The microscope slide collections for pollen and wood anatomy at the Jodrell are the most comprehensive in the world and are irreplaceable. The DNA bank is used by many international researchers and is inextricably linked with vouchers in the herbarium. The tremendous living collections allow research into fundamental questions of plant development, growth and reproduction. I can think of no other place that has this many critical resources in one location.

3. Outreach at Kew is comprehensive. In addition to public programs in the gardens, Kew staff provide workshops, seminars and training sessions, travel to conferences to share their discoveries, publish countless articles and books for both researchers and the public, and teach students and fellow researchers. Most botanical gardens have outreach programs, but the extent to which science is incorporated into Kew’s programming is unusual. In academia, science outreach tends to be minimal, but Kew’s scientific staff are a key part of making sure the public is correctly informed when it comes to plants.

4. Kew is vitally important for international education and collaboration. I worked with students from the UK, Brazil, Turkey, Thailand, and Italy. My colleagues and collaborators were from Spain, Hungary, Austria, Germany, Spain, Switzerland, Canada, New Zealand, Malaysia, and the US as well as from the UK. The international aspect of working at Kew and learning at Kew is vital for cross-cultural exchange and collaboration on botanical research. In addition to learning new skills and techniques, international students who visit Kew form lifelong connections with experts who can shape their careers.

5. Kew - Plants People Possibilities was a motto for Kew Gardens. Unfortunately, people are both the most important resource at Kew and the least valued. Without adequate staffing levels, the groundskeepers cannot keep the gardens and greenhouses in proper shape. Low staff numbers in the herbarium and library have meant that specimens and books are not databased, incorporated into the collections, and maintained as they should be. Incredibly, the library is not fully cataloged and books are not barcoded to monitor circulation. In the Jodrell Laboratory, half of the office space for researchers is already vacant, and Kew cannot offer competitive salaries for the best and brightest researchers when it does recruit new scientists. It is heartbreaking to watch as the world-class institution that is Kew Gardens dies a death from a thousand cuts. Most employees cannot afford to live in the area around the gardens, and they do their best to continue their work on a meager budget, whether that means coaxing another season out of a tractor or purchasing research supplies from their own salaries.

Who will maintain the herbarium and library when these positions are cut? Who will train the international students and apply for grants with collaborators? Who will write the research blogs and communicate new discoveries to the public? Who will teach sandwich course students about wood anatomy, pollen structure or conservation genetics, so that Kew has a cohort of top-notch scientists and supporters in 20 years? Kew as we know it will not survive these kinds of cuts because there will not be people to maintain the research that has made Kew’s world-class reputation. Staff at Kew were already demoralized before the cuts were announced, and people do not pursue a career in botanical research because they want fame or money. They do it because it is their passion, because the joy of discovery and understanding plants is its own
reward, and even on their worst days at work they are still doing something they love. However, it has reached the point where most days are bad days for Kew’s staff, and many know that if their position is cut, it will mean the end of their career. Their research will end, laboratory sections will close, collaborations will dwindle, students will be left without teachers, and Kew will lose their current and future research output as well as their scientific knowledge, which will no longer be passed on to the next generation. When this happens, Kew Gardens will no longer be one of the top botanical research institutes.

I realize that budget cuts are inevitable and that Kew Gardens cannot rely on government funding the way it once did. The gardens themselves will never be self-supporting from admissions fees, and some level of governmental support is required, especially if Kew’s employees continue to be civil servants. In the US, the Smithsonian Institution’s museums and research facilities are supported by taxpayer funds and its employees are government workers. However, the Missouri Botanical Garden, which includes a public garden as well as an herbarium, library, and limited research laboratories, has paired with universities and private corporations to fund its operations. I would urge you to develop such a partnership solution that would not require cutting staff, scientific or otherwise, from Kew Gardens, if it is to maintain its status as a World Heritage site and one of the world’s best botanical research institutions.

November 2014

Correspondence submitted by Miriam Shepherd (KEW005)

As an ordinary member of the public I would like to state that Kew Gardens is an invaluable place for education and enlightenment. Their recent exhibitions of Hallucogenic plants and poisonous plants were both very well put together and understandable by the general public. The Gardens are an invaluable place of learning for children. My grandson recently visited with his school and learnt about the rainforests and what they produce. A much better way of learning than sitting in a classroom.

Quite apart from this Kew is so important from an historical point of view. The great glasshouse and the ancient trees are all part of the beauty of Kew Gardens.

From the scientific view as I am a medical herbalist it is really good that Kew is now confirming a lot of what we have known from practise.

In this time of climate change we need all the botanical knowledge that we can gather and to cut down the money for Kew would be a very false economy.

November 2014

Correspondence submitted by Mrs Jenny Grundy (KEW006)

I write to you about the cuts for Kew Gardens which are wrong.

Kew scientists are the best in the world at botanic conservation. The need to increase them to fight things like the Amazon dam destruction of rainforest etc in the world needs Kew to have government backing. Kew set up CITES.

The Government has wasted money on EU and football, both of no value.
I am a volunteer at Kew with BGCI and do what I can. Kew Gardens is a global necessity, please fund accordingly.

November 2014

Correspondence submitted by Julian Harber (KEW007)

I am an independent researcher completing a major study of the Berberis of China commissioned by the Missouri Botanic Garden

This study has taken me to many botanic institutions in China, the US and in Europe

What I have found is that in China public money is being poured into major botanic institutions – particularly those of Beijing and Kunming with the clear aim of making them the world’s leaders in the field of botany and horticultural research.

I also note that the French government has recently funded a complete revamp of the Paris herbarium including the digitisation of their entire herbarium collection of some 5-8 million specimens – images of all of which are now available on line (see http://coldb.mnhn.fr/colweb/form.do?model=SONNERAT.wwwsonnerat.wwwsonnerat.wwwsonnerat)

Nearer to home I find that the Royal Botanic Gardens in Scotland is having no such cuts and that their gardens in Edinburgh remain free to the public

In this context I find the cuts to funding and consequent loss of staff at Kew to be completely short-sighted

It will quite likely lead to Kew losing its reputation as the world’s most pre-eminent botanic institution. A reputation it will be difficult to recover

I shudder to think what Darwin and Hooker would think about it all

November 2014

Correspondence submitted by Keith Stout (KEW008)

Please note that this establishment is vital to third world areas requiring agricultural help from our specialists.

Take the funding gap from Overseas Development Budget, the grant transfer will more than repay the recipients’ benefits.

PS - Argentina should not benefit indirectly from UK contribution to global fund that selects that country for unjustified UK tax payers' contributions.

November 2014
Correspondence submitted by Peggy Holland (KEW009)

I understand that there is to be a meeting in the House of Commons to look at the proposed cuts at Kew as the government seek to find savings.

I would like to state that I have personally consulted its plant identification services in the past regarding plants observed during a trip to Nepal. There was no one else in the UK who could have provided this service. With such pressure to ensure that plants are correctly identified to help in all sorts of scientific advances it is of paramount importance that jobs in this sector of Kew's work as a world leader are not lost.

On a lighter level I would like to record how many precious hours have been spent by my parents when they were alive and in wheel chairs, cruising round the glorious gardens and outdoor spaces. Kew have bent over backwards to welcome disabled people to their facilities and it would be a crying shame if this lovely level outdoor safe environment were to be closed or prejudiced. They try so hard to make available all sorts of interesting high quality books and merchandise in order to supplement their income and it attracts thousands of overseas visitors.

Kew has always looked critically at their crises and tried to learn after disastrous storms knocked down countless valuable trees. From this exercise has come improvements in the care of older specimens, namely that some aeration of the surrounding previously compacted ground can benefit the root systems and invigorate growth. Because of their status Kew is in a position to cascade this information to other institutions and individuals who care for older trees and so enhance our landscape and make these other trees more safe. It may even save lives.

Kew has not become an ivory tower of specialised learning. It has again bent over backwards to allow in TV teams to popularise their work and let the public see for themselves the painstaking work which is involved with plant propagation and maintenance. I think the public are only too aware of the amazing work which takes place at Kew and the debt we owe them.

I know that they run endless educational programmes to involve children in imaginative ways which catch their attention. Difficult enough to do in this climate of computer games etc and other distractions. They have dedicated areas devoted to children's interests which have had to be carved out of the available space.

As with any economic crisis there will have to be some give and take but I do hope that the committee will take note of the wide regard in which Kew is held not only in our own country but world-wide.

November 2014

Correspondence submitted by Philip Harris (KEW010)

I am a retired plant scientist who was career Grade 7 with civil service science in Scotland.

Kew is an essential scientific source.

'Information' is not sufficient without the continuity of scientific expertise to go with it. Going forward into a time when biodiversity is under unprecedented pressure world-wide, botanical resources including vital taxonomy and related databases are not 'bolt-ons' for a nostalgia industry, or just some 'feel-good' projects. Kew is a necessary hub in a worldwide network. We used Kew and related Scottish Botanics expertise at key junctures in our work.
Correspondence submitted by Miss Glynne Williams (KEW011)

I am writing to express my concern at the fact that the future of Kew Gardens should even need to be discussed.

Kew is at the cutting edge of plant science, is engaging in research into globally important research on major issues for the feeding of the world's population (bees, pollination), on issues of public health (plant-based cures for diseases such as Ebola), and is the expert organisation to which all countries in the world turn for advice and help.

Wilfully to shed expert scientists (due to occur in December) so that they are immediately snapped up by other countries (Brazil, China and India are looking on with great interest) goes completely against the UK's commercial interests in remaining the world leader in this increasingly important scientific field. The short-term political interests of any one party must not be permitted to dictate Kew's fate.

The national interest in maintaining our leading position in research and development, biodiversity, public health and medicine must be considered first and foremost in your deliberations. It is impossible to replace the expertise of 40+ scientists overnight.

Whilst the stop-gap funding negotiated up to 2015 is of course welcome, it is not sufficient by any means.

Even to consider letting superb expertise go to rival interests is entirely perverse. I urge you to have the proposed cuts reversed and to ensure that a plan is put in place to guarantee the funding and status of Kew well into the future.

November 2014

Correspondence submitted by Graham Temple (KEW012)

I write as a concerned member of the public, urging this government to keep Kew Gardens well-funded in every area, with no break in funding, so facilities or valuable staff are not lost. This world leading facility is really part of the world's heritage and has benign and valuable influence in helping the world's poorest and hungriest nations.

I would like to draw members attention to the Africa's Great Green wall project. ¹

I quote: Experts believe the project, known as the Great Green Wall, will not only halt the degradation of land in the Sahel, which is pushing the region’s inhabitants deeper into poverty, but also stem the rising tide of Islamic militancy in the region.

¹ http://www.thesundaytimes.co.uk/sto/news/world_news/Africa/article1436532.ece?shareToken=0a891b32b90e1b5fb
b5f5a7ab5dfd45a
As the United Nations bluntly puts it: “The effects of desertification are increasingly felt globally as victims turn into refugees … or they turn to radicalisation, extremism or resource-driven wars for survival.”

What does the world need more than this fantastic project? Apparently: Kew’s expertise is recognised as essential to the success of the entire endeavour.

Could funds be diverted from foreign aid budgets to Kew?

I trust these will be seen as valuable points to be considered by the committee.

November 2014

Correspondence submitted by John Wood, Department of Plant Sciences, University of Oxford (KEW013)

I would be grateful if you would consider the following points in your discussion.

For two centuries The Royal Botanic Gardens, Kew has been a world leader in botanical research based on its extensive (perhaps unique) collections built up over many years. This research and the associated collections are fundamental to our understanding of plant diversity worldwide and to a range of economically, cultural or aesthetic themes including horticulture, food security, conservation of species and habitats and so forth. This collections-based research is now being threatened by two main factors:

1. The steady reduction of the block grant from DEFRA.
2. Kew management’s response to this in the form of its current restructuring.

At an accelerating pace these two factors are causing

1. A decline in numbers of new accessions to the collections, particularly as a result of expeditions by staff and associates. To some extent this has been offset by gifts from other institutions (a consequence of Kew’s reputation) but Kew’s lack of new material of its own to offer in exchange will inevitably result in a fall in these kinds of accessions. An active policy and budget to acquire new plant material for research is urgently needed through collaborative field work, purchase and any other means possible.

2. For many years Kew has been shedding taxonomic expertise by not recruiting new staff. This kind of expertise is acquired over many years, principally by experience and mentoring. Once lost it cannot be easily or quickly replaced. Kew’s traditional expertise in certain families (orchids, grasses, legumes to name three) hangs by a thread – specifically one member of staff in each group, one with outside funding, another close to retirement. Kew is close to the point of breaking with a succession of skills passed down over the last century or more.

3. The current restructuring, whose purpose other than to save money is unclear, undervalues collections-based research, which Kew is uniquely placed to provide. Attempts to compete with the universities with laboratory based research constitute an unnecessary duplication. Kew cannot and should not compete for short-term grant money with a view to producing high impact academic publications. Instead it should provide taxonomic services of the highest international quality to catalogue the world’s plant diversity and support other areas of biodiversity and ecological research.
The lack of core funding is forcing Kew to abandon its traditional roles and research and instead head in the direction of research to which it is not suited. Much will be lost if this process continues.

November 2014

Correspondence submitted by Bronwen Jones (KEW014)

Please reconsider the budget reduction mooted for Kew Gardens. I know that you and the committee realise and appreciate the universal value of the research and other activities of the staff at Kew Gardens. It does seem to me to be mean spirited, small minded and spiteful to behave in this way towards this valued institution. In my view there can be no justification for such an anti-deluvian approach which I am sure will be seen by the rest of the scholarly world as self-defeating and shabby.

It is my opinion that as a nation, a Parliament and a Parliamentary committee we can and should do better than this. The behaviour you are exhibiting is an embarrassment and beneath contempt which makes the United Kingdom a world laughing stock. I feel that it is an embarrassment to be British when my government presents such bankrupt activities to the rest of the world.

I would be pleased if you would cease and desist with this course of action and re-instate the £5 million funding to Kew. You know that it is a drop in the ocean and is being done to make a political point in as much as your government bangs on about ‘us all being in this together’; but not this time please.

November 2014

Correspondence submitted by James Oglethorpe (KEW015)

As a flagship for Great Britain PLC Kew Gardens is an international example of Britain at its best. Instead of cutting Kew’s funding and diminishing it in the eyes of the world would it not be sensible to recognise the return on Government investment that Kew represents and help it to flourish by restoring funding? An unpatriotic, false economy not to, I think.

November 2014

Correspondence submitted by Gillian Waldron (KEW017)

I feel very strongly that the funding of Kew Gardens should be upheld and protected into the future for the following reasons:

Kew is world-renowned and respected centre holding important and invaluable collections which are available for the public to study, learn from and enjoy.

- Kew provides unsurpassed knowledge given out in the form of advice to anyone and everyone concerned with our national flora.
• Kew's influence as an educational resource, is precious and needs nurturing, protecting and expanding.
• With increasing environmental pressures on world food production, Kew offers a wealth of knowledge and experience brought to bear in its respected research programmes.

The possible reduction of government funding represents a dangerous short-term view, and creates a black cloud hanging over this institution and its future.

As a committee, I ask you to decide to prioritise, and to ensure continued and sufficient funding for this great public body.

November 2014

Correspondence submitted by Ormungandr Melchizedek (KEW018)

In my opinion, Kew is one of the most vital organisations that exists. It is tragic, ludicrous and appalling that this government has reduced its funding at all. I am sum disgusted with this government's priorities. Nature conservation is more important than human well-being. No nature. No people.

As we continue to destroy our biodiversity at a near incomprehensible rate institutions like Kew become ever more vital. One day very soon we will need their knowledge to desperately try to regenerate our biosphere.

Reducing, no., not returning full funding to Kew is like switching off the life support machine on a patient that would otherwise live.

Please do what you can to ensure that Kew thrives. Return full funding, unconditionally. Our world desperately needs its continued existence as a fully operational conservation hub. It is certainly more important than building ring roads or train stations or new houses or better infrastructure of any other kind.

Priorities need to be radically changed.

November 2014

Correspondence submitted by Paul Saxty (KEW019)

To emphasise the need for the Kew Gardens Science & Research facilities, just as one example, I used to work a short of number of years ago for a Company then part of the Thorn EMI group called Thorn Security the largest company in the UK who designed, manufactured & installed Fire & Security systems for Industrial, Commercial, Offices, Shops, Hospitals, Banks & Residential Care Homes. At the time one of the major problems particularly associated with residential care homes was the growing number of incidents where smoke detectors, were involuntary false alarming. The specific type of detector used within the homes to counteract the specific risk was a PED Photo Electric Device detector which not only detected cigarette smoke but also overheating plastic both a frequent reoccurring issue within the residential care homes & other installations.
The major problem within such homes was when an evacuation was signalled medical equipment linked to the beds such as oxygen, drip feeds, monitors etc etc had to be moved as well as the beds, out of the building. The problem that set the detector into the alarm state was an insect known as the “Thrips Fly” or Limothrips Cerelium the Latin name. However the minute trips fly used to enter the detector & block the transmission path between the detector & receiver signal thereby sending the detector into alarm. At that time the only detectors available even on a world-wide basis that caused the problem were Japanese, & Thorn Security decided to embark on a new British design to overcome the problem. Obtaining Trips flies for research & development evaluation without knowing anything whatsoever about the insect posed an insoluble problem. I then contacted the department of Entomology at the British Museum who proved vital in obtaining hundreds of Thrip Flies working with & from Kew Gardens scientists who provided the essential data that was used in designing a brand new British Detector that overcame the problem & became a world beating best-selling detector.

November 2014

Correspondence submitted by Andrew P Vovides (KEW020)

As an Ex Pat. and past Kew Internee (1978) I wish to answer some of your questions as briefly as possible:

WHAT MAKES KEW A PIONEERING INSTITUTION IN ITS FIELD?

Kew is a corner stone and pride of the British Nation and it is a national treasure. With 250 years of history and more than 8 million herbarium specimens, the richest botanical library and the largest living collections as well as the millennium seed bank at Wakehurst Place, it has had great impact on society since British colonial times and it has evolved accordingly since those times. I speak of personal experience as founder member and present Curator of our institute’s Botanic Garden, the Jardín Botánico Francisco Javier Clavijero in Xalapa (JBC), Veracruz, Mexico. Through the British Council and intervention of the then Kew Director Pat Brennan, Kew gave us hands on assessment during 1978 by sending the Deputy Curator of the Kew Living Collections Mr. Ian Beyer to work with me and colleagues for one month to develop plans and structure of the new botanic garden (JBC).

The JBC has since become what is now considered internationally one of Mexico’s foremost Botanic Gardens that gave birth to the Mexican Association of Botanic Gardens, the concept of National Living Plant Collections and sustainable management of endangered plant species, please see Kew Bulletin 65: 603-611 (2010). The JBC2 is dedicated into conserving local flora with emphasis on threatened and endangered species, a concept that arose during the 1975 Kew Conference on The Functions of Living Plant Collections in Conservation and Conservation-Oriented Research and Public Education. In a small way of saying thank you, the JBC has hosted Kew students on various occasions where they completed part of their Kew Diploma training as well as assisting Kew expedition personnel visiting Mexico.

Kew has also given birth to the world’s foremost international network of botanic gardens, the BGCI (Botanic Gardens Conservation International) that began life as the Threatened Plants Committee steered by Kew, and University of Reading Personnel, namely Hugh Synge and

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Prof. Vernon Heywood respectively. The BGCI is now a world renowned institution, aiding conservation, education and research on a world-wide basis through its global botanic garden linked data base. It is also pioneering the Alliance of Botanic Gardens for Ecological Restoration of which we are members. All this thanks to Kew influence.

In my opinion and for the sake of Science, the UK, EU, and the world. You cannot afford to skimp on financing Kew’s world class research and conservation activities. In a nutshell, research into the earth’s life support systems - plants. Without plants there is no life.

IS THE GOVERNMENT FAILING IN ITS DUTY TO ADEQUATELY RESOURCE A NATIONAL HERITAGE SITE?

Yes, with the proposed cuts I believe it is failing miserably. Kew is much, much more than a National Heritage site, and it is certainly not an archaeological ruin! Kew is comparable to the world’s topmost research institutions such as the Pasteur Institute and the Max Planck Institute. The five million sterling proposed for the cuts is a trifling amount compared to other government spending.

WHAT IS KEW GARDENS DOING TO INCREASE ITS COMMERCIAL SUCCESS AND KEEP OPERATIONAL COSTS LOW?

I would say plenty:

I remember Kew as a child, when one gained admittance for one old penny. It has greatly evolved since those days into a very viable commercial enterprize. The quality of items, books, souvenirs, gardening paraphernalia and plants sold at Kew are unequalled. It has staged concerts, art exhibitions, rented out its infrastructure to cooperate banquets, weddings etc. It receives annually more than one million visitors. With a gate fee of 13 pounds that is more than 13 million pounds per annum. The modernization of its display glass houses has done much to cut fuel costs. Since the Thatcher regime Kew has done more than humanly possible to become competitive and cut operational costs.

WAS THE REDUCTION IN FUNDING FROM DEFRA, EVIDENCE BASED AND FOCUSED ON KEW’S WORLD CLASS RESEARCH STATUS?

I believe not. It appears that a group of financial experts probably influenced by profit orientated transnationals (with or without hidden agendas) where research done at Kew is perceived as superfluous. Science, Education, Art and Culture form the fabric of Civilization. Cutting back on scientific research creates an undesirable dependency that erodes society and civilization. Do not let this happen to Britain and Kew.

November 2014

Correspondence submitted by James Ramsay (KEW021)

I am writing to express concern about the future of Kew Gardens in the light of proposed cuts in funding.

Kew was an important part of my own general education, even though I am not a scientist and was not brought up in London. It was wonderful to be able to visit and explore regularly when I did then live nearby. I have no specialist expertise, but it enhanced my awareness and
appreciation of botany, biodiversity, the importance of plants, the history of plant science, and much else.

When I had children of my own I looked forward to introducing them to Kew Gardens. The cost of entry had already become prohibitive. The educational and cultural benefits the Gardens offer have become the preserve of those who can afford to go there. Experience via the internet is not remotely the same. The requirement for a place like Kew Gardens to become more commercially viable will inevitably either compromise excellence or make an exclusive cultural asset of what was and should be a marvellously inclusive educational and cultural service.

Others are better placed to speak about the scientific excellence of Kew as a world-leading institution. To jeopardise that, particularly as ecological science becomes increasingly vital, would be shameful and foolhardy.

I urge you to protect the excellence, integrity, and accessibility of Kew Gardens.

November 2014

Correspondence submitted by Maurizio Sajeva (KEW022)

I am writing to underline a perhaps neglected aspect of the role that Kew Royal Botanic Gardens play. Kew is the UK Scientific Authority for Flora under the Convention on International Trade in Endangered Species (CITES).

CITES not only plays a key role in conservation of threatened taxa but it is also a very strong tool for the International trade. Consider that CITES regulates, among other, trade in timber species used by the furniture industry, in medicinal plants fundamental for the human health, in horticultural plants, all of which play a significant role in worldwide economy.

The issue of CITES import permits generates a significant pulse to the economy both of the importing and exporting countries (which often are developing ones).

Since CITES entered into force in the UK in 1976 Kew has been leading the International scenario for plants. Its scientists and staff contributed in a very significant way to the implementation of CITES around the world and are focal points for scientists from all over the world. The conservation of the botanical biodiversity relies on Kew's expertise.

At the recent European Regional CITES meeting illegal plant trade was recognized as a part of the Illegal Wildlife Trade (IWT) problem and as such it should be afforded sufficient resources and requires the sort of botanical expertise Kew holds to solve these problems.

Given the cuts to Kew and the loss of the CITES plant expertise there please consider that should this happen Kew, and the UK, would probably lose their leadership on plant issues in CITES and diminish their work in assisting other countries outside the European Union to take their guidance.

November 2014
Correspondence submitted by Anne Taylor (KEW023)

I am writing to strongly express my disappointment at the lack of secure funding extension for Kew Gardens beyond next year.

Apart from being a World Heritage Site this institution is responsible for internationally valued (1) research relating to the preservation of plant genetics which have taken billions of years to evolve and (2) the protection and preservation of our plant genetic pool on which we depend for environment, food, medicine, future sustainability for example. These contributions are vital to present and future human generations.

This is not to mention other valuable contributions to the UK economy including tourism, education/training and unique historic preservation.

Given the importance of Kew's work you really ought to consider increasing funding, not reducing it. To reduce its funding would show what little importance this government places on global welfare and environment.

To threaten this globally valued and vital institution due to a lack of such a relatively small sum - £5 million - is utterly short-sighted and disgraceful and puts this government to utter shame.

I entreat you all to recognise the need for you to remove the pressure on Kew Gardens and provide them with the full continued level of funding they require to continue their efficiently run and vital work.

I would appreciate acknowledgement of safe receipt of this email and confirmation that all members of the select committee will read it and consider my views.

November 2014

Correspondence submitted by Sally Beeson (KEW024)

I find it totally incomprehensible that a World Heritage Site and the world's leading horticultural and research facility will lose its Government funding.

How can you quantify the supremely important work that is carried out there, purely by balancing the books? The uncertainly caused by DEFRA's decision is appalling and shameful.

Please ensure funding for perpetuity! You can't quantify everything purely by cost alone.

November 2014

Correspondence submitted by Marie-Louise Rabouhans (KEW0027)

1. The Royal Botanic Gardens, Kew is very special. This one organisation combines a complex “organic” mix of inter-related and inter-dependent roles and offers a unique combination of science, culture, history, education, beauty and pleasure. It is truly more than the sum of its parts. This unique character was instrumental in Kew being inscribed by UNESCO on the list of World Heritage sites in 2003. UNESCO made the award having confirmed Kew’s Outstanding
Universal Value following the joint nomination by the UK Government Department for Environment, Food and Rural Affairs and the Department for Culture, Media and Sports.

2. As a patron and long-standing supporter of RBG Kew I recognise the value of its outstanding breadth and depth of knowledge and activity and, like many members of the public, I derive deep satisfaction and enjoyment from exploring its many facets. I wish to help to safeguard Kew’s future and, in particular, its role as a centre of scientific excellence. This vital role as a unique global hub harnessing the power of plants to support and enrich the quality of life on earth has never been more essential.

3. My concern is that the chronic under-funding of Kew by Government and the current restructuring of its scientific work by senior management seriously threaten the future of Kew. I strongly believe that the significant loss of experienced scientific staff and their unrivalled expertise will leave Kew unable to carry out its vital role. The scale and nature of the loss of experience and expertise will inflict irreversible damage to this unique centre of scientific excellence and international co-operation.

4. It is vital that Kew's world-class scientists can continue to lead and co-ordinate world-wide scientific research and maintain the globally-important plant and fungal collections which support plant and fungal science and conservation around the world. The work carried out at Kew is essential to the UK and global efforts to adapt to and mitigate some of the impacts of climate change and to maintain biodiversity. Without the work at Kew, the UK's commitments to biodiversity, conservation, the environment, food security and combating climate change will be seriously compromised.

5. Kew also plays an important role in relation to plant- and fungi-based medicines (drug discovery, authentication, quality and safety). Kew’s contribution to sustaining and improving the medicinal uses of plants (either as such or as the starting point for chemical synthesis) is widely recognised within the UK, Europe and around the world. The front cover and article in the October 2014 issue of Chemistry World (Volume 11, Issue 10) Royal Society of Chemistry, are testament to the importance of botanical garden science of which Kew is the world leader. Many aspects of this work rely on the links forged and maintained and the trust instilled by current Kew scientists with colleagues in Regulatory Authorities, other Government bodies and botanical and other scientific institutions around the world.

6. The nature of much of the scientific work at Kew is such that it depends on cooperative networks and scientific collaborations. The wholesale restructuring of Kew science with the sudden loss of many posts and individuals is likely to inflict serious damage to these delicate networks built up over time. The resulting loss of goodwill and confidence in Kew by its many scientific collaborators will further undermine Kew’s ability to carry out its essential functions. Many of those collaborators and their institutions will be at a loss to understand why the UK Government would sanction such damage to a world-class institution that contributes so much to UK’s international scientific standing, its ability to “punch above its weight” and its future economic and environmental well-being.

7. Kew’s scientific role requires secure long-term funding. Its importance to the UK environment, health and economy, to our overseas commitments and international standing is such that the core funding should be provided by the Government and guaranteed/ring-fenced by the Treasury. Government funding should not be based on short-term financial considerations nor determined by the priorities of a single Department. Core funding should be sufficient to guarantee Kew’s independence and freedom to fulfil its scientific, educational and cultural obligations.
8. I recognise the excellent work done by the Kew Foundation in attracting external funding. However, expecting Kew to rely to an increasing degree on private funding and commercial activity will constrain and compromise its ability to carry out its essential scientific and educational functions and undermine its very raison d'être. Corporate funders have their own priorities and agendas which do not necessarily reflect Kew’s. Too heavy a reliance on such funding can skew the direction of research and compromise Kew’s independence. Moreover, corporate funding does not provide long-term security. As an individual patron, I expect my own and other charitable contributions to provide for special complementary projects - the “cherry on the cake”; I do not expect them to be used to buy the basic cake ingredients.

9. Expecting a severely reduced scientific staff to devote increasing time to providing “on-demand” commercial services rather than pursuing long-term research and curatorial activities will be very damaging to Kew’s scientific standing. It will lead to the erosion of the core science and the stagnation of the collections which together underpin Kew’s global role. Similarly any attempt to seek to charge “partners” for sharing knowledge, skills and collections would be contrary to the spirit of international scientific collaboration. Many partners (for example, botanical institutions in sub-Saharan Africa) would be unable to pay. Others might be unwilling. Such developments would undermine trust and would be detrimental to Kew’s ability to harness global resources.

10. The recent announcement that the Government is to invest £52m into science skills and training by means of the Science Industrial Partnership indicates that the Government recognises the importance of science to our future economy. Providing adequate funding to those experienced scientists already undertaking world-class research in the UK is of equal importance. These scientists are not only contributing greatly to current knowledge but their retention is also essential so that their skills and dedication may be passed on to the next generation of UK scientists.

11. Many of the current experienced staff at Kew are having to apply for the limited number of posts in the new structure. A significant proportion of these new posts are temporary 3- or 5-year contracts. To restructure Kew science on a university department model suggests a serious lack of understanding of the function of Kew, the nature of its work and the value of the long-term commitment of its dedicated staff (one of Kew’s greatest assets).

12. Requiring staff applying for posts in the new structure either to have a PhD or to acquire one is, moreover, a deeply flawed decision. As a scientist who does not have a PhD but who is, never-the-less, a Fellow of both the Society of Biology and of the Royal Society of Chemistry, I am fully aware of how inappropriate and potentially damaging this very narrow academic view of scientific qualification and expertise could be. Not only would it place unnecessary and unjustified restrictions on individual career development but it would also preclude organisations from benefiting from the full range of scientific skills and experience. What is happening at Kew could set a very dangerous precedent with far-reaching consequences for scientific education.

13. I earnestly request the Committee to recommend that the Government fully recognises the true value of the Royal Botanic Gardens, Kew and provides it with secure, long-term public funding commensurate with its unparalleled services to the UK, to international co-operation and to the future of mankind.

November 2014
We understand that you intend to review the evidence behind DEFRA’s budget’s cuts and the impact on Kew’s research and education facility.

There is little doubt that Kew Garden’s scientific work is world class and there are unique collections of immense value to human survival, collected over hundreds of years. The cuts proposed by DEFRA are interpreted as requiring a cut of one sixth in the scientific staff which puts the scientific work under intense pressure. It is difficult to see how Kew will be able to maintain its pre-eminent position in maintaining global bio diversity with these cuts.

Also it is reported that DEFRA’s actions were approved against the advice of consultants for DEFRA, who told ministers in 2010 that Kew would lose its world class status and see its research decline below a critical level if its operating grant was not maintained from 2012 onwards.

Can we please urge you to recommend to DEFRA the reinstatement of the funds from 2015-16 and for this contribution to be maintained in real terms for a substantial period, at least ten years?

We have visited Kew’s laboratories and attended some of their outreach programmes. We have been impressed with the commitment of their staff and the impact of their work for the well-being of many of world’s population. We cannot afford to lose the quality of this world-leading organisation for what amounts to savings of £1.5 million/year. The benefits far outweigh the savings.

Thank you for considering this petition.

November 2014

Correspondence submitted by Professor Simon Owens (KEW029)

1 Kew Gardens will certainly compromise its statutory obligations under the National Heritage Act if it undertakes the current planned reductions in science. The Kew Board of Trustees will have failed in its obligations towards Kew, Defra will be complicit in this action and the Act will be made to look meaningless. For example, Kew’s world-renowned, fully accessible collections will become less useful under the plan being implemented. A comparison could be made with the herbarium of the University of Cambridge which was rescued by a large grant from the Gatsby Foundation but still has too few staff or students researching it to make it world-leading.

2 Science at Kew Gardens provided significant input into the successful application for World Heritage status and is integral to the World Heritage Site but, once again, that status will become progressively more tenuous in the future as science output declines.

3 Kew Gardens is one of few institutions in the UK now which focus on plant systematics and the use of those data in conservation and plant and fungal use worldwide. Kew has a prominent role in this area because of the experienced staff it currently has and these staff can and do provide worldwide training (e.g. plant identification and herbarium techniques courses) and numerous plant-related services (e.g. to WHO and mining companies). The Millennium Seed Bank project, one of the most successful Millennium projects, would not have been conceived, constructed and implemented without the support of the scientific staff and its success has
depended on the continuing research of those scientists in the Jodrell laboratory and Herbarium
as well as at Wakehurst Place.

4 My experience of Kew strongly points to poor accounting methods at Kew, with little access
to accurate data on which to base decisions. Both the Board of Trustees and Defra have failed to
recognize this issue over the last decade perhaps demonstrating an imbalance of experience on
the Board and at Defra. The supervision of Directors and the management of Kew’s
expenditure, particularly on new buildings, has contributed to the current financial problems
Kew faces. Again, my own experience indicates that it is unlikely that the reduction of funding
by Defra could in any way be evidenced based and that Defra makes little time to evaluate
Kew’s research status except indirectly through 5 yearly science reviews. There are now so few
science trustees with the requisite experience on the Board of Trustees that there is no way that
they can advise Defra in any meaningful way.

5 Scientific and public visitors to Kew’s science collections do not fail to appreciate them for
their scientific usefulness and significance or for their history. This has been my experience
throughout my employment at Kew and can be established from archival materials and by
talking to visitors themselves.

November 2014

Correspondence submitted by Professor Sir Ghillean Prance (KEW0032)

I write to you as a former Director of Kew, the greatest botanical garden in the world. I am
obviously biased, but as a botanist who has spent his whole career working for botanic gardens
in different countries. I know the value and the prestige with which Kew is regarded by other
botanists and horticulturalists around the world and it was a great privilege to be at the helm of
Kew for eleven years.

The Gardens at Kew have gained classification as a World Heritage Site on account of their
beauty and importance as a facility for the numerous visitors from home and abroad, and
especially because of the amazing collection of plants from around the world that they contain.
The living collection is also a wonderful resource for scientific research, plant conservation and
for education and enjoyment by the public because of its acknowledged diversity. As I travel
around the world I have found that many of the staff at all levels in both public and private
gardens have been trained at Kew in one of the many courses offered there.

The worldwide reputation of Kew is largely based on its long-term excellence in basic and
applied botanical research and the care and curation of the affiliated collections in the library,
the herbarium, the seed bank and the gardens. Throughout its history science at Kew has been
progressive, incorporating new techniques as they become available. For example, the
molecular research section that was set up while I was the director has now become one of the
leading centres of molecular taxonomy and plant conservation genetics in the world. It takes
many years to gather the scientific expertise that exists in the staff at Kew and to reduce it may
reduce Kew's value as a renowned centre of excellence for plant and fungal based research.

Many users of botany need identification and naming of plant species. Kew is probably the only
institution anywhere that can name all the plant and fungus species from anywhere in the world.
Many users of plants in such diverse fields as forestry, agriculture, conservation, new plant
products, chemistry, forensics and even the UK border Customs depend upon Kew to provide
this naming service.
In recent times Kew has established itself as a world leader in seed banking of wild species of plants. The Millennium Seed Bank has become an international facility that is training people and establishing seed banks in many other countries. This work is essential for the conservation of many plant species and any cuts to its funding could be disastrous.

During my time as Director we moved Kew from almost total government funding to mixed funding through setting up the Kew Foundation and through increasing commercial activities. I am glad to see that this trend has continued successfully up to today. However, the grant-in-aid from Defra is still an important part of the funding that helps Kew to maintain its prime position. Kew is really doing all it can to raise outside funds but there is a limit to what they can get. I feel that they should be rewarded for their sterling efforts to obtain non-government funding rather than to have their grant-in-aid reduced so drastically. I am concerned that this reduction of funding will force Kew to cut some key activities such as the maintenance and adding to their invaluable collections and databases and in particular the widely acclaimed Millennium Seed Bank.

At no time in its history has the Royal Botanic Gardens Kew been more relevant than at this juncture in world history as we face widespread loss of biodiversity and a changing climate. It is one of the very few institutions in the world that can offer solutions.

It is surely good to be able to boast that the United Kingdom has the leading botanic garden in the world. Please help to keep it that way.

December 2014

Correspondence submitted by Richard C Ward (KEW033)

May I add my voice to the massive groundswell of public opinion which believes that our heritage is best served by retaining maximum possible funding for our Royal Botanic Gardens at Kew?

With an ever-growing world population horticulture and science must be kept at the forefront of scientific research and I urge you not to reduce funding at this establishment.

December 2014

Correspondence submitted by the Botanic Gardens & Parks Authority (KEW0034)

Kings Park and Botanic Garden, a leading scientific botanic garden and collaborating garden with the Royal Botanic Gardens (RBG) Kew provides the following comments that may assist the Committee in its deliberations.

Overall, the Science programs of Kew, the hardest hit of the program cuts within Kew, represents a major and negative impact on the national and international profile and capability of Kew.

Kew Science is without doubt among the top botanical science institutions globally. Publication outputs and citations rank Kew Science as productive, focused and important to the national importance and prestige of UK science.
The impacts of the proposed cuts in Kew Science are wide-ranging; appear to be random in their application; and appear to lack the care or attention that acknowledges the calibre of the science, and the international relevance of the programs especially for developing and emerging economies. An example of these cuts or their subsequent impacts includes changes to the Millennium Seed Bank Project - arguably one of the most successful international conservation programs ever undertaken that has achieved the remarkable milestone of storing 10% of the world's flora. This achievement is held up as a beacon for conservation globally and has inspired many international programs, including our own, in seed banking conservation.

Another significant impact of the cuts is the closure of Kew's Restoration Ecology (RE) initiative. RE is now seen as a fundamental role of all planetary conservation programs with 70% of terrestrial ecosystems in need of restoration actions. Kew was positioned with initiatives such as the Mediterranean Ecosystem Restoration Initiative to commence delivery of major programs and capacity building across the globe. Such programs can only be achieved with the pre-eminent scientific position that Kew holds.

Specific reasons for retaining Kew Science and indeed growing, rather the diminishing the science are manifold but include:

- Kew's leading programs in seed collecting/storage in particular but also the study of seed physiology and germination protocols have provided outstanding new insights into the world flora.
- Training the many overseas laboratory visitors in conservation techniques, including DNA analyses, has been important in advancing science-based conservation internationally with major benefits for South Africa (SANBI), Nigeria, Mexico, Brazil, India and Sri Lanka, to name a few.
- Major studies that have been transformative in conserving some of the world's most charismatic forests: Madagascar and Cameroon to determine appropriately diverse areas that should be priorities for reserve status.
- Developing/refining uses of native vegetation so that reserves serve the needs of local people, thus leading to the valuing of native vegetation rather than cutting it down, especially in places like South Africa, Madagascar, Cameroon and others.
- Involved in expanding the areas being planted to native tree species that grow quickly but have dense woods suitable for cooking firewood in Zimbabwe and Brazil such that it is possible to harvest enough cultivated firewood that the native forests are less susceptible to inappropriate species being harvested.
- Cryogenic research into long-term conservation of the world's most threatened species - Kew is a major hub for this research that is a critical tool to conserve the last individuals of rare species.
- Micropropagation research that has led to remarkable discoveries in the conservation of some of the world's most threatened plants.

These are some of the outputs that the scientists at Kew have produced that will lead to long-term and permanent benefits for humanity and the plants and animals we share the planet with.

Without the power and capacity of Kew Science working across borders and scientific disciplines, the world would be a bereft of a scientific role-model institution that has inspired generations of conservation practitioners and is responsible for saving many remarkable species from extinction. To lose even a part of this institutional capacity will have profound and lasting global impacts.

December 2014
Correspondence submitted by Philip Cameron (KEW035)

I would like to add my voice to the number of people from around the world who are dismayed that funding of £5,000,000 is being cut from Kew’s budget. The Royal Botanic Gardens, Kew, is without a doubt the most significant institution for botanical and horticultural research on the planet, and as such, is an inspiration for everyone around the globe who works in these fields.

It has certainly been an inspiration to me personally, and it was a great honour for me to be invited to attend the 250th anniversary of Kew in 2009. With anthropogenic climate change becoming a significant issue globally, it is now more important than ever that the work of RBG Kew and its affiliate institutions such as the Millennium Seed Bank be funded to the correct amount, and even be increased if at all possible.

I certainly hope that this short-sighted decision is reversed very soon, and that the important work that the scientists of these institutions undertake is sufficiently funded into the future.

December 2014

Correspondence submitted by Dr Monika Shaffer-Fehre (KEW0036)

Being given the chance to address you is most welcome. I have worked at the Royal Botanic Gardens, Kew since 1966. Initially as a scientific illustrator and, more recently, as a fully trained botanist (PhD, 1987, University of London). These skills were always well supported during my study by RBG Kew, a most important scientific institution. Many aspects of science are followed here, but gene-sequencing, pollen studies a huge mycological collection and, besides many more, the 7 million+ plant voucher collection of the herbarium, are strands that combine to support the taxonomic research carried out here.

Taxonomy at Kew is of the highest quality, an achievement that relies on stability and on permanence of research conditions and on the high calibre of researchers it, therefore, attracts. These researchers will also train workers and scientists from abroad who profit from the encouragement and sound teaching and from experiencing the powerful support of having the valuable tool of a large, well maintained and permanently updated herbarium at their fingertips. The, must needs, much shorter research span of University projects cannot be applied here.

One Herbarium section, that of Ferns, has unfortunately, been put under “care and maintenance”. The collection is now housed in the basement; its last great task was the contribution to the Flora of tropical east Africa (FTEA). The fern herbarium had, statistically, the greatest number of international visitors, evidence of its superb standard of curation, frequently lauded by researchers.

But the entire make up of Kew is important. For instance the order beds now becoming incomplete (beds of several orders discontinued! and agricultural plants grown). So quickly can total ruin result from uninterested short term actions, ending in loss the of research tools and of reputation too. Kew, a desolate place just now, is sinking under the exceptionally harsh measures of late, as scientific workers at all levels are lost and as ‘restructuring’ is leading fast to destruction.

Gentlemen, finely honed research tools such as the Royal Botanic Gardens, Kew in all its aspects need to be valued and appreciated. Here is YOUR responsibility which, fulfilled, future generations will thank you for by continued monitoring, vigilance and excellence. Combine, so
that Kew can keep on carrying out its statutory obligations and remain the important search light
for British reputation.

December 2014

Correspondence submitted by David Baines (KEW037)

I would like to share with you my reasons for why, along with many colleagues, I have very serious concerns about the budget cuts and restructure of science currently being implemented at the Royal Botanic Gardens, Kew.

Kew is a popular visitor attraction but of far greater importance is its role as a leading centre of scientific research and home to arguably the world’s most extensive botanical collections. It is a world-renowned centre of botanical excellence that has employed some of the foremost experts in their fields. In September of this year, however, the management at Kew announced that there would be a major restructure within Science, resulting in substantial redundancies, with all science staff effectively losing their jobs and being required to reapply for roles within the new structure.

The Director has cited financial pressures as the reason for this restructure. He has referred to the reduced government funding for Kew, which has been decreasing since the 1980s, and now stands at 45%, apparently resulting in a deficit of £5 million. This purely financial justification for the restructure is, however, unconvincing for a number of reasons.

The Director has stated more than once that the restructure of Science would be carried out irrespective of the financial situation. According to the Director, the Trustees first anticipated the current situation at least six year ago but have done nothing to prevent it. Rather than making a strong case for not just maintaining but even increasing government funding for Kew, it appears that the Director and the Trustees have facilitated the financial cuts.

Both the Director and many of the Trustees lack professional scientific experience, which leads one to suspect that they do not value Kew’s resources and the work being carried out by its staff. Their decisions appear premeditated rather than evidence based. Moreover, members of the board of Trustees appear to have links with individuals within the biotechnology industry, which raises concerns that the conditions are being created for selling off a valued national asset to corporate interests.

With regard to this financial year, it is questionable whether any money is actually being saved as the redundancies resulting from the restructure have already cost £3 million pounds and have been facilitated by the recruitment of support staff, some of whom are being paid larger salaries than the staff they are making redundant.

The restructure has also been mismanaged, creating an atmosphere of profound demoralization among Science staff at Kew. With far fewer roles available people who had dedicated their whole lives to Kew’s invaluable work were asked to compete against each other. The outcome of this process is that, together with voluntary exits, Kew will be losing at least a third of its science staff. Moreover, many ‘permanent’ posts have been changed into fixed-term research posts.

At a time when the challenges from climate change, biodiversity loss and food security become ever more acute, this restructure can only be viewed as a disastrous mistake, which undermines Kew’s capacity to continue playing its globally leading role in the field of plant conservation.
Considerable concern has been expressed about the extent to which both scientific research and the care of collections will be seriously compromised. This is particularly the case at the Millennium Seed Bank at Wakehurst, which has been one of the best examples of why Kew is a pioneer in its field. The live collections at the Seed Bank have to be maintained over the long term, for example by periodic sample seed germinations to check viability. The ability to continue doing this and maintain our international commitments to conservation projects overseas will now be brought into question.

The Scientific Committee should give serious consideration to whether these consequences of the restructure are acceptable or whether in fact they risk damaging the UK’s reputation in this important area of work by focusing on what something costs rather than what it is worth!

*December 2014*

*Correspondence submitted by Frances Pemberton (KEW038)*

I just want to put my name to the plea to save Kew funding. For the obvious reasons - research, education and plant related services which people can study and enjoy. What a brilliant place Kew is for all to be able to have for advice and sheer pleasure.

*4 December 2014*

*Correspondence submitted by Michael G. Gilbert (KEW039)*

I have had an association with R.B.G. Kew that illustrates rather well the international importance of the Kew Herbarium. The association dates from 1968 when I was appointed to what was the Haile Sellasie I University, Ethiopia, and was asked to run the largest herbarium in Ethiopia. The University lacked the resources to name incoming collections and so the herbarium was dependant on support from Kew to identify specimens. I worked in Ethiopia for eight years. Shortly after that I took up the position of Principle Scientific Officer in the East African Herbarium, Nairobi, Kenya which had a very close working relationship with Kew. An important part of my work was collaborating with Kew botanists working on the “Flora of Tropical East Africa”, ensuring that the Nairobi collections were covered in their accounts. I held this position for more than five years. I was then employed by the Flora of Ethiopia project to work at Kew and write a “Flora of Ethiopia and Eritrea”. Kew holds by far and away the most important collection of Ethiopian specimens and it was essential for the project to have people based at Kew to write such a Flora. In 1991 I moved to the Flora of China project, again to ensure that the project had good access to all the important historical collections in Europe in general and in London in particular. I was seconded to the staff of the Natural History Museum and continued to visit Kew on a weekly basis until 2003 when I moved back to Kew and continued to work on the same project till the Flora of China was completed last year. This project dealt with more than 31,000 species and took over 24 years with contributions from 478 botanists. I believe that my background puts me in a good position to comment on the background of what is going on in Kew, particularly the first point listed in the announcement of the Select Committee hearing: “What makes Kew a pioneering institution in its field?”

All biological science and all usage of biological material is dependent on the names of organisms, no communication is possible without these and relatively small mistakes in their correct usage can have very far reaching consequences. In the case of medicinal and food plants it can be a matter of life and death. Kew has played a critical international role in making plant and fungal scientific names available to anyone that needs them and clarifying their usage. This
has involved building up the herbarium collections that are central to linking the scientific names to the actual organisms, maintaining lists of these names, initially through Index Kewensis, more recently electronically through IPNI (International Plant Names Index) and The Plant List, providing a naming service for new plant material and providing the means for people without access to named herbarium collections to put names on collections themselves, by producing Floras for particular areas and revisions of particular groups, traditionally as printed books, more recently using the internet (e.g. “eMonocot”).

Much of this work is dependent on accumulated experience - gained through looking at a lot of plants, appreciating what is important when writing descriptions, formulating identification guides and being able to recognize patterns of variation and distribution. The immediate problem is that in the world outside taxonomy this work is taken for granted. Status among scientists is based on their being cited by their peers but plant names are regarded as standard text to use without reference. Such attitudes have led to a perception that lists of names are fixed and have no need of updating, i.e. no need for taxonomists. This makes it difficult for taxonomists to compete for funds against other scientists. Similarly any financial returns do not come to the taxonomist but to the agronomists, plant breeders, chemists, ecologists, etc. who depend on using the names but have no need to share any credit with the taxonomists who provide them. This again makes finding funding in a competitive environment difficult. However, new species are still being described, even from the extremely well known regions of northern Europe. Move to the Tropics and it is soon clear that in some parts of the world there are a lot of new plants out there to be discovered plus many more plants that we do not know enough about to fully understand. There will be a need for plant taxonomists for a long time yet.

The restructuring underway at the Royal Botanic Gardens aims to set up a new way of working which seems to emulate the workings of Universities. There will be a lot more emphasis on discrete projects that can be externally funded and a correspondingly significant proportion of essentially transient scientists always worried about finding future funding. Such people will find it difficult to find time for keeping the collections as a whole curated, not just to incorporate new collections, but to update names in the light of the latest revisions and monographs and rearrange the collections accordingly. The Herbarium collection is Kew’s main, absolutely irreplaceable, asset, the value of which has been greatly augmented by the high standard of curation. It is not just a collection of dried specimens that need to be protected from physical deterioration. It is a tool in continuous use to confirm the names of new collections, provide information on variation and distribution of individual taxa, and supply material for specialized investigations, e.g. pollen, DNA. Kew played a pivotal role in the development of the latest, very widely accepted, overall classification of all plants, “APG3” (Angiosperm Phylogeny Group 3) because of the size and quality of the herbarium. Users need to be confident that the names on the specimens are accurate and up to date and failure to do this will make the herbarium a deteriorating asset. It is hard to see how long-term projects such as the revision of a large genus or family can be effectively carried out other than by scientists with long term security of employment.

Another aspect is the accumulation of wisdom within an institution. Kew built up its worldwide reputation essentially using an apprenticeship system. A large proportion of botanists started at the bottom as assistants and were able to work their way up the system, building up invaluable reserves of knowledge of particular groups and particular areas of the world. It was always possible for visitors such as myself to be able to find someone with relevant knowledge and tap into this. The new structure has placed a significant gulf between the Grade B and C curators, with rather little scope for developing their taxonomic expertise, and the Grade E and F researchers (Grade D has been all but eliminated) and it is now difficult to see how there can be the progression that has been such a strength of the institution. Coupled with the emphasis on what amounts to self-funding, rather few botanists can now make a secure and satisfying career out of taxonomy, the discipline that so many other sectors often unknowingly rely on. This is
going to have very dire consequences for the long term future of taxonomic botany as a whole and for Kew in particular.

December 2014

Correspondence submitted by Dr Paul Smith (KEW040)

I am the most senior Kew scientist to leave the institution during the current upheavals. Until September 30th, I was Head of the Seed Conservation Department & Millennium Seed Bank – the largest of Kew’s three science departments by budget and second largest by staff count. I took voluntary exit, and was the first scientist to leave. I left because my post disappeared in the new structure and because I wasn’t persuaded that the new structure would be an improvement. I was also concerned about the apparent acceptance by the (almost entirely new) senior team at Kew that deep funding cuts were inevitable and therefore not worth fighting against.

Now, having left Kew, I am increasingly concerned by what I see unfolding. As often happens with restructuring where a new senior team is brought in as the ‘new broom’, lack of knowledge of the institution’s strengths and weaknesses leads to poor decision-making. In Kew’s case, this will be far more damaging to Kew’s science and reputation than the Defra cuts themselves. I fear that, by December 17th much of the damage will already have been done due to a fundamental shift in science policy that is only partially related to the Government funding cuts and has not been acknowledged or debated. My specific concerns are:

- A ‘vision’ that takes Kew back to ‘documenting and understanding plant diversity’ at the expense of conserving and managing plant diversity – the applied scientific niche that botanic gardens are uniquely placed to occupy.
- A restructure that has taken place without first developing a strategy that describes objectives, outcomes, impacts, human resources, financial resources and timeline to achieve those objectives. None of this appears to have been done or, if it has, it hasn’t been shared with staff or anyone else.
- Lack of consultation. Kew staff have not been consulted on science strategy and restructure other than some workshops on key research questions. In addition, Kew is an acknowledged leader at the centre of a worldwide network of botanic gardens and plant science institutes. None of these partner institutes have been consulted either.
- A fundamental shift in job descriptions and performance indicators that will take Kew science into mainstream academia where Kew will be unable to compete and which values formal qualifications and publishing track record in mainstream literature, above knowledge and experience. While this looks good from the outside – and indeed there is room for improvement in publications output – it should not be at the expense of practical, applied conservation science.
- The loss of Kew’s international training courses aimed at conservation practitioners. Kew’s training programmes are key components of its partnerships, and the glue that keeps Kew’s international network alive. Kew’s Millennium Seed Bank has trained thousands of people in seed conservation techniques over the past 10 years and, often, this capacity building is a pre-requisite for access to seed material and collaborative agreements.

I am most concerned about the structural changes to the Millennium Seed Bank which is a globally unique facility (see below), and I would recommend that independent expert group (preferably including seed bank expertise) is convened to look at the potential impact of these changes.
To answer the questions the Committee is seeking evidence on:

**WHAT MAKES KEW A PIONEERING INSTITUTION IN ITS FIELD?**

During my 18 years at Kew I worked in both the Herbarium and the Seed Conservation Department. I am best qualified to talk about their focus:

1) **Plant systematics and taxonomy.** Kew has world class and unique expertise in plant taxonomy, and is widely recognised as the leader in this field. Until now, Kew has been the world authority on Fabaceae (legumes), Poaceae (grasses), Rubiaceae (coffee family), Lamiaceae (mint family), Asteraceae (dandelion family), Orchidaceae, Palmae and several other of the largest (and most economically important) plant families. Kew led the molecular revolution in plant taxonomy and has been the lead institution in developing the latest Angiosperm Phylogeny (APG III). Plant taxonomy remains a critical science, practised by fewer and fewer institutions, and possible at Kew due to its phenomenal collections. If we don’t know what a plant is called, how can we amass the knowledge we need to use it?

Kew’s systematic groups have been disbanded under the new structure.

2) **Kew’s Millennium Seed Bank (MSB).** The largest and most diverse seed bank in the world, the MSB holds 2 billion seeds in its vaults from 35,000 plant species from >100 countries across all continents. The MSB is also the UK’s national seed repository and, thanks to the work of Kew, the UK remains the only country in the world to have banked its native flora. The Millennium Seed Bank Partnership comprises some 170 partner institutions in 80 countries. In 2010 the MSB celebrated its first milestone – the conservation of seeds from 10% of the world’s plant species. By 2020, the aim is to conserve seeds from 25% of the world’s flora in the MSB and Partnership seed banks. Under seed bank conditions, seeds can be kept alive for hundreds of years as an insurance policy against their extinction ion the wild. It is hard to imagine any other country or institution that could engender the level of trust that is required for foreign governments to allow their plant genetic resources to be exported for safe-keeping. Furthermore, like all seed banks, the MSB is the source of seeds for use. Major (externally funded) projects that the MSB currently leads include:

- The Adapting Agriculture to Climate Change Project (US$50 million over 10 years from the Norwegian Government). The aim of this project is to collect, conserve and make available to crop breeders crop wild relatives (CWRs) of 29 of the world’s major crops, including rice, wheat and potatoes. Kew, which receives a proportion of the $50 million, is responsible for leading the seed collecting and processing effort. These progenitors of our domesticated crops exhibit useful traits (disease resistance, drought tolerance etc.) that can be bred back into domesticated varieties. PwC estimate that the current value of CWRs for breeding new varieties of these 29 crops is US$42 billion.

- The Global Tree Seed Project (£5 million over four years: Garfield Weston Foundation). Unlike in agriculture (Svalbard Global Seed Vault), there is no global seed bank for the world’s 80,000 tree species – many highly threatened in the wild. The MSB already has the most diverse tree seed collections in the world and, under a formal agreement signed with FAO in Rome last year, the MSB will fulfil this role. The Weston Foundation grant will cover seed collecting, conservation and use in more than a dozen countries, doubling the MSB’s tree seed collections.

- Other major projects include the African Great Green Wall Project, a pilot for greening the Sahel (£1 million); the UK Native Seed Hub, which sells high quality seeds and protocols to the UK native seed industry for meadow restoration (started with £750,000 from Esmee Fairbairn Foundation but now self-sustaining); and the UK National Tree Seed Project that aims to build the UK’s first genetically comprehensive tree seed collection for use in research, including disease resistance (ash) and abiotic resilience (£100,000 per annum from People’s Postcode Lottery).
Under the new structure, the Seed Conservation Department (which manages the MSB) ceases to be an entity. It has been split into six parts, all of which are separately managed from the Kew site. There is no longer a Head of the Millennium Seed Bank. The new structure even separates the seed processing team from the seed collecting team. There is no seed bank in the world that operates this system. No consultation was carried out with the MSB’s partner institutions and the new structure was overwhelmingly rejected by MSB staff.

Is the government failing in its duty to adequately resource a national heritage site?

Yes! Kew’s heritage buildings, in particular, are a massive drain on Kew’s financial resources. £36 million and counting for the restoration of the Temperate House.

What is Kew gardens doing to increase its commercial success and keep operational costs low?

Kew’s science has rapidly been moving closer towards societal relevance and commercial markets. The establishment of the Kew Innovation Unit, selling skills and knowledge to industry, and the securing of larger and larger grants indicate this. With the exception of the £32 million over 10 years secured from the National Lottery for building the MSB’s collections, the £5.2 million secured by the MSB from the Garfield Weston Foundation earlier this year was the biggest science grant in Kew’s history. The largest grant ever secured by the NHM in 150 years is £5 million. Clearly, Kew science is competitive and (was) able to secure substantial funding.

Was the reduction in funding from DEFRA, evidence based and focussed on Kew’s world class research status?

No. For example, in relation to the MSB, the last external Science Review (2011) said:

Para 67. The Panel were very impressed by the facility, its strong leadership and the quality of the science produced by the research team, as evidenced by their publications. The business plan, while ambitious, has clear milestones and seems to be well integrated with other areas of Kew’s work and Breathing Planet Programme themes.

Para 68. Kew is undoubtedly a world leader in the field of seed science....However, while the seed biology work is world class, especially where relevant to seed storage and germination, the extent to which a seed bank is needed to underpin a world class programme in seed biology was not clear to us. If, as seems likely, future seed biology scientific work will focus more on intra-specific diversity, then it will be necessary to implement the ambitious MSB strategy to sample a range of populations of each species.

This is, in fact, exactly what has happened with the larger projects described above. They focus on intra-specific diversity for the purpose of using seeds rather than just conserving them for hundreds of years.

Senior Defra personnel remain largely ignorant of the significance of Kew’s Millennium Seed Bank. Almost exactly one year ago, I appeared before the Defra Finance Committee to defend a business case that we had submitted to Defra (at their invitation) for continued support for the MSB. We were asking for a flat £3 million per annum to cover our UK costs, a sum that we were more than matching from external sources and against which we could show an increasing trajectory of non-government funding. It was clear to me after five minutes that nobody on the panel had read the business case. Worse still, one of the department heads interrupted me to ask whether this seed bank was the one up in the Arctic Circle?! I don’t blame Defra personnel for this. They had been cut themselves by 40% resulting in the same game of musical chairs we are now seeing at Kew, with new people in post, ignorant of detail, and under impossible pressure to make cuts.
Joint written evidence submitted by Dr Paul Bremner, Prof Michael Heinrich, Dr R. Middleton, Dr. A Booker, Dr. José Prieto (KEW0041)

The Royal Botanic Gardens Kew is a World Heritage site with an uninterrupted role since the 18th century as a pre-eminent botanic garden and centre of plant research, contributing to many advances in science. Together with its Wakehurst Place Garden, home to the Millennium Seed Bank, it represents a significant part of the UK’s commitment towards global biodiversity and the implementation of the Convention on Biological Diversity, particularly through its globally important work on inventorying, describing and identification of plant species and support of conservation projects with a worldwide network of collaboration.

In the botanic garden world, Kew is widely recognized as the jewel in the crown with its unique combination of iconic architecture and outstanding horticulture and science. The maintenance of biodiversity of our planet relies on global scientific expertise and Kew’s expertise is renowned all over the world. Research at Kew embraces molecular biology, the chemistry of natural products and cytogenetics in seeking an understanding and knowledge of the plant and fungal diversity of our World.

The nature of the cuts at Kew is a slash and burn model without due regard for the structural changes required and over a controlled timescale. No one is denying change is required and every 5 or 10 years the Gardens goes through self-assessment to develop the next strategic plan. But the current cuts implemented in recent years and the pace of change dramatically risks damaging the identity and heart of the Gardens: A body of scientific expertise could be lost overnight in the current model of rapid change that could fatally and irreversibly damage the reputation of Kew Gardens as a pivotal world centre of excellence in plant research. Biodiversity research has become a top priority in many countries and the UK is at risk of losing a competitive advantage in this crucial field of both basic and applied research. What is happening at Kew is causing dismay around the world and will severely damage a globally recognized institution:

Areas of expertise and services that currently meet a number of societal needs could be lost. These include:

- Taxonomic authentication of plant material (both morphologically and using molecular biology) so that a vast range of partners can be assured of a plant’s identity, i.e. in cases of poisoning, illegal trade, biological invasions or weeds.
- Natural product research on novel leads for food supplements, medicines and other useful plant products.
- A global seed bank protecting samples of wild species from areas most vulnerable to climate change, including thousands of economically important plants, crop wild relatives and potential future crops.
- An authentication unit for plants used in Chinese medicine that advises Government departments on illegal trade and companies on the authenticity of imported material.
- Isolation and analysis of naturally sourced plant compounds and biological activity testing against agricultural pests and diseases
- Gathering and disseminating data on economic and useful plants.
- Interpreting science to the public, including school children.
There is a genuine concern, too, that loss of key science staff as a result of these cuts will lead to an inability and lack of incentive to curate Kew's invaluable collections and databases – global resources that now more than ever are needed to help understand and mitigate current worldwide loss of biodiversity, and counter the impacts of climate change.

Dr Paul Bremner (Market Harborough), Prof Michael Heinrich (London), Dr R. Middleton (Cheltenham), Dr. A Booker (London), Dr. José Prieto (London) and the enclosed list of 89 co-signatories

December 2014

Therefore we, the undersigned, ask the SCIENCE AND TECHNOLOGY COMMITTEE to provide a framework for an adequate and sustainable future of the Royal Botanic Gardens at Kew and its scientific activities

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<th>Organisation</th>
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*Titles in parentheses indicate honorary roles.*
1. INTRODUCTION

In order to contribute to the implementation of the International Convention on Biodiversity in one hand and in the other hand to achievement of the Millennium Development Goals, Burkina Faso through the National Tree Seed Centre (CNSF) developed since 1998 a partnership with the Millennium Seed Bank to collect and conserve Sahelian and Sudanian plants species including trees, shrubs and herbaceous.

Several achievements presented in the following lines were recorded through this fruitful collaboration.
2. IN THE FIELD OF RESEARCH AND COLLECTION OF HERBARIUM SPECIMENS

Prospecting and specimens harvests helped acquire collections including:

- 123 verified botanical families and identified at the Royal Botanic Gardens, Kew;
- 1,235 species identified at the Royal Botanic Gardens, Kew (over 60% of Burkina Faso flora);
- 11,120 herbarium specimens stored in CNSF seed bank;
- 500 kg of seed samples at the CNSF seed bank with a duplicate at the Royal Botanic Gardens, Kew;
- The acquisition of laboratory equipment to perform seed viability tests to improve their germination and seed conservation of important species.

All these achievements contribute to the conservation of local Burkina Faso plants.

3. IN THE FIELD OF COMMUNITY EDUCATION AND ADVICE

The project implementation is contributing

- to strengthen scientific and technical capacity of CNSF through:
  - the academic training of CNSF technical staff and students (PhD, Master, Bachelor ...)

The seed bank and the nurseries of the CNSF allow the general public to learn about the Sahel and Sudan plants.

The Seeds bank, the laboratory and the experimental nurseries are opportunity for applied research and training of CNSF staff, students, scholars, farmers of Burkina Faso, Mali, Niger, Ivory Coast, Togo, Ghana, Congo Democratic Republic, in the fields of systematic botany, seed collection and handling, laboratory tests...

4. PLANTS RELATED SERVICES

The project is contributing to the preservation of African threatened or endangered plants species for the well-being of local communities.

CONCLUSION

The scientific and technical experiences acquired by the Burkina Faso National Tree Seed Centre are largely due to the collaboration with the Royal Botanical Garden Kew.

These experiences are contributing to substantially preserve Plant Genetic Resources of Burkina Faso and several African countries.

If this partnership is reduced or eliminated, the deterioration of the country's plant genetic resources will be accelerated compromising the achievement of Burkina Faso Millennium Development Goals mainly in the field of biodiversity conservation.

December 2014
BACKGROUND INFORMATION

1. My name is Hugh Dickinson, Professor Emeritus of Plant Reproductive Biology at Oxford University, and Emeritus Professorial Fellow of Magdalen College Oxford. I am writing to the Committee in a personal capacity, and not as a representative of either Oxford University or Magdalen College.

2. I was Sherardian Professor of Botany and Keeper of the Botanic Garden at Oxford University from 1991 until 2009.

3. From 1995 to 2003 I served as a Trustee of The Royal Botanic Gardens Kew, and from 1997 to 2003 as Chair of the Scientific Trustees. In 2004 I chaired a review of the Royal Botanic Gardens Edinburgh on behalf of SEERAD, and in 2010, was the science and education representative on a DEFRA sponsored independent review of Kew chaired by Sir Neil Chalmers. This was the last substantial review of Kew’s activities to the present day.

4. My comments focus solely on scientific research at Kew, its ability to provide scientific and educational advice, and the care of its collections. For the purposes of this document, the term ‘Kew’ refers both to the Royal Botanic Garden itself, and the Seed Bank at Wakehurst place.

COMMENTS

5. Expert opinion worldwide holds that a rapid step change in our understanding of the diversity and interrelationships within the plant kingdom is essential for the provision of a sustainable food supply and a stable and improving environment.

6. Kew remains one of, if not the prominent institute worldwide with respect to plant collections and research into plant systematics, biodiversity and conservation, and is in a unique position to play a pivotal international role in providing for mankind’s future.

7. The 2010 DEFRA-sponsored review, while recognising this position, considered it to be under severe threat from badly managed and prioritised research, lack of clear scientific focus, unwillingness to form key strategic alliances, poor curation of its collections and, most significantly, chronic underfunding.

8. The 2010 review also found that Kew had failed to exploit opportunities for liaison, interaction and general communication with its sponsoring body DEFRA.

9. The review made 14 recommendations with respect to scientific research, education and care of its unparalleled living and herbarium collections. These are set out in Appendix 1 below.

10. Very few of these recommendations have been acted upon in the years following the review.
11. New management (including a new Director of Science) has recently been appointed and improvements are currently being made both to management structures, and to the organisation of research.

12. These changes, which in my opinion may not go far enough, have come extremely late. This delay has led to a pervasive atmosphere of uncertainty and lack of direction within the Institute which has predictably resulted in the loss of key talent, and poor morale amongst the remaining scientific staff.

13. There is a danger that the present programme of changes, driven partly by a genuine desire to improve the scientific performance of the Institute, but also by the prospect of significant reductions in DEFRA funding, will result in ‘cutting across the board’, rather than focusing resources in key areas of strategic importance.

14. Notwithstanding these current threats to the Institute’s effectiveness, Kew remains uniquely capable of playing a central role in addressing future challenges in food and environmental security at both national and international levels. To let such a vital asset ‘wither on the vine’ as a result of more general government funding reductions is both short-sighted and potentially very dangerous.

15. To maximise Kew’s effectiveness in delivering the science and advice necessary to address these future challenges, an international advisory board should be assembled to work with both Kew Trustees, Management and Stakeholders to identify

   a. The key strategic activities through which Kew can best contribute to our food and environmental security, and
   b. How this might be achieved in a cost-effective manner.

16. These findings could then form the basis of a far better-informed discussion between the Institute, its sponsoring body DEFRA, and central Government with respect to

   a. The role Kew should play in the overall UK strategy for tackling food and environmental security and
   b. The level of funding required to achieve these aims.

December 2014

Correspondence submitted by Graham Burgess (KEW46)

As one who studied at Kew and eventually managed the Southern Arboretum (Tree Collection) on a daily basis I have a practical understanding of Kew.

After winning a Winston Churchill Travel Fellowship (I am now Chair for South Association) I left Kew and took up a Directorship with The John Lewis Partnership. So from Science and Horticulture into Commercial Business including managing all their special gardens (bigger acreage than Kew) landscaping round shops and factories. Since my going freelance I have worked all over the world. All due to the mix of experiences connected with Kew. For 38 years I have been writing the Obituaries and this has exposed me to the past history of Kew and in its early days it was deeply tuned into commercial; enterprises ranging from colonial industries like rubber, tea etc. but including training most of the key personnel who went on to run our most prestigious parks departments and highways agencies. Others went into the Horticultural Industry.
All benefits that have not been measured in economic ways but for those that know the history perceived benefits are enormous.

Just down the road from Kew is Chiswick Business Park, a bit further away Stockley Park then Canary Wharf. All buildings sitting in landscapes contrived by what we call Kewites (ex Kew people).

Key to our success is having had access to the essence of Kew. Being lectured to in specialist areas of science by people top of the tree.

In respect of Science much of the investment in Kew was visionary and financed with vision. This investment yielded profitable results as the plant based industries expanded worldwide. Doing things rather than finding reasons not to do them.

We are faced with great challenges worldwide in terms of sustainability and the language need to solve these problems is universal. It is to do with an understanding of Nature. Kew has a better history of this than anywhere. Then how to solve problems? There is a scientific language that Kew is familiar with.

There is economic injury in our world right now but the last thing we should do is abandon those who can heal and produce healthier worlds. We should be investing in them and focussing on perceived needs.

The public supports Kew as a leisure attraction and there is scope for enhancing that so more people can link with a healthier world.

Key however is diversity of scientific knowledge and skills.

*December 2014*
APPENDIX I
RECOMMENDATIONS FROM THE 2010 DEFRA SPONSORED REVIEW OF RBG KEW

1. Kew should focus its research on the objectives of the institute’s research strategy and avoid spreading itself too thinly.
2. Kew should develop a science research strategy comprising explicitly defined, costed and prioritized research programmes.
3. Kew should develop more strategic alliances in order better to deliver its science.
4. Kew should drive up standards through a rigorous review and monitoring of research programmes and projects.
5. Kew should set up a research support office.
6. Above all, Kew should give the highest institutional priority to maintaining its collections-based research at world class level.
7. Kew should develop a policy on the relation between its contract-driven (KIU) and core research.
8. Kew should develop new professional training courses, where costings and assessment of the market indicates that they will be profitable.
9. Kew’s quarantine services, once established in their new building, should continue to operate at their normal level of activity.
10. Kew should consider whether curation and research should be carried out by separate groups of staff.
11. Kew should seek to work closely and urgently with the Royal Botanic Garden, Edinburgh and The Natural History Museum, London to create a unified virtual herbarium within the wider context of the development of a unified global herbarium.
12. Kew should engage vigorously with the international community to achieve this end.
13. Kew should keep under review the arrangement whereby the herbarium, library, archives and art collection are managed within the one department.
14. Kew should pursue as a top priority its policy of developing Phase Two of the Millennium Seed Bank.

Correspondence submitted by David G Frodin (KEW047)

I am writing in response to your invitation for correspondence relating to your forthcoming inquiry on Kew Gardens.

I shall group my comments initially according to your four main topics, in order:

- A significant new initiative of the last two decades here at Kew, with which in its early years I was involved, was the setting-up of a global seed plant checklist programme. This has continued to the present, and has resulted in Kew becoming the first, or a major, “port of call” for (as far as possible) taxonomically verified scientific names. Products have included physical checklists of various families (such as palms, euphorbias and aroids) and family groups (such as conifers and the families of birches, hazels, beeches and oaks), an online version (World Checklist of Selected Plant Families:  http://apps.kew.org/wcsp/home.do ) , an information system for monocotyledons (e.g. palms, aroids, sedges and lilies;  http://e-monocot.org/ ) and the internationally collaborative “The Plant List” with a first version released in 2010:  http://www.theplantlist.org/ ). All these are major advances resulting from proposals made at the opening of the 1990s. But some aspects of these projects, including guides to supporting literature, have not been developed as well as they could be given
imperfect or short-term resources, organisation and staff turnover. I do not detect in the new science structure a clear commitment towards their further development (or integration, or both).

- Regarding the condition of the sites, there has been some attention to what is more visible (though more could be done, including replacement of the reception building at Victoria Gate) but some of the science collection and research areas are not entirely fit for purpose – and there is probably limited scope for expansion on site for the world-important collections as they continue to grow. I do not see sufficient awareness of this and the time to start planning is NOW. In addition, labelling of plants and trees is often not satisfactory. Also, if the Orangery is to continue as a restaurant, there is scope to make it less colourless inside.

- I am very concerned that the Gardens atmosphere is actually or potentially being spoiled by inappropriate commercialisation. In addition, great attention must be paid as to catering provision and options. That said, more attention should be paid to the overall quality of any commercialisation undertaken – I recommend that some attention be paid as to how a range of American counterparts go about it. And there must be an emphasis on education, not just commercialisation. [As an aside, perhaps more could be done to promote Kew in central London, even to the extent of marketing transport and admission packages at major Tube stations and other outlets. Has that been tried? In addition, perhaps the Gardens could promote semi-pedestrianisation of Lichfield Road, which runs from Kew Gardens Station to Victoria Gate – this would improve access considerably!]

- The work of Kew’s scientists has often not been effectively projected, certainly not on the organisation’s website. The main general outlets have been the semi-annual Kew Scientist and what appears in Kew magazine (for Friends), but there is no good short published introduction to the Herbarium and related collections, for example. There is on the website no integrated presentation of science projects – just 400+ pages for individual projects accessed through an alphabetical list. This suggests little or no sign of editing (and I don’t think it has been much added to since 2011 or so). Perhaps the enlarged Science Directorate will address this. I have looked through every page and there is clear scope for integration of this resource into more digestible themes – which might be aligned to those of the new science organisational structure AND relate to what Kew is uniquely, or almost uniquely, known for around the world. Having said that, I do not think Kew’s work and connections are well understood within DEFRA. The status of RBG Kew as an agency makes it somewhat peripheral, perhaps, and it may be revealing that the responsible Minister is a member of the Lords, not the Commons – and currently one whom few have heard of. [Kew’s inclusion within DEFRA is a legacy of a 1903 Treasury decision to transfer it from the former Board of Works to the then relatively-new Board of Agriculture – with the idea being the its scientists could help with the build-up of scientific expertise in the new body. I really do not think that now applies, certainly nowhere to its original extent, and probably hasn’t for a good century. No, Kew’s work touches a significant diversity of areas with which Government is involved and are of public interest, and in particular it is - for historical reasons – probably more concerned with the wider world than merely the U.K. Indeed, it should have multi-stakeholder governance, as John Lindley proposed in 1838, or become more autonomous, or both. It is regrettable that change along such lines was, though considered, not adopted in the Chalmers review of 2009-10.]

Within botanical sciences, I am also not certain that current management understands that research can yield content and is not just about process and results. And much of what is done in taxonomy is about content – upon which nearly everything else rests, as is clear from the introduction in almost any paper on plant diversity and its references. This is how the numbers of citations of many classic works accumulate; also, many reference works are not effectively
acknowledged. The measurement of impact of taxonomic works is still rather imperfect. This is at least in part why it has largely dropped out of universities here (and the initiative to start an M.Sc. course here in conjunction with three universities is to be commended – but it must be adequately resourced).

Thank you for your kind attention

December 2014

Correspondence submitted by Professor Dr Uwe Braun (KEW048)

LETTER OF PROTEST

I was shocked to get the information that Paul Kirk has recently been fired by Prof. Kathy Willis, Director of Kew Botanic Gardens. I have known Paul Kirk for a long time and collaborated in nomenclatural problems and questions on fungi. He is one of the leading experts in fungal nomenclature worldwide and the nomenclatural soul and spirit behind Index fungorum, which is an extremely important source of information for thousands of mycologists and phytopathologists worldwide. He has an outstanding international reputation in the mycological community. Paul devoted decades of his scientific career to fungal taxonomy and nomenclature and is one of the best British representative in this scientific field. His dismission is a shame and unworthy treatment of this personality. But above all, I am afraid of a decline of Index fungorum, which is to be expected. This will damage the reputation of Kew Botanic Gardens and British mycology.

December 2014

Correspondence submitted by Ray Woods (KEW049)

For many years I have been involved in the conservation of plants and fungi, offering specialist advice to the then Countryside Council for Wales and latterly the conservation charity Plantlife. I am co-author of the British Red Data Book of Lichens and Lichenicolous Fungi a contributor to the standard British Lichen Flora and author of the Welsh Red Data Book of Lichens. I am currently working with others to create a Welsh Red Data Book of Rust Fungi and have for many years made use of the excellent facilities provided by Kew.

I write to express my dismay at the proposed cut in funding to Kew Gardens and the consequent loss of scientific posts. The assurances already given by the director are entirely inadequate. Diverting the staff that remain to contracts to earn additional income to reduce the impact of further core funding cuts planned will lead to even greater disruption of research programmes.

Kew is more than ever important.

Botany and mycology has all but vanished from university curriculums.

Cuts already imposed in Wales have led to the complete loss of expertise in flowering plants, ferns and the entire fungal kingdom at the National Museum and Galleries of Wales at Cardiff. Cuts at the Natural History Museum South Kensington have reduced this once important and vibrant institution to one able to do little more than care for its existing collections. Both these institutions once played a vital role in education, research and outreach across both this country
and the world that created a well-trained army of amateur naturalists, the envy of the rest of the world. Kew alone now has permanent staff to provide this vital service.

We are already paying a heavy price for the loss of this expertise in a plethora of tree health problems exacerbated by a dearth of plant pathologists and taxonomic mycologists. Climate change will inevitably bring new pest and pathogen challenges to crop plants. Help is still at hand from an ageing group of amateur fungi and insect experts all trained by these institutions before they lost key staff. They will not be replaced unless these cuts are reversed. Preserved specimens provide invaluable records; aids to identification and description and irreplaceable libraries of genetic information.

The loss of effective antibiotics is now an acute concern. Members of the British Lichen Society participated in the last programme to screen lichens for antibiotics. Finding and correctly identifying lichens was essential to this work. Staff at the Natural History Museum provided the training. These posts have been lost. Kew is now the sole repository of mycological taxonomic expertise.

Index Fungorum is an essential tool, used daily by mycologists throughout the world. The staff at Kew have maintained this database.

Such work should continue to be a priority as there is no obvious alternative institution to take it on. As an exemplar of cooperation with learned societies and the general public at minimal cost to the taxpayer the Fungus Records Data Base of Britain and Ireland provides the single most important repository of fungal distribution information for Britain. Without it conservation threat statuses could not be developed and any form of prioritised action for government and local authorities and the voluntary conservation movement would be impossible.

Government is significantly failing in its duty through not developing and funding research programmes to capitalise on the existing expertise and resources of Kew.

The Kingdom of the fungi is a diverse one. Hawksworth (2001) calculates that there are at least 1.5 million species worldwide with probably little more than 10% of them formally described. For the most part no action has been taken to directly conserve them. A quick inspection of the British Mycological Society’s Fungal Records Data base of Britain and Ireland (FRDBI) reveals that nearly 4000 species of fungi recorded from Britain and Ireland have not been seen for over 50 years and if they were in any other group of organisms might now be considered extinct. Such a level of loss or ignorance would not be tolerated in vascular plants, birds or mammals. It is good to see the Esbie Fairburne Trust identifying this extraordinary gap in our knowledge and funding a programme at Kew where Government has signally failed.

Fungi could well be our most beneficial and under-used natural resource. Any attempt to develop Britain sustainably that ignores the fungi is doomed to failure. Ignorance, for example, has recently condemned us to a massive clean-up bill in the near future from the death of ash trees due to the failure to control Chalara die-back disease. Our recent aggressive expansion of agriculture and forestry, often employing monocultures of genetically identical organisms, has left us woefully exposed to the depredations of fungi. Such production methods fly in the face of the basic principles of epidemiology. The continued large scale free trade that tranships enormous volumes of plant material and soil from continent to continent will increasing bring with it damaging micro-organisms to affect our native flora and threaten the survival of species such as lichens dependent on them.

The skills at Kew and the resources of their herbaria and fungaria will be needed more and more to identify such risks, to inform defence strategies or minimise these impacts. We should be investing more not less in this work and I note with pleasure the likely expansion of work in this field.
High priority Government funding opportunities also include the following:-

Fungi provide us with some of the most widely employed pharmaceuticals.

The search for new antibiotics might usefully be directed first towards the fungi from which so many of our most beneficial antibiotics have been obtained in the past. A clearer understanding of the evolutionary relationships of antibiotic producing fungi to lichens has recently identified potential new sources.

Animals and fungi diverged from a common ancestor and the fungi are a sister kingdom to that of the animals. We share many physiological functions with them making the treatment of the few fungal pathogenic diseases we suffer from often problematic. On the positive side some of the antibiotics and other physiologically active substances fungi and lichens have evolved to protect themselves from bacteria and other fungi work well in humans. The recent discoveries of proteases in lichens that break down prion proteins offer a potential cure for CJD and huge savings in costs of equipment sterilizing at extremely high temperatures or equipment replacement in the NHS and fallen stock incineration costs for stock farmers. With the development of techniques to identify fungi living within plants (endophytic fungi) has come the realisation that all plants interact with fungi and many more benefit than suffer from them. Endophytic fungi have developed complex interactions with bacteria. These relationships have yet to be exploited commercially but offer huge potential for increasing crop yields, reducing artificial fertiliser usage and improvements in resistance of crops to pests, diseases and changes in climate and may even allow crops to be taken from soils currently considered unsuitable for cultivation.

The phosphate reserves of the world are finite and diminishing rapidly.

Yet agriculture now depends more and more on its use. Most wild plants survive through mutualistic relations with fungi. Only institutions like Kew are likely to have the skills to research such relationships since bringing to market such beneficial organisms in a way that profits can be earned is fraught with uncertainty for business. The patenting of species is not possible. Only institutions such as Kew funded from the public purse or charitable donations are likely to be able to develop such hugely beneficial techniques.

The above projects should take priority over the maintenance of Victorian greenhouses. Whilst undoubtedly such structures form part of our national heritage, their funding should not be instead of that of science.

We live on a little planet hurtling through space kept alive by a remarkable life support system entirely dependent on plants and fungi.

By all measures we are likely to have destroyed 40% of the components of this life support system by 2050 unless we act now. Are we about to fire the most important mechanics of spaceship earth when nearly half its components have or are about to fail? No one would be willing to fly in an aircraft in such a state.

We urge you to provide a clear steer to Government that the skills at Kew must not be lost and indeed should be developed.

REFERENCE

December 2014
Correspondence submitted by Lindsay Hounslow (KEW050)

I am a medical herbalist and college instructor in Canada. I visited the UK this past summer. The Kew gardens was a key highlight and in fact one of main reasons I came to the UK. It is an incredible education and research facility and is of great value in the world today. I saddens me to hear that future of Kew is in question. I hope that my input may be added to many others locally and globally who are in favour of supporting the continuation of this beautiful and valuable resource.

December 2014

Correspondence submitted by Karl Soop (KEW051)

I learn with dismay about the dismissal of Dr Paul Kirk, mycologist at Kew. Kew has a long reputation of integrity and expertise on a global scale, looked up to by mycologists like me, active outside the UK, as a scientific fortress one could always depend on. It now appears that mycology at Kew is slowly degrading, and along it Index Fungorum, a resource consulted daily by many of us.

Mycology must be re-established at a level commensurate with that of Botany at Kew. Without fungi there would be no plants, and their beneficial aspects to mankind and to Nature are too many and too well-known to enumerate. Moreover, fungi are less explored than plants, with huge quantities of species waiting to be discovered, which makes the preserving and cataloguing efforts at Kew all the more important.

In the hope that the upcoming meeting of the Science and Technology Committee will decide positively on the decisive and massive boost for Mycology it deserves.

December 2014

Correspondence submitted by David Minter, President of the International Society for Fungal Conservation (KEW052)

I am writing to you about next Wednesday's evidence hearing on the future of Kew Gardens. In particular, I wish to draw your attention to mycology at Kew.

Mycology is the branch of biology devoted to fungi. It is different from botany. Fungi are not animals or plants. They belong in a totally different biological kingdom which has been recognized for over fifty years. Many scientists believe the fungal kingdom, when fully explored, will be found to contain many more species than the plant kingdom. Fungi are not a small "side show": they are essential for life on this planet.

They provide key ecosystem services: where plants produce and animals consume, fungi recycle. Without fungi, forests could not exist, nor agricultural crops, nor farm animals. Fungi are critically important for sustainability and resilience. They provide the checks and balances of the world's ecosystems, and that includes freshwater and the oceans.

Penicillin and many other major pharmaceuticals are derived from fungi.
Alcoholic and carbonated drinks, bread, cheese and chocolate, to name but a few, depend on fungi. Bluntly put, no fungi means no life.

The Chair of your Committee, Andrew Miller, is quoted in your announcement as saying "Kew Gardens is a Heritage Site and world-renowned centre for botanical research". His words typify the way Kew's globally recognized work with fungi has been totally overlooked: "world renowned centre for botanical AND MYCOLOGICAL research" would have been more accurate. The absence of mycology from the present debate about the future of the Gardens is all the more amazing given that the UK's national collection of fungi, perhaps the largest single collection of fungi on the planet, and of international cultural and scientific importance, is located in Kew. It is therefore a matter of great concern that the list of witnesses being called to the Committee meeting in Kew next Wednesday includes botanists, ecologists and zoologists, but does not include a voice for mycology. In political terms, this is equivalent to making decisions about the UK by consulting the English, Irish and Welsh, but ignoring the Scots.

A voice is needed for the fungi because the present budget gap has impacted not only on the botanical work at Kew, but also on its mycological work, and the impact has been very severe indeed. The internal re-organization provoked by Kew's current crisis has resulted in mycology at the Gardens losing its separate identity. New and different teams have been set up defined by function as viewed from a botanical standpoint. The few mycologists remaining after job losses are to be redistributed, scattered, throughout some, but not all of those teams. As a result, for example, fungi will not be represented in Kew's conservation section, while IndexFungorum, arguably the world's most important on-line mycological resource is in danger of being completely lost to the Gardens.

I urge you to seek additional evidence from mycological witnesses, to recognize that Kew's fungal collections are part of what makes the Gardens a pioneering institution and a National Heritage site, and to affirm that Kew's work with fungi is a pivotal component of the Gardens' world class research status.

December 2014

Correspondence submitted by the British Lichen Society (KEW0053)

The decline of professional taxonomy in the UK has had a major impact on the British Lichen Society (BLS) over the last few years. The society, founded in 1958 to encourage the study and conservation of lichens and now with almost 700 members in Britain and overseas, makes a major contribution to lichenology worldwide. The BLS works with both amateur and professional lichenologists in delivering its aims and raises public awareness of the importance of lichens, including as indicators of the quality of our environment.

Specialists in academic posts, with their in-depth knowledge and active involvement in current research, play a key role in supporting the work of the BLS and other national scientific societies, and the number of these experts has already been greatly reduced. In the BLS we rely heavily on Kew in maintaining the scientific integrity of our operations, as Kew remains one of the very few UK organizations able to provide the support we need.

This is particularly important as our knowledge of fungi and lichens in the UK remains very incomplete. Species new to Britain, and to science itself, are being discovered on a regular basis and we still have much to learn about the more common species and their role in our ecosystems. At present there is an emphasis on plant pathology, while the vital role of fungi and lichens in maintaining the health of ecosystems, and their potential as sources of antibiotics and other products, are being overlooked.
Taxonomy is fundamental to research in the life sciences, and at a time of environmental change we need accurate taxonomic data to inform the conservation of rare species and important lichen habitats in Britain, Europe and world-wide. Although enthusiastic amateurs and citizen scientists have an important role to play in recognising and recording lichens, without the taxonomic expertise of organisations such as Kew their work can only be of limited value. Although some positions in mycology and lichenology have so far been protected during the science restructuring at Kew, we remain concerned that institutional expertise at a national level is now being further eroded.

There is an urgent need for a long term strategy for mycology at Kew to abate the long term decline in its international reputation. A particular concern is that Kew no longer has a viable support mechanism in its new science structure for Index Fungorum, the global names index for fungi (including lichens), which until now has been maintained by a member of Kew scientific staff.

Taxonomy is going through a period of rapid change, influenced largely by molecular studies, and the oversight and guidance of professionals is imperative for the accurate and consistent application of data. However, modern external funding models usually focus on novel innovative science and it can be almost impossible to then get the funding needed to build on these projects and it put them to use. That falls to volunteers to complete. Societies such as the BLS can help with this but our resources are very limited, and a strategic approach to supporting ongoing taxonomic work is needed.

Kew scientists in our area of concern do not currently have an explicit remit to support volunteer science in the UK. They have recently been successful in attracting some external funding for this purpose, but we would welcome a clearer indication that relevant staff will be encouraged to support the BLS and other specialist scientific societies through the provision of taxonomic information, training and involvement in other activities.

We would also like to see more active collaboration between Kew and other UK taxonomic institutions with lichen interests, particularly the Natural History Museum and the Royal Botanic Garden, Edinburgh. All of these organizations are coping with major financial challenges, and science posts seem largely to be filled by those most able to attract external funding. This leads to gaps in expertise and even to duplication of posts. We would welcome an overview, to explore the potential for a new collaborative model across institutions, for the support of mycology and lichenology with shared data and staff resources.

We urge you to provide a clear steer to Government that the skills at Kew must not be lost and indeed should be developed, in national and international contexts. The world still looks to Kew as a leader in taxonomy, not least its role and responsibility to lichenology.

December 2014

Correspondence submitted by Dr Gareth Wyn Griffith (KEW0054)

I am a mycologist at Aberystwyth University, prompted to write to you having heard news last week of the drastic implications of the restructuring at RBG Kew on fungal biology.

The news in early December of the break up of the Mycology section (after more than 130 years of existence) was deeply disturbing, suggesting that mycology is viewed as an optional add-on to botany, rather than a distinct discipline relating to a important Kingdom of organisms.
More worrying still was news last Friday that Dr. Paul Kirk is to be made redundant. Dr. Kirk is creator of Index Fungorum, the international system for naming fungi and other important resources for fungal systematics. I, and many other mycologists globally, use the indexfungorum.com website daily to check the list of valid names for Fungi and to register the names of new Fungi. The loss of this system is an international embarrassment to RBG Kew and will greatly impede the work of myself and many other scientists.

I believe that these changes have been imposed by people who do not understand the importance of taxonomy and who have failed to take advice from the international experts as to the importance role played by the mycology section at RBG Kew.

Perhaps the STC will have a few minutes to explore Professor Willis’ knowledge and awareness of fungal taxonomy by asking her (1) what role RBG Kew plays in the naming of new fungi and (2) to summarise the key implications on the naming of Fungi of the Melbourne Code (the recent modifications to the International Code of Nomenclature for algae, fungi, and plants in 2011).

The recent recession affected many countries in Europe but no others have resorted to such savage cuts to their scientific infrastructure. In seeking to minimize the effect of these cuts on plant biology, those responsible at RBG Kew have done great damage to mycology and the international reputation of British science.

A recent article and front cover of Science, the world’s premier scientific journal. Indexfungorum, mentioned therein, was fundamental to this major study.\(^3\)

*December 2014*

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**Correspondence submitted by Slavomír Adamčík (KEW0055)**

I am senior researcher currently employed at the Slovak Academy of Sciences in Bratislava (Slovakia). The main topic of my research is systematics of fungi. I know the Royal Botanic Gardens Kew as one of the internationally most important institutions concerning research in mycology. It manages probably the most important collections of fungal type and authentic material in Europe and worldwide. It also administers the online database of fungal names (Index Fungorum) whose creator Dr. Paul Kirk, was recently honoured with the first European Mycological Association award for this outstanding contribution to mycology. This is one of several good examples of efficient research provided by the staff of the Mycology Department at Kew.

The proposed budget reduction and consecutive job losses may have not only tragic consequences resulting in decline of mycological and biological research in United Kingdom, but very negative impact for development of biological sciences in Europe. This happens in the time when natural sciences encounter decline of financial support in favour of economically more important science disciplines. I fear of reaction of European politicians, the decline of such a core research institution as Royal Botanical Gardens Kew may encourage them to follow this unfortunate example.

*December 2014*

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\(^3\) http://www.sciencemag.org/content/346/6213/1256688.abstract
I am writing to ensure that even the perhaps lesser known important activities of Kew research are considered. When talking about Kew it is easy to focus simply on plants. However, it must not be forgotten that every plant on the planet is intimately associated with fungi as mutualist, mycorrhizal symbionts with their roots, and with endophytes within their above and below ground tissues. Fungi are also the main recyclers, releasing nutrients from dead organic matter for continued plant growth. Without the fungi, plants would not be successful, and so it is essential to consider plants hand-in-hand with their fungal partners.

Kew has internationally renowned fungal biologists. It is the home of some of the few remaining fungal taxonomists in the UK, as well as to fungal conservation scientists and mycorrhizal experts. It has a rich tradition of excellent research, and operates the Fungarium, Index Fungorum, Species Fungorum, Checklist of British & Irish Basidiomycota, and British Fungi Database and UK & Ireland checklist. These tools are used not only by UK scientists, but also by very many mycologists worldwide. The British Fungi Database, with its long time-series of fruiting records, is being used to determine effects of climate change on fungi, and has already resulted in publications in high impact factor journals.

Although the UK has several fungal biologists who are amongst the world leaders in this area of research, it is already inadequately endowed with mycologists to meet the country’s needs, and to continue as a prime mover on the international scene. Any cuts to Kew mycology would exacerbate this problem. It would seem wise to have: (1) an international (i.e. with a good proportion of non-UK members) scientific steering committee (including mycologists as well as plant biologists) to guide research direction at Kew (not just a single director who decides all); (2) a 10-20 yr plan for how mycology develops at Kew.

December 2014

I write to call for an end to threatened cuts to the jobs of scientists and support staff at Kew.

This must be the most short-sighted proposal ever and is like selling the family silver. It is unwise and imprudent as it makes a supposedly short term gain at the cost of long term sustained benefit. When such scientists are forced to leave and research teams are broken up, a huge knowledge base and the potential for new discoveries will be lost to the nation, to our future commonweal and the health of the entire planet.

Plants are basic both to our survival and our success as a society. We face many challenges in the future economically and in terms of future medicines and the knowledge and skills developed by Economic Botany team at Kew, for example, are critical to ensure we navigate such challenges successfully.

Moreover the scientists at Kew link up with others all over the world in many, many different ways that brings benefits not only for our planet but for Britain's success as a nation.

It is nothing less than a scandal that these cuts are being considered.

December 2014
Correspondence submitted by Lesley-Jane Powell (KEW058)

At this time, when we are so desperate for understanding of food plants and ecosystem structures, the reduction in Kew’s activities seems to be approaching recklessness.

It is very difficult to make the importance of plant focused research and the resulting education and dissemination of information relevant and comprehensible to lawyers and parliamentarians. Kew is such a vital centre for cooperation by other institutions in studies which will impact on all our lives and could open up new opportunities for meeting the demands of the increased population and the relentless aims of the emerging nations to improve the standard of living for their people. This a hub for international research and development in so many and various botanical enterprises.

Reduction in support for resourcing this pioneering institution, seems negligent and appears to ignore evidence of the importance of this world heritage site on the impact of Kew’s work and central role in so many plant related services.

Please consult experts in this field and consider all their evidence very carefully so that you do all you can to maintain the facilities and activities which spring out of the collections, records and experience garnered at Kew. You may not understand the importance of this work but please try to appreciate that those who do, appreciate and value the range and depth of the knowledge found at Kew and they should be heard and their evidence taken very seriously.

December 2014

Correspondence submitted by the Mycological Society of America (KEW0059)

I am writing in support of the research, outreach and training programs in Mycology at the Botanical Gardens Kew on behalf of the Executive Council of the Mycological Society of America and our membership. We are surprised that major reductions in scientific staff are being considered at Kew, especially in light of its worldwide importance in identification of fungi from around the world, the increasing threats from previously unrecognized plant pathogens, such as Chalara fraxinea that is causing Ash Dieback, and which spread from the Netherlands to the UK. Further, Kew Mycology collections and databases are critically important global resources.

We are concerned about the impact of proposed staff reductions in Kew Mycology on maintenance of the important database, Index Fungorum. The database provides critically important information on fungal names and synonyms that are needed for accurate communication and research on developing problems. That database cannot be maintained by a technician, as it requires years of nomenclatural and mycological training and experience to render correct decisions regarding these names.

Many members of our scientific society have spent weeks or months training, researching and collaborating with mycologists at Kew. It is clear from reading the letters submitted to your committee that many botanists have also spent weeks and months training, researching and collaborating at Kew. It would therefore be wise to consider the economic impact of reducing the scientific staff at Kew, as it would greatly reduce local income generated by the large number of visiting scholars from around the world.

December 2014
Correspondence submitted by Mycological Society of India (KEW060)

We humbly appeal the following:

"Royal Botanic Gardens, Kew and associated research institutes functioned as world focal points of plant and fungal conservation. We, the mycological fraternity in India, look at CABI Science (formerly, Commonwealth Mycological Institute), Kew, as the Mecca of mycology where not only stalwarts in fungal taxonomy worked and trained others from rest of the world but also continuously updated data on fungi in Index Fungorum. We earnestly urge that it should continue to function as a nodal point of mycology and all-out efforts should be made to encourage it to grow further. It is very worrying that it is not only mycology but botany in general going to suffer drastically with the government's decision to downsize RBG. Mycologists in India whole-heartedly support not only sustenance but even a further enhancement of facilities at Kew. The government should take an international outlook at Kew and not just a local one".

December 2014
Correspondence submitted by Joanne Taylor (KEW061)

I am writing to you prior to your meeting tomorrow at Kew Gardens for the Science and Technology Committee: Evidence hearing – One-off session on the Funding of the Royal Botanic Gardens, Kew on Wednesday 17 December.

1. I am dismayed to hear about the dismissal of Dr Paul Kirk. Myself and other mycologists see this as the management at Kew not appreciating how important Paul Kirk is, as an individual, to mycology globally; and not understanding the international importance of Kew as an institution for mycology.

2. We think this is part of a bigger picture where because mycology at Kew is inadequately understood, it is therefore under appreciated by the current management. Instead we would like the management to see the potential for Kew to be an important player in international mycology. However, instead there has been an attrition in mycological expertise at this institute.

3. In addition to this attrition, mycology at Kew, which should be stand alone (fungi are not plants), is being broken up, thus further lowering the profile of mycology at Kew.

4. There is a need for some sort of steering committee, consisting of world class scientists (including mycologists) to direct the management at Kew in how the future of mycology should be handled.

I would be grateful if you would take these concerns into account and hope that the outcome is positive for Kew and mycology.

December 2014
In our capacities as the Officers of the International Mycological Association, which represents the world's 30,000 mycologists, we are writing to express our concern about the effects that recent changes at the Royal Botanic Gardens, Kew may have on fungal research. Many mycologists of our generation spent formative days or weeks visiting Kew and benefiting from the world class scientific expertise and biological collections available. It has been very difficult for the international community to see the erosion of this expertise over the past two decades. Despite the regrettable financial difficulties, mycology cannot continue to decline at Kew.

Mycology is not 'Botany-Light'; it is a distinct science that addresses different threats and opportunities. We are shocked that a nation whose history is so intertwined with the effects of fungi, e.g., potato blight and the discovery of penicillin, would allow its Royal Botanical Garden to reduce fungal research at the exact time when modern methods allow biologists to assess the true diversity and impact of fungi in environments as disparate as the human gut and forest soil. Other G20 countries and the EU are increasing their investment in fungal research, e.g. the Netherlands (www.cbs.knaw.nl) and China (www.mycolab.org.cn).

Although widely known as a botanical institute, Kew's scientific legacy is equally central for mycology. The Kew Fungarium is one of the major fungal collections on the planet, and of enormous significance to modern science. The original specimens (types) of fungi described in the 19th and 20th centuries comprise a significant proportion of the backbone of the modern fungal systematics; they are constantly consulted by mycologists from all over the world, both for their morphological features and for the DNA that lies unexamined within (e.g. eLife 2013;2:e00731). The data locked in these specimens is invaluable for humanity and the vast majority of it remains unexplored.

Major fungal diseases and toxins continue to threaten food security around the globe. Forest diseases such as ash dieback are familiar to the general public in the UK. Crop diseases such as those caused by Fusarium, and the ensuing contamination by mycotoxins such as deoxynivalenol, may be less familiar to the public but are the focus of international food safety and quarantine regulations. The EU understands this and funded a Seventh Framework multinational Mycotoxin Reduction research and technology transfer network (mycored.eu) now being considered for renewal.

Although their detrimental effects are prominent, fungi are also critical for sustainable management of natural resources (e.g. biofertilizers to replace chemical fertilizers, biological control agents to replace chemical pesticides) and for reducing dependence on non-renewable resources (e.g. biofuels). Fungi are workhorses of the bioeconomy, producing vitamins (e.g. citric acid), enzymes used in biotech processes, and as single cell protein (e.g. Quorn or MycoProtein). The EU Bioeconomy Joint Task Initiative is now underway, with an action plan that partners public and private sectors to invest in research, innovation, infrastructure and skills development. Kew mycologists have a large role to play in this. In the Kew collections are fungi, new and old, with great potential to enhance agriculture, forest and human health. In those specimens and cultures are undiscovered genes and enzymes that can be used to develop new products and new industries.

We are concerned that mycology is not well represented in the senior levels of research management at Kew, and that opportunities are being missed that would greatly benefit the UK bioeconomy and international science. The international mycological community stands ready to assist or advise Kew to develop a long term strategy for fungal research, and ensure the exploitation and enhancement of its critical expertise, biological collections and vital data resources.

December 2014
I am very concerned with this continuous lack of interest and resources to Kew scientific team. With the increasing pressure on natural areas, destruction of habitats and climatic change, the cuts of DEFRA on Kew research looks like an incredible mistake. It is now that taxonomists are required to collect plants all over the world, identify, and classify to get the ones useful for humans or protect them from extinction. Without taxonomists, we will lose a vast biodiversity and services forever.

There is a serious concern that many current generations of taxonomists are retiring without being replaced. This is being exacerbated by the fact that the field of taxonomy appears without commercial value for the business community and politicians, which want earning with a short sight vision. This worst scenario is happening right now at Kew herbarium. In order to save money, the Director and Sc. Director are dismissing the most valuable of all the herbarium, their scientific staff.

Since September, Scientists at Kew had lost their jobs and reapply again in a restructuration. The fact is that there are fewer jobs than staff. Thus there will be about 125 scientific staff that will be dismissed. These scientists that have been working hard along several years to keep Kew at top of the research, are just being discharged because there is no money, and because in the new restructure it is better to have projects more commercially attractive.

The botanical taxonomists at Kew have given essential knowledge that contributes in many ways to the sustainability of our planet and is a pivotal for many hidden service used by people and climate change research.

Some examples:

- **Research on climatic change**: coffee plants will be affected by climate change, which is a crucial 20 million global industry that support the livelihoods of 25 million of farming families worldwide.
- **Food security**: to look for genetic diversity from wild relatives to make crops more resistant crops.
- **Facilitate botanical research in developing countries, through collaboration, training and capacity building**: A good example of this is the Great Green Wall Initiative in Africa, which aims to combat desertification in dryland areas and around the Sahara. UK doesn’t want immigrants arriving to Dover, if we don’t combat desertification, I am afraid more people will come to UK.

So if Kew staff has been working hard to address global climatic change, conserving biodiversity, helping developing countries, conserving biodiversity and our environment, I just cannot understand how DEFRA want to justify cuts in Kew.

The United Kingdom has always been a scientific powerhouse, and I believe there is currently a big political push to make sure we remain so. Kew is an easy win here. Even just bridging the £5M shortfall will ensure the continuation of Kew’s globally renowned research. Increasing funding will ensure we are top of this game and also send a clear message to the global community that this is something we are serious about.

Please let know to the politicians, the importance of botany and taxonomy on society and the world.

*December 2014*
Although I have little understanding for the financial cuts leading to the current dismissals at the Royal Botanic Gardens Kew, I will not bother you with a sermon about the merits of this flagship institution and its world-wide impact. I trust that you know all this better than a foreigner, and that you are also proud of the RBG Kew, as any British citizen should be.

The dismissal of Dr Paul M. Kirk, mycologist, is a drastic example. This unexpected measure is not only a demonstration of the general perception of mycology and fungi, which still seems to be as misleading, anachronistic and inadequate as ever. Mycology is widely viewed as an optional add-on to botany, not as a distinct discipline – which of course deserves an unquestionable position at the RBG Kew.

I would like to draw your attention to the following point:

Dr Kirk maintains the Index Fungorum, which is still the most important electronic resource for scientific names of fungi and for the literature involved. This database is a pivotal reference and backbone structure for many other databases world-wide, for instance also for our “Virtual Herbaria”, curated by a colleague in Vienna. To discontinue the Index Fungorum, or to conserve it at the status quo without further updates, will lead to countless problems in other fungal databases around the globe.

It would be interesting to know whether the Director and the Director of Science of the RBG Kew are aware of the future impact of this decision. In my opinion, Dr Kirk can hardly be dismissed, he should establish a suitable successor for the future maintenance of the Index Fungorum at Kew, and this will take a few more years.

Thank you for your attention, and please accept my apologies for addressing you so late.

Decembe 2014
I understand that the Science and Technology Committee, which you chair is conducting an evidence hearing tomorrow.

I wish to advise that the science of mycology at Kew is of paramount importance to the mycological community worldwide. I therefore endorse any initiative which will support that science base at one of the world's most prestigious institutions. Notably, Dr Paul Kirk is a pivotal force in mycology, being the initiator, executor and maintainer of Index Fungorum, the world reference for mycological nomenclature. I understand that he has recently been made redundant by the Kew Administration. In my opinion this reflects a gross underestimate of Kew's mycological importance.

Please exert your influence in the committee to restore the staffing in mycology at Kew to the level previous to the current cuts.

December 2014
Correspondence submitted by the Singapore Botanic Gardens (KEW066)

We in the international taxonomic community have been increasingly alarmed at the stories coming out of Kew about the priorities being set and the effect that these priorities will have on monographic and floristic work worldwide. Kew has long been seen as a bastion of basic taxonomic research whilst many other institutions (e.g. Naturalis in Leiden, Museum Nationale d’Histoire Naturelle in Paris) have gone down a path of devaluing taxonomic research due to viewing the Thomson-Reuters Impact Factor as the ultimate arbiter of the value of scientific research. Taxonomists and their enlightened allies have long argued that the Thomson-Reuters system views the value of research over much too short a time scale to appreciate the long term impact and value of taxonomic research and takes no account of the fact that all other branches of biology rely on taxonomic research without citing the original papers. Applying easy metrics to judge Kew’s work and the staff who have been performing that work is not only lazy but does a great disservice to tropical biodiversity research. Many talented taxonomists with balanced high impact papers and basic taxonomic research on which these papers rely but good taxonomists cannot compete with researchers in fashionable fields when judged by a system stacked against them. We fear that the current management of Kew does not understand the impact that this short-sighted restructuring will have on the international botanical community and the setbacks it will cause in biodiversity research in tropical regions such as Latin America if talented taxonomists are lost to biodiversity research. I would urge the current management to take into account the damage that is being done to RBG Kew’s international reputation and listen to the views of the experts in this field (starting with Kew’s own staff whose views seem to be being sidelined). They should also ensure that taxonomists are not lost to the Kew staff.

December 2014
The view that staff have been performing duplicated tasks exposed during the Parliamentary visit to Kew on Wednesday 17.12.2014 am is far from reality. In order to be effective in producing high quality plant science, including baseline disciplines such as plant taxonomy, we work in teams combining different researchers' expertise. In producing a checklist to support conservation of a protected area, we typically involve a generalist (a researcher that has a good understanding of the flora of the study site, be it in Africa, the Middle East, the Neotropics or Southeast Asia), as many as five specialists dealing with the largest families (daisies, grasses, beans, coffee family for example), a more technical person within our GIS unit that helps with georeferencing and vegetation mapping. All people involved play an important role in the research, generating not only a list but adding important and valuable collections to our herbarium, gene bank and living collections (to give some examples) and creating further opportunities for students (of all levels), contributing to other small and large-scale projects. This is a very simplistic explanation that does not take into account all the work prior to the project coming live (handling budget, obtaining, grants, collecting permits, signing MOUs) and after (caring for the collections, databasing, storing images where they can be easily accessed by the public, enriching our offer via our websites, publications).

I fail to see how this perceived notion of duplication of efforts matches the reality of what has been achieved by Kew, a scientific institution that enjoyed until now the utmost credibility, able to work in a suite of tropical countries in partnership and towards much needed conservation of natural resources.

Making redundant or redeploying highly unique and specialised scientists into different, less clear tasks is not going to help Kew produce better conservation. We should be concentrating our efforts rather than dispersing our expertise.

December 2014
We recently learned about a decrease of resources for mycological research at Royal Botanic Gardens, Kew and the termination of Dr. Paul Kirk’s employment. The resources at Kew may be thought of as a mycological Library of Alexandria, holding invaluable resources accumulated from numerous lifetimes of scholarly work. We and many other mycologists throughout the world use these resources including collections, especially Index Fungorum and Species Fungorum, frequently and any loss of these will negatively impact our ability to contribute in the field of mycology. We also note that it is critical that Index Fungorum and Species Fungorum be updated as mycologists transition to a one name per fungus system of classification.

Dr. Paul Kirk’s lifetime of work has benefited countless scientists as he has been at the forefront of taxonomy, nomenclature, and databases such as Index Fungorum and Species Fungorum that allow us to accurately use fungal names and classifications. Everything that is known about fungi is attached to these fungal names. The world’s mycologists’ ability to resolve the fungal tree of life and understand evolution, answer critical ecological questions, evaluate the impacts of environmental change on human welfare and major ecosystems, and respond to emerging and invasive fungal pathogens such as *Pseudogymnascus destructans*, the cause of white-nose syndrome of bats, relies upon the use of these fungal names. British mycology and science is general has maintained a world leadership position due to the contributions of Dr. Paul Kirk and other mycological personnel at Kew, and it is lamentable that circumstances may seriously, negatively impact this longstanding leadership position.

We are all too aware of the limitations of funding and shifting priorities, but we hope that Kew will be willing and able to continue to support mycology as much as possible. It is certainly more than worthwhile to maintain the mycological research being done there, especially the contributions of Dr. Kirk.

*December 2014*
Correspondence submitted by the British Mycological Society (BMS) (KEW0069)

1. Kew has a vital part to play in supporting mycology within the UK and globally. It is a global institution with a historic collection of both dried and living material and is used by researchers all over the world. It holds a repository of life which is vital in a world of diminishing biodiversity. It has the potential to undertake world-class, cutting-edge research providing good management, planning and adequate funding is in place.

2. The BMS welcomes modest increases in the mycology staff complement at Kew in the new staff structure, but is concerned whether Kew will be able to adequately discharge its responsibilities in relation to fungi if its core government funding is cut further. It is also concerned that the distribution of staff with responsibilities for fungal research into different departments within the new structure will lead to fragmentation of Kew’s work on fungi and dilution of its impact.

3. The BMS believes that Kew’s core obligations under law should be funded by government, and external funding be used only to fund additional activities. Short-term irregular funding streams are likely to result in a lack of long-term development and growth and poorly planned reactive behaviour.

4. Unfortunately we believe that the Kew funding issue is a reflection on the state of funding for taxonomic research in the UK. Research funding is relatively easy to obtain for innovations in science, but there is almost no comparable support for the use of innovatory research outputs to benefit the country. The UK has been criticised for losing the benefits of innovation by not translating them effectively to industry, but this is also true for the natural sciences. For example, it is relatively easy to gain funding for generation of the computer code that underlies a new electronic taxonomy system, but almost impossible to achieve support for populating the system with relevant existing data.

5. The UK Government has a commitment to the Convention on Biological Diversity, including the Global Strategy for Plant Conservation (GSPC). Plant Diversity Challenge, published in 2004 and with a progress review in 2014, sets out the UK’s response to the GSPC, and contains several actions relating to fungi. Kew is the only UK organisation with expertise to achieve these actions for fungi. Many of these actions rely on good baseline data, where Kew has a crucial role to play.

6. We are very concerned that Kew does not have a viable support mechanism in its new science structure for Index Fungorum (the global names index for fungi) and its satellite databases. In addition, to date it has not been possible for the organisation to host the UK national database for fungal recording. Kew is the obvious place in the UK to provide this support, and both Kew and the volunteer science movement would benefit from such an arrangement. This would provide valuable support for citizen-led science.

7. Kew should also lead on a range of other fungal conservation workstreams, such as updating the online Basidiomycota Checklist (25 new British species are added per year on average). This critical resource that contributes to GSPC targets is also not formally supported by Kew’s IT infrastructure, and is currently stored on a private domestic server. This resource is essential for preparing checklists for other fungi and developing Red Lists of threatened species.

8. The BMS recently wrote to Natural England and Natural Resources Wales to request the name of their senior mycologist; neither organisation had a mycologist at a senior level. Natural Resources Wales referred us to a non-specialist, who takes his advice from amateur mycologists and from Kew. Natural England said they were looking to recruit someone but we are unsure at what level. We therefore see Kew as the last bastion for advice on mycological systematics, taxonomy and conservation; however, none of the mycology staff have support for UK scientific societies specifically written into their job descriptions. Field biology is now almost exclusively a subject
studied and supported by citizen science, and expert professional help is badly needed – especially in historically less-studied areas such as mycology.

9. Natural England recently (April 2014) withdrew their support for advice and other work undertaken by Kew which covered, to some extent, their lack of an in-house fungal specialist. They also rejected Kew bids to implement actions for the 61 rare and threatened fungi listed on Section 41 of the 2006 Natural Environment and Rural Communities Act throughout 2013 and 2014. We are concerned that England’s "priority fungi" are being neglected, and recommend that Kew should have an expanding role in taking action in relation to “Section 41” fungi as they are the only national agency with the expertise to do this.

10. Increasingly, baseline mycological survey work for national agencies and other organisations is being done by a limited number of amateurs. Many biodiversity management decisions are being made on the basis of ill-informed and incomplete understanding of mycological diversity and the fundamental role of fungi within ecosystems. The BMS has attempted to train up amateur fungal taxonomists in workshop and field events; the limited number of fungal taxonomists at Kew has meant increasingly we have to draw on the expertise for training from mainland Europe. We would be keen for Kew to provide more training for citizen scientists, especially in modern taxonomic methods and conservation assessment.

December 2014
I write regarding the House of Commons Science and Technology Committee hearing on 17 December 2014.

I did not write before the hearing because as a current staff member, the restructuring and ‘post-restructuring’ periods have seen upheaval and trauma to individuals that have prevented clear thought.

Having read the correspondence relating to the evidence received until now, I realise that a cohesive argument is being made that gives me hope that we might protect what remains of what was the best botanic gardens and herbarium in the world.

My major concern for the future that is not much addressed in material already submitted is for the heritage contained within Kew, in particular the herbarium. The Kew herbarium is an immense collection of dried collections begun by Victorian naturalists such as Joseph Hooker and George Bentham, containing specimens from a multitude of historical events such as the opening of the Egyptian pyramids, British commercialisation of bread fruit and rubber, the voyages of Joseph Banks and Charles Darwin, amongst others. The Kew herbarium contains between 7-8 million specimens of which c. 250,000 are Types, irreplaceable specimens linked uniquely to the names of plants that underpin the way humans classify life.

The herbarium collection is housed in a purpose built building, rich in history, rich in botanical history, much of which was developed here in the UK by the likes of Banks, Bentham, Hooker, Darwin, Henslow and many others. The stories of all of these individuals and events are implicated still in the herbarium and library at Kew as much in the collections and library as in the buildings themselves.

From what has been announced in and around the current restructure at Kew are plans to label the herbarium building as ‘unfit for purpose’ to ‘justify its footprint financially’ and to use it for other purposes than to house the internationally recognised most important herbarium in the world. The misjudgement of such events should not need to be described here. The potential loss to UK science, its capacity to lead all fields concerned with understanding life on earth and conservation as well as to answer future biodiversity crises will be massively reduced. Any plan to relocate or digitise (or both) the herbarium collections to save money, fly in the face of any wish or need by the people of the UK to protect, nurture and retain heritage built in the ‘hey-day’ of British Natural History and beyond.

While I realise that the damage done by the current restructuring is probably irreversible, protection of UK science infrastructure, heritage and capacity from future financial cuts and pressures should be an absolute priority.

(Name & address supplied)

*December 2014*