

# Royal Botanic Gardens, Kew

## World Heritage Site Management Plan

2014





# Royal Botanic Gardens, Kew

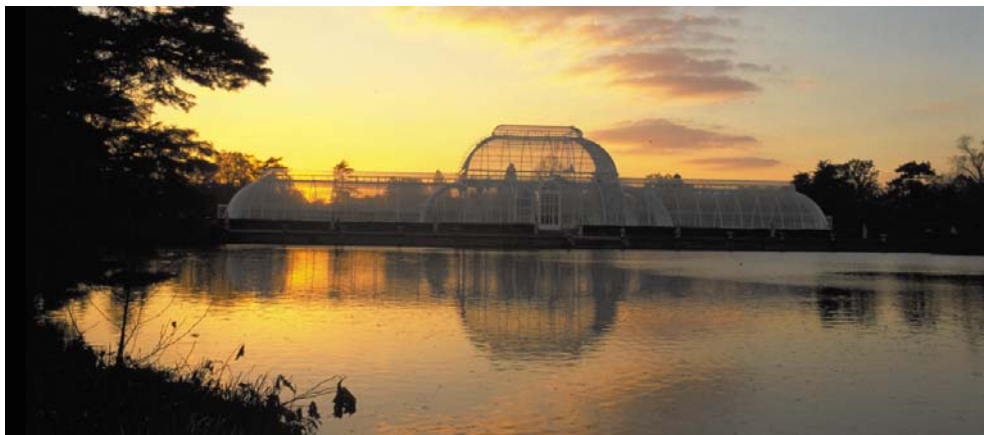
## World Heritage Site Management Plan

### 2014

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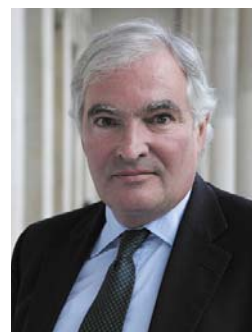


# Foreword



By John Penrose, Minister for Tourism and Heritage, Department for Culture, Media and Sport; and

Lord Henley, Parliamentary Under-Secretary of State for Natural Environment and Fisheries, Department for Environment, Food and Rural Affairs.



We are delighted to present this revised Management Plan for the Royal Botanic Gardens, Kew World Heritage Site.

Since its founding in 1759, the Royal Botanic Gardens, Kew has been at the forefront of garden and landscape design. Its botanical collections are the envy of the world and its pioneering research shaped the development of science in much of the world and continues to do so today.

Buildings such as the Palm House, the Temperate House and the Davies Alpine House provide a magnificent backdrop for the plants and Kew has more than 40 protected buildings of special architectural interest. The 132 hectares are looked after by staff trained at Kew and receive more than 1.3 million visits each year.

The partners involved in managing the site have exemplified the UK's commitment to the World Heritage Convention, not least their acclaimed education programme which caters for all ages, and Kew's Breathing Planet programme with its emphasis on biodiversity, conservation, education and sustainability which has helped raise awareness of the fragility of our environment. The work Kew is doing in partnership with other countries is helping to combat global challenges by rescuing, reviving and restoring the world's plant life.

Looking ahead, the new Management Plan will unite with the long-term Strategic Landscape Master Plan to form the blueprint for managing the World Heritage Site over the next 5 years. Adherence to the Management Plan will help to protect the Royal Botanical Gardens and its setting for us and future generations.

The Government is accountable to UNESCO and the wider international community for the future conservation and preservation of this important site. This is a responsibility that we take seriously. We have developed new national policies for the protection of World Heritage Sites through the planning system and this Management Plan embodies those ideals.

We are particularly grateful to all those bodies and individuals who have worked so hard to produce this Management Plan, in particular the members of the World Heritage Site Steering Group.

The Management Plan provides an invaluable tool for those involved in the continuing protection, conservation and presentation of this very special place, and we are delighted to give it our endorsement.

John Penrose

Lord Henley



# Executive Summary

World Heritage Sites are places of Outstanding Universal Value recognised as such under the terms of the 1972 UNESCO World Heritage Convention. The Royal Botanic Gardens, Kew was inscribed as a WHS in 2003. This inscription is a reflection of Kew's prominence as a botanic garden that has remained true to its original purpose.

The Outstanding Universal Value (OUV) of Kew Gardens comprises:

- a rich and diverse historic cultural landscape providing a palimpsest of landscape design;
- an iconic architectural legacy;
- globally important preserved and living plant collections;
- a horticultural heritage of keynote species and collections;
- key contributions to developments in plant science and plant taxonomy.

The primary purpose of the Kew World Heritage Site Management Plan is to set out a framework for the management of the WHS to ensure conservation of its OUV and continued sustainable use, and the continued maintenance of its heritage whilst also introducing new displays, facilities and interpretation representing the role of Kew Gardens in the 21st century.

The Statement of Outstanding Universal Value is the basis for the future protection and management of the property (UNESCO 2008). The Statement of Outstanding Universal Value for Kew was approved by the World Heritage Committee in 2010 and is as follows:

## **Royal Botanic Gardens, Kew, United Kingdom of Great Britain and Northern Ireland**

Inscribed 2003 Id. N° 1084

### **Brief synthesis**

Set amongst a series of parks and estates along the River Thames' south-western reaches, this historic landscape garden includes work by internationally renowned landscape architects Bridgeman, Kent, Chambers, Capability Brown and Nesfield illustrating significant periods in garden design from the 18th to the 20th centuries. The gardens house extensive botanic collections (conserved plants, living plants and documents) that have been considerably enriched through the centuries. Since their creation in 1759, the gardens have made a significant and uninterrupted contribution to the study of plant diversity, plant systematics and economic botany.

The landscape design of Kew Botanic Gardens, their buildings and plant collections combine to form a unique testimony to developments in garden art and botanical science that were subsequently diffused around the world. The 18th century English landscape garden concept was adopted in Europe and Kew's influence in horticulture, plant classification and economic botany spread internationally from the time of Joseph Banks' directorship in the 1770s. As the focus of a growing level of botanic activity, the mid 19th century garden, which overlays earlier royal landscape gardens is centred on two large iron framed glasshouses – the Palm House and the Temperate House that became models for conservatories around the world. Elements of the 18th and 19th century layers including the Orangery, Queen Charlotte's Cottage; the folly temples;

Rhododendron Dell, boundary ha-ha; garden vistas to William Chambers' pagoda and Syon Park House; iron framed glasshouses; ornamental lakes and ponds; herbarium and plant collections convey the history of the Gardens' development from royal retreat and pleasure garden to national botanical and horticultural garden before becoming a modern institution of conservation ecology in the 20th century.

Criterion (ii): Since the 18th century, the Botanic Gardens of Kew have been closely associated with scientific and economic exchanges established throughout the world in the field of botany, and this is reflected in the richness of its collections. The landscape and architectural features of the Gardens reflect considerable artistic influences both with regard to the European continent and to more distant regions;

Criterion (iii): Kew Gardens have largely contributed to advances in many scientific disciplines, particularly botany and ecology;

Criterion (iv): The landscape gardens and the edifices created by celebrated artists such as Charles Bridgeman, William Kent, Lancelot 'Capability' Brown and William Chambers reflect the beginning of movements which were to have international influence;

### **Integrity (2009)**

The boundary of the property contains the elements that bear witness to the history of the development of the landscape gardens and Kew Gardens' uninterrupted role as national botanic garden and centre of plant research. These elements, which express the Outstanding Universal Value, remain intact. The Buffer Zone contains the focus of one of the garden vistas on the opposite bank of the Thames River – Syon Park House - together with other parts of the adjacent cultural landscape (Old Deer Park - a royal estate south of Kew Gardens, Syon Park on the opposite bank of the Thames, the river from Isleworth Ferry Gate to Kew Bridge, the historic centre of Kew Green with the adjacent buildings and the church, and then to the east, the built-up sectors of 19th and 20th century houses). Development outside this Buffer Zone may threaten the setting of the property.

### **Authenticity (2009)**

Since their creation in the 18th century Kew Gardens have remained faithful to their initial purpose with botanists continuing to collect specimens and exchange expertise internationally. The collections of living and stored material are used by scholars all over the world.

The 44 listed buildings are monuments of the past, and reflect the stylistic expressions of various periods. They retain their authenticity in terms of design, materials and functions. Only a few buildings are being used for a purpose different from that originally intended (the Orangery now houses a restaurant). Unlike the works of architecture, in each of the landscaped garden areas, the past, present and future are so closely interwoven (except in the case of vestigial gardens created by significant artists, such as the vistas), that it is sometimes difficult to separate the artistic achievements of the past in terms of the landscape design of the different periods. Recent projects such as recutting Nessfield's beds behind the Palm House have started to interpret and draw attention to the earlier landscapes created by Capability Brown and Nessfield. Other projects are proposed in the overall landscape management plan subject to resourcing.

## **Protection and management requirements (2009)**

The property includes the Royal Botanic Gardens of Kew, Kew Palace and Queen Charlotte's Cottage, which are the hereditary property of Queen Elizabeth II and are managed for conservation purposes by the Royal Botanic Gardens of Kew and Historic Royal Palaces.

The property is included in a conservation area designated by the London Borough of Richmond upon Thames. Part of the Buffer Zone is protected by a conservation area in the London Borough of Hounslow. Forty four buildings and structures situated on the site have been listed under the Listed Buildings and Conservation Areas Act 1990 as buildings of special architectural and historical interest. The whole site is Grade I on the English Heritage Register of Park and Gardens of Special Historic Interest. In England permission to carry out works or change functions is subject to the approval of the local authorities, who consult English Heritage in the case of listed buildings and conservation areas.

Protection of the property and the Buffer Zone is provided by development plans in the planning systems of the London Boroughs of Richmond upon Thames and Hounslow and by the London Plan (the Regional Spatial Strategy) and by designation.

Kew Gardens' conservation work has continued at an international level, notably for the cataloguing of species, supporting conservation projects around the world, the implementation of the Convention on International Trade in Endangered Species (CITES, 1975) and the Convention on Biological Diversity (CBD, 1992).

The property has a World Heritage Site Management Plan, a Property Conservation Plan, and a Master Plan. Implementation of the Management Plan is coordinated by the Royal Botanic Gardens, Kew. The World Heritage Site Management Plan is currently being revised alongside a specific landscape master plan.

At the time of inscription the World Heritage Committee encouraged the State Party to include on the staff of the Royal Botanic Gardens a landscape architect or other specialist qualified in the history of art and history in general, so that architectural conservation activities can be coordinated on-site. Landscape architects with experience of working in historic landscapes have been appointed to provide this advice."

(Approved in Brasilia 2010 by the World Heritage Committee)

## **Forward planning and strategic decision making**

To conserve Kew Gardens' OUV whilst developing the Gardens into a premier 21st century botanic garden with relevance to world-wide plant conservation requires forward planning and strategic decision making. At the time of inscription it was recognised that Kew Gardens would benefit from a long term strategic Landscape Master Plan. Such a plan has now been prepared in conjunction and in tandem with updating the original 2002 World Heritage Site Management Plan. The research undertaken as part of the Kew Landscape Master Plan has created new



understanding of the Gardens as a designed landscape as well as its unique contribution to plant collection, classification and botanical research as one of the world's pre-eminent botanical gardens. The Landscape Master Plan provides an overall, long term, vision for Kew Gardens. The plan creates a framework for the conservation and enhancement of the Gardens and will enable them to embrace new challenges and (long-term) opportunities. The World Heritage Site Management Plan brings the landscape vision forward and focuses upon a five year period to plan ahead effectively and prioritises a series of policies which can be developed into annual work plans.

### **Conservation combined with management of change**

Besides conservation of key historic attributes of Kew Garden's Outstanding Universal Value there is also the need for the successful management of change. At present Kew Gardens lacks spatial clarity, provides insufficient interpretation, does not optimise its unique riverside location and does not fully represent the changing role of a premier botanic garden in the 21st century.

The Landscape Master Plan will enhance the visitor experience within the Gardens through the provision of improved orientation, state of the art interpretation and high quality visitor facilities and services. The Landscape Master Plan and WHS Management Plan envisages Kew Gardens not as an object but a process. Changes will occur and will have to be responded to. This requires flexibility in approach and clarity of vision. One of the challenges facing Kew Gardens is to adapt and prepare for the effects of climate change. This could be done in an exemplary and creative manner which provides education for visitors and creates exiting opportunities for new displays.

The WHS Management Plan has five overarching objectives. These are:

- to **manage** the WHS so that its OUV is conserved and enhanced .
- to **facilitate** the Gardens to provide for innovative botanic research, horticultural display and interpretation in order to communicate the importance of plant diversity to the future of our planet; both on a global / national / regional and local level.
- to **interpret** the Gardens as a palimpsest of landscape design and changing attitudes and values in respect to its scientific program, collections and taxonomic display.
- to **outline** a sustainable approach to the future management of the whole WHS which aims to balance all values and needs, such as world heritage, scientific research, visitor experience, nature conservation and environmental education.
- to **identify** a phased programme of action that is achievable and flexible and will contribute to the conservation of the WHS; the understanding of its Outstanding Universal Value, and the improvement of the WHS for all those who visit, work in or live within its vicinity.

## **Landscape as key driver for the future of Kew**

Over the last decade a range of new capital projects has been successfully initiated and implemented to interpret Kew's OUV. Award winning designs like the Sackler Crossing, Xstrata Tree Top Walkway, Davies Alpine House and the Shirley Sherwood Gallery for Botanical Art have provided new visitor experiences. The extension of the Herbarium and the new Wolfson Wing of the Jodrell Laboratory provided additional space towards ongoing development of the scientific role of the Gardens. Such separate built projects will now become integrated within an overall vision of the Gardens as a coherent whole. The commissioning of the first comprehensive Landscape Master Plan since William Nesfield in the 1840s indicates a new emphasis and confidence on the landscape as a key driver for the future of Kew.

## **Vision for the future**

The landscape vision for Kew Gardens can be summarized as conserving and interpreting the layered history of the Kew Gardens' World Heritage Site in dialogue with a new contemporary layer representing the role of Kew Gardens in the 21st century.

Throughout its history Kew Gardens has represented innovative ideas regarding science, botany and the arts. This spirit of innovation should continue and create Kew Gardens' heritage of the future. The landscape should be used to look outwards, encourage public access, celebrate science, and deliver on Kew's contemporary mission – to inspire and deliver science based plant conservation worldwide, enhancing the quality of life. Kew's changing role from economic botany towards world-wide plant conservation, education and scientific research exemplifies Kew not as a monument of the past but as an active and dynamic scientific institution which provides direction and inspiration for the future.

Kew has re-formulated its mission statement and plant conservation programmes. The Director's Vision 2008-2011 introduced the concept of the Breathing Planet Programme combined with proposals for improved visitors' facilities. The "Breathing Planet Programme" (BPP) builds upon Kew's past and present range of activities, and re-formulates it within a new framework. The aim of the programme is to organise, focus and present Kew's work in an integrated and compelling way, and so to address more effectively some of the major environmental challenges that the world faces today. The BPP has seven main strategies, ranging from the science of plant and fungal diversity, through to conservation and sustainable use, to the public enjoyment and understanding of plant diversity.

## **Priorities**

Priorities for 2011-2016 can be categorised as:

- Conservation and enhancement of OUV
- Interpretation of OUV to the public
- Upkeep of the historic landscape framework and structure planting
- Prioritise the building maintenance programme with special priority to the Temperate House

- Communicate the Breathing Planet Programme with special priority to the Breathing Planet Walk
- Reinstatement of the relationship with the River Thames with special priority to a riverside garden at the (to be relocated) car park site
- Enhance the visitor experience with special reference to Victoria Gate
- Development and implementation of interpretation strategy

## Overarching Aims and Policies

The overarching aims of the WHS Management Plan and Action Plan are:

**Aim 1** - The Management Plan should be endorsed by those bodies and individuals responsible for its implementation as the framework for long term detailed decision making on the conservation and enhancement of the WHS and the maintenance of its Outstanding Universal Value, and its aims and policies should be incorporated into relevant planning guidance and policies.

*Policy 1a* - Government departments, agencies and other statutory bodies should formally endorse the Management Plan as the overarching document for the management of the site.

*Policy 1d* - Development which would impact adversely on the WHS, its Outstanding Universal Value or its setting should not be permitted.

**Aim 2** - The WHS boundary should ensure the integrity of the WHS is maintained by including all known significant landscape features and interrelationships relating to the attributes of the Site's outstanding universal value.

*Policy 2a* - A study into the appropriateness for extending the buffer zone boundary further into Brentford and its town centre Victorian canal network should be carried out in conjunction with LB Hounslow and appropriate recommendations should be made.

*Policy 2c* - Review the status of protection for significant sightlines and vistas which extend outside the World Heritage Buffer Zone but contribute towards the site's Outstanding Universal Value.

**Aim 3** - The Outstanding Universal Value (OUV) of the WHS should be sustained and enhanced through the conservation of the Site and the attributes that carry its OUV.

*Policy 3a* - The WHS should be managed to protect its attributor of Outstanding Universal Value, to protect their physical fabric, to improve and enhance their condition and to explain their significance.

*Policy 3b* - The condition and vulnerability of all listed buildings and key landscape features throughout the WHS should be reviewed regularly to guide future

management actions and priorities. Ensure that appropriate plans and strategies are in place to mitigate threats.

*Policy 3C* - The setting of listed buildings and key landscape features within the gardens and their interrelationships should be maintained and enhanced, with particular attention to the gardens overall spatial cohesion and WHS River Thames landscape settings.

*Policy 3I* - Risk management strategies should be kept under review and updated as necessary.

*Policy 3j* - A study of the possible impact of climate change should be carried out and appropriate strategies identified.

*Policy 3I* - Ensure that all uses, activities and developments within the WHS are undertaken in a sustainable manner and contribute towards the conservation or enhancement of OUV.

*Aim 4* - To interpret the OUV of the WHS, to increase understanding and conservation of the cultural assets and to promote the importance of the heritage resources for public enjoyment, education and research.

*Policy 4a* - Visitor management should be exemplary. 'Empowerment' of the visitor could create a more interactive experience and engagement with the Gardens.

*Policy 4e* - Enhance the visitor experience within the Gardens and achieve continuous levels of excellence through the provision of improved orientation, information and high quality visitor facilities and services without compromising the Outstanding Universal Value of the WHS.

*Aim 5* - Develop the facilities and resources needed to support RBGK's role as a world class centre for scientific research and biodiversity conservation.

*Policy 5a* - Ensure the long term conservation, survival and development of the collections that contribute to the Outstanding Universal Value of the Site through targeted growth, the continued development of appropriate conservation techniques, management regimes, storage facilities and horticultural practices.

*Aim 6* - Research should be encouraged and promoted to improve understanding of the archaeological, historic and environmental value of the WHS necessary for its appropriate management.

*Policy 6a* - Assess and interpret the heritage value of the Bentham & Hooker taxonomic lay-out of the living plant collection

*Policy 6b* - Further research into the underlying design relationships of the gardens within the River Thames Arcadian landscape could inform important information of the origin and development of the English landscape style

*Policy 6c* - Promote the important contribution RBGK scientific research can make to assess the impacts of climate change in respect to new UNESCO policies on WHSs and climate change.

**Aim 7** - Adequate resources should be provided for the management, conservation and monitoring of the WHS.

*Policy 7a* - Coordinate the implementation of the Management Plan and liaise with partners

*Policy 7b* - Review the governance of the WHS, including the composition and terms of reference of the WHS Committee and the Advisory Forum.

*Policy 7c* - Seek adequate funding for the WHS.

*Policy 7d* - Ensure regular monitoring of WHS.

## **Implementing the Plan**

The WHS Management Plan aims and policies will be achieved through a wide range of projects to be conceived, designed and implemented within the framework established by the Landscape Master Plan. Of importance is the integration and 'joined up' development with other evolving and emerging strategies such as those in respect of sustainability, visitor management, disability equality, etc.

The WHS Management Plan will become an operational document, to be used by Kew Gardens to inform policy decisions, to assist in planning capital and revenue expenditure, space planning, discussion with potential funding partners, preparation for applications for grant aid and guide annual work plans. The WHS Management Plan aims and policies can be achieved through a range of projects, ranging from capital projects to maintenance plans. The availability of funding will determine the rate of implementation. A clear sequence of project implementation will ensure that projects are not seen in isolation and operate in tandem. Projects which are interdependent are presented in distinct packages. Equally important is a certain flexibility to allow the plan to respond to successful bids and project sponsorships.

Not all aspects of the Landscape Master Plan / WHS Management Plan require additional capital funding and some can be achieved by prioritizing existing landscape management and maintenance programs. The provision of design guidelines will assist in creating an overall sense of coherence and identity. The landscape management of Kew Gardens will have an important role to contribute to the delivery of the landscape vision. The evolution of the living plant collection and safeguarding the Gardens' spatial structure demands a long term, process-orientated approach. Key plantations which provide spatial structure and shelterbelt within the gardens needs to be



gradually adapted to reflect appropriate tree species, age distribution, effect of climate change etc. Differentiated management regimes for various parts of the Gardens will provide an important tool to create distinct landscape character zones expressing a sequence from intensively maintained pleasure grounds to semi-natural woodland.

The Landscape Master Plan / WHS Management Plan highlights some essential short term priority projects in need for capital funding. This category of projects is identified as priority either to safeguard key attributes of World Heritage (Temperate House, Palm House and Pagoda), contributing to future revenue (refurbishment of Sir Joseph Banks Centre and new riverside restaurant) or to act as a catalyst in improving the current lack of interpretation and orientation (Victoria Gate / Digital Interpretation) and introducing Kew's global mission to the visitors of the Gardens.

A further category of projects is identified to be addressed when funds are available. The projects can be grouped into distinct packages to unlock future potential of specific areas within the Gardens. The area grouping of these projects promotes the notion that projects are not implemented in isolation but as a sequence of interrelated improvements. The capital funding for the separate projects will be promoted by a comprehensive fundraising campaign.

The Action Plan which concludes the WHS Management Plan provides the opportunity to monitor progress towards achieving the WHS Management Plan objectives to be reported at WHS Steering Group meetings. The Action Plan will need to be updated regularly during the lifetime of the Plan.



# Acknowledgements

The World Heritage Site Management Plan 2013 was prepared on behalf of the Royal Botanic Gardens, Kew by GROSS. MAX. Landscape Architects. The preparation of this plan was assisted by the World Heritage Site Steering Group, key stakeholders including English Heritage, Local Borough Councils of Richmond and Hounslow, Historic Royal Palaces and the Thames landscape Strategy who all have an interest in the management of the site. Acknowledgement must also be made to the previous Site Management Plan prepared by Chris Blandford Associates.

Within the Royal Botanic Gardens, Kew an internal Steering Group and Project Group oversaw the development of the plan to which many thanks are owed. A special mention must be made to Stuart Robbins for his research into the taxonomic layout of the plant collections. Finally for their input into the development of this plan a special thanks to:

Dr Nigel Taylor	-	Curator / Head of Horticulture and Public Experience – RBGK Project Manager
David Holroyd	-	Head of Estates
Tony Kirkham	-	Head of the Arboretum

GROSS. MAX. Landscape Architects  
March 2014.



## Part 1:



### THE MANAGEMENT PLAN AND THE SIGNIFICANCE OF THE ROYAL BOTANIC GARDEN KEW WORLD HERITAGE SITE





## 1.0 Function of a World Heritage Site Management Plan

### 1.1 The need for the Plan

- 1.1.1 World Heritage Sites are recognised as places of Outstanding Universal Value (OUV) under the terms of the 1972 UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage (the World Heritage Convention). By joining the Convention, the United Kingdom Government has undertaken to identify, protect, conserve, present and transmit such Sites to future generations (UNESCO 1972, Article 4). It is for each Government to decide how to fulfil these commitments. In England, this is done through the statutory spatial planning system, designation of specific assets, and the development of WHS Management Plans.
- 1.1.2 The Operational Guidelines for the Implementation of the World Heritage Convention (2012) say: “each nominated property should have an appropriate management plan or other management system which should specify how the OUV of a World Heritage Site should be preserved, preferably through participatory means. The purpose of such a management system is to ensure the effective protection of the site for present and future generations”. Since 1994 it has been UK Government policy that all UK World Heritage Sites should have Management Plans.
- 1.1.3 The 07/09 Circular on the Protection of World Heritage Sites (2009) and accompanying English Heritage guidance and the National Planning Policy Framework emphasise the need for comprehensive management plans based on a proper understanding of the OUV of the site. Such plans need to be developed in a consensual way, fully involving all interested parties including those responsible for managing, owning or administering the particular World Heritage Site.
- 1.1.4 All effective conservation is concerned with the successful management of change. Conserving the Site is fundamental but some change is inevitable if the Site is to respond to the needs of present-day society. This is especially of relevance to Kew Gardens, which as one of the world’s pre-eminent botanic gardens has an overarching mission in respect of conservation of plant biodiversity worldwide. Effective management of a WHS is therefore concerned with identification and promotion of change that will respect, conserve and enhance the Site and its OUV, and with the avoidance, modification or mitigation of changes that might damage them. It is also necessary to develop policies for the sustainable use of the site for the benefit of the local population and economy.
- 1.1.5 It is essential that all change is carefully planned and that competing uses are reconciled without compromising the overriding commitment to conserve the Site. WHS Management Plans are intended to resolve such potential conflicts and to achieve the appropriate balance between conservation, access and interpretation, the interests of the local community, and sustainable economic use of the Site. They must also be capable of being implemented within the means available to achieve this.
- 1.1.6 Kew was inscribed on to the World Heritage List in July 2003. The inscription acknowledges the Outstanding Universal Value of the Site resulting from its unique history, diverse

historic landscape, rich architectural legacy, unique botanic collections, position as one of the world's leading botanic gardens, and its scientific research and educational roles. As part of the nomination for inscription a World Heritage Site Management Plan was prepared by Chris Blandford Associates. The plan provided the framework for The Royal Botanic Gardens, Kew: Site Conservation Plan, which provides a more detailed analysis and policies focused primarily on the conservation of the physical environment of the Site. The Site Conservation Plan was complementary to the Conservation Plans being prepared by Historic Royal Palaces (HRP) for their properties within Kew Gardens. Together, the WHS Management Plan, Kew's Corporate Plan and the Site Conservation Plan provided the framework for sustainable management and evolution of the Site over the last 6 years and the latter plan continues to be relevant today.

- 1.1.7 The WHS Management Plan has been periodically reviewed. Much has been achieved at Kew since inscription as WHS, but some major objectives of the 2002 plan have as yet not been achieved. In 2008 Kew commissioned its first comprehensive Landscape Master Plan. This plan now provides the long term vision for the future management of the WHS.

## **1.2 The status of the Plan**

- 1.2.1 Within the UK, WHS Management Plans are recommended in Government planning guidance and their policies are a key material consideration in planning system. The 2002 Management Plan has however not been adopted as Supplementary Planning Guidance (SPG) by Richmond Borough Council or Hounslow Borough Council. Management Plans provide an advisory policy framework for guiding and influencing planned or potential management initiatives at a variety of scales and for different purposes. They depend for their effectiveness on consensus among the key stakeholders involved in the WHS and willingness on their part to work in partnership with these Plans. Once endorsed by English Heritage's World Heritage team as fit for purpose it is sent to the Department for Culture, Olympics, Media and Sport, who will send it onto the UNESCO World Heritage Centre for consideration.
- 1.2.2 The Management Plan brings together the policies and aspirations of a number of different bodies involved with the Kew WHS. At the same time, it sets out a management framework for the WHS. Individual stakeholders should use the Plan to influence their own strategic and action plans as these are reviewed and implemented over the life of this Management Plan. The Government has confirmed that the Management Plan will remain the overarching strategic document for the WHS.

## **1.3 The purpose of the Plan**

- 1.3.1 The primary purpose of the Management Plan is to sustain the Outstanding Universal Value of the WHS to ensure the effective protection, conservation, presentation and transmission of the WHS to present and future generations. The significance and value of the WHS is discussed further in section 3, but it is the OUV of the Site which makes it important in global terms for all humanity, and which is therefore the main focus of

and reason for the Plan. To sustain the OUV, it is necessary to manage all the attributes of OUV. Additionally, there is also a number of other aspects and values of the Site which need managing and/or improving: these are discussed in sections 3.3.4-3.3.9. 'Conservation' in the context of this Plan includes not only ensuring the physical survival of the site and its structures and/or the improvement of their condition, but also enhancing the visual character of their landscape setting, increasing biodiversity and improving the interpretation and understanding of the WHS as a landscape without parallel. Continued research into all aspects of the WHS will be fundamental to informing its appropriate future management.

1.3.2 In order to achieve the primary aim of protecting the WHS through the conservation of its OUV, this Plan provides an integrated approach to managing the WHS, where the needs of various stakeholders and of conserving elements of the WHS that have different values are recognised. Aims and policies for finding an appropriate balance are set out in Part 3.

1.3.3 In summary, the Management Plan has six overarching objectives. These are:

- to manage the WHS so that it and the attributes that carry its OUV are conserved and enhanced;
- to identify the current other values, needs and interests of the WHS;
- to outline a sustainable approach to the future management of the whole WHS which aims to balance all values and needs, such as scientific research and visitor attraction without compromising the OUV of the Site;
- the identification of the main issues affecting the WHS and of monitoring indicators for the WHS (Part 2);
- the Vision, aims (long-term), and policies (short to medium-term), addressing the management issues (Part 3);
- a detailed action plan for 2011-2016 (Part 4).

#### **1.4 The process of developing the Revised Plan and its links to the Kew Landscape Master Plan**

1.4.1 In October 2008 Kew commissioned GROSS. MAX Landscape Architects to assist with the design of a Landscape Master Plan for Kew Gardens.

1.4.2 The Landscape Master Plan provides an overall vision for Kew Gardens with long term aims looking forward 30 years. The vision and aims provide a long term continuum in which effective policies can be developed. The plan also outlines a series of distinct project proposals and a strategy for implementation.

1.4.3 The Landscape Master Plan vision is based upon reinforcing the (historic) landscape framework, articulating the Gardens' different landscape characters and introducing a new 21st century layer to express the changing role of Kew Gardens. The Landscape Master Plan will enhance the visitor experience within the Gardens through the provision of improved orientation, interpretation and high quality visitor facilities and services. Key catalysts for change projects focus upon the River Thames Frontage, Victoria Gateway

and the 'Breathing Planet Walk'; a new innovative garden circuit connecting the display of various plant communities under threat of global climate change.

- 1.4.4 In conjunction with the development of the Kew Landscape Master Plan this new, updated, World Heritage Site Management Plan has been prepared. The research undertaken as part of the Kew Landscape Master Plan has created new understanding of the Gardens as a designed landscape as well as its unique contribution to plant collection, classification and botanical research as one of the world's pre-eminent botanical gardens.
- 1.4.5 The World Heritage Site Management Plan incorporates the vision of the Landscape Master Plan and focuses upon a five year period to plan ahead effectively and prioritise a series of policies which can be developed in annual work plans.
- 1.4.6 A series of themed workshops as well presentations to staff and trustees informed the process, which was structured around regular project team and steering group meetings.
- 1.4.7 A first draft of the Plan was completed by GROSS. MAX in October 2009. This draft was prepared following feedback from the Kew WHS Steering Group and Kew's Corporate Executive (Corpex) [now the Executive Board] and adapted before the consultation draft was developed. Once agreed by the Kew WHS Steering Group, the plan was issued for public consultation for a full three months. Following completion of the public consultation, the Plan has been revised in the light of the responses. Once endorsed by the Secretary of State, the Plan will be forwarded to UNESCO's World Heritage Centre.

## **1.5 The Structure of the Plan**

- 1.5.1 The structure of the Plan comprises:
  - a description of the WHS and an assessment of its OUV, other values and character; its current management; the planning and policy context for the Site; and an assessment of the 2002 Plan (Part 1)
  - the identification of the main issues affecting the WHS and of monitoring indicators for the WHS (Part 2);
  - the Vision, aims (long-term), and policies (short to medium-term), addressing the management issues (Part 3);
  - a detailed action plan for 2011-2016 (Part 4).
- 1.5.2 Supporting information is provided at the end of the Plan as appendices, maps, facts and figures, definitions, etc.



## **1.6 Information sources**

- 1.6.1 The revision of the Management Plan has drawn on the data collected for the first WHS Management Plan prepared by Chris Blandford Associates.
- 1.6.2 The Plan has also drawn on other key documents, which have been published since 2000, including the works undertaken by Wilkinson Eyre Architects.
- 1.6.3 The History of Royal Botanic Gardens Kew (Desmond, R., 2007) has provided key documentation in respect of Kew's history.
- 1.6.5 The Wild Flora of Kew Gardens (Cope, T., 2009) provided new data in respect of the Gardens' changing wild flora.
- 1.6.4 The Thames Estuary Plan consultation paper and flood predictions, developed by the Environment Agency, have informed the plan.
- 1.6.5 The Independent Review of Kew carried out for Defra. The team who carried out this review consisted of Sir Neil Chalmers, Warden of Wadham College, Oxford and former Director of The Natural History Museum, London, together with three consultants: Mr. John Y. Brownlow, Director Noble Brownlow Associates (financial consultant); Professor Hugh Dickinson, Professor of Plant Sciences at the University of Oxford (science and education consultant); and Mr. Bruce Hellman (heritage and government relations consultant). The review started in August 2009 and the report was submitted at the end of January 2010.

## **2.0 Assessment of the 2002 World Heritage Site Management Plan**

### **2.1 Evaluation of the 2002 Management Plan**

#### ***Achievements***

- 2.1.1 The 2002 Management Plan has been a successful supporting document of an impressive series of capital investment projects which have conserved and enhanced Kew's OUV. Award winning projects like the Sackler Crossing, Xstrata Tree Top Walkway, Davies Alpine House and the Shirley Sherwood Gallery for Botanical Art have provided new visitor experiences. The extension of the Herbarium & Library and the new Wolfson Wing of the Jodrell Laboratory provided additional space towards ongoing development of the scientific importance of the gardens. Kew won the 2006 RIBA / Arts Council Client of the Year Award as well numerous Civic Trust Awards for its site planning and new buildings.
- 2.1.2 The WHS Management Plan raised the overall awareness of staff and stakeholders in respect of the history of the site, its OUV and provided informed knowledge regarding the long term management of the Gardens. A successful and ongoing re-planting of main vistas and Broad Walk has been initiated. Application of amelioration techniques to improve ground condition around the Garden's main heritage trees have resulted in significant improvement of new growth and extended lifespan of those trees. New irrigation facilities have also been installed.
- 2.1.3 Continuous and systematic update of topographic survey, plant records database and recording of archaeological data have contributed to a GIS database. The development of risk registers has provided a tool for risk management and decision making.
- 2.1.4 The educational programme has been successfully extended.

#### ***Challenges and objectives as yet not fulfilled***

- 2.1.5 Some policies and actions of the WHS Site Management Plan have as yet not been achieved. These include;
- Elements of the plan were not formally adopted as Supplementary Planning Guidance by the London Boroughs of Richmond upon Thames and Hounslow, however the 2009 adopted Brentford AAP makes reference to the WHS Buffer Zone, and Management plan.
  - Further inappropriate development has occurred / been granted planning permission within Brentford since 2003.
  - No significant improved relationship with the River Thames has been established.
  - No significant improvements in respect of site interpretation / orientation has been implemented.
  - No explicit strategy in respect of the Living Collection and ecological management has been formulated, but a plan for the management of the natural areas has been implemented.

- There has been a noted shortfall in buildings and infrastructure repairs, no individual site / building conservation plans have been developed.

- 2.1.6 The recognition of eight management zones of the original WHS Management Plan may have resulted in a too fragmented approach in respect of the overall composition of the Gardens and not provided a clear spatial framework for the ongoing (re)planting of Kew Gardens.
- 2.1.7 More in-depth (design) analysis of the historic transformations of the Gardens could inform its interpretation and inform key decisions in regards to the future vision of the Gardens.

## **2.2 Changes in knowledge since 2002**

- 2.2.1 Kew has re-formulated its mission statement and plant conservation programmes. The Director's Vision 2008-2011 introduced the concept of the Breathing Planet Programme combined with proposals for improved visitors' facilities. The "Breathing Planet Programme" (BPP) builds upon Kew's past and present range of activities, and re-formulates it within a new framework. The aim of the programme is to organise, focus and present Kew's work in an integrated and compelling way, and so to address more effectively some of the major environmental challenges that the world faces today. The BPP has seven main strategies, ranging from the science of plant and fungal diversity, through to conservation and sustainable use, to the public enjoyment and understanding of plant diversity.
- 2.2.2 The need to adapt the Gardens to the effects of climate change has become increasingly apparent. In recent years the Environment Agency has prepared new updated predictions in respect of flooding of the River Thames.
- 2.2.3 More information has been gathered and compiled in respect of the biodiversity of Kew Gardens including the publication of The Wild Flora of Kew Gardens (Cope, T., 2009).
- 2.2.4. New developments in digital media will provide new opportunities for state of the art interpretation. Kew has developed prototypes for digital plant labelling.
- 2.2.5 The Research undertaken for the Landscape Master Plan has created a new understanding of the Gardens as a designed landscape as well as its unique contribution to botanical display.

### 3.0 Description and significance of the World Heritage Site

#### 3.1 Location and boundary of the WHS and buffer zone

- 3.1.1 The Royal Botanic Gardens, Kew covers an area of 132 hectares and is situated in the London Borough of Richmond upon Thames, in southwest Greater London, United Kingdom. The grid reference is: N 51° 28 55.0, W 0° 17 38.5



Figure 1 - World Location



Figure 2 - United Kingdom Location

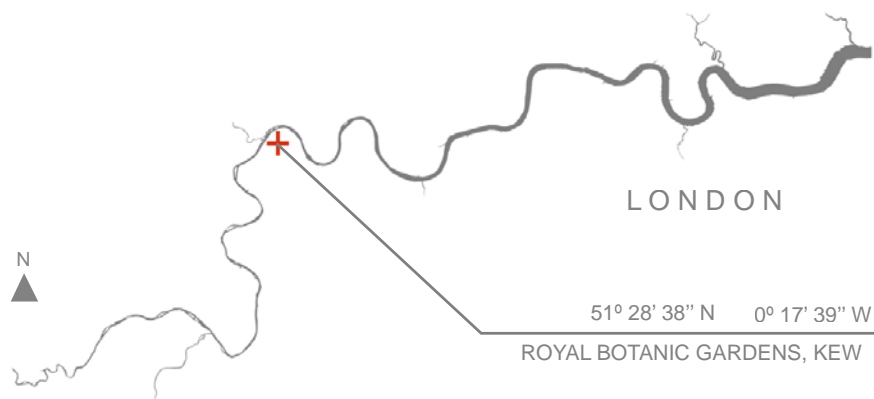


Figure 3 - London Location

3.1.2 The site boundary of the World Heritage Site aligns with the current administrative boundary of the Royal Botanic Gardens, Kew within which lie the Dutch House (also known as Kew Palace) and Queen Charlotte's Cottage, two properties under the care of Historic Royal Palaces. The boundary encompasses the entirety of the historic botanic gardens.

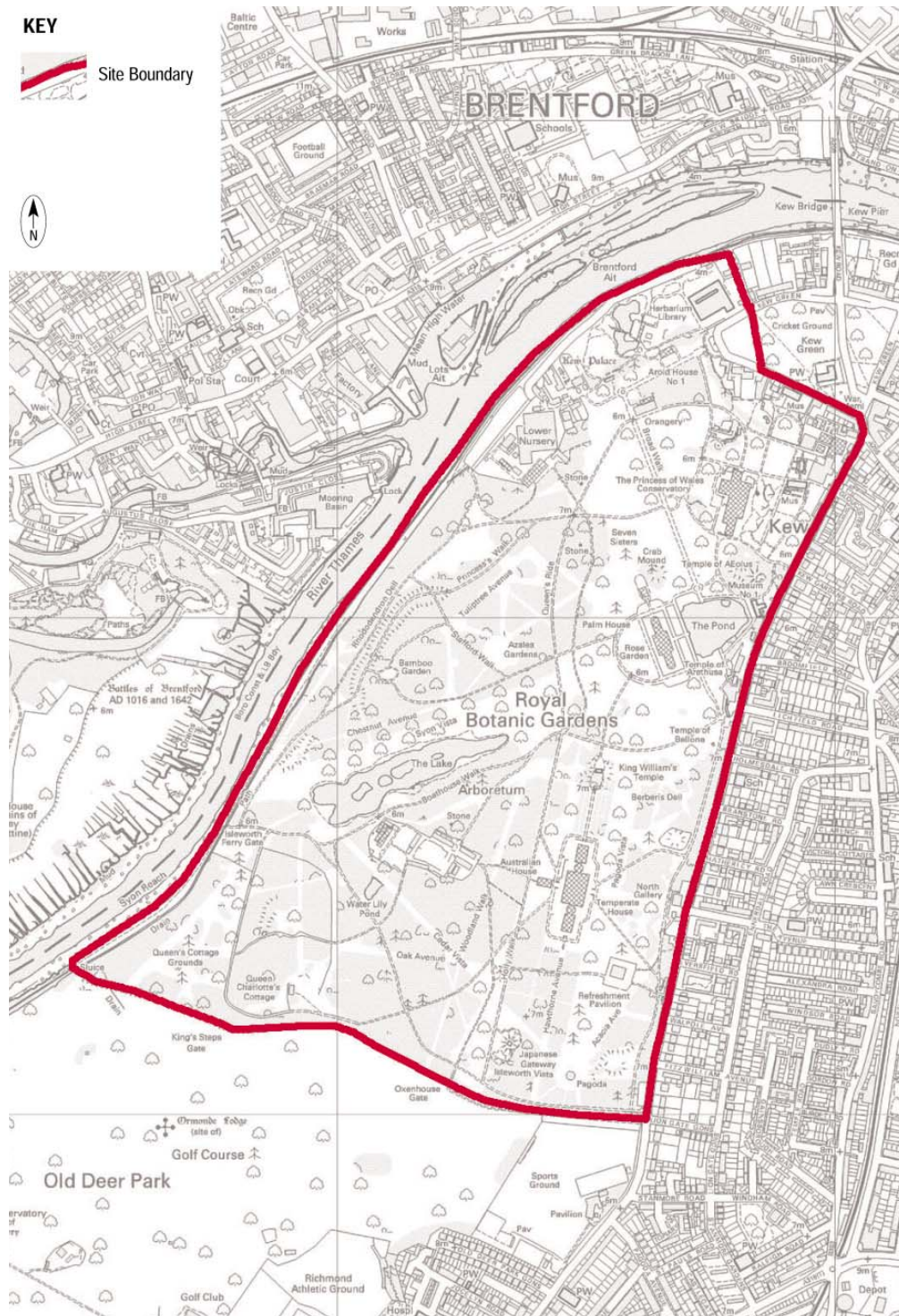


Figure 4 - Royal Botanic Gardens, Kew Site Boundary



- 3.1.3 The WHS Buffer Zone covers an area of 350 hectares and is located in the London Boroughs of Richmond upon Thames and Hounslow.
- 3.1.4 The buffer zone of the WHS comprises areas key to the protection of significant views in and out of Kew (e.g. Syon Park); land with strong historical relationships to Kew (e.g. The Old Deer Park, Kew Green); areas that have a bearing on the character and setting of the Gardens (e.g. the River Thames and its islands between Isleworth Ferry Gate and Kew Bridge).

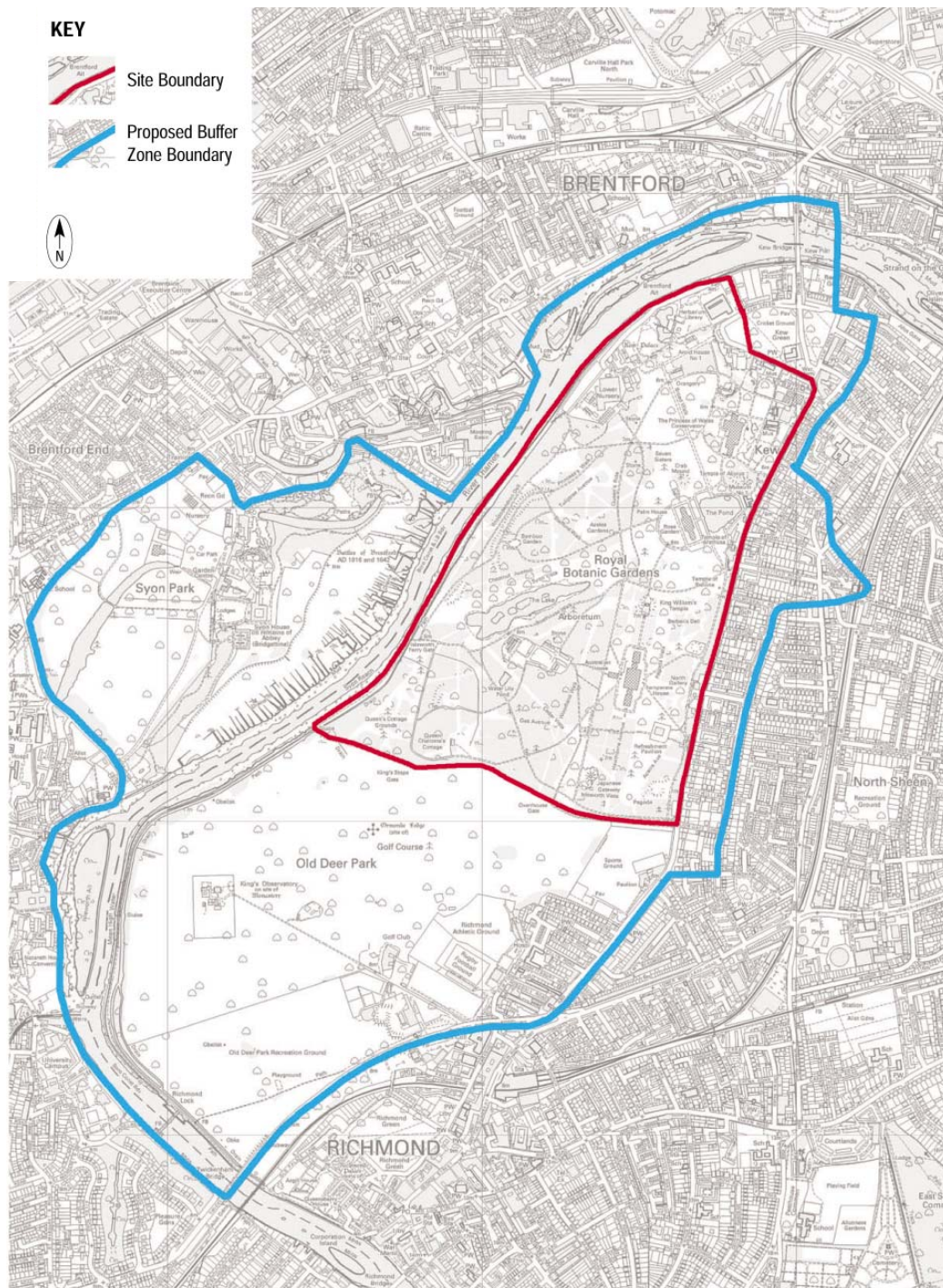


Figure 5 - Royal Botanic Gardens, Kew World Heritage Site Buffer Zone

## **3.2 Description of the World Heritage Site**

### **3.2.1 Brief description**

The UNESCO brief description of the World Heritage Site is:

“This historic landscape garden features elements that illustrate significant periods of the art of gardens from the 18th to the 20th centuries. The gardens house botanic collections (conserved plants, living plants and documents) that have been considerably enriched through the centuries. Since their creation in 1759, the gardens have made a significant and uninterrupted contribution to the study of plant diversity and economic botany”.

### **3.2.2 Cultural heritage of the WHS**

3.2.2.1 The Royal Botanic Gardens of Kew are situated along the south-western reaches of the River Thames, and are part of a picturesque series of parks, estates and urban centres. Kew Gardens illustrate significant periods in the art of garden design from the 18th to the 20th centuries. They house extensive botanic collections which have been considerably enriched through the centuries.

3.2.2.2 From the 18th to the early 19th century, the property was a place of retreat for the royal family. Internationally renowned landscape architects Charles Bridgeman, William Kent, William Chambers and Lancelot ‘Capability’ Brown remodelled the earlier baroque gardens in the 18th century to make a pastoral landscape in the English style.

3.2.2.3 The first botanic garden at Kew was founded in 1759. In the mid 19th century, Kew became the national Botanic Garden under the directorship of Sir William Hooker, the architect, and landscape gardener William Nesfield supervised the merging of several royal gardens which then became the focus of a growing level of botanic activity. Nesfield’s garden, which overlays the earlier landscape garden, is centred on two iron and glass houses, the Temperate House and Palm House, the latter designed by the architect Decimus Burton and engineer Richard Turner and, at the time of its construction, the largest in existence. The garden became the centre for study of native and exotic plants for economic purposes with plant researchers bringing back species from around the world. Kew published from 1885 onwards its Index Kewensis, an international reference for listing published generic and species names.

3.2.2.4 The parkland character of Kew is a combination of botanical garden, arboretum and woodland. Whilst the Garden incorporates a historic layering of styles, the predominant character is Victorian. The combination of corridor vistas and irregular pathways creates a complex lay-out.

3.2.2.5 Within this landscape are a number of iconic and historically significant buildings and glasshouses. Structures such as the Palm House and the Temperate House have international significance and form a fundamental component of the site’s identity and character. In addition to these there are many other highly interesting buildings including the Dutch House, the Pagoda and the School of Horticulture.

- 3.2.2.6 The Gardens have a rich and complex history stretching back hundreds of years. The Site was, from the mid-18th century to the mid-19th century, predominately occupied by two royal estates / landscape gardens. The eastern half of the Gardens was formerly Kew Gardens, a 'Chinoiserie' style 18th century landscape designed, in part, by William Chambers. It has a fairly open character with strong formal plantings and a naturalistic edge, intertwined with pathways and plantings of trees, all focused on the Pagoda. The western area is more naturalistic and dominated by a strong woodland canopy underlain by grass. This area was part of the 18th century Richmond Gardens, and subject to extensive landscaping under the direction of Charles Bridgeman, William Kent and 'Capability' Brown, all leading exponents of the English Landscape Garden style.
- 3.2.2.7 The northern part of the site was not included in either royal garden. This area consequently has a more varied character and is essentially a series of discrete spaces, including gardens or greenhouses, public and private buildings, all of which are centred on a large, open lawn.
- 3.2.2.8 Sir William Hooker, William Nesfield and Decimus Burton unified all these areas under one coherent landscape scheme beginning in the 1840s. They were also responsible for many of the other features now recognised as landmarks of the Gardens, such as the Palm House and its vistas and the taxonomic planting schemes for the trees. In essence the earlier Royal Gardens have supplied the basic character of today's landscape while Nesfield and Burton's design has supplied its enduring structure.
- 3.2.2.9 These historic landscapes were designed to accommodate visitors, and the World Heritage Site has a history of public access and formal visitor arrangements stretching back over 250 years. This long history has had a major influence on the development of the Gardens.
- 3.2.2.10 The scientific role of RBG, Kew (RBGK) has also been of fundamental importance to the development of the Site since about 1759 when the first botanic garden was established. The botanical role of the WHS Site grew rapidly after this date, and today the WHS remains an excellent living example of the rational and scientific approach to knowledge and learning that developed in Western Europe over the last 200 years.
- 3.2.2.11 The landscape character of the Gardens can be divided into the three zones; the original botanic garden, the arboretum and the woodland conservation area.
- 3.2.2.12 The core of the current botanic garden contains the honey-pot area around the Palm House and the two main entrance gates which are linked by the Broadwalk, the garden's main promenade. Besides the historic core of the Botanic collection a series of thematic gardens and glasshouses create distinct atmospheres and sequence of experiences. The tree collection is not based on taxonomic organisation but at random, not unlike the rare book collection of a library.
- 3.2.2.13 The arboretum is organised on a taxonomic grouping of trees and shrubs. The original Nesfield's 1845 drawing shows a careful integration of the taxonomic collection 'without materially altering the general features' [of the former royal estates]. Over the years the



extent of planting has reduced the openness and dissection of bold avenue planting creating corridor vistas which has created a reversed landscape character.

- 3.2.2.14 The conservation area can be characterised as semi-natural woodland character zone with predominantly native trees. This area contains Queen Charlotte's Cottage which was ceded by Queen Victoria to RBGK in 1898 on condition that the area should be maintained as a natural area.

### **3.3 Historic Development of RBGK**

- 3.3.1 Kew represents a palimpsest of successive layers of evolving and opposing landscape styles, a rational geometric matrix underlies the design and transformation of Richmond Gardens and Kew Gardens and the wider landscape beyond. This architectonic system connects the various designs of Bridgeman, Brown, Chambers and Nesfield not only within the site but also with the wider designed landscape beyond. The 'loci' of formal layering combined with the 'topos' of the natural landscape morphology creates the 'Genius Loci' of Kew Gardens until the present day.

#### ***Charles Bridgeman (1728-1738)***

- 3.3.2 Bridgeman's Richmond Garden, laid out in the 1720s and 1730s for Queen Caroline, represented the transition from formal axial baroque towards free flowing informal English landscape style. House, avenue and canal are set up in an orthogonal matrix and the principal axis extends toward the Thames. The formal system of a principal axis is flanked by contrasting woodland gardens containing serpentine walks and groves. The gardens incorporate agricultural fields. Horace Walpole observed that Bridgeman: 'dared to introduce cultivated fields, and even morsels of a forest appearance'. The riverside was formalized by a terrace which ran almost the whole length of the gardens along the River Thames. Various follies designed by William Kent incl. the Hermitage, Merlin's Cave and Rotunda (positioned on top of Bridgeman's Mount) added narrative and spectacle to the landscape theatre.
- 3.3.3 The design matrix of Richmond Gardens as designed by Bridgeman relates the formal design axis of the gardens to the landscape morphology of the meandering River Thames and the triangle between Richmond Lodge, Syon House and Isleworth Church across the river. The result is a topographic matrix creating a geometric synthesis between architecture, river and estate landscape. This approach is similar to Bridgeman's earlier work at Stowe. In both schemes Bridgeman transformed the estate's topography into an 'architectonic' triangle and integrated it into the formal organization of the garden.

#### ***Lancelot "Capability" Brown (1764-1773)***

- 3.3.4 'Capability' Brown radically altered the Royal Grounds of Richmond Garden. Commissioned by George III, Brown went against the spirit of Bridgeman's "ferme ornee" (ornamental farm) by endeavouring to hide any evidence of a grid culture. By removing avenues, extending the sweep and modulations of ground, replacing the elevated riverside terrace with Ha-ha and a riverside walk, regrouping of trees in clumps, groves and woods,

and above all, focusing on the sweeping line of the Thames as central element in the ensemble; Brown offered the ultimate vision of a perfected English scenery. Brown regarded the sweeping views across the expansive (deer) park as far more important than a sequential, varied and eclectic landscape garden.

- 3.3.5 The basis of Lancelot 'Capability' Brown's design lay in subscribing to the new emerging notions of beauty, movement and 'representative' natural forms. Brown's early career coincided with publications such as 'The Analysis of Beauty' by William Hogarth (1753) and the 'Philosophical Inquiry into the Origins of our Ideas of the Sublime and the Beautiful' by Edmund Burke (1756).
  
- 3.3.6 The serpentine line of beauty, smoothness, gradual variation as well the visual experience of movement and serenity all form the basic component of Brown's design style; not only in plan but also in the three dimensional sculpting of the land. Brown focussed on the physical and visual features of the natural landscape and gave it an abstract architectonic form. His park landscapes were 'picture planes' upon which the beauty of the natural landscape, stripped of distracting non essentials, was displayed. The meandering stretch of the river Thames itself represents the sinuous line of beauty par excellence.
  
- 3.3.7 Across the River Thames opposite Richmond Gardens Brown designed from around 1760, the landscape of Syon House for the Earl of Northumberland. The close relation of the two schemes made the River Thames not the edge but centre of an extended Arcadian vision. The alluvial flood plain of part of the deer park and Syon House, dotted with clumps of trees, are clearly distinct from the more, well drained, sand and gravel river terrace areas planted with woodland. The 18th century Lancelot Brown landscape transformation can be regarded as a stylistic interpretation of the natural lie of the land with the principal plantations on the relative higher grounds expressing the sinuous flow of the floodplain.
  
- 3.3.8 Brown's transformation of Bridgeman's garden, stylising the natural lie of the floodplain landscape, is principally opposed to an underlying geometric matrix. With the removal of the riverside terrace and principal axis of Richmond Lodge, Bridgeman's geometric matrix was dismantled and replaced by a composition of views and sinuous flows. The geometry of the main serpentine lines is derived from the radii of the circle.
  
- 3.3.9 The transformation of Richmond Gardens and its new visual association with the Thames were described by Arthur Young in 1771, who wrote; 'Richmond Gardens have been lately altered: the terrace and the grounds about it, are now converted into waving lawn that hangs to the river in a most beautiful manner; the old avenue is broken, and the whole clumped in some places with groves; in others with knots of trees, and a very judicious use is made of single ones: no traces of the avenue are to be seen, though many of the trees remain. The lawn waves in a very agreeable manner, the wood is so well managed, that the views of the river vary every moment, a gravel walk winds through it, which commands the most pleasing scenes.... A flock of sheep scattered about the slopes, add uncommonly to the beauty of the scene.'



Figure 6 - Kew Gardens, Surrey: Part of the Peter Burrell and Thomas Richardson survey of 1771.

### **William Chambers (1757-1763)**

3.3.10 During the second half of the 18th century the two adjoining gardens of Richmond and Kew can be read as opposing manifestos a battlefield of garden styles. Love Lane became the dividing line between the two most influential styles of gardening, soon to spread across Europe. In Peter Burrell's survey plan of 1771 we can examine Chambers' lay-out (1757-1763) for Kew Garden alongside Capability Brown's improvement for Richmond Gardens a decade later,

3.3.11 William Chambers would regard the 'stripped down' emerging landscape style of 'Capability' Brown as lacking in artistic merit and mere imitation of bland nature:

"In England ....a new manner is universally adopted, in which no appearance of art is tolerated, our gardens differ very little from common fields, so closely is common nature copied in most of them; there is generally so little variety in the objects, such a poverty of imagination, in the contrivance, and of art in the arrangement, that these compositions rather appear the offspring of chance than design; and a stranger is often at a loss to know whether he be walking in a meadow, or in a pleasure ground, made and kept at a very considerable expense; he sees nothing to amuse him, nothing to excite his curiosity, nor any thing to keep up his attention."

3.3.12 William Chambers' design, inspired by his travels to the Far East soon became a new exotic fashion across Europe known as the Anglo-Chinese garden. William Chambers' Kew Gardens is organised around a scenic circuit dictated by changing experience and designed for distraction and surprise. The visitor is taken on a route which will offer him surprises, unexpected turns, exotic pavilions; a variety of contrivances governed by the search for their painterly effects. The pleasure lies in allowing oneself to yield, to be influenced, confused or even intoxicated by the spatial experience. Overall Chambers added twenty buildings to the Kew landscape, many of them ephemeral.

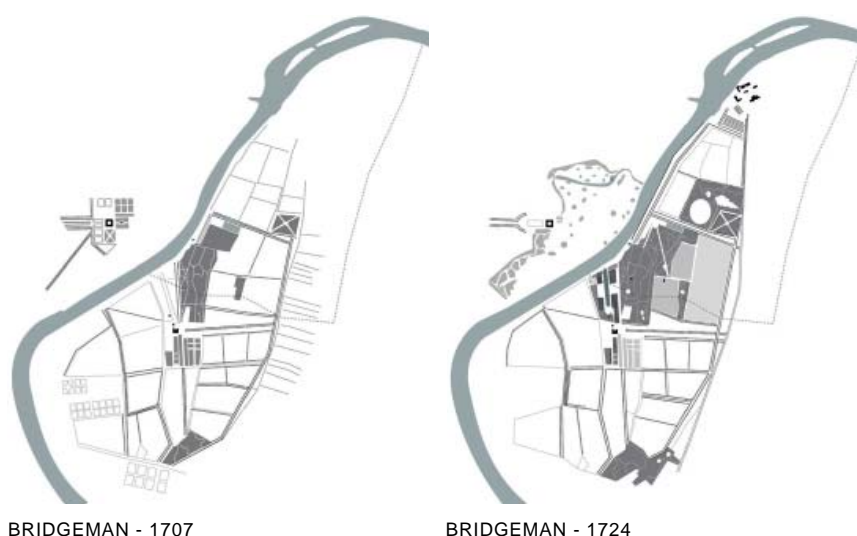


Figure 7 - The historic transformation of the Royal Botanic Gardens, Kew

- 3.3.13 Chambers' design for Kew Gardens expresses and articulates a narrative linking between botany / science, empire/ patriotism and culture / civilisation. The circuit path is carefully composed to provide a sequential emblematic journey of discovery and gradual unfolding of the multi-layered narrative of the garden. Only the periphery of the garden is planted with the central void of fields and lake assisting view lines across the vast expanse of space. Peripheral plantations served as a frame to the various buildings such as the Alhambra, Pagoda and Mosque – each partially screened from the next. Whilst Chambers proclaims the exotic, irregular and variety he arguably wilfully conceals the underlying classical principles of his garden design.
- 3.3.14 Within the William Chamber's designed Kew Gardens a series of 'horticultural enclosures' provided the formal setting of exotic flora, hot houses and the Great Stove as well exotic fauna of menageries and aviary.
- 3.3.15 William Chambers' design for Kew Gardens reveals a remarkable architectonic matrix; creating a coherent geometric relationship between the Pagoda, Temple of the Sun, Temple of Victory and the White House. The classical principle of the Golden Section and Dynamic Symmetry is applied throughout, from garden lay-out through the design of the individual follies. The most important line of this design matrix is between the Pagoda and the Temple of the Sun and the strategic position of the Temple of Victory. In the matrix numerous foci between the follies have been aligned in a combination of equilateral triangles and orthogonal grids. Circles drawn from a key position reveal a Newtonian constellation of follies orbiting in the garden's spatial picture plane.
- 3.3.16 The Pagoda not only forms a key landmark, but also provides an outlook which approximates 40 miles radius. The top floor contains eight windows orientated like a compass. The pagoda was originally surrounded by Cedars of Lebanon of which only one remains. Shrubberies surrounding the Pagoda formed a maze-like wilderness.



BROWN / CHAMBERS - 1746



NESFIELD - 1845



BURTON / HOOKER - 1885

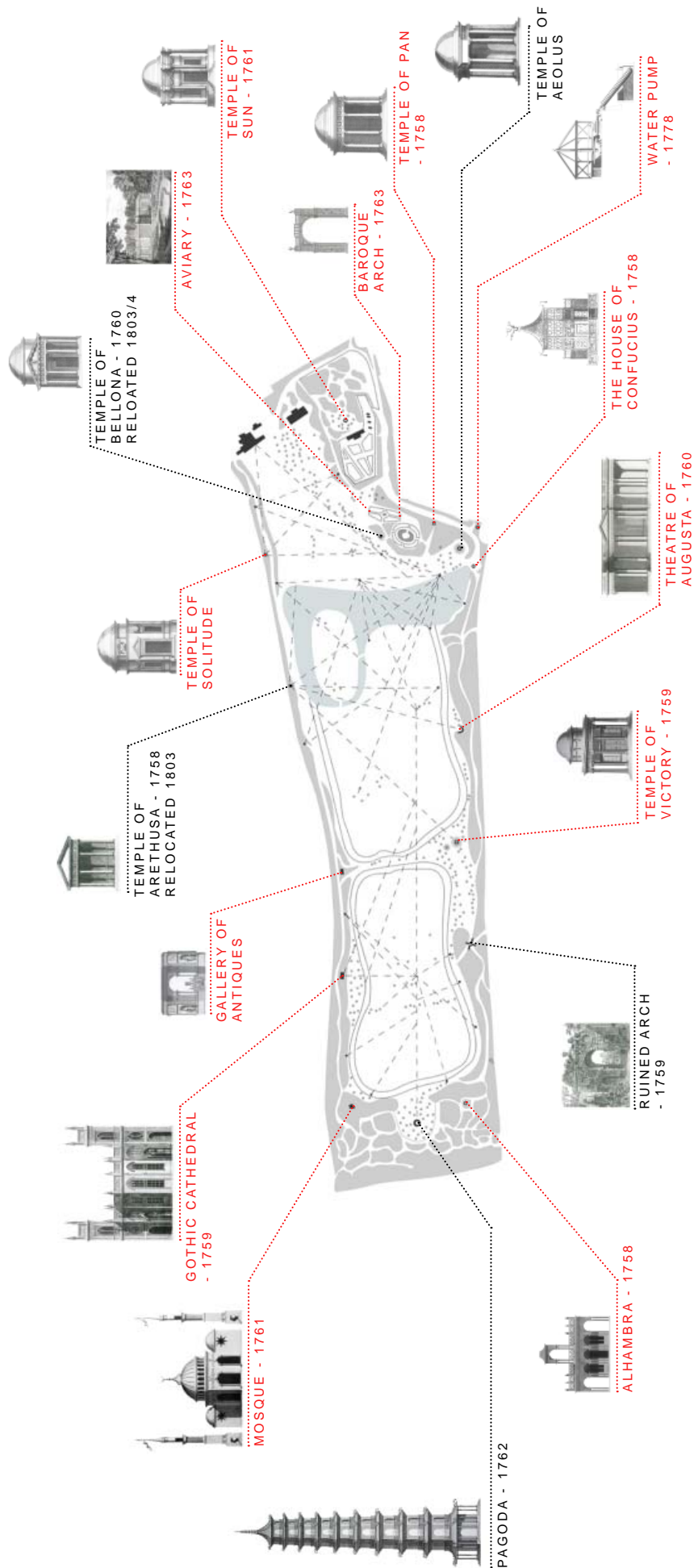


Figure 8 - Follies by William Chambers

- 3.3.17 The Temple of the Sun, located at the very heart of the original royal botanic garden contained signs of the zodiac and was inspired by the Temple of Venus as found in Baalbek, Lebanon. It was destroyed in the storm of 1916 by a falling Cedar of Lebanon planted alongside.

***William Nesfield (1844-1848)***

- 3.3.18 The challenge for William Nesfield was to spatially and functionally reunite the former dichotomy of Richmond and Kew gardens into a coherent composition ('pictorial arrangement') as well as to transform the former Royal Gardens into a National Arboretum based upon the latest taxonomic classification. Nesfield responded by creating broad masses and detached groups of trees in families with attention placed upon 'irregularity of outline' in order and on clear instruction by Hooker, to preserve a park-like character. The original design for the Arboretum is a careful adaptation of the original Brown / Bridgeman plantations of the former Richmond Garden.
- 3.3.19 In contrast to the irregular outline of the plantations, Nesfield created two great vistas from the west side of the Palm House, one south to the pagoda and the other towards the Thames near Syon House to be terminated by an obelisk. These two main vistas are carefully situated across two main voids, respectively the central lawns of Chambers' Kew Gardens and the openness between the woods in Brown's composition. A shorter vista to a Cedar of Lebanon was added and as such a goose foot or 'patte d'oie' was formed. This composition, devised in close collaboration with Burton, the architect of the Palm House, became the new foci of the Gardens' entire composition. The Palm House, a revolutionary construction for its time, creates a hemispherical figure form of glass roof, which was calculated as best for the admission of the sun's rays.
- 3.3.20 The achievement of Nesfield was to reconcile two separated gardens within one overriding geometric matrix as well as to create a new arboretum 'without materially altering the general feature' representing the latest scientific organisation of trees and shrubs and integration of architecture and landscape.

**3.4 Development of the botanical collections**

- 3.4.1 The first botanic garden at Kew was established by Princess Augusta and Lord Bute in 1759. Sir Joseph Banks began his involvement with the site in 1772 and continued until his death in 1820. The 9 acre site consisted of an Arboretum and Medicinal Garden. The arrangement of the plantings followed the Linnaean system. The Linnaean system was based on one of the major works of the Swedish botanist, zoologist and physician Carolus Linnaeus, the *Systema Naturae*. Published in 1735 it was one of the earliest classifications for flowering plants. The classification of the plant kingdom in *Systema Naturae* was an artificial system; it followed Linnaeus' new sexual system where species with the same number of stamens etc. were treated in the same group.
- 3.4.2 Over the intervening period between the death of Sir Joseph Banks in 1820 and the start of William Hooker's directorship in 1841, the garden was managed by the royal gardeners, W T Aiton and John Smith. Without scientific direction, the garden seriously declined and

was criticized for its lack of systematic arrangement of plants by a committee led by Dr. John Lindley (Chair of Botany, University College London), which was appointed to report on the state of Kew and examine its role as a Botanic Garden.

- 3.4.3 William Hooker was appointed Director of RBG Kew following Dr John Lindley's recommendation and was given free reign to re-organise and develop the Botanic Garden. William Hooker's systematic planting scheme for the Arboretum initiated a shift away from the "artificial" system of Linnaeus towards a classification system following de Candolle. This, in turn was based on the classification system proposed by Antoine Laurent de Jussieu, a French botanist, notable as the first to propose a natural classification of flowering plants.
- 3.4.4 In 1855 Joseph Hooker became assistant Director and George Bentham began his voluntary position. Together, they worked on 'Genera Plantarum', the basis for the Bentham-Hooker classification system. Joseph Hooker took over as Director in 1865, by which time, the de Candolle system had been superseded by the Bentham & Hooker system.
- 3.4.6 Darwin's *On the origin of Species*, published in 1859 revolutionised biological thinking. Once his theory was accepted, scientists began to look for evolutionary relationships between different groups of plants. The beginning of the 20th Century saw the emergence of new systems of classification based purely on evolutionary relationships, such as Engler and Prantl (1905) that are now known as phylogenetic systems. Even though the "natural" systems of de Candolle and Bentham & Hooker were found to be inadequate, the Bentham & Hooker system endured at Kew for over 150 years.
- 3.4.7 Recently Kew has broken away from the traditional classification system of Bentham-Hooker and has adopted a system based on molecular systematics. Recent advances in DNA gene sequencing (especially within the last 15 years) have provided a completely new avenue of systematic research and have changed the way we view classification. A modern synthesis of molecular studies is ongoing, yet a consensus is beginning to emerge. Combined work under an umbrella group known as the Angiosperm Phylogeny Group (APG) has produced a widely accepted evolutionary tree. Ongoing redevelopment of the Order Beds at Kew represents this most recent system of plant classification.



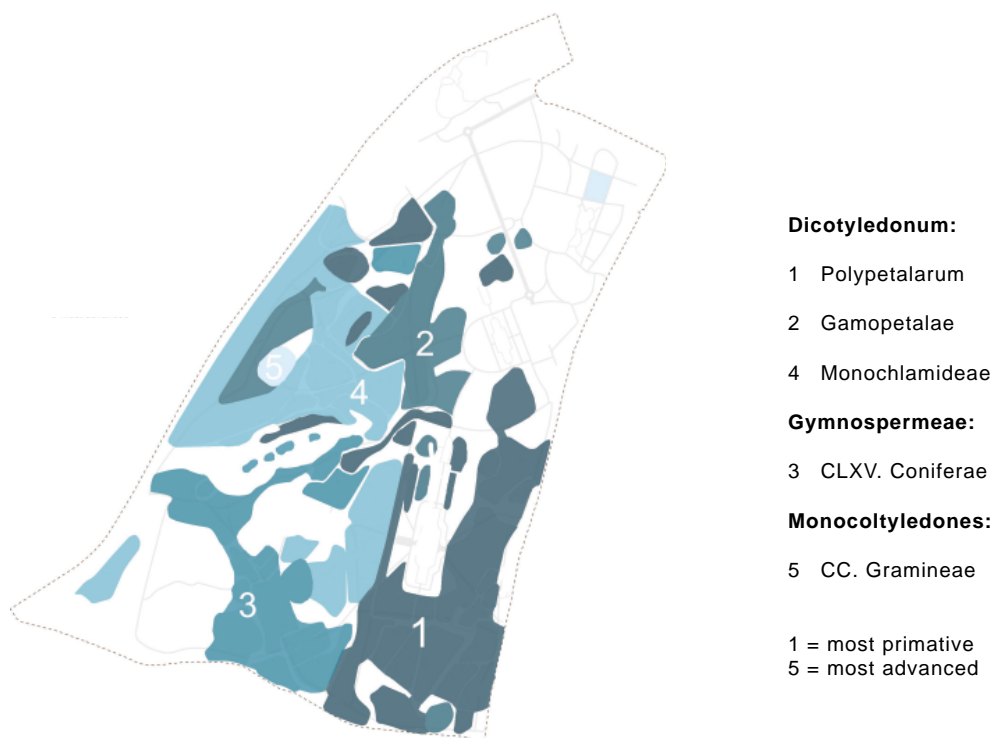


Figure 9 - Original Bentham-Hooker classification system within RBGK

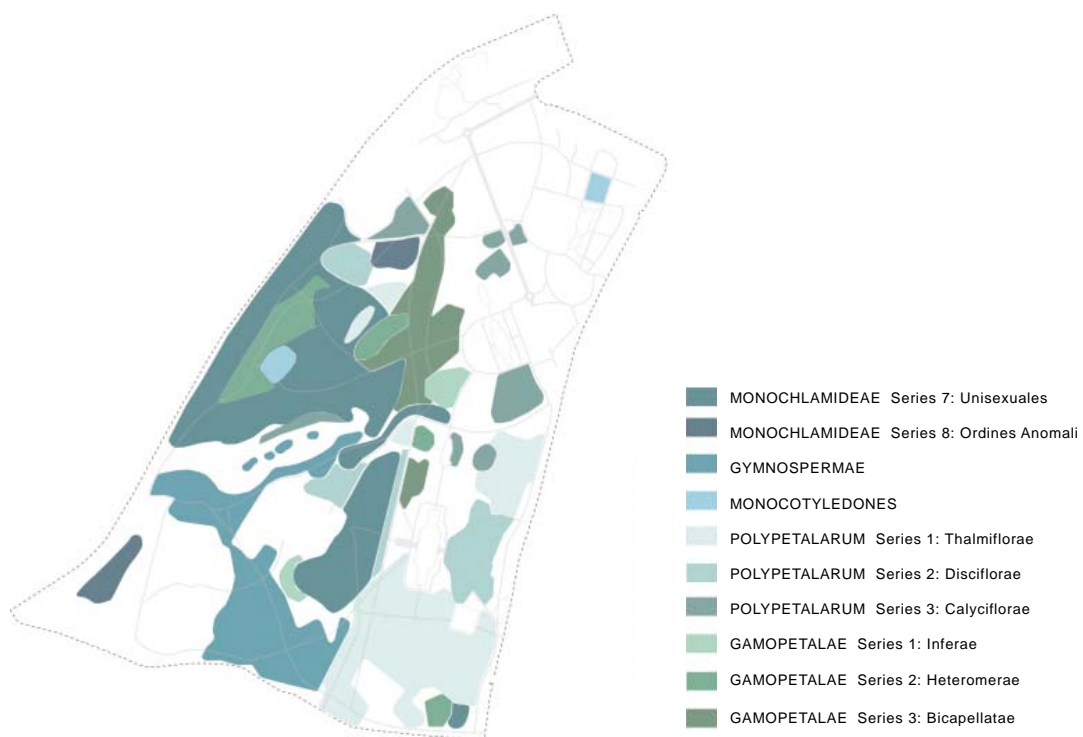
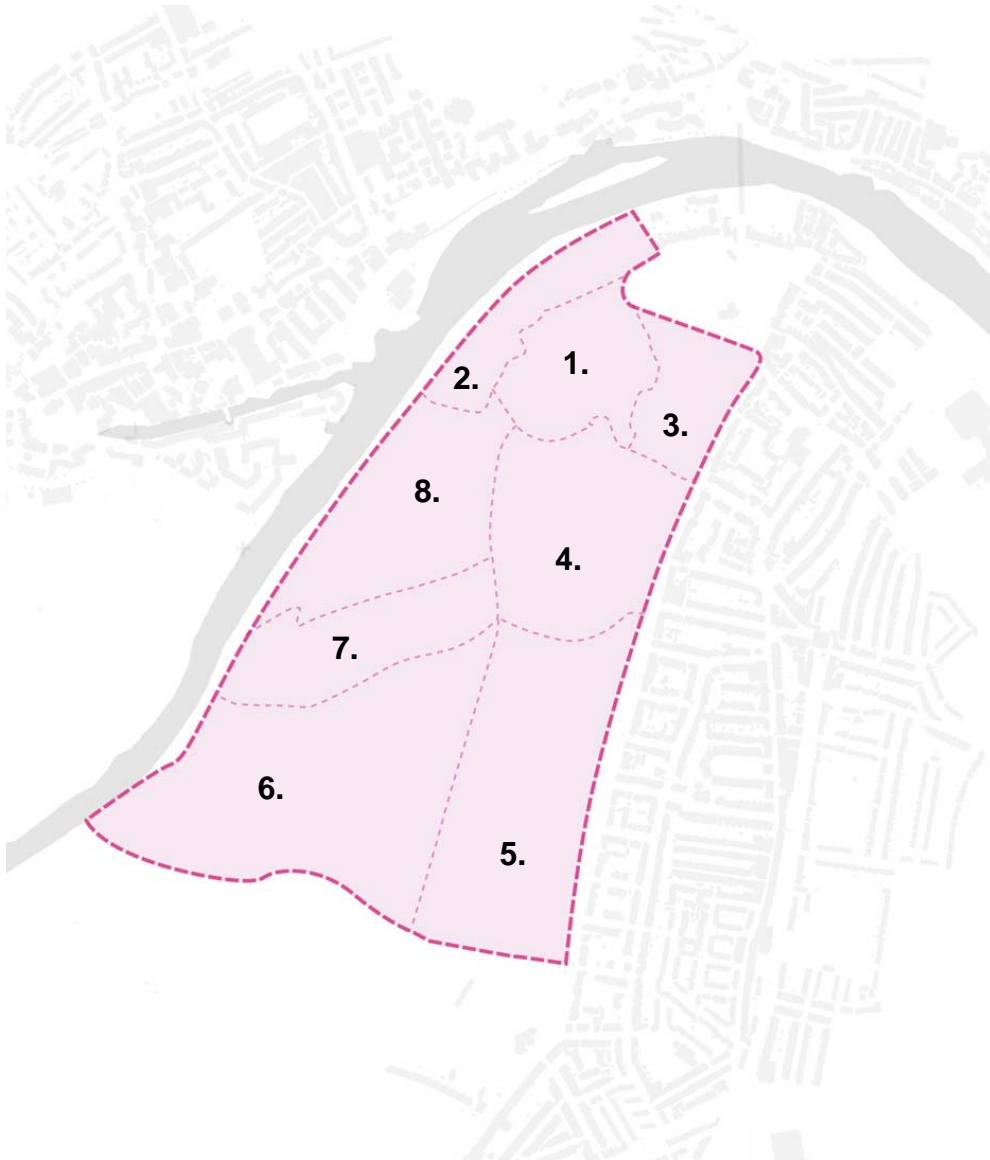


Figure 10 - Bentham-Hooker classification system present within RBGK 2010

### 3.5 Description of RBGK according to landscape character zones

3.5.1 The 2002 Management Plan identified and described a series of eight zones. The updated characteristics of these zones are described below.



1. Entrance zone
2. Riverside zone
3. North Eastern zone
4. Palm House zone
5. Pagoda Vista zone
6. South Western zone
7. Syon Vista zone
8. Western zone

Figure 11 - Landscape Character Zones

### ***Entrance Zone***

- 3.5.2 This zone historically contained three main areas: Kew Green, the White House and the original Botanic Gardens. Kew Green used to extend as far as the Dutch House where it intersected with Love Lane, which divided Kew Gardens from Richmond Gardens, and led to the Brentford Ferry. The original Botanic Gardens were founded in 1759 and grew to form a formal area of beds and a 9-acre arboretum. This is the core from which the current Royal Botanic Gardens, Kew developed. The White House (demolished 1802) was the home of Frederick, Prince of Wales and



Augusta, his wife. Together they were the main driving forces behind the development of Kew Gardens, and it was Augusta who founded the original Botanic Gardens.

- 3.5.3 The character of this zone is relatively mixed, consisting of open lawn areas interspersed with trees and plantings. These are crossed by a number of formal pathways, often with avenue plantings, including Nesfield's and Burton's Broadwalk and Little Broadwalk. An open dispersed planting of young trees, intended to represent many of the major groups of trees, now marks the area of the original Botanic Gardens. The southern end of this zone is characterised by a large, open area of grass, marking the site of the 40 acre Great Lawn which formerly lay in front of the White House. The keynote buildings in the zone include the Main Gates, the Aroid House [now known as the Nash (or Architectural) Conservatory] and the Orangery. Two of these buildings, the Orangery and the Aroid House, have been refurbished. The historic Main Gates currently handle approximately 30% of the visitors to the Gardens and the zone is often one of the first areas experienced by visitors.

### ***Riverside Zone***

- 3.5.4 The Riverside Zone occupies a strip of land that originally lay outside Kew Gardens and Richmond Gardens. The external and internal boundaries of the zone are largely based on the land plots of historical private buildings and their gardens. The northern end of the zone is dominated by the Herbarium. This houses the internationally significant preserved plant collections and the area is an important focus for scientific activity on the Site. The recently completed new wing of the Herbarium and Library extension has provided space for the growing stream of specimens that arrive each year. The oldest building on the Site, the 17th century Dutch House (also known as Kew Palace), lies further to the west. This was built as a merchant's riverside villa, and later became a royal residence. Behind the Dutch House is a small, 1960s formal garden designed in a 17th century style to complement the building.

- 3.5.5 Between the Herbarium and the Dutch House is the modern Sir Joseph Banks Centre for Economic Botany. The building was constructed in 1990 and stands within a 3ha landscaped site. The building is one of the largest earth-covered complexes in the UK and is currently not open to the public. South of this and the Dutch House is the Lower Nursery Complex and the Building and Maintenance or Estates Yard. These are bounded, private areas of extensive modern greenhouses, administrative offices and staff residences. The Lower Nursery Complex is the site of the ill-fated Castellated Palace, commissioned by George III and demolished, unfinished, by George IV.
- 3.5.6 Some of the zone is open to the public but the majority of the zone houses 'backroom' activities, such as curation, horticulture and science. As such it is of particular importance to the care and management of the collections on the Site. A new Quarantine House is currently being constructed (2010).

### ***North Eastern Zone***

- 3.5.7 Historically this zone consisted of small houses and gardens set in linear plots extending from Kew Green, and in squarer plots lining Kew Road. Many of these were incorporated into the Royal Botanic Gardens in a piecemeal manner during the 18th, 19th and 20th centuries. Currently the buildings around the outside edges of this zone are used for administrative and residential purposes. Many of these buildings are also historically interesting and are statutorily listed.
- 3.5.8 The historic garden plots are occupied by small discrete garden areas generally representing particular elements of botanic interest, i.e. the Aquatic Garden and the Rockery. These are currently focused around the Princess of Wales Conservatory, one of the most advanced glasshouses on the site. The recently constructed Davies Alpine House creates a striking new display area for alpine plants. Although the core of the zone is predominately open to the public, the buildings and yards, including the Jodrell Laboratory and Melon Yard, are distinctly private areas. The location of the Jodrell Laboratory in this zone makes it a particularly important focus for scientific activity on the Site. The new Wolfson wing of the Jodrell Laboratory has increased the floor space by 70 %, adding over 2000 square meters to a facility that has steadily grown in output since 1877.

### ***Palm House Zone***


- 3.5.9 This zone forms the heart of the 1840s Nesfield and Burton landscape design. The design, in this zone, overlies the earlier 18th century Kew Garden landscape, created, in part, by William Chambers. This cumulative design activity has created a variety of landscape character areas,



making this one of the more varied zones on the site. These character areas range from small plots of open lawn to formal flowerbeds, terraces with seats, an ornamental lake, clumps of mature trees and open vistas. In all, the zone represents an unusual mix of high Victorian design, 18th century formality and 20th century intervention.

- 3.5.10 The zone is dominated by its keynote buildings, particularly the Palm House. The Palm House is a Grade I listed building and is one of the world's finest surviving 19th century glasshouses. Built of wrought iron and glass this building was the largest greenhouse in the world when it was built and it remains one of the architectural icons of the Site. The Palm House is surrounded by a terrace and flowerbeds and overlooks a lightly wooded landscape which comprises plantings of diverse genera. Dividing the landscape are Nesfield's three vistas, the Syon Vista (leading to the Thames), the Pagoda Vista (to the Pagoda) and minor vista (to a Cedar of Lebanon). These three vistas form the core structural elements of the Nesfield / Burton design and are best experienced from the west entrance to the Palm House.
- 3.5.11 There is a key visitor entrance point at Victoria Gate, now serviced by a modern visitor centre. This popular access point is well served by public transport. The location of the Victoria Gate, combined with the attraction of the highly visible and iconic Palm House, makes this zone a 'honey-pot' for visitor activity. The Broad Walk, the vistas and numerous other paths structure visitor movement around the zone and into other areas of the site. Museum Number One, opposite the Palm House, currently houses the educational resource centre for the Gardens and as such is major focal point for school children visiting the site as well as offering a presentation on plants of economic importance to the public on its ground floor.

### **Pagoda Vista Zone**

- 3.5.12 Historically, the Pagoda Vista Zone was part of Kew Gardens and was, and still is, focused on the Grade I listed Pagoda, the most significant surviving architectural element of William Chambers' designs. The Pagoda became a major axis for the Nesfield / Burton landscape design, with establishment of the Pagoda Vista. This vista is lined by a double avenue consisting of paired plantings of broadleaved trees, flanked externally by paired evergreens.
- 
- 3.5.13 Decimus Burton's Grade I listed Temperate House (1859-1899) is another keynote building which dominates the western half of the Zone. The Temperate House is the largest public glasshouse at Kew and the world's largest surviving Victorian glasshouse. Opposite this, nestled in woodland near the garden wall, is the Marianne North Gallery, which houses an important botanical art collection and serves as a reminder of the importance of botanical artists in the history of the Royal Botanic Gardens. The original gallery was refurbished



in 2009, whilst the recently completed Shirley Sherwood Gallery of Botanical Art has created a modern gallery space for botanic art exhibitions.

- 3.5.14 The Pagoda Vista Zone is an important visitor area. The Lion Gate currently handles approximately 10% of all visitors to Kew. However, the majority of visitors to the zone arrive from the north, either from the Palm House Zone along the Pagoda Vista, or from the Syon Vista Zone and South Western Zone by walking along the Cedar Vista.

### ***South Western Zone***

- 3.5.15 The South Western Zone was historically part of Richmond Gardens and contains, in its far southwest corner, the fragmentary remains of a formal garden canal that used to run north-west from Richmond Lodge. In the 18th century Bridgeman, Kent and 'Capability' Brown redesigned the gardens to create a more naturalistic woodland / parkland landscape. Later a rustic cottage was built, incorporating an earlier menagerie, for Queen Charlotte.



This building remains and forms a focal point for visitors in the area. In the 19th century the zone became the heart of the Arboretum and continues in this role today.

- 3.5.16 The zone is currently managed to balance nature conservation with the needs of the collections. This includes maintaining a population of protected Great Crested Newts and a number of badger setts - another protected species - as well as encouraging more natural woodland development. The zone also includes the Stable Yard, which acts as the base for the horticultural and arboricultural management of the Gardens. The Stable Yard is closed to the public though its activities, such as composting, can be viewed from a platform. The Zone attracts few visitors, compared to other areas on the site, primarily due to its distance from the core of the site, though visitation patterns have altered since the following attraction was opened in 2008.
- 3.5.17 The Rhizotron and Xstrata Treetop Walkway (2008) provides a new compelling contemporary attraction showing visitors how trees support life both among their roots and high up in the tree canopy.

### ***Syon Vista Zone***

- 3.5.18 Like the Pagoda Vista Zone, the Syon Vista Zone marks a major axis in the Nesfield / Burton landscape. The zone was originally part of Richmond Gardens, however, its character is predominately influenced by the 19th century designs of Nesfield and the Hookers. The

zone is dominated by the Vista and the later lake, both of which were located within a clearing in the historic landscape of Richmond Gardens. The Sackler Crossing has been created as a graceful, bronze and granite walkway, which weaves across the lake to link the Temperate House and popular areas near the Thames.



- 3.5.19 The zone contains a key view to Syon House and up along the River Thames and is perhaps the most visited area in the western half of the site. The Syon Vista forms part of a relatively popular long walk along the three triangular vistas (Syon, Cedar and Pagoda). The zone holds a mixture of arboreal collections and the lake is of some, but limited, nature conservation interest.

### ***Western Zone***

- 3.5.20 As with the previous two zones, the Western Zone was historically part of Richmond Gardens. It has a mixed character with discrete but interrelated botanical garden areas linked by collections of trees. These garden areas include important collections such as the Bamboo Garden, established in 1891-2, which now holds the largest collection of bamboos in the UK, and the Azalea Garden, planted in 1882.
- 3.5.21 The zone also contains a number of surviving historic landscape features, such as 'Capability' Brown's Hollow Walk, now known as the Rhododendron Dell, and also his Ha-ha between the Gardens and the Thames. The Western Zone was historically associated with the Thames and prior to Brown's landscaping in the late 18th century was the site of Bridgeman's much-celebrated Riverside Terrace. The zone still has strong physical and visual links with the Thames, although 19th and 20th century plantings have partially obscured these links and it can be difficult to gain a sense of the relationship between the Gardens and the River.
- 3.5.22 The Western Zone is a relatively popular visitor area and is currently served by Brentford Gate and its associated car park. The zone supplies a sense of isolation and relaxation for the visitors with its mazelike configuration of paths and rides.

## **3.6 The character of the WHS and its regional setting**

- 3.6.1 Kew Gardens is located on free draining sand and river terrace gravel deposits in the River Thames floodplain landscape. The relatively flat river terrace landscape of Kew Gardens has been modified as a result of gravel extraction and sculpting of ongoing landscape works. Between Hampton and Kew in the upper reaches of the Thames, there is a remarkable number of connected open spaces – a unique landscape of historic, natural and cultural significance that has been celebrated for over three hundred years

as 'The Arcadian Thames'. The landscape character is based upon a unique combination of natural landscape, with rural pastures and flood meadows and formally designed landscapes of avenues and vistas. The historic value of Kew comes from its relationship to the wider Thames green open space and especially its unique history of design continuity in respect to the two other Grade I listed landscapes within the WHS buffer zone, i.e. the Old Deer Park and Syon House Estate. The green Buffer Zone of Kew is surrounded by a predominately urban environment. The setting of the Site is described below in four sections. The description highlights significant views and vistas and the nature and quality of the visual character and setting of each area, as well as examining historical and other linkages.

### ***Northern Edge (Kew Green)***

- 3.6.2 The area around the northern edge of the Gardens is dominated by a predominately urban environment, including major local roads and mixed use residential



and commercial properties. The key open space is Kew Green which has strong historical links with the Gardens. The views out of the North Eastern Zone along the northern boundary adjacent to Kew Green tend to be limited by the buildings and boundary features that define the boundary / edge of the Gardens. There is a significant restricted short view from the Entrance Zone running northeast through the main entrance across Kew Green towards the Cricket Pavilion.

- 3.6.3 The area around the Dutch House and the Herbarium in the Riverside Zone has a number of significant views leading northwards out of the Garden. Significant views are also possible from the upper storeys of the Dutch House and Herbarium across the Thames towards Brentford and the six Haverfield Estate tower blocks; there is also a glimpsed view of Kew Bridge. The Haverfield Estate tower blocks are also visible from the Broadwalk, a key vista, where they punctuate the skyline above the trees in the Riverside Zone and represent an unfortunate "eyesore".
- 3.6.4 There are also a number of short to medium length views into the Gardens from around the Northern edge, including significant open views from the northern end of Kew Bridge; open and partial views from several office buildings on the north side of the Thames; partial views from elevated sections of Brentford High Street; views from the A207 and A206 road junction looking southwards; significant restricted views towards the Main gates from Kew Green and the east side of the Green; and distant views from sections of the M4 / Great West Way where the Pagoda is visible above the trees within the Gardens.
- 3.6.5 The significant views from the Northern Edge include those running northwest along the Broad Walk, the views from the Grade I Listed Dutch House and views along the Little Broadwalk through the Main Gates. The particularly significant views into the site are from Kew Bridge and Kew Green. The major features affecting the setting on the northern



edge of the Gardens are the Haverfield estate tower blocks, but the emerging dominant development along the western bank of the Thames within Brentford also poses a threat to the quality of the overall setting.

#### ***Eastern Edge (Kew Road)***

- 3.6.6 The area to the east of the Gardens consists of an urban environment, predominantly residential, separated from the Gardens by Kew Road, a major thoroughfare. The high brick boundary wall along this edge of the Gardens tends to screen most outward views. However, there are a number of locations where restricted (narrow) views are obtained, these occur mainly at the gates. Otherwise the views that are obtained over the wall in both the Pagoda Vista Zone and the Palm House Zone are to the upper storeys of the houses and flats located on the east side of Kew Road.
- 3.6.7 A significant restricted view is obtained from the Victoria Gate in the Palm House Zone towards Kew Gardens Station along Lichfield Road. Another relatively restricted view can be obtained through the Temperate House Gate adjacent to the Marianne North Gallery in the Pagoda Vista Zone. In addition the six tower blocks on the Haverfield Estate form part of the skyline for views obtained from viewpoints located within the northern parts of the Gardens, and especially along the Broadwalk in the Palm House Zone. Views from the upper storeys of the Pagoda are wide reaching and cover much of the surrounding landscape and Windsor Castle can be seen at great distance to the west on clear days.
- 3.6.8 There are a number of views towards the Site from this area. However, the majority of these are short restricted views looking along roads, as housing development in the area tends to screen most views. Key views include: sight lines down the length of Kew Road and along adjoining side roads; significant restricted views from Lichfield Road and parts of Station Approach towards Victoria Gate; general glimpsed views of the Pagoda from the surrounding area; restricted views from The Avenue towards Marianne North Gallery; and a restricted view towards the Pagoda from Burdett Road.
- 3.6.9 The most significant views out of the Gardens are along both directions of the Broadwalk in the Palm House Zone and from the Victoria Gate. The views from the upper storeys of the Pagoda are also particularly significant and unusual for the area. The views into the Gardens from Lichfield Road and Kew Road are also considered significant views and the view from Burdett Road is incidental, but noteworthy, for local residents.

#### ***Southern Edge (Old Deer Park)***

- 3.6.10 The land to the south of the Southern Edge of the Gardens is occupied by the Old Deer Park, which is characterised by predominately open green space, currently occupied by a golf course and rugby football ground. The relationship between the Old Deer Park and the Gardens is a crucial one in historical terms as the Old Deer Park was formerly part of the Richmond Gardens. The majority of the views out of the Gardens along the Southern Edge are obscured by trees and shrub plantings within the Gardens and by vegetation on the golf course.

3.6.11 There are a very limited number of publicly accessible views towards the Site from the south due to the extent of tree planting within the Old Deer Park and golf course. The key feature that is possible to identify is the Pagoda; the flagpole marking the former position of the Temple of Victory has however gone. Key viewpoints include: open and partial views from the golf course; partial views from the Old Deer Park Recreation Ground; a significant open clear view of the Pagoda from the towpath on the Thames near Twickenham Bridge; partial and open views from the Richmond sports grounds; and partial views from a section of Kew Road near the sports ground looking northwards.



3.6.12 Although there are currently no significant views out of the Gardens along this boundary towards the south, work for the Thames Landscape Strategy has identified a number of possible vistas that could be reinstated, including links between the Pagoda and Royal Observatory (both William Chambers' Buildings), the Isleworth Vista from the Pagoda to Isleworth and a possible vista from the end of the Cedar Vista to the Observatory in the Old Deer Park. The inward view from the Thames towpath is particularly significant as it supplies a visual historical continuity between the Old Deer Park and the Gardens. The glimpsed views of the Pagoda are also important.

### ***Western Edge (River Thames)***

3.6.13 The western boundary of the Site is dominated by the River Thames and developments along its western bank. There are partial and glimpsed views at the northern end of the boundary towards Augustus Close and



the marina through boundary vegetation. Some views to the north are also possible from this section with the six Haverfield Estate tower blocks clearly visible on the horizon. These high-rise buildings are the major visual feature in the locality. The dominant blocks of housing and flats on the west side of the river create a visual barrier across the Thames. In the central area of the boundary in the Western Zone short views are available to the west side of the Thames with some distant views towards St Paul's church in Brentford and views towards the GlaxoSmithKline office block near the M4 motorway.

- 3.6.14 The most significant views are: towards Syon House from the end of the Syon Vista; and north / south along the river from the end of the Syon Vista. This is one of the very few sites in London where both sides of the river are united by historic landscapes; 'Capability' Brown sculpted both Richmond Gardens and Syon House estate in the late 18th century and in effect created a unified English style landscape garden across the Thames. Of critical importance are the visual links across the river such as Nesfield's triangle of avenues and the east-west axis through Syon house which itself is arranged on the cardinal points of the compass. Tree planting on the west side of the river to the north and south of Syon House creates a visual horizon. There are also significant views up and down the Thames at this point.
- 3.6.15 Most views towards the Site from this side are either short views from properties on the west side of the Thames or views from Syon House. The key viewpoints include: open views from the new development at Ferry Quays; open and partial views from Augustus Close / Brentford Marina; significant open views from Syon House; and significant open / partial / glimpsed views from parts of Syon Park.
- 3.6.16 The views to and from Syon House and Park are particularly significant for the Gardens as are the views up and down the Thames. The key viewing point on the western boundary of the Gardens is from the terminus of the Syon Vista.

### **3.7 Significance of the World Heritage Site**

#### **3.7.1 The Outstanding Universal Value of the WHS**

- 3.7.2 By ratifying the 1972 World Heritage Convention the UK Government is accountable according to the World Heritage Convention for the protection, conservation, presentation and transmission to future generations of its sites on the World Heritage List in order to sustain their Outstanding Universal Value (OUV). According to the UNESCO Operational Guidelines, OUV is 'cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity'. The Operational Guidelines sets out ten criteria for assessing whether or not a place has OUV.

- 3.7.3 The UNESCO World Heritage Committee adopts a Statement of Outstanding Universal Value for each site when it is inscribed. These Statements:

- Contain a summary of the Committee's determination that the property has OUV,
- identify the criteria under which the property was inscribed,
- assess the conditions of integrity or authenticity, and
- assess the requirements for protection and management in force.

The Statement of Outstanding Universal Value is the basis for the future protection and management of the property (UNESCO 2008). The Statement of Outstanding Universal Value for Kew was approved by the World Heritage Committee in 2010 and is as follows.

**3.7.4 “Royal Botanic Gardens, Kew                      Inscribed 2003 Id. N° 1084  
United Kingdom of Great Britain and Northern Ireland**

**Brief synthesis**

Set amongst a series of parks and estates along the River Thames' south-western reaches, this historic landscape garden includes work by internationally renowned landscape architects Bridgeman, Kent, Chambers, Capability Brown and Nesfield illustrating significant periods in garden design from the 18th to the 20th centuries. The gardens house extensive botanic collections (conserved plants, living plants and documents) that have been considerably enriched through the centuries. Since their creation in 1759, the gardens have made a significant and uninterrupted contribution to the study of plant diversity, plant systematics and economic botany.

The landscape design of Kew Botanic Gardens, their buildings and plant collections combine to form a unique testimony to developments in garden art and botanical science that were subsequently diffused around the world. The 18th century English landscape garden concept was adopted in Europe and Kew's influence in horticulture, plant classification and economic botany spread internationally from the time of Joseph Banks' directorship in the 1770s. As the focus of a growing level of botanic activity, the mid 19th century garden, which overlays earlier royal landscape gardens is centred on two large iron framed glasshouses – the Palm House and the Temperate House that became models for conservatories around the world. Elements of the 18th and 19th century layers including the Orangery, Queen Charlotte's Cottage; the folly temples; Rhododendron Dell, boundary ha-ha; garden vistas to William Chambers' pagoda and Syon Park House; iron framed glasshouses; ornamental lakes and ponds; herbarium and plant collections convey the history of the Gardens' development from royal retreat and pleasure garden to national botanical and horticultural garden before becoming a modern institution of conservation ecology in the 20th century.

**Criterion (ii):** Since the 18th century, the Botanic Gardens of Kew have been closely associated with scientific and economic exchanges established throughout the world in the field of botany, and this is reflected in the richness of its collections. The landscape and architectural features of the Gardens reflect considerable artistic influences both with regard to the European continent and to more distant regions;

**Criterion (iii):** Kew Gardens have largely contributed to advances in many scientific disciplines, particularly botany and ecology;

**Criterion (iv):** The landscape gardens and the edifices created by celebrated artists such as Charles Bridgeman, William Kent, Lancelot 'Capability' Brown and William Chambers reflect the beginning of movements which were to have international influence;

**Integrity (2009)**

The boundary of the property contains the elements that bear witness to the history of the development of the landscape gardens and Kew Gardens' uninterrupted role as national botanic garden and centre of plant research. These elements, which express

the Outstanding Universal Value, remain intact. The Buffer Zone contains the focus of one of the garden vistas on the opposite bank of the Thames River – Syon Park House - together with other parts of the adjacent cultural landscape (Old Deer Park - a royal estate south of Kew Gardens, Syon Park on the opposite bank of the Thames, the river from Isleworth Ferry Gate to Kew Bridge, the historic centre of Kew Green with the adjacent buildings and the church, and then to the east, the built-up sectors of 19th and 20th century houses). Development outside this Buffer Zone may threaten the setting of the property.

### **Authenticity (2009)**

Since their creation in the 18th century Kew Gardens have remained faithful to their initial purpose with botanists continuing to collect specimens and exchange expertise internationally. The collections of living and stored material are used by scholars all over the world.

The 44 listed buildings are monuments of the past, and reflect the stylistic expressions of various periods. They retain their authenticity in terms of design, materials and functions. Only a few buildings are being used for a purpose different from that originally intended (the Orangery now houses a restaurant). Unlike the works of architecture, in each of the landscaped garden areas, the past, present and future are so closely interwoven (except in the case of vestigial gardens created by significant artists, such as the vistas), that it is sometimes difficult to separate the artistic achievements of the past in terms of the landscape design of the different periods. Recent projects such as recutting Nessfield's beds behind the Palm House have started to interpret and draw attention to the earlier landscapes created by Capability Brown and Nessfield. Other projects are proposed in the overall landscape management plan subject to resourcing.

### **Protection and management requirements (2009)**

The property includes the Royal Botanic Gardens of Kew, Kew Palace and Queen Charlotte's Cottage, which are the hereditary property of Queen Elizabeth II and are managed for conservation purposes by the Royal Botanic Gardens of Kew and Historic Royal Palaces.

The property is included in a conservation area designated by the London Borough of Richmond upon Thames. Part of the Buffer Zone is protected by a conservation area in the London Borough of Hounslow. Forty four buildings and structures situated on the site have been listed under the Listed Buildings and Conservation Areas Act 1990 as buildings of special architectural and historical interest. The whole site is Grade I on the English Heritage Register of Park and Gardens of Special Historic Interest. In England permission to carry out works or change functions is subject to the approval of the local authorities, who consult English Heritage in the case of listed buildings and conservation areas.

Protection of the property and the Buffer Zone is provided by development plans in the planning systems of the London Boroughs of Richmond upon Thames and Hounslow and by the London Plan (the Regional Spatial Strategy) and by designation.

Kew Gardens' conservation work has continued at an international level, notably for the cataloguing of species, supporting conservation projects around the world, the implementation of the Convention on International Trade in Endangered Species (CITES, 1975) and the Convention on Biological Diversity (CBD, 1992).

The property has a World Heritage Site Management Plan, a Property Conservation Plan, and a Master Plan. Implementation of the Management Plan is coordinated by the Royal Botanic Gardens, Kew. The World Heritage Site Management Plan is currently being revised alongside a specific landscape master plan.

At the time of inscription the World Heritage Committee encouraged the State Party to include on the staff of the Royal Botanic Gardens a landscape architect or other specialist qualified in the history of art and history in general, so that architectural conservation activities can be coordinated on-site. Landscape architects with experience of working in historic landscapes have been appointed to provide this advice."

(Approved in Brasilia 2010 by the World Heritage Committee)

### **3.8 Attributes of Outstanding Universal Value of the WHS**

3.8.1 The different categories of attributes which contribute to the Outstanding Universal Value of Kew are:

- a rich and diverse historic cultural landscape providing a palimpsest of landscape design
- an iconic architectural legacy including the Palm house, the Temperate House and modern additions such as Princess of Wales Conservatory
- globally important preserved and living plant collections
- a horticultural heritage of keynote species and collections
- key contributions to developments in plant science and plant taxonomy.

3.8.2 Key attributes contributing to the OUV of the WHS **rich and diverse historic landscape** include:

- Relationship with River Thames and wider Arcadian landscape beyond.
- The Victorian garden lay-out designed as collaboration of Sir William Hooker, William Nesfield and Decimus Burton.
- Remaining aspects of William Chambers 'Anglo-Chinese' garden style.
- Remaining aspect of Capability Brown landscape incl. plantations, landform and ha-ha connection to river.
- Archaeological remains of former Charles Bridgeman and William Kent landscapes structures.
- A series of key vistas.

3.8.3 Key attributes contributing to the OUV of the WHS **iconic architectural legacy** include:

- A series of iconic glasshouses, most still in original use, representing key

- developments in the design and construction of glasshouses throughout history
- A range of garden buildings and structures such as temples, follies, gates and ha-ha as integral part of the designed landscape.
- Royal residency and patronage of the gardens as evidenced in Kew Palace and Queen Charlotte's cottage and archaeological remains of White House and Castellated Palace.
- Brick perimeter wall punctuated by ornate entrances.

3.8.4 Key attributes contributing to the OUV of the WHS **preserved and living plant collection** include:

- World class herbarium; the world's biggest collection with some 7,000,000 plant specimens and over 1,200,000 specimens of fungi. Included in this collection are 270,000 type specimens representing a quarter of the world's named plants
- Living plant collection; the world's largest documented botanical collection of about 40,000 plant taxa representing about 19,000 species
- Museum, archive and library collection. The Economic Plant Collections include some 80,000 items including plant products, associated implements and artefacts. The Library contains one of the world's most important botanical collections with more than 750,000 items including books, periodical titles, letters and 200,000 drawings and prints.

3.8.5 Key attributes contributing to the OUV of the WHS in respect to **horticultural heritage of keynote species and collections**:

- Collection of heritage trees
- Bentham & Hooker taxonomic lay-out
- Archaeological remains of key developments in the botanic gardens

3.8.6 Key attributes contributing to **developments in plant science** esp. in respect of

- Plant taxonomy & systematic botany
- Economic botany
- Biodiversity and plant conservation
- Tradition of training students in horticulture
- Reputation of centre of excellence and of sharing knowledge.

### 3.9 Evaluation of Attributes

#### **Relationship with River Thames and wider Arcadian landscape beyond**

3.9.1 Kew Gardens is positioned in a unique location along the River Thames and forms part of a wider natural and designed landscape. The historic value of Kew comes from this relationship and especially its unique history of design continuity in respect to the two other Grade I listed landscapes within the WHS Buffer Zone, i.e. the Old Deer Park (former part of Richmond Gardens) and Syon House Estate. The relationship between Kew Gardens and the river Thames has evolved throughout time from an architectural

expressed Riverside Terrace wall (Charles Bridgeman) to seamless concealed Ha-ha integration (Capability Brown). During Victorian times some of the original visual relationship was lost due to screening of emerging (former) industrial sites at Brentford with the notable exception of the riverside view from Syon Vista. This panoramic view unfolds until the present day as an exceptional authentic Arcadian vision.

- 3.9.2 ICOMOS International in the past has taken the view that the overall aspect of six 22-storey tower blocks (Haverfield estate) at Brentford on the opposite banks of the Thames, opposite the gardens and outside the Buffer Zone, diminished the visual experience at Kew at several points in the Gardens. Current development proposals for Brentford raise additional concern for future intrusion within the visual envelope of the WHS.
- 3.9.3 The present state of disrepair of the riverside Ha-ha raises concern. Its brick lined wall is arguably a later (Victorian) addition to its original mid eighteenth century outline.
- 3.9.4 The riverside car park remains an intrusion in the landscape in what originally was the Queen Elizabeth Lawn.

***The Victorian garden lay-out designed as a collaboration between Sir William Hooker, William Nesfield and Decimus Burton:***

- 3.9.5 The current gardens are predominantly Victorian in overall outline. Sir William Hooker (Director), William Nesfield (landscape architect) and Decimus Burton (architect) unified the two former royal gardens in a coherent landscape scheme beginning in the 1840s. The authenticity of this scheme is predominantly intact. Key features now recognised as landmarks include the triangular lay-out of vistas juxtaposed with the Broadwalk promenade and the positioning of key buildings and garden structures within the overall landscape framework. The vistas and central promenade provide an important sense of scale and orientation. The Palm House is the Gardens' key pivot whilst the Pagoda creates an important visual marker. The equilateral triangular composition of Syon Vista, Pagoda Vista and Cedar Vista (added by Joseph Hooker in 1871) creates a distinct footprint and provides important visual reference for orientation. Each vista has a distinct character provided by the variety of trees aligned. A successful and ongoing re-planting of main vistas and broad walk has been initiated since inscription in 2003.
- 3.9.6 The key ensemble of Kew Gardens Victorian lay-out is formed by the central axis of Syon Vista, Palm House, Palm House pond with the Hercules and the Serpent fountain and Museum Number One. It creates a formal alignment which links the Gardens to the Thames riverside and Syon House beyond. Seen from the west front of the Palm House the vistas create a classic 'Patte d'oie' composition. Recent reconstruction of the original William Nesfield parterre has contributed to the authenticity of the original design intent.
- 3.9.7 The Broadwalk stretching between the Orangery and the Palm House pond is the Gardens' main promenade. It is positioned at a 90 degrees angle to Syon Vista and its view is aligned with the Campanile across the Palm House Pond.
- 3.9.8 The above formal composition of Kew Gardens overlays and contrasts with the network of meandering paths and irregular plantations. A series of secondary view lines provides



additional visual connectivity. The arboretum is occasionally punctuated by clumps of evergreens which contain views and provide a sense of spatial layering and enclosure. Occasional sculpted landform adds to the sense of serial vision and allows for either elevated or contained views. The central lake alongside Syon Vista is carefully composed so as not to see its full extent at one glimpse.

- 3.9.9 Comparison between maps of today's lay-out with those of the end of the 19th century reveals some loss of spatial definition. Gradual adaption and incremental change during the 20th century has taken place without consistency and added to an increased ad-hoc and fragmented character.
- 3.9.10 The original contrast between the two former adjoining Royal Gardens of Richmond and Kew (still apparent in the original Nesfield design) has been gradually lost. This is mainly the result of encroachment on the former openness of William Chambers's designed Kew Gardens. The division of former Love Lane still relates to the current alignment of Holly Walk.

***Remaining aspects of William Chambers 'Anglo-Chinese' garden style***

- 3.9.11 The original design by William Chambers for Kew Gardens can be regarded as key to the development of the Anglo-Chinese style which subsequently became fashionable across Europe. The Pagoda, originally located in a 'wilderness' plantation represents an important attribute of the Gardens' OUV in this respect.
- 3.9.12 Most of the original intent of William Chambers' garden circuit which presented a sequence of discrete compositions has been lost although a significant stretch of the former Augusta Walk, including the Ruined Arch, reveals in part the routing as envisaged by Chambers.

***Remaining aspects of Capability Brown landscape including plantations, landform and Ha-ha connection to river***

- 3.9.13 Evidence of the former Capability Brown designed landscape can be found at the core of the two woodland plantations on both sides of Syon Vista, the contoured landscape of the current Rhododendron Dell and the concept of the riverside Ha-ha. The plantations are positioned on relatively higher ground and as such express Brown's stylistic interpretation of the natural floodplain landscape. Key to the integrity of the Capability Brown landscape is the relationship with Syon House estate across the River Thames, which Brown designed as a separate commission. As such the Thames with its 'serpentine line of beauty' became not the edge but centre of the composition.
- 3.9.14 Time resulted in the loss of the of original Brown tree plantations. The Xstrata Tree Top Walkway stands amidst and draws attention to one of 'Capability' Brown's woodland remnants.

***Archaeological remains of former Charles Bridgman and William Kent landscapes structures***

- 3.9.15 Within the current landscape there is little visual evidence of the original Charles Bridgman designed Richmond Gardens. The current separation between the Old Deer Park and Kew Gardens is also detrimental in this respect. Archaeological evidence of the former Bridgman mount can be located in the far south western corner of Kew Gardens. The site is currently occupied by badgers which may be detrimental to its possible conservation. Key other aspects of archaeological research which may inform the historic transformation of the site from early periods are the alignment of the Bridgman canal and two garden follies designed by William Kent; Merlin's Cave and the Hermitage.

***Iconic architectural legacy***

- 3.9.16 The historic buildings at the Kew site are an important and integrated part of the designed landscape and, in many cases, essential to the delivery of Kew's mission.
- 3.9.17 Kew has 44 listed buildings, including the Dutch House (Kew Palace), Palm House, the Temperate House, the Pagoda, Ruined Arch, Orangery, Queen Charlotte's cottage, the Nash conservatory, Herbarium, houses on Kew Green and others. These historic buildings reflect the stylistic expressions of various periods. They retain their authenticity in terms of design, materials and functions, with the exception of two of the remaining Georgian follies, which were moved and restored with more durable materials during Victorian times. Only a few buildings have been used for a purpose different from that originally intended (for example the Orangery now houses a restaurant).
- 3.9.18 Since inscription as a WHS, award winning new-built structures such as the Sackler Crossing, Xstrata Tree Top Walkway, Davies Alpine House and Shirley Sherwood Gallery for Botanical Art have added to the architectural legacy of Kew Gardens.

***Iconic glasshouses representing key developments in the design and construction of glasshouses throughout history***

- 3.9.19 Kew Gardens contains a unique collection of glasshouses including the Palm House, the Temperate House and the Princess of Wales Conservatory.
- 3.9.20 Examples of glasshouses of early (pre-Victorian) origin include the Nash or Architectural Conservatory and the Orangery. The Architectural Conservatory designed by John Nash was transferred from Buckingham Palace to Kew in 1836. Both structures are no longer in use as horticultural glasshouses.
- 3.9.21 The key glasshouses contributing to the OUV of the WHS are the Victorian Palm House and Temperate House. The Palm House is a Grade I listed building and is one of the world's finest surviving 19th century glasshouses. Built of wrought iron and glass this building was the largest greenhouse in the world when it was built and it remains one of the architectural icons of the Site. The Temperate House is also Grade I listed and the largest public glasshouse at Kew as well the world's largest surviving Victorian glasshouse. These structures benefitted from substantial conservation programmes

in the past, but their fragile wrought iron structures are constantly needing repair and ongoing maintenance. The Grade II listed Evolution House, formerly the Australian House, has been cited as an early exemplar of aluminium glasshouses, dating from 1952.

- 3.9.22 Examples of contemporary glasshouses include the Princess of Wales Conservatory, one of the most advanced glasshouses on the site. The newly constructed Davies Alpine House creates a striking new display for alpine plants.
- 3.9.23 The site of Kew's first botanical hothouse, the William Chambers' designed great stove, can be located within the original 9 acre botanic garden, its eastern end being marked by an historic Wisteria sinensis trained over a pergola.

***A collection of garden structures such as temples, follies, gates, boundary wall and riverside Ha-ha as an integral part of the designed landscape***

- 3.9.24 Key to the integrity of Kew Gardens is the integration of buildings and landscape.
- 3.9.25 The structures of temples and follies are often strategically positioned within the overall design matrix of the Gardens. The integrity is partly lost due to the disappearance of original structures such as the Temple of the Sun and Temple of Victory or in certain cases their relocation.
- 3.9.26 The Grade I listed Pagoda, the most significant surviving architectural element of William Chambers' designs has become an iconic landmark. The view from the Pagoda provides a key overview of the Gardens and the wider landscape beyond. Its position within the garden and relatively original state makes it a key attribute towards the OUV of the WHS. Some of its ornamentation and original colour has been lost over the years. The Pagoda is no longer open to the general public.
- 3.9.27 Decimus Burton's gate to Kew Palace has been recently re-erected as the Temperate House gate besides the Marianne North Gallery.

***Royal patronage and occupancy of the gardens as evidenced in Kew Palace, Queen Charlotte's cottage and archaeological remains of the White House and Castellated Palace***

- 3.9.28 Key to the OUV of the WHS are the 17th century Dutch House (also known as Kew Palace) and Queen Charlotte's cottage which are both Grade I listed. Kew Palace was built in 1631 as a merchant's riverside villa, and later became a royal residence. Behind Kew Palace is a small enclosed modern formal garden designed in a 17th century fashion. This garden is not representative of the original lay-out which consisted of a tree lined path towards the river. Recent proposals to restore and open the Georgian kitchens of Kew Palace will contribute to the experience of the authenticity of the area. Excavations at the site of the White House by the Time Team in May 2002 demonstrated that archaeological deposits are likely to exist in some of these locations.
- 3.9.29 Of specific interest is the commissioning by George III of the Royal Observatory, which is situated in the WHS buffer zone within the Old Deer Park.

- 3.9.30 Queen Charlotte's rustic cottage was built, incorporating an earlier menagerie, for Queen Charlotte in 1771.
- 3.9.31 The locations of many of these structures and other features, such as the Richmond Lodge ornamental canal and garden features relating to the Tudor Kew Farm, have been identified and mapped.

***World class Botanic Garden with outstanding preserved and living plant collections***

- 3.9.32 The authenticity of Kew Gardens as one of the world's premier botanic gardens is indisputable. Since its creation in the 18th century it has remained faithful to its initial purpose with botanists from Kew continuing to collect specimens and exchange expertise through numerous global partnerships. The Kew Collections of living and stored material are used by scholars all over the world.
- 3.9.33 William J. Hooker took over the direction of Kew Gardens in 1841. Within a few decades he and his son transformed Kew from a princely garden and aristocratic park into Britain's leading botanical institution and a key 'tool of the Empire'. He created in 1848 a Museum of Economic Botany at Kew and spearheaded plant hunting overseas explorations and plant transfer projects. The economic expansion of the British Empire and the orderly progress of systematic botany went hand in hand.
- 3.9.34 George Bentham and Joseph Hooker worked on the *Genera plantarum* from 1858 to 1882 in which they reordered plant taxonomy. The *Index Kewensis* helped to establish Kew's position as the world centre for systematic botany. Begun with a bequest by Charles Darwin, it was undertaken under Sir Joseph's direction in 1885 to provide an index of all species names. This work, regularly revised, remains an essential working tool for botanists and is now incorporated into the International Plant Names Index (IPNI).

***World class Herbarium***

- 3.9.35 The Kew Herbarium was established as a national collection in 1853 thanks to Bentham's gift of his cabinet (200,000 specimens) and extended in 1867 with the incorporation of W.J. Hooker's herbarium (already housed at Kew since 1853). By 1860, with 1.2 million specimens perfectly ordered and arranged, Kew already surpassed all other public and private herbaria in the world and was establishing itself as centre of 'world botany'. Joseph Dalton Hooker and George Bentham enjoyed increasing influence in the field of systematic botany.
- 3.9.36 The recently opened extension to the Herbarium and Library provides additional facilities for the collections, staff and visitors. The extension also incorporates protection against the risk of flooding.
- 3.9.37 In recent years priority has been given to digitise the herbarium collection.

### ***Living plant collection***

- 3.9.38 The living plant collections, the largest in the world, are an integral aspect of the OUV of Kew Gardens. They provide a valuable resource for both public and scientist and have a valuable conservation role. All plants are recorded on Kew's Living Collection database. The recorded provenance of Kew's collection adds to its authentic character.
- 3.9.39 The main scientific collections hold specimens with significant value for biological conservation of species using this unequalled ex situ resource. These living reference collections are part of the national heritage and used by scientists around the world for scientific research, education, conservation and visitor enjoyment.

### ***Horticultural heritage***

- 3.9.40 Throughout its entire history Kew Gardens has played a prominent role in plant discovery and taxonomic classification. The Gardens hold many unique specimens and irreplaceable heritage trees including the first introductions of exotic species and more than 300 recognised British Champion trees as listed by TROBI (Tree Register of the British Isles). Other collections, albeit more recent, such as the original introductions of famous plant hunters, e.g. E H ('Chinese') Wilson and specimens regularly admired by the public (e.g. the multi-stemmed stone pine planted 1846), may merit consideration here, as should relatively modern accessions planted by VIPs on historic occasions, including royal visits.
- 3.9.41 Application of amelioration techniques to improve ground conditions around the Garden's main heritage trees have resulted in significant improvement of new growth and extended lifespan of those trees.
- 3.9.42 With exceptions, the original Bentham & Hooker classification system is still largely in place in the Gardens plantings at Kew.

### ***Plant Science***

- 3.9.43 Kew Gardens has a unique history of Systematic botany (the activity of naming and describing plants and classifying them into groups according to degrees of difference and similarity), which activity continues to this day.

## **3.10 Other cultural heritage and historic environment values**

- 3.10.1 The Northern Edge of Kew Gardens (Main gate, Herbarium, administrative buildings located in former town houses) are an important aspect of the historic village of Kew Green.
- 3.10.2 The riverside facing Brentford may have been the location of Caesar's Roman Army crossing of the Thames in 54 BC., the lowest point where the river may be forded.

### **3.11 Landscape and nature conservation values**

- 3.11.1 Kew Gardens is of recognised global significance for its botanical collections. It plays a leading role in the development of conservation programmes for wild plants around the world and in recent times has developed its international programme especially in relation to biodiversity and impact of climate change.
- 3.11.2 RBG Kew is uniquely positioned to be the world's partner for plant conservation, ensuring plant communities are resilient moderators of climate change. Working in partnership with organisations worldwide to help secure a future for some of the most threatened species and habitats is Kew's modern mission.
- 3.11.3 Kew Gardens itself is a locally significant nature conservation resource. Kew contains various habitats listed as priorities by the Richmond Local Biodiversity Action Plan: acid grassland, ancient parkland and woodland, broadleaved woodland, reed beds, tidal Thames.

### **3.12 Scientific and research values**

- 3.12.1 Kew Gardens is a world class scientific institute and has unique science resources both institutionally and individually. These include an outstanding Herbarium, fine laboratory facilities both at Kew and at the Millennium Seed Bank at Wakehurst Place, the world-leading Millennium Seed Bank itself, and a group of some 240 plant scientists, many of whom are internationally renowned. Kew's traditional core scientific strength has been in and remains that of plant taxonomy. This is supplemented by in-house research into plant physiology, developmental genetics, biochemistry, ecology and conservation. Kew has collaborative links with scientists from a wide range of disciplines both in the UK and in the rest of the world. It delivers blue skies science, such as the current angiosperm phylogeny (APGIII: Chase & Reveal 2009), and new and important data on plant speciation (Widmer, Lexer & Cozzolino 2009) and evolution (Christin et al 2008), which is recognised by the international scientific community to be of the highest quality. Likewise it delivers applied science, which is strategically important in relation to the conservation of biodiversity worldwide (e.g. on plant barcoding; Hollingsworth et al 2009). No other botanic garden in the world has either this combination of facilities or achievements to its credit.

### **3.13 Educational values**

- 3.13.1 Education is a major priority for Kew, and it offers education at every level from doctoral degrees to horticultural training and school visits.
- 3.13.2 Horticulture students come from around the world to study at Kew for the world's foremost qualification in botanical horticulture – the three-year Kew Diploma. The course offers a broad-based training in amenity and botanical horticulture. The aim is to provide students with an opportunity to study scientific and technical subjects at first degree level, whilst gaining practical experience and responsibility working in the botanic garden. Students

are employees of the Royal Botanic Gardens, Kew and receive payment throughout the three-year course, including during the lecture block trimesters. In particular, the course seeks to: provide an integrated theoretical and practical curriculum, based on all the operations of the Royal Botanic Gardens, Kew; encourage student-centred learning so that all students have an opportunity to pursue study of their own interest; demonstrate practical applications of theoretical principles, referring throughout to current and future needs of the horticultural industry; and teach the highest standards of professional practice to all students.

- 3.13.3 The Kew Apprenticeship is a full time work programme of learning and qualifications, completed in the workplace that gives trainees the skills, knowledge and competence they need to progress in their horticultural careers. This is a structured programme for a fixed period of 3 years and while learning 'on the job' the trainee also attends 'off the job' training at a local college.
- 3.13.4 The Traineeship is a one year programme similar to the Apprenticeship, but without day-release to college and focused on only a single horticultural section, i.e. Arboretum, Great Glasshouses or Hardy Display. It is intended to satisfy a range of needs. For example, it may be taken as additional training preparatory to starting either the Kew Diploma or an Apprenticeship, or by a Kew Diploma graduate desiring more experience in a particular section or area of expertise they wish to develop .
- 3.13.5 Kew offers a range of education opportunities to Higher Education institutes through participation in MSc and PhD training.
- 3.13.6 Kew runs an extensive school programme and is annually visited by c. 100,000 children in organised school parties. It also runs about 35 courses and events for both teachers and the general public.
- 3.13.7 Various venues and living collections at Kew Gardens are important as a means of supporting education activities, rather than specific research projects. The Palm House and Princess of Wales Conservatory are almost certainly the two most popular venues for assisted Schools visits (plant adaptations & uses), the Water Lily House and student vegetable plots for plant-based foods, and Conservation area for UK biodiversity and sustainability studies (pond-dipping, hazel coppice, charcoal production, stag-beetle loggery etc.). The ongoing redevelopment of the Order Beds, adapting systematic plantings to represent and interpret the Angiosperm Phylogeny Group's classification, is an example intended for an educationally more advanced audience that can also showcase an important part of Kew's science.

### **3.14 Social and artistic values**

- 3.14.1 Since Victorian times Kew has provided horticultural displays for purely decorative purposes, to delight the eye. This was early seen as a role to encourage visitors to leave the built urban environment for the healthy benefits of the garden experience. To this end a significant number of specimens is purchased each year and used as mostly disposable plantings, even if some are accessioned to the Living Collections Plant Records Database.

Others are represented as permanent plantings telling a horticultural story, such as the azalea and lilac collections, but are, nevertheless, mainly for public enjoyment of beauty and heritage, rather than botanical research. Since Kew is a paid attraction it makes sense to be able to understand how much such displays cost the organization, be they temporary or permanent features that are part of Kew's horticultural inheritance, i.e. the Palm House parterre or Rose Garden and Rose Pergola.

- 3.14.2 Horticultural Displays & Exhibits. Through various means of interpretation the importance of plants in Kew's public displays and the work of Kew in conservation and sustainable plant utilisation is communicated to visitors, including schools groups and those in higher education. Examples include the interpreted displays in the Temperate and Palm Houses and the messaging about the UK's native flora & fauna found in the Queen's Cottage Grounds.
- 3.14.3 Kew offers a range of events, including concerts, outdoor sculpture exhibitions and festivals which attract many visitors. High impact outdoor exhibitions included Chihuly (2005) and Henry Moore (2007-08).
- 3.14.4 For the past several years Volunteer Guides have supported Kew by taking general or specialist tours for visitors during festivals and at other times. For example, in recent years, during the Tropical Extravaganza in February, Guides have taken visitor groups around the Princess of Wales Conservatory's festival displays and into behind-the-scenes nursery areas, explaining how the festival is mounted and conveying the messages associated with Kew's Mission. Increasingly, these Guides have been taking opportunities outside of actual festivals to introduce visitors to selected behind-the-scenes facilities without causing undue disruption to the work of staff in these areas while giving access to the many collections that are not on display.
- 3.14.5 More than 150 volunteers give much valued support to horticulture at Kew on a regular basis (one or more days/week), working closely with staff teams and becoming knowledgeable in horticultural practice and Kew's purpose. Many also come into contact with Kew's visiting public and are encouraged to act as ambassadors engaging visitors with the work being carried out. Horticultural training is given to these volunteers, whose experience is one of the benefits that horticulture brings to Kew.

### **3.15 Tourism and economic values**

- 3.15.1 Kew Gardens are extensively visited by the public. Visitor numbers have grown from just over 860.000 in 2001/02 to a plateau of about 1.3 million from 2005/6 to 2008/9. Recently visitor numbers have reduced marginally to around 1.1 million from 2011/12 to 2012/13.
- 3.15.2 Kew Gardens currently is the 5th most visited paid attraction within the U.K.
- 3.15.3 The River Thames has great potential for tourism. Between Hampton and Kew the river landscape, with its historic buildings and waterfronts and its parks and open space, is without parallel in any other capital in the world. There is opportunity to improve and co-ordinate visits to the area, bringing interest and income both locally and to the capital as a whole. There may be an opportunity to link with London's other World Heritage Sites all of which are located along the River Thames.



## 4.0 Current policy context

### 4.1 Planning and policy framework

The 8 years since the publication of the first RBG, Kew WHS Management Plan have seen considerable changes in the planning systems and policy framework at international, national and local levels. Further changes are now underway in policy and in legislation and the structure of local government. This section identifies and reviews the changes that have an impact on the World Heritage Site, beginning with international considerations and finishing with changes that will affect only the Site.

#### 4.1.1 UNESCO

4.1.1.1 The 1972 World Heritage Convention is one of a family of UNESCO Conventions dealing with heritage. As such, it figures strongly in UNESCO's overall objectives and policies. UNESCO's mission is: "As a specialized agency of the United Nations, UNESCO contributes to the building of peace, the eradication of poverty, sustainable development and intercultural dialogue through education, the sciences, culture, communication and information".

4.1.1.2 UNESCO's current Medium Term Strategy (2008 to 2013) is structured around five overarching objectives:

- Attaining quality education for all and lifelong learning
- Mobilizing scientific knowledge and policy for sustainable development
- Addressing emerging social and ethical challenges
- Promoting cultural diversity, intercultural dialogue and a culture of peace, and
- Building inclusive knowledge societies through information and communication.

4.1.1.3 These overarching objectives are translated into Strategic Programme Objectives (SPO). SPO11 is:

- Strategic Programme Objective 11: Sustainably protecting and enhancing cultural heritage
- The preservation of cultural heritage and its effects on development, social cohesion and peace integrated into national and local policies
- National conservation policies and processes revised to take account of global trends such as climate change, urbanization and migration
- New forms of international co-operation developed to strengthen the application of the 1970 Convention
- Role of museums recognized by decision-makers as part of formal and non-formal education programmes.

4.1.1.4 These internationally-agreed overarching and strategic objectives should be reflected in Member States' policy, procedural and management approaches to WHS, down to the level of individual sites where practicable. This is in accord with the UK Government's aims for UNESCO.

#### 4.1.1.5 World Heritage Sites provide opportunities for the UK to

- maintain UK standards in management and promotion,
- promote capacity building in developing countries,
- promote tourism,
- gain economics benefits for the UK,
- support cultural diversity and community identity, and citizenship,
- meet UK Government's commitments to the developing world – especially Africa,
- deal with climate change and sustainability.

#### 4.1.1.6 The UK National Commission for UNESCO (UKNC) is the focal point in the UK for UNESCO-related policies and activities The UKNC views WHSs as key focal points and catalysts for change on a truly global scale focusing on people and their environments. Working in partnership with UK Government and UK civil society the UKNC aims to:

- provide expert advice to UK Government on UNESCO related matters
- develop UK input into UNESCO policy making and programme implementation
- promote reforms within UNESCO
- encourage support in the UK for UNESCO's ideals and work

#### 4.1.1.7 The basic definition of UK responsibilities for its World Heritage Sites is set out in Article 4 of the World Heritage Convention. This says: Each State Party to this Convention recognizes that the duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage referred to in Articles 1 and 2 [i.e World Heritage Sites] and situated on its territory, belongs primarily to that State. It will do all it can to this end, to the utmost of its own resources and, where appropriate, with any international assistance and co-operation, in particular, financial, artistic, scientific and technical, which it may be able to obtain.

#### 4.1.1.8 The World Heritage Committee has adopted Operational Guidelines for the Implementation of the World Heritage Convention. These are periodically revised, most recently in 2012 when changes were made to the pervious edition. Since 2005 Operational Guidelines for the first time spelled out what was meant by a management system and how it should work. The most recent change has been the introduction of a requirement for impact assessment and an increasing emphasis on risk preparedness:

- Each nominated property should have an appropriate management plan or other documented management system which should specify how the Outstanding Universal Value of a property should be preserved, preferably through participatory means.
- The purpose of a management system is to ensure the effective protection of the nominated property for present and future generations.
- An effective management system depends on the type, characteristics and needs of the nominated property and its cultural and natural context. Management systems may vary according to different cultural perspectives, the resources available and other factors. They may incorporate traditional practices, existing urban or regional planning

instruments, and other planning control mechanisms, both formal and informal. Impact assessments for proposed interventions are essential for all World Heritage Properties.

- In recognizing the diversity mentioned above, common elements of an effective management system could include:

- a) a thorough shared understanding of the property by all stakeholders;
- b) a cycle of planning, implementation, monitoring, evaluation and feedback;
- c) the monitoring and assessment of the impacts of trends, changes and of proposed interventions;
- d) the involvement of partners and stakeholders;
- e) the allocation of necessary resources;
- f) capacity-building; and
- g) an accountable, transparent description of how the management system functions.

- Effective management involves a cycle of long term and day-to-day actions to protect, conserve and present the nominated property.

4.1.1.9 This gives much greater clarity to the requirements of the World Heritage Convention and the World Heritage Committee. In particular, it makes clear that the primary purpose of the management of a WHS is to conserve the Site so as to preserve its OUV. This ties in well with developing UK practice on values-led management of the historic environment.

4.1.1.10 The 2012 Operational Guidelines also contains further guidance on the ways in which the World Heritage Committee monitors the state of conservation of individual World Heritage Sites. There are two processes.

4.1.1.11 Reactive Monitoring is the process by which governments are asked to report significant changes or proposed developments to the World Heritage Committee. On the basis of these reports and of advice from the relevant Advisory Body to the Convention (ICOMOS International for a cultural site) and from the UNESCO World Heritage Centre, the Committee can offer advice to the relevant government. In very serious cases, the Committee can place a site on the World Heritage in Danger List, or if it is considered that its Outstanding Universal Value has been lost, can remove it from the World Heritage List altogether.

4.1.1.12 The World Heritage Committee reviews all World Heritage Sites on a cyclical basis. This process, known as Periodic Reporting, was carried out for Europe in 2004 and 2005, and again in 2012.

4.1.1.13 Apart from the Operational Guidelines, the Committee develops further guidance at its annual meetings. This is noted in Committee decisions and can cover both general and site-specific matters. Of particular significance for this Management Plan are the Committee's requests that future management plans should address the issues of climate change and also of risk preparedness to cope with disasters. Both these issues are dealt with in Section 8.

## 4.2 Changes to the English planning system

- 4.2.1 The WHS as a whole is protected primarily through the spatial planning system. This plan-led system is based on a hierarchy of national and local plans, which sets out policies according to which local authorities determine planning applications. In the case of London, regional policy is also provided by the London Plan. Individual scheduled monuments within the Site are also protected under the Ancient Monuments and Archaeological Areas Act 1979 through the Scheduled Monument Consent system.

### ***National***

- 4.2.2 The Localism Act 2011 repealed various provisions of the Planning and Compulsory Act 2004 and with them the former planning policy statements and guidance (PPSs and PPGs). These were superseded by the National Planning Policy Framework (and related National Policy Statements concerning various forms of nationally significant infrastructure topics such as energy provision and water management). The Localism Act 2011 also introduced the concept of Neighbourhood Planning, something which relates to local planning and is discussed further below.
- 4.2.3 The NPPF was published in March 2012 and is to be accompanied in due course by one or more practice guides. Until these have been prepared, the Government-endorsed Practice Guide that originally accompanied Planning Policy Statement 5: Planning for the Historic Environment (PPS 5) remains in force. So too does Circular 07/09: Protection of World Heritage Sites in England, with its government-backed guidance from English Heritage and together they provide a national strategic overview of how Heritage Assets in England should be protected in relation to their Significance. In October 2011, English Heritage published a guidance document entitled The Setting of Heritage Assets which provides the basis for English Heritage advice on the setting of heritage assets when responding to consultations by third parties and is still effective under the NPPF. Relevant policies of World Heritage Site Management Plans also form a key material consideration within the planning system. The National Planning Policy Framework replaced Planning Policy Statement PPS5 was published in March 2010 which in turn replaced PPG15 and PPG16 which dealt with the historic environment and archaeology. Revisions to spatial planning policy including circulars and guidance are likely in Autumn 2013 following on from the recommendations made in Lord Taylor's 2012 review of planning guidance.
- 4.2.4 The National Planning Policy Framework (NPPF) covers all of the topics that were previously covered by the PPS and PPG documents. It requires that local authorities develop a positive strategy for the conservation and enjoyment of the historic environment and says that in doing so they should recognise that heritage assets are an irreplaceable resource and conserve them in a manner appropriate to their significance. Furthermore, the NPPF states that substantial harm or loss of designated heritage assets of the

highest significance, notably World Heritage Sites, should be wholly exceptional. Local authorities are advised by the NPPF that consent that would lead to such harm or loss should be refused unless it is necessary to achieve substantial public benefits that outweigh that loss. Where a development proposal would lead to less than substantial harm to the significance of a designated heritage asset then that harm must be weighed against the public benefits of a proposal, including securing its optimum viable use.

- 4.2.5 Paragraph 138 of the NPPF states that not all elements of a World Heritage Site will necessarily contribute to its significance. It goes on to say that loss of a building or other element which makes a positive contribution to the significance of a World Heritage Site should be treated either as substantial harm or less than substantial harm and managed as appropriate; taking into account the relative significance of the element affected and its contribution to the significance of the WHS as a whole. It should also be noted that the NPPF requires local planning authorities to ensure that an applicant describes the contribution of setting to the significance of a heritage asset, making that an important element for consideration when determining an application.

- 4.2.6 Circular 07/09: Protection of World Heritage Sites in England and the supporting English Heritage Guidance Note replaced and expanded on guidance that was originally given in PPG 15: Planning and the Historic Environment. It gives advice on the level of protection and management needed for WHSs and draws attention to the protection of these sites.

Objective:

The Circular states that the Statements of Outstanding Universal Value are to be regarded as key references for the effective protection and management of WHSs. It indicates their importance as a key material consideration to be taken into account by the relevant authorities when plan-making and when determining planning and related applications and by the Secretary of State in determining cases on appeal or following call in. The main objective should be the protection of each WHS through the conservation and preservation of its Outstanding Universal Value.

Principles and policies for protection:

Appropriate policies for the protection and sustainable use of WHSs - including enhancement where appropriate – which supplement international and national policy and take account of the specific regional or local circumstances of a particular WHS, should be included in the London Plan and Local Plans.

Effective management of WHSs is concerned with identification and promotion of change that will conserve and enhance their Outstanding Universal Value, authenticity and integrity and with the modification or mitigation of changes that might alter those values. WHS status is a key material consideration and in developing such policies to protect and enhance WHSs, local planning authorities should aim to satisfy the following principles:

- Protecting the WHS and its setting, including any buffer zone, from inappropriate development.
- Striking a balance between the needs of conservation, biodiversity, access, the interests of the local community and the sustainable economic use of the WHS in its setting.
- Protecting the WHS from the effect of changes which are relatively minor but which, on a cumulative basis, could have a significant effect.
- Protecting WHSs from climate change but ensuring that mitigations is not at the expense of authenticity or integrity.

#### Actions:

- A Management Plan needs to cover all the issues affecting the WHS.
- Planning authorities should treat relevant policies in WHS Management Plans as key material considerations when making plans and planning decisions, to take them fully into account when devising local plans and other development documents and to give them due weight in their other actions relating to WHSs.

#### Protecting the setting of WHSs:

- In developing plans for WHSs it is important to consider carefully how to protect the setting of each WHS so that its Outstanding Universal Value, integrity, authenticity and significance is not adversely affected by inappropriate change or development.
- A buffer zone is defined in the UNESCO Operational Guidelines as an area surrounding the WHS which has complementary legal restrictions placed on its use and development to give an added layer of protection to the WHS. Additional policies may also be needed in the London Plan and local plans if it is necessary to protect the setting beyond any buffer zone.
- It may be appropriate to protect the setting of WHSs by the protection of specific views and viewpoints.

- 4.2.7 English Heritage was established under the National Heritage Act 1983 and is the Government's statutory adviser on the protection of England's historic environment. It is adviser to the Secretary of State on the List of Buildings of Special Architectural or Historic Interest, and maintains the Register of Parks and Gardens of Special Historic Interest in England. It also maintains England's Historic Environment Record and the Greater London Historic Environment Record (GLHER), and employs Ancient Monuments Advisers to advise the Secretary of State on applications for Scheduled

Monument Consent. In London, English Heritage has power of direction on applications for listed building consent for works to Grade I and II\* listed buildings and for major works to Grade II buildings. It is the Government's principal adviser on all matters relating to the World Heritage Convention.

4.2.8 In 2008, English Heritage published Conservation Principles: Policies and Guidance for the Sustainable Management of the Historic Environment to strengthen the credibility and consistency of decisions taken and advice given by English Heritage staff. Since English Heritage is the Government's principal adviser on the conservation of the historic environment including the application of the World Heritage Convention, it is hoped that the principles used by English Heritage staff can play an important part in English Heritage's future involvement at RBG Kew.

4.2.9 Conservation Principles defines 'Conservation' as the process of managing change to a 'significant place' and its setting in ways that will best sustain its heritage values, while recognising opportunities to reveal or reinforce those values for present and future generations. At the highest level they are defined in the following six statements:

1. The historic environment is a shared resource.
2. Everyone should be able to participate in sustaining the historic environment.
3. Understanding the significance of places is vital.
4. Significant places should be managed to sustain their values.
5. Decisions about change must be reasonable, transparent and consistent.
6. Documenting and learning from decisions is essential.

4.2.10 English Heritage's publication The Setting of Heritage Assets (October, 2011) sets out guidance for managing change in the setting of all types of heritage asset. The publication sets out its relationship to other instruments protecting WHSs in Appendix 4 and is careful to state here that the setting of WHSs will always be more extensive than the buffer zone required for them by UNESCO.

4.2.11 The Guidance advises that local planning authorities should include the conservation and enhancement of the setting of heritage assets in their local plans by using criteria based and site-specific policies and supplementary planning documents where necessary. It also sets out a five step process to be used to assess the implications of development proposals on the setting of heritage assets:

Step 1: Identify which heritage assets and their settings are affected;

Step 2: Assess whether, how and to what degree these settings make a contribution to the significance of the heritage asset(s);

Step 3: Assess the effects of the proposed development, whether beneficial or harmful, on that significance;

Step 4: Explore ways of maximising enhancement and avoiding or minimising harm;

Step 5: Make and document the decision and monitor outcomes.

## **Regional**

- 4.2.12 Although the Localism Act 2011 abolished regional strategies it left the requirement for the preparation of the London Plan in place. The second iteration of the London Plan was published in July 2011 and it contains stronger heritage provisions than the original London Plan (2004), particularly in relation to WHSs (Policy 7.10) which states:

### **Policy 7.10 World Heritage Sites**

#### **Strategic**

A. Development in World Heritage Sites and their settings, including any buffer zones, should conserve, promote, sustainable use and enhance their authenticity, integrity and significance and Outstanding Universal Values. The Mayor will work with relevant stakeholders to develop supplementary planning guidance to define the setting of World Heritage Sites.

#### **Planning decisions**

B. Development should not cause adverse impact to World Heritage Sites or their setting, including any buffer zone which is likely to compromise a viewer's ability to appreciate its Outstanding Universal Values, integrity, authenticity and significance. In considering planning applications appropriate weight should be given to implementing the provisions of the World Heritage Site Management Plans.

#### **Local Development Framework preparation**

C. LDFs should contain policies to:

- a) protect, promote, interpret, and conserve, the historic significance of World Heritage Sites and their Outstanding Universal Values, integrity and authenticity
- b) safeguard, and, where appropriate, enhance both them and their settings
- c) where available, World Heritage Site Management Plans should be used to inform the plan-making process.

- 4.2.13 Extracts from Policy 7.2 of the London Plan (2011) states:

7.28 The World Heritage Sites at Maritime Greenwich, Royal Botanic Gardens Kew, Palace of Westminster and Westminster Abbey including St Margaret's Church, and Tower of London are embedded in the constantly evolving urban fabric of London. The



surrounding built environment must be carefully managed to find a balance between protecting the elements of the World Heritage Sites that make them of Outstanding Universal Value and allowing the surrounding land to continue to change and evolve as it has for centuries. To help this process, the Mayor will encourage the development and implementation of World Heritage Management Plans.

- 7.29 Development in the setting, or buffer zone where appropriate, of these World Heritage Sites, should provide opportunities to enhance their setting through the highest quality architecture and contributions to the improvement of the public realm that are consistent with the principles of the World Heritage Site Management Plans. However, it is vital that development in the setting of World Heritage Sites contributes to the provision of an overall amenity and ambience appropriate to their World Heritage status.

Extracts from Policy 7.7 of the London Plan states:

**Policy 7.7 Location and design of tall and large buildings Strategic**

Tall and large buildings should be part of a plan-led approach to changing or developing an area by the identification of appropriate, sensitive and inappropriate locations, and should not have an unacceptably harmful impact on their surroundings.

**Planning Decisions**

D. Tall Buildings in certain areas need particular consideration to be given to their impacts. Such areas might include conservation areas, listed buildings and their settings, registered historic parks and gardens, scheduled monuments, battlefields, the edge of the green belt or Metropolitan Open Land, World Heritage Sites and their the settings or other areas designated by boroughs as being sensitive or inappropriate for tall buildings.

- 4.2.14 The Mayor of London's View Management Framework (LVMF) published in 2012 does not include any protected views of Kew although arguably there are views associated with Kew that should be protected. When the LVMF is next revised consideration should be given to protection key views of Kew.4.2.15 World Heritage Site Setting Supplementary Planning Guidance

As required by Policy 7.10A of the London Plan, the Mayor has prepared the World Heritage Site Supplementary Planning Guidance (SPG) which sets out the elements of a World Heritage Site's setting that contribute to its Outstanding Universal Value (OUV) as well as an assessment framework for managing change in the setting of WHSs. The

SPG states that it is for those responsible for managing change in the setting of WHSs to take the elements forward into their plans and strategies. The elements are grouped into physical, user experience and other considerations and are as follows:

#### Physical

1. Context
2. Character
3. Landscape and Topography
4. Relationship with the River Thames
5. Views in, out and across World Heritage Sites
6. Routes
7. Public Realm

#### User Experience

8. Diurnal and Seasonal Considerations
9. Accessibility and Inclusion
10. Safety and Security

#### Other Considerations

11. Historic and Cultural Associations
12. Environmental Factors
13. Sustainability and Climate Change

4.2.16 The WHS SPG assessment framework for managing change in the setting of World Heritage Sites is based on ICOMOS Guidance on undertaking Heritage Impact Assessments on World Heritage Sites. The framework has eight steps as follows:

1. Consider the Outstanding Universal Value of the World Heritage Site, including authenticity and integrity
2. Analyse the contribution made by the World Heritage Site's setting to its

Outstanding Universal Value (refer to setting elements above)

3. Identify and consider the significance of other heritage assets

4. Analyse the contribution made by other heritage assets' settings to their significance

5. Assess the Effects

- Scheme Design
- Direct/Indirect Impacts
- Permanence
- Cumulative Impact
- Scale of Change
- No change
- Negligible change
- Minor change
- Moderate change
- Major change

Magnitude of Impact

- Neutral
- Small
- Medium
- Large
- Very large

6. Potential adverse impacts avoided, reduced or mitigated

7. Potential opportunities for enhancements

8. Summary and conclusions

4.2.17 The SPG indicates that the assessment framework could form a component of a document or be part of a supporting evidence base for a planning document. In relation to development proposals, the SPG indicates that the assessment framework could form part of an environmental impact assessment. In either event, the SPG specifies that the assessment must clearly focus on the contribution of the WHS setting to its OUV and assess the potential for adverse impacts or potential enhancements in relation to this. The SPG further indicates that issues relating to the setting of WHSs must be considered rigorously at all stages of the Environmental Impact and Strategic Environmental Assessment/Sustainability Appraisal processes

## **Local**

- 4.2.18 At the local level, the planning framework for each Local Planning Authority is the Local Plan which can be supplemented occasionally by Supplementary Planning Documents. This is a new system that came into effect with the passing of the Localism Act 2011 and consequently there are relatively complex transitional arrangements in place to help LPAs make the change from the old Local Development Framework (LDF) system instituted in 2004. Where a local authority has no up-to-date plan, applications are to be decided using the NPPF as the primary planning policy. Where an LPA has an up-to-date plan prepared recently under the LDF system, it has one year to obtain a certificate of compliance with the NPPF. As a consequence, many LPAs are revising and collating their Core Strategies with their other Development Plan Documents such as Development Management Plans, Site Allocations and Area Action Plans.
- 4.2.19 In addition, the Localism Act 2011 introduces the concept of Neighbourhood Planning which enables a recognised neighbourhood forum to produce a plan for their neighbourhood to be incorporated as a development plan document that forms part of the local plan. Neither Richmond nor Hounslow have any neighbourhood forums at present although Richmond indicate that they are preparing village plans that have been subject to extensive community consultation. Neighbourhood Plans must be in compliance with the relevant Local Plan, the London Plan, the World Heritage Site Setting SPG, and the NPPF and consequently they will need to carefully consider the effect of any of their proposals on the Outstanding Universal Value of Kew should these occur in the vicinity of the WHS or its setting including the buffer zone.
- 4.2.20 Kew Gardens and most of its buffer zone is located within the London Borough of Richmond-upon-Thames (Richmond). Part of Kew's buffer zone is located within the London Borough of Hounslow (Hounslow). Richmond adopted its Core Strategy in April 2009 and its Development Management Plan in November 2011 and so is regarded as having an up-to-date plan. Hounslow published its Issues and Options report for its Core Strategy in 2011 but it adopted the Brentford Area Action Plan in 2009 and part of Kew's buffer zone falls within the jurisdiction of this plan. Applications in Hounslow will largely be governed by the NPPF until they adopt a Local Plan although development in Brentford would need to comply with the Brentford AAP until 27 March 2013 or the adoption of a local plan whichever comes first.
- 4.2.21 Richmond's Core Strategy requires the protection and enhancement of the historic environment and is based upon three interrelated themes: 'A Sustainable Future'; 'Protecting Local Character'; and 'Meeting People's Needs'. The Development Management Plan contains a range of policies concerning heritage and specific provisions relating to Kew as follows:

### **Policy DM HD 5 - World Heritage Site**

The Council will work with others to protect, promote, interpret, sustainably use, conserve and, where appropriate enhance the Royal Botanic Gardens Kew World Heritage site and its setting including the buffer zone by conserving its Outstanding Universal Value, integrity, authenticity and significance. Development proposals should not cause adverse

impact on the World Heritage Site or its setting that would compromise its Outstanding Universal Value, integrity, authenticity and significance and give appropriate weight to the World Heritage Site Management Plan.

4.2.22 Hounslow provides detailed coverage of the buffer zone in the Brentford Area Action

Plan as follows:

4.2.23 Brentford on the opposite bank of the River Thames is partially located in the buffer zone of Kew World Heritage Site. The Brentford Area Action Plan (BAAP) was adopted in January 2009, and contains objectives and policies which seek to provide a spatial strategy for the continued regeneration of the Brentford area. The BAAP seeks to promote Brentford Riverside as a mixed use redevelopment and promotes water related uses particularly those that support greater use of the river for educational and recreational uses as part of mixed-use schemes, to assist in area regeneration.

The BAAP policies include the following:

- Development should respect and enhance riverside views and the setting of Kew Gardens and Kew Palace on the opposite side of the River within the London Borough of Richmond. Links between Kew Palace across the River Thames to the entrance to the Grand Union Canal at Brentford and views from the towpath to St. George's Church and Kew Bridge Steam Museum campanile are regarded as extremely important to the setting and character of Kew Gardens.

Pedestrian access to, from and along the river should be provided with opportunities for access across various points through new development.

- The natural river edge should be retained. The choice of plants for landscaping along the riverside shall be influenced by nature conservation. The Thames islands of Brentford Eyot and Lots Eyot form an extended landscape with Kew.
- The taller buildings in the east of the Brentford area are regarded as not representing 'examples of good urban design which should be followed as a precedent'.
- The BAAP endorses the Thames Landscape Strategy (TLS), a 100 year blueprint agreed by all the key stakeholders for the protection and enhancement of the Arcadian River Thames from Hampton to Kew. The TLS promotes, among other things, the establishment of a 'waterspace employment cluster' to encourage boat building and repair downstream of Thames Lock. It also proposes a number of mooring enhancements. Possible improvements to the pedestrian connections between Syon House and Ferry Quays are being investigated through the installation of accessible ramps and new sections of towpath that would see significant improvements to the Thames Path. The TLS is also working towards the re-introduction of the Brentford Ferry to link Syon House

with Kew Gardens. The river frontage of Syon Park is described in the TLS as being one of the finest remaining naturalistic landscapes along the Thames.

#### **4.3 Heritage Protection Reform**

- 4.3.1 The Heritage Protection Reform programme (HPR) was born of the comprehensive Heritage Protection Review and subsequent public consultation on the proposals set out by Government in 2003 to improve the way our historic environment is managed. The Department for Culture, Media and Sport published a White Paper on Heritage Protection in the 21st Century in March 2007. This proposed wide ranging changes to the current system of heritage protection, some of which will require primary legislation and some of which can be achieved by other means. A draft Heritage Protection Bill was published for pre-legislative scrutiny in April 2008 but unfortunately lack of Parliamentary time prevented its consideration. The Government remains committed to HPR and continues to review options for legislative change.

#### **4.4 Relationship to other statutory and management plans**

- 4.4.1 Kew Gardens has a Management Plan, a Site Conservation Plan, and a Landscape Master Plan. Kew Gardens produces a three year rolling Corporate Plan.
- 4.4.2 The two major local landowners of the WHS Buffer Zone, Crown Estates and the Duke of Northumberland, have also prepared strategies for the Old Deer Park and Syon Park, respectively.
- 4.4.3 The Thames Landscape Strategy is a sub-regional partnership for the River Thames between Hampton and Kew in West London. It brings together a partnership of organisations, individuals and local groups to provide strategic guidance for the Thames corridor. The partnership acts as a catalyst to implement project work on the ground, and as a day to day link between the authorities, the local communities and the vision of the Strategy.

#### **4.5 Historic Environment Designations**

##### ***Conservation Areas***

- 4.5.1 Under the provision of Part II of the Planning (Listed Buildings and Conservation Areas) Act 1990, Local Planning Authorities have a duty to designate and care for Areas of Special Architectural or Historic Interest (Conservation Areas). The Act grants statutory protection to the fabric, character and setting of the special architectural or historic interest of conservation areas.
- 4.5.2 The entirety of the Site is included within the Kew Gardens Conservation Area designated by the London Borough of Richmond-upon-Thames. Part of the Buffer Zone is included in the Isleworth Riverside Conservation Area in the London Borough of Hounslow.

- 4.5.3 Crown Immunity for sites owned by the Crown ceased in 2006, meaning that such sites now are required to apply for Planning Permission, Listed Building and Conservation Area Consent and Scheduled Monument Consent. Since Kew falls within a Conservation Area every tree is treated under the Trees and Country Planning Act 1990. Trees with a trunk diameter of 75mm measured at 1.5m from the ground in Conservation Areas have protection under the above planning law and where works are to be carried out to trees Richmond Council must be notified in writing of the intention to do any works to the tree. RBG Kew has a written agreement that it continues to carry out work on its tree collections without formal applications for individual trees, provided the Head of the Arboretum and the Richmond Council Arboricultural Officer meet at 6 monthly intervals to discuss forthcoming work programmes and provide an annual schedule of works. (see attached appendix)

#### ***Buildings of Special Architectural or Historic Interest (Listed Buildings)***

- 4.5.4 Forty-four buildings and structures within the Site have been 'Listed' as Buildings of Special Architectural or Historic Interest by the Secretary of State for Culture, Media and Sport. All listed buildings are statutorily protected under the Planning (Listed Building and Conservation Area) Act 1990. The Act protects the interior, exterior, fittings, fixtures and settings of these structures, and stipulates that proposed alterations to these buildings, or their settings, require consultation with the relevant local planning authority. Work to a listed building normally requires Listed Building Consent to ensure that it is undertaken in accordance with the provisions of the Act. Both English Heritage and the local planning authority have powers of direction in regard to Listed Buildings. The Act also empowers local planning authorities to require or carry out urgent works to any Listed Buildings that it considers to be vulnerable.
- 4.5.5 Listed Buildings in the nominated site include: Six Grade I Listed Buildings: the Pagoda; Temperate House; the Dutch House (or Kew Palace); Palm House; Queen Charlotte's Cottage and the Orangery. Grade I are the most important and best-preserved buildings / structures, and only about 2% of all listed buildings in England fall within this category; Five Grade II\* Listed Buildings. Only about 4% of all listed buildings in England are in this category; and Thirty-six Grade II Listed Buildings. About 94% of England's listed properties are Grade II.

#### ***Scheduled Monuments***

- 4.5.6 The Site contains Two Scheduled Monuments (SM); the Dutch House (or Kew Palace), this is also a Grade I listed building and Queen Charlotte's Cottage. Works that affect a SM require Scheduled Monument Consent which is granted by the Secretary of State for Culture Media and Sport.

#### ***Register of Parks and Gardens***

- 4.5.7 The whole of the Site is designated Grade I on the Register of Parks and Gardens of Special Historic Interest compiled by English Heritage, in recognition of its exceptional historic interest. Inclusion on the Register is a material consideration in determining

planning applications, and local planning authorities are required to protect such sites through their development plan policies and in development control decisions. English Heritage and the Garden History Society are to be consulted on planning applications affecting registered gardens and their settings.

#### **4.6 Nature Conservation Designations**

- 4.6.1 The nature conservation interest of the Gardens has been afforded protection by the London Borough of Richmond-upon-Thames through designation as a Site of Borough Importance for Nature Conservation.



## **5.0 Current management context**

### **5.1 Ownership and management responsibilities**

5.1.1 The Royal Botanic Gardens, Kew (RBG, Kew) and Historic Royal Palaces (HRP) manage the site in partnership, working together to ensure the continued conservation of the exceptional historical and botanical significance of the site and the maintenance of its Outstanding Universal Value. The Royal Botanic Gardens, Kew and Historic Royal Palaces have agreed a Partnership Protocol to guide their joint management of the Site.

#### **5.1.2 Royal Botanic Gardens, Kew**

5.1.2.1 The strategic and operational management of the Royal Botanic Gardens, Kew is the responsibility of the Board of Trustees established by the National Heritage Act (1983). Eleven members of the Board are appointed by the Secretary of State and one by Her Majesty the Queen. RBG, Kew is an Executive Non Departmental Public Body (NDPB) and a corporate body with exempt charitable status.

5.1.2.2 The National Heritage Act 1983 defines the objectives and responsibilities for RBG Kew's Board of Trustees. Under the terms of the Act the Board shall:

- carry out research into the science of plants and related subjects and disseminate the results;
- provide advice, instruction and education in relation to aspects of botany in which RBG Kew is involved;
- provide other plant related services including quarantine
- care for the collections;
- keep the collections as national reference collections, secure and available for study;
- afford opportunities to the public to enter land managed by the Board for the purpose of gaining knowledge and enjoyment.

5.1.2.3 The day-to-day management of the Royal Botanic Gardens, Kew is the responsibility of the Director, who is appointed by the Board with the Secretary of State's approval.

#### **5.1.3 Historic Royal Palaces**

5.1.3.1 Historic Royal Palaces are contracted by the Secretary of State for Culture, Media and Sport to manage the palaces on behalf of Her Majesty the Queen. Historic Royal Palaces is responsible for the care, conservation and presentation to the public of the unoccupied royal palaces: HM Palace and Fortress of The Tower of London; Hampton Court Palace; Kensington Palace State Apartments; the Banqueting House, Whitehall; and Kew Palace with Queen Charlotte's Cottage.

5.1.3.2 Historic Royal Palaces is a Royal Charter Body with charitable status and it is also a Non-Departmental Public Body. HRP is supervised by a Board of Trustees, all of whom are non-executive. The Chief Executive of HRP is responsible to the Board of Trustees.

## **5.2 Role of Defra**

- 5.2.1 The Secretary of State for the Department for the Environment, Food and Rural Affairs (Defra) has overall responsibility for the Royal Botanic Gardens, Kew and is accountable to the UK Parliament. The Secretary of State's role is to ensure that the Gardens deliver their statutory obligations, are accountable to Parliament for the expenditure of public funds and produce work of a high scientific quality.
- 5.2.2 As an Executive NDPB, Kew operates at arm's length from Defra, its sponsor department. Defra's role is one of Governance, ensuring that Kew is properly managed and that its grant-in-aid is used appropriately and effectively. Within this framework, Kew has twelve Key performance indicators and, each year, produces a three-year rolling Corporate Plan and its formal Annual Report and Accounts.
- 5.2.3 Government Policy and Cabinet Office guidance continues to stress that NDPB's should be reviewed periodically by their sponsoring department to assess their performance and the ongoing need for their functions. A report of a Defra-commissioned independent review of RBG, Kew was published in February 2010.

## **5.3 Role of English Heritage**

- 5.3.1 English Heritage was established under the National Heritage Act 1983 and is the Government's statutory adviser on the protection of England's historic environment. Its role has already been described in section 4.2.7 of this plan.

## **5.4 Role of the World Heritage Site Steering Group**

- 5.4.1 The WHS Steering Group (SG) has a monitoring and advisory role since the inscription of the Kew Site in 2003. The group is primarily charged with overseeing the implementation of the plan's objectives and vision, but also acts as a multi-agency liaison panel to ensure that the World Heritage Site and its OUV is properly taken into account in wider decisions that may affect it. The group meets twice annually (May & November) to review progress and discuss any key issues facing the site.
- 5.4.2 The purpose of the Steering Group is to provide a forum for key stakeholders to discuss matters of common interest with respect to the inscription of The Royal Botanic Gardens, Kew as a UNESCO World Heritage Site, and to provide advice to the Director and the Board of Trustees of Kew on the implementation of the World Heritage Site Management Plan.

The Steering Group fulfils an advisory role. Decision-making authority resides entirely with the Trustees of the Royal Botanic Gardens, Kew, as specified under the terms of the National Heritage Act (1983), and with the trustees of HRP.

#### 5.4.3 The remit of the Steering Group is:

- Reviewing general progress with formulation and implementation of the WHS Management Plan and assisting in the prioritization of actions required by the Plan;
- Providing advice on conservation issues in relation to specific opportunities and responsibilities within (or around) the Site;
- Helping build consensus on, and support for, sustainable approaches to the long-term management and development of the Site;
- Assisting RBG, Kew and Historic Royal Palaces in promoting and building understanding of The Royal Botanic Gardens, Kew World Heritage Site and its values to wider audiences;
- Developing links with other WH Sites, especially in the UK, in order to benefit from an understanding of their management strategies and conservation values.

#### 5.4.4 Conduct of Business of the Steering Group

- The Members of the SG will work together in a spirit of cooperation and consensus;
- The SG will meet twice a year to discuss matters of common interest and to receive an update from The Royal Botanic Gardens, Kew and HRP on recent progress and plans with regard to the implementation of the World Heritage Site Management Plan;
- The Group will normally meet at The Royal Botanic Gardens, Kew;
- Outside of meetings communication between SG members can be facilitated by email;
- The SG will be chaired by the Director of The Royal Botanic Gardens, Kew.

#### 5.4.5 Steering Group Membership

- RBG Kew (Chair)
- Defra
- DCMS
- English Heritage, EH
- Historic Royal Palaces, HRP
- ICOMOS UK
- LB Richmond-upon-Thames
- LB Hounslow
- Greater London Authority, GLA
- Thames Landscape Strategy, TLS

### 5.5 The Kew and HRP WHS team

- 5.5.1 The Head of Estates at RBGK manages, monitors and reports on the World Heritage Site Management Plan. Progress against the action plan forms a standing agenda item on monthly progress meetings of the Conservation, Living Collections and Estates Department, chaired by the department's director. Progress is additionally monitored on a quarterly basis by the Kew Site Curatorial Group where the development and implementation of the action plan is considered.

- 5.5.2 The World Heritage Site Management Plan is monitored and implemented by the Historic Royal Palaces Group Director who is responsible for the operations, management and maintenance of the palaces and grounds.
- 5.5.3 Overall progress is reported by representatives from both RBGK and HRP to the twice yearly World Heritage Site Steering Group chaired by the RBGK director.

## **5.6 The Local Community**

- 5.6.1 The Kew Society is a local organization and registered charity dedicated to enhancing the beauty of Kew and preserving its heritage. It provides a forum for local groups. One of the aims of the Kew Society is to review planning applications with special regard to architectural integrity and heritage of the neighbourhood.

## **5.7 Other interested stakeholders**

- 5.7.1 Friends of the Royal Botanic Gardens, Kew. Membership contributions to Kew supports the work of Kew, its gardens and science-based conservation worldwide as well as providing the potential for lobbying for or against proposals brought by other stakeholders that might affect the integrity of the site or its maintenance.
- 5.7.2 Consideration should be given to the development of a Kew Forum that would represent the Richmond and Hounslow communities. This forum should have a nominated representative on the World Heritage Steering Group.

## Part 2:



### KEY MANAGEMENT ISSUES



## **6.0 Introduction to key issues**

- 6.1 The key purpose of the Management Plan is to set out a framework for the management of the WHS to ensure its conservation and continued sustainable use and the maintenance of its OUV. To achieve this, the Management Plan also needs to address issues relating to visitor experience and education, sustainable development and scientific research.
- 6.2 Key attributes to consider include a rich and diverse historic cultural landscape; an iconic architectural legacy; numerous archaeological sites relating to the historic development of the Site; a locally significant nature conservation resource; globally important preserved and living plant collection and a horticultural heritage of keynote species and specimens.
- 6.3 The Landscape Master Plan provides an overall vision for Kew Gardens with long term aims. The WHS Management Plan identifies key issues (part 2) and by the development of policies and actions addresses how to deal with them (part 3).
- 6.4 Considerable progress has been made on some issues since 2002. Others can now be resolved in new ways in the light of changing circumstances. In addition, some new issues are discussed for the first time because of their significance either for the UNESCO World Heritage Committee or the UK Government (for example, consideration of climate change and risk preparedness has been asked for by the World Heritage Committee). There have also been considerable changes in both international and national policy which will affect the future management and conservation of the site.

It will also be important to ensure that all relevant policies are carried forward by the Thames Landscape Strategy.

## 7.0 Planning and Policy framework

### *Issue 1: New UNESCO guidance and requirements*

- 7.1 The World Heritage Committee places increased emphasis on articulating 'Outstanding Universal Value' and operational criteria to assess authenticity and integrity. Whilst this report has taken this approach into account, the operational criteria are in need of further development in the coming plan period.
- 1.2 The UNESCO World Heritage Committee has been considering the likely impact of climate change on World Heritage Sites and has published a strategy for tackling this issue (Climate Change and World Heritage, World Heritage Occasional Paper 22, Paris 2007). The Committee has requested new and existing World Heritage Sites to integrate climate change issues into new and revised management plans (as appropriate) including risk preparedness, adaptive design and management planning.

### *Issue 2: The effect of the introduction of Regional Spatial Strategies and Local development framework*

- 7.3 It is vital that all government departments, agencies and other statutory bodies should continue to recognise the need for special treatment where the RBGK WHS is concerned, in respect of policy formulation and implementation, future funding commitments and programmes of work. Incorporation of relevant Management Plan policies into the spatial planning system is essential. Since 2008 the Government has introduced a new system for local planning focused on Regional Spatial Strategies and Local Development Frameworks which together form the development plan. There are various ways in which the relevant policies dealing with spatial planning from the Management Plan could be adopted in the Local Development Frameworks for this area. Doing so will give greater weight to those policies in determining planning applications.
- 7.4 Issues which will need further consideration in relation to Local Development Frameworks Plan policies for the WHS include:
- The development of additional advice and procedures for considering applications outside the Site which could have a significant visual impact or other potential adverse effects on the WHS. Any such advice should supplement and not replace the policies of the development plan;
  - Inclusion of appropriate policies in Local Authority Core Strategies for the protection of the historic environment in general and the World Heritage property in particular;
  - The adequacy of archaeological policies for development control in relation to PPS5
  - The appropriateness of historic landscape and WHS policies in relation to the NPPF and Circular 07/09 on World Heritage; any review of landscape policies should be informed by a systematic Historic Landscape Character Assessment of the WHS;



- A review of the scope and extent of the existing Article 4 Direction for the WHS;
- The implications of the ratification of the European Landscape Convention.

- 7.5 The National Planning Policy Framework seeks to make the planning system less complex and more accessible whilst promoting sustainable growth, and the Localism Bill, aimed at handing power down from central government to councils, communities and individuals, will affect planning guidance and planning control over the course of this management plan and should therefore be kept under review.

*Issue 3: Sustainable Community Strategies*

- 7.6 The commitment and need for a partnership approach to the long-term management and improvement of the Site is reflected in the Government's current policies for World Heritage Sites.

*Issue 4: Protection through the Spatial Planning System*

- 7.7 Ensuring that any new development within the WHS is compatible with its status as a WHS is a clear priority for the Plan. Development management policies should seek to prevent or avoid, as appropriate, the adverse impacts of development within the WHS upon the Site and its OUV. Similarly, development outside the WHS which might adversely affect it and its setting should also be controlled through appropriate policies.

*Issue 5: Changes to the legal protection of World Heritage Sites*

- 7.8 Future reviews of the development plan should ensure that the requirements of the NPPF, and of the 07/09 World Heritage Planning Circular are met in full in relation to the WHS.

*Issue 6: The application of English Heritage's Conservation Principles to the RBG, Kew WHS*

- 7.9 Ensuring that the English Heritage Conservation Principles are compatible with Kew WHS Management Plan. Addressing issues of authenticity and integrity should be made operational in the duration of this plan in order to establish priority in conservation and maintenance.

## 8.0 Boundaries and setting of WHS including Buffer Zones and views

### *Issue 7: The need to keep the boundary of the WHS Buffer Zone under review*

- 8.1 The greatest development pressures relating to the setting of the Gardens are currently situated in the Brentford area on the west bank of the Thames. The existing Buffer Zone boundary of the WHS in respect to Brentford is regarded as not sufficient and therefore does not encompass all the necessary future visual protection of its setting. The extension of the WHS Buffer Zone further into Brentford is likely to be beneficial for both Kew Gardens and the aspirations for the regeneration of the area. Defining the scope of any changes to the Buffer Zone boundary will be a separate piece of work. Changes to the Buffer Zone boundary are treated as minor boundary modifications and would not require a re-nomination of the Site. Clarification is required to resolve the discrepancies between the written description of the Buffer Zone in the nomination dossier and the map showing its boundaries. If necessary a minor Buffer Zone boundary alternation will be submitted for approval by the World Heritage Committee.
- 8.2 In the long term a review of the significance of the interrelation of the Site in the context of the Old Deer Park / Syon House and the wider River Thames Arcadian landscape should be considered in order to establish whether the WHS site boundaries and Buffer Zone are sufficient to protect the integrity and authenticity of the Site within the wider natural and cultural landscape. This change is likely to require a renomination as additional values would need to be added to the Statement of Outstanding Universal Value.

### *Issue 8: The need to protect view lines outside the WHS buffer zone*

- 8.3 The view lines of the vistas and their visual envelopes extend outside the World Heritage Site Buffer Zone, but are an integral part of the Site's Outstanding Universal Value and will need additional planning protection. The Haverfield Estate tower blocks in Brentford built in the 1950-60's are 22 storeys high and rise to approximately 70 metres. They have a detrimental effect on the skyline due to their visibility throughout most of the Gardens and especially from the Broadwalk and Pagoda Vistas, both of which are key attributes of the Nesfield / Burton design. The Bull Building, with a height of 69m, is also visible from various parts of the site. These buildings increase pressure for further tall buildings in their vicinity. Developers have argued that the presence of tall buildings is a particular feature of the locality and hence feel that further tall buildings would be in keeping with the character of the area. Due to the 2010 economic recession various developments which could have a significant impact on Kew have either been delayed or put on hold however these developments are likely to resume once favourable economic conditions return.

### *Issue 9: Re-instating the relationship with the river Thames*

- 8.4 From their inception the Gardens had a strong relationship with the River Thames and the wider landscape beyond. Over time this relationship has become less apparent. Optimising the natural and cultural relationship with the River Thames provides a great opportunity to create a new 21st Century agenda for Kew Gardens.

- 8.5 Some of the developments in Brentford have great potential to improve the current urban and waterfront conditions and to start considering an integrated approach towards regeneration, access, routings and historic interpretation. The possibility for a reinstated foot ferry or even a pedestrian bridge between Brentford Dock and Ferry Lane should be studied. It also needs to be considered that Kew's riverside car park creates a negative visual impression. The Thames landscape Strategy is promoting the re-introduction of the Brentford Ferry to link Syon House with the Gardens.
- 8.6 A footbridge connection to Syon House/Brentford could be an attractive proposition. Such a linkage would allow for new possibilities in respect to arrival/parking, connection to hotel accommodation, vistas across the Arcadian Thames etc, as well as allow for interpretation of SSSI tidal flood meadows and the 'Capability' Brown landscapes on both sides of the river.
- 8.7 Increased collaboration with landowners and land managers of the WHS Buffer Zone could result in closer integration and interpretation of both the historic landscape and ecological potential of the wider area, and should be carried out during the lifetime of this Plan.



Figure 12 - World Heritage Sight Lines / Views

## **9.0 Conservation of the World Heritage Site and its features**

### **9.1 Landscape Conservation**

- 9.1.1 The primary aim of the Management Plan is to preserve and sustain the OUV of the WHS.
- 9.1.2 Sustaining the OUV of the Site should focus on the protection, conservation and enhancement of the WHS, so that the landscape setting and interrelationships of the designed landscape and listed buildings can be fully appreciated. This should include the removal or screening of intrusive features, as well as the preservation of surviving visual and contextual links and the encouragement of an appropriate setting for the WHS and the attributes of its OUV. It should also include consideration of the changing role of the botanic garden in the 21st Century and include inspirational effects of contemporary garden intervention.
- 9.1.3 Thus, Site Conservation should be a co-ordinated and balanced approach which carefully considers the role of biodiversity, sustainability and effects of climate change.
- 9.1.4 This approach could be achieved through three land management regimes which make a distinction between the original botanic garden, the arboretum and the conservation area.
- 9.1.5 The long term safeguarding of the Gardens' spatial structure demands a careful, long-term process of ongoing re-planting and landscape management. Existing open space and corridor vistas should be protected from further encroachment. The setting of the Pagoda and main garden temples / pavilions will be improved, whilst important former garden structures such as Bridgeman's mound, Temple of Victory and Temple of the Sun could be newly interpreted. The setting of Kew Palace could become more distinct by the creation of a 'Georgian Quarter' with possibly a Georgian Kitchen garden and direct access from the riverside, although the authenticity / integrity must be maintained. A new contemporary woodland garden could front Queen Charlotte's Cottage in harmony with its all important natural setting.
- 9.1.6 Opportunities for increasing biodiversity within the WHS as a whole should also be considered as an integral part of the overall aim to enhance the WHS landscape. This will require a comprehensive assessment of the conservation interest across the WHS and along the River Thames Towpath to enable targeting of conservation in key areas of important biodiversity value. This should be linked to regular monitoring to ensure biodiversity objectives are met. Increased biodiversity also presents more opportunities for addressing Kew's global mission on a local scale.
- 9.1.7 The possible impacts of climate change on the WHS need further analysis. The most likely risks at present are increased severe weather events leading to storm damage or prolonged droughts, changes to the River Thames flood regime affecting increased flood risk, and changes to existing growing conditions. The likely impact of climate change needs to be further analysed and monitored.

- 9.1.8 A UNESCO priority is to develop stronger links between the WHS and neighbouring settlements to encourage economic and community benefits in the immediate locality. Existing facilities in local settlements and new linkages to and from these areas should be promoted to visitors to the WHS. This is especially relevant in relation to the urban regeneration of the Brentford area.

## **9.2 Historic Landscape**

### *Issue 10: Conservation and regeneration of the landscape planting framework*

- 9.2.1 Both the historic landscape and the living collections are fundamental for the future of Kew and its landscape structure and character over the coming decades.
- 9.2.2 The arboretum has successfully recovered from the last great (1987) storm. The Gardens will need an ongoing programme of planting in order to conserve spatial structure and age distribution of the collections. The current (implicit) long term strategy for such regenerative planting needs recording, mapping and wider communication / interpretation.
- 9.2.3 The primary vistas and the Broad Walk have become increasingly important for the overall structure, legibility and sense of scale in Kew Gardens. A successful beginning has been made with replanting of the Gardens' main vistas and the Broad Walk.
- 9.2.4 A network of secondary sightlines and open space corridors, partly established and implemented, should be better articulated to create spatial legibility and serial vision. This combined with landform, sightlines to the built fabric, strategically positioned vertical elements and landmark trees, opened up views towards the River Thames etc. could increase the Gardens overall visual coherence.
- 9.2.5 The spatial containment created by boundary planting needs further adjustment, e.g. strengthening the screening alongside the Kew Road / Deer Park and back-stage areas, but more open views across the River Thames should be established. Due to relatively little planting in the first half of the 20th century gaps will occur in the overall structure planting of Kew Gardens in the near and intermediate future. This is already becoming apparent in the gaps of shelter planting such as along the Kew Road perimeter.
- 9.2.6 The display of shrub planting at large has become too scattered across the gardens and could be improved upon in terms of bolder groupings, which could contribute to a stronger spatial definition, sense of serial vision and accentuation of the Gardens' topography. (However, care is needed to ensure that good air circulation is maintained throughout the arboretum areas to lessen the risks from the disease known as Sudden Oak Death, which is caused by *Phytophthora* species.)

### *Issue 11: Reading the historic transformation of the landscape on site*

- 9.2.7 The historic transformation of the gardens is well documented but difficult to 'read' on site. The original distinction between the two separate Royal Parks has been largely lost. The historic relationship with the Deer Park and Syon House (both part of the World Heritage

Buffer Zone) and the wider relationship with the 'Arcadian' landscape could be more fully expressed and interpreted.

- 9.2.8 Of importance is that the landscape setting and interrelationships of the designed landscape and listed buildings can, once again, be fully appreciated. This includes the removal or screening of intrusive features, as well as the preservation of surviving visual and contextual links, opening sight lines and the enhancement of key attributes.

*Issue: The incremental loss of overall spatial coherence and legibility*

- 9.2.9 There has been an incremental reduction of open space. "Not seeing the wood for the trees" and therefore loss of spatial legibility of the Gardens has become an issue of concern. Due to lack of space, new plantings should be considered and prioritised as part of an overall policy of replacement and / or removal of less valuable components of the collection.

*Issue 12: Differentiation in landscape management zones*

- 9.2.10 The main plantations of the Gardens can be divided into three character zones, e.g. original botanic garden (collection of specimen trees), arboretum (taxonomic display) and natural woodland (native trees). Each zone can be articulated and interpreted in a specific atmosphere.

*Issue 13: The conservation of heritage trees*

- 9.2.11 The original soil condition at Kew Gardens is relatively poor for plant growth. Innovative measures have been taken to improve soil and aeration condition around a significant number of Kew Heritage trees.

*Issue 14: Display of the living plant collection*

- 9.2.12 The living collections form a rich horticultural heritage and vital scientific resource. Any future change must allow for the maintenance of the collections and the preservation of horticultural and scientifically significant specimens.
- 9.2.13 The living plant collection is part of an ongoing and evolving curation programme. As new more accurately documented plant material is introduced with improved provenance, existing collections may be removed and replaced.
- 9.2.14 The distinction between either taxonomic or geographic display of the living plant collection needs careful consideration, both in terms of scientific classification, narrative and spatial legibility of the Gardens. Currently plants are grouped according to taxonomy, habitat or theme. Compromise between visual impact, botanical interest and particular growing conditions arguably affects the integrity of parts of the Gardens. Kew should develop a strategy for the major living collections, and make it clearer in the public offer as to which are specimen plants and which are included solely for display purposes.

- 9.2.15 Strategic adaption of the living plant collection over time will have to accommodate the affects of climate change. The selection and planting of new specimens is already increasingly climate driven and, in the past 10 years, the focus for curation and replacement has been on drought and high temperature tolerance.
- 9.2.16 Promotion of increased biodiversity within Kew Gardens presents opportunities for addressing Kew's global mission on a local scale. The geomorphology of the river floodplain including its acid grassland habitats can be expressed and incorporated within the Gardens' overall plant experience.

*Issue 15: The need for design guidelines*

- 9.2.17 Many elements of the Site's landscape are currently 'tired' including signposting, interpretation boards, path edges, surfacing materials etc. Replacements for these and the development of a particular and contemporary landscape style need to occur. The development of in-house design guidelines will benefit the intelligibility and cohesiveness of the landscape and help create a high quality landscape that reflects RBG, Kew's significance and aspirations. In general there is the need to reduce clutter and / or modify intrusive visual elements and introduce a coherent design palette / guidelines for park furniture, signage, bins etc. This will also provide an opportunity for Kew to display the world heritage branding on site.

*Issue 16: The opportunities for contemporary landscape architecture*

- 9.2.18 Landscapes are dynamic, living entities and it is the challenge for Kew to ensure that the development of its landscape is undertaken in a manner that is both sympathetic to its OUV and historic framework and reflects the very best of contemporary design. The issue is to achieve a balance between the history and new contemporary additions to the Gardens and to create a unified and coherent landscape that supplies a rich experience for visitors to ensure the continued viability of the Gardens.
- 9.2.19 The last decade has seen a successful building programme of new architectural structures in the Gardens. Less has been developed in terms of contemporary landscape / horticultural display.

### **9.3 Conservation of buildings and built features**

*Issue 17: The need for a prioritised, long term, conservation and maintenance strategy for Kew Gardens' historic buildings.*

- 9.3.1 The Site contains a rich and varied architectural heritage ranging from large Victorian glasshouses to Georgian houses, garden statues and even 18th / 19th century boundary stones. Over 40 of these structures are designated as Listed Buildings and their preservation is enshrined in UK law, the London plan and supported by NPPF and the LBRuT Development Plan and the LBRuT Local Development Framework.

- 9.3.2 The historic architectural heritage of the Site also includes many unlisted buildings, such as parts of the offices of the Estates Department that have important historical associations, in this case with the Dutch House (Kew Palace). This makes them worthy of long-term conservation as an integral expression of the Site's history and significance.
- 9.3.3 All works on the Site that may affect architectural heritage features need to be undertaken in accordance with current guidelines and be of the highest appropriate quality. Consultation with English Heritage and LBRuT is strongly encouraged, and in the case of listed buildings, it is a statutory requirement..
- 9.3.4 Over the past 30 years, very substantial conservation work has been carried out on many of the structures.
- 9.3.5 Both the Palm House and Temperate House benefitted from substantial conservation programmes in the past, but their fragile wrought iron structures are constantly needing repair and ongoing maintenance. Recently the Marianne North Gallery by James Fergusson has undergone major renovation with support from the Heritage Lottery Fund.

*Issue 18: Addressing the rate of deterioration in the fabric of Kew Gardens' key heritage buildings and ongoing maintenance*

- 9.3.6 Since inscription as a WHS (2003), priority has been given to a 'house in order' approach and to produce a conservation and estate strategy and record system based on clear criteria and risk assessment, as well increased documentation of each of the listed buildings.
- 9.3.7 In general it can be stated that due to an ad hoc approach and lack of thorough planned maintenance programmes the condition of Kew's buildings and infrastructure has deteriorated. This has been recognised and new estate management policies and systems have been put in place to reverse this trend. Kew has developed a refurbishment and maintenance programme to address these problems, which it intends to pursue as and when funding permits. The new strategy will result in a more pro-active and planned approach, but will need to cope with funding constraints.
- 9.3.8 An effective prioritisation process is being implemented to focus on the key buildings. Substantial conservation work is necessary for both the Temperate House and Pagoda. Fortunately, a major programme for the conservation of the Temperate House is now underway, following a successful Heritage Lottery Fund bid.
- 9.3.9 The strategy for managing a built estate should realistically match the resources available, i.e. prioritising the building stock with regards to maintenance standards and looking to remove or minimise the burden. A strategy to optimise income potential from Kew Gardens' built assets should be considered.
- 9.3.10 The estate strategy should maximise Kew Gardens' built assets as platforms for educating the public and to communicate our core messages, especially examples of sustainable living.



- 9.3.11 The Riverside Ha-ha is in a bad state of repair, though some remedial work has been undertaken, but serious consideration of its future will need to be addressed. Assessment of the authenticity of the brick retaining wall will be important.
- 9.3.12 A new Estates Team has been set up, bringing under one umbrella the responsibilities for the development, delivery, maintenance and facilities management services for all the buildings at Kew. The goal of the Estates Team is to ensure that science, horticulture, education and visitor services can all continue to operate in a comfortable and safe environment that meets each of their needs. The building strategy should maximise the delivery of Kew Gardens' future science programmes and the Breathing Planet Programme.

*Issue 19: The 18th and 19th Century buildings infrastructure having to meet 21st Century standards as well as Kew Gardens' current business needs.*

- 9.3.13 Specific issues to be addressed are:
- health and safety standards; especially regarding access for maintenance
  - statutory standards; such as Disability Discrimination Act compliance
  - environmental standards; how to meet carbon reduction targets with inefficient buildings which cannot be changed/adapted easily.
- 9.3.14 Virtually all of the buildings on the Site are in active use, and many are still being utilised for their original function, for example the Palm House and the Temperate House still act as public glasshouses. A few others, like the Orangery, are now used for other purposes. Key to the conservation of the built heritage resource, both designated and undesignated, is ensuring that current and future functions for buildings do not adversely affect the setting, character and fabric of the buildings.
- 9.3.15 Another aspect to consider is the authenticity of a building's function. Sometimes the original purpose for which a building was constructed is inappropriate in the modern context and other patterns of usage have emerged. It may be appropriate in some instances to return buildings to their original function, but this may have a detrimental impact on the historic fabric of a structure and a careful balance will have to be drawn between ensuring authenticity of function and the conservation of fabric and character. Historical traditions of usage also need to be considered in this equation as some buildings, such as the School of Horticulture, have undergone many changes of function and their original function has been largely superseded by later alterations and changes.
- 9.3.16 Some significant success has been achieved in the optimisation of accommodation for staff, visitors and other facilities within the framework of the historic building stock. Future uses for buildings should be assessed, in the first instance, to ensure that they will not degrade the fabric, character and setting of a structure and if possible these future uses should attempt to reflect or enable the presentation of past or original functions. A strategy should be developed to rationalise and optimise staff occupation levels within Kew Gardens' operational buildings, releasing space for other uses or taken out of use.

*Issue 20: The need for a robust property database fully documenting the history and identifying key elements of each building*

- 9.3.17 To ensure the survival and integrity of the Site's architectural heritage it is necessary to conserve both the physical fabric of any structure, any significant internal fixtures, fittings and decoration; the structure's basic character and its setting. This requires the development of a detailed understanding of the history and significance of every historic building on the Site. The Site Conservation Plan supplies this for many buildings on the Site, but key structures such as The Dutch House, the Palm House and some of the Kew Green buildings will, in the future, require the production of specific conservation plans or statements to address their own particular needs and issues.

*Issue 21: the enhancement of the setting of key buildings in WHS*

- 9.3.18 Within the context of building conservation plans, it is possible to identify actions that would enhance the architectural heritage. These include simple measures such as improving the setting through the removal / screening of unsympathetic features and the disguising / removal of intrusive modern services. These enhancements need to be carefully considered as any alterations may affect the significance of a structure.
- 9.3.19 Key buildings and structures have lost their original landscape setting. The setting of the Palm House has been improved by the reinstatement of the original William Nesfield's bed layout (1848) in the modern rose garden. The setting of Kew Palace, The Pagoda and Temperate House could all be improved.

*Issue 22: Structures detracting from WHS*

- 9.3.20 The Site also contains a number of buildings, such as the Pavilion Restaurant, that actively degrade the Site's value and integrity. These need to be considered in the context of the Site's overall significance and, if necessary, alteration, removal or restoration should be undertaken. Further action will require consultation with the relevant authorities, English Heritage and LBRuT, to ensure compliance with planning regulations and other statutory requirements.

## **9.4 Archaeology**

*Issue 23: Improving the recording and condition of archaeological remains within the WHS*

- 9.4.1 The Site has a high potential to contain archaeological deposits from a range of periods, including Palaeolithic and early prehistoric deposits held within the gravel terraces of the River Thames. Evidence for prehistoric activity is well attested to in the local area and numerous find spots are listed in the Greater London Historic Environment Record. There is also a general, but unconfirmed, belief that the Roman army crossed the Thames at Brentford during their first invasion of Britain, and it is likely that any such crossing point would have been accompanied by some form of Roman military installation.

- 9.4.2 The area was occupied throughout the medieval and post-medieval periods and the River Thames acted as a major arterial route during this time. It is possible that remains of sites such as ferry crossing points, buildings and other agricultural features are located within or near to the boundaries of the Site.
- 9.4.3 The most significant archaeological deposits relate to the more recent history of the Site and its development as a major royal centre, landscape garden and botanical garden. The presence of many demolished, removed or relocated structures has been identified in documentary sources and on early maps of the Site. These include a large number of historically significant features, such as:
- The Tudor Kew Farm
  - The Castellated Place - Royal Palace;
  - The 'White House' - Royal Palace;
  - The Hermitage - A William Kent Garden Folly;
  - Merlin's Cave - A William Kent Garden Folly; and
  - The Great Stove - An early botanical hothouse.
- 9.4.4 The locations of many of these structures and other features, such as the Richmond Lodge ornamental canal, have been identified and mapped. Excavations at the site of the White House by the Time Team in May 2002, demonstrated that archaeological deposits are likely to exist in at least some of these locations and the remains of garden walls relating to the Tudor Kew Farm have recently been discovered, recorded and protected.
- 9.4.5 Activities relating to the management of the Site and the maintenance of its Outstanding Universal Value may affect archaeological deposits. For instance, archaeological deposits may be impacted upon by the living collections through root action, general maintenance activities and windblown trees. Developments involving ground disturbance, new buildings or the supply of services, may also impact upon buried deposits and compromise their integrity. It is important that in accordance with PPS5, archaeological deposits are, wherever possible, preserved in-situ.
- 9.4.6 If disturbance is necessary to ensure the protection of the Site's Outstanding Universal Value, and the archaeological deposits are not considered to be part of that Outstanding Universal Value, then appropriate archaeological excavation and recording should be undertaken in line with Richmond upon Thames's UDP policies and English Heritage requirements. The Site Conservation Plan will offer some guidance on the relative significance and sensitivity of known archaeological deposits, to assist in the management of the resource.
- 9.4.7 In addition to the Site Conservation Plan, thought should be given to establishing a set of principles and procedures for the management of the Site's archaeological resource. These could include, in consultation with LBRuT, HRP and EH, measures for research orientated archaeological activity.

*Issue 24: Interpretation of WHS archaeology*

- 9.4.8 Aspects of Kew's 'lost' site history, such as location of former follies and temples, should be more comprehensively interpreted.

**9.5 Environmental Sustainability**

*Issue 25: Best practice in relationship to sustainability*

- 9.5.1 Kew Gardens has become increasingly aware and adapted with regards to best practice in relationship to sustainability. This message of leading by example and driving sustainability forwards is however less well communicated and demonstrated as an integral part of the Kew Gardens' visitor experience.
- 9.5.2 The Royal Botanic Gardens, Kew, has a corporate ethos of environmental sustainability and its mission statement reflects that ethos. Internally the Gardens already undertake numerous measures that contribute to its environmental ethos. These include recycling 99% of plant waste, integrated pest management in the living collections, and the use, wherever possible, of zero-emissions vehicles on-site.
- 9.5.3 This ethos has also been realised through building developments including the Sir Joseph Banks Centre for Economic Botany (1990), the Princess of Wales Conservatory (1987) and the Davies Alpine House (2006), all of which utilise modern construction techniques and climatic control technologies to reduce their environmental impact. RBG, Kew insists that all new building development on the site achieves a high score under the Building Research Establishment Environment Assessment Method (BREEAM).
- 9.5.4 Kew regularly reviews the environmental efficiency of its operations. All staff on site are made aware of their role in ensuring environmental sustainability, and managers are encouraged to seek out new technologies and practices that contribute to environmental improvements.

*Issue 26: The need for an overall sustainability strategy*

- 9.5.5 An overall sustainability strategy for Kew Gardens is in the process of being formulated.
- 9.5.6 RBG Kew also has a major role in aiding environmental sustainability through its international plant conservation and research activities, and through its educational role on and off the site.

**9.6 Nature conservation**

*Issue 27: The enhancement of the nature conservation values of the WHS*

- 9.6.1 The first botanical survey of Kew was done in 1875. The most recent botanical survey has been conducted and was published in 2009. The Site has been subject to a Phase 1

Habitat Survey as part of the 2003 Conservation Plan. A brief summary of main habitats is presented below:

*Improved Grassland*

- 9.6.2 Improved grassland occupies the majority of the Site, in open areas and beneath tree planting. It is of low conservation value, but colonies of the nationally scarce species *Chamaemelum nobile* have been identified on improved grassland to the north of the Palm House Pond.

*Semi-Improved Neutral Grassland*

- 9.6.3 The survey identified two main types of semi-improved grassland within the Site. The first is present underneath large areas of tree planting. Here, previously improved grassland has been treated as a hay crop and has been managed less intensively. This has enabled the area to become colonised naturally with a mixture of grassland and woodland species, giving a flora typical of such woodland edge habitats. Generally the range of plant species present is small, but although species poor, these habitats are likely to be of significant value for invertebrates, small mammals and birds, and are of considerably greater value than the mown areas.
- 9.6.4 The second type is present in small, restricted areas which are mown with greater regularity. One such area is in the southwest of the Site, close to the oak woodland. This contains a range of grasses which although species poor, is of value considering the limited amount of semi-natural grassland within the Site.

*Unimproved Neutral/Acid Grassland*

- 9.6.5 Unimproved neutral grassland is present in the open rides, which run through the oak woodland in the southwest of the Site. The nature of this grassland is dry and slightly acidic, reflected by a range of small herbs. This grassland is rather species poor, but represents one of the few natural plant communities present on the Site.

*Oak Plantation Woodland*

- 9.6.6 An area of oak plantation occupies the south west of the Site. The majority of trees here are likely to have been planted, although willows along the Thames may have colonised naturally. Although dominated by pedunculate oak, *Quercus robur*, other species are present, including small areas of English elm, *Ulmus procera*. The more open areas and rides have a thick carpet of bluebells. Areas of managed hazel (*Corylus avellana*) coppice are also present. The oak woodland is of significant nature conservation value both within the context of the Site and in a wider local context. The dominance of mature oaks and mature riverside willows are likely to be of value for invertebrates and the dense undergrowth supports many badger sets.

### *Open Water*

- 9.6.7 The most valuable areas of open water are two small ponds within the oak woodland. The first of these is very shallow and its overgrown nature and lack of open water limits its current value for nature conservation. A number of narrow-leaved bittercress (*Cardamine impatiens*) plants have been seen adjacent to this pond. This species is nationally scarce as a native and is likely to have been introduced here. The second pond is well within the woodland and is circular and semi-shaded by surrounding trees. It is covered by a dense carpet of the introduced least duckweed, *Lemna minuta*. This has reduced its aquatic interest as submerged species have been shaded out. This pond is known to support a colony of great crested newt, *Triturus cristatus*, a species protected by Schedule 5 of the Wildlife and Countryside Act 1981.
- 9.6.8 The Ha-ha which runs between the Gardens and the River Thames, contains a little water in its base that supports some aquatic species. This is of limited nature conservation value due to its lack of water depth and suitable rooting medium. Other water bodies on the Site are of limited value for nature conservation due to their ornamental function, which involves intensive management.

### *Conclusions*

- 9.6.9 The Site contains a range of habitats and a number of scarce and important species, including *Chamaemelum nobile*, *Salvia verbenaca*, *Saxifraga granulata* and *Orobancha hederaceae*. These exist within a dominant and, in terms of nature conservation, generally low grade grassland habitat under a canopy of predominately exotic tree species. The areas of ecological interest identified in the survey, predominately in the South-Western Zone, require careful maintenance and enhancement. This area is currently managed as conservation area.
- 9.6.10 There is distinct scope to enhance the nature conservation value of the Site. This potential has already been identified by RBG, Kew and is currently being acted upon by the Site's managers. The development of a formal programme / strategy for nature conservation and habitat enhancement, drawn up in consultation with the appropriate authorities, may be advisable at some time in the future.
- 9.6.11 Habitats listed as priority by the Richmond Local BAP and those existing in the Gardens are: acid grassland, ancient parkland and woodland, broadleaved woodland, reed beds, tidal Thames.
- 9.6.12 Small areas adjacent to the Conservation Area indicate what the garden's grassland would revert to if managed appropriately i.e. as hay meadow (cut late, clippings retained). A recent floristic survey indicated 109 species of native flowering plants in this location.
- 9.6.13 The area of Kew displaying the most potential for developing neutral grassland is the south-end of the Garden beyond the Temperate House and Stable Yard.
- 9.6.14 Acid grassland communities exist in 3 areas of the Gardens. Indicator species include *Festuca filiformis*, *Rumex acetocella*, *Montia fontana*, *Onobrychis vicifolia* and *Danthonia decumbens*.

- 9.6.15 The Gardens form part of the 'Heathland corridor' which stretches from Barns south-west to the New Forest. Interesting results have been obtained in the past at Kew, where the soil profile in certain parts of the garden has been inverted by accident or otherwise. Seeds that have lain dormant for decades or possibly even centuries have been brought to the surface to produce extraordinary wild-flower displays. Areas where this has happened include the lawn areas between the northern end of the Temperate House and King William's Temple and the lawn where the herbarium staff temporary car park was built in 2007.
- 9.6.16 A decision must be made as to whether Kew's grassed areas are managed as 'ornamental lawn' or 'heritage grassland'. Significant areas of heritage grassland have been disturbed or replaced by imported soil and turf, e.g. the Orangery Lawn and western end of Syon Vista. Important species include: Meadow Saxifrage; in 1875 it was very common along the whole riverside and elsewhere. Now it is limited to small pocket areas. It is of conservation interest for the Thames Valley region. Subterranean clover, declining in the UK, can be seen in parts of the gardens, e.g. the western end of Syon Vista and the meadow adjacent to the conservation area.
- 9.6.17 The Conservation Zone is situated in the south west corner of the gardens, which includes part of Queen Charlotte's Cottage Grounds. This is managed as a means of interpreting woodland management with the creation of improved UK habitats for biodiversity in tandem with a biodiversity action management plan. This plan has been developed as part of the "London Biodiversity Action Plan" and the "Thames Landscape Strategy". There is a continuing need for the removal or pollarding of exotic and native species by means of a thinning process to achieve the objectives of this plan. With the creation of compartments to produce sustainable yields of coppice materials for use in the gardens, an annual rotational programme of coppicing is carried out. This area has been opened up to more schools and visitors, so a programme of conservation dead wooding is carried out in the interests of safety in certain parts of the area.

## 9.7 Climate change, flood Control and water management

### *Issue 28: The effects of climate change on the WHS*

- 9.7.1 Projections from the UK Climate Impacts Programme identify that we can expect climate changes to intensify, including warmer and wetter winters, summers that are hotter and drier, and more frequent and more intense extreme events such as droughts, heat waves, heavy rainfall and coastal storm surges.
- 9.7.2 The UNESCO World Heritage Committee has been considering the likely impact of climate change on World Heritage Sites and has published a strategy for tackling this issue (Climate Change and World Heritage, World Heritage Occasional Paper 22, Paris 2007). The Committee has requested new and existing World Heritage Sites to integrate climate change issues into new and revised management plans (as appropriate), including risk preparedness, adaptive design and management planning.

9.7.3 Several species in Kew such as oak, rowan, box, cow parsley as well as various spring bulbs are flowering considerably earlier in the year than they were a few decades ago. Whether or not the storm that blew down over a thousand trees at Kew in 1987 is related to climate change, such events demonstrate the direct impact and vulnerability on the WHS of intensified weather conditions.

9.7.4 Specific predicted changes in climate which will have a major effect on plant growth, future plant selection and maintenance for RBGK are:

- Higher mean annual temperatures, which will increase the length of the growing season for many plants. A 1°C increase in mean temperature will increase the growing season by three weeks in south east England;

- Greater warming in summer and autumn than in winter, with summer maximums rising faster than summer minimums, leading to increased frequency of hot summer days. By the 2080s temperatures may exceed 42°C about once per decade in south east England;

- Winter minimum temperatures rising faster than winter maximums, leading to milder winters with a reduced temperature range and fewer frosts. In many parts of the UK, especially in the south west, frosts will be rare and snowfall will decrease by as much as 90 per cent by the 2080s;

- Mean annual rainfall may decrease by 10-20 per cent, but with 10-30 per cent more falling in winter and 20-50 per cent less in summer by the 2080s. Rain will tend to fall with greater intensity;

- By the 2080s summer droughts will be more frequent, as will very wet winters, but autumns will be drier. Higher temperatures and less cloud cover in summer will lead to greater evaporative loss from soils and leaves, worsening drought conditions;

- Although predictions for extreme weather events are less certain than for temperature, weather patterns are likely to become more erratic, with greater frequency of torrential rain, temperature extremes and storms. Within these overall trends there will be pronounced regional differences, with the lowest rainfall and highest temperatures occurring in south east England. The reduction of soil moisture will therefore be greatest in areas where water supplies are already low. By the 2050s sea levels are expected to rise by 14-18 cm, and by the 2080s by 23-36 cm. The effects will be greatest in the south east, where the land mass is naturally subsiding. This combined with severe weather events will increase the flood risk from the River Thames.

9.7.5 RBGK will be vulnerable to the above changes in temperature and rainfall that are projected to occur over the next 100 years; nevertheless, there is much uncertainty about how individual species will respond. Winter rains could make up for dry summers. The factors important in determining climate change impacts will be hardiness and water availability and there may be additional costs such as irrigation.

Many existing long-lived trees will suffer stress from climate change and will require careful management programmes to deal with:



- summer drought, minimised by skilled soil management;
- water-logging, avoided by planned drainage measures;
- damage and loss from high winds, requiring planned long term replacement programmes, planting in suitably sheltered sites, and perhaps judicious crown reduction of vulnerable trees;
- large scale storm damage in woodland, minimised by avoiding shelterbelt planting;

9.7.6 Changes in rainfall patterns and increasing temperature may already be affecting the range of vegetation and bird and animal species found in the WHS and thus its values for nature conservation. For example, it is already considered that the warmer winters have allowed larger numbers of badger cubs to survive with the consequent affect that has for the WHS. Also grey squirrels will be favoured by warmer winters, which will increase their survival rates. Grey squirrels have a predilection for beech (*Fagus sylvatica*), which is also very sensitive to drought, and the combined effects of climate and squirrels on this species could be particularly severe.

9.7.7 Other aspects to be considered as result of climate change:

- risk of damage to groundcover by fire in periods of extreme drought, reduced by establishing fire prevention measures.

- Lawns – one of the characteristics of Kew Gardens – are high-maintenance features particularly suited to the UK current climate. Hot summers and wetter winters will increase browning during droughts, promote soil compaction during wet weather and increase risk of diseases. A longer growing season will demand year-round mowing and lawn care. Unpredictable summer rain and prolonged grass growth through winter will force greater flexibility in mowing regimes to avoid lawn damage. Managing visitor access to lawns to minimise soil compaction will be important. In the formal areas lawns will need to be constituted of coarser, more drought resistant grasses that tend to be less tolerant of close mowing, whilst transforming lawns into more natural meadow areas is an attractive proposition in less formal part of the Gardens.

- High summer temperatures may lead to increased frequency of algal blooms in ponds, promoting stagnant conditions. Water features in the Gardens will need more intensive maintenance, with frequent topping up of ponds in summer. Seasonal fluctuation of water levels in large lakes and ponds will require the use of spillways and sluices in winter and improved marginal planting in summer, to minimise the visual impact of falling water levels.

- A supply of water for irrigation during summer could be problematic across the UK. Rationing for all but essential uses is likely in critical areas. Water charges may also increase, encouraging installation of more efficient irrigation systems and the use of 'grey' water from domestic activities. Water conservation measures, either via soil mulching or collecting of rainwater in water butts, will become a summer priority and RBGK may need to construct reservoirs for irrigation purposes.

- Changes in soil water content may affect nutrient availability. Maintaining soil fertility by replacing organic matter will become essential;

- Insects that are currently glasshouse pests may move into the open garden. Warmer temperatures in the UK are also likely to favour a northwards advance of pest species and an influx of pests from continental Europe, either by natural migration or accidental introduction. Indeed, this is already happening.

- In addition to unpredictable storm damage, cycles of summer drying and intensive and prolonged rain will lead to more rapid deterioration of wooden structures. More robust construction and use of more durable timbers from sustainable sources will be required. Shading and better ventilation in greenhouses will be needed in summer, for the benefit of plants and gardeners who work under glass and, as winters become warmer and wetter, good ventilation will be essential to deter fungal diseases.

- Changing moisture levels in the ground could affect the survival of archaeological deposits.

9.7.8 There will also be the advantage for RBGK in being able to grow a wider range of plants. Climate change may offer new opportunities to develop the collections. Botanic gardens like Kew are in a key position to advance and disseminate knowledge on climate change and its effects. A longer growing season and higher temperatures could make it viable to grow a wider range of species. Climate, or more precisely prevailing weather, is just one of many factors that will influence future trends in RBGK visits. Many social, cultural and economic factors are involved, including population dynamics, disposable income, competing attractions and access to gardens by public transport. Improved weather, especially early in the year, may attract more visitors to gardens, while prolonged autumns with 10-20 per cent less rainfall and enhanced autumn foliage colour are likely to extend the visitor season. Exceptionally high summer temperatures would be a deterrent, unless gardens incorporate design features such as shady woodland and lakeside walks to increase visitor comfort. Gardens will benefit from investment in visitor facilities, such as glasshouses, shelters and information centres, if summer weather becomes even more unpredictable. The major impact of more garden visitors will be increased wear and tear, especially after heavy rain, which could be minimised by contingency planning for managing visitor movements. RBGK could draw on experience from the sports turf industry in coping with wear and compaction of lawns and grassed vistas.

9.7.9 It will be necessary over the next Plan period to analyse the risks, opportunities and constraints to RBGK of climate change and to develop appropriate adaptation strategies to minimise its effects. Most plants that are currently cultivated in the living plant collection are likely to be maintained over this century by the use of suitable soil moisture conservation techniques and irrigation in summer, but at increasing cost. Climate change is likely to extend the range of species that can be cultivated outdoors throughout the year.

9.7.10 RBGK will need to plan for the risk assessment and financial impacts of climate change. The Gardens will need to meet the cost of storm and flood repairs and to adapt to the effects of climate change by installing water storage facilities and flood protection. RBGK

will also need to prepare for a longer visitor season and greater visitor impact on the Gardens' infrastructure. RBGK should demonstrate sound environmental practices to their visitors. RBGK can play an important role in raising awareness of environmentally sustainable practice which can minimise the effects of climate change on biodiversity, and identify areas for further research.

**Challenges include:**

- maintaining specimen plants as they adapt to a changing climate including increased mulching,
- improve methods for water management in the garden and heat management in glasshouses,
- Plant selection for dryer warmer climate and long summers,
- Managing the impact of visitors during less predictable summer weather,
- Mitigating storms by shelterbelt planting and risk assessment,
- Increased maintenance costs, especially for fine grass swards,
- Managing drier soils in summer and wetter soils in winter. Water conservation techniques such as mulching and composting,
- Maintaining soil fertility,
- Intensification of pest, disease and weed problems,
- Maintaining lawn areas,
- Meeting the needs of drought-adapted perennials and bulbous species that do not tolerate water logging in winter,
- Year-round plant growth, requiring continuous maintenance,
- Regular update of tree risk register to assess measures necessary to reduce Health & Safety risks to buildings and visitors.

**Opportunities include:**

- increased range of plants suitable for cultivation in the open garden,
- potential for a longer visitor season warmer and drier summers and autumns,
- developing an educational role, as centre of excellence in environmentally sustainable gardening techniques,

- Raising community awareness of the potentially significant and specific local impacts of climate change.

## 9.8 Flood Risk

### *Issue 29: the effects of flood risks on the WHS*

- 9.8.1 As climate changes the risk from tidal surges, sea level rise, freshwater flooding and the inflow of water from urban drainage is set to intensify putting the River Thames floodplain at increasing risk from flooding. It is expected that fluvial flows entering the tidal river at Kew will increase by up to 40% by 2080. At present, flooding throughout the Thames Landscape is managed by the Thames Barrier, however, the Environment Agency predict that this is unsustainable in the future. Unavoidable modifications will be needed in the way that the Barrier is used in order to protect Central London from increased flood risk; this will have an impact on the parks and gardens of Arcadia further up stream, including RBG Kew.
- 9.8.2 Increasing flood risk and changes in the operation of the Thames Barrier will have a significant effect on the towpaths, parks and gardens along the floodplain between Hampton and Kew, much of which is low lying and not protected by high flood walls. As such it is anticipated that over the coming years a much greater part of the floodplain will be inundated with water and that this flooding will happen with increasing frequency – particularly when a fluvial flood meets a high tide moving up river. At present much of the floodplain is simply not ready for this increased inundation.
- 9.8.3 Historic landscapes, wildlife sites and human use of riverside will be affected in the following ways:
- More space will be needed to store flood water
  - Established habitats will begin to decline forcing species to migrate across regions searching out new habitats. To survive, wildlife will need large areas of linked natural open space to move about in.
  - Increased flooding could stretch the emergency services and people living in riverside properties will need to prepare themselves for flood events.
  - Established recreational movement patterns will be considerably altered by rising waters (particularly on the towpaths and riverside parks) putting the long term viability of sustainable transport and visitor initiatives at risk.
  - Housing will be affected and it is expected that pollution from flotsam and jetsam will increase.
- 9.8.4 The Thames Landscape Strategy 'Restoration of the Lost Floodplain' initiative provides a holistic and co-ordinated way forward to implement measures to reduce flood risks:
- Optimise the use of the floodplain for water storage during a flood event.
  - Identify ways to restore and re-connect the natural rhythms of the river corridor to create a 'living landscape' – a mosaic of habitats (created at a landscape scale) allowing

wildlife to flourish and move about in as climate changes.

- Create a network of sluices, controls and channels linked to a real time flood forecasting model to enable flooding to be carefully controlled across a large area reducing the risk and disruption to people.
- Put in place a network of sustainable footpaths, cycle routes, informal trails, signage and dry routes to allow visitors and locals to navigate through the landscape even in times of flood and drought.
- Restore the historic landscape framework of fields, avenues, creeks, ponds, woodland, grazed wet meadows and native hedges.
- Put in place a long term management plan to carry out the day-to-day maintenance of the riverside that will include an active volunteer programme
- Establish an education and outreach programme to connect people with their environment.

#### 9.8.5 More specifically the constraints and risks for Kew Gardens are:

- Periodic flooding of parts of the gardens. Whilst the gardens are predominantly flat; the predicted areas of flood risk do not seem to include areas of main fabric and listed buildings. Periodic flooding will affect circulation.
- Whilst it is anticipated that the vegetation can withstand temporary inundation the possible affect of water logging needs further research.
- Re-contouring the westerly part of the Syon Vista Zone could contain further flood risk to the garden. Earlier re-contouring work around the central pond has been successfully integrated.
- Serious flood risk to Kew Palace and Herbarium if the River Thames Flood wall is insufficient.

Opportunities for Kew Gardens could be:

- To work in partnership to re-create, conserve, connect and enhance the natural character of the River Thames floodplain in response to climate change for people, wildlife and occasionally water,
- To transform the riverside car park into a wetland habitat demonstration garden which operates as a riverside floodplain and reflects the natural rhythms of the river corridor,
- Introduce more wetland habitat along the riverside Towpath and Ha-ha boundary,
- Extend area of wetland in conservation area,
- Extended dynamic floodplain and wetland habitat in surrounding WHS Buffer Zone.

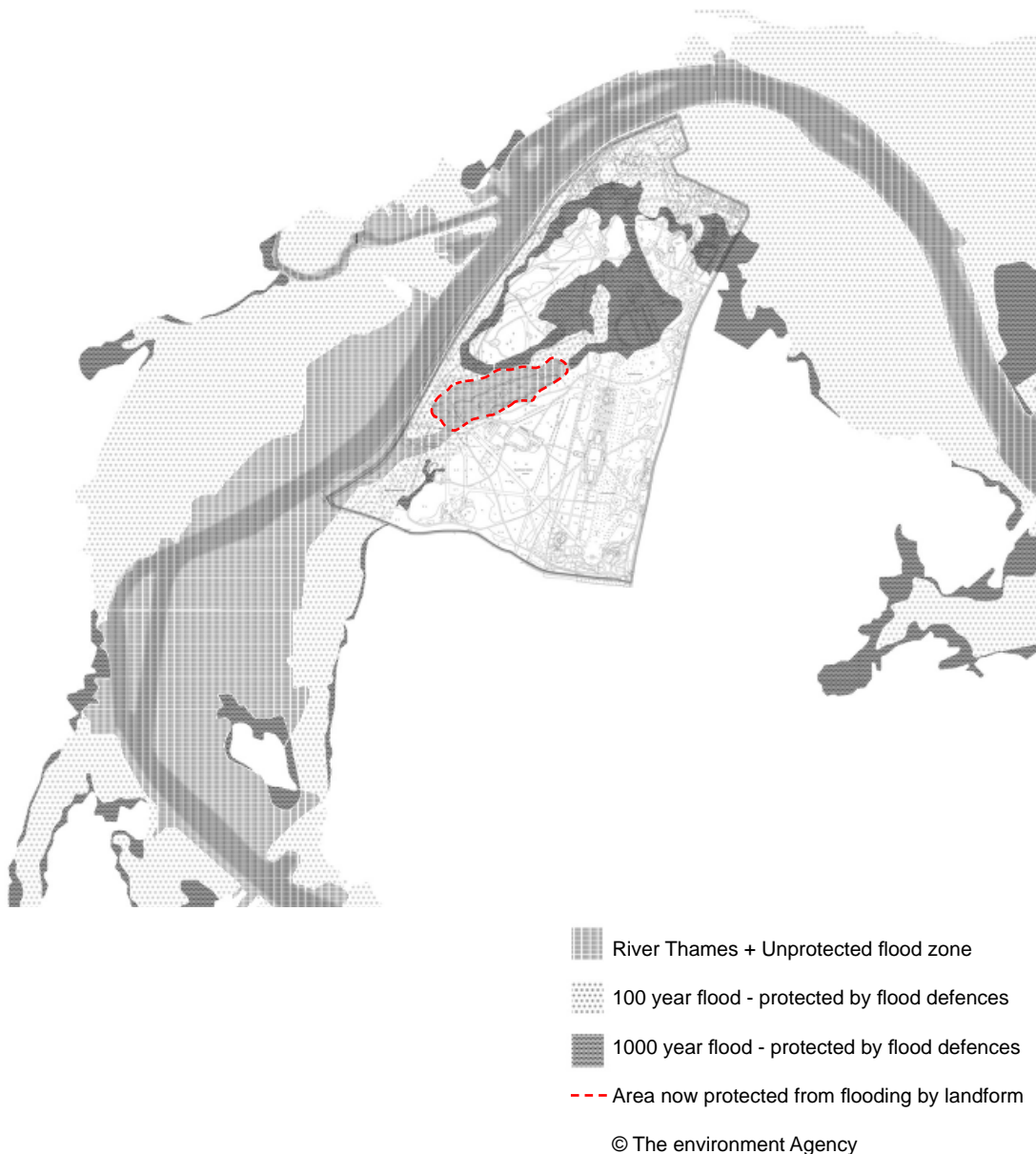


Figure 13 - Tidal / Fluvial flood zones

## 9.9 Risk management and counter-disaster preparedness

### *Issue 30: Counter disaster preparedness in the WHS*

- 9.9.1 The UNESCO World Heritage Committee has asked for Management Plans to consider the risk of potential disasters and how these might be countered. They have placed great emphasis on the need for preparedness and forward planning and have published guidance on the matter (Herb Stovel Risk Preparedness: a Management Manual for World Cultural Heritage, ICCROM, Rome 1998). UK Government policy generally is placing more emphasis on the need for society as a whole to be prepared to deal with severe emergencies.

- 9.9.2 The biggest risk of disaster in the past has probably been storm damage to buildings and the living tree collection. The United Kingdom has been subject to severe weather, particularly destructive winds, in recent decades. RBG, Kew's policy of constant renewal in its Arboretum collections has ensured that new specimens have soon replaced any losses and potentially vulnerable diseased examples. RBG Kew's Tree Risk Assessment & Management System (TRAMS) Database is a key tool in this process, and will continue to be maintained and updated for this purpose.
- 9.9.3 The "Tree Risk Assessment Management System" (TRAMS) is a hazard evaluation management system modelled on "Matheny and Clarks International Society of Arboriculture" (ISA) system. All the tree collections are inspected using Visual Tree Assessment (VTA) by fully qualified arboriculturalists and all findings are recorded on the TRAMS database. The time between inspections will vary according to the hazard rating given to the specimen and the target area it is growing in.
- 9.9.4 More work needs to be done to identify potential risks to the WHS as a whole, although emergency plans are already in place with regard to RBGK. Some have been identified in the previous section. During the plan period, a priority should be to extend this work and to develop appropriate emergency plans including more in-depth risk assessment in relation to climate change.
- 9.9.5 The Royal Botanic Gardens, Kew has developed an Emergency Procedures and Crisis Management Plan (EPCMP), which includes measures necessary to address any incidents involving aircraft bound for Heathrow. Regular contacts with, and inspections by, the local Fire Brigade service take place and all the staff receive training in evacuation procedures, for both their own safety and that of the visiting public. All buildings that could be subject to fire have alarm systems installed and these are connected to the centralised on-site security system and constabulary. Most of the glasshouses, given the nature of their construction, are not considered a fire risk and no fire alarms are fitted. The Site's management team will need to regularly review and update the EPCMP to ensure that any new threats are addressed.
- 9.9.6 Higher levels of fire risk have been identified at Queen Charlotte's Cottage due to the deposition of a film of highly combustible aviation fuel on the thatched roof. For this reason, amongst others relating to the time of arrival of the Fire Brigade, Historic Royal Palaces introduced a sparge pipe system in the roof of the Cottage at the time of the last thatch and roof structure repair in 1998. This is tested annually. Kew Palace (Dutch House) is fitted with an automatic analogue addressable fire detection system which reports via dedicated kilo stream connection to the 24-hour manned Control Room at Hampton Court Palace. The Intruder Detection System at Kew Palace similarly reports back to Hampton Court. All systems are serviced and tested regularly in accordance with British Standards.
- 9.9.7 A possible risk to the Site is flooding by the tidal River Thames, which could be accentuated by climate change (global warming). This risk is minimised by the Thames Flood Barrier, London's principal flood defence system, and by extensive local defence structures. However, it is greater river flows, resulting from increased rainfall that poses the greatest risk. A lesser threat, although potentially more likely to occur, is that posed by severe

drought, which could result in significant loss of historic trees and other plantings that define historic landscape elements, such as the main vistas. The Royal Botanic Gardens, Kew is currently considering ways in which on-site irrigation provision can be improved to reduce this possibility and a site-wide network of irrigation mains was installed over the last decade..

- 9.9.8 One of the key themes emerging from the analysis is the potential impact that climate change may have on the living collections, landscape and overall significance of the Site. RBG, Kew will need to monitor climate change indicators and regularly review predictions on possible future patterns for climate change to enable the development of long-term strategies that ensure, whatever the eventuality, the significance of the Site is not compromised by climatic change. One of the most likely impacts will be on the range and type of plants that can be grown outdoors at the Site. It may therefore be necessary to adjust collections and acquisitions policies now, to reflect this possibility.
- 9.9.9 The most likely threats to Kew's living collections within protected environments, come from power outages, failure of heating / cooling / ventilation / shading mechanisms, and freak weather conditions.
- 9.9.10 Theft of whole specimens is rare and it may be concluded that the physical barriers in place, such as the glass screens in the Princess of Wales Conservatory for parts of the cacti and orchid displays, are generally effective against casual theft. The regular presence of uniformed Kew Constabulary is likely also a major deterrent, as is the cost of public entry, effectively limiting the criminal element amongst Kew's public visitors.
- 9.9.11 Globalisation of plant movements, loss due to EU policy of the UK's former island status as a plant health control area, changes in UK/EU pesticide legislation and climate change are all affecting the incidence of pest & disease problems in the diverse living collections at Kew and the wider environment in which the Gardens are located. The new state of the art Plant Quarantine facility should significantly reduce these risks as they apply to plant material entering and exiting the site. Invasive plants need be kept under control by regular observation and maintenance.
- 9.9.12 Another concern is the public environmental interface in the Gardens and here there are public, as well as staff, health & safety issues to be considered, such as Oak Processionary Moth, (now included on the Kew Trustees' Project Register and mentioned in the corporate Risk Register), which also impacts on the collections, both directly (via insect damage) and indirectly – through the diversion of staff time and resources away from other aspects of regular collection care, while dealing with spraying contractors and the removal of caterpillar nests etc.



## **10.0 Visitor management and education issues**

### **10.1 Visitor management and education**

#### *Issue 31: Kew Garden as visitor attraction*

- 10.1.1 The usage of the gardens has gradually shifted from that of a world renowned scientific plant collection to become a major visitor attraction. Education and engagement of the public has, alongside its scientific role, become fundamental to its funding and future development. The Gardens should continue to reach out to many different sections of society and broaden their appeal and relevance.
- 10.1.2 Visitor numbers at the Kew site have grown from just over 860,000 in 2001/02 to a plateau of about 1.3 million from 2005/6 to 2008/9. Recently visitor numbers have declined slightly to about 1.1 million from 2011/12 to 2012/13.
- 10.1.3 Kew provides a high quality visitor experience. More needs to be done at Kew Gardens, however, to improve the standard of interpretation, and visitor support services, such as retail, catering, and signposting.

#### *Issue 32: need for visitor's experience survey*

- 10.1.4 Kew conducts extensive and high quality visitor research, which shows that a very high proportion of visitors to the Kew WHS rate their experience overall to have been excellent (69% of paying visitors, 77% of Kew Friends members in the October 2009 exit survey). Despite this, the ratings for secondary services at Kew are much lower, particularly in catering and retail, which fewer than 10% of visitors rated as excellent. Kew is a member of the Association of Leading Visitor Attractions (ALVA), an organisation with both public sector and private sector members, the criterion of membership for which is to receive more than one million visitors a year. ALVA routinely surveys the range of facilities offered by its member organisations, from which it derives ratings. Annual benchmarking against 17 other member organisations over the last six years shows Kew to score slightly above average on 'absolute excellence of visit' but below average on secondary measures such as catering and retail, with a particularly marked dip in 2007/08.

#### *Issue 33: Access for all*

- 10.1.5 Kew uses visitor research to give it a clear picture of its visitor profile and its catchment areas, and the features of Kew that attract different segments of the visitorship. Thus families with young children come to Kew as a safe and enjoyable place which they can share, and where they can also learn. Single professionals and retired adults enjoy the beauty of the gardens, including the parkland landscape, the flower beds and heritage buildings. Management recognises that there are under-represented groups, including ethnic minorities and people from socioeconomic groups C2, D and E. Management is developing ideas to tackle this, such as the redevelopment of the website and taking Kew out beyond its walls.

- 10.1.6 A key objective as a visitor attraction is to ensure equality of access for all visitors. The Gardens should continue to reach out to any different sections of society and broaden their appeal and relevance. RBG Kew has a policy of social inclusion, and although admission charges have increased over recent years, this has been offset to a large degree by a significant increase in free admission and concessionary admissions. In so far as is possible RBG, Kew plays a considerable role in attempting to achieve social inclusion.

## **10.2 Access and circulation**

### *Issue34: Management of gates*

- 10.2.1 Currently there are 5 Access Gates, with the Victoria Gate (Kew Road) most intensively used, followed by the Main Gate (Kew Green).
- 10.2.2 Victoria Gate is congested at peak times and lacking in both interpretation and orientation. Improved orientation at key entrances, e.g. Victoria Gate and Main Gate, is essential.
- 10.2.3 The introduction of on-line ticket sales is intended to reduce congestion at the gates.

### *Issue 35: the need for improved orientation and circulation*

- 10.2.4 Both circulation and orientation are key issues to be addressed in order to improve the visitor experience of Kew gardens. The present garden layout still reflects that the Gardens are not primarily designed as a visitor experience and were historically evolved from the amalgamation of two separate gardens.
- 10.2.5 The circulation lacks hierarchy and clarity of routing and destination. Newly introduced attractions such as the Xstrata Tree Top walkway have changed visitors' circulation patterns, but this has not been reflected in the layout of the path system itself. A more distinct hierarchy of circulation routes will reduce the general need for signage and allows for a variety of experiences across the year.
- 10.2.6 There is currently no orientation centre / facility on the Site. This leaves many visitors relying on advice given by the Friends Desk at Victoria Gate and information gathered from other informal sources. Some material and aides are available for visitors, including: A site map for self-guiding; Four seasonal routes around the garden suggested in the Guide Book (there are special itineraries for the travel trade / groups); a set of functional directional finger posts around the Site; maps, mounted on boards, providing more comprehensive information adjacent to gates, major buildings etc; the Kew Explorer transports visitors around the Site on a fixed route with an hourly service. In practice, visitors use it as a tour or amusement ride rather than as a means of access to different parts of the Site.
- 10.2.7 However, even with this information, the Site's size, complexity and wooded landscape make navigation and orientation very difficult, even for the seasoned visitor and especially for the less-able or disabled visitor. This sense of unintelligibility hinders the exploration of

the Site and can lead to visitors becoming confused about both the purpose and nature of the Site and its history and geography.

- 10.2.8 At present, visitors tend to focus on central honey-pot areas around the Palm House and pay less attention to other parts of the WHS as a whole. Better access to the rest of the WHS can greatly improve visitors' understanding and appreciation of the scale of the site and utilise its riverside setting.
- 10.2.9 Strategic positioning of a new attraction and display could pull people away from the honey pot area and create a new point of orientation within the Gardens. The articulation of serial vision, spatial sequence, sight lines etc., should promote a clearer sense of orientation and destination. The ultimate aim is to draw visitors into the garden, leading from one experience into the next.
- 10.2.10 Potential conflict between maintenance vehicles using the same access pathways as visitors must be considered. It may be necessary to restrict certain routes and allocate clear maintenance access routes to stable yard and other maintenance facilities.

*Issue 36: Best practice in respect to disability equality*

- 10.2.11 Since the 2003 Plan was published, the Disability Discrimination Act (2005) has come into force which has since been superseded by the Equality Act 2010. Since the introduction of the Act in 2005 work has been carried out within Kew to meet the legislation including the refurbishment of Kew Palace which has been seen as an exemplary access project. All those involved in management of access will need to examine what reasonably can be done to improve access within the WHS for all disabled visitors
- 10.2.12 Kew has established a Disability Equality Group to develop, champion and monitor the implementation of its Disability Equality Scheme. The Group is made up of 20 staff members, representing departments across both sites. The members bring diverse personal and professional experience of disability equality to their work. As part of the development of the Disability Equality Scheme, the Group will evaluate Kew's established practice and ensure the effective involvement of external stakeholders in the mapping, monitoring and improvement of all disability equality initiatives.
- 10.2.13 Kew engages with a diverse local, national and international community. A key objective as a visitor attraction is to ensure equality of access for all visitors. The Kew Explorer people mover provides an opportunity for visitors to get an excellent overview of, and introduction to, the 120 hectares of Kew through the driver's commentary. The current route, lasting approximately 35-40 minutes incorporates 8 stops close to buildings and areas of interest within the Gardens. Each vehicle has a hearing loop, plus one fixed wheelchair space and room to store up to 5 wheelchairs.
- 10.2.14 The Discovery Bus offers a mobility service to enable groups of people with special needs to enjoy the gardens. It travels around the gardens, taking in all the major sights and vistas including the remote wooded areas. 'The Discovery' provides excellent visibility and year-round comfort and protection from the elements. It seats 12 people with additional space

for two permanent wheelchair users. A driver and volunteer guide accompany all tours. The Discovery Guides have been recruited and trained to work with disabled people.

10.2.15 Mobility scooters and wheelchairs are available free of charge.

### **10.3 Events**

#### *Issue 37: Improved facilities for events*

- 10.3.1 Events have become a key factor to attract and diversify (fee paying) visitors and generate promotion of Kew Gardens. However facilities must be carefully managed ensuring the sites carrying capacity is not exceeded and no damage occurs to the site.
- 10.3.2 Kew Gardens aims to facilitate a wider range of events which reinforce Kew's role as a premier botanical garden and (all year) visitor venue consistent with the cultural significance of the Site.
- 10.3.3 Events can be grouped into two categories: fixed venues and small events, concerts and specified events. These groupings reflect the different types of management required.
- 10.3.4 The Summer Swing concerts are one of the more significant events held every year at RBG Kew. More permanent / flexible facilities could improve the overall ambience and noise level control.
- 10.3.5 The Henry Moore sculpture exhibition provided an excellent example of how the dialogue between art and nature can provide for new interpretation of the gardens. Regular scheduled art events should be considered. Whilst London has some of the World's most important museums there is no significant display of outdoor sculpture.
- 10.3.6 The promotion of seasonal attractions and events allows to spread the visitor load across the year although visitor numbers still peak at key times of the year.

### **10.4 Existing visitor facilities**

- 10.4.1 There are extensive on-site facilities for visitors including toilets, cafes, restaurants and shops. These vary considerable in age and quality and some are no longer appropriate for the Site.
- 10.4.2 The on-site catering also performs well and will be significantly improved with the conversion of the Orangery to a waitress service only restaurant. The Pavilion restaurant is in need of refurbishment or removal. There is considerable potential to develop corporate hospitality, but facilities are limited and / or restricted to evening use. Facilities for the disabled and less-able are generally very good, but there are some places where wheelchair access is not possible; and the needs of the wider less-able population need consideration.

## 10.5 The need for improved visitor facilities

### *Issue 38: The need for improved visitor facilities*

- 10.5.1 There is need for improved visitor facilities. Some of these relate to buildings and capital projects, others to levels of service. With respect to the former, the Victoria Gate, which is the most heavily-used entrance to the Kew site, is poor. It does not give the sense of scale, quality and excitement that is required.
- 10.5.2 The overall public offer at the Kew site is not easy for the average visitor to understand. There is a complicated array of gardens, glasshouses, galleries, shops and catering facilities that do not form a pattern that is readily apparent. Visitor research shows that less than a quarter of visitors rated the information available to guide them around the site as excellent.
- 10.5.3 Kew's science and conservation messages should be communicated out into the Gardens more strongly.
- 10.5.4 There is a need to create new facilities that would bring together displays of plants in glasshouses with high quality interpretation, and to do so in a public meeting space in which visitors can engage directly with plant scientists and conservationists. Depending upon the design of such public spaces, they could also host exhibitions and public events. This would have the potential to attract visitors throughout the year, particularly during the winter when visitor numbers are typically low. It could strongly promote public engagement in contemporary issues of science-based plant conservation, and thereby support Government policies, including those on access and inclusion. Finally, it could provide a significant indoor public space to house large exhibitions and public events, for which Kew does not at present have the facilities. Kew has already demonstrated the public interest in high impact outdoor exhibitions in the past. There should be a market for indoor exhibitions with similar impact.
- 10.5.5 Kew has several exhibition galleries scattered across the site, which are small and located at a considerable distance from one another. These include the Kew Gardens Gallery, the Shirley Sherwood Gallery of Botanical Art, the Marianne North Gallery, the Museum No.1, and the Nash Conservatory. Both the Shirley Sherwood Gallery and the Marianne North Gallery are excellent, but none of Kew's galleries is large enough to house a major exhibition if Kew wished to mount one, and they do not collectively provide a major draw for the public.

New visitor arrangements should aim to deliver the following:

- A significant improvement to arrival at Kew,
- A system for managing increased visitor numbers and patterns of visiting throughout the year
- Increased opportunities for access to the wider Kew landscape and utilising its riverside setting, and greater dispersal of visitors;

- Focal point(s) for the provision of information to allow understanding of the significance of the OUV and WHS at various levels of interpretation;
- Utilise opportunities to display the importance of plant diversity on both global and local level
- Improved sense of orientation, way-finding and communicating Kew's WHS landscape as well as its contemporary mission.
- New visitor facilities building(s) should be of an appropriate location, scale and quality and should include interpretation of the WHS;

## **10.6 Interpretation and Education**

*Issue 39: There is a strong need to improve the interpretation at the WHS*

- 10.6.1 High quality and effective interpretation and educational information on and off site is crucial in order to highlight and promote better understanding of the significance and integrity of the WHS.
- 10.6.2 Interpretation should help people to enjoy the WHS and learn from it, contributing to the quality of life for present and future generations.
- 10.6.3 Interpretation is of paramount importance to communicate Kew's mission and core values. The current level of interpretation is insufficient, variable in quality and lacks consistency and on occasion distracts from the aesthetic experience.
- 10.6.4 Currently the Garden lacks a single Interpretation Strategy for the Site. The messages communicated by the different elements are variable and no coherent or clear picture of Kew's significance, role and history emerges.
- 10.6.5 Among the key themes for interpretation are: The Gardens' rich and complex history; The link between the Gardens and the river; The Gardens' collections and scientific and conservation work as formulated in the Breathing Planet Programme; The Site's world class landscape; The development and maintenance of horticultural standards and techniques; The importance of environmental literacy and sustainability to the natural world; The Site's World Class architecture.
- 10.6.6 There is a need to improve the information available to visitors, both in terms of on-site orientation and the provision of information about the Site's values and activities. This should be addressed within a wider Visitor Management Strategy aimed at dispersing visitors and encouraging access to all parts of the Site, within the bounds of environmental and historical constraints. It would also be appropriate to open up greater visitor access to behind the scenes areas, with staff possibly acting as guides / rangers to offer assistance and information to visitors across the Site and not just at central points.

- 10.6.7 The interpretation techniques that are used at Kew are basic, confining themselves mostly to small labels and plaques, and the information that they convey is limited, both in quantity and in the kind of information that is conveyed. Plans are in progress to use modern electronic communication techniques to improve interpretation, such as a code-reading facility which would enable bar-coded plant labels to be downloaded on to visitors' mobile phones. This would enable visitors to have access to information of their choice in a way that does not intrude upon the plants on display. Remote access, for example via websites, is becoming increasingly important.

## **10.7 Education**

- 10.7.1 Education is seen as crucial to the management of the Site by the Royal Botanic Gardens, Kew. This reflects upon the importance that UNESCO places on access, education and interpretation in its guidance.
- 10.7.2 Education on the Site falls under a number of categories including: informal education of visitors; schools education; formal adult education; and horticultural training. RBGK operates an excellent educational programme for school children which is now included as part of the national curriculum and is World renowned for its horticultural training.
- 10.7.3 Kew Gardens is in a unique position to inform and educate the general public in respect of sustainability, climate change and biodiversity. Kew provides 'hands –on' learning opportunities and provides conduit for plant science and conservation stories to all audiences. The conservation area provides an education environment for UK biodiversity and sustainability studies (pond-dipping, hazel coppice, charcoal production, stag-beetle loggery etc.).
- 10.7.4 Special garden displays such as the Order Beds are fundamental to understand the scientific foundations of the Gardens. Views into, or occasional guided access to, 'Back of House' operations, will provide valuable insight into the working of the Gardens.
- 10.7.5 New visitor facilities could also contribute to raise awareness of the wider cultural and natural landscape setting of Kew Gardens. Opportunities could be explored for guided field trips to river Aits (islands) and other sites of natural interest to explore the bio-diversity of the River Thames floodplain.
- 10.7.6 The area of the 'secluded garden' could be considered for a potential community outreach garden.

*Issue 40: play to be considered as integral part of the WHS*

- 10.7.7 Kew Gardens can provide a unique experience for nature-based play. The vision for play is to inspire positive environmental action through discovery learning and connection with nature. The general attitude to play within the Gardens is a 'learning through landscape' approach throughout the gardens. This could include incorporation of more permanent children / family orientated trails. The existing indoor play facility 'Climbers & Creepers'

needs a permanent purpose designed replacement. The refurbishment of this facility should be extended with a world class outdoor environmental play area.

## **10.8 Sustainable Transport**

### *Issue 41: Public transport provision and sustainable access*

10.8.1 RBG Kew has an ongoing commitment towards promoting sustainable transport as well as maintaining its focus on enhancing visitor experience and community well-being. The benefits of this strategy are evident in surveys which show that the public transport mode share for visitors to Kew is approximately 50%, which compares very favourably with the national average for similar venues which is less than 10%. Correspondingly, the number of cars travelling to Kew makes up a very small proportion of the overall mode share.

10.8.2 Kew promotes a shift towards sustainable transport on its website and visitor / event brochures with the following notice:

*“We encourage you to visit Kew Gardens via public transport for environmental reasons, and because it is usually more convenient as we have limited parking. The “Tube” (London Underground) is the best way to get to Kew from the centre or West End of London. Buses serve those living north or south of Kew (Ealing down to Kingston) and the neighbouring suburbs. From north London, Silverlink [Overground] trains run directly to Kew Gardens station.”*

10.8.3 There are several high frequency bus services (buses 65, 391, 237 and 267) operating through the area. The buses run every 10-12 minutes on Monday to Saturday and every 12-20 minutes on Sundays. Bus routes 65 and 391 have bus stops within 400m of the site entrances. The nearest bus stop for bus services 237 and 267 is at Kew Bridge, which is located approximately 850m from the Main Gate.

10.8.4 Kew Gardens’ District Line, London underground station is located nearby and several National Rail stations (Kew Gardens, Kew Bridge and North Sheen) can be reached within 800m distance from one of Kew’s entrances. As a partner in the local community Kew Gardens actively promotes the conservation and refurbishment of Kew Bridge Station along with improvements to the approach from Kew Bridge Station.

10.8.5 A scheduled river boat service from Westminster to Kew, Richmond and Hampton Court runs daily between April and October. Sailings are, however, not frequent and arrival times are highly dependent on tides. Kew Pier is located approximately 500m from the Main Gate.

10.8.6 There are several cycling routes in the vicinity which are part of the London Cycle Network/ National Cycle Network. These routes are signed. Parts of Kew Road have provision for cyclists, although it remains a very busy road in particular during peak times.



## **10.9 Car parking facilities and usage**

### *Issue 42: Location of car park facilities for visitors*

- 10.9.1 There is limited car parking provided at RBG Kew to encourage the use of public transport and to support RBG Kew's sustainable approach to transport.
- 10.9.2 During peak weekends and bank holidays, uniformed stewards are deployed to manage the parking facilities at Brentford Gate. The car park is used mainly by day visitors and has approximately 180 formally marked bays, with overflow capacity of approximately 170 spaces on grass verges in the vicinity of the car park.
- 10.9.3 Limited public parking is available on Kew Road and around Kew Green.
- 10.9.4 Adjacent to the Main Gate are 3 disabled driver spaces and the Brentford Gate car park includes 11 spaces for disabled visitors.
- 10.9.5 The main on site staff car park is located in proximity of the Banks building and the Herbarium and provides space for approximately 90 staff cars. This on site staff car parking is free of charge.
- 10.9.6 RBG Kew do advise coach companies and drivers of the routes to use when travelling to Kew, and provide information on more remote long term parking opportunities to limit local impacts. Coaches are advised to arrive at Victoria Gate and park on Kew Road (A307). A limited number of coaches do drop off and pick up at the carriage ring at Main Gate, but coaches are prohibited from parking around Kew Green. Coach companies are made aware of the routes to remote parking areas and of RBG Kew's policy encouraging drivers to switch off their engines whilst at RBG Kew.

## **11.0 Scientific Research**

### **Issue 43: The site should contribute to facilitating world class plant research**

#### **11.1 The importance of research in the WHS**

- 11.1.1 Kew is a world class scientific institute and its primary statutory duty is to: “Carry out investigation and research into the science of plants and related subjects and disseminate the results of the investigation and research”.
- 11.1.2 Kew has unique science resources both institutionally and individually. These include the Herbarium, laboratory facilities (both at Kew and the Millennium Seed Bank at Wakehurst Place), the world-leading Millennium Seed Bank itself, and a group of some 240 Plant Scientists. Kew’s traditional core scientific strength has been and remains that of plant taxonomy. This is supplemented by research into plant physiology, developmental genetics, biochemistry, ecology and conservation. Kew has collaborative links with scientists from a wide range of disciplines across the world. It delivers both blue skies science and applied science; the latter is strategically important in relation to the conservation of biodiversity worldwide. The Breathing Planet Programme has become integral to Kew’s science remit.

#### **11.2 Scientific collections**

- 11.2.1 Kew’s statutory duties include: “Care for their collection plants, preserved plant material, other objects relating to plants, books and records”, and “Keep the collections as national reference collections secure so that they are available to persons for the purposes of study, and add to and adapt them as scientific needs and the Board’s resources allow.”
- 11.2.3 The main collections for which RBG, Kew has responsibility can be divided into three main groups: preserved plant collections, living and genetic resource collections and documentary and visual reference collections.
- 11.2.4 Preserved Plant Collections
- 11.2.4.1 The preserved and reference collections are the crucial samples of plant diversity necessary for research in biodiversity. They provide the essential foundation for much of the research work undertaken by staff at RBG, Kew, but they primarily serve the research needs of the broader scientific community. The Collections contain vast amounts of data relating to the distribution and ecology of plant species that are important for conservation purposes.
- 11.2.4.2 The Herbarium concentrates on: the flora of non-temperate parts of the world; British and world non-lichenised fungi and monocotyledons. Today, with c. 8,000,000 reference specimens available for examination, the Herbarium is probably the world’s largest fully curated herbarium and a national reference collection of global importance. The Herbarium contains over 270,000 “type specimens” - the original specimens on which

the names of new species have been based. These specimens, many dating back to the 19th century, typify and fix a species' name for all time, and are invaluable for research into the taxonomy and systematics of plants and fungi. The collections also include the personal herbaria of some of Britain's most celebrated scientists and explorers, including George Bentham, William Hooker, Charles Darwin, Joseph Hooker, David Livingstone, John Hanning Speke, Richard Spruce, Ernest 'Chinese' Wilson and Miles Joseph Berkeley.

11.2.4.3 In all, the Herbarium forms an outstanding primary source of information on the identification, distribution, morphology, and economic usage of plants and fungi from around the world and represents a major and irreplaceable international asset.

#### 11.2.5 Living and genetic resource collections

11.2.5.1 The living and genetic resource collections also support research but are of particular significance as an ex situ safe haven for many plant species that are threatened in the wild. The living collections are also the foundation of RBG, Kew's capacity to attract and inform the visiting public and the arboreal elements form the backbone of the landscape of the Gardens. The living collections include 80,000 live accessions, representing more than 19,000 different species. As such they are a significant global resource.

11.2.5.2 The living collections are by definition a growing and evolving resource. The collections require extensive restocking and maintenance and careful management. The living collections fall into two broad groups: those grown under glass and those grown outdoors.

11.2.5.3 The collections growing under glass need suitably constructed and well maintained facilities (glasshouses) to safeguard their survival. They also require relatively intensive skilled labour. Many of these glasshouses need careful climatic management and RBG, Kew has a good track record in supplying modern technologically advanced facilities for example the Davies Alpine House, Princess of Wales Conservatory, Lower Nursery Greenhouse Complex and new Quarantine House (in construction, 2010). The constant monitoring of space requirements should continue and an ongoing round of maintenance, refurbishment and replacement of glasshouses is crucial to maintain the viability and health of the collections. Risk management is also a crucial element as sudden changes in climate, for example, that caused by structural damage, can substantially affect collections grown under glass. Appropriate strategies to cover such risks are in place.

11.2.5.4 The outdoor collections, as well as being internationally significant in their own right, also form the backbone of the landscape of the Gardens, especially the tree specimens. As such they require a dual purposed management regime aimed at both safeguarding their health and also at developing and maintaining a world-class landscape.

11.2.5.5 The health, completeness and growth of the collections is of critical importance and an active collections and acquisition policy is required to ensure that this is achieved. RBG, Kew's current Acquisition and Retention Policy for its Living Collections is adequate for this purpose and should continue to be regularly reviewed to reflect the Corporate Plan.

11.2.5.6 Formal guidelines for the management of the collections do not exist and the Royal Botanic Gardens, Kew rely on the individual expertise of the staff to ensure the survival and health of the collections. For this situation to continue and to ensure continuing high standards the staff need active support through detailed information databases and training that passes on the accumulated expertise from generation to generation of horticultural staff. Currently the Plant Information Records are incomplete for the Site and a systematic input of data is required to remedy this situation, subject to availability of resources. This enhanced information will enable the staff to make best-informed decisions about individual accessions and maintain the viability and genetic purity of the specialist collections, especially the heritage collections i.e.g. those of E H Wilson, which require vegetative propagation. This data should also be integrated with other on-site databases such as the Land Database and the Tree Risk Database (TRAMS) to ensure integrated management.

11.2.5.7 Purposes for which living collections are acquired and/or retained and sustainably managed

- a) biological conservation (in situ for U.K. native plant species found on site and ex situ collections of threatened world flora for eventual repatriation or banking of seed; their care offering opportunities for training & capacity-building)

Narrative. Kew's living collections contain many taxa that have been Red-listed (IUCN) or are believed to be threatened, whether or not formally categorised. Some have been acquired specifically for the purposes of their biological conservation, often at the request of Kew's diverse partners worldwide, but many others have become or will become threatened subsequent to acquisition as their natural habitats continue to be altered. Accessions of conservation importance also arrive at Kew via seizure then confiscation by the UK Border Agency, for whom Kew operates a quarantine facility in the manner of a bonded warehouse. All of these ex situ resources can be utilised in the support of Kew's conservation role, whether as plant material for direct repatriation and re-introduction to natural or managed areas, or for the production of seed under controlled conditions for storage in the Millennium Seed Bank or the seed banks of Kew's overseas partners. Finally, the Kew site is home to a few UK native plant species regarded as scarce or threatened and henceforth it is the policy of HPE to regard these as part of the collections in its care and to manage the landscapes in which they occur accordingly, even transferring them to more secure parts of the site in cases where land use may be unavoidably changing (e.g. wild clary, *Salvia verbenaca*, relocated to the Main Gate area from Herbarium/Library extension building site).

- b) Science support, including phenology (where appropriate, collections' care costed to the relevant project and with a finite period for retention of accessions)

Narrative. Various plant families and genera are currently (2008) identified by the Living Collections Plant Records Database (LCPRD) as being maintained chiefly in support of Kew's scientific endeavours (e.g. Fabaceae or Leguminosae), while others in addition also serve an important role in decorative exhibits for public interest and enjoyment (e.g. bulbs, orchids and cacti), and to some degree these two roles come together with the Heritage landscape in certain families displayed in Kew's Order Beds. The 'Kew 100',

a selection of taxa deriving from a much longer list of specimens historically monitored for phenological purposes, are recorded by a modern volunteer team managed by the Gardens' Wildlife & Environment Recording Coordinator and need to be maintained and enhanced to ensure this long-running (50 years+) series of records can be secured as a means of measuring the effects of global climate change at the Kew site.

c) heritage specimens and those defining the heritage landscape

Narrative. Specimen accessions falling into this category are largely long-lived, hardy, woody subjects, with a few obvious exceptions (e.g. the Palm House cycad, *Encephalartos altensteinii*, acquired in 1775). They include a significant presence of individual heritage trees and climbers (*Wisteria*) dating from before 1820, as well as those defining the major vistas and landscapes, such as the 'Capability' Brown woodland remnant in which the Xstrata Tree Top Walkway stands. Also to be categorised here are some 300 TROBI British Champion Trees, currently identified by blue aluminium labels, though in general not interpreted as such to the visitor. Other collections, albeit more recent, such as the original introductions of famous plant hunters, e.g. E H ('Chinese') Wilson and specimens regularly admired by the public (e.g. the multi-stemmed stone pine planted 1846), may merit consideration here, as should relatively modern accessions planted by VIPs on historic occasions, including royal visits. This categorisation is in support of Kew Gardens' status as a World Heritage Site (WHS) inscribed by UNESCO in 2003.

d) public and formal education support (including the communication of Kew's science; links to 5a below)

Narrative. Various venues and living collections at Kew Gardens are important as means of supporting education activities, rather than specific research projects. The Palm House and Princess of Wales Conservatory are almost certainly the two most popular venues for assisted Schools visits (plant adaptations & uses), the Water Lily House and student vegetable plots for plant-based foods, and Conservation area for UK biodiversity and sustainability studies (pond-dipping, hazel coppice, charcoal production, stag-beetle loggery etc.). The ongoing redevelopment of the Order Beds, adapting systematic plantings to represent and interpret the Angiosperm Phylogeny Group's classification, is an example intended for an educationally more advanced audience that can also showcase an important part of Kew's science.

e) for public enjoyment of plant beauty/interest (whether as permanent plantings or in short-term displays)

Narrative. Since Victorian times Kew has provided horticultural displays for purely decorative purposes, to delight the eye. This was early seen as a role to encourage visitors to leave the built urban environment for the healthy benefits of the garden experience. To this end a significant number of specimens is purchased each year and used as mostly disposable plantings, even if some are accessioned to the LCPRD. Others are represented as permanent plantings telling a horticultural story, such as the azalea and lilac collections, but are, nevertheless, mainly for public enjoyment of beauty and heritage, rather than botanical research. Since Kew is a paid attraction it makes sense to be able to understand how much such displays cost the organization, be they

temporary or permanent features that are part of Kew's horticultural inheritance, e.g. the Palm House parterre or Rose Garden and Rose Pergola.

f) income-generating collections other than the above

Narrative. A small but historically important role of botanic gardens that has been in decline since 1992, when the Convention on Biological Diversity (CBD) was first launched, is that of developing commercially valuable collections for the horticultural trade, utilising the plant diversity in their collections and/or the skill of staff in the plant breeding/selection process. Examples currently seen to have potential for development at Kew include new *Nymphaea* cultivars and *Miscanthus* selections, where there are possible routes to ensure that CBD best practice can be observed and still allow commercially viable development.

#### 11.2.6 Documentary and visual reference collections.

11.2.6.1 The documentary and visual reference collections add value to the other collections and also comprise important elements of RBG, Kew's intellectual property that need to be safeguarded, developed and used. They are predominately housed in the Library and Archives in one wing of the Herbarium. The collections are managed by a number of curators and archivists and supported by a Paper Conservation Unit.

11.2.6.2 The full value and significance of the archival, art and documentary collections at Kew needs wider appreciation and publicity. Relationships with other major archives, locally, nationally and internationally, should be encouraged and developed. This could lead to increased on-line access to the archives and library through the National Register of Archives; this would help satisfy RBG, Kew's stated desire to increase electronic access to its collections.

11.2.6.3 Kew's living collection is recorded on Kew's LivColl database, which is accessible through Kew's website. It comprises plants that are part of the public offer and others that are maintained behind the scenes (at both Kew and Wakehurst Place). Their use is governed by the international Convention on Biological Diversity (CBD).

### 11.3 Scientific requirements

11.3.1 Key to ensuring RBG, Kew's leading role in scientific research and the protection of its authenticity of function is the maintenance and development of the facilities needed to support its scientific staff and collections.

11.3.2 The needs of the scientific enterprise at RBG, Kew include: working space; library facilities; laboratories; administrative support; research grants; human resources and many other elements. Continual monitoring of these resources is required and long-term plans are needed to ensure critical shortfalls are avoided and that suitable levels of funding are secured. The genetic resource collections share similar issues to those of the preserved collections, namely the need for the highest standards of curation and suitable facilities. All of the preserved collections, the genetic resource collections and the documentary

and archival collections require built and managed facilities for their preservation. For instance, around 30,000 new specimens are added every year to the Herbarium through a programme of overseas expeditions, work with overseas colleagues, gifts and exchanges with other institutes. These specimens are of vital importance and are crucial to maintain the significance of the Herbarium. Currently many of these collections require additional space for both storage and study. This will require the development of new facilities over and above the Herbarium.

11.3.3 The recently opened extension to the Herbarium and Library provides excellent facilities for the collections, staff and visitors.

11.3.4 Priority is being given to digitising the herbarium collections to enhance their accessibility and use.

All the trees at Kew are labelled and accurately surveyed and recorded on a database. The scientific and curation data are held on the “Living Collection Database” and interrogated by a unique accession number.

Data relating to the living collections at RBG Kew have been digitally data based since 1969, longer than any other collection at Kew. However, despite this early start and various valuable modern developments, such as mapping systems, the Tree Risk Assessment Management System (TRAMS), and associated labelling software and equipment, the need to improve accessions data and increasing the ease of access/analysis remain high priorities. Some of this will involve accessing paper-based files that contain un-digitised data stored on site, consulting with internal or external stakeholders with specialist knowledge of certain collections and facilitating the rapid auditing of collections on the ground, to which bar-coding/RFID tagging could provide an answer. The desire to identify heritage specimens and those of conservation importance are also drivers in support of such improvements. Another area where important progress has been made concerns the investigation and digitisation of historic maps, both those held at Kew as well as many held externally in the National Archives, by the local authority and in local museums etc. These maps are essential for a better understanding of Kew’s historic landscape and the ‘hard’ and ‘soft’ features that define it, be they visible or part of Kew’s archaeological heritage. Secure storage of both these and other elements relating to living plant records, some of which are not yet in digital format, needs to be guaranteed. It also goes, almost without saying, that modern horticulture, like the rest of Kew’s operations, relies increasingly on the well-being of many I.T. communication systems, not just those involving plant records, but the maintenance of these systems is beyond the scope of this strategy.

## 11.4 Understanding the site

*Issue 44: The need for ongoing research and survey work*

11.4.1 To manage and conserve the heritage of Kew Gardens, policies should be based on, and supported by a sound understanding of its aesthetic, scientific, historic and architectural resources. Appropriate, ongoing research and survey work will help to support this.

- 11.4.2 Whilst the history of the former Royal Gardens has been well documented the historic layout and transformation of the botanical collections could do with further in depth research. Further research into the underlying design relationships of the gardens within the River Thames Arcadian landscape could inform important information on the origin and development of the English landscape style.
- 11.4.3 Further research and recording of the archaeological record would improve the historical understanding of the WHS.
- 11.4.4 An exhibition of historic maps displaying the transformation of Kew Gardens over time. Key documents and maps should be reproduced to help with the long term conservation, to improve research access to the material.
- 11.4.5 Kew already undertakes regular visitor surveys and these should be continued as a valuable means of informing appropriate management of the site.

## **11.5 Management, Liaison and monitoring arrangements for the WHS**

### *Issue 45: The need for regular monitoring and liaison*

- 11.5.1 The WHS Management Plan will be used as an operational document, to be utilised by Kew Gardens to inform policy decisions, to assist in planning capital and revenue expenditure, space planning, discussion with potential funding partners, preparation for applications for grant aid and to guide annual work plans.
- 11.5.2 Monitoring the implementation of the Management Plan is also crucial since such feedback can be used to improve the effectiveness of this Plan and also to inform the development of its successor in due course. A set of agreed monitoring indicators should be developed to review the development and implementation of the plan in light of the attributes of OUV identified in this Plan. [The Action Plan's Aims & Policies are the basis for monitoring and reporting via 6-monthly meetings of the WHS Steering Group]

To successfully implement the plan the following is important:

- effective partnership among the key stakeholders with wider involvement of other partners;
- commitment of stakeholders, as far as is practicable to implement those policies and actions for which they are responsible;
- an effective steering group (the Kew WHS Steering Group Committee, meeting twice each year)
- effective coordination of the implementation of the Plan by the steering group and the WHS Coordinator/contact officer;



- adequate resourcing;
- regular monitoring and review of the implementation of the Plan and of the condition of the WHS.

## **11.6 Funding & Resources**

*Issue 46: Ensure funding to secure long term conservation and implementation of the landscape vision*

- 11.6.1 For the Site to have a sustainable future, it needs a strong and sustainable economic basis. This requires continued and sustained Government funding, supported by effective business management that aims to maximise returns from the Site and its visitors. Business management approaches are well established at RBG, Kew and are reflected in the Corporate Plan and the work of the Board of Trustees.
- 11.6.2 In recent years Kew has done a great deal to increase its self-generated income from a variety of sources including its science, its visitors and other customers, and, particularly, from fund-raising. The latter has been especially impressive. Further growth across all major areas of income generation is planned. As an in-part Government funded organisation, Kew will be expected to make additional efficiency savings.
- 11.6.3 Visitor admissions income grew from £3.0 million in 2001/2002 to £5.5 million in 2008/09 and have subsequently dropped to £4.3 million in 2012/2013. Adult admission prices have risen ahead of inflation since 2001/02.
- 11.6.4 Total Grant-in-Aid from Defra increased by 45% in cash terms over the period 2001/02 to 2009/10 (18% inflation adjusted). This compares favourably with funding trends for other Defra sponsored bodies over the same period, but lags behind the increase over the same period in comparable bodies such as national museums and galleries sponsored by DCMS. Kew is unusual among the bodies that Defra sponsors in that it is a major visitor attraction with important heritage and cultural components.
- 11.6.5 Kew is developing a planned, prioritised maintenance programme for its historic buildings and has put the management of its estate on a professional footing. There is potential to finance part of the maintenance programme through fund-raising. Some of its historic buildings could generate increased commercial revenue.
- 11.6.6 Kew should ensure that it has access to the necessary specialist historic environment expertise as it develops its Landscape Master Plan and cares for its heritage assets.
- 11.6.7 Kew has recently set up the Kew Innovation Unit (KIU), whose remit is to market Kew's services and intellectual property for profit.



## Part 3:



### AIMS AND POLICIES

## 12.0 Introduction

The primary purpose of the World Heritage Site Management Plan is to set out a framework for the management of the WHS to ensure its conservation and continued sustainable use, and the continued maintenance of its heritage values, while recognising opportunities to reveal or reinforce those values for present and future generations.

The WHS Management Plan has five overarching objectives. These are:

- to **manage** the WHS so that its Outstanding Universal Value is conserved and enhanced.
- to **facilitate** the gardens to provide for innovative botanic research, horticultural display and interpretation in order to communicate the importance of plant diversity to the future of our planet; both on a global and local level.
- to **interpret** the gardens as a palimpsest of landscape design and changing attitudes and values in respect to its scientific programme, collections and taxonomic display.
- to **outline** a sustainable approach to the future management of the whole WHS which aims to balance all values and needs, such as world heritage, scientific research, visitor experience, nature conservation and environmental education.
- to **identify** a phased programme of action that is achievable and flexible and will contribute to the conservation of the WHS; the understanding of its Outstanding Universal Value, and the improvement of the WHS for all those who visit, work in or live within its vicinity.

### 12.1 Kew Mission Statement

The mission of the Royal Botanic Gardens, Kew, which has been agreed by the board of Trustees and the staff, is:

*“To inspire and deliver science-based plant conservation worldwide, enhancing the quality of life”.*

This Mission Statement provides the stimulus to refocus the role and interpretation of the botanic gardens and its display of the living plant collection.

The challenge for Kew Gardens is to address the environmental crisis of today, promote sustainable use of plants and communicate challenges of climate change.

Kew’s wide range of responsibilities combines world class scientific research and horticulture as well as public engagement with its mission. Access to the collections, distribution of information and education are key to build and share knowledge regarding the importance to protect plant diversity in respect to the future of the planet and humanity.

Kew's priorities are represented by the above Mission Statement and its new Breathing Planet Programme and sets the tone for what it wants to achieve, as a Corporate Plan, over the next five years. Summed up, these are:

- Maintaining conservation and biodiversity worldwide
- Banking seeds for ecological repair
- Gaining the knowledge and experience necessary for delivering conservation and repairs to biodiversity
- Informing and inspiring people of the needs for biodiversity and the challenge of climate change

Kew's inscription as a World Heritage Site and its position as a large green space as part of a wider River Thames Arcadian landscape embedded in an urban environment creates both opportunities and restraints. It provides opportunities for environmental education and in situ conservation close to a major population centre. On the other hand one of the challenges of Kew Gardens is the increased demand and incremental expansion such as accommodation needs of Kew collections, staff, and programmes, as well additions to the living plant collections within the limitations of the site. This results in potential loss of spatial clarity and conflict between the garden as a scientific institute and major visitor attraction. The right balance needs to be struck between the use of the site for botanical purposes and the preservation of the existing historic gardens.

## **12.2 Vision**

- 12.2.1 To conserve Kew Gardens' Universal Value requires forward planning and strategic decision making. The Landscape Master Plan provides an overall, long term, vision for Kew Gardens. The plan outlines the conservation and enhancement of the gardens and will enable the gardens to embrace new challenges and opportunities. The landscape Master Plan, endorsed by the Board of Trustees in February 2010, has been integral to this updated World Heritage Site Management Plan.
- 12.2.2 Besides the conservation of all key attributes of the OUV of the WHS there is also the need for change. At present Kew Gardens lacks spatial clarity, provides insufficient and outdated interpretation, does not optimise its unique riverside location and does not fully represent the changing role of a premier botanic garden in the 21st century. The vision and recommendations put forward by the Landscape Master Plan will enhance the visitor experience within the Gardens through the provision of improved orientation, state of the art interpretation and high quality visitor facilities and services. Most importantly Kew Gardens will have to adapt and prepare for the effects of climate change. This could be done in an exemplary and creative manner which provides awareness for visitors and creates new opportunities for compelling state of art display.
- 12.2.3 Throughout its history Kew Gardens has represented innovative ideas regarding science, botany and arts. This spirit of innovation should continue and create Kew Gardens' heritage of the future. The landscape should be used to look outwards, encourage public access, celebrate the science, and deliver on Kew's contemporary mission – to inspire and deliver science based plant conservation worldwide, enhancing the quality of life.

This mission should be reflected within the Gardens by means of a series of innovative visitor experiences as well as informed and inspired re-interpretation of the Gardens' own unique heritage.

- 12.2.4 Key focus for Kew Gardens is the global impact of climate change and the potential irreversible loss of biodiversity. Kew's changing role from economic botany towards world-wide plant conservation, education and scientific research exemplifies Kew not as a monument of the past but an active and dynamic scientific institution which provides direction for the future.
- 12.2.5 The landscape vision for Kew Gardens can be defined as conserving and interpreting the layered history of the World Heritage Site which complements a new contemporary layer representing the role of Kew gardens in the 21st century.

### **Preserving the past**

- 12.2.7 The historic landscape of vistas, avenues and sightlines will be reinforced to create a spatial framework and improved setting for listed buildings, temples and follies. The landscape framework, combined with a carefully composed serial vision and spatial sequencing along the Gardens' main routings will contribute to legibility and cohesion. A series of three distinct Landscape Character Zones will articulate the gardens historic distinction between the original botanic garden (collection of specimen trees), the arboretum (taxonomic display) and the conservation area (semi natural woodland). One of the aims of the Landscape Master Plan is to interpret the gardens as a palimpsest of landscape design and changing attitudes and values in respect of its scientific programme, collections and taxonomic display. Conservation of the Gardens' key historic attributes should be considered in conjunction with contemporary garden interventions representing the changing role of the botanic garden in the 21st century.

### **Presenting the future**

- 12.2.8 The Breathing Planet Programme provides a clear focus which should become manifest in the lay-out and display of Kew Gardens. The global impact of climate change and the potential irreversible loss of biodiversity will provide the impetus for a series of iconic displays of the world's most threatened biomes in order to promote worldwide commitment to biodiversity and habitat protection. Introduction of new world class visitor's facilities and the use of digital media will provide for a wider and larger audience. Kew Gardens will provide excellence and innovation in respect to best practice in regards to sustainability, bio-diversity and contemporary horticulture / landscape architecture. Kew's global mission will be expressed in its local setting with demonstration of local plant biodiversity and celebration of the Gardens' unique riverside setting.

### **Strategic Projects**

- 12.2.9 The Landscape Master Plan will enhance the visitor experience within the Gardens through the provision of improved orientation, interpretation and high quality visitor facilities and services. These new facilities and services are carefully located in order not to compromise key attributes of the World Heritage Site. New facilities will be located

to welcome visitors at the main entrances as well strategically spread across the site in order to allow visitors to explore the Gardens outside the current 'honey pot' area. The Landscape Master Plan proposes to articulate the 'Breathing Planet' initiative by introducing a contemporary program of new world class horticultural biome displays to emphasise the importance of plant diversity on both global and local levels. The effect of climate change on the world's most threatened and unique biomes will inform important and topical displays in order to promote worldwide commitment to bio-diversity and habitat protection. The original taxonomic layout of the Gardens will be enriched with ecological displays of plant communities in representation of natural habitats.

12.2.10 Key strategic projects focus upon the River Thames Frontage, Victoria Gateway and the 'Breathing Planet Walk'; a new innovative garden circuit connecting the display of various plant communities under threat of global climate change.



Figure 14 - Key Strategic Projects

### River Thames Frontage

12.2.11 Kew Gardens is positioned in a unique location along the meandering River Thames and forms part of a natural and designed landscape representing an Arcadian vision throughout time. An important part of the Landscape Master Plan is that Kew Gardens will, once again, become focused towards the River Thames. An improved relationship with the River Thames provides a unique opportunity to create a historic, cultural and ecological dialogue between the Gardens and its setting. The improved relation to the River Thames is proposed by a series of interrelated projects including contemporary riverside gardens in place of the current riverside car park, provision of a riverside café, opened up views and consideration of a foot bridge across the River Thames. The river frontage project could also include a series of integral designed flood protection and mitigation projects including extended wetlands and redesign of the currently deteriorating ha-ha boundary. The Landscape Master Plan proposes to optimise the riverside zone adjacent to the Lower Nursery complex by concentration on horticultural and scientific glasshouse; related activities, whilst relocating the Estates maintenance yard, as well as administrative offices, to the more central Stable Yard area. Provision of riverside

mooring could promote sustainable riverside transport and allow for Kew organised 'bio-diversity discovery tours' such as site visits touring the Aits.



Figure 15 - Propsed Riverside Gardens

### **Victoria Gateway**

12.2.12 Victoria Gate has, due to its location in relation to public transport, become Kew's main entrance. The current arrangement at Victoria Gate is congested and lacking in both interpretation and orientation. A new enlarged gateway garden plaza with iconic display, landmark orientation and a new 'People and Plants Centre' could create a new focus for the entire Gardens and become a key project to start a new garden circuit which allows the visitor various options to explore the Gardens. The new Victoria Gateway scheme will create an important first time impression and will represent the transformation of Kew Gardens as a whole.



Figure 16 - Propsed Victoria Gate

### **Breathing Planet Walk**

12.2.13 The 'Breathing Planet Walk' provides a new innovative garden circuit connecting various proposed biome garden displays. The routing draws visitors into the Gardens away from the existing 'honey pot' areas towards the river and incorporates already constructed and successful projects such as the X-strata Tree Top Walkway and Sackler



Crossing. New biomes projects could include the 'Lost World Display', Riverside Wetland Habitat Gardens and Polar House. This Breathing Planet Walk allows for a sequence of landscape atmospheres such as meadow, woodland, lake, valley and floodplain. The articulation of serial vision, spatial sequence, sightlines etc. promotes a sense of orientation and destination. The ultimate aim is to draw visitors into the garden, leading from one experience into the next. As an integral part of the garden circuit, the Broad Walk will be re-affirmed as the Gardens' main promenade. The Breathing Planet Walk strategically connects various catering and event facilities. The new routing is part of a series of projects to articulate the hierarchy of pathways throughout Kew Gardens.

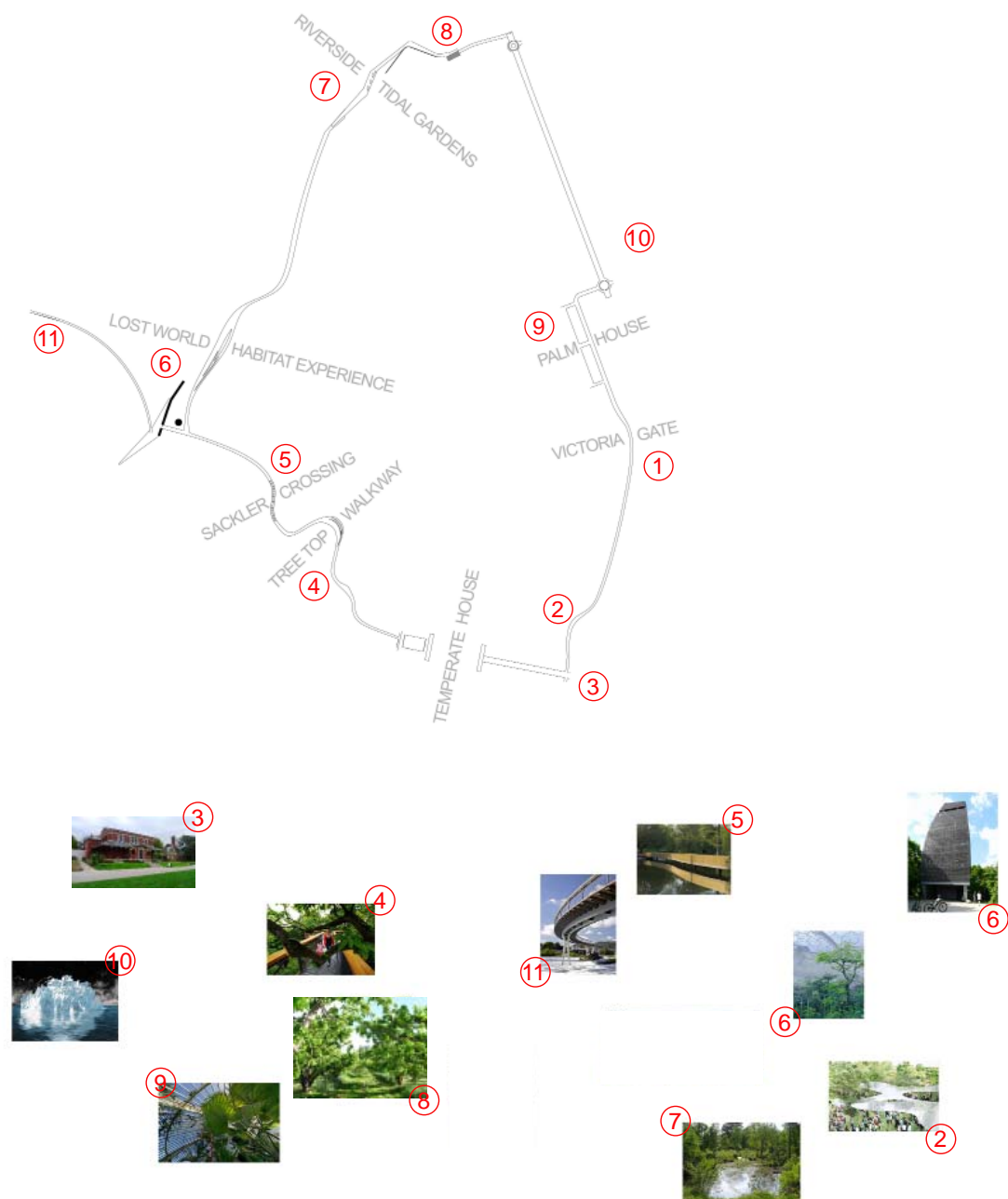


Figure 17 - Propsed Breathing Planet Walk and its associated experiences

## **Key Priorities 2010-2016**

### **12.2.14 Priorities for 2010-2016:**

- Conserve and enhance the OUV of the Site
- Interpret and promote the OUV of the Site
- Maintain historic landscape framework and structural planting
- Prioritise building maintenance with special priority given to the Temperate House
- Communicate the Breathing Planet programme with particular reference to the Breathing Planet Walk
- Reinstate the relationship with the River Thames and prioritise the development of a new riverside garden in place of the current car park site
- Enhance the visitor experience with special reference to Victoria gate
- Development and implementation of an Interpretation Strategy.

## **12.3 Statutory and Policy Framework**

**Aim 1: The Management Plan should be endorsed by those bodies and individuals responsible for its implementation as the framework for long term detailed decision making on the conservation and enhancement of the WHS and the maintenance of its Outstanding Universal Value, and its aims and policies should be incorporated into relevant planning guidance and policies.**

**Policy 1a** - Government departments, agencies and other statutory bodies should formally endorse the Management Plan as the overarching document for the management of the site.

**Policy 1b** - The London Plan and Local Development Framework and other statutory plans should contain policies to ensure that the importance of the protection of the WHS and its setting and the maintenance of its Outstanding Universal Value are fully taken into account in determining planning applications. Apart from OUV, policies should seek to conserve, promote, sustainable use and enhance their authenticity, integrity and significance of the WHSs.

**Policy 1c** - The relevant policies of the Management Plan should, where appropriate, be formally incorporated within the local Development Framework (possible as Supplementary Planning Document) and inform other plans such as Thames Landscape Strategy.

**Policy 1d** - Development which would impact adversely on the WHS, its Outstanding Universal Value or its setting should not be permitted.

## **12.4 The designation and boundaries of the World Heritage Site**

**Aim 2: The WHS boundary should ensure the integrity of the WHS is maintained by including all known significant landscape features and interrelationships related to**

**the attributes of the Site's Outstanding Universal Value.**

**Policy 2a** - A study into the appropriateness for extending the buffer zone boundary further into Brentford and its town centre Victorian canal network should be carried out in conjunction with LB Hounslow and appropriate recommendations should be made.

**Policy 2b** - In the long term a review of the significance of the interrelationship of the Site in the context of the Old Deer park / Syon House and the wider River Thames Arcadian landscape should be considered in order to establish whether the WHS site boundaries and Buffer Zone are sufficient to protect the integrity and authenticity of Site within the wider natural and cultural landscape.

**Policy 2c** - Review the status of protection for significant sightlines and vistas which extend outside the World Heritage Buffer Zone but contribute towards the site's Outstanding Universal Value.

**Policy 2d** - Establish ongoing dialogue with landowners and managers to review land management regimes in the Buffer zone and coordination with Thames landscape Strategy.

**Policy 2e** - Re-establish the cultural, ecological and visual relation with the River Thames as a key attribute of its Outstanding Universal Value.

## **12.5 Conservation of the World Heritage Site**

**Aim 3: The Outstanding Universal Value of the WHS should be sustained and enhanced through the conservation of the Site and the attributes that carry its Outstanding Universal value.**

**Policy 3a** - The WHS should be managed to protect its attributor of Outstanding Universal Value, to protect their physical fabric, to improve and enhance their condition and to explain their significance.

Implement a prioritised conservation programme for all listed buildings within forthcoming plan period with highest priority for Temperate House followed by Palm House and Pagoda.

Conserve the historic landscape framework of the gardens inc. planting programme for reconstruction of key avenues and vistas; Pagoda Vista, Cedar Vista, Syon Vista, Minor Vista and Broad Walk.

Improve protection, setting and interpretation of key build fabric and landscape features.

Promote the reading of the site as a palimpsest of landscape history.

Continue amelioration work for all current and future heritage trees.

Protect in-situ archaeological sites.

Adapt the Living Plant collection to accommodate the affects of climate change.

**Policy 3b** - The condition and vulnerability of all listed buildings and key landscape features throughout the WHS should be reviewed regularly to guide future management actions and priorities. Ensure that appropriate plans and strategies are in place to mitigate threats.

Undertake regular condition surveys of all listed buildings and key landscape features.

Set standards and methodology for condition surveys to ensure compatibility.

Develop programmes for the preparation of individual Conservation Plan / Statements in line with the 50 years Maintenance Plan.

Regularly review existing 'Emergency Procedures and Crisis Management Plan.

Develop Climate Change action programme.

Implement Flood risk strategy.

**Policy 3c** - The setting of listed buildings and key landscape features within the gardens and their interrelationships should be maintained and enhanced, with particular attention to the gardens overall spatial cohesion and WHS River Thames landscape settings.

Implement a coherent set of design guidelines and reduce visual clutter.

Restore site perimeter planting alongside Kew Road.

Open view lines towards River Thames.

Relocate the riverside car park and introduce riverside gardens / reinstatement of Queen Elizabeth lawn and improved landscape integration of Ferry Lane.

Improve setting of Kew Palace. Develop concept of Georgian Quarter including Georgian Kitchen garden. Study possibility of direct access to Kew Palace.

Consider enhanced nature woodland garden in vicinity of Queen Charlotte's Cottage.

Improve ambience of Broad Walk as the Gardens' main promenade.

Improve setting and planting adjacent to the Main Gate.

Continue to implement the rose garden setting of Palm House according to original William Nesfield's bed design.

Improve setting of the Temperate House.

Conserve and enhance Augusta Walk incl. setting of Ruined Arch.

Improve setting of Pagoda. Consider reinterpretation of the former 'wilderness' lay-out.

**Policy 3d** - The overall spatial coherence and legibility of the gardens has incrementally lost and should gradually be improved upon.

The recovery of vistas, sightlines and serial vision of open / enclosed should be more fully explored to create spatial legibility and cohesion.

The display of woody shrub planting at large has become too scattered across the gardens and could be improved upon in terms of bolder groupings which could contribute to stronger spatial definition, sense of serial vision and accentuation of the gardens topography.

Areas of open space and corridor vistas should be protected from further encroachment.

The spatial containment created by boundary planting needs further adjustment, e.g. strengthening screening alongside Kew road and back-stage areas but more open views across the River Thames.

The long term provision of structural planting should be carefully studied in relation to tree species, age distribution, affect of climate change etc.

Introduction of 3 distinct Landscape Management Zones expressing the gradation from intensive towards low maintenance regimes could contribute towards the garden legibility.

Develop and implement coherent set of design guidelines including dimension, alignment, surface treatment, edge detail of path ways.

**Policy 3e** - Where appropriate, degraded or lost garden features within the WHS should be conserved and/ or made visible by demarcation or re-interpretation.

Undertake feasibility study to restore Bridgeman's Riverside Mount and conduct archaeological survey to identify formal canal.

Consideration given to construction of a new feature on former elevated location of the Temple of Victory.

Consideration given to the demarcation of the position of key lost garden follies and temples with special reference to Temple of the Sun (William Chambers), Hermitage and Merlin's Cave (William Kent).

Reconsider condition and future configuration of the riverside Ha-ha in context of maintenance, authenticity and flood protection.

Protect the identified location of archaeological deposits where possible in situ or, if necessary, by investigation and recording.

The proposed riverside gardens on the site of the existing riverside car park should, if implemented, be accompanied by extensive archaeological survey.

Regeneration of planting within Rhododendron Dell.

**Policy 3f** - The overall nature conservation value of the WHS should be maintained and enhanced in particular by maintaining and improving the biodiversity of ground cover and acid grasslands, leading to greater diversity not just of plants but also of other wildlife including birds and invertebrates.

Maintain the existing areas of acid grasslands.

Improve the biodiversity of existing ground cover planting of the Arboretum by appropriate mowing and other maintenance programmes.

Continue to encourage protected species.

Express, where possible and appropriate, the original floodplain landscape e.g. topography and soil type distribution as indication of former river meanders.

Extend the areas of riverside wetland in former gravel pits in Conservation Area.

Utilise new Riverside Garden to develop (tidal) wetland habitat.

Collate the environmental data available into map of the ecological value of the WHS and incorporate in Kew Gardens GIS database.

Contribute towards environmental outreach projects outside Kew Gardens boundary i.e. tree planting, wetlands, community gardens Utilise Tow Path and Ha-ha as a demonstration biodiversity project.

**Policy 3g** - Introduce differentiated management zoning strategy to articulate the sequence from intensive maintained pleasure grounds to semi natural woodland.

Utilise variety of management regimes for the creation of distinct landscape character zones.

**Policy 3h** - The visual integrity of the WHS should be improved by the removal or screening of existing inappropriate structures.

In medium / long term seek opportunities to promote a reduction in the impact of the visually intrusive Brentford High rise.

Removal of (temporary) fence on top of riverside Ha-ha when aspects of health and safety are secured.

Seek opportunities to regenerate public realm of Brentford waterfront.

Greening River Thames concrete flood defence embankments with tidal gardens by means of silt traps attachments to facilitate natural colonisation.

Monitor/ comment upon various emerging development proposals within Brentford in the Buffer Zone.

**Policy 3i** - Risk management strategies should be kept under review and updated as necessary.

**Policy 3j** - A study of the possible impact of climate change should be carried out and appropriate strategies identified.

Gradual adaption of the Living Plant Collections including introduction of drought resistance species.

The Managing of drier soils in summer and wetter soils in winter incl. water conservation and drainage.

Increased need for shelterbelt planting to reduce potential wind damage.

Special preparation / protection of Heritage trees.

Prepare for increased risk of new plant diseases and predators.

**Policy 3k** - A study of the possible impact of increased flood risk should be carried out and appropriate strategies identified.

Promote the use of the wider flood plain for water spread during a flood event.

Study of impact of periodic flooding on vegetation within specific parts of the garden. Feasibility of re-contouring the westerly part of Syon Vista.

**Policy 3l** - Ensure that all uses, activities and developments within the WHS are undertaken in a sustainable manner and contribute towards the conservation or enhancement of OUV.

Develop and implement WHS sustainable energy strategy.

Introduce new technologies and techniques, such as biomass energy for boiler house, where they can improve efficiency or environmental performance for the collections and staff and act as education/ inspiration for visitors to WHS.

Promote and encourage the use of sustainable (zero emission) forms of transport on the Site and reduce the affect of traffic on the character of the WHS without overly compromising the ability of the staff to undertake their duties.

Implement sustainable strategy for irrigation (water source, response to extreme droughts, mulching, grey water recycling etc).

## 12.6 Visitor Management

**Aim 4: To interpret the Outstanding Universal Value of the WHS, to increase understanding and conservation of the cultural assets and to promote the importance of the heritage resources for public enjoyment, education and research.**

**Policy 4a** - Visitor management should be exemplary. 'Empowerment' of the visitor could create a more interactive experience and engagement with the Gardens.

Review a comprehensive Visitor Management Strategy.

Undertake an updated Visitor Experience and Expectation Survey in relation to proposals in Landscape Master Plan.

Increase visitor numbers and engage a more diverse visitor population throughout the seasons.

**Policy 4b** - Encourage the majority of visitors to arrive at WHS by public and / or other forms of sustainable transport.

**Policy 4c** - Rationalise service vehicle access to Site to avoid conflict with visitors' experience.

**Policy 4d** - An integrated approach to the management of visitors to the WHS should articulate Kew's mission, embrace the conservation and biodiversity agenda and becoming more visitor experience orientated.

Continue to coordinate public transport links to the Site.

Promote improvement to approach from Kew Bridge Station.

Promote improvement of the links along Thames Corridor to the Site

Review opportunity for future pedestrian / cyclist connection to Brentford (ferry / bridge) as promoted by both Brentford / Hounslow Council and Thames landscape Strategy.

Promote river access and transport and possible mooring in relation to Kew Place / riverside gardens.

Continue to monitor transport modes used by visitors and update Visitor Management Strategy accordingly.

**Policy 4e** - Enhance the visitor experience within the Gardens and achieve continuous levels of excellence through the provision of improved orientation, information and high quality visitor facilities and services without compromising the Outstanding Universal Value of the WHS.

Redevelop Victoria Gate into a world class Gateway incl. garden plaza and facilities for



interpretation and orientation incl. new 'Plant and People' visitor orientation centre.

Introduce new 'Breathing Planet Garden Walk' which will manifest Kew's mission in relation to world wide plant conservation. The route will connect various existing attractions such as Xstrata Tree Top Walkway and new biome displays representing plant habitats under threat of climate change.

Utilise the 'Breathing Planet Walk' to direct a contemporary programme of new world class horticultural displays including 'Lost World Habitat' and 'Polar House' experience.

Introduce new contemporary riverside wetland garden with special reference to climate change and reinstatement of Queen Elizabeth Lawn.

Consider the feasibility of new riverside café and restaurant.

Refurbish the Sir Joseph Banks Centre to create venue for events and corporate entertainment in relation to relocated car park and retail / plant sale opportunities.

Refurbish Main Gate including improved setting, interpretation and orientation facilities utilising Nash conservatory and combine with access from relocated car park.

Refurbish Climbers and Creepers / White Peak structures with a purpose built indoor / outdoor environmental play facility with associated café, shop, teaching and visitor facility.

Improve orientation of WHS by establishment of clear hierarchy and typology of path and routes.

Include strategically positioned visitors attraction to pull visitors throughout the site in addition to current 'honey pot' area surrounding Palm House.

Introduce coherent interpretation and way finding strategy.

Create an above treetop viewing / interpretation experience to see the WHS in its wider landscape context.

Study the feasibility of footbridge connection between Kew Gardens and Syon House Estate / Brentford to extend visitors experience.

Implement best practice for disabled and less-able visitors.

Maintain guided tours of WHS.

**Policy 4f** - The provision and number of visitor's entrance gates should be reviewed.

Possible closure of Brentford Gate as part of relocated Riverside Car park.

Review of main gate to allow access from relocated car park at back of Herbarium.

Improve ticketing at Victoria Gate to solve congestion at peak times.

Study should be undertaken into new (flexible) operational entrances to allow for events and occasions.

Introduce electronic ticketing.

**Policy 4g** - Events have become a key factor to attract and diversify (fee paying) visitors and generate promotion of Kew Gardens. Potential conflict between increased (peak-time) visitor's numbers and 'carrying capacity' of gardens needs to be addressed.

Facilitate and integrate discrete but purpose designed events areas within the gardens incl. Temperate House outdoor event venue.

Resolve potential conflict between events and residents in the vicinity of RBGK.  
Develop Art strategy for Kew Gardens with special reference to temporary outdoor sculpture exhibitions.

Positioning of new riverside restaurant / terrace to be considered.

**Policy 4h** - Interpreted Kew's scientific work, its collection and history to a larger and more diverse audience.

Stimulate a continued role of the Gardens as a scientific collection and its use as 'outdoor laboratory' of relevance to contemporary plant research and taxonomic classification.

Develop and Implement Interpretation Strategy for WHS incl. new way finding across the Gardens by means of a digital interpretation network.

Utilise digital interpretation network (incl. bar coded plant labels) to allow for world wide web based access relating virtual garden tours to on-site information provision.

Upkeep educational programme.

Utilise collection and display to inform the visitor about the changing role of the botanic gardens throughout time. The ongoing tradition of world-wide plant hunting could be more fully communicated and interpreted.

Develop climate change programme.

Organise and catalogue major exhibition of historic maps of WHS displaying the transformation of Kew Gardens over time.

Utilise RBGK local setting to promote awareness of biodiversity, plant conservation and impact of climate change.

Access to be available to the widest possible visitor audience .Improve engagement with under represented visitors groups including ethnic minorities and people from under

privileged socioeconomic backgrounds.

**Policy 4i** - Promote Community involvement in RBGK WHS

Continue to develop volunteering opportunities in the WHS.

Strengthen links with community groups across London.

Develop outreach projects to promote Kew Gardens.

Develop Community Garden project.

Strengthen links with Kew Society.

**Policy 4j** - The economic benefit of visitors to Kew Gardens should be spread to the wider area.

Explore opportunities for green travel links between a range of historic gardens and Royal Palaces.

Liaise with Syon House Estate to explore benefits of possible footbridge connection.

Explore opportunities for guided field trips to river Aits and other sites of nature interest to explore bio-diversity of River Thames floodplain.

New visitor facilities should raise awareness of the wider area.

Feasibility of riverside café to be explored.

Improve pedestrian links with Brentford.

## **12.7 Scientific Research**

**Aim 5: Develop the facilities and resources needed to support RBGK's role as a world class centre for scientific research and biodiversity conservation.**

**Policy 5a** - Ensure the long term conservation, survival and development of the collections that contribute to the Outstanding Universal Value of the Site through targeted growth, the continued development of appropriate conservation techniques, management regimes, storage facilities and horticultural practices.

Optimise riverside zone Lower Nursery complex by concentration on horticultural and scientific, glasshouse, related activities whilst relocation of Estatesyard as well as administrative offices to the former stable yard area. The proposed Quarantine House will complement the core backroom horticultural and scientific activities of this area whilst visually contained within existing shelterbelt plantation.

Develop vision for the living collections in relation to new biomes related displays.

Regularly review 'Acquisitions and retention Policy' for the living collections in line with the Corporate Plan.

Systematically complete and update the Living Collections Plant Record database.

Allow for long term future expansion of RBGK research facilities, including recent extended Herbarium.

## **12.8 WHS Research Objectives**

**Aim 6: Research should be encouraged and promoted to improve understanding of the archaeological, historic and environmental value of the WHS necessary for its appropriate management.**

**Policy 6a** - Assess and interpret the heritage value of the Bentham & Hooker taxonomic lay-out of the living plant collection.

**Policy 6b** - Further research into the underlying design relationships of the gardens within the River Thames Arcadian landscape could inform important information of the origin and development of the English landscape style.

**Policy 6c** - Promote the important contribution RBGK scientific research can make to assess the impacts of climate change in respect to new UNESCO policies on WHSs and climate change.

## **12.9 Management, Liaison and Monitoring**

**Aim 7: Provide adequate resources for the management, conservation and monitoring of the WHS.**

**Policy 7a** - Coordinate the implementation of the Management Plan and liaise with partners.

Review progress & priorities each year at 6 monthly WHS Steering Group Meeting.

Strengthen links with Thames landscape Strategy.

Review and rewrite the Management Plan every 5 years.

Develop links and exchange of best practice with other WHSs in the UK and elsewhere.

Establish a Kew Forum representing the communities of Richmond and Hounslow with a representative of the WHSSG.

**Policy 7b** - Review the governance of the WHS, including the composition and terms of reference of the WHS Committee and the Advisory Forum.

**Policy 7c** - Seek adequate funding for the WHS.

Review long term funding for the WHS covering both operational and capital cost.

Ensure Defra Grant-in-Aid.

Maximise funding for the WHS from all sources including increased visitor number, revenue generating conference facilities (Sir Joseph Banks Centre).

Implement fund raising programme to secure the restoration of top priority heritage buildings such as Temperate House and the Palm House.

**Policy 7d** - Ensure regular monitoring of WHS.

Revise as appropriate the WHS monitoring indicators in line with attributes of Outstanding Universal value.

Continue to update and develop Kew Gardens GIS.

## **12.10 Funding & Resources**

12.10.1 The funding for RBGK's running, maintenance and development is formed from a mixture of Grant Aid from Defra, private sponsorship and funds raised from its commercial activities. This funding arrangement is envisaged to continue for the foreseeable future. RBGK have also established the 'Innovation Unit' which facilitates access to Kew's World class plant-based consultancy, horticultural and scientific services. This unit and the services then offered by staff throughout the organisation provide a further funding resource.

12.10.2 Management of the resources for the gardens, living collections, heritage buildings, estate infrastructure and delivery of the World Heritage Site Management Plan is overseen by the new director of CLCE (Conservation, Living Collections and Estates). Established in a board restructure in 2010 this department provides common management of the Estates and Living Collections departments. Each department allocates the resources and funding available based on maintenance and development priorities, the action plan of the World Heritage Site Management Plan and Kew's core strategy.

12.10.3 The Estates Department manager, while overseeing the resourcing and maintenance of the sites buildings and infrastructure, manages the sites major capital works programme and the day to day implementation of the World Heritage Site Management Plan.

The department is currently in the initial stages of negotiation with Defra over a five year maintenance programme with a view to securing a long term funding commitment.

- 12.10.4 The WHS Management Plan aims and policies can be achieved through a range of projects, ranging from capital projects to maintenance plans. The availability of funding will determine the rate of implementation. A clear sequence of project implementation will ensure that projects are not seen in isolation and operate in tandem. Projects which are interdependent are presented in distinct packages. Equally important is a certain flexibility to allow the plan to respond to successful bids and project sponsorships.
- 12.10.5 Not all aspects of the Landscape Master Plan / WHS Management Plan require additional capital funding and can be achieved by prioritizing existing landscape management and maintenance programs. The provision of design guidelines will assist in creating an overall sense of coherence and identity. The landscape management of Kew Gardens will have an important role to contribute to the delivery of the landscape vision. The evolution of the living plant collection and safeguarding the Gardens' spatial structure demands a long term, process-orientated approach. The structure planting needs to be gradually adapted to reflect appropriate tree species, age distribution, affect of climate change etc. Differentiated management regimes for various parts of the Gardens will provide an important tool to create distinct landscape character zones expressing a sequence from intensively maintained pleasure grounds to semi-natural woodland.
- 12.10.6 The plan highlights some essential short term priority projects in need for capital funding. This category of projects are identified as priority either as safeguarding key attributes to the World Heritage (Temperate House, Pagoda), contributing to future revenue (refurbishment Sir Joseph Banks Centre and new riverside restaurant) or act as catalyst in improving the current lack of interpretation and orientation (Victoria Gate / Digital Interpretation) and introducing Kew's global mission to the visitors of the Gardens.
- 12.10.7 A further category of projects is those identified to be addressed when funds are available. The projects can be grouped into distinct packages to unlock future potential of specific areas within the gardens. The area grouping of these projects promotes the notion that projects are not implemented in isolation but as a sequence of inter related improvements. The importance of the Breathing Planet Walk is to connect the 'necklace' of these area based projects into a coherent and well sequenced experience. The capital funding for the separate projects will be promoted by a comprehensive fund raising campaign.

## Part 4:



## IMPLEMENTING THE PLAN

## 13.0 Action Plan

- 13.1 The management plan aims and policies set out in Part 3 above will be achieved through a wide range of projects to be conceived, designed and implemented within the framework established by the Management Plan.
- 13.2 The following Action Plan outlines new projects or ongoing work for the short (5 years), medium (10 years) and long-term (30 years). It identifies for each action the lead organisation and the partners that need to be involved, the time scale for implementation, and the resources needed.
- 13.3 The implementation of the Action Plan will require the support and participation of the WHS partners in terms of staff time and funding. The key stakeholders should formally endorse the Management plan, and in particular the action Plan, to ensure that the projects for which they are identified as leaders are incorporated in their own programme and adequately funded. Progress on project should be reported at WHS Committee meetings and priorities regularly reviewed. The Action Plan will also provide the opportunity to monitor progress towards achieving the Management Plan objectives. The Action Plan will be used to develop an annual work programme each year for agreement by the WHS Committee.
- 13.4 Abbreviations

DCMS	Department of Culture, Media and Sport
Defra	Department for the Environment, Food and rural Affairs
EH	English Heritage
EN	English Nature
GLA	Greater London Authority
ICOMOS UK	The UK national committee of the International Council on Monuments and Sites
HRP	Historic Royal Palaces
LBH	London Borough of Hounslow
LBRuT	London Borough of Richmond upon Thames
RBG, Kew	Royal Botanic Gardens, Kew
TLS	Thames Landscape Strategy
WHS	World Heritage Site
ES	Estates Strategy
AW	Arboricultural works (2006-2015)
HS	Horticultural Strategy
LMP	Landscape Master Plan



13.5 Target dates for implementation are indicated as follows:

Complete	Action/ Project completed
In Progress	Action/ Project currently in progress
Ongoing	A continuing ongoing action / project with no defined start / finish date
Short Term	Action / project to be completed within 5 years
Medium Term	Action / Project to be completed within 10 years
Long Term	Action / Project to be completed within 30 years

Aims, Policies and Actions		Stakeholder responsible for delivery	Key Partners	Resources needed	Time Scale	Relevant Strategies / Documents
<b>STATUTORY AND POLICY FRAMEWORK</b> <b>Aim 1</b> The Management Plan should be endorsed by those bodies and individuals responsible for its implementation as the framework for long term detailed decision making on the conservation and enhancement of the WHS and the maintenance of its Outstanding Universal Value, and its aims and policies should be incorporated into relevant planning guidance and policies.						
Policy 1a	Government departments, agencies and other statutory bodies should formally endorse the Management Plan as the overarching document for the management of the site.	All		Staff	2 years	WHS
Policy 1b	The Regional Spatial Strategy and Local Development Framework and other statutory plans should contain policies to ensure that the importance of the protection of the WHS and its setting and the maintenance of its Outstanding Universal Value are fully taken into account in determining planning applications. Apart from OUV, policies should seek to conserve, promote, sustainable use and enhance their authenticity, integrity and significance of the WHSs.	LBRuT LBH	Kew, EH GLA	Staff	5 years	WHS
Policy 1c	The relevant policies of the Management Plan should, where appropriate, be formally incorporated within the local Development Framework (possible as Supplementary Planning Document) and inform other plans such as Thames Landscape Strategy.	LBRuT LBH	Kew, EH GLA	Staff	5 years	WHS
Policy 1d	Development which would impact adversely on the WHS, its outstanding universal values or its setting should not be permitted.	LBRuT LBH GLA	EH	Staff	Ongoing	WHS
<b>THE DESIGNATION AND BOUNDARIES OF THE WHS</b> <b>Aim 2</b> The WHS boundary should ensure the integrity of the WHS is maintained by including all known significant landscape features and interrelationships related to the attributes of the Site's outstanding universal value.						
Policy 2a	A study into the appropriateness for extending the buffer zone boundary further into Brentford and its Victorian canal network should be carried out with Hounslow / Brentford and appropriate recommendations should be made.	DCMS LBH GLA KEW / EH	ICOMOS UK TLS		5 years	TLS
Policy 2b	In the long time a review of the significance of the interrelation of the Site in the context of the Old Deer park / Syon House and the wider River Thames Arcadian landscape should be considered in order to establish whether WHS site boundaries and Buffer Zone are sufficient to protect the integrity and authenticity of Site within the wider natural and cultural landscape	KEW LBRuT LBH EH DCMS	ICOMOS UK TLS		Long term	WHS

Policy 2c	Review the status of protection of significant sightlines and vistas of which the visual envelope extend outside the World Heritage Buffer Zone but are integral attribute to the site's Outstanding Universal Value.	KEW EH	DCMS LBH LBRuT GLA		5 years	WHS / LMP
Policy 2d	Establish ongoing dialogue with landowners and managers to review land management regimes in the Buffer zone and coordinate with Thames Landscape Strategy.	Kew	TLS		Ongoing	WHS / TLS
Policy 2e	Re-establish the cultural, ecological and visual relation with the River Thames as a key attribute of the Outstanding Universal Value.	Kew			5years and ongoing	LMP
<b>CONSERVATION OF THE WORLD HERITAGE SITE</b> <b>Aim 3 The Outstanding Universal Value of the WHS should be sustained and enhanced through the conservation of the Site and the attributes that carry its Outstanding Universal value</b>						
Policy 3a	<p>The WHS should be managed to protect its attributes of Outstanding Universal Value, to protect their physical fabric, to improve and enhance their condition and to explain their significance.</p> <p>3a1 - Implement prioritised conservation programme of all listed building within forthcoming plan period with highest priority for Temperate House followed by Palm House and Pagoda</p> <p>3a2 - Conserve the historic landscape framework of the gardens incl. planting programme for reconstruction of key avenues and vistas; Pagoda Vista, Cedar Vista, Syon Vista, Minor Vista and Broad Walk</p> <p>3a3 - Improve protection, setting and interpretation of key build fabric and landscape features</p> <p>3a4 - Promote the reading of the site as a palimpsest of landscape history</p> <p>3a5 - Continue amelioration work for all current and future heritage trees</p> <p>3a6 - Protect in-situ archaeological sites</p> <p>3a7 - Adapt the Living Plant collection to accommodate the affects of climate change.</p>	<p>Kew</p> <p>Kew</p> <p>Kew</p> <p>Kew</p> <p>Kew</p> <p>Kew</p> <p>Kew</p> <p>Kew</p>	EH	<p>DEFRA Fund Raising</p> <p>Capital cost</p>	<p>5years and ongoing</p> <p>5 years</p> <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p>	<p>LMP</p> <p>ES</p> <p>LMP</p> <p>LMP</p> <p>LMP</p> <p>LMP / AW</p> <p>LMP</p> <p>LMP / HS</p>

Policy 3b	The condition and vulnerability of all listed buildings and key landscape features throughout the WHS should be reviewed regularly to guide future management actions and priorities. Ensure that appropriate plans and strategies are in place to mitigate threats.	KEW HRP	EH		Ongoing	WHS
					Ongoing	WHS
					Ongoing	WHS
					Ongoing	WHS
					Ongoing	WHS
					Ongoing	WHS
					Ongoing	WHS
Policy 3c	The setting of listed buildings and key landscape features within the Gardens and their interrelationships should be maintained and enhanced, with particular attention to the gardens overall spatial cohesion and WHS River Thames landscape settings.  3c1 - Implement coherent set of design guidelines and reduce visual clutter 3c2 - Restore site perimeter planting alongside Kew Road 3c3 - Open view lines towards river Thames  3c4 - Relocate the riverside car park and introduce riverside wetland gardens / reinstatement of Queen Elizabeth Lawn and improved landscape integration of Ferry Lane	Kew	EH		10 years	LMP
					5 years	LMP
					5 years	LMP
					10 years	LMP

	3c5 - Improve setting of Kew Palace by reinstating Queen Elizabeth Lawn and relocating estate offices towards Stable Yard.			Capital cost	10 years	LMP
	3c6 - Develop concept of Georgian Quarter including Georgian Kitchen Garden. Study possibility of direct access to Kew Palace			Capital cost	10 years	LMP
	3c7 - Consider enhanced nature woodland Garden in vicinity of Queen Charlotte's Cottage			Capital cost	5 years	LMP
	3c8 - Improve ambience of Broad Walk as the gardens main promenade			Capital cost	10 years	LMP
	3c9 - Improve setting and planting at Main Gate			Capital cost	10 years	LMP
	3c10 - Continue to implement the rose garden setting of palm House according to original William Nesfield's bed design			Maintenance	2 years	LMP
	3c11 - Improve setting of the Temperate House					
	3c12 - Conserve and enhance Augusta Walk incl. setting of Ruined Arch			Capital cost	10 years	LMP
	3c13 - Improve setting of Pagoda. Consider reinterpretation of former 'wilderness' lay-out			Capital cost	10 years	LMP
				Capital cost	10 years	LMP

Policy 3d	The overall spatial coherence and legibility of the gardens has been incrementally lost and should gradually be improved upon.  3d1 - The recovery of vistas, sightlines and serial vision of open / enclosed should be more fully explored to create spatial legibility and cohesion  3d2 - The display of woody shrub planting at large has become too scattered across the gardens and could be improved upon in terms of bolder groupings which could contribute to stronger spatial definition, sense of serial vision and accentuation of the gardens topography  3d3 - Areas of open space and corridor vistas should be protected from further encroachment  3d4 - The spatial containment created by boundary planting needs further adjustment, e.g. strengthening screening alongside Kew road and back-stage areas but more open view across the River Thames  3d5 - The long term provision of structural planting should be carefully studied in relation to tree species, age distribution, affect of climate change etc.  3d6 - Introduction of 3 distinct landscape management zones expressing the gradation from intensive towards low maintenance regimes could contribute towards the garden legibility.  3d7 - Develop and implement coherent set of design guidelines including dimension, alignment, surface treatment, edge detail of path ways.	Kew	EH	Maintenance	Ongoing	LMP
				Operational	10 years	LMP
				Operational	Ongoing	LMP
				Maintenance	5 years	LMP
				Operational	Ongoing	LMP
				Maintenance	Ongoing	LMP
				Operational	5 years	LMP
Policy 3e	Where appropriate, degraded or lost garden features within the WHS should be conserved and/or made visible by demarcation or re-interpretation.  3e1 - Undertake feasibility study to restore Bridgeman's riverside mount and conduct archaeological survey to identify formal canal.  3e2 - Consideration to construct a (vertical) new landmark feature on former elevated location of the Temple of Victory  3e3 - Consideration to demarcate the position of key lost garden follies and temples with	Kew	EH	Capital cost	5 years	WHS
				Capital cost	10 years	LMP
				Capital		

	special reference to Temple of the Sun (William Chambers), Hermitage and Merlin's Cave (William Kent).  3e4 - Reconsider condition and future configuration of the riverside Ha-ha in context of maintenance, authenticity and flood protection  3e5 - Protect the identified location of archaeological deposits where possible in situ or, if necessary, by investigation and recording  3e6 - The proposed riverside gardens on site of existing riverside car park should, if implemented, be accompanied by extensive archaeological survey  3e7 - Regeneration of planting within the Rhododendron Dell			cost	5 years	LMP
				Capital cost	5 years	LMP
				Capital cost	5 years	WHS
				Capital cost	10 years	WHS
				Capital cost	5 years	LMP
Policy 3f	The overall nature conservation value of the WHS should be maintained and enhanced in particular by promoting increased biodiversity  3f1 - Maintain the existing areas of acid grasslands  3f2 - Improve the biodiversity of existing ground cover planting of the Arboretum by appropriate mowing and other maintenance programmes  3f3 - Continue to encourage protected species  3f4 - Express, where possible and appropriate, the original floodplain landscape e.g. topography and soil type distribution as indication of former river meanders  3f5 - Extend the areas of riverside wetland in former gravel pits in Conservation Area	Kew	EH	Maintenance	Ongoing	LMP
				Maintenance	Ongoing	LMP
				Maintenance	Ongoing	LMP
				Maintenance	5 years	LMP
				Capital	10 years	LMP

	<p>3f6 - Utilise new Riverside Garden to develop (tidal) wetland habitat</p> <p>3f7 - Collate the environmental data available into map of the ecological value of the WHS and incorporate in Kew Garden GIS database</p> <p>3f8 - Contribute towards environmental outreach projects outside Kew Gardens boundary e.g. tree planting, wetlands, community gardens, Utilise Tow Path and ha-ha as demonstration bio-diversity project.</p>		EA / TLS	cost	<p>10 years</p> <p>5 years</p> <p>Ongoing</p>	<p>LMP</p> <p>WHS</p> <p>LMP</p>
Policy 3g	<p>Introduce differentiated management zoning strategy to articulate the sequence from intensive maintained pleasure grounds to semi natural woodland.</p> <p>3g1 - Utilise variety of management regimes for the creation of distinct landscape character zones</p>	Kew		Maintenance	Ongoing	LMP
Policy 3h	<p>The visual integrity of the WHS should be improved by the removal or screening of existing inappropriate structures</p> <p>3h1 - On medium / long term seek opportunities to promote a reduced impact of the visually intrusive Brentford High rise.</p> <p>3h2 - Removal of (temporary) fence on top of riverside Ha-ha when aspects of health and safety are secured.</p> <p>3h3 - Seek opportunities to landscape public realm of Brentford waterfront.</p> <p>3h4 - Promote the greening of the River Thames concrete flood defence embankments</p>	<p>LBH</p> <p>Kew</p> <p>LBH</p> <p>TLS</p>		<p></p> <p>Maintenance</p> <p>Operati</p>	<p>Long term</p> <p>5 years</p> <p>Long term</p> <p>5 years</p>	<p>WHS</p> <p>WHS</p> <p>WHS</p> <p>TLS</p>



	with tidal gardens by means of silt traps attachments to facilitate natural colonisation.			onal		
	3h5 - Monitor / comment upon various emerging development proposals within Brentford			Capital cost	Ongoing	WHS
	3h6 - The spatial containment created by boundary planting needs further adjustment, e.g. strengthening screening alongside Kew road and back-stage areas but more open view across the River Thames				5 years	LMP
Policy 3i	Risk management strategies should be kept under review and updated as necessary.	Kew / HRP			Ongoing	WHS
Policy 3j	A study of the possible impact of climate change should be carried out and appropriate strategies identified	Kew	EA			
	3j1 - Gradual adaptation of the Living Plant collections including introduction of drought resistance species			Maintenance	Ongoing	LMP / HS
	3j2 - The managing of drier soils in summer and wetter soils in winter incl. water conservation and drainage			Maintenance	Ongoing	LMP / HS
	3j4 - Increased need for shelterbelt planting to reduce potential wind damage Special preparation/ protection of Heritage trees			Maintenance	Ongoing	LMP / HS
	3j5 - Prepare for increased risk of new plant diseases			Capital cost	Ongoing	LMP / HS
Policy 3k	A study of the possible impact of increased flood risk should be carried out and appropriate strategies identified	Kew	EA TLS			
	3k1 - Promote the use of the wider flood plain for water spread during a flood event				5 years	TLS / WHS
	3k2 - Study of impact of periodic flooding on vegetation within specific parts of the garden				5 years	LMP / HS

	Feasibility of re-contouring the westerly part of Syon Vista						
Policy 3I	<p>Ensure that all uses, activities and developments within the WHS are undertaken in a sustainable manner</p> <p>3I1 - Develop and implement WHS sustainable energy strategy</p> <p>3I2 - Introduce new technologies and techniques, such as biomass energy for boiler house, where they can improve efficiency or environmental performance for the collections and staff and act as education/ inspiration for visitors to WHS</p> <p>3I3 - Promote and encourage the use of sustainable (zero emission) forms of transport on the Site and reduce the affect of traffic on the character of the WHS without overly compromising the ability of the staff to undertake their duties</p> <p>3I4 - Implement sustainable strategy for irrigation (water source, response to extreme droughts, mulching, grey water recycling etc)</p>	Kew		Capital cost	5 years	LMP	
				Capital cost	10 years	ES	
				Operational	Ongoing	ES	
				Operational	Ongoing		
<b>VISITOR MANAGEMENT</b> <b>Aim 4 To interpret the Outstanding Universal Value of the WHS, to increase understanding and conservation of the cultural assets and to promote the importance of the heritage resources for public enjoyment, education and research.</b>							
Policy 4a	<p>Visitor management should be exemplary. 'Empowerment' of the visitor could create a more interactive experience and engagement with the Gardens.</p> <p>4a1 - Review a comprehensive Visitor Management Strategy</p> <p>4a2 - Undertake updated visitor experience and expectation survey in relation to proposals of Landscape Master Plan</p> <p>4a3 - Increase visitor numbers and engage a more diverse visitor population throughout the seasons</p>	Kew		Operational	5 years	WHS	
				Operational	5 years	WHS	
				Operational	5 years		

Policy 4b	Encourage the majority of visitors to arrive at WHS by public and /or other forms of sustainable transport.	Kew	TFL	Operational	5 years	TS
Policy 4c	Rationalise service vehicle access on site to avoid conflict with visitor's experience	Kew		Operational	Ongoing	LMP
Policy 4d	<p>An integrated approach to the management of visitors to the WHS should articulate Kew's mission, embrace the conservation and bio-diversity agenda and becoming more visitor experience orientated.</p> <p>4d1 - Continue to co-operate public transport links to the Site</p> <p>4d2 - Promote the improvement of the approach from Kew Bridge Station</p> <p>4d3 - Improve links along Thames Corridor to the Site</p> <p>4d4 - Review opportunity for future pedestrian / cyclist connection to Brentford (ferry / bridge) as promoted by both Brentford / Hounslow Council and Thames landscape Strategy</p> <p>4d5 - Promote river access and transport and possible mooring in relation to Kew Place / riverside gardens</p> <p>4d6 - Continue to monitor transport modes used by visitors and update Visitor Management Strategy accordingly</p>	Kew				
			TFL	Operational	Ongoing	TS
			TFL			TS
		TLS	NR		Ongoing	TLS
		Kew / TLS	LBH LBRuT			TLS / LMP
		Kew	TLS	Operational	Ongoing	TLS / LMP TS
Policy 4e	<p>Enhance the visitor experience within the Gardens and achieve continuous levels of excellence through the provision of improved orientation, information and high quality visitor facilities and services without compromising the universal values of the WHS.</p> <p>4e1 - Redevelop Victoria Gate into a world-class Gateway incl. garden plaza and facilities for interpretation and orientation incl. new 'People and Plant' visitor orientation centre</p> <p>4e2 - Introduce new 'Breathing Planet Garden Walk' which will manifest Kew's mission in relation to world wide plant conservation. The route will connect various existing attractions</p>	Kew		Capital	5 years	LMP

	such a Xstrata Tree Top Walkway and new biome displays representing plant habitats under threat of climate change	Kew		Capital	5 years	LMP
	4e3 - Utilise the 'Breathing Planet Walk' to direct a contemporary program of new world class horticultural displays including 'Lost World Habitat' and 'Polar House' experience	Kew		Capital	Long Term	LMP
	4e4 - Introduce new contemporary riverside wetland garden with special reference to climate change and reinstatement of Queen Elizabeth's Lawn	Kew		Capital	5 years	LMP
	4e5 - Consider the feasibility of a new riverside café and restaurant	Kew		Capital	10 years	LMP
	4e6 - Refurbish the Sir Joseph Banks Centre to create venue for events and corporate entertainment in relation to relocated car park and retail / plant sale opportunities	Kew		Capital	5 years	LMP
	4e7 - Refurbish Main Gate to include improved setting, interpretation and orientation facilities utilising Nash conservatory and combines with access from relocated car park	Kew		Capital	5 years	LMP
	4e8 - Refurbish Climbers and Creepers / White Peak structures with a purpose built indoor /outdoor environmental play facility with associated café, shop, teaching and visitor facility.	Kew		Capital	10 years	LMP
	4e9 - Improve orientation of WHS by establishment of clear hierarchy and typology of path and routes.	Kew		Capital	5 years	LMP
	4e10 - Include strategically positioned visitors attractions to pull visitors throughout the site in addition to current 'honey pot' area surrounding Palm house	Kew		Capital	5 years	LMP
	4e11 - Introduce coherent interpretation and way finding strategy	Kew		Capital	5 years	LMP
	4e12 - Create an above tree top viewing / interpretation experience to see the WHS in its wider landscape context	Kew		Capital	5 years	LMP
	4e13 - Study the feasibility of footbridge connection between Kew Gardens and Syon House Estate / Brentford to extend visitors experience	Kew		Capital	5 years	LMP

	4e14 - Implement best practice for disabled and less abled visitors  4e15 - Upkeep guided tours of WHS	Kew		Operational	Ongoing	LMP / DS
Policy 4f	<p>The provision and number of visitors' entrance gates should be reviewed.</p> <p>4f1 - Possible closure of Brentford Gate as part of relocated Riverside Car park</p> <p>4f2 - Review of main gate arrangement to allow access from relocated car park at back of Herbarium</p> <p>4f3 - Improve ticketing at Victoria Gate to solve congestion at peak times</p> <p>4f4 - Study should be undertaken into new (flexible) operational entrances to allow for events and occasions</p> <p>4f5 - Introduce electronic ticketing</p>	Kew		Capital	5 years	LMP
				Capital	5 years	LMP
				Capital	5 years	LMP
				Operational	5 years	LMP
				Capital	5 years	LMP
Policy 4g	<p>Events have become a key factor to attract and diversify (fee paying) visitors and generate promotion of Kew Gardens. Potential conflict between increased (peak-time) visitors' numbers and 'carrying capacity' of gardens needs to be addressed.</p> <p>4g1 - Facilitate and integrate discrete but purpose designed events areas within the gardens inc. Temperate House outdoor event venue</p> <p>4g2 - Resolve potential conflict between events and residents in the vicinity of RBGK</p>	Kew	Kew Society	Capital	5 years	LMP
				Operational	5 years	LMP

	4g3 - Develop Art strategy for Kew Gardens with special reference to temporary outdoor sculpture exhibitions				Operational	5 years	LMP
Policy 4h	<p>Interpreted Kew's scientific work, its collection and history to a larger and more diverse audience.</p> <p>4h1 - Stimulate a continued role of the Gardens as a scientific collection and its use as 'outdoor laboratory' of relevance to contemporary plant research and taxonomic classification</p> <p>4h2 - Develop and Implement Interpretation Strategy for WHS incl. new way finding across the Gardens by means of a digital interpretation network</p> <p>4h3 - Utilise digital interpretation network (incl. bar coded plant labels) to allow for world wide web based access relating virtual garden tours to on-site information provision.</p> <p>4h4 - Upkeep educational programme</p> <p>4h5 - Utilise collection and display to inform the visitor about the changing role of the botanic gardens throughout time. The ongoing tradition of world-wide plant hunting could be more fully communicated and interpreted</p> <p>4h6 - Develop climate change programme</p> <p>4h7 - Organise and catalogue major exhibition of historic maps of WHS displaying the transformation of Kew Gardens over time</p> <p>4h8 - Utilise RBGK local setting to promote awareness of biodiversity, plant conservation and impact of climate change</p> <p>4h9 - Access to be available to the widest possible visitor audience. Improve engagement with under represented visitors groups including ethnic minorities and</p>	Kew			Operational	5 years	LMP
					Capital	5 years	LMP
					Capital		LMP
					Operational	Ongoing	LMP
					Capital	5 years	LMP
					Capital	5 years	LMP
					Capital	5 years	LMP
					Operational	5 years	LMP
					Operational	Ongoing	LMP

	people from under privileged socioeconomic backgrounds								
Policy 4i	<p>Promote Community involvement in RBGK WHS</p> <p>4i1 - Continue to develop volunteering opportunities in the WHS</p> <p>4i2 - Strengthen links with community groups across London</p> <p>4i3 - Develop outreach projects to promote Kew Gardens</p> <p>4i4 - Community Garden project</p> <p>4i5 - Strengthen links with Kew Society</p>	Kew				Operational	Ongoing	WHS	
						Operational	Ongoing	WHS	
								WHS	
								WHS	
								WHS	
Policy 4j	<p>The economic benefit of visitors to Kew Gardens should be spread to the wider area</p> <p>4j1 0 Explore opportunities for green travel links between a range of historic gardens and Royal Palaces.</p> <p>4j2 - Liaise with Syon House Estate to explore benefits of possible footbridge connection</p> <p>4j3 - Explore opportunities for guided field trips to river Aits and other sites of nature interest to explore bio-diversity of River Thames floodplain.</p> <p>4j4 - New visitor facilities should raise awareness of the wider area</p> <p>4j5 - Feasibility of riverside café to be explored</p> <p>4j6 - Improve pedestrian links with Brentford</p>	Kew		TLS/TOF	Capital	5 years	WHS		
				Syon	Capital	5 years	LMP		
				EN / TLS	Capital	5 years	LMP		
					Capital	5 years	WHS		
					Capital	5 years	LMP		
					Capital	5 years	TLS		

<b>SCIENTIFIC RESEARCH</b> <b>AIM 5 Develop the facilities and resources needed to support RBGK's role as a world class centre for scientific research and biodiversity conservation.</b>					
Policy 5a	<p>Ensure the long term conservation, survival and development of the collections that contribute to the outstanding universal value of the Site through targeted growth, the continued development of appropriate conservation techniques, management regimes, storage facilities and horticultural practices.</p> <p>5a1 - Optimise riverside zone Lower Nursery complex by concentration on horticultural and scientific, glasshouse, related activities whilst relocation of Estates yard as well as administrative offices to the former stable yard area. The proposed Quarantine House will complement the core backroom horticultural and scientific activities of this area whilst visually contained within existing shelterbelt plantation.</p> <p>5a2 - Develop vision for the living collections in relation to new biomes related displays</p> <p>5a3 - Regularly review 'Acquisitions and retention Policy' for the living collections in line with the Corporate Plan</p> <p>5a4 - Systematically complete and update the Plant Information Record database</p> <p>5a5 - Allow for long term future expansion of RBGK research facilities, including recent extended Herbarium</p>	KEW			
			Capital	10 years	LMP
					LMP
			Maintenance	Ongoing	HS
			Operational	Ongoing	HS
			Capital	Ongoing	



<b>WHS RESEARCH OBJECTIVES</b> <b>AIM 6 Research should be encouraged and promoted to improve understanding of the archaeological, historic and environmental value of the WHS necessary for its appropriate management</b>									
Policy 6a	Assess and interpret the heritage value of the Bentham & Hooker taxonomic lay-out of the living plant collection	KEW		Capital	5 years			LMP	
Policy 6b	Further research into the underlying design relationships of the gardens within the River Thames Arcadian landscape could inform important information of the origin and development of the English landscape style.	KEW	TLS	Capital	5 years			LMP	
Policy 6c	Promote the important contribution RBGK scientific research can make to assess the impacts of climate change in respect to new UNESCO policies on WHSs and climate change	KEW		Capital	5 years			WHS	
<b>MANAGEMENT, LIAISON AND MONITORING</b> <b>AIM 7 Provide adequate resources for the management, conservation and monitoring of the WHS</b>									
Policy 7a	Coordinate the implementation of the Management Plan and liaise with partners  7a1 - Review progress & priorities each year at 6-monthly WHS Steering Group meetings  7a2 - Strengthen links with Thames Landscape Strategy  7a3 - Review and rewrite the Management Plan every 5 years  7a4 - Develop links and exchange of best practice with other WHSs in the UK and elsewhere  7a5 - Establish a Kew Forum representing the communities of Richmond and Hounslow with a representative of the WHSSG	KEW		Operational	5 years			WHS  WHS WHS WHS WHS	
Policy 7b	Review the governance of the WHS, including the composition and terms of reference of the WHS Committee and the Advisory Forum.	KEW						WHS	

Policy 7c	<p>Seek adequate funding for the WHS.</p> <p>7c1 - Review long term funding for the WHS covering both operational and capital cost</p> <p>7c2 - Ensure Defra Grand-in-Aid</p> <p>7c3 - Maximise funding for the WHS from all sources including increased visitor numbers, revenue generating conference facility (Sir Joseph Banks Centre)</p> <p>7c4 - Implement fund raising programme to secure the restoration of top priority heritage buildings such as Temperate House and the Palm House</p>	KEW / DEFRA					
Policy 7d	<p>Ensure regular monitoring of WHS</p> <p>7d1 - Revise as appropriate the WHS monitoring indicators in line with attributes of Outstanding Universal value</p> <p>7d2 - Continue to update and develop Kew Gardens GIS</p>	KEW		Operational	Ongoing	WHS	WHS



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## APPENDIX - 1



Listed Buildings

## **Appendix 1. Listed Buildings / Monuments**

Listed buildings / Monuments:

### **Grade 1 Scheduled Ancient monuments:**

Kew Palace (1631)

Queen Charlotte's Cottage (c.1771)

### **Grade 1 Listed:**

Orangery (Chambers, 1757-61)

Palm House (Burton and Turner, 1844-8)

Temperate House (Burton and Turner, 1861-2)

Pagoda (Chambers, 1761-2)

Kew Palace kitchens (18th Century)

### **Grade 2\* Listed:**

Former Aroid House (Nash and Wyattville, 1836)

Main Gates on Kew Green (Burton, 1845)

Temperate House Lodge (Nesfield, 1867)

Ruined Arch (Chambers, 1759)

Queen Charlotte's Cottage (c.1771)

### **Grade 2 Listed:**

Sundial to Little Broadwalk (Early 18th Century)

Urn to Little Broadwalk (Early 19th Century)

Cambridge Cottage (18th Century)

17-19 Kew Green (Early 18th Century)

47 Kew Green (18th Century)

49 Kew Green, covered passageway and railings (18th Century)

53 Kew Green (Mid 18th Century)

55 Kew Green (Early 18th Century)

Descanso House (18th Century)

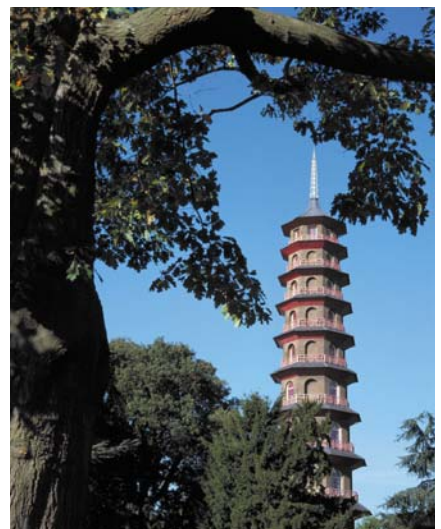
Cast Iron Gates to no.s 39-45 Kew Green



Museum No. 1 (Burton, 1856-7)  
 Museum No. 2 (18th Century)  
 The Sower (1886)  
 Cumberland Gate (1868)  
 Temple of Eolus (Chambers, pre-1763; rebuilt by Burton, 1845)  
 Sculpture of Hercules and Achelous (1826 moved to Kew in 1963)  
 Retaining wall of Palm House Pond (1848)  
 Water Lily House (Turner ?, 1852, rebuilt)  
 The Campanile (Burton, 1847)  
 Temple of Arethusa (Chambers, 1758; rebuilt and moved)  
 Victoria Gate (1868; moved in 1889)  
 King William's Temple (Wyatville, 1837)  
 Temple of Bellona (Chambers, 1760; rebuilt and moved)  
 Unicorn Gate (1825 / 19th Century)  
 Marianne North Gallery (Fergusson, 1882)  
 Japanese Gateway (1910; re-erected at Kew 1911)  
 Lion Gate (mid-19th century)  
 Lion Lodge (mid-19th century)  
 Alcove north of Lion Gate (1863)  
 Boundary Stone (1728)  
 Isleworth Ferry Gate with drawbridge (1872)  
 Alcove by Brentford Ferry Gate (Mid 19th Century)  
 Kew Cottages (18th Century)  
 Herbarium with railings and gate (Early 18th Century)  
 Hanover House (18th Century)  
 Evolution House (20th Century)



## APPENDIX - 2



Matrix of Schedule for Tree Works at the Royal Botanic Gardens, Kew. 2006 to 2015

Appendix 2. Matrix of Schedule for Tree Works at the Royal Botanic Gardens, Kew. 2006 to 2015

	Removal	Crown reduction & structural pruning	Crown thinning	Crown lifting	Crown renovation	Crown cleaning & deadwood removal	Root pruning
<b>Curation of Scientific Collections</b>	Improvement of collections. Replacement of poorly documented material with high value wild collected collections. <i>Carpinus</i> spp. <i>Rhus</i> spp. <i>Fagus</i> spp. <i>Betula</i> spp.	<b>Pruning</b> To create juvenile growth for propagation purposes for trees declining in health.	To allow light penetration through canopies to shrub collections and sward.	Removal of material for scientific purposes.			Source of propagation material for certain species
<b>Health &amp; Safety</b>	Removal of dead, dying and diseased trees. Identified through continued Hazard evaluation & 'Picus' monitoring.	Dieback caused by structural damage; insects, rodents, storm damage etc	Reduction of end weight in selected genera and species: <i>Quercus castaneifolia</i> & other large crowned broadleaved trees. <i>Cedrus</i> spp. And other conifers	Removal of lower scaffolds identified as a potential to fail through summer branch drop, weak attachments or suspected decay.	Following reduction work for safety reasons: <i>Tilia</i> , <i>Populus</i> & <i>Quercus</i> spp.	Safety of visitors and staff. Usually identified through risk management & hazard evaluation.	Following statutory underground utility work.

<b>Control of Pests and Diseases</b>	SODs, Phytophthora on <i>Quercus</i> spp., <i>Meripilus gigantea</i> on <i>Fagus</i> spp., <i>Armillaria mellea</i> all species. Fireblight in Rosaceae collection	Crown dieback on <i>Quercus</i> spp. And other stagheaded specimens	Control of pests and diseases in collections that can be arrested with pruning out infected material.	Allow access by MEWPs for the control of OPM on <i>Quercus</i> spp.		Conifer collections during outbreaks of needle rust infestations. <i>Pinus</i> spp.	Trenching to prevent root grafting to contain root transmitted diseases.
<b>Conservation of Heritage Landscape</b>	To allow for succession planting on the vistas, where individual specimens have one beyond there life span.	Retain views down the historic vistas – Syon, Pagoda, Cedar, Raffills and the Broad Walk etc	Removal of end weight, particularly <i>Cedrus</i> spp.	Retain views and increase pedestrian and vehicular access for horticultural operations.		Maintain safe and clean tree on the vistas.	



## APPENDIX - 3



Landscape Master Plan reference images

