

4. State of Conservation and Factors affecting the Property





Illustration of cultivated varieties of peas from 'The Variation of Animals and Plants Under Domestication' (1868)

Many varieties are still grown in the kitchen garden today

Darwin studied species variation in his kitchen garden for his scientific investigations of cultivated plants.

'As an iconic figure, Darwin is matched only by Newton and Einstein - indeed, he has perhaps had a more pervasive influence on human culture than any other scientist. He is, more than most great men, associated with a single place where he lived, researched and wrote.'

Lord Rees

Astronomer Royal and President of the Royal Society.

Section 4 - State of Conservation and Factors affecting the Property

4.a State of conservation

The landscape

1. The Property has been very well conserved since Darwin's time and consequently remains very similar to how it was in the 19th century. Although on the edge of London, the nominated Property has resisted development pressures. All of the land is statutorily protected by the Green Belt and significant areas are designated Properties of nature and built conservation. Such designations are strongly enforced.

2. Approximately three quarters of the nominated Property is defined as agricultural land, a similar proportion as in Darwin's time. The major proportion is devoted to pasture, including the use of fields used to produce hay. The rest is arable farming and recreational agriculture in the form of horse paddocks. There would have been more arable farming in Darwin's time as detailed in 2b History and Development above. As it is an area of small scale farming of a less intensive nature than other areas of England, ancient field boundaries are still in use and comparatively few hedgerows and woodlands have been removed. Consequently, evidence of past land uses still exists and the fabric of the countryside survives in the form of hedges, woods, fields and narrow lanes. The topography and soil type restricts the intensification of farming in the area and actions to manage and conserve the landscape through appropriate land management practices are promoted, through individual farmers, the Department for the Environment, Food and Rural Affairs (DEFRA) and the London Borough of Bromley Countryside and Parks Service.

3. Much of the flora and fauna that Darwin studied so extensively still exists within the Property. Inscription as a World Heritage Property would further better recognition internationally and nationally of the importance of the area and reinforce the importance of the existing co-ordinated approach to management and conservation.

4. The features and attributes of Outstanding Universal Value in the landscape are being positively managed in accordance with the Biodiversity and Landscape Strategy which includes actions to promote good practice to make advice available and to lever in external funds to implement management. The specific attributes such as hedges, meadows and woodland and the species of importance for Darwin's science are in a good state of conservation and they are actively monitored.

Villages and Communities

5. The state of conservation of the historic built environment is equally good. The villages of Downe and Cudham are largely physically unchanged since Darwin's time. Limited new development is evident, and his legacy and impact on the villages and their communities can still be seen today. There has been no outward expansion of the villages as they are within Conservation Areas within the Green Belt. Such statutory policies have, and will continue to be, rigorously enforced. With 21 Listed Buildings and 39 Locally Listed Buildings in the nominated Property, the external appearance of the built



Today's meadow management reflects that in Darwin's time



The meadows remain species rich

An aerial photo of Downe today with the overlain 1868 Ordnance Survey Map





The centre of Downe Village today



Down House has been faithfully redecorated

form remains largely protected. According to the English Heritage Register of Buildings at Risk 2008, there is only one building at risk, Downe Court Manor a grade 2 listed structure. Although on the list, work is being carried out to address the problems and ensure the physical survival and to remove it from the list. No other buildings are at risk or need major repairs. A Conservation Area Appraisal has been prepared for both Cudham and Downe Conservation Areas, which recommends any actions needed to ensure the continued preservation and conservation of the built environment.

Down House and grounds

6. The House has been well looked after since the Darwin family lived there. In 1996, English Heritage acquired the property and undertook repair works informed by a meticulous programme of documentary, photographic and archaeological research. It now has responsibility for the preservation and conservation of the Down House Estate and has a regular programme of maintenance and repair as necessary. Down House is a Grade I Listed Building and due to the high ecological value of the grounds, it is designated as a site of Metropolitan Importance for Nature Conservation. The gardens, together with Great House Meadow and the Sandwalk are listed as Grade II on the Register of Parks and Gardens of Special Historic Interest in England for their association with the life and works of Charles Darwin.

7. In 1996-7, the research undertaken by English Heritage informed the presentation of the building to how it would have looked in 1877 before Darwin moved his study when the new extension was built. Loans of furniture from Darwin descendants, exhibits, notes and books mean that this is as close to the study Darwin knew as possible. The estate is well documented. Much detailed information is to be found in both Charles Darwin's and Emma's extensive diaries and accounts and from the numerous recollections of children, grandchildren, colleagues and friends. There are also water colours, early photographs and other illustrations

held in the archive at Down House, Cambridge University Library and also by family members and private individuals. A series of modern displays on the second floor, amenities necessary for visitors, appropriate lighting and security measures were also installed. This work was preceded and accompanied by a programme of archaeological and documentary research.

8. Apart from regular maintenance checks which are done daily, monthly and annually, a major cycle of repair works were undertaken to the house and grounds during 2006-8:

- An external re-decoration, including re-painting of the masonry based on original paints and colours to facilitate the overall state of conservation of the building
- Checking of external gutters, drains and roof surfaces
- A re-design of the car parking to increase parking within the existing footprint of this area
- Re-surfacing of paths in the grounds to prevent erosion and to increase safety
- Ground-floor bay windows were fitted with blinds to facilitate preservation of objects

Interpretation works included

- The digitisation of the Darwin Collection held at Down House (due for completion winter 2008/09).
- A replacement of the didactic displays and re-design/re-decoration of the interiors on the first floor.
- Development of intellectual access facilities and audio tours including the creation of a new hand-held multi media tour to explain how the grounds were used by Darwin to inform his work



English Heritage recognise the importance of managing the gardens, which played a key role in Darwin's research

Works to enhance visitor facilities included

- The expansion of the tea room including opening of the Butlers Parlour as an additional seating area in non sensitive areas

9. The gardens were an integral part of Darwin's life and his constant observation of nature in the garden, woods and meadows was an important inspiration and provided opportunity for experimentation. English Heritage has recognised this and the importance of the gardens to visitors' understanding of Darwin's work, and so completed the restoration of the gardens in 2003. The grounds are now all laid out, planted and managed today as they were in Darwin's time retaining original trees and shrubs where possible, except for the buildings and enclosures originally for livestock. The gardens are cultivated using Victorian plants, styles and techniques to reflect the garden as the Darwin's would have seen it. Darwin's experiments are depicted throughout the garden to illustrate the work of the man and the scientific nature of the estate. The maintenance and restoration of the grounds is based on information from the records of the house, archaeological evidence and Darwin's own notes. English Heritage's plans for future conservation of the grounds are contained in the document Garden Management Plan for Down House Estate, May 2008.



The World Heritage Property is situated only 16 miles from the City of London

10. The nominated Property's rural-urban fringe location makes it susceptible to certain pressures for change. We aim to ensure that change has a positive rather than a detrimental impact on the Outstanding Universal Value of the Property. World Heritage status will help to continue ensuring that an appropriate and equitable balance between conservation, sustainability and development is maintained so that the Outstanding Universal Values of the Property is sustained, whilst allowing the area to evolve and change in a sustainable manner.

11. The World Heritage Property Management Plan is a crucial planning tool in addressing the pressures faced by the Property. This Management Plan has been prepared in conjunction with the Nomination Document. It will cover issues raised here and outlines the key strategic action plans for addressing these issues. The underlying theme of the Management Plan is 'Sustainable Development'.

12. The London Borough of Bromley Unitary Development Plan, adopted in 2006, is the statutory Local Plan for the Borough and contains the planning policies against which any proposals for development are assessed. Many of the policies in the Plan will be carried forward into the Local Development Framework, which is in its early stages at present. The Council is committed to incorporate appropriate policies for the nominated World Heritage Property within it and to adopt part of the World Heritage Property Management Plan as a Supplementary Planning Document to ensure that the World Heritage Values are properly addressed and development is controlled. The London Plan Spatial Development Strategy for Greater London Consolidated with alterations since 2004 was published in February 2008 and contains policies to protect the historic environment and policy 4B:14 relates to protection of London's World Heritage Properties.

4.b.Factors affecting the Property

4.b.(i) Development Pressures

Urban fringe pressures

13. The nominated Property is well conserved but its location on the edge of Greater London means that it is potentially subject to urban fringe pressures such as

- Building pressures
- The use of agricultural land as recreational paddocks, subdivision and the erection of small ancillary buildings
- Minor unauthorised waste disposal and fly-tipping



The keeping of horses was a feature in Darwin's time and still is today



London Biggin Hill Airport control tower

14. In the nominated World Heritage Property relatively few of these pressures take place. Statutory local policies contained within the London Borough of Bromley's Unitary Development Plan ensure such pressures are controlled. As the entire nominated Property is designated Green Belt land and significant areas are locally or nationally designated for their environmental importance, development pressure is limited. World Heritage Property Inscription will help to emphasise the importance of the area and to reinforce the importance of following existing policies which require sensitive development which is respectful of its context and local character.

Housing pressures

15. The London Plan 2004 (altered 2008) contains within it an annual housing monitoring target for the London Borough of Bromley of 485 additional homes per annum for the period 2007-2017. All of the additional housing is to be accommodated within the urban area of the Borough and will not affect the nominated Property. The Council's Annual Monitoring Report (Dec 2008) shows that annual monitoring target was met for 2007/08 and will be met in the forthcoming years from housing development taking place on identified sites that are not in or near the Property. The nominated Property lies entirely within the Green Belt as designated in the Council's Unitary Development Plan and the London Plan. The purpose of the Green Belt is to prevent London's outward spread and new housing development is not normally permitted. The woodlands are protected by Tree Preservation Orders that will prevent development of housing. In addition, Policy NE5 of the Unitary Development Plan will ensure that it is very unlikely that any significant or adverse housing development will take place within or near to the proposed World Heritage Property. Furthermore, Downe and Cudham villages are Conservation Areas

and any new development or change to the existing infrastructure must be in keeping with the current state of the built environment. All development within the Conservation Areas must conform to Policy BE9 of the Unitary Development Plan. Annex 6.

London Biggin Hill Airport

16. London Biggin Hill Airport, formerly a RAF fighter station famous in World War 2, is beyond the ridge line and western buffer zone boundary of the nominated World Heritage Property and has existed since 1917. It cannot be seen from the Property.

17. Bromley Council purchased the freehold from the Ministry of Defence in 1974 with the declared purpose of continuing to protect the environment of the area to the greatest practicable extent, compatible with the presence of a long established airport. The Airport, covering some 195 hectares mainly within the Green Belt, is operated by Biggin Hill Airport Limited under a Lease from the London Borough of Bromley. The Lease contains Operational Criteria that limit flight movements to total of 125,000 per year, limit the hours of operation and limit aircraft using the Airport to those complying with stringent noise criteria. In addition, the Operational Criteria does not permit any movements in or out of the Airport by any aircraft which the Council, as Landlord, has prescribed as being excessively noisy. There are currently 82,000 movements per year and these comprise small private charter planes. The Airport Public Safety Zone extends into a small part of the nominated Property and is an area of land at the end of the runway within which development is restricted in order to control the number of people on the ground at risk of death or injury in the event of an aircraft accident on take-off or landing. The Public Safety Zone, which affects a small part of the nominated Property, is an area extending out from the main runway where

development is restricted. Airborne Aircraft Noise Contours, shown on the Council's Unitary Development Plan Proposals Map, also extend into the northern part of the nominated Property. The contours show an area of land affected by noise levels greater than 57dB where there are restrictions on noise sensitive development.

18. The Airport benefits from permitted development rights under Part 18 'Aviation Development' of the Town and Country Planning (General Permitted Development) Order 1995. This allows the Airport to carry out, subject to consultation with the Council, relevant operational development without the need for planning permission. Parts of London Biggin Hill Airport to the west of the nominated Property, are designated in the Council's Unitary Development Plan as Major Developed sites. These are sites within the Green Belt that already contain a significant number of buildings, comprising in this case the Airport control tower, hangars, previously used military buildings and a residential estate formerly used as RAF Married Quarters. Some infilling and redevelopment is acceptable within designated Major Developed sites provided they comply with criteria set out in the Unitary Development Plan and Government guidance. A redevelopment of the former RAF Married Quarters adjoining the Airport that complied with these criteria was nearing completion in 2008. The development has less visual impact on the openness of the Green Belt than the previous houses. No part of the Airport or the Major Developed sites within and adjoining the Airport are visible from the nominated World Heritage Property or its Buffer Zone.



A new section of bridleway was opened at High Elms

Amenity

19. In Darwin's time, the area was increasingly used by the large landowners at High Elms and Holwood Estates for amenity purposes. Being close to the Capital, the countryside was becoming popular for day excursions by Londoners for walking and riding following the construction of railways. The demand continues today and great efforts are placed on managing visitors to the landscape to ensure that no damage is caused to natural habitats and biodiversity. Conversely, these leisure activities provide an opportunity for participants to get close to, appreciate and enjoy nature. It must be considered that whilst this is a living, working landscape from which Darwin took his ideas and developed them into the theory of evolution, the source of these ideas needs to be protected and leisure development within the boundary of the Property needs to reflect this. The golf courses are managed to ensure they enhance and respect the environment.

20. The control of the use of land for equine activities is strongly implemented within the Unitary Development Plan under Policies L4 and L5 and such proposals are generally resisted unless they meet strict criteria.

21. The network of lanes used by Darwin persist and are still well used, as are the footpaths which have subsequently been designated as Public Rights of Way and are monitored annually. In response to a Rural Access Study undertaken for the nominated World Heritage Property, the bridleway network has been improved and extended to allow greater and safer access. A further survey currently underway is seeking to categorise and improve routes for people with disabilities.



The Countryside and Parks Service helps landowners to manage wildlife



There are opportunities to support appropriate land management



Woodland at Keston Common

Changes in Farming Practice

22. Approximately three-quarters of the nominated World Heritage Property is defined as agricultural, a similar proportion as in Darwin's time. Land management within the nominated Property is undertaken by the London Borough of Bromley, nature conservation agencies, private landowners and farmers, often guided by the Department for the Environment, Food and Rural Affairs who work together to achieve beneficial management for the whole landscape. Management of sites owned by public bodies and wildlife organisations is co-ordinated by the Biodiversity and Landscape Strategy which also helps guide owners of the private land who operate through the European Union Common Agricultural Policy that too supports landscape and wildlife management. Today, there are four main farms in the nominated Property, two of which are owned by the Council and tenanted to existing local farmers. The farms are a mixture of pasture and arable, producing combinable crops such as wheat. They are run using modern methods of cultivation which is a result of the intensification of agriculture experienced in Britain in the latter half of the twentieth century but retains the original hedgerows and woodland pattern that Darwin would have seen in the 19th Century.

23. The potential threat of larger 'industrial' style of structures required for intensive agriculture, seen elsewhere in the country, is effectively prevented in two ways: first, by the control of agricultural development under the Town and Country Planning Acts; second, by the requirement for tenant farmers to obtain consent from the Council as landlord, before they can erect any buildings or make substantial alterations. Agricultural buildings and works above a specified size (depending on the size of the agricultural unit) require planning permission; permitted development rights for smaller scale agricultural development can be removed by the Secretary of State if she or the Council considered there was a threat to the Outstanding Universal Value of the nominated Property.

24. As it was in Darwin's day the market for agricultural produce varies as demand and costs change. As



Keston Ponds is a favourite fishing location

profits reduce and alternative land uses such as built development offer greater returns there is a continuing threat of loss of farmland. However this is controlled in the nominated Property through incentives and controls which ensure a presumption against development.

25. The pastures so important to Darwin's work remain today and are likely to do so in the future through various measures and organisations. Reduced grazing in the last 50-70 years has led to scrub invasion in some areas and where woodland has developed at Keston has resulted in loss of lowland heath and valley mire. A negative perception of these habitat types has led to some local opposition to limited tree removal where heathland restoration has been attempted. Herds of sheep are now used by farmers and land managers in many areas to continue this historic management whilst scrub is removed where necessary. Indeed, opportunities exist to reinstate species-rich pasture through Government-led incentive schemes. In 1999, 70 acres within the proposed Property were reinstated using local seed sources. The Property has been chosen by Natural England, from 2008 as London's only target area for the Higher Level Stewardship Scheme.

26. Farmland within the nominated Property is designated as Green Belt. Bromley's Unitary Development Plan states that there is a presumption against inappropriate development on this land, unless very special circumstances are demonstrated. In addition,



Farmers continue to be the stewards of the landscape



Educational displays at Down House

the Council will resist the irreversible development of agricultural land or land of inherent agricultural quality. Some of the farmland falls within locally designated sites of Importance for Nature Conservation (SINCs). There has been increased environmental awareness in farming through initiatives such as the 'England Rural Development Programme', the Woodland Grant Scheme, and the Environment Stewardship Scheme. Many of the woodlands are managed either as high forest with a crop taken every few decades, as coppice with a crop taken most decades or as plantation where the crop is replaced after felling. The promotion of such initiatives is being encouraged to ensure that the local wildlife, as well as an economically viable industry, can enjoy a sustainable future.

27. The past introduction, and recent spread of, alien species such as Japanese knotweed, has caused a local problem along the roadside at Keston but this has now been managed and eradicated. Inappropriate use of fertilisers and herbicides is a potential risk to biodiversity but this risk has been minimised and their use by farmers is strictly controlled.

4.b. (ii) Environmental pressures

Erosion

28. Some limited erosion has occurred around Keston ponds where the popularity of fishing leads to overuse at times and the undermining of hedgerows by traffic is another potential problem, especially along Shire Lane. This is being carefully monitored and prompt remedial action taken as appropriate. Similarly the Girl Guides and Scouts who use the large wooded camp sites often remove some fallen sticks for camp fires thus reducing its potential for biodiversity but this is outweighed by the opportunities for teaching the children to care for the biodiversity and the regenerative capacity of their sites.

Air and noise pollution

29. As there is no heavy industry in operation near to or within the nominated Property, air and noise pollution is minimal. A possible source of such pollution to the nominated Property is from London Biggin Hill Airport. The Biggin Hill Airport Airborne Aircraft Noise Contours Map (in the UDP Proposals Map), referred to above, shows an area of just less than 9 hectares in the northwest of the nominated Property. This area could experience noise levels ranging between 57dB and 63dB. As a crude comparison that is noise just greater than background music in a cafe, bar or restaurant. Controls over the hours of operation of the Airport mean that these noise levels do not occur at night and are occasional and intermittent. They are still well within government guidelines and the limits permitted under the terms of the Airport lease and the fact that the airport is surrounded by residential property means that noise levels are strictly controlled. Noise levels inevitably increase during the Biggin Hill air show, which takes place on one weekend each year, usually in June. The benefits of this national event tend to outweigh the negative effects. Pollution and noise levels are closely monitored around the nominated Property and restrictions are applied to the operation of the airport to minimise adverse environmental effects. Other aircraft do pass over the Property at high level on their way to Heathrow or Gatwick airports but the noise from these are minimal. The noise of the aircraft is considerably less than the noise of aircraft in many World Heritage Properties in or near cities. The London Borough of Bromley has the cleanest air in London and consequently is the only London Borough that has not needed to declare an Air Quality Management Area.

Visual pollution

30. The nominated Property contains one small disused landfill Property near Down Road. It was filled in the 1970s, landscaped and is now used for Downe



Sustainable access is key and will include an assessment of existing facilities

Riding School therefore the visual impact of it is no longer evident. Fly tipping, is an unsightly but only an occasional problem and the London Borough of Bromley has strong policies in place to manage this quickly if it occurs.

Climate change

31. Climate change is likely to have subtle, but potentially significant impacts on the biodiversity of the nominated World Heritage Property. The Property is far enough away from major rivers and the sea to be not directly affected by any changes in sea level. The widely held prediction for Western Europe is for warmer and wetter winters combined with drier and hotter summers. Although this cannot be resolved at the local level, the impacts need to be managed and mitigated. Once damaged, established communities habitats such as species-rich chalk grassland, and ancient woodland cannot be easily recreated but as long as the habitats are not removed, their continuance is expected. The great diversity of these habitat types is due to their continuous presence for a long period, often for centuries. Their survival over this time is testament to their robustness to varying climate. Chalk grasslands can be found in warmer climes so are likely to persist in the nominated Property. Woodland tree species may change but the woodland again can persist as it does in warmer climes Nevertheless, the study of the potential impacts of climate change on biodiversity provides a quintessential Darwinian research agenda for the Darwin's Landscape Laboratory.

4.b.(iii) Natural Disasters

Hurricanes and storms

32. The south east of England suffered two hurricanes (1987 and 1990), which had a large impact on local trees and woodlands, causing some damage to built properties. The loss of large trees, leading to changes in habitats, is

a natural phenomenon and it provides opportunities to observe the evolutionary struggle for life as flora and fauna adapt to the change. However the change is a process in the re-establishment of the woodlands as the extra light promotes the growth of young trees which will form the next mature woodland. As the woodlands are protected, alternative land uses are not permitted, so the change is temporary and the landscape features known for Darwin's scientific work will persist.

Seismic activity

33. The threat of earthquakes and volcanic eruptions is highly unlikely, as the nominated World Heritage Property does not lie within a known seismic zone.

Flooding

34. Due to its elevated position and underlying chalk geology, flooding is currently and likely to remain only a minor local issue and most apparent on the roads after heavy rainfall. The issue of flooding will be addressed in the annual review of the Management Plan in conjunction with the Environment Agency.

Fire

35. A Fire Risk Assessment of Down House has been undertaken and is regularly reviewed. Staff are trained in action to be taken in the event of fire and other serious incidents. The gardens, estate and countryside sites are at little risk from fire. If this did occur then repair would be possible and the natural re-colonisation of a site would be of interest in viewing natural selection at work.

4.b.(iv) Visitor/tourism pressures

36. Public access, education and interpretation of the nominated Property are integral elements of the Darwin Landscape Laboratory nominated World Heritage Property. It offers an unparalleled opportunity to develop, promote and establish formal and informal



A storm gathers over Downe's farmland

education and interpretation, locally, nationally and internationally. Realising such an opportunity may put increased pressure on the Property. There is consequently a need for investment and improvement in visitor facilities and sustainable access to and within the Property.

Carrying Capacity of the nominated Property

37. The prime objective for the nominated World Heritage Property Management Plan should be to manage the resource in ways that will allow as many people who wish to enjoy the area to do so, within the agreed Physical, Environmental and Psychological Carrying Capacity of the area. The Carrying Capacity of the nominated Property refers to the ability of the area to accommodate visitors sustainably without having an unacceptably adverse impact on the natural and built environment of the nominated Property and its local resident communities. To determine and implement appropriate visitor management schemes, the Carrying Capacity of the nominated Property needs to be ascertained, and Limits of Acceptable Change set. Monitoring will identify when these pre-determined Limits of Acceptable Change have been exceeded, and in response a range of pre-prepared management actions will be implemented which address the specific Physical, Environmental or Psychological Carrying Capacity issue that has been exceeded.

38. Although it is likely that there will be an increased pressure from visitors, there is no certainty that World Heritage Property inscription will increase visitor numbers to the nominated Property. However through the adoption of a Limits of Acceptable Change approach the Darwin's landscape laboratory Partnership will ensure the area is prepared for an increase in visitor numbers, which might result for example from increased public interest in Darwin during his bicentenary in 2009.

Physical Carrying Capacity

39. There are approximately 200,000 visitors per annum to the nominated Property at present with Down House attracting an average of 25,000 visitors per annum, and High Elms 20,000 visitors per annum. There could be around 5,000 visitors in the area on a peak day, given the large number of children that can be accommodated at the activity centres. Within the overall area, the physical carrying capacity is dictated to a large degree by the capacity of the roads and parking facilities. Currently, these visitor numbers operate within the Physical Carrying Capacity of the overall nominated Property. There is however a need to ensure that future visitor management of the nominated Property is sustainable

in terms of ensuring that its overall Physical Carrying Capacity continues to not be exceeded.

40. In terms of the individual sites, the situation is similar. The Physical Carrying Capacity of Down House is dictated mainly by capacity for road vehicles of the car park. Given the parking space for 43 cars and one coach and an average visitor dwell time of 2-3 hours, the site is at physical car parking capacity on peak days, such as some weekends and bank holidays. On these days, given the size of the ground floor rooms (maximum 15 people), the Physical Carrying Capacity of Down House in terms of people is sometimes reached, and at these times it is also sometimes necessary to manage people on site, encouraging some visitors to look at the garden or first floor exhibition space before visiting the ground floor. Down House has the physical capacity within the building and garden to take additional visitors at off peak and low season times and could sustain up to 50,000 visitors if this was managed effectively (based on English Heritage's own Carrying Capacity report 2008), for example by timed ticketing or encouraging visitors to use the gardens and grounds. At High Elms, the site itself is larger but the two car parks (30 spaces each) are often full on peak days. Marketing and promotion activity will therefore be targeted to increase visits during off-peak periods, and visitors will be encouraged to access the Property using modes of transport other than the car.

41. Downe Village includes two pubs, a restaurant, tearoom and the Church, all of which attract visitors from the locality and further afield, causing on-street car-parking capacity and physical road-space capacity to be exceeded (i.e. road congestion) at peak times, which is an inconvenience to both local residents and visitors. Only one of the pubs has a car park. Christmas Tree Farm has its own car park, but its physical capacity is exceeded on busy weekends, resulting in overflow parking taking place on surrounding roads. A traffic management scheme has been introduced to address this, the effects of which continue to be monitored.

42. The nominated Property and individual attractions within the area (with the exception of Down House at peak times) do have the physical capacity to absorb additional visitor numbers. However some attractions, particularly Down House, Downe Village and Christmas Tree Farm do not have sufficient car-parking capacity to absorb large numbers of additional visitors' cars and encouragement will therefore be given to visitors to access these locations in ways that do not cause physical carrying capacity to be exceeded, e.g by using public transport. Some areas of roads, particularly in Downe Village, are also at physical capacity at peak times and so are also unable to absorb additional vehicular traffic. However at an overall Property level there is physical



The local footpath network will be promoted



car-parking and roadscape capacity available to absorb additional visitors' cars above current levels, although there are limits on this capacity which will need to be closely monitored. Therefore encouragement will also be given to visitors to explore areas of the Property where there is physical capacity to accommodate them and their cars.

43. The golf courses in the buffer zone and activity centres have their own car parks and there are no perceived capacity problems at these sites. Through the promotion of sustainable access methods, as outlined in the Rural Access Plan and below, the area should be able to physically accommodate the current visitor numbers and any increase possible as a result of inscription.

Environmental Carrying Capacity

44. The individual attractions, infrastructure and trails are relatively robust in terms of absorbing local environmental impact, although there are some sensitive areas such as Downe Bank, where visitor impacts on the asset will be closely monitored, and management measures prepared for immediate implementation should unacceptable levels of change/damage occur. This monitoring and management regime will be implemented through close partnership working with the various site managers.

Psychological Carrying Capacity

45. The recently completed Visitor Survey indicates that most visitors feel that the Property is not overcrowded. Therefore we conclude that Psychological Carrying Capacity of the overall Property is rarely, if ever, reached. However at some locations visitors do feel the effects of overcrowding. This will be addressed through visitor management measures such as encouraging visitors to visit other locations within the Property, and at off-peak times. In some locations, notably Downe Village, a significant proportion of visitors feel there is too much vehicular traffic passing through that location at peak times, indicating Psychological Carrying Capacity issues

in some places at some times. Traffic management measures are being implemented to address this.

Visitor Management

46. World Heritage status, if granted, will be used to support initiatives to manage locations where Carrying Capacity and Limits of Acceptable Change are unacceptably exceeded, It is essential to promote to visitors a recognition that the World Heritage Property is a 'special place' – a cultural landscape which reflects the life and work of the Darwin family and their contemporaries. The guiding principle for managing visitor pressures on the nominated World Heritage Property is that the Outstanding Universal Value of the property will not be compromised.

47. The London Borough of Bromley commissioned Chris Blandford Associates (CBA) in association with Transport for London to prepare a Bromley Rural Access Plan. This informed the nominated World Heritage Property bid. Within the wider aims of this bid, the objectives were:

- To promote access to the countryside in Bromley
- To develop sustainable travel principles as part of leisure activities
- To understand better rural transport issues in Bromley.

48. The study highlighted the areas that need improving and methods in which to do this. These include:

- Promotion of public transport and the improvement of cycle routes and walking and bridleway networks
- Assess the impact of 'residents only' parking restrictions in Downe
- Developing more 'fully accessible routes' particularly linking Downe and Down House
- Work with Transport for London to provide a Sunday bus service into the World Heritage Property (now successfully implemented)

- Work with Kew Gardens and the Natural History Museum to set up a thematically linked 'Darwin day' using underground, train and bus
- Continue outreach work by Bromley Countryside staff and partners to enable minority groups and those from the less affluent areas of the Borough to confidently and sustainably access the Property, physically and intellectually.
- In the longer term, it may be necessary to consider a park-and-ride bus service at peak times from a car park close to the A21.

49. As demonstrated at other UK World Heritage Properties, there is considerable opportunity to benefit from visitors without unacceptably negatively impacting on the significance of the Property. A co-ordinated approach agreed by all stakeholders to sustainable visitor management is required, and will be achieved through the implementation of the Visitor Management Strategy and Action Plan, which was produced in 2007. This Plan covers six principle areas:

- Marketing and Promotion
- Visitor Information and Interpretation
- Business Support – including support for new business opportunities and assisting growth of existing businesses
- Skills and Employee Development
- Product Development and Visitor Management – including management and development of attractions, accommodation, access and transport, retail and catering, events, guiding, and culture and the arts
- Operational management and stakeholder relationships, including funding and ongoing revenue requirements.

As recommended by this study, a five-year World Heritage Property Sustainable Visitor Management Strategy will be prepared before the Evaluator's assessment in Summer 2009. This will cover five principal areas:

- Appropriate promotion of the Property
- Providing a high quality visitor experience
- Co-ordinating interpretation of the Property
- Implementing sustainable methods of visitor management and access
- Monitoring visitor impacts and trends.

50. The Strategy will analyse a range of traffic and visitor management measures to prevent congestion, damage, pollution, the erosion of verges, hedgerows, surfaces of footpaths or bridleways, as well as positive measures

to promote modes of travel that will have less impact on both the wider and immediate environment. It will also suggest methods of implementing a co-ordinated approach between the different attractions within the nominated Property. This Strategy should also meet the London Borough of Bromley's objectives for social inclusion, to enable individuals and families without access to a car to reach and enjoy Bromley's countryside by a combination of high quality, affordable public transport, and walking and cycling routes.

51. An Information and Education Strategy has been produced to provide a high quality visitor and educational experience of the nominated Property. The aims of this Strategy are:

- To ensure that there is a co-ordinated approach to educational access and interpretive activity within the World Heritage Property periods of the week and year
- To encourage the development of innovative and effective educational and interpretive resources on local, national and international levels
- To facilitate links with scientific studies relating to Darwin's Landscape Laboratory at Downe
- To ensure that the educational opportunities offered by the World Heritage Property are promoted at all levels.

52. All visitors to the Property should have the opportunity to encounter a definition of the core significance of the area, and understand its reach. The following statement defines the overarching story which Darwin's Landscape Laboratory physically represents and is relevant to both interpretation and orientation considerations. It allows visitors to understand the area as the place where an important man lived, and how it shaped the impact he had on all our lives.

53. *"The landscape, ecology and society of Downe provide the inspiration, source data and cultural environment for the development of one of the greatest scientific discoveries of all time – Darwin's theory of evolution through natural selection. In turn Darwin shaped the environment of Downe through his philanthropic activities and by the fame he garnered from his scientific publications. Today the evidence of Downe's impact upon Darwin and the impact of Darwin upon Downe can still be seen"*

54. This overarching story is expanded in the Interpretation Strategy, completed in November 2008. This shows three key themes that will be explored in all interpretation as distinct ways of communicating and layering detail on this overarching story:

- Darwin's Laboratory
- The World Heritage Property Today
- Darwin's life at Downe

4.b.(v) Number of Inhabitants

55. Estimated population located within the area of the nominated Property: 450 (2001 Census).

