Good afternoon everyone, and thank you for joining me in this webinar. I’m a landscape architect, lucky enough to have been largely practicing in the design, restoration and management of the environment including historic estates, which is my current work area. My involvement with the Capability Brown Festival 2016 has highlighted for me some less well known aspects of Capability Brown historic designed landscapes: how important they are for wildlife and for a wide range of environmental benefits that are less well known about. This presentation summarises expert knowledge and new research I’ve drawn together working with Natural England colleagues and partners.

It shows how the parkland features Brown designed into his landscapes created a wide range of habitats and species concentrated in one place, some of them very rare, including ancient trees and deadwood habitat of European significance; that his landscapes support more than double the concentration of habitats and nationally protected sites for wildlife within them, compared to the more intensively managed agricultural or urban land that surrounds them. Also that they provide oases or refuges for wildlife, and stepping stones for species to connect with similar habitats in the wider landscape, thereby increasing their opportunities for survival.

I will describe how his landscapes are relevant for us today, some 300 years on, by providing us with a variety of benefits for our health and well being, including genetic diversity; regulating climate, water quality and water flow; offering us a rich sense of history, highly distinctive landscapes and opportunities for biodiversity.
First - Browns design style. Brown helped develop a more naturalistic style known as the English Landscape movement – which aimed to emulate rather than dominate nature; a whole new philosophy and approach to our interaction with landscape. Before Brown the fashion was for ordered, formal landscape – influenced by the French and Italian style – you may have been to Versailles for example - with geometric gardens and water bodies around the grand house with straight avenues of trees and channelled vistas. You can see here at Chatsworth the remains of the pre Brown formal geometric design in the foreground.

Brown changed this by creating more natural looking landscapes on a large scale with informal, natural looking lawns and parkland; serpentine lakes or rivers; parkland trees and woodland planted to shape spaces and frame views. He used ground modelling in places to make his parkland to appear smooth and gently rounded and sunken fences or ha-has so there appeared to be no separation between the grazed parkland when viewed from the house and lawns, nature and grazing animals coming right up to the house for the first time. He created extensive ridings and carriage routes around the landscape to produce a variety of experiences with views to eye catcher features within the estate as well as borrowed views in the wider landscape. You can see here at Chatsworth, above the formal terraces, the more natural looking Brownian parkland with scattered trees rising up from the river and on up to the woodlands in the distance.
Creating Browns landscapes was a massive undertaking and some say Brown was a vandal: destroying natural habitats to make way for lakes and lawns, and felling mature trees. But his approach at each site was different and often his natural style landscapes provided a more varied habitat than the formal gardens or arable land he replaced. Here, Croome, Worcestershire, has been recently restored so you get an idea of how Browns landscapes would have appeared when first created.

At some sites he removed formal gardens and trees, at others they had already been removed. He conserved many existing trees and woodlands and planted hundreds of new parkland and woodland trees, that today are veteran and ancient trees or ancient woodland. Through large scale ground works and drainage he removed natural wetland systems and wet grasslands creating, in their place, open water bodies and dry grasslands in their place. He expanded parklands bringing in features in the wider landscape including grazed common land, former medieval deer parks and arable land, in doing so he essentially conserved these areas from subsequent development or agriculture.

Here at Croome, Brown extended the existing parkland by draining surrounding marshy farmland, incorporated outlying former deer parks and adapted an existing canal to look like a river. (Reeds in the ‘river’ would have been removed to create reflections of the house and other features at key view points.)
So what habitats have been created by Brown’s landscapes such as at Longleat, Wiltshire here?

The parkland features Brown incorporated into his designs – grassland, parkland trees, woodland, water bodies and built structures - arranged in an intricate pattern created a varied habitat mosaic.

A study of the 130 Brown sites across England shows they collectively contain 12 Priority habitats (see slide) supported by these design features. These are the habitats mostly associated with lowland England where his sites predominantly occur. And they support a wide variety of species, some of them very rare or endangered.
So of all these, the most significant habitats found in Brown sites are Wood Pasture and Parkland habitat, Deciduous Woodland, Lowland Heath, Undetermined Grassland and Reed beds. Compared to the landscapes that surround them they occurred at more than double the density at Brown sites collectively, as did ancient woodland, surface water bodies and the varied woodland inventory types including mixed broadleaved woodland and coniferous woodland.

Of national significance, our most important protected sites for nature conservation, Sites of Special Scientific Interest (SSSIs) also occurred in Brown sites collectively at more than double the density in Brown sites compared to the landscapes that surround them.

And again of particular interest, Wood Pasture and Parkland habitat was particularly prevalent found 30 times more densely in Brown sites collectively compared to the landscapes that surround them.
But most important of all are the hundreds of parkland trees Brown planted within grazed pasture which today are around 300 years old, and the existing trees he incorporated into his designs, which are up to 1000 years old. Parkland trees with their open spreading branches and leaf laden canopies, reach a very great age because they grow strong in open grazed areas rather than competing for light and nutrients in woodland.

They are really important – as this slide shows - for their dead and decaying wood, mature bark and nooks and crannies that develop in old wood that a lot of species need to survive, particularly fungi, lichens and invertebrates such as beetles, flies and spiders, as well as providing roosts for bats.
And this slide shows the species they are particularly important for, particularly invertebrates and lichens.

Healthy population of breeding pied flycatchers from Moccas
Bright red Cardinal click beetle feeding on Hawthorn flower
Bracket fungi
Lemon-tart Lichen (*Lecanora sublivescens*). Near Threatened, Nationally Scarce and International Responsibility. Longleat lichens probably has the largest known UK population.
Eagle’s claws (*Anaptychia ciliaris* subsp. *Ciliaris*), a classic parkland lichen, an Endangered species that lives on enriched bark of mature trees and occasionally on calcareous old walls in well-lit situations
Ecological connectivity is the ability for species to move or be moved between habitats. The greater the ability of species to move or be moved between habitats, the greater their chances of survival and adaptation to changing conditions. A study of the predominant parkland habitats and associated species at 5 Brown sites, shown here, indicated that ecological connectivity within Brown sites is generally high. Brown designed his landscapes, using natural features arranged in an intricate pattern, that provides a mosaic of complementary habitats. They are close together and they have lengthy edge habitat making it easy to move between habitats, and important for many species especially those that need a variety of conditions for feeding, breeding, hibernating and life cycle changes such as dragon flies, newts and bats. Connectivity to the wider landscape, which is usually more intensively managed farmland or in urban areas was found to be generally not as strong and varies.

The frequency of Brown sites across England, together with other historic designed landscapes and areas of wood pasture means they provide stepping stones for species to connect with similar habitats in the wider landscape, particularly with woodland and where connected by water such as rivers. They are important for species that need large waterbodies which are relatively rare in the wider landscape and for more mobile species. For less mobile species, especially those dependant on deadwood habitat in wood pasture and parkland, including fungi and lichens, ecological connectivity is little understood: we need to learn more to manage for their survival.

<table>
<thead>
<tr>
<th>Brown site</th>
<th>Parkland habitat</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Croome</td>
<td>Ponds Grassland</td>
<td>Great Crested Newt Lesser Horseshoe Bat</td>
</tr>
<tr>
<td>Moccas</td>
<td>Veteran trees Lake</td>
<td>Deadwood invertebrates Greater Bladderwort</td>
</tr>
<tr>
<td>Syon</td>
<td>Tidal meadows</td>
<td>German Hairy Snail, Bats</td>
</tr>
<tr>
<td>Wrext</td>
<td>Water margins Broad leaved woodland Wood pasture</td>
<td>Dragonflies and damselflies, Bats</td>
</tr>
<tr>
<td>Highclere</td>
<td>Ancient replanted broadleaved woodland Unimproved grassland</td>
<td>Dormouse Duke of Burgundy butterfly</td>
</tr>
</tbody>
</table>

2013 RSP, Natural England
Analysis of condition and distribution of comparable predominant habitats and ability of species associated with them to move or be moved.
Analysis of 5 Brown sites key habitats and associated species.
Ecosystem services approach helps us understand and value the benefits the natural environment provides for our health and wellbeing. This table based on a study of 25 historic designed landscapes, including 5 designed by Brown shows parkland features (left 2 columns) collectively contribute to a wide range of ecosystem services, (green, purple and turquoise columns) and in particular, genetic diversity, regulation of climate, regulation of water quality and water flow, our sense of history and place and biodiversity. (the ones with the most dots). They also provide food, timber and water; regulate soil quality and offer opportunities for recreation and to observe the underlying geology.
Some of the ecosystem services in brief. Genetic diversity – Brown sites house a valuable genetic bank for medicinal and scientific purposes, ranging from national tree and plant collections, the biology of undisturbed soils in ancient woodland to pure native species including medieval deer herds and ancient trees dating back to the medieval period and beyond. They provide a seedbank for restoring wildlife habitats as well as strains that may be resistant to disease and climatic variation.

Pleasure gardens and parkland habitats provide a wide range of flowering species to feed pollinating insects, such as bees and moths, over a much extended season, needed to help pollinate crops in the surrounding farmland.

Large areas of mature woodland, grassland and waterbody sediment store or absorb carbon and contribute to climate cooling. They help regulate water quality: continuous cover woodland with a healthy understorey and ground cover and un-compacted permanent grassland absorb rainfall, reduce sedimentation and nutrient run off into rivers and streams and waterbodies trap sediment and pollutants carried in along rivers and streams. Parklands reduce flooding by their seasonal, temporary storage of water during high rainfall and slowing down run off into our rivers and streams.
These are distinctive landscapes with a strong sense of place: National Character Areas profiles and landscape assessments describe them as high quality, designed, ornamental, mature and well managed landscapes, with a mosaic of habitats, contributing a key characteristic to our national landscape character and adding a well wooded appearance to their surrounding landscape. They provide inspiration to notable artists and writers. Brown and the English landscape style has widely influenced the design of landscapes all around the world and continue to do so.

Brown’s sites provide a rich sense of history, have an association with ancestral ownership and historical figures and provide us with ongoing opportunities to engage in contemporary cultural events. Archaeological and historical features, including medieval deer parks, ancient woodland and habitats and land ownership provide an archive of past land use and many have conservation designations to protect them: Scheduled Monuments, Registered Parks and Gardens and Listed Buildings.

Brown sites support a wide range of habitats and species, some of them very rare, associated with grazed pasture with trees, woodland and waterbodies. They are significant for supporting much of the UKs wood pasture and parkland habitat, and together with historic designed landscapes and areas of wood pasture they hold the most important concentration of ancient oak trees in North West Europe. This is important for niche species associated with the dead wood, notably fungi, lichens and invertebrates which are rare or endangered, requiring long term habitat continuity and stability without which they would die out. They support ecological survival by providing oases for wildlife within the more intensively managed or developed farmland and urban landscapes that surround them and stepping stones to connect species with habitats in the wider landscape. Relatively easy access means they provide good opportunities to observe wildlife and get involved in habitat surveys and management.
So far example at Syon, Greater London, Brown made the river a focus of the landscape, pioneering views to and across the river as a new way to appreciate the 'natural' landscape.

The parkland contributes to flood management providing temporary water storage to reduce flooding in surrounding urban area. It is part of the urban network of greenspaces providing opportunities for health and recreation and one of the few places in Greater London people can see cattle grazing and over wintering snipe.

The parkland is the only area with tidal meadows and its one of the few areas with natural banks and mud flats, on the Thames in Greater London, supporting a wide variety of mudflat and wet woodland habitats and species, some of them very rare including the rare German hairy snail for which it has been designated Syon Park SSSI. Ancient trees and woodland are important for roosting sites for bats that use the River Thames for foraging and as a wildlife corridor connecting with other sites, including parklands along the river, and its tributaries as well as the nearby Richmond Park. The species rich parkland grassland is managed as rough wood pasture and dead and decaying wood is retained.

Syon shows how parkland, even in urban areas, can be managed for a wide range a environmental benefits including for nature.
In conclusion some thought on Browns legacy allied to the 3 key strands of Natural England’s new conservation strategy to give a wider perspective.

Brown designed his landscapes to be multi-functional and they continue to be relevant in the 21st century some 300 years since he was born. We need to better understand and value these landscape, at the site level and the wider landscape scale, so they continue to provide the environmental benefits we need for our health and well being.

Brown landscapes have stood the test of time through long term stability and good multi-functional management which we can learn from. To endure as resilient landscapes they need our protection and management.

Brown sites are complex and fascinating. They were designed for people and offer great opportunities to put people at the heart of landscape. Without this the landscapes we need will not survive.

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The Capability Brown Festival 2016 has helped all this happen, so I will finish with this slide giving a flavour of what has been happening this year alongside new research such as this to help us make sure Brown’s landscapes are flourishing and relevant for everyone today.

Thank you.