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Peatland restoration and the historic environment

Standards for delivering environmentally sustainable peatland restoration projects

Peatland restoration and the historic environment

Peatland landscapes contain some of our most significant historic environment features which are often exceptionally well preserved. They provide valuable environmental, social and economic public goods and services, yet peat degradation means we are losing these sites at an unprecedented rate.

The Government's 25 Year Environment Plan commits us to being the first generation to leave the environment in a better state than we found it (HM Government 2018, 5). Achieving this ambitious goal requires us to take immediate action. Restoring healthy, functioning peatlands is the best, and often the only way of providing sustainable, long-term protection to the historic environment.

This document sets out the wider historic environment standards that work carried out under the Nature for Climate Peatland Grant Scheme (NCPGS) should meet. It has been jointly developed by Natural England and Historic England, alongside 'Peatlands and the historic environment' (Historic England 2021) and the step-by-step 'Guidance on Historic Environment Assessments (HEAs) for Peatland Restoration' (Natural England 2022).

During the 2003 fire on Fylingdales Moor, North Yorkshire, peat burnt away revealing archaeology within and below it. Shown here are three prehistoric features: a cup-marked stone in the foreground with two stone cairns in the mid and background

Why is it important?

Historic environment features within peat are precious time capsules of scientific and archaeological evidence. They often provide the only tantalising glimpses we have of a shared heritage stretching back millennia. If these features are damaged, they can never heal, never grow back. Once lost, they are lost forever, as are the stories they can tell about the people who came before us and how they modified and adapted to the ever-changing world around them. These features come in many different forms, from archaeological monuments to historic built structures, cultural artefacts, and palaeoenvironmental remains (eg pollen) preserved within the peat itself. All of these features contribute to the quality and character of the wider landscape.

These valuable historic environment features depend upon healthy, stable habitats within fully functioning ecosystems for their long-term survival. As peatland habitats degrade these historic features are being lost at an unprecedented rate. In the last half of the 20th century it is estimated that nearly 80% of England's known wetland archaeological resource has been altered or lost (Van de Noort *et al.* 2002) and this is ongoing. Immediate action is necessary in order to halt these unsustainable losses.

Peat cores are taken to determine the depth of the peat and for palaeoenvironmental analysis, eg pollen and plant remains

An example of the prehistoric rock art on Fylingdales Moor, North Yorkshire. These impressive stones are a fragile resource and susceptible to damage from a number of sources including fire and machinery

The cultural value of our peatlands goes beyond the physical historic environment features. Peatland landscapes are strongly linked to social histories and local identities which might include:

- intangible heritage, eg oral histories and traditions
- recreation and leisure
- a place of tranquility
- social histories linked to industry and agriculture, eg peat cutting
- representations in art and literature.

The England Peat Action Plan sets out the public value of the historic environment within these landscapes and the role that peatland restoration schemes play in recognising, supporting and enhancing this value. Whilst past failures to understand this value have resulted in poor choices (HM Government 2018, 19), ensuring that the historic environment is taken into account when carrying out peatland restoration will allow land managers to make the most of the opportunities to protect and enhance both our habitats and our heritage.

What are the benefits?

From increasing our biodiversity to preserving archaeological monuments, from carbon storage to providing clean water, from flood alleviation to enhanced public engagement; land managers can offer all of these public goods from a single nature-based solution like restoring a peatland site. Land managers can make the most of the opportunities their sites offer them by ensuring that an understanding of their historic environment informs habitat restoration proposals.

Not only are initiatives to protect and enhance the historic environment of peatlands an act of stewardship in themselves, but they are economically sensible; a healthy environment supports a healthy economy (HM Government 2018, 16). Underpinning peatland restoration projects with proper consideration of the historic environment provides a number of additional benefits to landowners including:

- Increased chance of attracting agri-environment payments on newly discovered historic environment features.
- Increased chance of attracting funding for projects that build on the enhanced understanding of the natural and historic environment.
- Increased access and engagement opportunities for local communities and visitors, reducing instances of anti-social behaviour and increasing a sense of public 'stewardship' of the land.

By meeting the standards set out here, all parties can have confidence that the full range of historic environment public goods offered by peatland restoration projects will be realised, delivering environmental benefits alongside value for money.

An example of Iron Age timbers discovered at Beccles, Suffolk during flood engineering works in 2006. This demonstrates the excellent survival of organic remains that do not survive on drier sites

Flints revealed in an eroding peat profile at Esklets in the North York Moors. The assemblage dates to the Mesolithic, around 10,000 to 5,500 years ago and could be easily destroyed during the restoration process *(clevelandarchaeology.com/mesolithic-transitions)*

What features might be present?

Peatlands have been shaped by human activity since prehistoric times. Later activities have also left their mark, for example mining and quarrying, farming, water management, shooting, and military activity. These are all part of the fascinating life histories of these landscapes.

The archaeological features of the upland peatlands are often better preserved than in the lowlands as they have not suffered the same intensive activity. The waterlogged conditions of the peat result in the exceptional survival of organic materials. These include wooden trackways, leather, plant remains including trees, and occasionally bodies (see Historic England 2018). These amazing discoveries give vital clues as to how people lived and worked in the landscape and are not found on drier sites where they quickly decay.

These archaeological remains can survive above or below the ground. Above-ground features may be obvious in the landscape, such as a standing building or a stone cairn. Others may be low-lying and obscured by vegetation. A number of these archaeological features are already recorded on the local authority Historic Environment Record. However, these do not tell the full story.

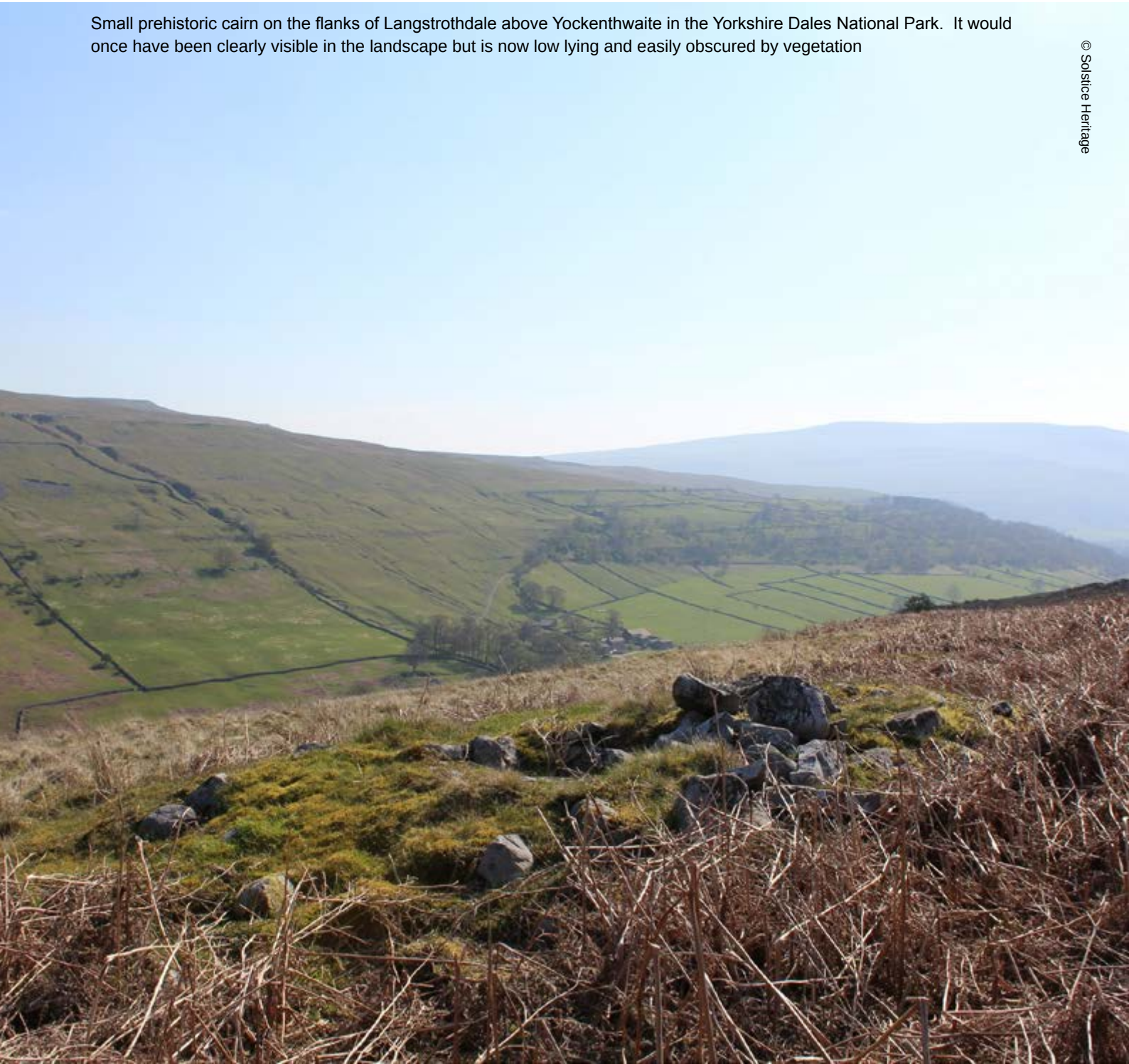
Much of the archaeology of peatlands is unknown and unrecorded. This is partly due to the less intensive activity carried out in these landscapes, the difficulty in recognising some of the features, the inaccessibility of some of the locations, and a lack of systematic recording.

This sandstone quarry at Nab Hill, West Yorkshire sits below an eroding peat section (top of photograph). Quarrying activity may be clearly visible in the landscape, or may take the form of odd-shaped earthworks representing shallow extraction pits and spoil heaps

Historic environment features: what does good look like?

On a well-managed peatland site, you are aiming for historic environment features:

- with appropriate vegetation growth retained, which will depend on the specifics of your site;
- with no signs of erosion or poaching;
- with no evidence of damage from vehicles or machinery;
- with no evidence of heat damage from uncontrolled, high temperature burns;
- that have been preserved by waterlogging kept in a stable wet environment;
- and artefacts that are portable left undisturbed at the site;
- made accessible to the public for enjoyment and education, where appropriate; and
- that continue to contribute to landscape character.



Small prehistoric cairn on the flanks of Langstrothdale above Yockenthwaite in the Yorkshire Dales National Park. It would once have been clearly visible in the landscape but is now low lying and easily obscured by vegetation

Threats and risks

Peatlands are at risk of loss from a range of threats, both direct and indirect. Whilst these can be incremental, their impact is cumulative, putting historic environment features at risk. Restoring healthy ecosystem functions on peatland sites is the best way to address these threats. Although peat loss is unwanted, destructive processes such as erosion can be an opportunity for archaeological discovery and engagement, for example prehistoric flint scatters discovered in an eroding bank. We need to ensure that we take advantage of these opportunities where they occur.

In many cases 'doing nothing' is a direct threat to the preservation of historic environment features, resulting in the permanent loss of both the feature and the evidence it contains. If done sensitively, peatland restoration should be of long-term benefit to most historic environment features. Where they have degraded beyond the possibility of restoration, other options should be considered to record these sites.

Well-meaning peatland management regimes and restoration works can inadvertently cause irreparable damage to the peat and its historic environment features. Where this is the case, mitigation must be put in place to enable a managed and recorded loss. Those designing such work must identify the key areas of historic environment significance in relation to their schemes.

You will need to work with relevant stakeholders and archaeological contractors to ensure that the design and methodology of any work minimises potential harm and maximises the historic environment benefits. A well-planned restoration project will make a significant contribution to conserving this valuable resource for future generations. In almost all cases, this approach is preferable to the continuation of the uncontrolled and unrecorded loss caused by peat degradation.

A barely visible prehistoric stone row on moorland in West Yorkshire (centre of photograph, running from bottom left). Features such as this are easily hidden by vegetation. Both the feature and machinery can be accidently damaged

A well planned restoration project will avoid:

- lengthy and costly delays to on-site works
- costly damage to equipment
- on-site accidents
- accidental breaches of legislation, eg damage to a scheduled monument
- damage to historic environment features and deposits from:
  - drying out or eroding
  - vehicles
  - restoration works
  - vegetation, eg root growth
- contamination of the palaeoenvironmental remains within the peat, eg from heather bales
- further damage to a dried-out feature
- damage to features at the donor site.

Extensive 18th to 19th century coal mining remains at Fountains Fell in the Yorkshire Dales. Mining activity may be visible as standing buildings, shafts (circular depression and earthen bank), adits (horizontally-driven shafts) and spoil heaps

Developing your project

Peatland restoration projects can only deliver their environmental objectives sustainably if they are well-planned in advance of works beginning on site. In this way, we can be assured that these projects will deliver the most for the environment, minimise the risks of doing harm, and get the best value for money.

Those applying to the NCPGS Restoration Grant must have undertaken a Historic Environment Assessment (HEA) before initiating each phase of restoration works. Those applying to the NCPGS Discovery Grant may include HEAs as part of their application. All projects should follow the principles cited in this document and any detailed instructions on HEAs set out in 'Guidance on Historic Environment Assessments (HEAs) for Peatland Restoration' (Natural England 2022). The results of the assessment must be taken into account when developing peatland restoration proposals. This will ensure that we make the most of historic environment opportunities and that risks are well understood, avoided and/or appropriately mitigated. After the restoration project, the HEA continues to be an important document that can be used to inform future management and maintenance undertaken at the site.

Formulating peatland restoration proposals on the basis of the following design principles ensures that landowners deliver historic environment public goods alongside excellent value for money.

The HEA must be undertaken by a suitably qualified person or contractor at an appropriate time of year, eg avoiding active bracken growth and ground-nesting birds, prior to, and submitted with the application.

AIM: Peatland restoration schemes must deliver long-term protection of historic environment features and palaeoenvironmental remains.

Follow these steps to achieve this aim:

1 Always seek to avoid damage to historic environment features and the peat deposits.

2 Always seek to minimise damage where this is unavoidable.

3 Implement a scheme of mitigation where damage to historic environment features and peat deposits is unavoidable, as approved by Natural England's Historic Environment Senior Adviser – Peatlands.

You should also include measures to improve public understanding of, access to, and engagement with, the historic environment.

In order to be eligible for a NCPGS Restoration Grant land managers must:

1 Submit a HEA with the application, for the initial phase of works as a minimum for approval by NE. Subsequent HEAs will need to be provided prior to initiation of further works.

2 Use the information within the HEA to inform the design of the peatland restoration scheme in line with the principles above.

3 Implement the measures within the approved HEA throughout the restoration project.

All HEAs must contain a detailed assessment of:

- the known historic environment features that may be impacted by the peatland restoration project;
- the potential for significant unrecorded historic environment features that may be impacted by peatland restoration proposals; and
- the impacts that restoration proposals will have on the historic environment. This must include the entire area of peatland to be restored alongside all other land that may be impacted, eg site access routes, donor sites, adjacent monuments, etc.

In addition, the HEA must be used to:

- integrate the HEA with other assessments of the broader site, eg function (hydrogeology), land use, habitat, condition, etc;
- ensure that project decision-making is informed by an appropriate understanding of the historic environment resource and the impacts that peatland restoration will have upon it;
- ensure that our understanding and assessment is supported by appropriate data and evidence; and
- identify evidence gaps that may require additional survey or assessment, as approved by Natural England.

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Wreckage of the 'Bleaklow Bomber', an US Air Force Boeing RB-29A Superfortress, at Higher Shelf Stones near Glossop. Remains of crashed military aircraft are legally protected. It is illegal to tamper with, damage, or move the remains. The crash sites may contain aircraft wreckage, human remains, and live ordnance

Where to get help

The Historic England publication 'Peatlands and the historic environment' (Historic England 2021) is a detailed guide supporting this Standard.

Further support on how to meet this Standard can be found by contacting Natural England's Historic Environment Senior Adviser – Peatlands or the Natural England Peat team: peatlandscheme@naturalengland.org.uk

For more information about historic environment features and how to manage them, please contact:

- Local Authority archaeologist / Historic Environment Records office: *https://www.heritagegateway.org.uk/gateway/chr*
- National Park Authority archaeologist: *https://www.algao.org.uk/membership*
- Historic England: *https://historicengland.org.uk/about/contact-us/local-offices/*

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Tinners' building, Amicombe, Dartmoor. The building, 8m long and standing up to 1.2m high, is related to post-medieval tin extraction on the edge of the restoration site. The building was identified and recorded during the walkover survey ahead of the restoration works

Case Study: Amicombe, Dartmoor

Amicombe is located within the Dartmoor National Park. The South West Peatland Partnership (SWPP) managed a programme of restoration works at the site, funded by Defra and South West Water.

Across much of the site, peat survives to a depth of over two metres and dates back over 4,000 years. Exploitation of the peat in the 19th century resulted in a dense network of drains cut through it. These drains have caused the peat to dry out and erode. The form and development of these features was investigated using LiDAR (Light Detection and Ranging) imagery, documentary sources, and a walkover survey. They were then mapped.

It was necessary to block the historic drains to restore the habitat. However, restoration works posed a threat to historic environment features in and around the site. A balance needed to be found between the historical qualities of the area and the ecology.

In addition to the drains, the remains of the 19th century peatworks included cuttings, ruined buildings, tramways and railway. Other historic environment features known across the site included older peat diggings, hollow ways, prehistoric settlement, and the remains of post-medieval tin extraction.

A desk-based study of the known archaeology was undertaken. A number of sources were consulted including aerial photographs, LiDAR imagery, and old maps of the site. A walkover survey found previously unrecorded substantial features. These included a prehistoric standing stone, a shepherd's shelter built of granite slabs and the remains of a tinners' building. This demonstrates the value of undertaking detailed assessments ahead of restoration projects.

This assessment informed our discussion concerning the impacts of the restoration

Shepherd's Shelter, Amicombe, Dartmoor. A substantial structure formed of granite slabs and natural outcroppings, and difficult to date

Standing Stone, Amicombe, Dartmoor. This example was discovered within a much later peat cutting. It demonstrates how previously unrecorded historic environment features can still be found in peatlands, some of it within the peat itself

works on the historic environment features and the mitigation measures that were required. For the most part this meant establishing exclusion zones where heavy machinery would not operate. These zones were marked on the ground and within layers of digital data that were provided to the on-site contractors. The contractors were able to access the digital information using tablets and mobile phones. In addition, contractors were briefed on site regarding the nature and importance of the historic environment features.

The project considered what would happen if further discoveries were made on site and steps agreed as to how to proceed. An example is when the contractors found some ceramics during their works. As advised, they left the ceramics *in situ*, recorded the location, and contacted SWPP so that it could be recovered. The ceramics turned out to be a late 19th / early 20th century vessel that was probably a peat-cutter's cider jug!

The erosion of peat that restoration works aim to slow and prevent can also pose a danger to historic environment features. At Amicombe, a tramway from the 19th century peatworks was suffering ongoing damage from the passage of water, resulting in the destruction of the peat bank that the tramway was built on and leaving the granite blocks and wooden sleepers of the tramway out of place and exposed.

Simply excluding the tramway from the works would have done nothing to protect it. In this case a solution was negotiated, choosing areas of the tramway that it was safe to operate machinery on, re-profiling its eroding structure to allow vegetation to develop, and putting blocks in areas where water flowed to slow its passage.

Considering the extent and nature of historic environment features from the very beginning of the peatland restoration project allowed the works to continue within the protected landscape of the Dartmoor National Park. This both mitigated the impact on the historic landscape, and allowed ongoing damage to be rectified. The success of the project lay in understanding the nature and extent of the historic environment features early in the project, and designing the project well. This ensured that not only habitat restoration was delivered on time and to budget, but that benefits were also made to the historic environment features.

Tramway, Amicombe, Dartmoor. The tramway (left) was used during historic peat extraction. It sits on the bank shown here with a bare peat hag along the bank's edge (right). This piece of industrial archaeology would clearly not be protected by excluding it from restoration works – erosion is extensive and ongoing. Negotiation between restoration planners, contractors and historic environment professionals is necessary to protect such features

The remains of a ‘steading’ or rick on Bodmin Moor, Cornwall. This is a low platform within a shallow ditch where cut turves were dried. This example was identified and recorded in advance of peatland restoration works. As a result it is now preserved

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Feedback

Please contact the Historic Environment Senior Adviser – Peatlands via the NCPGS mailbox: peatlandscheme@naturalengland.org.uk

Front cver photograph:
Peat cuttings (likely post-medieval) in the foreground, on the upland hills at Exe Plain, Exmoor, Somerset, in February 2012 (by D. Grady). The cut faces, plot boundaries and small associated buildings are important to our understanding of past domestic and industrial peat use © Historic England Archive (ref. 27413_002)

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Looking across the extensive remains of lead mining and processing industries in Apedale, a branch of Wensleydale in the Yorkshire Dales National Park

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