

CLIMATE VULNERABILITY AND THE HEART OF NEOLITHIC ORKNEY WORLD HERITAGE PROPERTY



Skara Brae. Credit: Historic Environment Scotland

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The Heart of Neolithic Orkney (HONO) was inscribed as a World Heritage (WH) property by UNESCO in 1999. It comprises four sites (Skara Brae, the Ring of Brodgar, the Stones of Stenness and Maeshowe), which provide a unique testimony to ceremonial, funerary and domestic components of cultural traditions that flourished on Orkney between 3000 and 2000 BC. All four sites are Properties in Care of Scottish Ministers and managed by Historic Environment Scotland (HES).

The two principle advisory bodies to UNESCO – the International Council on Monuments and Sites (ICOMOS) and the International Union for Conservation of Nature (IUCN) – have recognised climate change as the fastest growing threat to World Heritage. To address this issue, a Climate Vulnerability Index (CVI) has been developed to aid understanding of various climate drivers and assess the risks they pose to the value of World Heritage properties. The first application of the newly developed framework was at the natural World Heritage property of Shark Bay, Western Australia, in September 2018.

After this initial trial, ICOMOS' Climate Change and Heritage Working Group helped select a cultural WH property to test the CVI framework. HONO was selected on the grounds of

- recognition of the vulnerability of Orkney sites to climate change impacts
- leadership and innovation by HES in addressing the heritage impacts of climate change
- the active engagement of the Archaeology Institute of the University of the Highlands and Islands (UHI), along with the Orkney community and a wide array of local researchers
- availability of good local climate change scenarios and research

Skara Brae itself was discovered as the result of a severe storm in 1850, and its vulnerability has been recognised since the 1920s, when a sea wall was built to protect the site. Since then, the sea wall has been extended several times and the wall and immediate coastline on either side are now monitored through a programme of biennial laser scanning and annual photographic survey. The Ring of Brodgar has suffered from surface flooding and footfall erosion and is now subject to an active conservation management regime including engineered surfaces beneath modern turf layers, periodic closing of parts of the site to visitors, and increased staff presence to manage visitor movements at peak times. It is accessible 24 hours a day. Indeed, the impacts of increased

tourism have compounded the climate change impacts, with a high and growing number of tourists visiting every summer, and the sites' popularity with visitors from the cruise sector and 'day trippers' using the short sea crossings to Orkney.

Once HONO was confirmed for the second application of the CVI, the authors of this report formed a steering group, video conferencing regularly across three continents. The workshop took place over three days in April 2019 with 36 participants, over half drawn from the local community in Orkney. County archaeologists from the other Scottish island groups attended, and international participants came from Ireland, Norway, the US and Australia. It was a mix of archaeologists, climate scientists, site managers, park planners, academics and local tourism experts. Five UHI students were

active participants and also acted as scribes for the sessions, helped organise a public engagement evening, and aided with the workshop logistics.

Prior to the workshop, participants were encouraged to watch a webinar providing background information on climate impacts and Orkney and consider the most relevant climate drivers and significant local values for the property. During the workshop, participants visited three of the four sites that comprise HONO. The public open evening hosted by Orkney College (UHI) in Kirkwall was standing room only, attended by over 60 people.

Given the significance of the workshop, as the first trial of the CVI at a cultural WH property, there was considerable media interest and HONO was featured on local and

national radio in Scotland and Scottish TV news programmes on BBC and ITV. There were articles in several newspapers and online news reports, blogs, and a strong presence on social media.

The CVI has been developed to rapidly assess climate impacts, both on the Outstanding Universal Value of a WH property and as a result on its associated community (local, domestic and international). During the workshop, participants identified the three key climate drivers they considered most likely to impact the site by 2050: sea level change, precipitation change, and storm intensity and frequency. They also identified other drivers where increased understanding is required, including the impact of air temperature changes on the monuments and their setting. Impacts including growing tourism numbers,



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(above) Damage to the footpath at Ring of Brodgar resulting from higher visitor numbers and increased rainfall levels. Credit: Historic Environment Scotland



(right) Installation of engineered surfaces to improve footpath resilience at the Ring of Brodgar. Credit: Historic Environment Scotland



Alistair Rennie from Scottish Natural Heritage discusses coastal change with workshop participants at Skara Brae. Credit: Historic Environment Scotland

infrastructure development and changing agricultural practices were also identified and documented.

The CVI process identified that HONO was extremely vulnerable to the impacts of the three identified key climate drivers. There is the potential for major loss or substantial alteration of many of the values that comprise the Outstanding Universal Value of the property. The Community Vulnerability sessions explored the economic, social and cultural importance of HONO, and the resilience of the community to climate change risks. The high adaptive capacity of the community demonstrates the overall resilience of the locality to potential impacts of climate change.

After the workshop, the authors worked together to compile and publish a detailed report, available on the HES website,¹ which described HONO, its management planning and climate pressures, the workshop results and the next steps. The results will feed into

the current review of the HONO Management Plan, with the next five-year plan due to be launched in 2020. The other five WH properties in Scotland will seek to run similar workshops in the next few years, embedding the process into their management planning cycles.

The report was presented, together with a short video about the workshop and its results,² at an ICOMOS event at the World Heritage Committee meeting in July 2019 in Baku, Azerbaijan. The authors believe that the CVI could be adopted as a standard for assessing climate vulnerability in WH properties worldwide.

The HONO report recommended wider application of the CVI methodology, given its potential to enhance understanding of the climate change challenges at other heritage sites. We are delighted that work undertaken in Scotland is expected to have a significant positive impact for the management of natural and cultural heritage across the globe.

Photo of the authors at Skara Brae during the workshop in April 2019. Back row from left to right: Rebecca Jones, Ewan Hyslop, Scott Heron and Jon Day. Front row from left to right: Julie Gibson, Jane Downes and Adam Markham. Credit: Historic Environment Scotland

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¹ <https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=c6f3e971-bd95-457c-a91d-aa77009aec69>

² <https://www.youtube.com/watch?v=s015OS0cMWc>