



**the BIG
Biodiversity
Challenge**
do one thing

Northey Island Coastal Adaptation Strategy
Northey Island, nr Maldon, Essex.
National Trust

BIG Biodiversity Challenge Award Category: *Habitat creation - Project of the Year Award (Large scale biodiversity enhancement 5ha and above)*

Project overview

Northey Island's habitat creation project involved management of existing saltmarsh and creation of new saltmarsh as a sustainable coastal adaptation to the challenge of habitat losses due to sea level rise and climate change. As part of the habitat creation, transitional niches and freshwater habitats were created. Completed May 2023.

What were the biodiversity conditions on site, prior to the enhancement?

Northey Island is designated as SSSI, SPA, Ramsar, SAC and MCZ but the saltmarsh is smaller than it used to be, eroding and deteriorating in quality due to effects caused by rising sea levels and climate change.

In eroding, habitat was lost, but also sea level rise impacts were reducing biodiversity, leading to a narrower set of vegetation species and more restricted use by flora and fauna. This also restricted the feeding, nesting and resting habitat available for bird species.

Without management the whole 90ha of existing saltmarsh at Northey was projected to be lost in the next 70-100 years.

What were the reasons behind this project?

Due to the risks of rising sea levels and climate change, the National Trust developed a Coastal Adaptation Strategy for Northey Island. This aims to improve the area for sustainable conservation of the natural environment by taking strategic, holistic, and long-term considerations for 100-year period.

As a provider of vital ecosystem services, such as carbon sequestration, natural flood management and support for fish and wildlife, saltmarsh is an important habitat that has been severely reduced. This project mitigates the impacts of climate change through habitat enhancement to strengthen, diversify and improve the saltmarsh on Northey Island for the next century.



Brent geese landing at Northey Island where overhead cables used to run, prior to undergrounding © David Mason



A water vole translocated to a more sustainable home through the CAS project © National Trust/Joseph Salkeld/Felicity Andrusko

What were the biodiversity measures taken?

Saltmarshes are recognised as being a priority habitat under the UK Biodiversity Action Plan. The project involved implementing a range of management methods to create, improve and manage habitat, including:

- Beneficially using dredged sediment (a waste product from local maintenance dredging activities) to raise and regenerate the saltmarsh (2018-2023) as well as adapt the local processes to reduce erosion.
- Removing parts of the south and south-east embankment to give space for rising sea levels, creating new saltmarsh using managed realignment (2019 and 2023). This approach allows plants to migrate inland (and up slope) in a natural way as the sea level rises, giving it a longer lifespan and better biodiversity.
- Creation of freshwater ponds and ditch system to diversify habitat (2021-2023), previously lacking on the island and important for birds for drinking and cleaning feathers, adding a different niche for freshwater invertebrates.
- Undergrounding of 750m of overhead electricity cables, opening up the landscape and flightlines for birds to allow access to previously avoided areas of the Island. This element included the re-use of telegraph poles as bird nesting platforms, footpath bridges and interpretation boards (2022).
- Translocation of a colony of 16 water voles to a more sustainable, purpose-built pond habitat (2022).
- Modification to closing bank alignment to protect a badger sett.
- Where new secondary flood defences were required to the rear of the realignment site, these were constructed with gentle slopes on their seaward faces to provide a niche for transitional saltmarsh/terrestrial species. Undertaken re-using material won from removing parts of the realignment embankments, no waste was generated for off-site disposal.

A programme of engagement with the people who live, work, and visit the area has been (and will continue to be) undertaken to help improve awareness of natural issues, appreciation of the local ecology and the ecosystem services.



Removal of the south-east embankment through the process of managed realignment to create new saltmarsh © Katherine Gilchrist



The high tide following the managed realignment of the south-east embankment, bringing in seeds and nutrients to support saltmarsh creation © National Trust



Further information

The project was designed in accordance with CIRIA C628 Coastal and Estuarine Managed Realignment Design Issues and implemented by several contractors. The contractors were required to adhere to industry good practice in respect of marine construction works, such as CIRIA Marine Environment Site Guide and undertaken in accordance with the Environment Agency's Pollution Prevention Guidelines (PPG) No. 5 on works in, near and liable to affect watercourses. Support was provided for habitat management on site by National Trust staff and volunteers.

A conscious decision was made for no active planting across the improved/created saltmarsh habitats, however vegetation communities from pioneer species through to well-developed lower, middle and upper saltmarsh have naturally developed through seeds brought in by the wind and tides.

Vegetation surveys and wildlife surveys have been undertaken as part of the project monitoring. Bird surveys have been undertaken regularly on site since 1999, including counts of overwintering birds, for which the site is of particular importance, and breeding bird surveys. These have demonstrated record numbers of birds over the 2022/23 winter period, including the highest number of brent geese since 2015 and the highest number of dunlin ever recorded on site. Other wildlife noted on site have included badger, otter, and voles.

Monitoring of these works and their environmental outcomes have also been performed by repeat drone surveys. Drone flights and processing of imagery has produced topography, aerial pictures and multispectral orthophotos data (this includes measurement of data that supports vegetation species mapping) and vegetation characteristic mapping.



Flourishing saltmarsh at Northey Island, resulting from the beneficial use of dredged sediment as part of the CAS project © Katherine Gilchrist



An interpretation board installed under the project using telegraph poles from the undergrounding work, intended to engage visitors in the importance of saltmarsh habitat © Claire Ward



Project Team

- Client - National Trust
- Consultants – Royal HaskoningDHV
- Contractors – Miles Water Engineering Limited, Landbreach Limited, Land and Water
- Funded by National Trust Neptune Funding, EU funding under the LIFE on the Edge Project, National Highways Environment and Well-Being Designated funds, Defra Natural Flood Management Scheme and the Association of National Trust Members and Supporters in Belgium.

What was the motivation for carrying out the enhancement?

Saltmarshes are a truly special habitat and Northey Island is an internationally important place. This habitat creation project is considered to be of national importance to the National Trust in demonstrating practical coastal adaptation to climate change and rising sea levels. Without the project, the loss of the saltmarsh would have had a significant impact on the plants and wildlife of the area. Now, saltmarsh will be sustained for future generations to enjoy and experience, with educational resources providing them with an understanding of its importance to biodiversity, natural flood management, water quality, carbon sequestration, recreation and well-being.