

United Kingdom

Restoring Quarry Silt Lagoons for Migrant Waders



HEIDELBERGCEMENT

BACKGROUND



Wykeham, Yorkshire,
United Kingdom

Aggregates sites have the potential to recreate lost wader habitat in lowland river basins, where it would otherwise have been abundant, through the maintenance of extensive soft-sediment or silt areas, which provide feeding and roosting habitat. A preliminary study has demonstrated that one likely barrier to greater use of silt lagoons by waders is the highly anoxic conditions that prevail below the surface which prevent establishment of sediment-living invertebrate communities. This project will use expertise in the ecology of wading birds, freshwater invertebrates and restoration sites to assess and improve the value of quarry silt lagoons for declining birds.

Location	Wykeham quarry in Yorkshire, England and numerous control and comparative sites in the UK and Netherlands
Size	~150 ha
Mineral type	Gravel and sand
Habitat(s) created	Silt and mud banks, water fringe vegetation, freshwater lakes
Target species	Northern Lapwing, Redshank, other waders
Protected areas	None in immediate area
Organisations	Hanson UK, University of Hull Centre for Environmental and Marine Sciences, Scarborough Campus; RSPB and BirdLife International

WHY IS THIS PROJECT NEEDED?

Silt lagoons in aggregates extraction sites represent an opportunity for habitat restoration targeted at wading birds. Much lowland wetland habitat in Europe has been lost through agricultural intensification and reclamation and populations of many species of wading birds have declined as a consequence.

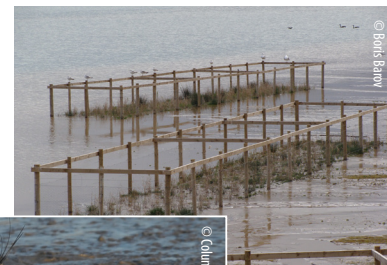


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The project focuses on species and habitats of relevance for the eastern Atlantic flyway with fieldwork carried out in the UK and the Netherlands. A silt lagoon restoration plan will be implemented as part of the project. The project will be delivered by a PhD student undertaking field and desk research, supplemented by an MSc research project looking specifically at sites in the Netherlands.

PROJECT OBJECTIVES

- The goal of this project is to explore opportunities for aggregate sites to **add to wader habitat** in the Eastern Atlantic flyway and to carry out experimental and observational studies on silt lagoons to **develop processes for their effective restoration** and subsequent use as wader habitat.



RESEARCH WORK PLANNED

Map of sites of potential value to waders of silt lagoons.

Observational study of sedimentation, temporal and spatial dynamics of invertebrate communities and wader habitat use at multiple quarry silt lagoon sites.

Characterisation of 'natural' soft-sediment sites.

Experimental/trial field manipulation of sediment characteristics.

Field-scale restoration of silt lagoon (Wykeham Quarry, UK).

Aggregates sites within the eastern Atlantic flyway will be mapped and categorised by type from existing data sources. These will be combined with existing data on wader migration/movement routes to produce a 'value map' of potential restoration opportunities. This map will be used as the basis for site selection of field sites in the UK and the Netherlands. The final map will provide an additional evidence base for restoration proposals in mineral planning applications.

A multi-site study of wader use and the sedimentary/ecological dynamics of silt deposition sites will be carried out over a 2 year period. The study will examine three sites (to be identified in early stages of the project) in the UK and three in the Netherlands.

Sediment samples will be taken from well-used wader feeding sites in the vicinity of the quarry sites in the UK and characterised by particle size, chemical composition and nutrient availability.

Study plots at Wykeham quarry will have trial manipulations modifying sediment characteristics (including potentially seeding with invertebrates from nearby sites) on plots at the established silt lagoon site. These will be monitored over a full calendar year to assess change in sediment properties and the establishment of sediment invertebrates.

The derived knowledge will be used to implement a full-scale experimental/trial restoration at Wykeham quarry. The restoration will be monitored over the final 6 months of the project.

PUBLIC BENEFITS

This project is mainly aimed at quarry restoration managers, mineral planners and restoration ecologists. By developing evidence based restoration techniques applicable at numerous sites, the project will contribute to wider conservation goals benefitting the ecosystems that support migratory birds and other organisms. These benefits will be widely shared by the outdoor enthusiasts and people working and living near mineral sites, thus helping restore a range of ecosystem services.

These activities are part of the BirdLife – HeidelbergCement Biodiversity Conservation Programme: Giving nature a second chance

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