GroundLord ENVIRONMENTAL

Medmerry Island Restoration Study

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Contents

1. Introduction

Key aims

- Restore four shingle islands to create suitable nesting habitat for breeding seabirds
- Restore and maintain the surrounding vegetation to support the proposed seabird colony and create a mosaic of habitat to support a wider species range of wader, wildfowl and passerines.

Original islands

Construction - Four islands were originally created pre realignment at Medmerry. These were created prior to flooding and therefore during a land based phase. They were topped with approximately 10cm-20cm of shingle to form crescent shaped areas on their eastern sides, possibly gained from the neighbouring beach. No membrane was placed down below the shingle.

Subsequently, a thick layer of vegetation has developed, from the edge habitat, comprising of species such as sea beat, progressing up the gradient to a more terrestrial species mix of grass species, bramble and reed patches. This has mostly left a shallow mat of roots across the surface, with a smaller number of tap roots.

Due to the site design and changing nature of the highly mobile site, access is now complicated by a series of channels and ditches, as well as developed salt marsh.

Figure 1 Typical shingle cover under vegetation

Figure 2 Typical Vegetation cover of shingle, showing a mix of grasses, bramble and patches of reeds

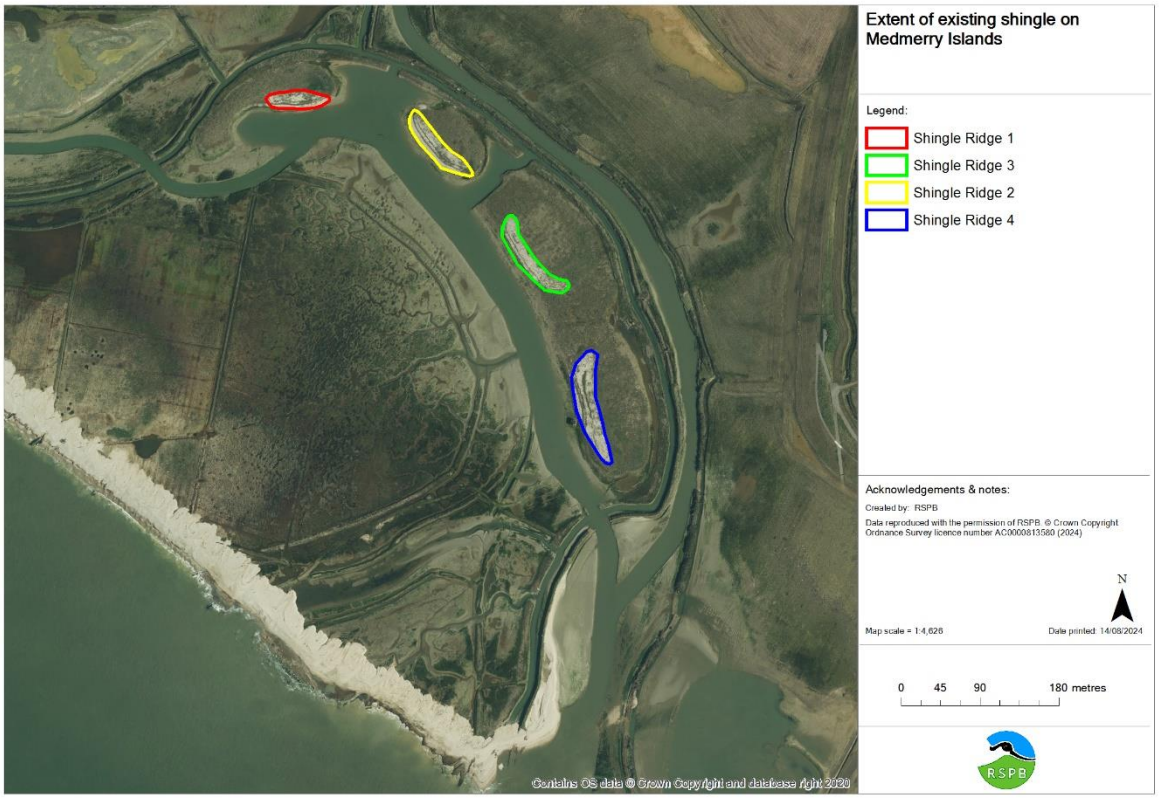
Size

1. 0.12ha with a perimeter of 160m
2. 0.18ha with a perimeter of 218m
3. 0.2ha with a perimeter of 250m.
4. 0.28ha with a perimeter of 290m

Challenges

Access – The logistics around getting suitable equipment to the islands is the most complicated part of the project. A long track in is necessary and three Crossing points on unstable ground are needed.

Shingle depth and vegetation removal – The shingle is relatively thin, covering the islands. Methods of how best to remove the vegetation will therefore need to be carefully considered.



Map 1 – The approximate locations of the shingle areas.

Methodology

1.1 Access

A number of routes across the site were assessed. Access onto the site needs to be considered, with articulated lorry access limited. Access tracks around the site are suitable but have limited turning capacity.

Site access.

Access from the west.

- Access form the western RSPB car park on Easton Lane is possible.
- Access will need to be assessed for equipment delivery. An articulated lorry should access all the way down to the beach but there are limited turning options and transit distance is 1.5miles. Possibility of swapping to tractor/Unimog low loader here.
- Access may be possible through access at 1st Chichester storage, minimising any tracking time if needed.
- Access is then along the beach. At low tide, this is down firm sand for 0.7miles. Access to the sand will be best along the trackway, over as small embankment. Access straight off the trackway is confined by groins.
- There are three crossing points to access all the islands. Each section is progressively more unstable, consisting of lose sediment and mud, with limited time around low tides to move. A standard or even low-pressure excavator is considered unsuitable. Due to this, an amphibious machine would be the best suggestion.

Access from the East

- Access from Ham and the viewpoint is also possible, with a potential shorter track in.
- Access for articulated lorry may be limited again and consideration should be made for movement with smaller machinery, though this will add on to costs.
- Access will then be taken through the main channel but again, will not be suitable for regularly machinery.

Figure 3 Access from the western side onto beach

Figure 4 access along the beach at low tide

Figure 5 Crossing point 1 for island 1 and 2

Figure 6 crossing point 2

Figure 7 crossing point 2, far end with shallower gradient

Figure 8 Crossing point 3

1.2 Shingle Restoration

The aim is to create bare shingle that will attract seabirds to nest. Removal of as much of the vegetation as possible is needed and a restoration of the shingle. Test pits have shown that the shingle is approximately 10-20cm deep (see fig1), with varying gradients and varying vegetation cover.

An excavator should be used with a rake attachment to comb off the worst of the vegetation that is forming the initial mat. This can be piled in a low bund to rot down at the rear of each island. If possible, this could be burned to reduce the arisings.

Due to the depth of the shingle, digging over will not be possible. The shingle should therefore be raked up into piles, limiting the amount of subsoil that is disturbed to try and collect as much clean shingle as possible. Where shingle has shifted into the tidal zone, this can be moved up as well.

The shingle can then be redistributed with as much of the cleaner material kept on the top as possible.

It will not be possible to remove all rhizomes and root material due to the quantity of material and the limited depth of the shingle. This will therefore need to be addressed in the after care.

1.3 Vegetation Clearance

The areas around the shingle islands are a mix of species but form a very dense sward, primarily dominated by coastal grass species. Some areas of reed have developed, and, in some areas, bramble patches have established.

The main aim for the vegetation clearance will be to support the shingle habitat, reducing predator cover and creating open space. However, thought can be placed on specific species needs to help develop a wider range of niches.

A mosaic of shorter and longer areas is proposed to help create a wider species mix. Some of the grassland should be cut short, especially areas around ditch lines and water edges. This will help create habitat favourable for species such as widgeon, who will graze and roost on shorter areas around water.

Areas of longer vegetation mixed with the shorter maintained grassland will provide habitat for species such as breeding redshank, who will nest in the longer tussocky areas but feed in the open. This will also benefit overwintering snipe, who will roost in the longer vegetation during the day.

Leaving some areas longer and ranker, without a cutting regime will allow habitat to be maintained for species such as reed bunting, that are present and breeding.

Reed is developing in pockets around the islands. This is likely to expand and is most probably representative of the changing hydrology. It is supporting a small range of birds such a reed bunting. However, the reed should be managed to reduce the impact on the proposed shingle areas. They have the potential to reduce the favourability for seabirds due to their height and reduction in sight lines. Reed kept outside the buffer zone should be allowed to expand where suitable, with management consisting of annual cuts, on a 5-7 year rotation. This will allow the reed to develop and create structure within the stands.

A buffer zone of approximately 15-20m around each area of shingle should be cut short, allowing for maximum visibility for the seabirds.

Figure 9 Map of proposed cutting area around the shingle

The method of cutting the areas will be limited by access. Simple removal using brushcutters will be the most efficient method, or if the machinery has compatibility, a flail head can be fitted to the excavator.

Collecting of the arisings is not feasible in the first pass, due to the quantity of the material and the access constraints. For future cuts where the sward is shorted, it is recommended that arising are raked off the worst of the areas to allow suitable growth to come through uninhibited.

1.4 Logistics

Refuelling. Due to the sensitive nature of the site, a suitable refuelling strategy will need to be adhered to. Access to and from the shore would not be practical and would do more damage to the mudflats. Minimal tracking across the mudflat needs to be prioritised.

Refuelling will therefore have to occur on the island. Fuel will be taken over in suitable sealed container with adequate spill protection. Spill mats will be used whilst refuelling and left under the machinery that is stored on the islands overnight and whenever stationary.

Storage will be on the islands to minimise tracking, but it is not considered necessary for site compounds etc. due to the remote and inaccessible location.

2. Future Management

2.1 Shingle management

Due to the accessibility issues and time constraints of the on-site team, careful consideration to the future management of the site will be needed. It will revegetate as removal of all the rhizomes is not possible and natural recolonisation will occur, especially if colonisation from seabirds occurs, along with the associated nutrient input. The aim should be to maintain as much of an open shingle habitat as possible, at least two thirds of the shingles area, with some sparse vegetation patches retained that will suit species such as Sandwich terns. There are several methods that should be considered:

Hand pulling – vegetation regrowth can be pulled by hand each year to maintain the clear shingle. Cutting with machinery across the single is not advised as it can be dangerous and larger mower type machines would struggle with access or would be inhibited by cost.
Pros- low impact on the site, access can be by boat or foot and its is cost effective as it can be done by volunteers.
Cons- very laborious, especially working around tidal access. It is unlikely that the level of clearance needed each year will be maintained.

Spraying – using a brood range herbicide such as roundup will remove the vegetation. This can be applied using an operative on foot with a handheld sprayer.
Pros – quick and effective if done under the correct conditions, requiring a low number of operators.
Cons – highly designated site and may not get approval from NE. A strict spraying protocol would need to be in place, with experienced operators. However, it is not uncommon to use herbicides on designated sites.

Burning – using a handheld torch, burning can be used to remove growth, without issues found with brushcutters etc.
Pros – low impact, shouldn't need consent.
Cons – may not effect root stock so could regrow and there could be issues around UXO's. Not a well tested technique but could be rolled out as a trial.

Weed control fabric – using sheets to cover the area to reduce photosynthesis could be a viable technique to reduce growth. It would need careful consideration as to when the sheets are applied, ideally keeping the site clear in winter to allow for wader roosts to develop.
Pros – low impact and can be completed cheaply, with volunteers.

Cons – keeping the fabric in place during storms could be problematic. It would inhibit any wader roost potential.

Spraying is considered the most effective method due to its speed and effectiveness. The benefit must be weighed against the management going forward and weather other options are effective or maintainable. If done correctly in good conditions, it is not considered detrimental to the surround system, with only spot treatment necessary, rather than broad casting. Due to the buffer around the islands, there would be minimal chance of run off.

2.2 Vegetation Management

The surrounding vegetation should be managed annually as per the description in 1.3. Areas around the shingle will need to be cut in late summer, allowing a short sward to develop. Areas around water bodies and selected areas should also be annually cut short. These will benefit wintering wildfowl.
The initial cut will be harder due to the matting and tussocks that have developed but this will become simpler after year one or two, allowing the cutting speed to increase.

A rotation of area can then be cut in the surrounding grassland, allowing for different age structures within the sward to develop as well as differing species compositions. This will benefit a wider range of species, such as nesting redshank and overwintering snipe.

2.3 Perch Removal

Some areas have higher points of vegetation or structures that will allow corvids, kestrel, buzzards etc. to perch and will likely inhibit productivity within a tern colony. Efforts should be made to remove these. Bramble bushes should be a high priority to reduce and regrowth cut on an annual basis.

There is an old building that is near the southern most island. This will potentially have a negative impact on the first and possible second shingle area. Consideration should be made to its removal, though it may have some cultural function within the landscape now.

2.4 Fencing

Predator fencing will be necessary to maintain the productivity of any established colony. Due to the access restrictions, tidal range and exposed nature of the site, a range of considerations need to be considered for cost efficiency and reliability.

Temporary fencing – erected annually, consisting of either 9 strands of electric or an electric net.
Pros – cost effective and it can be erected outside of the worst of the storm seasons.
Cons – labour intensive to erect. Electric will need to be checked and is less reliable.

Semi-permanent Fencing – construction of a fence, using permanent strainer posts, allowing the electric lines to be tightened and only using temporary intermediates.
Pros – more secure fencing structure and less materials to take over.
Cons – strainers left in place provide perch points and have an impact on the landscape. Still labour intensive.

Permanent fencing – All strainers and intermediates are put in place and electric lines or permanent netting used

Pros – initial installation costly but then requires little maintenance, especially if netting with a skirt is used.
Cons – Cost and complications of initial installation and logistics.

A semi-permanent fence is probably the most efficient method to use.
Ground screws could be utilised to further reduce the impacts of the posts on the landscape, give the ability to remove the strainer posts when not is use. As the tension from electric line is not significant, this would be a suitable option.

2.5 Predator management

Ongoing predator management will also be important for ongoing productivity. Fox management will be important.

Initially a predator survey should be undertaken, using thermal imaging across either a transect or point count to establish a baseline.

A wider strategy can then be created, using the whole of Medmerry to manage predators, using habitat manipulation, diversionary feeding, as well as targeted lethal management where necessary.