

Specification: Snag Valley Lower – Fen & peatland restoration

Dorset Peat Partnership

As part of the Dorset Peat Partnership project the National Trust is undertaking the restoration of Snag Valley, on Hartland Moor; to restore hydrology and natural dynamic processes.

Lower Snag Valley

Snag Valley runs roughly North Westerly for over 2.5km through the Purbeck Heaths NNR, draining into the Corfe River at Sharford Bridge SY96658474. Snag Valley is thought to have been originally an open fen, with a complex ecology combining elements of acid valley mire vegetation (M21 and M25 mires) with more base-rich fen meadows (M22, M23 and M24). Eutrophication, drainage and channel modification during the 20th century led to the loss of habitat and the cessation of peat-formation. The valley has instead become characterised by clearly defined channels, with riparian woodland, areas of alder woodland and sections of reed swamp. This drains the valley and prevents the floodplain from remaining wet through the summer. In recent decades, because of improved water quality and targeted habitat management, some areas of rush-pasture and fen have been restored along with small, perched acid mires at various points on the Northern and Western margins. Restoration works have been divided into two projects, Upper Snag Valley and Lower Snag Valley. This tender details the works required to restore the Lower Snag Valley site.

The aim of the project:

To restore Snag valley as a functioning fen and mire complex with active peat-formation, permanently re-wetting the valley bottom and kick-starting the restoration of an open fen vegetation community.

The objectives are to:

- Implement a 'stage zero' restoration, to reconnect the floodplain.
- Remove Alder coppice and rootballs, and a section of mature Alder trees to reduce water loss through evapotranspiration.
- Use cut timber and root balls to infill channels.
- Mulch selected areas of wetland grasses and vegetation to ground level.
- Install timber dams in the main drain channel to hold back water, slow the flow of losses and re-wet the floodplain.

Background

- In 2017 around 0.7 ha of alder was cleared, and an attempt was made to re-wet the now open valley floor through sediment bunds and timber dams installed into the former single channel; although initially successful in creating open water areas, these have proved ineffective in the long term and the stream channel continues to drain the fen. Piles of logs are still visible within the site. [[Blog of previous works for reference](#)]
- Currently the impact of tree growth and grass tussocks is influencing the extent of flow distribution across the floodplain. A hydrological report has been produced to prepare the following restoration plan.

Considerations

- Hartland Moors SSSI designation
- Open access land
- Higher Tier Countryside Stewardship (LH1 – managing heathland)
- Protected species present, including reptiles, water vole, breeding birds, and invertebrates.
- Historic Environment features assessed in and around the site.
- Felling application, EIA, SNO approved for tree works.



Section	Task (see methodology and site photos below)	Grid reference	Ha/no/m
1. Tree / scrub clearance	<ul style="list-style-type: none"> Remove Alder regrowth, including root balls (to prevent regrowth and limit the effect of obstacles to diffused flow. Burn brash at selected locations to be agreed. 	SY 95516 84643 Centre point	1 ha
2. Tree / scrub clearance	<ul style="list-style-type: none"> Mulch grass/rush vegetation (within the same area) to increase diffused flow distribution across the valley floor. 	SY 95516 84643 Centre point	1 ha
3. Mature trees	<ul style="list-style-type: none"> Fell an area of mature trees as mapped to expand the open fen habitat. Trees measure c.8m tall with av.dbh 16cm. Volume estimated at 13.55m³. Burn brash at selected locations to be agreed. 	SY 95612 84658 Centre point Trees marked with green spray.	0.28 ha
4. Incised single channel	<ul style="list-style-type: none"> 4 x Natural timber leaky dams, constructed from on-site materials. Spaced c.10m apart to create new flow pathways and diffuse flow. Structures should be staked in, or keyed in and backfilled with spoil where possible. 	SY 95578 84650 SY 95588 84650 SY 95597 84649 SY 95605 84649	4x <3m wide x 1m high
5. Incised single channel (straight channel)	<ul style="list-style-type: none"> Channel infilled using removed trees and root balls placed directly into the channel - root balls upstream, forming the main blockage of the channel with the trunk providing further channel infill – to encourage flow to reconnect to the floodplain in an unconstrained way. 	From SY 95605 84649 - downstream 100m.	<2m wide <1m deep c.100m reach to form a continuous infill.

Additional information

- Vehicle movement on to take care not to create preferential flow pathways through the micro-topography associated with tracks or wheelings.
- Measurements are estimated. The chosen contractor will need to check the measurements on site.
- Contractor to supply all required materials and equipment.

Suggested methods:

Tree clearance

- Remove Alder regrowth and mature trees as mapped, including root balls.
- The aim is to expand the open fen habitat, preventing tree regrowth and limiting the effect of obstacles to diffused flow.
- Areas identified for clearance will be clearly marked on site prior to commencement.
- Mature trees measure c.8m tall with av.dbh 16cm. Volume estimated at 13.55m³.
- Works are to be completed using motor-manual techniques i.e. chainsaws and brush-cutters fixed with appropriate blades.
- Root ball removal techniques to be agreed, taking care not to mobilise excessive sediment within the fen.
- Burn brash at selected locations to be agreed.

Vegetation clearance / mulching

- The aim is to reduce to ground level all dense vegetation, as agreed with the site manager.
- Equipment selected must be able to track across the wet fen surface without risk of sinking or causing damage, for example, an ultra-low ground pressure excavator with mulcher and/or brushcutter, on wide tracks.
- Areas identified for clearance will be clearly marked on site prior to commencement.
- Arisings are to be left in-situ.
- Some minor surface scalping will be acceptable however excessive ruts or scalping must not be created.
- Care must be taken not to create preferential flow pathways through the micro-topography associated with tracks or wheelings.

Bog Myrtle clearance

- Bog Myrtle identified for removal must be cleanly cut as low to its base as possible and below any side growth.
- Where the stem is protruding from a tussock or mossy tump the stem must be exposed as close to its base as possible by pushing the moss down or pushing the tussock aside to permit cutting at its base.
- Works to be completed using motor manual techniques i.e. chainsaws and brush-cutters fixed with appropriate blades.

Leaky dams – natural timber

- Leaky timber dams are to be constructed from trees that are marked for removal on site. Harder timber such as Alder should be used in preference to softer wood such as birch.
- Low ground pressure machine with wide tracks & bog mats should be used if required to move timber to the location of the dam.
- All trees and scrub identified for removal must be cleanly cut as low to its base as possible and below any side growth.
- Trees are to be straight felled and cut into suitable length sections to suit the individual dam locations (the channel here is thought to be around 1.5-2m wide by 0.5-0.75m deep).

- Sections of wood should be placed into the channel at a right angle to the flow and be securely keyed into the sides and bottom of the drain gully by no less than 75cm. This will ensure that structures are held deep enough in the substrate to prevent water from undercutting them, with additional supporting stakes to hold the dam in place.
- Sections of timber should form a secure matrix which will slow the flow of water adequately, trap debris and some sediment but also permit some flow of water and not block the channel entirely.
- The structure should be securely pinned front and back by driven pointed stakes, driven to submission.
- Dams will be backfilled with spoil where possible.
- Any existing dams that are currently functioning well are to be left in situ. This is to be agreed with the site manager.

Channel infill

- Place removed mature trees and root balls directly into the channel
- Root balls should be placed upstream, forming the main blockage of the channel with the trunk providing further channel infill.
- Trees should form a continuous infill to encourage flow to reconnect to the floodplain in an unconstrained way.
- Care must be taken not to create preferential flow pathways through the micro-topography associated with tracks or wheelings.



Site photos:

During summer months, the site is largely dry and densely covered in vegetation. During heavy rains in the winter months, the site floods, disguising drainage channels. The following images were captured in November 2023 and show the main channels, with wet ground conditions in between.

