New Forest Freshwater and Wetland habitats Restoration

Strategy 2019

Forestry England
Natural England
Environment Agency

May 2019

FOREWORD

New Forest Freshwater and Wetland Habitats Restoration Strategy 2019

This document is a summary of the work that has sought to update and add to the previous New Forest Wetland Management Plan (Smith, 2006) developed in 2004/05, which ran from 2006-2016. GeoData Institute (University of Southampton), the River Restoration Centre and Jonathan Cox Associates completed a process of engagement with a number of New Forest stakeholders throughout 2017 and 2018 to develop the approach to this Strategy (Sear et al., 2018). This document provides a high level approach for a strategy for the restoration of freshwater and wetland habitats based on the outcomes from this process.

It sets out the Strategy for delivering favourable condition in those river reaches and wetland areas of the SSSI and wider areas within the New Forest. It reflects a refreshed approach by which these conservation targets can be achieved, by working in closer partnership with stakeholders, by shared understanding of the needs and benefits and as far as possible achieving the outcomes through the adoption of natural processes and assisted natural recovery.

It also proposes a revised set of principles that will underpin future restoration implementation plans and provide the foundation for all restoration actions in the New Forest. It takes a catchment-based methodology and adopts an evidence-based approach to actions, that are co-designed, flexible, responsive and adaptive.

Implementation of this Strategy will depend upon the production of a detailed implementation plan, which is developed with recognition of a need for a strong evidence base, effective baselines and monitoring and analysis of the results of monitoring to support the programme.

There is a strong emphasis on co-production of this approach with stakeholders and this version of the document provides a summary of the approach developed by a wide range of stakeholders attending workshops in 2017 and 2018.

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ABOUT THE FRESHWATER AND WETLAND HABITATS OF THE NEW FOREST

The New Forest's habitat mosaic of mires, wet heaths, wet grasslands, wet woodlands, ponds and small streams and transition communities all contribute to one of the most important sites for wildlife in the United Kingdom and is widely recognised as being of exceptional importance for nature conservation throughout Europe (New Forest SAC Management Plan 2001). The freshwater and wetlands habitats of the New Forest include the largest collection of relatively undamaged lowland valley mires in Britain (JNCC 2008) and are significant in a north-western European context.

Despite the very high status and protection afforded to the New Forest, many of the wetland habitats and stream systems have been subject to past drainage impacts. The effects of this are still evident across much of the area (Weymouth and Cooch, 2000). In some cases the original damage is the cause of ongoing habitat deterioration and loss as a result of increased likelihood of peat slippage, headward erosion of channels in mires, and over-incision in streams. The effects of this damage may be exacerbated by the anticipated changes in weather patterns predicted by climate change scenarios, particularly more frequent heavy rain events and lower rainfall in summer (Thomas, et al., 2016).

THE VISION

The Vision of the Strategy is to have naturally functioning New Forest freshwater and wetland habitats that can sustain and support the biological communities that have been lost.

Figure 2 illustrates the river and wetland modification and the potential outcomes anticipated of restoration actions.

FIGURE 1 GENERAL VISION FOR RESTORATION IN NEW FOREST STREAMS

MODIFICATIONS

- *Non-meandering, straightened sections with modified bank and bed profile*
- *Loss of connection to the floodplain*
- *Limited in-channel morphological diversity and loss of a more natural flow diversity, and loss of natural bed materials in incised channels*
- *Simplified bank and riparian area and simple vegetation structure*
- *Loss of alluvial and riparian wet woodland and consequent loss of in-channel wood*
- *Limited in-channel vegetation due to channel depth / shading.*

STREAM RESTORATION AND SEMI-NATURAL VISION

- *Meandering course with semi-natural planform*
- *Diverse bed materials and flow types, with riffles and side bars of active river system*
- *Varied bank profile associated with meandering channel and diverse vegetation structure*
- *Low bank angles and associated with bars and berms and natural erosional and depositional features*
- *Connection to the floodplain*
- *Alluvial woodland margins and in-channel wood with natural recruitment of riparian vegetation.*
- *In-channel and marginal vegetation where shading is reduced through natural canopy brakes.*

FIGURE 2 GENERAL VISION FOR RESTORATION IN NEW FOREST WETLAND SITES.	
	WETLAND MODIFICATIONS • *Unstable mire systems with headward erosion* • *Water within mire are channelized / drains and not directly connected to the mire system* • *Water levels in mire do not support natural mire communities.*
	WETLAND RESTORATION AND SEMI-NATURAL VISION • *Stable mire systems that are not subject to head cut from stream erosion* • *Water levels raised and water retention in the mire (restore the flow to ground levels) with diffuse drainage in mire system, without channels* • *Restoration of typical mire and wet heath communities mosaic (wet woodland, mire and wet heath development within which are flushes, pools and runnels that naturally transition into the stream network)*

The anticipated outcomes are well illustrated by the restoration actions on the Highland Water, part of the Lymington River system (Figure 3). Prior to restoration the river was deeply incised, exposing bare clays river bed, over-deepened sections and missing the river and floodplain interaction (Figure 3A). Post-restoration, Figure 3B shows the same reach, with natural functions, processes and features, with active gravel riffles, a more natural river cross section, base levels and bed materials.
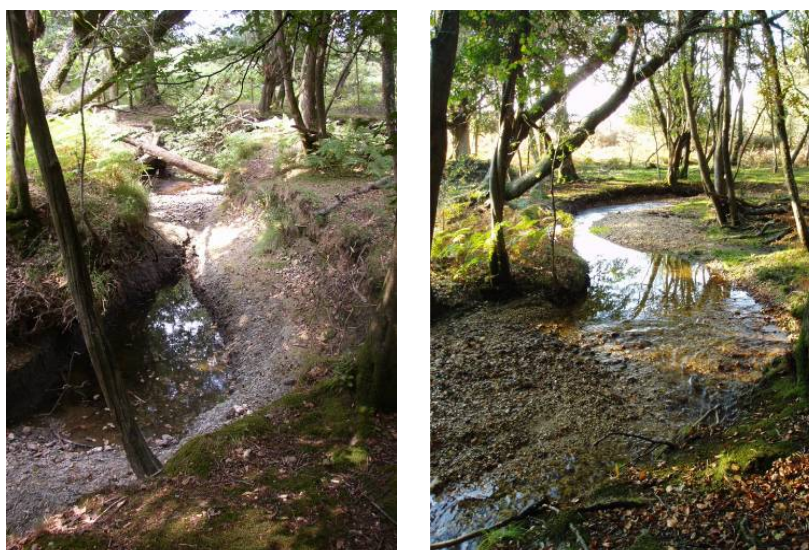
FIGURE 3 THE OUTCOMES SOUGHT FROM PRE (A) AND POST-RESTORED (B) RIVER REACH (HIGHLAND WATER).

PRINCIPLES

The eight Principles which were adopted by the 'Developing a Strategy' workshop groups draw upon international experience built up on habitat restoration. These largely follow the principles set out in 'A narrative for conserving freshwater and wetland habitats in England' (Mainstone, Hall & Diack, 2016) but were adjusted for the New Forest context and in consultation with the stakeholder groups. The eight principles agreed within the Strategy are:

PRINCIPLE 1

Set clear objectives and expected outcomes with timescales. Cost and implement a survey and monitoring programme to collect the baseline and post-restoration evidence necessary to robustly check outcomes are being met.

PRINCPLE 2

Protect and conserve existing good sites first. Restore least damaged sites that are close to or connected to sites with healthy high quality ecology, working from upstream to downstream and enable the cost benefit evaluation of restoration options.

PRINCIPLE 3

Develop appropriate background data to identify the root causes and processes of ecological damage at catchment to reach scale and what role wider pressures (such as grazing, recreation) play in degrading a given site.

PRINCIPLE 4

Co-develop restoration plans accounting for future changes, which seek to deliver multiple benefits and start by fixing catchment pressures first. The catchment pressures are those that affect the wetland drainage and watercourse network.

PRINCIPLE 5

Set up a consultative process aimed at co-production of a restoration plan within a framework of decision and evidence transparency, ensuring representation of local and connected stakeholders.

PRINCIPLE 6

Disseminate data, encourage and undertake analysis of data to produce useable, useful information. Store information and data in a useable and accessible form.

PRINCIPLE 7

Plan and budget for future works at restoration sites arising from unforeseen processes.

PRINCIPLE 8

Recognise that "doing nothing" has implications. Include an impact statement and apply monitoring to develop baseline data.

PROCESS PRINCIPLES

Arising from the principles above are a series of process principles, which have also been adopted as a result of stakeholder feedback:

I.   **Taking an Integrated Catchment-based Approach**: Take a catchment-based approach that considers the hydrological and ecological connectivity (rather than single site plans), and that takes into account other programmes and plans.
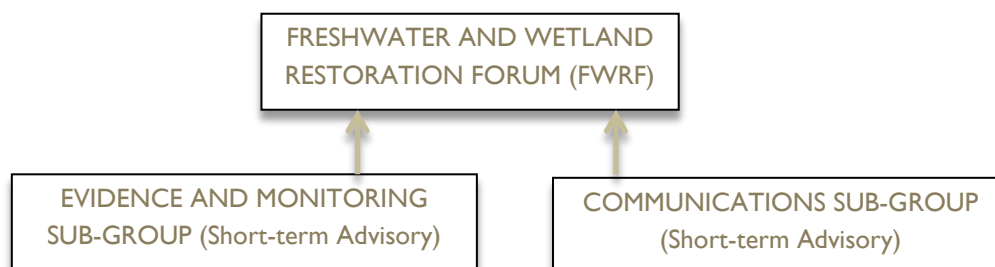
II.   **Co-production:** Consultation starts at the beginning of the process.
Use a forum of stakeholders to help shape the development of a strategy – perhaps called the Freshwater and Wetland Restoration Forum (FWRF).

III.   **Evidence:** Increase quality not quantity. Review and update the Monitoring and Learning Plan and be clear what types of data are needed in what sorts of situations and develop a framework for analysis of monitored data and baseline survey data against specific objectives.

IV.   **Slow the pace**: More is not necessarily better. In the short term, act only where damage is obvious (and evidenced), rapidly deteriorating the site and actions are agreed.

V.   **Optimise your investment in restoration:** Identify multiple benefits, in doing one thing can we achieve multiple benefits? The challenge is to measure the relative value of alternatives.

VI.   **Develop a long-term sustainable funding plan:** Significant resources are required to undertake and maintain restoration and monitoring activities. Identify options for funding the wider range of actions associated with restoration and funding continuity

VII.   **Communicate it:** Develop a Communications Strategy for keeping stakeholders, partners and the wider public informed and educated.

NEXT STEPS

The next steps require a series of commitments to meeting the strategic principles and the agreed actions.

The implementation plan for restoration will emerge after the strategy is agreed and a process of engagement and data gathering is mapped out to feed the detailed reach and site level plans. The individual technical delivery options at a reach or site level are beyond the scope of the Strategy, but require the appropriate inputs of morphological and ecological survey and analysis from which to develop the site level restoration options and strategic restoration plan.

A series of next steps are recommended (Table 1) but, for the moment, the owner and timescales for these suggested steps are not set, beyond those actions agreed at the last stakeholder meeting. A structure for the next stages has been agreed with the stakeholders and is illustrated below (Figure 4); consisting of a Forum and two short-term Advisory Groups that will provide guidance to the Forum. Further discussion with stakeholders and implementing agencies will progress through the agreed Freshwater and Wetland Restoration Forum (FWRF). The wider stakeholder group in preparing this strategy has evaluated the draft terms of reference for the FWRF.

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┌─────────────────────────────────┐
│  FRESHWATER AND WETLAND         │
│  RESTORATION FORUM (FWRF)       │
└─────────────────────────────────┘
         ▲                  ▲
┌──────────────────┐  ┌──────────────────────┐
│ EVIDENCE AND     │  │ COMMUNICATIONS       │
│ MONITORING       │  │ SUB-GROUP            │
│ SUB-GROUP        │  │ (Short-term Advisory)│
│ (Short-term      │  │                      │
│ Advisory)        │  │                      │
└──────────────────┘  └──────────────────────┘
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FIGURE 4: GOVERNANCE STRUCTURE OF THE FORUM AND ADVISORY GROUPS

TABLE 1 NEXT STEPS

Next Steps	Owner / Task	Timescales
Set up consultative group (Freshwater and Wetland Restoration Forum - FWRF) and agree Terms of Reference (ToR) focused on strategic and long term restoration priorities, with broad representation and an independent chair, tasked with shaping the strategy.	FE	June 2019
Set up Evidence and Monitoring Review Group to review a monitoring strategy and programme to support the restoration strategy. Protocols should be at strategic level that is interpreted for site-level actions. The programme should allow for long-term survey, analysis, interpretation and reporting from the results of monitoring and baseline data. This group should review the Natural England / Forestry England draft monitoring strategy associated with HLS actions, have input from an independent scientific panel of hydromorphologists and ecologists, including river and wetland specialists, charged with taking a pragmatic approach linked to likely levels of funding, but equally seeking to ensure quality in the process and evidence. This group will assess the level of information required in order to proceed with restoration actions.	FWRF	Group to be agreed at first meeting of FWRF (names suggested in advance and discussed at meeting) Strategy and programme to be agreed upon within 6 months of FWRF first meeting (to include who and how sites are to be identified for restoration actions)
Draw up or commission a Communications Strategy and process through a short-term Advisory Group to ensure dissemination and representation is effective and a central part of the restoration of the Forest.	FWRF	Group to be agreed at first meeting of FWRF Communications strategy to be finalised within 6 months of FWRF first meeting.
Re-articulate the benefits and risks of restoration in the Forest and take out to the wider community. This may include work on ecosystem service and Natural Flood Management (NFM) benefits within the Forest and collation of transferable evidence of benefits from other sites outside the New Forest. Link this action to the Communication Strategy.		
Re-evaluate the current delivery and funding mechanisms, examine the potential for future funding sources and delivery mechanisms. Evaluate these requirements in relation to the improvement programme for England's Natura 2000 site and Site Improvement Plans (IPENS/SIPS) requirements, cost estimates and develop locally-derived requirements. Review programmes against		

secured funding. Keep this action under review to capitalise on new opportunities.		
Proceed with urgent actions to arrest agreed, evidenced and rapid harmful damage (for example, the knick-point erosion of drains into mires).		

Develop next phases of restoration planning. Start the process of collecting the baseline data, technical evaluation and evidence to underpin the restoration design options – applying the principles:
 	
   i.   Collate existing information, undertake field survey, analyse geospatial hydromorphological and ecological data to provide the baseline information needed to identify reach, and site-level pressures and restoration objectives, options prioritisation and scheduling. This should include setting clear and measureable objectives for the site/reach level restoration options. It should consider the wider assessment, survey requirements and impacts (e.g. flood risk assessments, heritage and species surveys).
 	
   ii.   Include a mechanism for reviewing evidence and prioritisation of sites needing urgent action to prevent damage to features of interest and the better use of existing spatial datasets (LiDAR, RS) as evidence of past drainage/channelization.
 	
   iii.   Include the development of strategic research to support the programme. Programmes and evidence may lie outside the SSSI/SAC.
 	
   iv.   Include the review of options by consultative group.
	Evidence and Monitoring Review Sub-group	Consumed as a key aim within the Evidence and Monitoring Strategy

Collecting evidence from existing restoration sites to check against stated objectives. For example, determine the approaches and options for restoration to evaluate and illustrate what works well and what works less well within the New Forest rivers and wetlands context. For example, materials sourcing, reuse of materials, marginal vegetation retention, bed grading, grading to side drains and non-restored sections etc.		
Identify and link restoration strategy to existing Forest Design Plans and Catchment Flood Management Plans and where appropriate to other relevant plans and projects (e.g. New Forest Living Waters Project) including assurance of data/evidence transfer into Evidence Directory.		

Create a geographic database and website (Evidence Directory) for knowledge exchange on past and current restoration, baseline hydrological, ecological and geomorphological surveys and analysis, post-construction monitoring and reports. This data repository aims to increase information access and transparency.		

REFERENCES

JNCC (2008) Ramsar Information Sheet: UK11047, version 3.0.

Mainstone, C.P., Hall, R. and Diack, I. (2016) A narrative for conserving freshwater and wetland habitats in England. Natural England. Research report NERR064. Available at: http://publications.naturalengland.org.uk/publication/6524433 387749376?category=429415

Mainstone, C.P., Jefferson, R.G., Diack, I., Alonso, I., Rees, S. et al. (2018) Generating more integrated biodiversity objectives – rationale, principles and practice. Natural England Research Reports, Number 071.

Sear, D.A., Hill, C.T., Cox, J., and Naura, N. (2018). New Forest Freshwater and Wetland Habitats Restoration: Developing a Strategy. GeoData Institute. Report to the Forestry Commission and Natural England.

Smith, J. (2006) New Forest Wetland Management Plan 2006-2016 generated under LIFE02/NAT/UK8544 Sustainable Wetland Restoration in the New Forest.

Thomas, J.S., Diack, I. and Mainstone, C. (2016). An assessment of evidence supporting a programme of wetland restoration projects in the New Forest Site of Special Scientific Interest. Natural England Research Reports, NERR066.