

Sophie Lake – Freshwater and Wetland Restoration notes

Slide 1	Refer to slide
Slide 2	<p>Wetland habitats wet heath, valley mires, wet woodland, temporary pools, purple moor-grass rush pasture of the lawns</p> <p>2/3 of UK wetland plants including rarities such as Slender Cottongrass, Pillwort, Marsh Clubmoss, Pennyroyal.</p> <p>1/3 Uks freshwater inverts – Most important locus for dragonflies within the UK, Tadpole Shrimp, Medicinal Leech (very unpolluted water, but naturally acidic, so not diversity of chalk streams)</p> <p>20 species fish, Eel, Brown Trout, Bullhead, Brook Lamprey</p>
Slide 3	<p>However, there has been a history of modification, New Forest freshwaters and wetlands have been impacted by drainage: Drainage channels dug, streams straightened and embanked – became eroded, stream bed lowered, banks steep, loss of meanders, riffles, shallow margins - all the in channel features needed to supported full range of New Forest species.</p> <p>Just as significantly, the natural connection with the adjacent wetlands was broken. As land became drained and separated from channel, typical wetland habitats and features such as ephemeral pools were reduced and altered.</p> <p>Ongoing impacts, also may be exacerbated by climate changes</p>
Slide 4	<p>Geodata Institute, River Restoration Centre, Jonathan Cox associates</p> <p>Forum set up to share information, advice, experience, and to review restoration proposals against the principles set out in the strategy.</p> <p>Commoners, Parish council quadrants, verderers, New Forest Commoners Defence Association, EA, FE, NE, RSPB, NT, FHT</p>
Slide 5	<p>Monitoring subgroup – review evidence to characterise need for restoration, give guidance on monitoring approach, protocols, analysis</p> <p>Comms subgroup – to increase and improve communications & engagement on freshwater and wetland restoration in NF</p> <p>Ref to terms of reference for more detailed</p>
Slide 6	<p>The Wetland Restoration Strategy vision sets the context for the monitoring and evidence plan.</p> <p>New Forest wetland are some of the best in the UK, the strategy is framed in terms of how they can be even better, with issues around features that have been modified as the result of the New Forest being a working landscape resolved.</p> <p>1 -New Forest wetlands achieve there fullest expression - extent – diversity – abundance of species</p> <p>2 - stakeholders share an understanding about the needs for & benefits</p> <p>3 - the wetlands are fully functioning ecosystems shaped by natural processes.</p>
Slide 7	Refer to slide
Slide 8	<p>The is essentially about biodiversity and the quality and extent of wetland habitats</p> <p>Reminder of the national responsibility that we have to conserve these habitats</p> <p>Water is retained, peat re-wetted and natural extent of wetlands restored as a result of drain in-filling and the naturalisation of the mire-stream and mire-heath transition zones.</p> <p>Ongoing headward erosion (“nicks”) in mires and scour and over-deepening in stream channels minimized.</p> <p>An increase in the diversity of in-stream channel microhabitats e.g. snags, riffles, glides, pools and channel meanders</p>

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	<p>Aquatic plant cover increase</p> <p>Restore connection between the area of flow and the floodplain (e.g. shallow margins/transitions).</p> <p>Allowing seasonal flooding and the re-establishment of floodplain features (e.g. shallow pools).</p>
Slide 9	<p>Climate change means things are likely to get wetter over the coming years, and localised flooding is already an issue</p> <p>Restoration should allow flooding of small streams onto flood plain so that water features on floodplains hold water, also snags, meanders will slow flow.</p>
Slide 10	<p>Increase Water quality – water oxygenated by increased aquatic plants, sedimentation through restoration of in-channel features</p> <p>Temperature regulation – shading by in channel veg</p> <p>Carbon storage – maintaining inundated peatlands to slow breakdown of plant matter</p> <p>Wetlands need to be resilient in face of twin challenges of climate change and ecological emergency</p>
Slide 11	<p>Previous slides show what we want to achieved. E&M plan:</p> <p>EVIDENCE - make sure we have the info we need to know exactly</p> <ul style="list-style-type: none"> - where restoration is needed – e.g. there are some drains which are biodiverse where interventions is not needed - What we are aiming for on the ground - How to do it - Made a balanced decision in terms of potential impacts on existing features
Slide 12	<p>After restorations we then want the right information to be able to make an ongoing evaluation of how well it went, and to check we achieved our intended outcomes</p> <p>This will also inform other restorations</p>
Slide 13	<p>Firstly we need to know what do these habitats look like at their best? information to be able to set targets for the restoration programme. Need to know what are the problematic features – develop criteria for the inclusion of sites within restoration.</p> <p>Secondly, Need evidence that we are not going to adversely affect existing features that we value (long and short term)</p>
Slide 14	<p>Refer to slide</p>
Slide 15	<p>New Forest versions of some of these habitats are unique (e.g. temporary headwater streams) and no detailed description are available. So NE have commissioned descriptions of what we have called quintessential New Forest Habitats, included the valley mires with seepage mires, runnels, the transitions zones and trampled edges, the ephemeral pools, the floodplain Alder woodland, the carr woodland within mires and so on.</p> <p>There is a lot known – this is essentially a desk study bringing it together</p>
Slide 16	<p>2nd information gather task is to identify and describe really high quality examples of these habitats.</p> <p>There is a lot of knowledge to draw upon, so the best approach would be to use expert advice to identify case studies.</p>

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	<p>These will then be used to help us articulate what restoration targets should be, and these can be formalised in terms of measures of success against which to evaluate the restoration project.</p> <p>3rd task is similar approach but this time to identify and describe sites with modified features that are problematic.</p> <p>This will bring all the information together in one places about the loss of meanders and in-channel physical features, the lack of in-stream vegetation, presence of embankments, erosion etc.</p> <p>From this it will be possible to establish the criteria for site inclusion in future restoration</p>
Slide 17	<p>Once we have identified sites for restoration, we need to be sure that we are not going to adversely affect existing features that we value (long and short term)</p>
Slide 18	<p>1 - Desk study – collating existing records from standard portals (NBN, HBIC) Also important to talk to local recording groups with much expertise and knowledge such as New Forest Study Group, Wessex Bryology Group, Bird club, BSBI recorders etc.</p> <p>Should include European Protection Species, species of conservation concern.</p> <p>2 - Field surveys checking locations of species and habitats of conservation concern, key habitats</p>
Slide 19	<p>At each restoration location we need weight up potential impacts versus gains. Careful consideration of what we mean by species of high conservation value in the new forest – e.g. chamomile red listed, and would be highlighted if potentially impacted – but widespread and abundant in suitable habitat in the New Forest – should its presence impede restoration. Similarly heather is red listed in England, and of course dry and wet heath are both priority habitats. But any loss would be tiny proportion of the overall New Forest resource of heathland, and any gain in mire habitat would be proportionally much larger</p>
Slide 20	<p>3rd element of evidence – reflective: creating an information centre about what worked, what the issues were, how any problems were solved, any new techniques – all in one place to provide the overview of the process of restoration.</p>
Slide 21	<p>3rd component of evidence phase is the creation of a restoration hub. As mentioned, would be a reflective practice The hub would be the place to go to for information about the restoration process – what went well, what was more problematic, what solutions were developed, new and innovative techniques etc. Needn't be site specific – somewhere to go to find out about best practice</p>
Slide 22	<p>A special approach is needed in the New Forest – high quality, physical characteristics, special habitat Not river restoration – restoration of natural wetlands with diffuse watercourses and small headwater streams</p>
Slide 23	<p>Keeping all that in mind, lets look at the principles underlying the monitoring. We can be pragmatic Know that in-channel species recover from interventions in 1-3 years</p>

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	<p>Know from evidence phase what the modifications are that need to be reversed, need demonstration sites to show that this can be achieved (e.g. greater amount of transitional habitat because of meanders, increased vegetation within the channel, re-wetted adjacent habitat)</p>
Slide 24	<p>Whole range of tools available to pick and choose from – we want those that will allow us to describe the restored system in terms of the outputs we set out to achieve.</p> <p>Seasonal monitoring for temporary headwater streams</p> <p>FFP – super rich in info, very intuitive, not quantitative</p> <p>Not focussing on fish/macroinverts - these respond to water quality, techniques used are centred on this</p> <p>Also, specific assemblages in NF – wouldn't expect to see changes in species diversity as a result of restoration</p> <p>Existing data show recovery within a few years</p>
Slide 25	<p>This is not to say that different techniques won't be useful for some sites, particularly if there is input from a research body or similar</p>
Slide 26	<p>Refer to slide</p>