

Management of the New Forest, Hampshire

Restoration proposals for Latchmore Brook:

Review of potential species and habitat impacts
and related matters in relation to Higher Level
Stewardship (HLS) wetland interventions.

23 May 2016

Report to Natural England CEO and non-executive directors.

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Restricted circulation

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Two-page Summary

I have been asked to conduct a rapid review of the proposed Higher Level Stewardship work at Latchmore Brook in the New Forest, in respect of impacts on animal species and their habitats. This included a desktop and internet search, receipt of information from Natural England local office, brief discussions with other stakeholders and a review meeting with NE's local specialists and area administrators.

In addition to a site walkover, the main meeting with Natural England experts was held at DEFRA offices, Nobel House on 4th May 2016 and was guided by the agreed stated brief (Annex 1.).

The work considers the surrounding general context of New Forest management and habitats and species interests.

My conclusion is that the HLS programme at Latchmore (and elsewhere in selected parts of the New Forest) is fraught with uncertainty and there are considerable threats to rare and protected animal species and their habitats for a wide range of reasons. These include lack of survey and monitoring, and over-confidence in the benefits of a 'one way fits all' restoration policy, compared with light touch management and over-simplified general approaches.

The current HLS process is ill-informed because of the strategy not to attempt to understand the detailed needs of species: moreover, the general view that the site has habitats that are robust is unproven. There is an avoidance of, or inability by Natural England, to engage to limit some of the primary purposes of key stakeholders, including the landowner and to instead accommodate and adapt to their requirements, with minimal challenge to those processes. Current management is heavily orientated towards maximising income from grazing subsidy for local farmers and the nature conservation interests have as a result been largely ignored.

Current Natural England staff have inherited and been trained to accept a culture that conducts the management of the New Forest in the manner described in this review. They appear not to be aware of many of the shortfalls and are reluctant to accept any assessment other than that they have achieved successful progress, even though there is an almost total absence of quantitative evidence to support this.

NE staff seem poorly qualified yet are highly defensive of even obvious mistakes and failures. Their acceptance that understanding the detail of the nature conservation environment by way of professional biological monitoring is an unaffordable luxury enables the flawed New Forest management approach including many HLS actions to perpetuate. The Latchmore catchment, its habitats and species are in grave danger of further damage

inflicted by ill-conceived interventions at huge financial cost in terms of wasted funds and damage remediation that may be required at a later date.

Recommendations;

Suspend immediately any further proposed wetland restoration interventions in the New Forest, including Latchmore Brook. Engage independent consultants and divert a significant fraction of HLS funding to the following;

- A species and habitats review with baseline surveys including mapping and publishing of results, with recovery plans for a wide range of species as appropriate. (2016/17)
- Design and roll out an adequate survey and monitoring programme with repeatable monitoring exercises, as a measure of species distribution and status on a 5 and 10 year intervals, including all HLS projects past and present, to an appropriate level. (201-2020).
- Plan and commence recovery programmes for selected habitats/plants and animals (2017 onwards).
- Re-engage an expert (e.g. David Sear) on the hydro-geomorphological aspects of stream management and restoration and planning in association with an independent review committee (IRC see below) (2016).
- Reduce grazing numbers and types and adjust incentives in order to achieve a substantial (25-50%) fall in the number of grazing stock by 2017. (2016)
- Recommence modified restoration work as re-specified and where appropriate and terminate those unnecessary and damaging (2017-2020)
- Establish a 5-person independent external scrutiny committee (IRC) for HLS and HLS related management, with an executive function, to oversee the process of revisions to the New Forest management 2016-2022. One person from EA, FC, NE with 2 external experts one of which chairs and the other administers the group.

Background

I have been asked to conduct a review of the proposed Higher Level Stewardship work at Latchmore Brook in the New Forest, in respect of potential negative impacts on species and their habitats. This included a desktop and internet search, receipt of information from Natural England local office, brief discussions with other stakeholders and a review meeting with NE's local specialists and area administrators. The work considers the surrounding general context of New Forest management and habitats and species interests.

In addition to a site walkover, the main meeting with Natural England experts was held at DEFRA offices, Nobel House on 4th May 2016 and was guided by the agreed stated brief (Annex 1.).

I set out to examine the views expressed or implied by the HLS partnership and more specifically by Natural England on management/restoration of protected species and their habitats.

Those present were:

- Tom Langton, NE appointed external reviewer
- [REDACTED] NE, Area manager, Dorset, Hampshire and the Isle of Wight Area Team
- [REDACTED] NE New Forest Team Leader
- [REDACTED] NE HLS advisor New Forest Lead Advisor for NE on the New Forest HLS Board
- [REDACTED] NE, HLS Advisor New Forest.

The process reviewed the Natural England understanding of the purpose and impact of the proposed *Higher Level Stewardship* funded work, in terms of European and nationally listed species and species-habitat interests along the Latchmore catchment. This was approached by looking initially at the Protected Area and Species Designation Citations and HLS reference reports (mostly online) that help set the context for the type of work proposed and its objectives. It then moves on to closer detail on the species and species-habitats and the impact of the potential work upon them.

The species groups addressed are:

- Aquatic invertebrates
- Terrestrial invertebrates
- Fish
- Amphibians
- Reptiles
- Birds
- Mammals

2.0 Introduction

This report is set out as follows. The subjects are covered in the same order as they were during the meeting, with some descriptive background and context. Background information has been obtained from a wide range of published sources and some local staff of the Environment Agency and Forestry Commission were also contacted.

In this report, the text in boxes is from written notes by the author on discussion during the 4th May meeting, which forms the principal evidence on NE expertise for this review. The aim was to determine the level of knowledge and rationale from those NE specialists closest to the HLS information, analysis and decisions. The conclusions are drawn at the end of each topic and there is a general conclusion at the end.

The anticipated meeting was reduced from 4.5 hours to 3 hours with half an hour at the start spent discussing Thompson Castle Bog. NE staff in particular felt strongly that they wanted to start by engaging in detail on habitat restoration in relation to the specific Thompson Castle Mire and trickle stream issues and this dominated the start of the meeting.

As a result it was not possible to discuss amphibians, reptiles and birds and these species are covered only briefly. Nevertheless sufficient information is available from the other species groups including aquatic invertebrates and fish to achieve the aims and objectives of this review.

A draft paper by one of the meeting attendees [REDACTED] was sent to the reviewer two days before the meeting as a point of reference and is provided at Annex 2.

Tom Langton

May 2016

COI Statement

I confirm that I have no conflicting interests in this matter and that I have completed the review to the best of my abilities with no favour or partiality to any individual/s or organisation.

Protected Area and Species designations – sensitivities and approaches

SSSI designation

The New Forest is classified as having Grade 1 site quality in the 1977 Nature Conservation Review. It includes seven Geological Conservation Review sites. Selected areas were notified as SSSI in 1959 and a much larger area subsequently. The major part of the site has been designated as a Special Protection Area (SPA) under the EC Directive 79/409 on the Conservation of Wild Birds and also as a Special Area of Conservation (SAC). It is also a designated RAMSAR Site under the RAMSAR Convention on Wetlands of International Importance. The site is mainly Crown Land.

The New Forest is the largest area of unsown vegetation in lowland England. Lowland heath, valley and seepage step mire, or fen and ancient pasture woodland, including riparian and bog woodland. The SSSI citation species mentions specifically that the less acidic ponds;

‘support important populations of amphibians, including the rare great crested newt Triturus cristatus. Twenty-seven species breed in the New Forest including the rare southern damselfly Coenagrion mercuriale (RDB). The temporary ponds that dry out in the summer provide ideal conditions for some specially adapted invertebrates including fairy shrimps Chirocephalus diaphanus and one such pond is the only known British locality for the tadpole shrimp Triops cancriformis both (RDB) (Sch.5)’

█ provided a short background on the New Forest. She said that the New Forest was around 1000 years old and possibly the most important area of habitat in the world in any developed country. NE worked on the basis of broad ecological principles and the New Forest was both large and robust.

█ said that a major threat to the ecological interest was the artificial drainage channels with ongoing erosion problems. Advice on related issues was based upon the work of Ian Grosvenor and Dr C. G. Tuckfield, while Dr David Evans from Natural England also provided advice on geology.

█ said that if the meeting was about species then it would be difficult for her and █ as they did not hold detailed information about most of the species in the forest in general or at any single location such as Latchmore, as it is so large.

THOMPSON CASTLE BOG

■ and ■ wanted as a number one priority to know TL's view on the proposed restoration work on the stream leaving Thompson Castle Bog [Mire] in the lower part of the catchment and asked if TL was familiar with the area. Although this was outside the context of the anticipated species review it is relevant to the review and TL spoke with the following opinion, having visited the area twice in the last three years, to specifically consider this matter:

The Mire at Thompson Castle looks in generally good condition, triangular in shape and perched within three small escarpments, forming a relatively steep sided bowl with high water levels. As rainwater exits the east point, south of the bog towards Latchmore Brook, saturated moss grows along a stretch of narrow and steep sided gulley where it begins to fall quite sharply into the trickle line that runs down to Latchmore Brook.

On inspection TL had seen the end of the mire funnel as the ground falls, that had experienced "peat flow" and broken up around the year 2000, over some metres and the attempted 'stake and heather bale' work by FC that had subsequently washed out. The moss was now accumulating again towards the drop-off point. It looks like there has and will again be a natural build and break-down cycle at the mire drop-off point, that would continue according to time and storm frequency.

In discussion, TL said that he saw nothing to indicate any need for intervention, nor any possible action that might offer positive outcomes. Raising the water level in the bog any higher than its current level seemed undesirable as the current level is higher than it has been in living memory, when there were paths around the bog in the 1980s that are now within it. The only erosion in the trickle stream lower down was where it cut through undulating ground, it looks largely natural and damselflies breed there. There are occasional small banks of spoil from old excavation but these are not large and they are vegetated and blend in. The area is stable and looks extremely biodiverse and is best left alone.

If intervention was considered to help the Mire, the infilling of the trickle stream was irrelevant because of the rapid fall in levels from the Mire exit point. The ground falls here, by over a metre, very quickly and then around 2-3 metres per 100 metres. No amount of infilling could have any effect on the Mire because it was so much lower than the drop-off point. To reduce flow, the only method would be to fit, extremely carefully a permanent dam, say from seasoned timber. This would only be worth considering if the current condition was unnatural or threatening the Mire in any way – things for which there is no evidence. ■ added that a dam might require maintenance and cause increased velocity overflow issues. TL's said that the proposed restoration work therefore seemed unnecessary and merely threatened the fauna of the trickle stream.

The value of heather bales and staking as a water slowing technique was mentioned. TL said that Thompson Castle had a lot in common with the area in open forest just before the steep drop off into Studley Wood at the top end of the Latchmore catchment.

The SSSI citation lists Studley Wood as one of the seven sites of geological special interest. Here TL referred to the estimate of around 0.5 metres erosion over 150 years since the original Victorian descriptions as being normal. ■■■ said that the top end of the geological feature had eroded around 2.0 metres over the last 30 years.

TL said that this level of erosion at the immediate sharp top edge drop off point at the head of the valley (or any cliff or steep feature) was consistent with a natural feature and not a problem at all. In his view the entire Latchmore catchment stream that he had visited in March looked both shallow, stable and consistent with a pristine stream with minor historic human intervention.

Only the numerous shallow side channels through the Victorian plantation appeared modern. He was minded by the well regarded palaeontologist Dr. Ian West who had said recently that the stream valley is of late periglacial Pleistocene age and may not, in his view have changed much at all: "Elephant remains are present in a low Avon valley terrace. I strongly suspect that the Latchmore Brook Valley is almost entirely late Pleistocene in age and has not changed much since it had mammoths and woolly rhinoceras."

At the meeting TL produced for reference purposes a map showing the context of Latchmore as one of the four New Forest tributaries of the river Avon (fig 1. shown in black). These are- north to south; Ditchend Brook, Huckles Brook (Latchmore), Dockens and Linford Brook

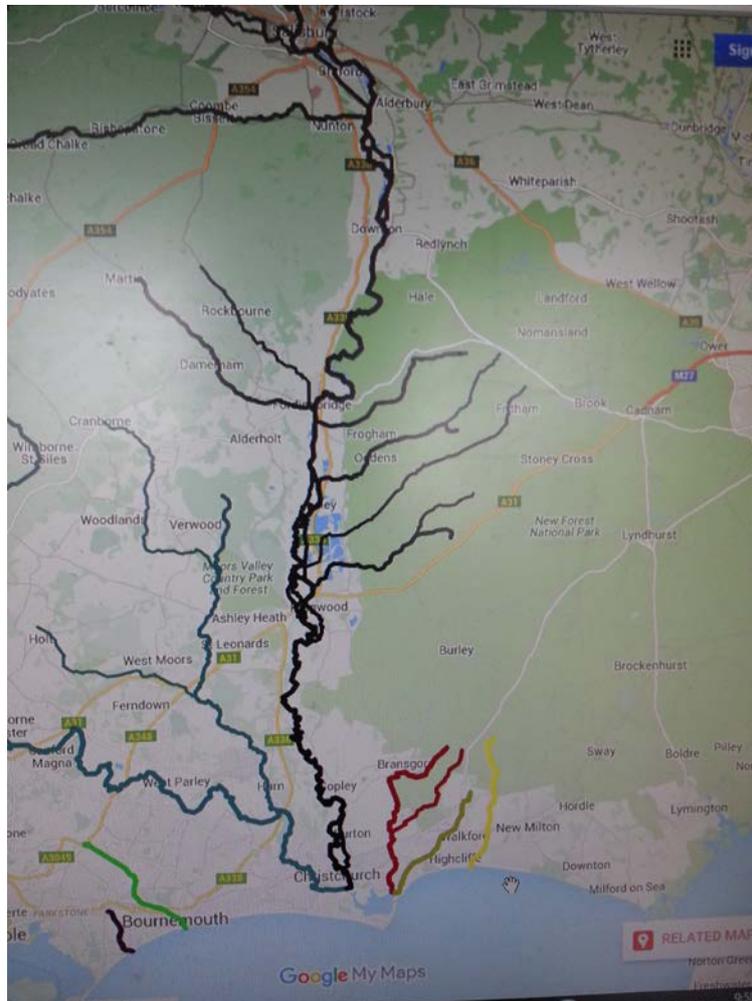


Fig 1. General location of the four tributaries of the river Avon within the New Forest.

The SSSI Citation finds importance in the: ‘network of small streams and ponds.’

STREAM HABITATS

■ and ■ said that they do not see the four tributaries of the river Avon in the north west of the Forest as in any way distinct or any different to those in the rest of the Forest or to be considered as a group. Each new Forest stream was different and is considered on its own merits. Those in the north west had an older geology but each has its own identity.

■ said that the qualities of good riparian woodland are a presence of Alder and Ash trees in a natural stream with inundation.

MONITORING SURVEILLANCE AND RECOVERY PLANS FOR KEY SPECIES

█ said that the manpower available to do species monitoring in the National Park was severely lacking and there was essentially no consistent monitoring taking place. Surveys were hardly ever repeated. The New Forest site was large and doing anything is costly and finding funding is always an issue. █ has three filing cabinets of ad hoc information in her office. Doing a collation of at least what is available past and present would be a good idea but is not something that there is capacity to do at present.

With respect to the question to NE staff of why there is such lack of specific survey mechanisms and recovery plans, the specific response, is year-on-year financial cut backs. [N.B.: █ and █ have been working for NE for 3 years and █ and █ six years]

There had been some occasional surveys for a few key species such as southern damselfly, nightjar, dartford warbler and woodlark. But other than a small working group for amphibians and reptiles there was generally very little going on. There was always an intention to do surveys and monitoring but just no funding to do it. As a result NE relies upon the ad hoc surveys that others do. █ said that it is starting to change. In some cases now in the New Forest there is pre-restoration monitoring.

This problem of a lack of funding for quantitative assessment of HLS achievement was considered by NE to be a national one, everywhere in England.

The 2014 JBA restorations report prepared for the Forestry Commission is NE's most thorough reference for habitat management appraisal. This report, sampling HLS restoration sites that have been worked on in the past was stated to give NE confidence in achieving its HLS objectives.

LATCHMORE

█ indicated that the Latchmore surveys for the EIA that started in 2014 will provide a pre-works baseline to that HLS programme. At present no information has been made available to NE.

█ said that ponds are a 'fantastically important' habitat in the New Forest. Even the worst pond has greater value than the best comparable pond in the country. Some sampling work has been done by the Freshwater Habitats Trust.

NEW FOREST SAC DESIGNATION

Three European species are particularly important in respect of the SAC as qualifying features. These are *Coenagrion mercuriale* Southern damselfly, *Triturus cristatus* Great crested newt and *Lucanus cervus* Stag beetle. The first two at least apply to Latchmore. Only one of these species appears to have anything like a full status review report and none have recovery plans for the New Forest area as a whole.

RAMSAR DESIGNATION

Wetlands of international importance may be designated under the Ramsar Convention; the New Forest was designated due to the outstanding scientific interest of its suite of mires and wet heaths and the associated diverse assemblage of wetland fauna and flora. The matrix of semi-natural habitats is considered essential to the genetic and ecological diversity of southern England according to a Joint Nature Conservation Committee review in 2008.

The value of ecotonal streamside habitats in comparison to lawns within Latchmore and the New Forest in general was discussed. ■ felt that streamside scrub is common nationally and that the listed habitats have priority over it. She considered that New Forest species are less dependent on scrub than the main habitats.

■ felt that scrub was too broad a category to be considered as one and that it could be broken down into many different types for consideration. The situation is complex and you cannot describe scrub as a single entity.

■ felt that the lawn to scrub ratio in the New Forest was an emotive issue because the Verderers see lawns and open land as grazing and scrub as an impediment to grazing. There is constant pressure to increase the lawn areas.

LIFE programme

Between 1997 and 2006 three co-financed European Union funded LIFE projects were undertaken in the New Forest to study and develop management of the large proportion of the New Forest National Park (established 2005) that is a Natura 2000 European Designated Site or SAC and UK SSSI.

After 2006, The Forestry Commission took forward a very extensive programme aimed at addressing the levels of drainage carried out in the 19th and 20th century to facilitate survival of new tree plantations.

The import of funding via the new Forest Verderers for FC to expend large capital items on HLS was unusual divergence to its normal allocation and represents an extremely large investment of resources.

MANAGEMENT PLANS

The current (to-2016) *New Forest Inclosures Forest Design Plan* presumably arose from the 1998 New Forest SAC Management Plan that was produced by the New Forest LIFE Partnership Programme 1998-2001

http://www.newforestnpa.gov.uk/downloads/download/38/management_plan

There is currently a New Forest Inclosures Forest Design Plan 2016- 2040 (?) draft for consultation from 11th April for 12 weeks. Consultation ends 4th July 2016.

TL asked why was so little – almost none of the now concluding FC Latchmore Inclosures F.D. Plan had been taken forward at Latchmore and elsewhere over its lifespan. There was an apparent goal to achieve progress towards the desired state at the outset with considerable detail and timescales. Was Latchmore typical of the New Forest in the lack of implementation of the nature conservation plan?

NE said that the commercial aspects of the forest overrode any idealised nature conservation concepts produced. If for example the trees were not ready for felling in Alderhill plantation, then even if that was an early aspiration and date-marked in the plan, it would not happen until the forestry conditions were considered right.

TL asked whether, taking a timings perspective, the proposed stream infilling at Latchmore, (which is just one element of the habitats plan), would make the plantations either side waterlog, killing plantation trees? █████ said that some flooding and tree waterlogging would occur. While this was not ideal and might cause some local problems due to the wetness of the ground, it was typical of the outcome of the competing interests within the National Park.

TL raised with NE the issue of streams in NW New Forest such a Latchmore being much steeper in places than those elsewhere in the New Forest. According to the general rule that streams on slopes over 1.5 degrees/1.67 % gradient are liable to continuous erosion in terms of scouring (Tuckfield 1976) in the event of any attempt to infill streams to make them shallower.

In fact the above rule is an over-simplification and the scouring-out of attempted restoration may occur in storm conditions in streams of shallower gradient if the catchment is sufficiently big to generate high surface water run off volumes. A good example of this is the attempted restoration at Ditchend Brook to the north of Latchmore, where infill now can be found washed up alongside many of the places of deposition.

This is unlike the work completed on flat or nearly flat ground to restore wet grassland and bog types on the flatter south and east parts of the New Forest, where truly artificial

drainage ditches as opposed to lightly modified streams, were blocked to good effect for the HLS programme.

During the meeting ■ and ■ said that their proof that the HLS restoration work does not erode on steep ground is the 2013 restoration at Soldiers Bog.

[Post-meeting note: From the JBA 2013 figures and the Ordnance Survey map, the scaled height difference is 4.0 metres and the length 300 metres = 0 deg 46 minutes– i.e. Soldiers Bog is not steep at all.]

Monitoring and surveillance

In respect of monitoring of baseline conditions, it is clear that habitat and species monitoring and surveillance has never been a substantial or consistent part of the HLS approach in the New Forest and that very few appraisals have been done. While HLS monies have been spent on more general surveys, e.g. on a samples of ponds within the forest by external contractors (Ewald et al. 2014) there was never any intention to monitor outcomes of stream restorations in terms of species impacts.

In the Annex 1 draft report by ■ it is summarised; *“To date pre and post monitoring has been largely absent from the New Forest programme partly due to the limitations of available funding.”*

In the final monitoring report to the LIFE programme, Sear et al. (2006) recommended the development and implementation of a monitoring strategy for the New Forest *“to build on the work to date and to feed into the design and management of subsequent restoration projects with clear project objectives against which to monitor success.”*

The ■ 2016 draft report continues;

“concerns over lack of evidence for the apparent success of the restorations led to the [Forestry Commission] commissioning of the New Forest Wetland Restoration Review (RRC & Cox, 2015), an independent review of a sample of past wetland restoration projects to determine whether the projects have met their objectives. The study found that the design and implementation of works had been developed, refined and modified over the years to incorporate lessons learned but there was concern about the lack of documented evaluation. The report also recommended a strategic and well documented approach to evaluation.”

Certain things stand out. This review was not independent- it was self-assessment and the sample sites chosen were not randomly selected. This was not understood by NE staff.

Secondly although practicalities may have been fine-tuned the need for evaluation [in relation to habitat and species] was the conclusion of the report and this is not being done some ten years after Sear's recommendation. Also, the report notes that the absence of surveys & monitoring makes any assessment of performance extremely difficult: many of its statements are based on uncertain inferences from the present state.

Conclusions: Designated sites, management and monitoring.

It is recognised that the New Forest is important internationally and that it is of extremely high biodiversity value to England and the UK. It is also large and hence assumed to be robust, which is not self-evident and does not appear to be supported by evidence at all.

There appears to be a general view that the recognised and listed habitats are more important than intergrade or ecotonal habitat and that the scrub element is expendable. Open habitats are viewed today largely in terms of their provision of grazing for livestock rather than for wildlife, based upon the generality that grazing is good for wildlife, which is not evidenced. The New Forest is increasingly regarded as a livestock "farm" for HLS purposes. The ponies and cattle replace any past role of wild cattle that may have been present with poorer nutrient levels in past soils and in the formation and maintenance of pasture woodland and heathland/grassland communities.

There is a huge deficiency in understanding the distribution and abundance of wild animal and plant species (especially fauna) and this is reported to be due to shortage of resources. There is a lack of recognition that understanding the change in habitat and species requires monitoring to any detailed extent.

This deficiency is considered by some observers to be a feature of the HLS system nationally. While this may be true, there is provision within HLS for survey and monitoring, e.g. via special projects and indeed HLS funds have been spent in the New Forest on special projects: e.g. pond surveys, but not in relation to the wetland restoration work.

In that sense the opportunity to monitor a suite of species and habitats for wetland restorations has been overlooked and is now only beginning to happen at least to a small extent as a part of enforcement of EIA on the very large projects by the planning authority and there is a continued trend to attempt to avoid such scrutiny. The reasons for the widespread failure of HLS schemes to make funds available for sufficient monitoring to evaluate their success in achieving their stated objectives is not known to me.

In some senses, the paper by [REDACTED] about the New Forest, says a lot about the adverse effects of the current approach, culture and allocation of resources on understanding the consequences of one of the most expensive and invasive interventions in a UK nature reserve ever attempted.

SPECIES:

Aquatic invertebrates

ODONATA – dragonflies and damselflies

The New Forest wetland habitats collectively form what is probably the most important single site of habitats for *Odonata* in Britain. In 2004 (published 2005) and 2013 (published 2014) there have been "Assessment of Favourable Condition for the Southern Damselfly *Coenagrion mercuriale* on the New Forest candidate Special Area of Conservation" assessments of damselfies for the European Union 'LIFE' projects including at Latchmore. In 2014 and 2015, surveys were carried out by the Hants and Isle of Wight Wildlife Trust at Latchmore for the Forestry Commission.

There are locations along Latchmore Brook that form slow-flowing and standing temporary and permanent freshwater that appear very suitable for dragonflies and damselflies and that have records of around 20 of the 27 species that occur in the New Forest. This number falls well inside the SSSI thresholds for this group. These include the Southern Damselfly (SD - one of only 2 dragonflies on the WAC Act) and the Scarce Blue-tailed Damselfly *Ischnura pumilio* which is even rarer.

At the last assessment for the NF (survey 2013) of the 22 sites assessed, 6 were judged to be in Favourable condition, and 16 to be in Unfavourable condition. No sites were judged to be in Unfavourable-recovering condition. The total habitat area assessed was 22.74 hectares (ha), of which 12.25ha (53.9%) was Favourable and 10.49ha (46.1%) Unfavourable. This corresponds to a total of 16,418m surveyed, of which 6,280m (32.3%) was Favourable, and 10,138m (61.7%) Unfavourable.

[REDACTED] indicated that the biggest threat to damselflies is scrub encroachment and that as a general rule for SD, scrub needs keeping clear on one side of a stream. The other threat is the lack of natural water-flow. Survey work has been carried out by Prof David Thompson and James Roquette plus one other surveyor. Ben Rushbrook – a local expert from HWT also

does survey work.

Damselflies are not monitored with population counts, but there is some assessment of numbers seen during transects. Mark and recapture techniques can be used to judge change. SD is not in a crisis in general in the New Forest. There are estimated to be 44,000 SD individuals on Beaulieu Heath. Latchmore has a 'good strong' colony.

TL asked whether the European Protected Species (EPS) 25% disturbance/destruction rule was being used during HLS management at Latchmore for the edge areas and trickle streams where SD and their habitat would be disturbed by HLS work.

■ and ■ said that no damage would be acceptable – or at least only very low impact. If damage was proposed it would require onsite or offsite mitigation.

■ said that the aquatic invertebrate fauna of the Latchmore Brook was judged to be 'poor' according to Chris Mainstone of Natural England in 2013. This is probably a reference to the benthic riparian invert fauna. ■ said that the Mire habitat was very good for aquatic invertebrates.

Conclusions Odonata

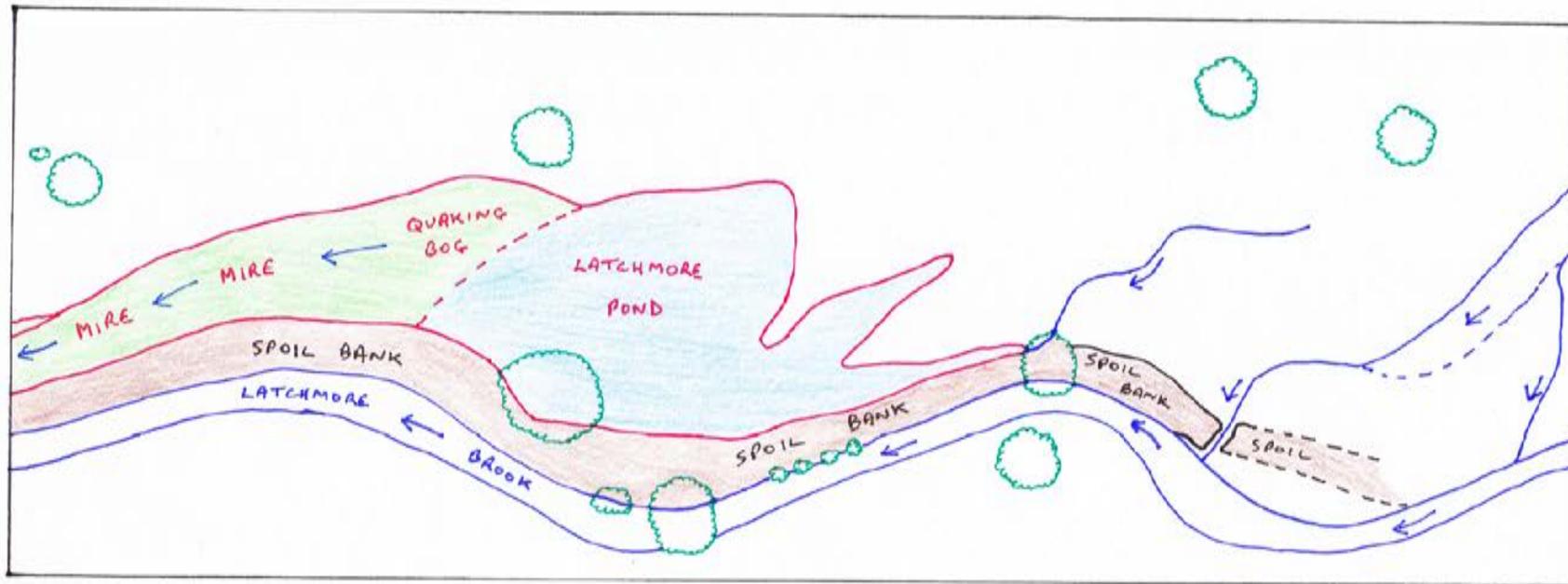
Although the Latchmore Brook is of value to *Odonata*, it is the streamside habitats that are on the route of the machinery that are critical of which sections are at risk from machinery should the interventions be attempted. These include the patches of standing water trapped beside the stream and the wet boggy ground towards the lower edges of the valley.

Natural England has some anecdotal information from the recent FC surveys there but it appears that FC/NE are not aware of certain parts of the SD breeding areas that are proposed for excavation and infilling. This is partly due to assumptions made and partly due to the low level of understanding of the local micro-distribution of the species.

One problem here is that local people who are specialists and carry out more detailed surveys are not in communication with the Forestry Commission because FC have withdrawn communications. I have seen the results from all surveyors including those of local recorders who spend a huge amount of time at the site as opposed to the short number of sample visits by other experts.

Latchmore (GYH Gypsy Hollies) is an isolated outlier of the main New Forest population and needs extremely careful protection and encouragement.

LATCHMORE POND



BASED ON GOOGLE (SATELLITE)
WITH GROUND MEASUREMENT AND VERIFICATION



SCALE 1: 900

POND AREA 2,225 sq m.

GRID REFERENCE 418940 E
112680 N

While some survey information is available for Latchmore Pond (see Freshwater Habitats Trust sketch attached), recognition of the importance of this pond is the incidental result of the Freshwater Trust ad hoc survey work on high quality ponds. It is concluded that the Odonata of the lower stretch of the Latchmore Brook (also referred to as Unit 48), is not well understood, nor is its aquatic invertebrate fauna in general away from the stream bed fauna, which may have been kick-sampled at some point.

Three other pond areas are at risk in the area according to the proposals for Latchmore for which there does not appear to be any recognition of importance at all.

I conclude that the damage threat from the restoration proposals to *Odonata* at Latchmore Brook are significant and likely and that this evidence is fragmented amongst the stakeholders.

Terrestrial invertebrates

The New Forest SSSI citation states that half of the 2,500 species of UK butterfly and moth are recorded inside the SSSI and that 33% + of UK beetles are present in the New Forest; both are remarkable statistics.

■■■■ consider that the terrestrial invertebrate faunal interest in the Latchmore catchment is not high because dead wood is largely absent due to the age of the plantations. There have however been no terrestrial invertebrate surveys undertaken.

TL asked about the interesting very large ant hill colony the south/east side of Latchmore Brook on rising ground (see photo).

■■■ said that he was not aware of one and asked to see a photograph. He said that he did not think they were ant hills and that small mounds could be formed in other ways and could be an indicator of hydrological change and in the transfer of tussock heath to lawn.



Conclusion: terrestrial invertebrates

Considering the importance of the New Forest to terrestrial invertebrates it seems quite shocking to see the dearth of information that is available. This is reflected at Latchmore.

Not least, it appears for the Stag beetle *Lucanus cervus* that should have its own recovery plan, targets and timetable. In fact I suspect that there is information, although perhaps not for Latchmore specifically. But it seems not to be known to anyone present what information exists. In view of the importance of the New Forest to terrestrial invertebrates this is an extraordinary state of affairs.

A characteristic feature of the New Forest on low-lying ground is the occurrence of numerous low mounds, which are often colonised and extended by ants. Some are certainly the formed hills of the yellow meadow ant *Lasius flavus*, normally confined to a relatively drier ground which is likely to be one of the species that I saw. Colin Tubbs describes “*impressive 'antscapes' : sadly, the best of them at Fletchers Thorns was partly destroyed during formation of the grazing strip around a Verderers' Inclosure in 1959.*”

The anthill colony at Latchmore Brook covers a large area on raised ground alongside the stream and is a spectacular feature. I recognise at least two types (yellow orange and black) from visits, but I did not ID them to species. At the meeting I was going to ask if there any better examples in the forest but I agreed with [REDACTED] it was better to move on, given [REDACTED]'s assertion.

The Forestry Commission Latchmore Unit 48 2011 and 2012 Restoration Plan description calls the area “anthills”; **Unit 48 – page 4 (2012):**

“There is an area of floodplain grassland that has a high density of ant hills..... vehicular movement within the area they occupy will be kept to a minimum..... It is unknown whether increased inundation [by stream works] will affect their range locally, but this is a common species that is not under threat, and therefore further mitigation for this feature is not required. “

It seems likely to me that the ant hill ‘moundscape’ at Latchmore derives from a combination of effects and may well be centuries old. While mounds can be formed not just by ants but by hard grazing of purple moor grass dominated tussocks, there seems underneath them undulations or low ridges that could even have archaeological or geological significance.

From my own observations this is a feeding place for birds including woodpecker and bird watchers make anecdotal comments on its importance e.g. as a Wheatear *Oenanthe oenanthe* display and feeding location. It does not appear to have been surveyed and its existing or potential value to butterflies including silver studded blue *Plebejus argus* is unclear. While the notes on the management plan seem to indicate it is a location of importance, the safeguards appear vague and the extent of damage undetermined. This feature is at risk from the proposals and the true extent of its value is both unknown and unrecognised by Natural England.

I conclude that very little is known about terrestrial invertebrates at Latchmore for use to inform nature conservation management. The ants are considered a common species but this overlooks both their importance as a very large feature, their potential research value and their contribution to species that are rare that interact with them. This is a good example of an under-rated micro-habitat in the New Forest in need of recognition, study and protection to prevent decline of species that interact with ant colonies. The comment that yellow meadow ants are common and not threatened is not evidenced, nor is the distribution and status of ant colonies and the species that interact and depend upon them in the New Forest at all clear.

I came across this interesting link on the internet that mentions HLS and grazing – see the section: Overgrazing on the New Forest:

http://www.self-willed-land.org.uk/articles/corrupt_hls.htm

Fish

One concern from objectors to some HLS projects is that over the last ten years or so, quite extensive plans and activities have failed to take into account the need to protect aspects of the important fish communities of the River Avon, of which the New Forest is a source.

There is evidence from the small amount of inspection of places where work has been done, that attempted restoration actions can significantly reduce fish recruitment and population densities. Migratory trout *Salmo Trutta* and the European (Annexe II) resident Protected Species bullhead *Cottus gobio* are considered most seriously reduced, as was first reported in the 2006 LIFE post-management appraisal by the Environment Agency (Gent 2006).

Latchmore Brook Unit 48 has classic gravel-lined fish spawning habitat with light overhangs and tree shade providing ideal hatching and fry nursery conditions. The cutting of overhead streamside scrub vegetation, infilling with aggregate and clay and the forming of shallow digger-bucket width meanders, typical of stream restorations to-date in the New Forest are generally bad for fish because;

- Shallow meanders have temperatures that are too high for fish in summer
- The clay infill element used rapidly erodes, creating sediment and changes the pH of the water both of which may cause damage to fish
<http://onlinelibrary.wiley.com/doi/10.1002/hyp.7940/abstract>
- Overhanging branches provide shade for fish eggs to hatch in and act as a food source to the stream by attracting invertebrates
- Shrubs and trees help reduce over-predations by persistent as opposed to opportunist predators e.g. herons

See <http://www.forestry.gov.uk/fr/riparianshade>

Sea trout *Salmo truta* return to the streams where they were hatched and are extremely sensitive to change. Their return to spawn involves chemotaxis and geographic recognition. If this is altered they will not recognise it, go back to sea and ancient genetic stocks will be lost. It takes many years and fish generations to create a Sea Trout population (from resident Brown trout). Sea trout cannot be re-introduced/re-stocked since they are genetically linked to where they were originally hatched.

It is on record that the Environment Agency state that it is up to the Forestry Commission to monitor fish. The Environment Agency nevertheless retain duties including responsibility for water quality.

TL asked about NE's role in understanding fish status and recovery and how NE considers its knowledge requirement and role in relation to fish protection and if it is delegated to the Environment Agency. The Environment Agency is a competent authority for the purposes of certain EC Directives in respect of fish and fish habitat.

■ said that Natural England has a good working relationship with the Environment Agency and the Forestry Commission over fish. Natural England rely on EA and have regular catch ups. EA have sent fish data and reports to NE but this has been much reduced over recent years. Everything is informal there are no status reviews , targets or recovery plans for fish.

TL asked what NE thought of local fisheries experts views that more than 20% (15-30%) of restored NF streams to-date have had fish populations damaged by siltation and habitat loss, including change to pH from HLS work, with sea trout probably the most badly effected? ■ said that NE did not agree with this and they could not allow it. EA support NE in the HLS work programme.

■ said that there were a wide range of pHs in forest streams and the geologies varied. There was agreement that it is important to check pH before and after infilling but this is not happening.

TL asked how the restorations benefit fish. ■ said that at present many New Forest streams dry out and have reduced flows at present. After restoration work, streams will be longer due to creation of meanders and will be expected to retain the water flow for longer.

There was very little evidence on the effects on fish from HLS restorations but the Environment Agency might have figures. TL asked about the suspicious late-season trout spawning video from Harvestslade in 2015. ■ said that they were not released fish but were in his view natural re-colonisers. TL asked about the red fish transport vehicle seen there two days before the video was taken. ■ asked who had identified it. TL said it was an experienced local fisheries worker. The matter was still subject to an unanswered FOI application. ■ insisted the fish were not released.

■ indicated that two areas had been monitored by EA for the LIFE III post-monitoring these were Ober Water and Highland Water.

TL said that the European Commission has initiated an Eel Recovery Plan (Council Regulation No 1100/2007) to try to return the European eel stock to more sustainable levels of adult abundance and glass eel recruitment. Each Member State is required to establish a national Eel Management Plan (EMP) with local plans. TL asked if there was an area plan for the New Forest streams. ■ and ■ were not aware of an Eel Management Plan for the New Forest.

TL said that, as a point of reference, at Harvestslade, near Burley fish 'rescues' had apparently only taken place 6 weeks after work had started. This stream had lamprey, eel, sea trout and bullhead. Lamprey and eels were not caught.

■ asked if TL thought was that they had been killed and TL said that he supposed, that as species that sometimes 'dig in' to the bottom of the stream, that they might have been buried if they had been temporarily dormant at the time – it was quite possible. Post infill monitoring at Harvestslade had detected a pH of 8 in the restored stream according to local residents using a simple test kit.

TL asked what the benefit of the Latchmore work would be to resident fish populations? ■ said there would be an increase in stream length, more habitat and a greater variety of pools and riffles.

TL asked what ■ and ■ thought of the fact that the JBA modelling in 2013 had said that water floodflow measurements were too difficult to do at Latchmore. This had been accepted by NE at face value. TL asked ■ and ■ what proportion of the imported 50,000 tons of foreign material added to the Latchmore stream would be eroded out in the first five years, as experiences on other sites show that it is significant. ■ said it would be less than 1% .

■ felt that this had been too much of a leading question.

Conclusions: fish.

There is no general overview information about fish in the New Forest beyond the occasional internal communication between organisations and specific report. This does not mean that nothing is going on, just that the information is not held together in a meaningful way so that the three main bodies, NE, FC and EA can share a single vision and demonstrate what is going on, or have a central informed reference with targets. Paul Newman from the Environment Agency was contacted and he confirmed tha the eel conservation activities in the New Forest were focussed on improving structures that are considered an impediment to movement to eels and trout, for example at guaging stations that were difficult or impassable to elvers. It was delegated to Area Officers to identify structures in need of attention but under current economic conditions resources were scarce and not so much was going on.

Whether fish conservation information suitable for strategic planning is available, appears not to be within the NE knowledge-base. There may be checklists of species for each catchment that could be collated but little on numbers or status or habitat condition and identification of important spawning localities, for example.

EA are consulted and presumably consider that the HLS work is not sufficiently threatening to be damaging in general to fish stocks but this is not evidenced. However whether the HLS work is scrutinised, and to what extent of detail is not clear and methods and documentation do not have prominence, although some reports are available (Environment Agency 2013).

There must be concerns about the loss of fish habitat at Latchmore, because it is a stream known for bullhead and trout and appears to function well at present with excellent quality habitat in Unit 48, albeit damaged in 2011 before the FC streamside tree removal work was stopped.

A lot of impacts may go unnoticed because they are subtle and no-one is there to notice or measure change. This does not mean that they are not occurring and that there may be changes that are negative and cumulative caused even by well accepted management procedures. The near total lack of information however hampers specific local or general conclusions as to the total health and fate of fish in New Forest streams including Latchmore and hence the purpose and outcomes of any interventions.

Adding hoggin and clay to Latchmore will increase the instability of the channel whatever the slope, as peak flows from a very large catchment. Elsewhere, infilled areas have been subject to rapid scour at the weakest points in the unnatural shapes created by the mechanical excavators, including the uniform channel widths. Clay will turn streams more alkaline and increases suspended sediments with unknown consequences for fish.

It is hard to accept that any of the proposals for Latchmore represent anything other than a direct threat to the fish habitats and rare fish in Latchmore Brook and indeed Huckles Brook downstream and the river Avon. These bodies in my view may well be polluted for decades by erosion of the huge quantity of unsuitable material that is proposed to be deposited.

Faunal species not covered within the meeting on 4th May.

Amphibians

Standing water areas at Latchmore were overlooked by past pond surveys of the New Forest, probably because they were small, remote and had not been mapped by Ordnance Survey. Some look like they could be bomb craters. Following concerns, at least two of them have been recognised and visited more recently by the Freshwater Habitats Trust surveyors and both classed as priority ponds for aquatic plants and invertebrates. These are stream-side ponds, formed either by the shallow earthworks that have been formed recently or in ancient times, trapping water against the catchment slope or in combination with old natural meanders or natural depressions. One is a set of old possibly ancient meanders or ancient feature acting like tiny oxbow ponds. These have very high quality aquatic standing water habitat and appear yet to be described or surveyed.

Two of the three pond areas also have high Habitat Suitability Indices scores and so hold significance for the distribution of one key species; the great crested newt *Triturus cristatus* (GCN) and may play a role in its future recovery. To-date, there are three at-risk pond areas along Latchmore Brook.

There is a duty towards surveillance and monitoring of the SAC that requires a plan for GCN. This still has not yet been prepared and only a small amount of eDNA sampling study has been done. Information and analysis remains incomplete and overdue and the role that Latchmore can offer to it is obscure, as it is to the declining common toad which is also present. There is a lack of interest and application to amphibian survey, monitoring and protection.

Reptiles

The SSSI citation mentions sand lizard and smooth snake. The New Forest is arguably the largest and most important reptile species assemblage in England comprising rare and common species. Sand lizard went extinct due to burning and overgrazing by the 1980s. Of the four small scale reintroductions instigated 10 years or so ago, two have failed. A wider reintroduction plan was apparently rejected and today sand lizards survive in two small releases sites – under 100 pairs in total, and so is hardly genetically viable. Sand lizard recovery needs bigger ambition, more specific management and a much bigger scale with appropriate restrictions on burning and over-grazing with which it is in direct conflict. The streamside habitats at Latchmore provide feeding and refuge habitat for a range of reptiles but have not been subject to dispersal or population studies, just basic presence/likely absence in a few areas. There is a smooth snake map that looks rather over-simplified when comparing mapped vegetation to what is present on the ground.

Birds

The SSSI Citation states: The New Forest supports nationally important breeding populations of birds as listed in Annex 1 of the EU Directive on the Conservation of Wild Birds including, nightjar *Caprimulgus europaeus*, woodlark *Lullula arborea*, dartford warbler *Sylvia undata*, & kingfisher *Alcedo atthis*. The Forest also supports a wintering population of hen harrier

Circus cyaneus which is also listed on Annex 1 of the Birds Directive. Other breeding birds include an assemblage of waders comprising; lapwing *Vanellus vanellus*, redshank *Tringa totanus*, curlew *Numenius arquata*, snipe *Gallinago gallinago* and ringed plover *Charadrius hiaticulata* which all depend to a great extent on the Forest's wetland habitats. In addition to the range of ground nesting birds within the Latchmore valley floor there are specialist birds using dry heath and stands of gorse. Gorse cutting has been reported in areas being used by breeding Dartford Warbler, but does not appear to have been subjected to formal assessment.

The infilling of the Latchmore Brook would result in destruction of all three locations of undercut bank that are suitable for Kingfisher to nest in, that apparently have been used for breeding from year to year according to local birdwatchers. As a Schedule 1 protected bird this action is likely to be unlawful. In 2011, FC workers were stopped from felling small streamside trees but had already impacted two kingfisher nesting locations.

Conclusions amphibians reptiles and birds

The information that I have for Latchmore is anecdotal although I have a habitat map of smooth snake in the area from Natural England's Paul Edgar. Generally a large proportion of the habitat in the Latchmore catchment holds value for a range of juvenile and adult amphibians, reptiles and the proposed localised stream infilling work is likely in the short term to kill them through crushing, burial and removal of feeding, sheltering and breeding habitat for these species. There is no specific survey work indicating population sizes but grass snake is considered to be present in good numbers by a local recorder. I have observed common amphibians during my visits. The area is very suitable for birds and a range of common and less common species were observed.

It is concluded very generally that the habitat at Latchmore is of above average and high quality for many species and that its modification will cause at least short term mortality and habitat reduction and change.

Detailed considerations are impossible due to the lack of understanding of the respective communities distribution, abundance, interaction and habitat use.

Again this does not mean that some activities are ongoing and these can be evidenced by scattered anecdotal information, much of which is out of date.

[http://www.forestry.gov.uk/pdf/Wildlife.pdf/\\$FILE/Wildlife.pdf](http://www.forestry.gov.uk/pdf/Wildlife.pdf/$FILE/Wildlife.pdf)

A literature review and analysis of New Forest fauna would be a useful first step towards identifying gaps, opportunities and information of direct application to habitat management.

Mammals

New Forest mammals, ranging from the substantial fallow deer *Dama dama*, population to rarities such as the recently photographed pine marten *Martes martes* filmed recently by Russell Wynn and Marcus Ward . The principal influence on New Forest vegetation is deer and livestock grazing and this has been the case for centuries, albeit tree planting with fencing over the last 200 years has played a major role. Ponies and more recently cattle have been the main large grazers and there is considerable ongoing debate locally as to what level of grazing is beneficial or damaging. Because the Latchmore proposals relate not only to stream management but also to increasing grazing management, the context for the work at Latchmore, which appears to include an increase in area of open grazing area, is briefly considered.

GRAZING

In 2008 Verderers were advised that the grazing numbers in the New Forest must not go over 5,000 as the forest could not support them. This was long after *The New Forest Countryside Stewardship Scheme Agreement* of 1st October 2003 (Reference 16CSS012140) between Defra and the Verderers of the New Forest (CPH 15/188/0192.) It stated;

“Under traditional management systems there have been fluctuations in stock numbers on the open Forest. The advice of English Nature is that stock numbers should not be allowed to fall below 3,500 or exceed 7,000. At these limits the mosaic of New Forest habitats could be destroyed or severely damaged and additionally, at the higher limits there would also be concern for animal welfare. English Nature also recommends a mix of cattle and pony grazing, with a minimum of at least 25% of either stock type. There is no ecological justification for supporting more than 5,000 cattle/ponies on the open Forest.”

It goes on to say: *“The Verderers scheme must not support, under the basic payment option, more than 5,000 individual cattle/ponies.”*

With ponies and cattle: grazing, at Latchmore and elsewhere nearby I have personally observed between 2013 and 2016 an increase in stock and signs of intensive grazing. Although this is a simple snapshot of activity, this was in terms of numbers visible, the appearance of short vegetation and poaching of the ground. According to local sources, there used to be a ratio of 2/3 ponies to 1 cattle but now it is more like 1-1. Cattle tend to graze differently, getting into wetter areas and graze by pulling and rasping herbage and even rushes, rather than biting leaves off (ponies). Most importantly, as a driver to stock selection by Commoners, there is a bigger subsidy (marking/turning out fee) on cattle, which incentivises the preference of cows over ponies.

TL quoted figures that he had extracted from The Commoners Defence Association Annual Report for 2015 for stock numbers, over time, indicating a near doubling of cattle in the New Forest over the past 7 years or so:

Stock type	2008	2015	Change
Ponies	4,484	5,364	+16%
Cattle	2,566	4,483	+43%
Donkeys	127	200	+36%
Totals	7,177	10,047	+29%

This implies exceeding the ‘safe’ level of stocking by a large margin. Even the Commoners Defence Association (some receiving £250,000 each per year through various schemes) are now saying that the forest is being damaged by over-stocking.

█ said that stock numbers was a ‘grey’ area for Natural England. Figures for 2008 might not be very accurate. They did not consider a huge increase in stock had occurred, judging from the trends in marking fees. A high proportion of the stock of cattle in 2015 are kept indoors and are not loose on the forest, so the overall numbers between 2008 and 2014 might not be that different.

Further, grazing capacity is cyclical and rises and falls. Climate change in NE’s view is enabling a longer grazing period so more stock can be accommodated. It was however agreed that there was a lack of information and control and a need to look at the issues more closely with the Verderers.

█ said that in her opinion most New Forest wild animal and plant species rely on heavy grazing. The biggest risk to the New Forest is too-little grazing as opposed to too much grazing. █ said some areas were however grazing-sensitive and that NE needed to ‘keep an eye’ on them.

Conclusions on mammals

There is no clear published concept of the importance of Latchmore to mammals and it is not known which species are present and their status, although I observed roe deer *Capreolus capreolus* and rabbit *Oryctolagus cuniculus*, with signs of grey squirrel *Sciurus*

carolinensis, muntjac *Muntiacus muntjak* and hedgehog *Erinaceus europaeus*; probably many of the common species are present. The impact of the work upon mammals at Latchmore is likely to be low but that is not based upon any quantitative information. Some rare species may be present and use the areas for shelter and feeding.

It is clear that a driver for the stream infilling work includes increasing lawn area and hence grazing for stock, although the work may have negative effects in creating boggy ground where stock may get stuck as was the case in the past. Also in the boggy ground and trapped stagnant water created by infilling are seasonal puddles that form breeding grounds for a range of invertebrates including gnats and mosquitos.

As a footnote to this review (and as an area of expertise of the reviewer) I would strongly flag in this now heavily crowded livestock and deer-packed environment. Very significant diseases such as African Horse Sickness, Blue Tongue, West Nile Disease and, most imminent/already proximate; Bovine Tuberculosis - all have a context in the New Forest as a contiguous open air stock ranch it is wide open to be ravaged by insects using stagnant puddles from failed restorations, at huge economic cost. An immediate halving of stock numbers is indicated as a first step and the matter may warrant emergency action.

Work at Latchmore may have a role to play in some of these issues, as conditions where disease-bearing invertebrates may flourish may be being created by the stream blocking as frequent stagnant puddles may be formed between areas of shifting infill material. This has been observed on many stream in-filling attempts.

General conclusions

In drawing conclusions regarding the impacts of proposed work at Latchmore Brook catchment and whether they are necessary for the management of the site, I asked the following questions in respect of each species group;

- Q1. Is the baseline of distribution and status of species adequately understood?
- Q2. Are the stream modification proposals evidence-based and do they specifically explain how the benefits will occur in each area/compartment with a reasonable degree of confidence?
- Q3. Are the risks associated with any intervention well described and with a contingency plan, including pre and post intervention monitoring?

The results are as follows:

	Q1	Q2	Q3	Notes
Aquatic invertebrates	Part	No	No	Some stream fauna info. But highly limited. Some SD information.
Terrestrial invertebrates	No	No	No	
Fish	No	Part	No	Species mostly known
Amphibians	N/A	No	No	
Reptiles	N/A	No	No	
Birds	N/A	Part	No	Some bird information
Mammals	No	No	No	

Table 2. Conclusions on 3 questions asked in relation to an evidence base for the Latchmore wetland proposals in terms of beneficial management of protected species and habitats.

The results of this review are therefore that there is a near total lack of evidence relating to the protection of fauna in relation to the proposed stream modification and scrub clearing. This even extends to some of the rarest and most protected/declining species; southern damselfly (SD), bullhead and eel – known priority species.

Note that NE has indicated to the Verderers that under the " Governance of the New Forest HLS Agreement"(para 1.1 "d") *"The Scheme will only fund surveys, monitoring and research that will result in implementation which secures scheme objectives, or are required to report on outcomes achieved through the scheme. Monitoring should not exceed 5% of the annual budget unless specific approval has been sought from NE."*

In terms of the species habitats there also seems to be an almost total disregard and lack of understanding of micro-habitats and the importance of ecotones between habitats in large habitat matrices, nor the basics of habitat chemistry and sensitivity. There is a culture of 'one brush fits all' in relation to viewing precautions and an attitude that monitoring of the effect of intervention is an unaffordable luxury. Much of this appears to be generated by a view that heavily grazed ground is 'traditional' and 'essential to nature' in an escalated pastiche of former lower levels of stocking. Much of the pressure for this seems to come from local vested interests in grazing that are powerful and have like-minded backers 'on-side' to support their views. This powerful combination has dominated for over 30 years.

Natural England's general view of New Forest SSSI habitats overall is that 98% of units are in favourable or unfavourable recovering condition. NE's view is that the effect of artificial drainage has been a significant contributing component to habitat degradation, causing increased erosion within the mire and stream systems, wet heath and grassland habitats but has no scientific basis.

Wetland interventions, or rather just the intention to do them, permits SSSI "Favourable" (favourable recovering) condition assessment to be granted, irrespective of outcome, when by current assessments also "artificial drainage" no matter how slight upon a natural stream demands an "unfavourable" condition assessment. These views are not evidence based.

Even the slightest evidence of past modification is taken as justification for unfavourable status which seems strange. There is reported to have been increased erosion of river beds as a result of watercourses that have been to varying extents deepened and straightened but in many cases the evidence is anecdotal, and the influences have been subtle, but they cannot be addressed without considerable potential risk and collateral damage and massive financial expenditure.

NE's local staff understanding of the potential for meanders to contribute is hydrologically naïve. The residence time for flow within the stream is an hour or so: the long residence time required to maintain flows over days & weeks is in the upstream water-replete soils: and is nothing to do with meanders

In terms of impacts upon habitats, the biggest shortfall identified is NE's reliance on the restoration review carried out by FC consultants (Cox et al. 2015). The report is clearly misunderstood by NE and as their primary evidence of acceptable progress is in my view seriously flawed due to its selective and inferential approach. The fact that NE staff thought that it was an independent random sample of projects shows that the scrutiny and management of the HLS projects is not at a high enough standard for even simple evidence-based management purposes. The principles upon which this designated site is managed is not clearly articulated, nor is the design or assessment of HLS projects based on adequate field observation.

Higher Level Stewardship or related agri-incentive payments made in respect of grazing animals are insufficiently targeted and controlled to further the conservation aims of the SSSI and SAC. They appear to be resulting, including at Latchmore in over-grazing, excessive ground poaching and do not relate to any clearly articulated, monitored or demonstrated plan or output. The Latchmore (and several other catchment projects, some poised to be started) appear to be hydrologically and ecologically naïve and poorly planned and may represent extremely poor value for money or to be worthless and even damaging in terms of habitat restoration and species enhancement. Significant adjustments are almost guaranteed to be needed in my view, when this is better understood.

My conclusion is that the HLS programme at Latchmore (and elsewhere in selected parts of the New Forest) is fraught with uncertainty and there are considerable threats to rare and protected animal species and their habitats for a wide range of reasons. These include lack of survey and monitoring, over-confidence in the benefits of a 'one way fits all' restoration policy, compared with light touch management and oversimplified general approaches.

The process is ill-informed by the strategy not to understand detailed needs of species and the view that the site is robust is unproven

There is an avoidance of or inability by Natural England, to engage with damaging influences of key stakeholders primary purposes, including the landowner and to instead accommodate and adapt behind their requirements, with minimal challenge to those processes. Nature conservation needs are currently heavily orientated towards maximising income from grazing subsidy for local farmers and the conservation interests have been swamped.

Current Natural England staff have inherited the culture that conducts the management of the New Forest in the manner described in this review and been trained into it over the last 3-6 years since their appointments. They appear not to be aware of many of the shortfalls and are reluctant to accept anything other than that they have achieved successful progress even in the face of heavy opposition and almost total lack of evidence.

They are highly defensive of even obvious mistakes and failures. Their acceptance that understanding the detail of the nature conservation environment by way of professional biological monitoring is an unaffordable luxury enables the flawed New Forest management approach including many HLS actions to perpetuate.

Latchmore catchment, its habitats and species is in grave danger of damage at huge financial cost in terms of wasted funds and costs of damage remediation at a later date.

Recommendations;

Suspend immediately any further proposed wetland restoration interventions in the New Forest, including Latchmore Brook. Engage independent consultants and divert a significant fraction of HLS funding to the following;

- A species and habitats review with baseline surveys including mapping and publishing of results, with recovery plans for a wide range of species as appropriate. (2016/17)
- Design and roll out an adequate survey and monitoring programme with repeatable monitoring exercises, as a measure of species distribution and status on a 5 and 10 year intervals, including all HLS projects past and present, to an appropriate level. (201-2020).
- Plan and commence recovery programmes for selected habitats/plants and animals (2017 onwards).
- Re-engage an expert (e.g. David Sear) on the hydro-geomorphological aspects of stream management and restoration and planning in association with an independent review committee (IRC see below) (2016).
- Reduce grazing numbers and types and adjust incentives in order to achieve a substantial (25-50%) fall in the number of grazing stock by 2017. (2016)
- Recommence modified restoration work as re-specified and where appropriate and terminate those unnecessary and damaging (2017-2020)
- Establish a 5-person independent external scrutiny committee (IRC) for HLS and HLS related management, with an executive function, to oversee the process of revisions to the New Forest management 2016-2022. One person from EA, FC, NE with 2 external experts one of which chairs and the other administers the group.

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Annex 1.

Stated Brief for meeting on 4th May:

New Forest SSSI: Latchmore catchment area review of potential impacts from management and restoration plans on faunal interest. March 2016

The ecologist Tom Langton has been asked to carry out a review of the potential changes resulting from the current *Higher Level Stewardship* funded programme to carry out modifications to the Latchmore stream, north of the Huckles Brook/Ogdens.

The aim is to consider how the proposals to alter habitat within the open land and woodland blocks within the upper and lower catchment will impact upon the range of fauna present, and in relation to the ongoing wider plans and proposals for habitat modification laid down in the current nature conservation related visions for the Latchmore catchment area.

This is a brief review, representing a few days work and will include a meeting with Natural England and potentially Environment Agency specialists in each group/habitat. A report will be provided on the findings within 6 weeks of the meeting. The report is to include a checklist of reports and publications that are available.

Efforts will be made to determine if there is other existing information on species and habitat with local stakeholders that is not yet recorded.

The aim will be to review;

- a) the evidence base of historic records for the Latchmore catchment,
- b) the fauna surveys and protection plans made historically and more recently relating to SSSI/SAC/RAMSAR etc designations more generally for the New Forest, as general context,
- c) assessments and appraisals of status and likely status change of species and species habitats,
- d) any information gathered more recently and perhaps not yet in record centres for the 2013-15 period,
- e) data from third party sources that is readily available,

The species groups to be addressed are:

- Aquatic invertebrates
- Terrestrial invertebrates
- Fish
- Amphibians
- Reptiles
- Birds
- Mammals

ANNEX 2.

An Assessment of Evidence Supporting a Programme of Wetland Restoration Projects in the New Forest SSSI

 Natural England
Draft, v2 6th April 2016

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Background

This document has been produced to underpin decisions made in restoring the river and mire habitats of the New Forest Site of Scientific Interest which have suffered damage through past drainage operations.

Its primary aim is to provide a statement of the current evidence base with key references to support the current restoration programme.

It also identifies where there are gaps in the evidence and what is being done to address these gaps.

Introduction

The New Forest is an exceptionally important site for nature conservation. It supports a wealth of wildlife including a large number of very scarce plants, animals, invertebrates, birds and fungi. The New Forest is the second largest terrestrial Site of Special Scientific Interest (SSSI) and its international importance is recognised through the additional designations of Special Area for Conservation (SAC), Special Protection Area (SPA) and Ramsar wetland. These afford the New Forest the highest level of statutory protection from damaging activities and development. A significant amount of effort is put into the management and conservation of the site to ensure that all of the reasons for which the New Forest is of special nature conservation importance are in good or 'favourable' condition.

Some of this activity is directed towards reversing or ameliorating the effects of past management activities which have resulted in damage to important features. One of the key aspects of concern in the New Forest is the damage caused by historical drainage of the mire systems and modification of

rivers and streams. Many scarce and declining species are entirely dependent upon the New Forest wetlands, including southern damselfly *Coenagrion mercuriale*, curlew *Numenius arquata*, snipe *Gallinago gallinago* and slender cotton grass *Eriophorum gracile* and there is continuing concern for the status of many of these species in the New Forest as well as nationally. It is also significant that the mires, riverine woodlands and wetlands of the New Forest are identified as being of international importance as they are key features of the New Forest SAC which means that the UK government has a responsibility to ensure that they are in good condition. For these reasons the restoration of ditches, drains and streams has been a nature conservation priority for many years and a restoration programme is in place. Some very good examples of successful wetland restoration can now be seen and the techniques used have been refined over the years.

The New Forest Wetlands

The New Forest SSSI has the largest concentration of intact valley mires of their type in Britain (JNCC, 2008) and they form part of a mosaic of semi natural vegetation which has been unaffected by cultivation and development. The wetland habitats including mires, fens, wet heaths, wet grasslands, wet woodlands, ponds and a network of small, mainly acidic streams, are of high ecological value with undisturbed transition zones and a considerable diversity of species.

Many of the New Forest's wetland habitats subject to past drainage damage are of European and International importance for nature conservation:

Depressions on peat substrates of the Rhynchosporion

This SAC habitat is rare in the UK and The New Forest is considered to hold the largest area in England of this habitat which often exists in a complex mosaic with valley mire and wet heath.

Transition mire and quaking bogs are also an Annex 1 SAC habitat where the surface conditions range from markedly acidic to slightly base rich. Although not a primary reason for The New Forest selection as an SAC, transition mire habitat is still a qualifying feature.

Alkaline Fens are also an Annex 1 SAC habitat and qualifying feature but not the primary reason for the New Forest selection. Alkaline Fens have a base-rich water supply with a complex assemblage of vegetation types

The wet heath habitat

This is a special interest feature of the SAC as well as being a Ramsar Criterion and key designated interest feature of the SSSI. In the New Forest it supports a number of scarce plants such as marsh gentian *Gentiana pneumonanthe*, brown beak-sedge *Rhynchospora fusca* and marsh clubmoss *Lycopodiella inundata*, and a number of dragonfly species, including the scarce blue-tailed damselfly *Ischnura pumilio* and small red damselfly *Ceragrion tenellum*.

Molinia caerulea meadows

This habitat is perhaps the most characteristic of the New Forest and gives the site its special landscape character. The short-grazed, grassy 'lawns' are a key feature of the SAC. The habitat is characteristic of low-lying areas adjacent to streams and it supports a wealth of scarce plants and invertebrates. It is dependent upon natural irrigation and fertilisation when flood waters deposit organic matter and silt onto the floodplain.

Bog Woodland

Within the New Forest birch, willow and alder occur on mires in a long term stable association with sphagnum mosses and other typical bog species.

Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*

These floodplain woodlands are associated with small streams, typically with alkaline or neutral groundwater which, where not damaged by over deepening and straightening, are subject to seasonal flooding.

Ramsar sites are wetlands of international importance designated under the Ramsar Convention; the New Forest was designated due to the outstanding scientific interest of its suite of mires and wet heaths and the associated diverse assemblage of wetland fauna and flora. The whole site of semi-natural habitats is considered essential to the genetic and ecological diversity of southern England (JNCC, 2008).

Wetland Drainage

From the mid-19th Century until the 1980's, many New Forest rivers and streams were widened, deepened and straightened to drain adjacent wetlands with the aim of providing better conditions for growing timber and grazing. Channels were cut into mires with spoil heaped beside them on the peat. During the period 1923 to 1996 extensive mechanical drainage projects were undertaken in the New Forest (Pasmore 1976) (Tubbs, 2001).

Clarke (1988) provides detail about the history of artificial drainage and the ecological effects in his PhD thesis Past and Present Mire Communities of The New Forest and Their Conservation. He names 19 valley mires which were subject to drainage operations between 1965 and 1986 and states that 8 sustained significant damage.

The Impact of Drainage

Streams and rivers are highly dynamic habitats that are shaped by the intrinsic characteristics of the catchment and its climate. Together these generate characteristic flow, water chemistry, sediment and nutrient delivery regimes that govern the morphology, hydraulics and productivity of the river and the assemblages it supports. River and stream habitats have strong natural connectivity with other types of habitat, headwaters link to mires and wetland habitats beyond the channel are supported by floodplain inundation during floodflows. (Mainstone et al, 2015)

Stream length can be greatly reduced by channel straightening often eliminating more than 50% of stream habitat area as a result, there can also be severe impacts on valley mire and floodplain wetlands which are often reduced in extent or even eliminated from the landscape by drainage. Stream habitat has been created by artificial extension of channels into mire areas that are consequently drained and are at risk of loss. The distribution and abundance of individual species, including priority species, are affected by all of these impacts.

Tuckfield (1976) undertook a geomorphological appraisal of drainage work carried out on New Forest streams between 1962 and 1975 on seventy drain channel sections at twenty nine sites across the New Forest and concluded that rapid erosion had occurred in many channels as a result of artificial drainage operations. The study showed that eighteen channels were partially or entirely silted up, eighteen had undergone little change and thirty four channels showed clear evidence of erosion, in some channels relatively large volumes of material had eroded.

A further study by Grosvenor (2006) was undertaken in 2005 to update Tuckfield's 1976 survey and gain insight into the status and geomorphological processes of the drainage channels. Tuckfield (1976) surmised that in time stabilisation of the channel occurs naturally but a comparison of the 1976 and 2005 data show that mean maximum channel width had actually increased significantly by 62% and mean maximum channel depth had increased by 15%. Since 1976, 81% of channel sections had increased in maximum width and 60% had increased in maximum depth.

Chris Mainstone, Natural England's Senior Freshwater Ecologist described in 2012 the impacts of artificial modifications in the New Forest "Drainage activities in different areas of the Forest have clearly led to loss of stream habitat (by reduced river length), stream habitat impoverishment (by channel straightening), enhanced erosion, and stream channel destabilisation, alongside impacts on mire and other water-dependent habitats. Oversizing stream channels, or creating completely new oversized channels, leads to artificial incision of the streambed, greater conveyance capacity and hence greater hydraulic scour, which can lead back to greater incision and hence a positive feedback loop".

The most fundamental impact to wetland habitats is modification to natural hydrology and hydrochemistry which affect both the character and the extent of wetlands. Drainage ditches cut into mires results in the loss of active peat and the characteristic mosaic of mire, wet heath and pools and can also at the lower section lead to a cliff, waterfall and plunge pool which erodes steadily upstream into the mire.

An example of the impacts of drainage of wet habitats on characteristic species is given by the southern damselfly, an interest feature of the New Forest SAC, considered an outstanding locality for the species which requires permanent slow to moderate water flow in flushes and shallow channels and is restricted to two scarce biotopes in Britain, most sites are on wet heath. The overall decline of European populations since the 1950's has been attributed to drainage and canalisation or artificial drainage, siltation or headward erosion were the main causes of the reduction of water availability on a substantial proportion of extant British sites. (Purse 2002).

Clarke (1988) states that there is evidence which shows population reductions and local extinctions of both plant and invertebrate species following drainage of mires and observations on the effects of drainage suggest that it has been a major contributory factor in a long-term decline in biological richness of the New Forest mires.

Restoration History and Aims

Over 140 wetland restoration projects have been undertaken in the New Forest since 1997, the earliest works were an attempt to stabilise cliffs and plunge pools at Redhill Bog which had some limited success (Tubbs 2001).

In 1998 The New Forest SAC Management Plan was produced by the New Forest LIFE Partnership Programme 1998-2001 which stated that the principle objective of restoration action is to prevent further active destruction of existing wet heath and mire communities and to restore the hydrological regime which will allow them to re-acquire over time those features of structure, plant and animal communities, which have been lost, and for those features to be sustained in perpetuity. The objective is not to attempt re-creation of mire from wet heath or wet grassland. Those communities have developed their own nature conservation interest, and to attempt to manipulate

conditions to re-create an extinct mire would result in an overall degradation of important habitats and would be counter-productive.

A further LIFE partnership project “Sustainable Wetland Restoration in the New Forest” aimed to gain a better understanding of how the wetlands function; to reverse the effects of the historic drainage works; to tackle the threat from invasive non-native species and to restore the vulnerable New Forest habitat for the benefit of wildlife, landscape and people.

One of the objectives of restoration through this project was to increase floodplain connectivity and restore geomorphic processes on the floodplain. The Geomorphological monitoring undertaken was considered to be amongst the most comprehensive undertaken on a river restoration project within the UK. (Sears et al, 2006) and the restoration project was considered to be an outstanding success. Physical surveys (hydrology, topography and geomorphology) and biological surveys (macro-invertebrates and fish) were undertaken pre and post restoration works, all monitoring reports can be found in the Final Technical Report on the website; www.newforestlife.org.uk/life3.

The New Forest Wetland Management Plan 2006-2016 (Smith , 2006) built upon the work achieved during the LIFE projects and the development and refinement of the techniques used to ensure the continuing long term sustainability and integrated management of the New Forest water courses and wetland habitats. The Plan discusses in detail the different wetland restoration techniques that were used during the LIFE projects that worked successfully and also describes five New Forest case studies.

The key issues identified in the Plan include damage to valley mires due to drainage and headward erosion as well as negative impacts on wet grassland due to drainage and straightening of river channels reducing seasonal flooding, impeded drainage due to remnant spoil banks and increased erosion of over-straightened channels leading to increased deposition of gravel downstream. The restoration works required to address these issues include restoration of straightened channel sections to natural river courses, restoration of seasonal flooding through reinstatement of meanders, bed level raising and installation of debris dams, selective scrub management and infilling of drains and erosion repairs.

After the LIFE projects, funding for wetland restorations has continued through a number of schemes and is currently a primary objective of the Verderer's Higher Level Stewardship Scheme (HLS) in partnership with the Forestry Commission (FC) who manage the Crown Lands and the New Forest National Park Authority (NFNPA). Public opposition to a proposed scheme arose in September 2011 and prompted a review of the available evidence supporting the wetland restorations and as a result in 2012 a geomorphological and eco-hydrological investigation of the modified wetlands of the new forest SSSI was undertaken (JBA consulting, 2014), the study provided geomorphological analysis and ecological interpretation of physical impacts on the rivers, streams and floodplains, prepared eco-hydrological characterisation of the mires and made recommendations for restoration.

Town and Country Planning Consent is now required for many of the proposed wetland restoration projects and to support planning applications and inform future project design, the River Restoration Centre and Jonathon Cox Assoc. (2015) were commissioned to review a sample of past wetland restoration projects undertaken within the New Forest. Of the 8 sites selected, the earliest restoration was undertaken in 2004 and the most recent in 2013. The review found that all of the sites assessed have shown sustained positive change over the period since their restoration both in

terms of improving the quality of habitats and restoring the physical functioning of the mire/ river systems. Some of the restoration techniques used in the sites that were restored earlier have been changed or adapted since to inform and improve best practice. There are no examples where techniques which have been found to have failed or be inappropriate have continued to be applied without revision, adaptation or a new approach being adopted.

Natural England's Aims and Objectives for the New Forest Wetlands

One of the key responsibilities of Natural England as the Government's adviser for nature conservation in England is the protection of a series of sites which represent the best of England's natural habitats, species and geological features. We have a responsibility to conserve the special features of a site in the best possible condition, support improvement and prevent damage.

Natural England's general aspiration for streams, rivers and wetlands, such as mires, wet heath and wet grassland, is that they operate under natural processes free from anthropogenic impact with a characteristic mosaic of habitats, this provides the best and most sustainable expression of running water and wetland ecosystems. These conditions provide the best defence against climate change, maximising the ability of these ecosystems to adapt to changing conditions. They also provide the best and most sustainable interfaces with other habitats, including running and standing waters, wetlands and dry habitats. They allow priority species to be distributed within habitat mosaics according to their natural habitat preferences and requirements. An analysis of priority species in England (those listed under Section 41 of the Natural Environment and Rural Communities Act 2006) has confirmed that the ecological needs of species associated with freshwater and wetland ecosystems are satisfied by the conditions provided by natural environmental processes such as unpolluted water, natural water supply and natural physical form. (Webb et al, 2010).

Restoration of natural processes is a top priority for wetland habitat management and any measures that seek to restore natural processes in terms of water quality, geomorphological and hydrological regimes should be seen as an important contribution towards river, stream and wetland habitat conservation. Measures may include direct interventions such as restoring meanders and bed level raising in streams and rivers or infilling and blocking of drains in mires and other wetland habitats however, natural recovery should always be allowed to play the fullest role possible. Within the New Forest there is great scope for reversing past damage and restoring naturally functioning running water and wetland habitats.

Our aims are explained in more detail in the Natural England publication, A Narrative for Conserving Freshwater and Wetland Habitats in England (Mainstone et al 2016) an evidence-based narrative which provides an overview of circumstances relating to the conservation of freshwater and wetland habitats in England, considering their ecological function, the natural and anthropogenic factors affecting them, the principles that should be applied to their management and the respective roles of the main policy mechanisms involved in their conservation.

Monitoring

Natural England uses a rolling programme of condition assessments to ensure the special features of a site are conserved in the best possible condition. The standards describing favourable condition and the methodology of assessing condition have been developed in conjunction with the Joint Nature Conservation Committee (JNCC), the Government's UK-wide adviser on nature conservation, and are applied throughout the UK.

Assessment of a mire or stream before and after a significant habitat restoration project is likely to detect changes in aspects such as the extent of a particular habitat, the frequency of characteristic species, the frequency of indicators of undesirable hydrological conditions, the extent of erosion features and changes in groundwater levels. The assessment will provide evidence to show progress towards achieving the desired nature conservation objectives for the New Forest. However, the specific attributes that routine condition assessment uses and the spatial resolution at which monitoring occurs, limits its sensitivity.

As described in this report there is a strong evidence base on the importance of natural processes to characteristic river and wetland habitat form and function and their characteristic biological communities but historically physical restoration schemes across the country have only included limited pre and post monitoring programmes to demonstrate the effectiveness of the restoration. Monitoring and evaluation are important in any restoration project as the information gained may lead to greater overall success and less cost in future restorations (Sear et al, 2006).

Mainstone (2012) notes “Monitoring the efficacy of river restoration schemes is a thorny issue. It can be costly, particularly over the timescales that might be needed to realise full biological benefits. Some parties would like to see all schemes monitored in a comprehensive and rigorous way, but common sense and economics dictate that a case study approach is taken where results can be sensibly extrapolated to similar sites. This said, some basic level of pre- and post-monitoring is always sensible.”

The river, stream and wetland restoration programme in the New Forest started in 1997 with European Union Life Funding and has continued through successive funding sources with approximately 150 restoration projects completed to date. The European Life 3 project focused on restoring rivers, lawns and mires to improve wetland habitats and a budget was built into the project proposal for hydrology and geomorphology monitoring. Although tight timescales led to relatively short term post-monitoring, this still represented one of the most comprehensive monitoring programmes undertaken on a river restoration project (Sear et al, 2006).

In the final monitoring report, Sear et al, (2006), recommended the development and implementation of a monitoring strategy for the New Forest to build on the work to date and to feed into the design and management of subsequent restoration projects with clear project objectives against which to monitor success.

To date pre and post monitoring has been largely absent from the New Forest programme partly due to the limitations of available funding. However concerns over lack of evidence for the apparent success of the restorations led to the commissioning of the New Forest Wetland Restoration Review (RRC & Cox, 2015), an independent review of a sample of past wetland restoration projects to determine whether the projects have met their objectives. The study found that the design and implementation of works had been developed, refined and modified over the years to incorporate lessons learned but there was concern about the lack of documented evaluation. The report also recommended a strategic and well documented approach to evaluation.

Conclusion

There is a body of evidence together with Natural England’s own condition assessments supporting the need for restoration of the damaged wetlands of the New Forest. There is also compelling

evidence to support the success of past restorations, some very good examples of successful wetland restoration can now be seen and the techniques used have been refined over the years as technology and management tools have developed.

Comprehensive studies were undertaken for the LIFE Sustainable Wetland Restoration in the New Forest projects along with other studies into the effects of artificial drainage on the habitats and species throughout the New Forest, these together with the recent Wetland Restoration Review to determine whether past restorations were meeting their objectives, provide a strong scientific base on which proposals for future wetland restorations can be designed. The implementation of a monitoring and evaluation programme would provide stakeholders with detailed information about the progress of the projects.

Based on the outcome of previous monitored and reviewed restorations, the indications are that the ecological condition of the New Forest wetlands will be substantially improved providing naturally sustaining habitats critical for the long term survival of communities of characteristic species.

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