

CONFERENCE PAPER

THE HARNHAM WATER MEADOWS TRUST: COMPLEX MANAGEMENT FOR A HERITAGE LANDSCAPE BY THE VOLUNTARY SECTOR¹*Hadrian Cook and Roger Cutting*

Floodplain watermeadows of bedwork design are features of the rural landscape across southern England. These man-made systems for meadow irrigation are characteristic of chalk stream corridors, yet until comparatively recently, their fate was generally one of neglect or deliberate destruction wrought by incompatibility with modern agriculture or other development pressures. Given the direction of agri-environmental policy, appreciation of the intrinsic nature of historic landscapes alongside ecological conservation potential, make watermeadow systems prime candidates for the exploration and resolution of complicated and competing management demands.

The seventeenth century Harnham Water Meadows remain in the national consciousness as foreground to the thirteenth century Salisbury Cathedral. Located at the confluence of the Rivers Nadder and Avon in the City of Salisbury and immortalised by John Constable, they are important as 'urban countryside'. Managed by the Harnham Water Meadows Trust, these present a range of interests beyond the aesthetic, including balancing agricultural imperatives with effective management, ecological conservation, managing visitors, unwelcome intruders, soil and water management, archaeology and they are a rich resource for education and research.

Effective management requires a flexible strategy, incorporating statutory agencies, other voluntary sector bodies (both as partners and funders) and the inclusion as is the inclusion of community groups. Internally confident forward planning is required, as is the inclusion of external expertise within an appropriate organisational system and reliable funding streams. The work of the Trust is described as are certain problems, particularly those that involve management goal conflicts on the ground.

The voluntary sector can be a highly effective vehicle through which watermeadow systems may be managed in the future rural environment. The paper concludes that flexible approaches and reasonable compromise form the basis of management and that this type of holistic adaptable approach has to be adopted if effective sustainable agricultural systems are to genuinely succeed.

Key Words Conservation, Education, Environmental Management, Voluntary sector, Watermeadows

Context

So what value 'landscape'? There is no simple answer. One view is that a 'landscape' must exhibit: structure (it is made up of component parts), function (it does something) and finally it is imbued with a value. The latter is problematic because we have to decide whether 'value' is defined as a straightforwardly economic, cultural or aesthetic.

Watermeadows are, strictly speaking, irrigation systems with ancient origins (Cook *et al*, 2003). The best known form are to be found on the

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alluvial valley floors of chalk stream corridors and these belong to a well understood period in agricultural history. In the post-medieval period particularly after about 1600, there occurs a major period of perturbation to the alluvial landscapes of most river systems in Wessex (Betley, 2003, 2007). The construction of 'bedwork watermeadows' caused ridges to be constructed such that water diverted from the river was caused to run along the tops of ridges in such a fashion as to trickle down the sides to drains, and thence returned, usually via a 'tail drain' to the river system. The mobility of the water permitted oxidation from the air, water temperature raises soil temperature generally above 5°C triggering the growth of grass in winter and early spring and, in common with many irrigation systems, nutrients, especially nitrogen and phosphorus are introduced to the topsoil (Cutting *et al*, 2003; Cook *et al*, 2004).

The most vaunted aspect of meadow irrigation was bringing on the 'early-bite' in spring, typically by around a month, reducing the need for winter fodder. This would be especially valuable during the 'Little Ice Age' before 1850 (Cook, 2007) because irrigation protects the soil from frosts and otherwise warms the soil. Sheep kept on the meadows were typically herded to arable land on the hillsides overnight to fertilise the arable land with their dung and urine. The 'sheep-corn' system, in reality is a refinement of a medieval system of pasturing sheep on valley-bottom 'brookland', then later transferring them to fertilise the higher arable on the South Downs (Brandon, 1998, chapter 5), and probably elsewhere. This system broke down due to a range of factors including the introduction of artificial fertilisers in the nineteenth century, economic recession (after 1870 and again after 1918), labour shortages, the inconvenience of the meadow topography for mechanised agriculture and cheaper ways of producing grass. Watermeadows are an irrigation technology that adapted to changing economic circumstances and values, so where they survived, they did so producing grass for purposes other than sheep grazing, (Martin and Stearne, 2007; Stearne, 2007;) including hay for horses and grazing for cattle.

Changing values

Watermeadows are a part of the heritage part of the Wessex landscape and, fortunately contemporary agri-environmental policy recognises complexity (Cook, 2008).

In Thomas Hardy's *Return of the Native* (1878) he describes watermeadows as 'watered on a plan so rectangular that on a fine day they look like silver gridirons' (Book 3 Chapter II). Even better known are the paintings of John Constable in the 1820s that immortalised the Harnham Water Meadows – but in reality as foreground the Salisbury Cathedral. Nonetheless, by the nineteenth century, the cultural significance was emerging with many artistic representations (Cook *et al* 2008).

In the latter half of the twentieth century, those surviving meadows have become recognised for their 'wildlife' potential (Cutting and Cummings, 1999).

Even if we take a simple view that once economically important

agricultural systems attracts aesthetic and biodiversity interest today, there has been a massive shift of emphasis from a simple economic imperative towards other viewpoints.

Throughout the twentieth century there were several erudite publications describing, even lamenting the decline of watermeadows. Moon and Green (1940), Atwood (1963) and Sheail (1971) really present retrospectives on the meadows and the sheep-corn system. Cowan (1982) is keen to describe the remaining systems, all before they finally perish.

Some safeguard has been established with the emergence of agri-environmental schemes, Sites of Special Scientific interest (SSSIs) were established around Salisbury at Britford and Harnham, including those watermeadows immediately opposite the Cathedral. The Avon Valley is an Environmentally Sensitive Area (ESA) and most recently the Special Area of Conservation (under the EU Habitats Directive) was established for the entire Salisbury/Hampshire Avon river system.

The Harnham Water Meadows at Salisbury

The 'island' created by the split in the River Nadder at its confluence with the Avon totals around 40ha of which 34ha is owned by HWMT or else is managed by them on behalf of the Dean and Chapter of Salisbury Cathedral. The remaining areas are in other ownership including a row of houses on the north side. The multi channel pattern in the area is extremely stable today and most likely resulted from a series of 'avulsion' events that were likely further stabilised in historic times to protect the watermeadows, their channels, the pre-existing grazing marshes (before the seventeenth century) and also the mills and their associated channels and control structures (Cook, 2008).

The system is significant for being located on this fluvial island and hence convenient for watering through canals on its upstream site. Historically, the head of water was augmented by the impoundment at mills at Fisherton (now removed) and at West Harnham (Cook *et al*, 2008). Although impoundment remains at the latter, the radial gates that replaced the wooden hatches in 1974 are designed to open allowing the passage of water for flood alleviation rather than the operation of mills and watermeadows. Furthermore, the Wylfe (that feeds the Nadder upstream) suffers from low flows for much of the year due to over-abstraction of the chalk aquifer.

Detail on the ground shows differing degrees of abandonment at Harnham. The chronology is unclear, but severely degraded surface areas correspond with more peaty topsoil, while wartime ploughing and post-war poaching by cattle are not ruled out as agents of loss of definition for the bedworks. Presently around 10% of the area managed by HWMT is capable of being drowned, the Trust aims to raise this area close to 20%.

Purposes and organisation of Harnham Water Meadows Trust (HWMT)

The purpose of the Trust is *to protect and preserve the environment for the benefit of the public by the preservation, maintenance or improvement of the Harnham Water Meadows*. It is registered charity no. 1001360. The Trust was established in December 1990 by the late Harold Corey and the Very Rev.

Hugh Dickinson, then Dean of Salisbury. To support the new Trust, The Friends of Harnham Water Meadows Trust came into being shortly after.

In addition to the Friends, The Trust has three committees: The Trustees, the Management and an education sub-committee. In addition there is an Hon. Bailiff, a secretary, groundsman and an Education and Development Officer. Professional services include accountancy, land agency and web support provided by local companies.

Funding is raised by the Trustees, the Friends of HWMT, agri-environment funds (Natural England), personal donations and bequests, rent for grazing and other charitable foundations. Rose Cottage, thought to have been the original drowner's cottage, on the Town Path at West Harnham now belongs to the Trust and acts as a visitor and education centre (<http://www.salisburywatermeadows.org.uk/>).

Challenges to the HWMT

The Trust are guardians of an internationally significant area, encompassing changing values from the production agriculture of its day to present perceptions of conservation, environmental management and the aesthetic. The following must be appreciated:

- At heart HWMT is a community project. Location, history and context all require a strong element of 'traditional' management and at some cost.
- HWMTs are an area of 'urban countryside' and face many problems typical of peri-urban areas including vandalism and anti-social behaviour. The Trust has top providing a safe working environment for staff.
- There is regulation as well as support in kind and finance from government agencies.
- A degraded watermeadow environment provides habitat for plants (particularly mesotrophic grassland) and rare animals. Restoration of 'traditional' management, while not mutually exclusive to the needs of conservation, presents challenges.
- Good will abounds, but funding constrains rapid restoration of such as water control structures and boundaries to individual meadows.
- Advice, albeit well intentioned, can be one –sided and not take account of all-round management objectives.
- Forward plans for advancing the education and visitor centre require planning consent and funding.
- Effective operation of the Trust relies upon not being drawn into local planning issues, unless these impact directly on the Meadows.

‘Restoring an area of countryside begs the simple question: ‘to what is it to be restored?’ The answer is not rhetorical. For example:

1. Restoration of the meadows to an eighteenth century operational condition, even were problems of low water levels and infrastructural condition quickly solved, means the imposition of a blanket management prescription to the area
2. There were changes wrought to irrigation arrangements in the nineteenth and twentieth centuries, so drowning is not to the original pattern.
3. Watering meadows is a mixed blessing for sward diversity; after all the system was designed for *productivity*, and not botanical interest (Cutting and Cummings 1999)
4. Traditional righting up of the works potentially presents issues for habitat provision for water voles and wading birds.
5. There has been well-intentioned but ecologically and aesthetically inappropriate areas of woodland establishment on the meadows.
6. Around many hatch structures, large trees have become established and it may be deemed inappropriate to remove these.
7. The SSSI area requires care in respect of grazing pressures and this may deviate from more traditional management prescriptions
8. As long as income is achieved from grazing, its the needs and logistics has to be accommodated. This is not the same as management under the 'sheep-corn' system, nor can it take account of recent regulations around livestock movement.
9. Boundary restoration to layered hedges and pollarded boundaries is not rapidly achieved.

Figure 1. Management ‘Hotspots’ on the Harnham water meadows.



H Presents issues for habitat. W for drowning. A for archaeological infrastructure

A visual impression of the potential conflict areas is presented in Figure 1. Conservation and management interests are characterised as habitat, drowning (irrigation) and archaeological interest. For example, areas where restoration of drowning is possible, may also host water vole habitats. Areas suitable for restoration of drowning may lack infrastructure. Where watermeadows topography has been degraded, management has largely only to have regard for the grass sward and its biodiversity. The preferred grazing animals for sward diversity are cattle, but sheep, on balance, cause less soil poaching, damage to the infrastructural resource and the river banks. And, while sheep are 'historically accurate' in terms of the sheep-corn system, the present grazing, that does not really depend upon the historical integration of irrigation, drainage and grazing presents conflicts of space between drowning and lambing in the early spring.

Much is achieved on the ground by volunteers, through the British Trust for Conservation Volunteers (including 'hard to reach groups'), local employers, the Friends of HWMT work parties and students on work placement. The Meadows therefore not only benefit from this manual input, but also operate as a provider of conservation experience.

Matters of perception are equally important. There is a sense of 'ownership' with a community project. Viewed objectively, this has to be a good thing, although sensitivities come to play. Anecdotal evidence illustrates the point: One local resident expressed a wish to keep the name on the door of the previous owner of Rose Cottage. Many trees present today are inappropriate for indigenous birdlife, yet local organisations and individual donors' who provided them in good faith, should be respected.

Conflicting management goals are not easily addressed. A water vole survey by Wiltshire Wildlife Trust was undertaken. Once the results were known, a contractor then undertook essential bank repairs. The surveyor, subsequently expressed a grave concern at the immediate appearance of the dredged carrier although care taken not to perturb water vole habitats; single issue experts too have to be contended.

Access is another issue. On occasions people have remarked on the signage (erected on legal advice) declaring the meadows private property. Access is permitted accompanied by a competent individual and as, essentially a working farm, the grazier has concerns over biosecurity and dogs. The apparently contradictory situation requires careful handling and it is particularly unfortunate that anti-social behaviour does not assist the passage of a more open access policy.

Towards conclusions

The HWMs have benefited from public and private generosity in kind and in funds over almost 18 years. Their iconic status solicits public interest, involvement and education and, in the process, the Trust continues to build considerable social capital to the benefit of both the community and the meadow infrastructure. High profile and ambitious the project of their conservation may be, yet less well resourced projects can learn from the experience, something the Trust is keen to share.

The irony is that, with the exception of the few farms in the area that have historically irrigated watermeadows this once widespread aspect of the agricultural economy is poorly understood by modern rural communities. The education of local children and adults alike, and the interpretation of the landscape offered by HWMT is returning a situation where this fascinating aspect of the cultural landscape is once more in the public mind and on the environmental agenda.

The voluntary sector has a certain flexibility of operation that, while regulated by statutory bodies and conditional upon funding, eases prioritisation of activities. Unlike public bodies, a 'sense of ownership' by the community and well-intended giving (including financial donation) requires careful handling. A voluntary sector manager has to build 'social capital' through outreach and encouragement and, while at Harnham this achieves much in terms of communication and simply 'getting the work done', yet the sense of ownership can still lead to inappropriate views being expressed from those perhaps only peripheral to the Trust's operation. HWMT must remain neutral in local politics.

Notwithstanding minor difficulties, the focus on 34ha of historic watermeadow by the HWMT is able to deliver management plans, education programme and enables the Trustees and Friends to seek finance and support in kind. The complexity of watermeadow management leads to a number of proverbial 'hotspots'. By comparison, to leave historic watermeadows merely as 'wet grassland SSSIs' conserves species, but has the danger of by-passing the complexity of a heritage landscape.

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