PROJECTS FOR THE SOUTH DOWNS

South Downs National Park Authority

Project Title :

Reconnecting Dew Ponds of the Eastern Downs

Lead Partner or Landowner

Will this be led by another organisation or will the work take place with a specifc landowner?
No

Project Governance

Project Governance:
This project is being submitted as part of wider HLF bid 'changing chalk' led by National Trust. This will have it's own overall governance structures. Internally the Dew Ponds project will be led by the Landscape and Biodiversity lead (water) and the Eastern area Lead Ranger, working with the relevant area Rangers and volunteers as necessary. The project will be overseen by the Water and Chalk Board

Project Board Membership

Name	Vicky Lawerence
Organisation	SDNPA
Job Title	CPM

Project Team Membership

1

Name	Jeremy Burgess
Organisation	SDNPA
Job Title	Landscape and Biodiversity Lead (water)
Amount of Time Required(in FTE)	0.02

2

Name	Phillippa Morrison-Price
Organisation	SDNPA
Job Title	Lead Ranger

Amount of Time Required(in FTE)	0.02

3

Name	David Riviere
Organisation	SD Volunteer
Job Title	Volunteer
Amount of Time Required(in FTE)	0.05

4

Name	Amanda Elmes
Organisation	SDNPA
Job Title	Education and Outreach lead
Amount of Time Required(in FTE)	0.01

5

Name	Stephen Sibbald
Organisation	SDNPA
Job Title	Interpretation officer
Amount of Time Required(in FTE)	0.01

PROJECTS FOR THE SOUTH DOWNS

South Downs National Park Authority

Project

Project Name:	Reconnecting Dew Ponds of the Eastern Downs

Project Location:	Eastern Downs

Project Location (Eastings):	538300

Project Location (Northings):	107800

Project Area: Please use the checkboxes if your project cannot be plotted to specific co-ordinates in the Eastings and Northing section above - the project will not be plotted onto a GIS layer if you do this. *(Park-wide, Western Downs, Central Downs, Eastern Downs, Wealden Heath)*
Eastern Downs

Need for Project:
Dew ponds in the Eastern Downs are largely in a state of disrepair. Of the 280 thought to have existed in this region since the 1800 almost 70% have either been lost completely or are in poor condition. Since their initial historic use as sheep ponds the purpose of dew ponds has widened to include managed wildlife sites, mixed-use for sheep and wildlife, and as standalone public amenities with a strong visual appeal in the landscape. However, largely due to the introduction of piped water to troughs across much of the downs the maintenance of these culturally and naturally important habitats has declined. This has led to a fragmented network of surface water availability across this region especially on the higher slopes of the downs. Dew ponds have historicaly played an important role in Chalk Downs providing water for livestock and wildlife in an otherwise dry landscape. Recent survey work by a volunteer had shown the poor condition of many of these ponds. The project will look at targeted restoration of ponds in areas where we can achive better connectivity, close to public access (South Downs Way Corridor), with opportunities for education and interpretation. To recognise the targeted restoration and long-term maintenance of dewponds as an essential element of the enhancement of the bio-diversity of the chalk downlands across the South Downs, working in partnership with the landowning community to develop sustainable networks of dewponds on a measured basis as resources permit, whilst at the same time building on the historic and cultural value of dewponds in the landscape to inform and inspire the visiting public.” . Evidence shows that wildlife will benefit from a network of waterbodies no more than 1500m from each other and so an ultimate goal is to create such links in the chosen area. Over recent years some restoration of Dew ponds has taken place but this was often opportunist. Following recent work by a volunteer we now have a data base of dew pond sites in the Eastern Downs which means that we can now target pond restoration to key sites, focusing on public access, interpretation, education, landscape and wildlife value. This is an ideal opportunity to raise the profile of these historic landscape features.

PROJECTS FOR THE SOUTH DOWNS

South Downs National Park Authority

Partnership Management Plan Outcomes

1. A Thriving Living Landscape

1.1 The landscape character of the South Downs, its special qualities and local distinctiveness have been conserved and enhanced by effectively managing the land and the negative impacts of development and cumulative change (outcome1)

1.2 There is increased capacity within the landscape for its natural resources, habitats and species to adapt to the impacts of climate change and other pressures (outcome 2)

1.3 A well managed and better connected network of habitats and increased population and distribution of priority species now exist in the National Park (outcome 3)

1.4 The condition and status of cultural heritage assets and their settings (including monuments, buildings, towns and buried remains) is significantly enhanced, many more have been discovered and they contribute positively to local distinctiveness and sense of place (outcome 4)

2. People Connected with Places

2.2 Widespread understanding of the special qualities of the National Park and the benefits it provides (outcome 6)

Partnership Management Plan Policies

1. A thriving and living landscape

1. Conserve and enhance the natural beauty and special qualities of the landscape and its setting, in ways that allow it to continue to evolve and become more resilient to the impacts of climate change and other pressures

10. Improve the management of heritage assets, particularly focussing on those that are 'at risk' including that from crimes against heritage

2. Develop landscape-scale partnerships and initiatives to focus on enhancing the key ecosystem services delivered by the National Park

4. Create more, bigger, better managed and connected areas of habitat in and around the National Park, which deliver multiple benefits for people and wildlife

2. People connected with places

31. Raise awareness and understanding about the National Park with consistent messages that inspire and celebrate a strong sense of place

Project Outline:
This project will take place in 2 phases. Phase one will be a development phase, identifying the key ponds for restoration, outlining future strategy and obtaining a cost estimate. Phase 2 will be an implementation phase, which may be a series of small projects or larger ones. Phase 1. Development work for this project will involve the physical assessment of highlighted dew ponds to better establish their current status, the works required to get them back into good condition and full quotes for this capital works. This will also involve liaison and discussion with landowners to gain permissions and discuss future maintenance plans In addition we would intend to undertake an ecological survey of these sites to ensure we are not disturbing any European protected species such as the great crested newt. Phase 2. Over the five year period we would seek to fully restore 6 ponds along the South Downs Way within the project area on or near chalk grassland sites. This will provide multiple benefits by providing increased ecological and landscape connectivity along the chalk ridge as well as improving the visitor experience. Post restoration annual monitoring will be set up with local volunteers to record recolonisation by wildlife etc.

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Project aims and objectives:
1. AIM: To enhance the biodiversity and of the chalk downland landscape through the targeted restoration of dewponds . Working in partnership with landowners to develop sustainable networks of ponds, whilst building on the cultural value of dewponds in the landscape informing and inspiring the public. Objectives. 1. Establish a line of dewponds along the South Downs Way ('SDW'), supported by accessible education and information 2. In the wider area develop networks of dewponds with the primary purpose of supporting wildlife and improving connectivity 3. Where gaps identified in habitat connectivity start to populate the areas of dewpond 'desert' with targeted restorations or creation

Measure	Restoring Historic dew ponds
Target	6
Unit	Ponds

1

Measure	increase the number of ponds within 1500 metres
Target	12
Unit	Pond

2

Measure	Number of pond volunteers
Target	10
Unit	Volunteers

Project Evaluation:
The project will be evaluated against its aims, objectives and outcomes. as part of an HLF project

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it will be in 2 stages a development stage (years1-2) and implementation stage (years 3-7). The development stage will look at pond selection using the criteria set out in the attached report, landowner liaison and costing. An interim evaluation will be produced after stage 1 and then a second interim evaluation in year 5, followed by an end of project evaluation.
As part of stage 1 and following pond selection a plan for community engagement and awareness will be developed alongside the pond restoration work. In addition plans to monitor sites post restoration will be put in place. Success will be monitored by the number of restored ponds with sustainable management and the improved habitat connectivity and species permeability.

Project Partners:

Landowners will be key partners in terms of relevant permissions, support an future management. The South Downs Volunteers will play a key role in survey work, assisting with practical projects and post restoration monitoring and maintenence tasks. There is existing skills base in the VRS both in developing the database, survey work and practical pond restoration which will be expanded as the project develops.
Local communities will be encouraged to have greater ownership of these cultural features and support volunteer work, in addition they will be engaged through education opportunities.
In addition the National Trust as this is part of a bigger HLF bid.

Interface with other Projects:

Links to other projects in the NT HLF Changing chalk bid. Has links to the Big Chalk.

Project Timing:

The project has 2 phase.
Phase 1 2 years development phase, involving evidence, research site selection and feasibility work
Phase 2 5 years project implementation, restoration of selected sites, interpretation, education and monitoring.

Scope exclusions:

Planning permission is not required for restoration of ponds but will be required for new sites, this will need to factored into phase 2 as required
The project will not include on going maintenence of ponds which will be agreed with landowners and supported by local volunteers both from the VRS and local communities.

SDNPA Role in the Project:

Working with the exisiting Pond volunteer we will lead the project, identify suitable ponds and develop a detailed cost breakdown, including any interpretation and education materials. we will liaise with land managers and oversee the pond restoration work.
We will build on the volunteer input developing addition volunteer survey resource and expanding the current VRS role in practical work

Data Ownership:

Data is shared with the Sussex BRC. No known issues

Promotion:

No dicsussions have taken place at this stage but the project will be promoted as part of the wider changing chalk partnership project. we will also seek to promote individual pond restorations and stories around dew ponds as the project progresses.

Equality and diversity:
Impact will be neutral but activities and education opportunities can be fully inclusive. Whilst access to Dew ponds and their interpretation will be improved, access to the sites will rely on the Rights of Way network, especially the South Downs Way

Project Exit Strategy:
This project has a specific target for restoring 6 ponds. Once complete the project will come to a natural end. This is only a part of the wider dew pond landscape and the National Park will continue to seek aditional funding and encourage others to restore a network of ponds. Future Maintenence of the ponds will be agreed as part of discussions with landowners, but can be supported by the local Volunteer Rangers as part of their ongoing practical work programme. Monitoring will be undertaken by volunteers, this is a development of current pond survey work undertaken in the summer months by VRS.

Mechanism for procurement:
Pond restoration may be by land managers, volunteers or contractors, this will de determined in stage 1. Per pond costs will be no more that 20k but any contractor works will be subject to quotations and the normal procurement procedures of the Authority

Resource

Show clearly who is supporting your project financially and in-kind.

Total cost of project:	144500

Amount Requested from SDNPA:	25000.00

Total match funding required:	98000

1

Expenditure	project development phase
Year 1	4000
Year 2	4000
Year 3	
Year 4	
Year 5	
Total	8000
Notes	

2

Expenditure	Phase 2 project
Year 1	27300
Year 2	27300
Year 3	27300
Year 4	27300
Year 5	27300

Total	136500
Notes	

1

Source of Funding	in kind staff and volunteers phase 2
Year 1	16500
Year 2	
Year 3	
Year 4	
Year 5	
Total	16500
Notes	
Confirmed	Yes

2

Source of Funding	SDNPA match phase 2
Year 1	24500
Year 2	
Year 3	
Year 4	
Year 5	
Total	24500
Notes	
Confirmed	No

3

Source of Funding	HLF phase 2
Year 1	95500
Year 2	
Year 3	
Year 4	
Year 5	
Total	95500
Notes	
Confirmed	No

4

Source of Funding	in kind staff and volunteers Phase 1
Year 1	5000
Year 2	
Year 3	
Year 4	
Year 5	
Total	5000
Notes	
Confirmed	Yes

5

Source of Funding	SDNPA match phase 1
Year 1	500

Year 2	
Year 3	
Year 4	
Year 5	
Total	500
Notes	
Confirmed	No

6

Source of Funding	HLF phase 1
Year 1	2500
Year 2	
Year 3	
Year 4	
Year 5	
Total	2500
Notes	
Confirmed	No

Co applicant

Co applicant
Please provide contact details if you would like a co-applicant to assist you with this bid (optional):

Permissions

If there is a building or other lease associated with any element of this project please give details and show when it will expire? Lease details:
None. Landowner permissions will be required for pond restoration

Lease expiration date:	

Supporting Information and Documents

Additional Information:

Additional Documents:

Project Risk Register (to be further developed)

Risk	Likelihood	Mitigation
Not all funding is available	Medium	Project is designed to be taken pond by pond when funding is available. If larger funds available then more can be achieved in one hit
Land owner permission not granted	Low	With several hundred ponds then in the unlikely case of no permission we can look at alternative sites.

Project Budget (under development)

1. **Development Phase**

Costs

Total = £8000 (62.5% Match funding in kind)

5 days of ecological survey at £500/day = £2500 (HLF Funding)

Volunteer equipment and expenses = £500 (Cash SDNPA match funding)

10 days SDNP staff time at £350/day = £3500 (match in kind based on HLF standard figures)

10 days of skilled volunteer time at £150/day = £1500 (match in kind)

2. **Implementation phase (can be reduced or increased dependant on phase 1)**

Costs

Total £136500.00

HLF £95500.00

SDNPA total contribution = £41,000 (£24500 Cash, £16500 Matched in kind)

In Kind;

Lead Ranger/Ranger - 30 days @ 350 = £10500

Biodiversity and Strategy Lead - 12 days @ 350 = £4200

Dew Pond Volunteer - 12 days @150 = £1800

PROJECTS FOR THE SOUTH DOWNS

South Downs National Park Authority

South Downs National Park Dewponds Project 2016/2017

Follow-up report, October 2017

1. Overview of activity

This report for the period to October 2017 updates on the work carried out on the project in follow-up to the March 2017 interim report. In summary, activity has been as follows:

1. Further verification of **Eastern Downs** dewpond sites including site visits, GIS referencing, and general data tidying. Whilst not all sites have been visited, only a handful now remain unverified by either site visit or examination via Google Earth/Streetview due to those sites being on inaccessible land and invisible from the air/ground because of tree cover.

2. Population of QGIS with E Downs core dewpond data, including by **condition** classification (good, reasonable, poor, gone, unknown), surrounding **habitat**, and primary **purpose** (i.e., use of the dewpond). **Nature reserve/SSSI areas** have been included, as well as the route of the South Downs Way, to help input to the site restoration decision-making process.

3. Collection of the same core data on dewponds in the **Central and Western Downs** areas as for the E Downs (see March 2017 report), including some site visits. The work in the area to the west of the Arun has been brought forward as a result of an approach (via the Central Downs Ranger team) from the South Downs Farmers Group to help input to the identification of possible restoration sites as part of a fund-raising bid. Note the reference to ponds rather than dewponds. Though still underlain by chalk, the different topography and historic land use of the Downs west of the Arun means that this area is much more wooded, and more settled with small villages and farms, than the open Downlands further east. As a result, there are many pond sites which are more in the nature of village, farmyard, coaching inn, or similar, ponds than traditional dewponds. All identifiable sites are being recorded at the outset, as any freshwater bodies will be of value when contributing to the increase in bio-diversity across this area.

4. Some on-going **liaison** (via the Rangers/SDNPA) with Natural England and wildlife charity Froglife on specific dewpond sites and a potential clustered bio-diversity project. I have also been liaising with the project manager of the Marlborough Downs Nature Enhancement Partnership to learn more about their decision-making on the use of, and connectivity between, dewpond sites (existing and new), as well as the Freshwater Habitats Trust ('FHT') and the British Ecological Society.

5. Use of the published output of the FHT and other similar wildlife bodies to provide some **scientific rigour** to the understanding of freshwater ponds, including their value to bio-diversity in differing habitat types, the creation of new sites, restoration of existing sites, and practical advice on the management of ponds.

6. Development of a suggested **strategy** for the project, to help identify priorities and guide internal SDNPA decision-making.

7. Building on the outline recommendations in the March 2017 report, development of a more wide-ranging set of **recommendations** for dewpond restoration in the Eastern Downs area.

8. Some thoughts on the availability of **funding for dewpond maintenance over the long-term**.

2. Collection and population of QGIS with data

- The broad **assessment of condition** of each dewpond adopted at the outset has been continued (with the addition of an 'unknown' category for inaccessible/invisible sites), and used for display purposes on QGIS:

  Blue = good. Clearly holding water, largely clear of any vegetation in the pond itself or on its banks.

  Green = reasonable. Structure/base of pond clearly visible and in reasonable condition, may have a little water, partly filled with vegetation.

  Yellow = poor. Clearly visible on Google Earth, and/or in the landscape, but in poor condition structurally and /or overgrown with vegetation.

  Red = gone. No longer visible in the landscape. Occasionally, an outline may be visible on Google Earth, but a site visit has confirmed that no evidence of the dewpond remains in the landscape.

  Orange = unknown. A private, inaccessible site, not visible using Google Earth or Streetview or from the edge of the private land.

- A broad **habitat classification** has been added to each of the good, reasonable and poor condition dewpond sites, adopting the same system used by the FHT in their PondNet survey data gathering form.

Habitat	Abbreviation
Trees, woodland & scrub	TWS
Heath & moorland	HM
Rank vegetation	RV
Unimproved grassland	UG
Semi-improved grassland	SIG
Improved grassland	IG
Arable	A
Urban buildings & gardens	UBG
Roads, tracks & paths	RTP
Rock, stone & gravel	RSG
Bog, fen, marsh & flush	BFMF
Ponds & lakes	PL
Streams & ditches	SD
Other	O

- The FHT PondNet survey distinguishes between habitat at distances of 0 – 5m and 0 – 100m around pond sites. For each good, reasonable and poor condition dewpond site, an overview of the surrounding habitat has been recorded in the underlying database (up to two main habitats in each of the 0 – 5m and 0 – 100m categories). The main surrounding habitat abbreviation in the 0 – 100m category is displayed against each site in QGIS.

- The FHT emphasise the importance of deciding on a primary, and if appropriate, secondary **purpose** for each pond site, so as to determine the key features of each site and to guide the site's subsequent management. I have established a purpose classification based on the range of current uses of dewponds across the Downs, as follows:

Purpose	Abbreviation
Agriculture: sheep/cattle grazing	AG
Agriculture: arable land biodiversity	AA
Wildlife conservation	WC
Other farming: (horsiculture, farmyard, etc)	OF
Public amenity (public view/enjoyment)	PA
Private leisure (e.g., golf course, garden)	PL

Each dewpond site has been attributed a primary, and if appropriate, secondary purpose, in the underlying database, and the primary purpose abbreviation displayed against each site in QGIS. For example, a dewpond used for traditional sheep watering (AG) may also be located on the South Downs Way and thus of public amenity/potential education value, so would be given a secondary purpose of public amenity (PA). Dewponds not currently in use have been attributed a classification based on their assessed potential use in their given location and surrounding habitat. Some ponds, for example named sites from 19th mapping or earlier records, may also have particular historic/cultural significance. There is more work to do to in tracking down the historical origins of named ponds, but this historic/cultural overlay will be useful for specific sites for background information and education purposes.

- QGIS has also been populated with national nature reserve/SSSI areas (from official government data sources), this will help guide decision-making on optimum sites for wildlife conservation and wildlife corridor identification purposes. For example, certain stretches of the South Downs Way run close to the various SSSI areas that are found on the steep northern escarpment.

- The underlying database also records, where known, the organisation responsible for the management of a particular dewpond site where that organisation is a conservation charity (e.g., The National Trust) or a local community group. This is in part to recognise that actions on a specific site identified as a priority for attention should ideally fall to the responsibility of the relevant organisation through dialogue between that organisation and the SDNPA rather than falling into any wider fund-raising plans of the SDNPA.

3. Wildlife science guidance of relevance to the project

a) General advice on freshwater ponds

Freshwater Habitats Trust

As well as useful material published on the FHT's website, the FHT's book 'A Guide to the Management and Creation of Ponds' 2016 2nd edition is an invaluable source of guidance on both the science of freshwater ponds and their management. Key points of relevance to the dewpond project are as follows:

- In summarising the value of small freshwater ponds, the guide mirrors what this dewponds project is all about:
  - A unique biodiversity resource
  - An important part of our history and culture
  - A visual focus in many landscapes
  - An amenity for many communities

- Small freshwater habitats support a rich bio-diversity of plants and animals. Some two thirds of all Britain's freshwater plants and animals can be found somewhere in ponds, and ponds are particularly important habitats for rare and endangered species.

- The fresher the water the better, pollution is critically damaging to pond wildlife. In the Downland dewpond context, potential pollution sources include chemical and pesticide run-off, animal dung, run-off directly from roads into ponds, and human (and their dogs and horses) interference.

- Ponds such as dewponds which often have raised profiles are in effect small self-contained water catchments and thus can act as buffers from polluted surface and ground water.

- Cleaning out ponds for restoration including those that have dried out, for example by wholesale scraping or dredging, may cause much more damage to wildlife than good. Careful environmental assessment, including surveys and risk analysis (of the landscape, any rare species, and the pond itself), should be carried out before any such remedial work is carried out. In many cases, tinkering/light maintenance activity may be the best solution.

- It is not just the water, its depth, and what is in it that affects the bio-diversity, but important areas of immediate habitat such as the drawdown zone, bare mud, the nature of the vegetated surroundings, the proximity of trees and shrubs, and the surrounding land, with each area used by different species. A wide shallow slope is best for anchoring emergent plants (so for example, some of the large steep-sided concrete dewponds are unlikely to ever be the best for bio-diversity).

- There are many myths about ponds, here are a few relevant ones:

  - Drying out is disastrous for pond wildlife
  - Ponds should not be shaded by trees
  - New ponds need to be planted up because natural colonisation is too slow
  - Livestock should be prevented from having access to ponds
  - Ponds are entirely self-contained systems, isolated ‘islands’ in a sea of dry land

- Some key pond management principles are set out, all of relevance to this project:
  - Make the most of existing habitats
  - Avoid making all ponds look the same
  - Do not suddenly change the management regime of a pond or its surrounds
  - The intensity of land-use surrounding a pond can have a vital effect on its conservation value

Amhibians – Froglife

This amphibian wildlife charity provides some refinement to some of the FHT's do's and dont's in its booklet 'Amphibian ponds in farmed landscapes' (2011):

- For ponds where wildlife is the key purpose, a grassy buffer zone at least 6m around the pond is ideal
- Shallow slopes which flood or dry out create more of a dynamic environment for amphibians
- No more than 30% of the pond should be shaded by trees or shrubs, with preferably no shade on the southern edge
- No more than 60% of the pond surface should be covered with emergent vegetation such as reeds and bulrushes
- Where ponds are used for cattle, access/access time should be restricted, i.e., too much access causes damage and reduces water quality

b) Some specific on guidance on animals and plants

Given the dispersed nature of the historic dewpond sites across the Downs, and the mixed distribution of sites by existence and current condition, gaining an understanding of the landscape ecology is useful in helping guide the decision-making over the selection of sites for attention.

Amphibians - Amphibian and Reptile Conservation

Of the wide range of species that will make use of a dewpond site, it is amphibians which have the most limited powers of dispersal when compared to other species such as birds, small mammals and many insects and plants. The 'Amphibian Habitat Management Handbook' (2011) notes that landscape issues are critical to the survival of amphibians, with important considerations being the distance between breeding ponds, the nature of the intervening habitat, and major barriers to dispersal such as major roads and rivers [NB. One of the authors is Trevor Beebee whose 1997 research paper on dewpond numbers and amphibian diversity in the Sussex downs was referenced in the March 2017 project report]. This approach would equally apply to the dispersal of small mammals. Ideally, pond creation and restoration would be planned to establish or enhance pond networks, with continuous tracts of friendly habitat between ponds or at least corridors of suitable habitat such as field margins, hedgerows or areas of trees and shrubs.

The Handbook includes a table of migration limits and inter-pond distances for selected amphibians:

Amphibian	Upper migration distance	Max recommended inter-pond distance
Great crested newt	1300m	500m
Smoot newt	1000m	500m
Common toad	5000m	1000m
Natterjack toad	>2000m	500m
Common frog	2000m	1000m
Pool frog	1000m	300m

The authors also note that most individual species stay close to where they were spawned all their lives, but a few (usually <1%) may venture very much further, for amphibians up to a few kms from their natal pond.

Freshwater invertebrates

Studies have shown that most insect families such as dragonflies, mayflies, and water beetles can migrate fairly quickly to new ponds, i.e., in the first summer, with species such as snails within a few years if there are other waterbodies nearby (generally taken to be within 1000m). Both active and passive dispersal methods are important, from windblown means, dispersal by birds, and even on the soles of shoes.

Small mammals

Despite some extensive searching across the websites of many relevant ecological and wildlife organisations, it has to date proved difficult to track down the same sort of coherent migration and dispersal data for the types of small mammals that would be found on the Downs as is available for amphibians. This is not surprising, as the whole area of species dispersal is an evolving one, including establishing reliable measuring techniques, and taking into account the specifics of any given range of habitats through which creatures move, which can significantly impact movement. The British Ecological Society have been approached for information in this area, which is awaited. However, for now for the purposes of this project, and given that many small mammals generally are able to move greater distances than amphibians, it is not worth getting hung up on this. Any well-sited pond that attracts a good range of the other species set out above will do the same for small mammals.

Aquatic plants

The scientific evidence in this area is very much around the practice of not planting up ponds at the outset but allowing nature to take its course in populating ponds naturally, largely through airborne dispersal. Studies have shown that within a year and often much sooner there is a good mix of suitable aquatic plants established, and within a few years, a richer mix of species than in a much older pond. Whether of course this applies to the South Downs in general is probably much less proven, given the proximity to the coast and the prevailing south westerly winds.

As noted above, of equal importance to the enhancement of bio-diversity at any given dewpond site is the immediate plant buffer zone around the margins, and this is an area that is particularly important when it comes to long-term management, i.e., pay as much if not more attention to the richness of the immediate surrounds to a dewpond than what is in the water.

c) Some other practical wildlife considerations of relevance from the specific Downland dewpond survey work to date

- As across the South Downs generally, there are major **barriers to wildlife dispersal** and migration across the E Downs, whether from the major highways (A23, A27) or rivers (Adur, Ouse, Cuckmere). So the E Downs should be viewed as a set of zones when it comes to assessing the potential for the enhancement of bio-diversity through the development of wildlife networks:

  i) North of the Brighton conurbation from the Adur valley to the A23: a relative dewpond 'desert' to the west and centre of the zone, but with wildlife network potential in the Saddlescombe area. Several examples of failed restorations and problems with dewpond management in heavily-visited areas.

  ii) North of the A27 between the A23 and Lewes: wildlife network potential in the Stanmer and Balmer Down areas.

  iii) South of the A27 to the E of the Brighton conurbation to the Ouse valley: a relative dewpond 'desert', with a wildlife outlier on the Castle Hill Nature Reserve.

iv) The Malling Down/Mount Caburn outlier E of Lewes: a mixed picture of existence and condition, despite much of this area being within a managed nature reserve.

v) The Ouse valley to the Cuckmere valley: a mixed picture of existence and condition.

vi) The Cuckmere valley to Eastbourne: wildlife network potential in the Lullington Heath/Friston Forest area; strong public amenity value on the Downland above Eastbourne/Beach Head area.

- By way of further thinking on **freshwater networks**, the Marlborough Downs Nature Enhancement Partnership ('MDNEP') project started from the basis that dewpond sites should be no more than 1500m from each other (or from other freshwater sources such as rivers and streams), and refined that in practice to no more than 1000m as the project developed. And in dialogue with Froglife on possible dewpond clusters in the E Downs, a preferred distance of 750m has been suggested.

- The **optimal site for wildlife purposes** is therefore one that is free from water pollution, remote (from public visitors though accessibility is helpful), situated amongst unimproved grassland and close to woodland, within 1000m of another freshwater site, and fenced and wired to prevent disturbance from larger animals and dogs.

- There is a strong case for an **education element** in the project for those existing organisations that manage dewpond sites (some of whom should know better!). For example, there are sites where the primary purpose is clearly wildlife, but where the dewpond is filled with piped mains water, with the result that there is little or emergent vegetation and less bio-diversity generally. In other sites, channels have been dug directly from a busy road, reducing water quality significantly. As the FHT notes, better over the long term to allow a site to occasionally dry out rather than focus on water quantity at the expense of quality.

- **Heavily-visited dewpond sites** close to conurbations require constant management to maintain their integrity and value. There is little point in establishing such a site for wildlife purposes without providing robust fencing and wiring, and then looking after it over the long term, probably with weekly visits to clear rubbish and check condition. For most sites other than those with very active community group attention, this is unrealistic. However, dewponds with a primary amenity value purpose with heavy visitor use (such as those close to Eastbourne) may still be improved (visibly and for basic wildlife enhancement purposes) with some selective planting of suitable aquatics (to be discussed with the FHT).

4. A suggested strategy for the project

Whilst the general appeal of the project is outwardly self-evident, discussions with Jeremy Burgess and Adam Brown in the summer did raise the general questions of 'why are we doing this' and 'what are we ultimately trying to achieve'. It was suggested that a strategy for the project should be worked up and agreed, here is a contribution towards that.

1. The **original stated objective** of the project is as follows:

   "To carry out an audit of dewponds across the South Downs National Park, including accurately mapping their location and evaluating their condition, with a view to prioritising which might be restored in the short, medium and longer term."

2. The SDNPA's **statutory purposes and duty** are:

   Purpose 1: To conserve and enhance the natural beauty, wildlife and cultural heritage of the area.

   Purpose 2: To promote opportunities for the understanding and enjoyment of the special qualities of the National Park by the public.

   Duty: To seek to foster the social and economic wellbeing of the local communities within the National Park in pursuit of our purposes.

3. The SDNPA's **Corporate Plan 2016 – 2021** sets out how the purposes are delivered, for Purpose 1 through conserving and enhancing a thriving living landscape covering wildlife, the natural beauty of the landscape, and cultural heritage. Objectives in the Plan that can be linked across to the dewponds project include the following:

   - Support increase in % water bodies in good or improving condition.
   - Improve the condition of chalk grassland.
   - Support farm clusters to support PMP outcomes.
   - Provide advice to support landscape scale and habitat-specific restoration and creation.

4. **Key elements of dewponds** in the South Downs landscape are:

   - Whilst not unique to the South Downs, dewponds are best known in, and associated with, the South Downs.
   - As artificial constructions, dewponds provide the only naturally-collected source of water in a landscape that is otherwise in effect a water storage desert.
   - Dewponds are historic cultural features in the farmed landscape and through the sheer scale of the number of historic dewpond sites form an important part of the 'story' of sheep farming on the Downs going back at least 250 years.
   - Whilst the number of dewponds still in use for sheep-farming is considerably reduced from its peak over a century ago, in large part because of the installation of piped water to troughs across much of the Downs, they remain an important part of the farmed landscape.
   - The purposes of dewponds have widened to include managed wildlife sites, mixed-use for sheep and wildlife, and as standalone public amenities with a strong visual appeal in the landscape.
   - Small freshwater ponds are now well understood to contain one of the richest bio-diversities of plants and animals in the UK.

- The growing body of scientific research into the benefits of enhancing bio-diversity through providing suitable habitat corridors and networks supports the recognition and development of networks/clusters of freshwater ponds.
- A well-constructed dewpond within a suitable habitat and with an appropriate degree of protection from human and large animal disturbance will contain high quality freshwater, thus attracting the richest possible bio-diversity.
- Dewponds might provide useful mitigation to expected climate change impacts, with wetter winters re-stocking ponds through drier summers, of benefit to the retention of incumbent species and providing over-watering sites for migrating birds.
- The wide distribution of existing and potential sites across the South Downs lends itself to their ready inclusion in the wider story of the South Downs, its landscapes, history, culture and wildlife protection and enhancement, i.e., they can form part of the SDNPA's wider remit to inform and educate public audiences of all ages and interests.

5. **A suggested strategy**

"To recognise the targeted restoration and long-term maintenance of dewponds as an essential element of the enhancement of the bio-diversity of the chalk downlands across the South Downs, working in partnership with the landowning community to develop sustainable networks of dewponds on a measured basis as resources permit, whilst at the same time building on the historic and cultural value of dewponds in the landscape to inform and inspire the visiting public."

6. Recommendations for dewpond restoration and management in the Eastern Downs

A. Establish a line of dewponds along the South Downs Way ('SDW'), supported by accessible education and information resources to complement those already available for this National Trail.

As set out in more detail in the March 2017 report, I continue to believe that there is a compelling case to be made for a line of functioning dewponds along the route of the SDW. This would satisfy all of the key evaluation criteria of enhancing the bio-diversity of the Downs, accessibility, information and education opportunities, long term maintenance and sustainability, and cost-effectiveness. The identified sites also provide a good balance of purposes: their original purpose of providing water resources for sheep (i.e., preserving the cultural heritage); as environments for supporting a greater diversity of wildlife; and providing public amenity value in areas of high visitor numbers.

I have added one site to the original line of dewponds along the SDW, that SE of Windover Hill, which neatly fills a gap in the line and which benefits from fine views (see Appendix I). Certain of the sites can be linked into the suggested clusters of dewponds to be established primarily for wildlife purposes, as set out in B. below. Note that no sites have been identified for this current round for the southerly route of the SDW between Alfriston, Exceat, Seven Sisters and Beachy Head.

I have added very crude cost estimates where applicable against relevant sites in this and the following two Appendices, based on simplistic up and down extrapolations of the £10k cost of the Truleigh Hill dewpond restoration and of other restoration figures mentioned – these will require refinement.

B. Develop small networks of dewpond sites with the primary purpose of supporting wildlife.

The spatial distribution of dewponds by condition across the E Downs as summarised in the March 2017 identified several areas where ponds in good or reasonable condition were clustered: i) around the National Trust's Saddlescombe Farm base; ii) around Stanmer and in a band generally north-west of Stanmer up to the Downs to an area to the west of Ditchling Beacon; iii) on Kingston Hill; and iv), by far the biggest concentration, on the farmland to the west/north-west of Eastbourne.

The work carried out since then, including that on identifying surrounding habitat and principle purpose for each site, and also taking into account the barriers and zones in the E Downs (see Section 2 c) above), has refined the thinking in this area. A revised set of actual and potential dewpond networks, for priority attention for primary wildlife purposes, has been identified as follows (see Appendix II for further details):

i) Around the Saddlescombe Farm area (mostly National Trust)
ii) Around the Stanmer area (BHUA and their tenant farmers)
iii) Around Balmer Down (BHUA and their tenant farmers and National Trust)
iv) In and around Lullington Heath and Friston Forest (Natural England and Forestry Commission)

The Kingston Hill sites are on the SDW and as well as being heavily-visited are partly used by sheep and horses so do not lend themselves to being ideal wildlife sites. The large concentration of sites to the W/NW of Eastbourne are principally used either for sheep and cattle, or as public amenities (e.g., dog pools, etc), so many of these sites are currently unsuitable for primary wildlife purposes.

Longer term, there may be scope to develop other clusters, including an area to the NW of Eastbourne and another to the S of Beddingham Hill.

The majority of the work on the dewpond sites for the four areas identified amounts to targeted management rather than full restoration activity (and thus relatively little initial investment required), working closely with the relevant landowning organisations to bring this about. This approach also lends itself to an incremental roll-out of the sites within a particular network as resources allow, rather than a 'big bang' effort.

Other networks might emerge in future from the site-specific recommendations in C. below, as individual dewponds become established and attract wildlife.

C. Start to populate the areas of dewpond 'desert' with targeted restorations.

Given that the project covers the whole of the South Downs, not just the Eastern area, and that there is quite a bit to achieve in Recommendations A and B above, it seems reasonable to limit any further potential restoration activity in the E Downs area at least for the time being to a very small number of specially-targeted sites. To that end, it makes sense at the outset to focus on those downland blocks where there is not already a reasonable number of functioning dewponds and which will not benefit from the activity under recommendations A and B. And then within those identified downland blocks, to pick one site for restoration that has the potential to act as a catalyst for further restorations in the same area over the longer term.

Taking that overall distribution into account, the blocks that stand out as potentially benefiting from this approach are:

i) The western end of the Adur to A23 block, i.e., N of the Brighton conurbation between the Adur valley and the Devil's Dyke Road.

ii) To the E and N of the Woodingdean, Rottingdean and Peacehaven built-up areas.

iii) To the N of the Seaford built-up area.

All three areas consist of wide expanses of open farmland (pasture and arable) with little in the way of other habitat, particularly extensive woodland areas.

Appendix III sets out details of a proposed preferred site, and an alternative site, in each of these three blocks, with pros and cons set out for each site.

I could separately to the above pick out a few sites that are more unusually situated on the downslopes of the north-facing escarpment simply for their stunning locations and views (and they being in some of the more natural grasslands), but have resisted the temptation for now!

7. Funding of dewpond maintenance over the long term

The March 2017 report emphasised the importance of the creation of a maintenance regime for restored and functioning dewponds across the Downs, without which the project is likely to fail over the long term. Well-intentioned community, environmental organisation, and urban authority restoration activity going back over a thirty year period, some of which has subsequently fallen into disrepair, is testament to this.

Many existing sites across the E Downs, often in the stewardship of national or local environmental and not-for-profit organisations, are on the edge of staying within either good or reasonable condition. It would be useful to have a dialogue with the likes of The National Trust to better understand how they go about allocating resources, both financial and human, for the management of dewponds…and to establish whether funding (or the lack of it) has a part to play. This is likely to apply also to the farming community, where there are clearly widely different attitudes and approaches to dewpond use and management across the area.

Whilst part of the success of the project will be measured by its take-up by the landowning community across the Downs, being able to demonstrate to potential funders such as the Heritage Lottery Fund that any initial capital investment in restoration will be backed up by long term maintenance will be crucial. The sums involved per site may be relatively small in any given year - for careful clearance of plants that are starting to overwhelm in and around the water, clearing rubbish, trimming nearby trees and shrubs, etc, - and then occasional larger works such as repairs to the dewpond structure (whether clay, butyl liner, or concrete). But such sums may well make the difference between this work happening or not.

I would therefore encourage any fundraising activity to include allowance for raising a capital sum that can be invested, with the investment income generated applied to making small dewpond annual maintenance grants to landowners, who would have to apply for such funding through a simple process. This activity could be run through the SDNPA's new charitable trust by a small committee including volunteers without creating an unnecessary additional administrative burden on the SDNPA itself.

David Riviere
October 2017

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PROJECTS FOR THE SOUTH DOWNS

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Appendix I: Eastern Downs, SDW dewponds, west to east (Adur valley to Eastbourne)

Primary site	Condition	Site work required (other than maintenance)	Primary purpose	Linked to proposed wildlife network	On/near SSSI or nature reserve	Other notes	Crude cost estimate £
(River Adur)							
Truleigh Hill	Reasonable	Partial restoration	Wildlife	No	No	£10k restoration funding already secured	n/a
Summer Down	Reasonable	Partial restoration	Wildlife	Yes	Yes	Tangled mass of surrounding vegetation to clear, check lining	2,500
Saddlescombe Farm	Good	None	Sheep	Yes	Yes		0
Over Haresdean	Good	None	Wildlife	Yes	No		0
(A23)							
Burnt House	Good	None	Wildlife	No	Yes		0
Over Home Bottom	Good	None	Sheep	No	Yes		0
Home Brow	Good	None	Sheep/cattle	No	Yes	Reduce mud/grass in the base	1,000
Balmer Down	Reasonable	Partial restoration	Sheep	Yes	Yes		10,000
(A27)							
Juggs Road S	Good	None	Sheep	No	Yes		0
Juggs Road N	Good	None	Sheep	No	Yes		0
Kingston Hill	Reasonable	Partial restoration	Wildlife	No	Yes	Review, may need a fresh lining	10,000
(River Ouse)							
White Lion Pond	Good	None	Wildlife	No	Yes	Allow to colonise naturally after recent restoration	0
New Pond	Poor	Full restoration	Wildlife	No	Yes	Large site, clearance, new waterproofing and fencing required	20,000
(River Cuckmere)							
Windover Hill	Poor	Full restoration	Wildlife or sheep	Yes	Yes	Small site, clearance, new waterproofing and fencing required	15,000
Over Eldon Bottom	Good	None	Public amenity	No	No	Add aquatics to improve biodiversity?	500
Pashley	Good	None	Public amenity	No	No	Add aquatics to improve biodiversity?	500

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(Eastbourne)						**Total**	£59,500

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Appendix II: Eastern Downs, potential dewpond wildlife networks

Network based around	Number of dewponds in initial network	Current purpose	Condition summary	Other sites within 1500m with wildlife potential	Crude cost estimate for initial sites £
Saddlescombe	5	3 x wildlife, 2 x sheep & cattle	5 x good	2	0
Stanmer	6	3 x wildlife, 2 x sheep & cattle, 1 x public amenity	6 x good	2	2,500
Balmer Down	3	2 x wildlife, 1 unused	1 x good, 2 x reasonable	1	2,500 (see note below)
Lullington Heath & Friston Forest	7	7 x wildlife	5 x good, 1 x reasonable, 1 x poor	2	9,000
				Total	£14,000

NB. One of the Balmer Down sites is included in the SDW route in Appendix I for cost estimate purposes

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Appendix III: Targeted restorations in dewpond 'desert' blocks

Dewpond' desert' block and proposed sites	Site name	Grid ref	Pros	Cons	Crude cost estimate £
Adur to Devil's Dyke Road block					
Preferred	Thundersbarrow	TQ 2299 0829	• Excellent location in pasture, large area of unimproved grassland, trees and shrubs to the SE. Views to the coast and across the Downs • V low risk of water pollution • C 2km SE of the Truleigh Hill site, could act as a freshwater stepping stone for any future dewpond wildlife network in this block • Adjacent to Thundersbarrow ancient monument (Iron Age hillfort, Romano-British settlement), potential to combine education/information aspects • Not directly accessible (deliberately), but would be clearly visible to the public from the banks around Thundersbarrow • Sufficiently far enough away from the Brighton conurbation to reduce disturbance risk • On the Monarch's Way, Britain's second longest signed walking trail	• Complete re-build required, outline of shallow pit only remaining • Thick rank vegetation on S side of Thundersbarrow area itself requires attention if the new dewpond were to be made visible • Attitude of BHUA tenant farmer unknown, would result in loss of small area of pasture	30,000
Alternative	Mount Zion South	TQ 2536 0812	• Sound structure in place, surrounding vegetation (grasses, rank vegetation, small trees and shrubs) in reasonable order • High banks reduce risk of water pollution, any risk is from human/animal disturbance	• Effectively a failed restoration (from 1992) as not looked after and becoming increasingly damaged. Higher risk than Thundersbarrow • On a very heavily-used route for horse riding and dog walkers, close to the N Brighton conurbation	10,000

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			• Less costly to restore than Thundersbarrow • Views across the Downs	• Replacement liner required, new robust fencing to mitigate damage • Less diversity of wider surrounding habitat than Thundersbarrow	
Above Woodingdean/ Rottingdean/ Peacehaven block					
Preferred	Norton Farm	TQ 3775 0633	• Attractive valley and sheep pasture location at junction of Stanmer, Balsdean and Falmer Bottoms • At the edge of the SE corner of the Castle Hill Nature Reserve, c 1km from the dewpond in the Reserve itself • Low risk of water pollution • Area of mature trees on the bank behind and across the valley to support bio-diversity • Accessible, but reasonably remote • Small-scale site, basic structure sound • Close to the historic site of Balsdean village (now gone)	• New lining required • Some rank vegetation clearance required, small tree in the bank to remove or prune • Small-scale, i.e., not a 'statement' restoration	7,500
Alternative	Highdole Hill	TQ 3940 0467	• Attractive open downland location in sheep pasture, views to the S towards Saltdean • Nearest other water source the dewpond at Telscombe Tye c 1.75km away, so in a true 'desert' area • Large pit with banks still evident, reduces restoration cost • Low risk of water pollution unless land use changes from pasture • Would be visible from the footpath	• Old concrete pond would require re-lining, detailed condition not known • Attitude of landowner unknown re any preferred use (wildlife and/or sheep) • Limited other types of habitat other than pasture and arable nearby	15,000

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			close by but not accessible		
Above Seaford block					
Preferred	Heighton Hill North	TQ 4775 0419	• Introduces water into an area where there is none for a 2km+ radius – but could start a link with the restored New Pond on the SDW to the NE • Surrounding structure in place • On top of a small ridge with fine views to the Downs ridge • Low risk of water pollution • In open access pasture, with a long spur of trees and shrubs close by to support bio-diversity • Remote but accessible	• Small amount of water retained, but likely to require a new lining	7,500
Alternative	Over France Bottom West	TQ 5087 0253	• Whilst not on the SDW, would be the nearest Downland water to Alfriston village (where the SDW divides), and c 1km from Cuckmere river water meadows • In pasture, trees and shrubs nearby to support biodiversity • Surrounding structure in place • Low risk of water pollution if fenced off from sheep • Reasonably remote, not accessible to the public, but would be visible from footpath to the W	• Old concrete pond would require re-lining, detailed condition not known • Attitude of landowner unknown re any preferred use (wildlife and/or sheep)	15,000
				Total (of preferred sites)	£45,000