

South West Water's Catchment Management Programme Upstream Thinking 3 (2020-25)

UST quarterly progress update report: April-June 2020

This is the Upstream Thinking quarterly update for UST partners and stakeholders. The purpose of this report is to provide a quarterly summary of achievements from each partner, project impact, case studies of good practice or innovation and future aims. The Delivery Partners for UST3 (2020-25) are:



Devon
Wildlife Trust



Cornwall
Wildlife Trust



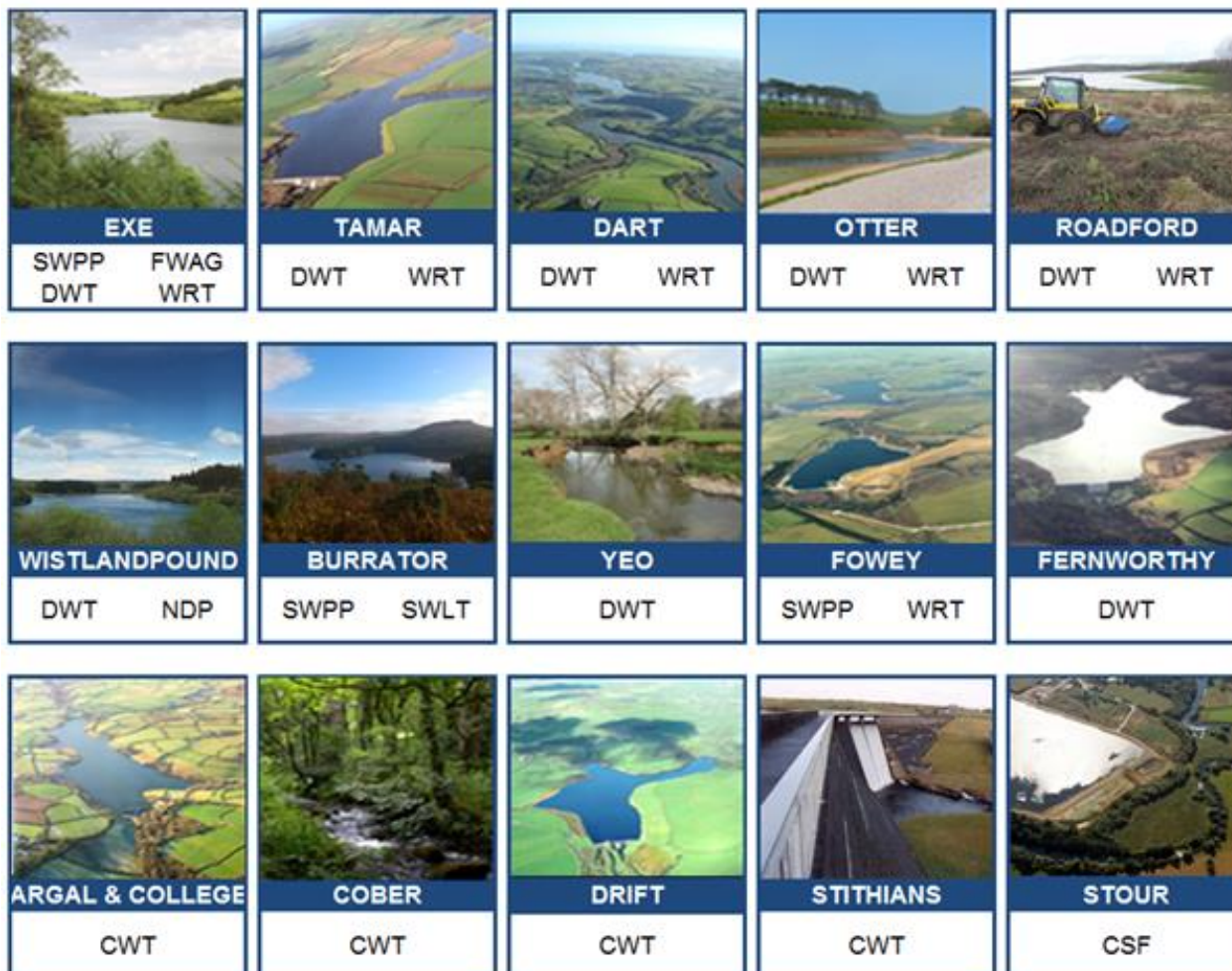
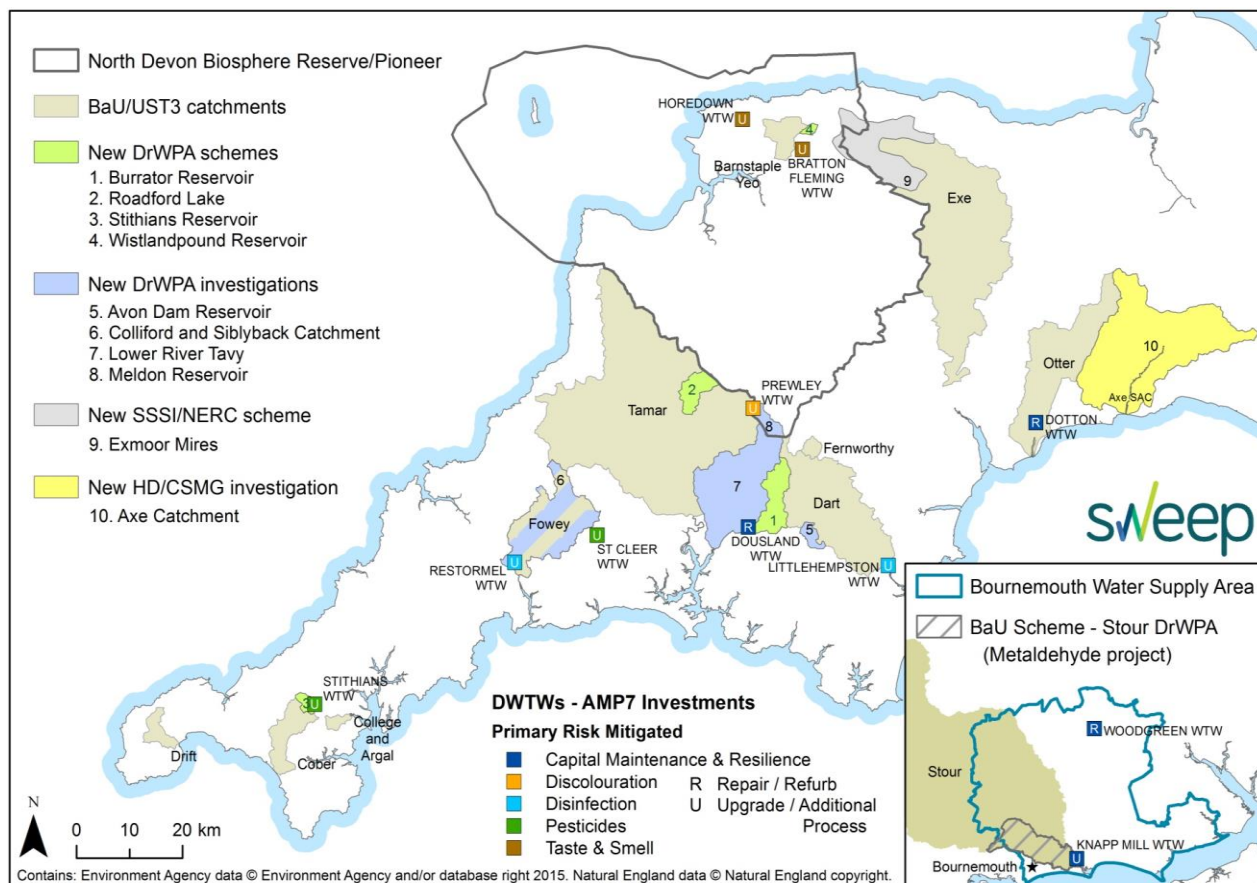
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EXETER



Schemes; Burrator; Wolf (Roadford); Stithians; Wistlandpound (WINEP schemes); Exe; Dart; Tamar; Fowey; Otter Valley; Fernworthy; Barnstaple Yeo; Argal and college; Cober; Drift and Stour (BW area). The Exe Catchment scheme comprises 3 catchment components: Exmoor mires; Headwaters, and Main River.

Investigations: Burrator; Avon; Tavy; Meldon; Colliford (Fowey). These WINEP investigations are to be completed by the end of March 2022.

The catchments targeted for improvement are illustrated in the (draft) map below:



This 5-year programme is a combination of new *Catchment Management Schemes* and *Investigations* as specified on the EA (water Industry National Environment Programme WINEP and the continuation of ongoing AMP5/6 schemes in the SWW and Bournemouth Water areas. The outcomes contribute to:

- Improved raw water quality and supply and long-term business resilience
- A new *Biodiversity Improvement ODI* “*Hectares of new catchment management*” which is penalty/reward
- The Pennon Sustainability and *Natural Capital* commitments of year-on-year 3% improvement from a 2020 baseline
- Water UK carbon mitigation commitments made to the Secretary of State for the Environment (Peatland restoration and tree planting).

The programme is designed to combat deterioration in soil, nutrient and water management in the farmed landscape of catchments abstracted for drinking water supply. There are potential long-term resilience benefits including:

- new treatment investment deferment at treatment works
- reduced power, chemicals, maintenance costs and carbon emissions
- reduced risk of WTW shut down and DWI penalties.

The engagement of *Delivery Partners* and environmental stakeholders in the SW region and their match funding contributions is a key aspect of the programme, as are the *Natural Capital outcomes*. These are aligned with OFWAT and EA expectations and SWW/Pennon ambitions to become a leading water company in environmental delivery.

Upstream Thinking for AMP7 comprises of 16 Schemes and 5 investigations in 18 catchments. The programme is fully endorsed by our local quality regulators, the EA, DWI and Natural England, and is wholly aligned with the national guidance issued for PR19 by Defra in the ‘Statement of Obligations’.

Expenditure will be focused on delivering the programme and exceeding the new OFWAT *Biodiversity Improvement ODI* “*Hectares of new catchment management*” in year 1 and across the AMP7 period.

Delivery of the in-catchment Schemes will be by the UST Partner Teams. Expenditure funds them to engage farm managers to address the catchment pollution and flow problems, with a focus on the development of “farm water management plans” and the roll-out of grant funding of catchment improvement work.

The WINEP Peatland restoration on Exmoor and the Defra funded (to 2021) work on Dartmoor and Bodmin moors, which benefits water storage, quality, and long-term moorland resilience (and carbon storage) will also continue. This work is led by the SWW Mires Team, supported by other partners, including SWLT who are leading the WINEP investigation around Burrator.

The WINEP DWPA at Risk Investigations delivery will be through the SWW and University of Exeter (UoE) CREWW programme utilising the SWEEP team, who have had a key role in AMP6 investigations delivery and the design and set-up of the AMP7 programme.

Partner Progress Summaries from April to June 2020

Westcountry Rivers Trust and Devon Wildlife Trust:

Catchments: Exe, Tamar, Dart, Otter, Fowey, Yeo, Wistlandpound, Roadford, Fernworthy.

On going schemes: Exe, Tamar, Dart, Otter, Fowey, Yeo, Fernworthy

New WINEP schemes: Wistlandpound, Roadford.

Update for Quarter 1:

ODI delivery in June: 872.5ha

Total so far in year 1: 872.5ha

Yearly Target: 4100ha for DWT, 4100ha for WRT

At the beginning of the quarter WRT welcomed a new Project Manager to their team who set up weekly meetings with the DWT Project Manager. Despite Covid-19 restrictions, and some Farm Advisors being furloughed, both DWT and WRT have made good progress during these times. The WRT team has contacted over 150 farmers and conducted 20 farm visits since Covid-19 restrictions have been eased. We have met with the EA to discuss NFM opportunities within UST catchments using WWNP data. DWT continues to use social media to promote the project with regular tweets and Facebook posts.



Barnstaple Yeo

The DWT Yeo Farm Advisor has now returned from furlough and is busy working on Mid-Tier Countryside Stewardship applications. These are focused on biodiversity improvements as well as yard works for clean/dirty water separation. A continued focus on opportunities for habitat creation and restoration has created new leads on areas of relict species-rich grassland; these will be a focus for the coming months. Two Mid-Tier agreements are underway and follow up is taking place to help with implementation of plans.



WRT are working with a farmer who would like to fence a stretch of a tributary of the River Ashburn to prevent livestock access.

Dart

The WRT Advisor for the Dart has been contacting farmers regarding potential grant and land management opportunities.

Ten grants are currently being discussed including fencing, natural flood management possibilities, manure stores, and concrete feed areas.

Where the grant is for 'hard' infrastructure such as, a building or concrete, the Adviser is agreeing an 'offset' area of new habitat or an area farmed proactively for conservation. Soil management and testing continues to be a key component of work.

The DWT Advisor is currently furloughed, but three Mid-Tier Countryside Stewardship agreements are being advised on or drawn up by the project management for the catchment.

Additionally, a grant has been approved for work to increase the bogginess of a site in the upper part of the catchment. A further grant for riverside fencing and provision of habitat for curlews is in the process of being finalised.

This years Countryside Stewardship agreements are still being confirmed but we expect in the region of 13 to have been approved and altered management to be underway shortly.

Tamar

WRT and DWT have already had a lot of interest in UST3 on the Tamar. WRT are drawing up grant proposals for four farms in the Upper Tamar, ranging from concreting, roofing, water diversion from farm tracks and farmyards, and riverbank fencing. One farmer is applying for Countryside Stewardship as a result of a WRT farm visit, and a Woodland Management grant application is in progress on another farm.

The WRT Farm Advisor in the Lower Tamar has been busy remotely supporting landowners in the Ottery, Kensey and Lyd catchments, preparing Mid-Tier Countryside Stewardship applications. A “ham” field adjoining the river in the Ottery floodplain is to be included in a Countryside Stewardship application as a GS2 ‘permanent grassland with very low inputs’. This will maintain the integrity of the floodplain function for natural flood management and buffer the river from any potential run-off from the fields above. Other measures planned at this location include improved fencing and drinking trough installation to exclude the stock from the river, with bankside thinning of abandoned coppice and scrub management to prevent faecal contamination of water courses, reduce erosion and enhance biodiversity.



Area proposed by WRT for water diversion from farm track – Upper Tamar



A “ham” field adjoining the river, WRT

Despite having reduced Advisor cover in the Tamar catchment, DWT are currently drawing up an MT agreement for one farm. They have also undertaken work to reduce soil compaction on four farms, rush management on four farms and provided advice across a further three farms.

Two grazing links have also been set up allowing good quality habitat to be grazed more sympathetically.

In addition, a Woodland Management grant application is underway on the Tamar following planting of 1,000 trees this spring under the CPES project.

The DWT Habitat Creation Officer is monitoring grassland sites in the catchment to ensure that they are ready to harvest seed as it ripens, allowing us to create further areas of species rich grassland this year. Recruitment for a new DWT Tamar Advisor is underway.

Roadford

WRT have engaged with several livestock farmers in the Roadford Catchment (river Wolf) so far. Some of the main issues we have advised on are separating clean and dirty water, and treating the dirty water, surface run-off, and bank erosion caused by cattle poaching.

In addition to typical yard improvements, we are currently working with a beef and sheep enterprise who are interested in wetland creation to treat dirty water.

A dairy farm in the area is also keen to take some field corners out and plant trees to act as a buffer and create habitat for wildlife.



Grant proposed to roof existing cattle handling system by WRT.

DWT are in the process of recruiting for a new Advisor to cover this catchment. Our Habitat Creation Officer has been liaising with farms in the area, looking for opportunities to create new species rich grassland. They have also been providing support and advice to SWLT on their Higher-Tier Countryside Stewardship agreement.

Otter

The purchase of the conservation drill has been one of WRT's highlights on the lower Otter catchment during this first quarter! This drill will be used to carry out trial work, assessing the practicality and effectiveness of reduced tillage, in both conventional and organic systems.

Organic farming has a large reliance upon tillage as a mechanism to control weeds and to establish crops. This drill will remove the use of ploughing from several years of an organic rotation, whilst also helping to maintaining soil carbon and increasing soil organic matter. All of these can result in Ecosystem Services such as water quality, quantity, nutrient retention, and reduced erosion.



Simba Freeflow drill purchased by WRT for conservation tillage on the Otter

The WRT Otter Advisor presented at an ADBA (Anaerobic Digestion and Biogas Association) event to explain the impacts of anaerobic digestion plants on the wider agricultural communities. Planning, designing, and building anaerobic digestion plants rarely assesses the impacts on water quality, land prices, available land for cropping and security of access to land for spreading of digestate. With over 70 attendees from all over the world, it was an excellent opportunity to highlight issues that are often overlooked.

Following the wet winter that we experienced in 2019/20, data has now been analysed to show the nitrogen losses from several fields in the lower Otter. Using porous pots, Matt Holden (PhD student) has been utilising the WRT Otter Advisor's knowledge of the locations, soils and cropping, to inform the Irriguide model (ADAS) which has been used by Wessex Water, who kindly processed Matt's data. Losses were variable, but in some cases very high, and further investigation via UST is needed to avoid repeated losses when the cropping rotation runs full circle.

The WRT Advisor for the Otter has been utilising their UST experience when developing the Lower Otter and Beer Defra ELMS (Environmental Land Management Scheme) Test and Trial, part of Defra's post Brexit agricultural support scheme development. ELMS' aims and objectives often mirror those of UST; 'Public money for public good' and offers an opportunity to reward best practice leading to improved water quality and quantity, cleaner air, pollution reduction, healthy soils, greater biodiversity, landscape character (beauty heritage and engagement) and climate change mitigation.

The DWT Advisor has been developing a Higher-Tier Stewardship application in conjunction with NE which should lead to around 50 ha of species-rich grassland being protected and restored, along with further work to spring line mires. Three MT agreements assisted by DWT are now live and follow up visits from the DWT Advisor is in progress, as well as confirming options delivery on the ground for a further two MTs and three Water Capital grant agreements.

During the first six weeks of the quarter the DWT Advisor remotely managed the use and movement of one of our soil slitters, enabling eight farms to benefit from its use.

They have since visited three farms in the catchment to give advice on Mid-Tier applications and has undertaken three online 'round table' farmer meetings to refine the details of the applications.

A number of sites have been assessed by the DWT team as both donor and receptor sites for seed – hoping to have even more species-rich grassland in the catchment next year.

Exe



DWT Mid Tier site on the Exe where buffer strips are being included on numerous fields, such as next to this CWS woodland.

WRT have been responding to lots of queries from farmers in the catchment, ready for our Advisors return from furlough.

The DWT Advisors have been visiting lots of farms for Mid-Tier Stewardship applications, with 26 farm visits and virtual meetings taking place.

The slitters have been to five farms over the quarter, reducing compaction and allowing grass to grow better and more water to infiltrate the soil.

Farmers seem particularly interested in on-farm water storage and ponds; we hope this will mean more water features in future.

Two Mid-Tier agreements, and one Water Capital grant, assisted by DWT, are now live, meaning that these farms are committed to managing their land better for water quality and wildlife for the next five years.

Follow up visits from the DWT Advisors are in progress confirming options for delivery on the ground for a further five Mid-Tier agreements. The DWT Advisors are busy looking at monitoring and species recovery projects and hope to start putting plans in place shortly.



Bee orchid at potential Higher Tier farm, DWT

Fernworthy

After a pause in water sampling due to COVID-19 restrictions, DWT were able to recommence water quality sampling in June at reduced intervals. Forestry Commission (FC) are looking to restart felling works in July and we continue to liaise with them over good practice in their methodology.

We will undertake regular water quality monitoring during the felling work, which is expected to last around 10 weeks, and will liaise closely with the FC to minimise risks to water quality. A new Advisor is being recruited for this catchment.

Fowey

WRT had a new Senior Farm Advisor in post on the Fowey as of 1st July and is currently familiarising themselves with the UST project in the Fowey catchment and receiving training; transferring over and identifying opportunities from previous knowledge of the catchment and team, ready to get out on site visits. WRT have been furthering the assessment of tools for the Lanhydrock ELMs test and trial working with several partners on this section of the main Fowey valley.

Whistlandpound

DWT have been liaising with Natural England, sending out letters to farmer contacts about the new UST3 project and the North Devon ELMs trial. There has been good uptake from farmers in the catchment, and the Project Manager and Yeo Advisor have responded to the landscape consultation for the catchment. A new Advisor is in the process of being recruited and we hope to have someone in post in mid-August.

Match funding secured:

	£	Source	Catchment
Quarter 1 Apr - June	180,491	Countryside Stewardship	Barnstaple Yeo (DWT)
	268,249	Countryside Stewardship	Otter (DWT)
	183,565	Countryside Stewardship	Exe (DWT)

Cornwall Wildlife Trust:

Catchments: Argal and College, Cober, Drift, Stithians

Ongoing schemes: Argal and College, Cober and Drift

New WINEP schemes: Stithians

Update for Quarter 1:

ODI delivery April-June: 200.5 ha

Total so far in year 1: 200.5ha

Yearly Target: 1155

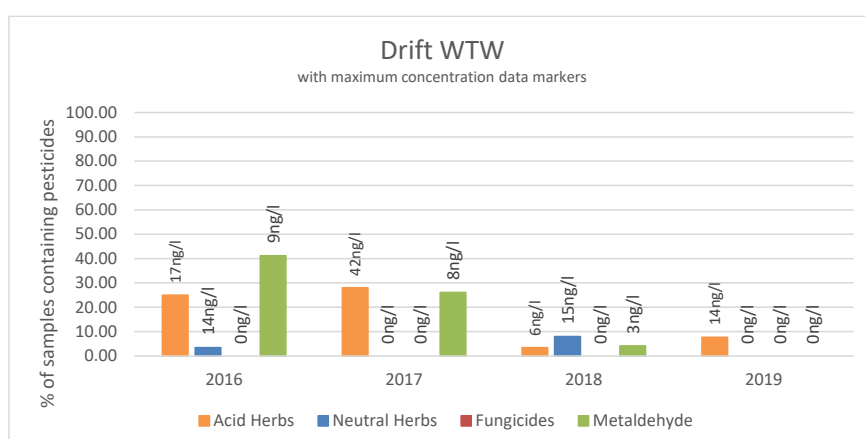
The project team have been largely supporting farmers with Countryside Stewardship applications over the last few months. Planning for the year ahead, and beyond, has focussed on reviewing targets with farmers, establishing actions for the AMP7 period and planning capital grants. Covid-19 has had minimal impact on the team's ability to undertake their work across the catchments, with surveys, soil sampling and farm visits recommencing mid-May. Whilst routine water sampling was paused, the sampling programme has been re-evaluated, resulting in a robust five-year strategy to support targeting and interventions across the catchments. Only the volunteer group leaders were furloughed and are now returning to work to get to grips with new work practices so that the volunteer groups can re-start their weekly tasks safely.

As expected, engagement with farmers in the Stithians catchment has had a slow start. Despite a delay in the recruitment of an additional Advisory post, the rest of the project team have been engaging with farmers in the catchment who have adjacent holdings in the Cober and Argal and College catchments. The Farm Advisor for Argal and College has also been contacting new farmers to start the ball rolling with advisory work in this area.

Catchment highlights:

Soil structure and chemistry analysis undertaken on four farms this quarter has resulted in three holdings changing their fertiliser use with immediate effect. Farmland soils in the Drift catchment generally have a high organic matter content (10-20%), high phosphate levels (P Index 3 and 6) but low potash levels (K Index 0-1). The three holdings all switched to zero P, high K fertiliser compounds back in 2017 and we have been watching P levels fall in the soil back towards a target level of 2. After receiving further soil and nutrient management advice, these farmers are happy to apply zero P for the next two years and will also increase their Potash levels by making better use of their farmyard manure and/or purchasing straight K (Muriate of Potash) to boost grass yields and reduce water pollution risks.

Notable relationships between the reduction of pesticide detections and our advisory work across the catchments has been highlighted through recent data analysis of sampling results from the last five years. As a direct result of our pesticide detection follow-ups, completing annual Integrated Pest Management Plans, improved crop rotations and pesticide amnesties, farmers now have a better understanding of the environmental risks pesticide products cause.



This raised awareness has seen farmers finding alternative ways to manage weed and pest issues, reducing their reliance on chemical sprays while maintaining crop yields. In the Drift catchment, for example, the source of metaldehyde was traced to one cauliflower grower who switched to using the alternative ferric phosphate slug pellets during 2018 and the change delivered excellent water quality results.

Cauliflowers are being planted in a block of high-risk fields in the upper Drift catchment. The resumption of sampling in the catchment in July will enable us to monitor the impact of this crop on water quality.

The benefits from changes to farm practices implemented in recent years have been visible this quarter. During AMP7 we are continuing to focus on changes in farm practices to deliver water and wildlife benefits:

A change in practice in a field adjacent to Drift Reservoir, from ploughing for a grass reseed in 2013 (photo left), to direct-drilling through the old grass sward in 2020 (photo right), has significantly reduced the risk of soil erosion and associated phosphate loss. This new method of refreshing the grass sward also helps to retain carbon in the soil, which is beneficial for growth during dry periods.



Before

After

In the Cober catchment, arable reversion has significantly reduced the risk of run-off pollution from a sloping arable field above a river Cober tributary. Identified as a contributor to diffuse run-off pollution, the field has been planted with potatoes and brassicas over the last two years (photo left). Through a Countryside Stewardship agreement, the field has been reverted to a multi-grass and clover sward, which will stabilise the soil, reduce (or even stop) nutrient and pesticide run-off and improve rainfall infiltration. In addition, the Mid-Tier option (SW7) means there are timing and quantity restrictions on fertiliser applications and no boom-spraying of pesticides is permitted. A fodder-cut has already been taken in mid-May and will be ready for a second cut in mid-July (photo right).



Before

After

Capital works, funded via Countryside Stewardship, have been recently completed in the Cober catchment. A new over-roofing of a livestock feeding area will reduce the amount of dirty water generated, reducing the risk of pollution to the nearby watercourse downslope of the yard.

The gateway resurfacing will restrict cattle access to pasture fields helping to reduce sediment run-off into the adjacent river Cober. Further improvements consisting of yard concreting, fencing and land management options (arable reversion) form part of a series of measures that this farmer is undertaking to protect the river Cober from agricultural run-off, and to promote the sustainable management of the wildlife across the farm.



Improvements to reduce run-off

A meeting with SWLT Ecologist and their Invasive Species Officer, to discuss County Wildlife Site (CWS) management, highlighted the current INNS (Invasive Non Native Species) project to remove Japanese Knotweed from the Drift catchment, as well as the benefits that the volunteer group can contribute to tackling invasives. Together with SWLT, Bolitho Estates and other landowners, CWT are keen to ensure a complementary strategy for invasives control.

On the same farm highlighted in the case study in Appendix 2, it is proposed that over 400 trees will be planted in 2020 on one of the farm's fields adjacent to the River Cober. Through a grant from the Environment Agency's Helston Flood Alleviation Scheme (FAS) the trees will create a buffer, intercepting surface run-off and the sediment, nutrients, and chemicals it carries from adjacent steeply sloping fields. Increasing infiltration rates and take-up of flood water will help to reduce the risk of flooding in Helston at the bottom of the catchment.

Creating new woodland habitat is important for wildlife, linking existing habitats and providing wildlife corridors for birds, bats and other small mammals and insects.

Match funding secured:

	£	Source	Catchment
Quarter 1 Apr - June	£2,500	Environment Agency: Helston Flood Alleviation Scheme (FAS). Tree planting project	Cober

Farming and Wildlife Advisory Group (FWAG) SW:

Catchments: Exe

On going Projects: Headwaters of the Exe (HotE), the part of the ongoing River Exe Scheme within the Exmoor National Park area.

New WINEP schemes: Joint project with Exmoor Mires Partnership to reduce the damaging impacts of Exmoor moorland boundary ditches on peatlands and downstream flows

Update for Quarter 1:

ODI delivery in April-June: 229

Total so far in year 1: 229

Yearly Target: 1750

This is the first quarter of the HotE project since FWAG took over the management of HotE after delivering in partnership with Exmoor National Park Authority (ENPA) over the previous five years. The project started with the recruitment of a new Farm Environment Adviser to the project.

The first HotE Advisory Group meeting of this round of the project was held and we presented our workplan for the coming months. The group includes ENPA staff and authority representation, Exmoor Society, local Parish Councils, and farmers. The group is a valuable sounding board for the project and provides additional knowledge and experience to support the delivery team.

FWAG undertook a grassland reseeding demonstration on a 10 ha field in the catchment to explore the options available to farmers considering grassland reseeds. This is explored further in our case study in Appendix 2.

We have engaged with 10 landholdings managing over 1,000 ha of the catchment. This has involved providing a range of advice to holdings who have previously engaged with HotE and new holdings. Advice has included:

- Developing grazing management plans to support management to achieve biodiversity targeted within Countryside Stewardship, control worm burden in grazing livestock to reduce use of anthelmintics and to protect watercourses from grazing livestock.
- Nutrient management planning advice to improve the use of farm slurry and farmyard manure to reduce the risks of run-off and better utilise the nutrients in the manure.
- Advice on Countryside Stewardship – including the identification of 8 ha of previously unrecorded species-rich grassland, management of riparian habitats in the Barle Valley SSSI and 28 ha of potential woodland creation.

Two examples of species rich grassland habitats identified during HotE surveys to new holdings.



Lowland hay meadow



Valley side mire habitat

One new Capital Grant agreement was signed to support developing a water supply system that will allow improved grazing management and exclude livestock from a watercourse. We will be working with the land holding to develop their grazing strategy and advise on the preparation of their Countryside Stewardship application.

Through the handover of the project from ENPA to FWAG there has been continued engagement with several farmers. This has resulted in the completion of three capital works plans, including almost 6,000m of water supply pipes being installed to facilitate improved grazing management, through rotational grazing and facilitating removal of livestock from watercourses. We have also completed a project to install a series of leaky dam structures within an eroding moorland edge ditch to slow the flow in the ditch with the aim of reducing erosion and sediment transfer within the catchment.

In response to previous advisory visits and to restrict face to face engagement, the team has started to develop a Grazing Management field guide for farmers. The aim of this is to help support farmers in:

- Identifying flowering species in their grasslands as well as key invertebrates such as butterflies and bees
- Assessing soil health and structure
- Managing grazing to achieve requirements of agri-environment scheme grassland options
- Planning grazing and managing risks from winter grazing, slope, and internal parasites in livestock.

The idea has been supported by various partners and is seen as a timely piece of work that will support our advisory services and highlight the role of permanent grassland within farm businesses, helping them make the most of these fields environmentally and agriculturally.

Matched funding secured – none

South West Peatland Partnership

Catchments: Burrator, Upper Exe, Bodmin moor catchments, Dartmoor catchments

On going Projects: DEFRA funded peatland restoration on Dartmoor and Bodmin moor

New WINEP schemes:

- WINEP DWPA scheme for Dissolved Organic Carbon (DOC) in Burrator catchment
- WINEP project to improve *Sphagnum* regeneration on restored Exmoor moorlands and to reduce damaging impacts of Exmoor moorland boundary ditches on peatlands and downstream flows (this element shared with FWAG)

Update for Quarter 1:

ODI delivery in April: 0

Total so far in year 1: 0

Yearly Target: 600

April to August is a closed season for peatland restoration owing to ground nesting birds. However, during quarter 1, the team have continued to prepare for restoration starting in August with plans compiled for sites across the three moors.

We have also carried out mapping work and collated data for the Water UK response regarding peatland restoration opportunities for all water companies and their commitment towards the Climate Neutrality by 2030. We also mapped and estimated costs for peatland restoration across the whole of Dartmoor (river catchment by catchment scale).

On Dartmoor we have carried out site visits to Holne Moor, Hangingstone, Black Hill, Left Lake and Burrator. The Holne Moor site is working in conjunction with the Dartmoor National Park/Environment Agency Natural Flood Management project along the River Mardle. We are establishing what works are to be carried out and whether there are any collaboration opportunities between projects. The Burrator visits was in conjunction with SWLT to look at SWW's land holding and better understand the conditions of the habitats there to inform future proposals.

Site visits were carried out on Exmoor to discuss proposals with a range of stakeholders (Exmoor National Park Authority staff, landowners, SWW staff) on three sites. We also carried out site to Bodmin Moor to finalise restoration plans, meet with contractors and farmers.

Bird surveys that have been carried out on Exmoor and Dartmoor this season have seen some extremely positive results. For example, waders have been successful in breeding on sites where mire restoration has taken place.

Due to Covid-19 restrictions, vegetation monitoring on Exmoor has had to continue on a smaller scale meaning fewer transects have being completed.

Matched funding secured - none



Horsen farm with ditch showing erosion

South West Lakes Trust

Catchments: Burrator

Project: WINEP Habitat Regulations Investigation into species and habitat potential in SWW landholdings in the catchment.

Update for Quarter 1:

[There are no ODIs for this part of the project]

Initial introductions have been made with key stakeholders (SWW tenants, Commoners, MoD, Dartmoor National Park Authority and Burrator Advisory Group) to inform them of the project and find out about existing agri-environment agreement obligations. When safe to do so we will meet face to face to discuss current management of land including grazing and bracken control.

A data search has been undertaken by Devon Biological Records Centre (DBRC) to provide species records for the SWW landholding. We are in the process of collating this data with our records to look for any data gaps to prioritise future survey effort.

SWLT has started to contact local recording organisations (RSPB, Butterfly Conservation and Buglife) to explain about the project and seek help with management advice and encourage them and their volunteer recorders to get involved. Other recording groups will be contacted when it is safe for groups to go out monitoring on site.

Burrator Reservoir

Contractors have been employed to undertake a Phase 1 habitat survey – they will focus on identifying NERC habitats which will also include a Biometric (biodiversity value) assessment. A drone survey is planned to provide baseline data for long-term habitat monitoring. The final report will be used to help tailor more detailed survey work, this is due in August 2020.

No site visits were permitted during April because of Covid-19 restrictions, but in May we were given permission for site surveys. SWLT's Biodiversity Officer and Ecologist have carried out bird, butterfly and dragonfly/damselfly surveys during May and June.



Burrator Reservoir



Sheepstor at 7am on a ring ouzel survey

Ring ouzel have not been officially recorded in the area since 2013. Early morning surveys using playback technique were undertaken across two 2km tetrads. A subsequent visit in June involved recording bilberry presence and grazing pressure at each playback point. Unfortunately, no ring ouzel were recorded.

Since 2011 large areas of larch have been felled because of phytophthora around the immediate reservoir. These areas of clear fell make ideal habitat for nightjar. The last record of nightjar on site was in 2009. We have undertaken three dusk surveys, focussed around the large clear fell areas, and have recorded a minimum of six churring male birds, with contact calls and wing claps heard, indicating pairs of nightjar present.

Butterfly surveys

Burrator County Wildlife Site (CWS) supports an abundance of devil's bit scabious, the food plant of the marsh fritillary butterfly, which was last recorded here in 2011.

A survey was undertaken on 20th May to establish presence, one butterfly was recorded defending its territory. Follow up web counts will be undertaken during August/September to look for caterpillars to confirm breeding.

Whilst out on site we also recorded other priority species such as green hairstreak, small heath, and small pearl-bordered fritillary.



Marsh fritillary butterfly

Dragonfly/damselfly surveys

Gutter Tor Mire CWS is known for its dragonfly and damselfly population. Both ditches in this area have been surveyed with good numbers of large red damselfly, keeled skimmers and demoiselle recorded. It was also fantastic to discover a wet flush with over 130 heath spotted orchid flower spikes. Similar species have also been recorded on Burrator CWS along with four spotted chasers.



Keeled skimmer (female)



Heath spotted orchid

Several virtual meetings have taken place between various partners working on different WINEP scopes covering Burrator, the Environment Agency and the West Country Rivers Trust ProWater project to establish collaboration between different organisations.

Match funding secured for Q1 - none

Catchment Sensitive Farming

Catchment: Dorset Stour

Project: Metaldehyde use engagement and other catchment management outcomes

Update for Quarter 1:

ODI delivery: 413.5ha

Total so far in year 1: 413.5 ha *(**Countryside Stewardship agreements figure tbc**)

Yearly Target: 600 ha

In spite of the disruption caused by Covid-19 CSF have got off to a good start this quarter. Despite working remotely with farmers and agents this summer they have been receptive and understanding of this new way of working.

Countryside Stewardship

The main area of work for Catchment Sensitive Farming (CSF) over the last quarter has been responding to Mid-Tier Countryside Stewardship enquiries from farmers and providing support and guidance with their applications. In total CSF have had input into 45 Countryside Stewardship applications in the Stour catchment, of which 25 were full five-year Mid-Tier applications and 20 were Mid-Tier Water Capital items only applications.

The demand for CSF involvement and support for Mid-Tier applications this year has been heavy (30% higher than in previous years). CSF have been advising farmers on suitable Mid-Tier options and items that support and enhance Natural Capital in the catchment to the benefit of water quality and wildlife.

We have been helping farmers to achieve a balanced and well-rounded application which will enable it to be scored higher and this should result in enhancing the likelihood of an agreement being offered in what is a competitive process. If provided with an agreement they will become live on the 1st January 2021 and we will report this delivery against our year two ODI.

Countryside Stewardship delivery highlights:

A Mid-Tier that CSF has been heavily involved in is at Stalbridge Park Farm. The farmer here has agreed to do 28.5 ha of enhanced management of maize (SW5), which entails establishing cover crops after maize harvest, 10 ha of low-input grassland (GS2) and 12 ha of legume and herb rich swards (GS4). This is alongside proposals to roof over two livestock feed yards and a livestock gathering yard, to collect rainwater off these new barns and to lay a new track in an area coming out from the yard which is heavily trafficked by livestock and farm machinery.

CSF have had significant input into a Mid-Tier application for Sherborne Castle Estate covering some 200 ha and we are proposing options that will be of benefit for soil, water and resource protection.

Options include arable reversion to grassland in a field which should not be in arable cultivation as it is at risk of soil erosion, which will be used in combination with a nil-fertiliser supplement, a large buffer strip alongside a watercourse, cover crops, low input grassland and winter bird food.

In this Mid-Tier Countryside Stewardship application, the estate is also proposing to construct a covered manure store to provide the safe and dry storage of farm yard manure and biosolids, whilst also reducing the risks arising from trying to field heap materials on heavy land in wet weather. This is recommended by CSF and we are supporting the estate in this application.



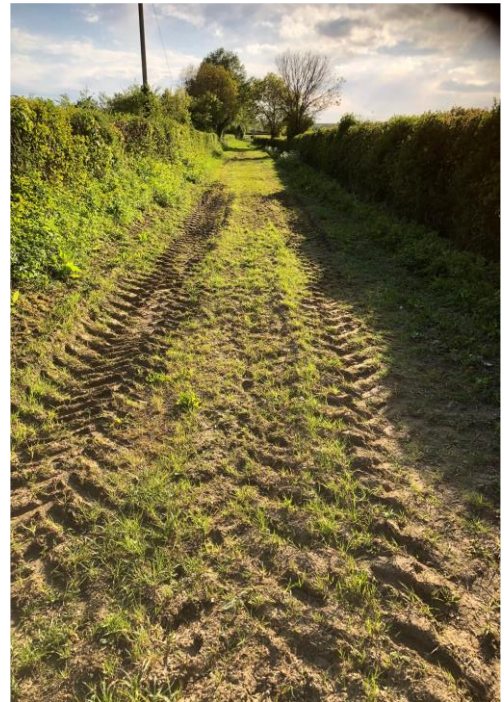
Spring linseed on the Sherborne Castle Estate

Metaldehyde delivery highlights

CSF have been in contact with the Farm Manager of St Giles Farms, which forms part of the Shaftesbury Estate. The arable farm holding covers over 1900 ha in the River Allen catchment. CSF discussed the local issues we have with the presence of metaldehyde detected in surface waters of the Stour and its tributaries. This is clearly a large and significant holding in the Allen catchment. We have advised and encouraged them to make the switch from metaldehyde based slug pellets to ferric phosphate. This discussion is ongoing.

Our metaldehyde end of year report has been produced and shared with Bournemouth Water, the Environment Agency and UST catchment partners. CSF have also been inputting into the production of the final metaldehyde investigation report which needs to be submitted to the Environment Agency at the end of the year.

Image - proposed new track which CSF are supporting on the Sherborne Castle Estate to reduce the reported issues of run-off from track causing road problems in the village of Thornford.

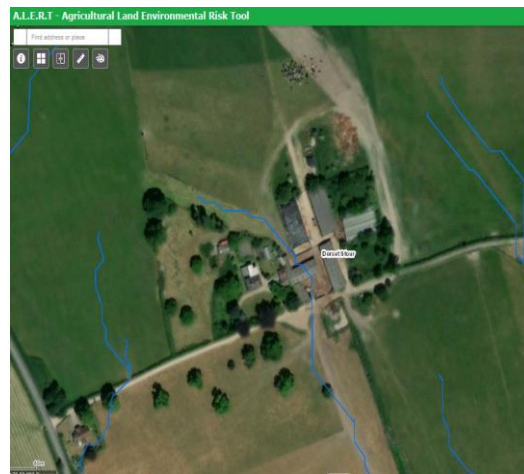


Sherborne Castle Estate

Agricultural Land Environmental Risk Tool (A.L.E.R.T.) delivery highlights

CSF have been using A.L.E.R.T. which is a web map application produced by the Environment Agency and contains some of the latest Sentinel-2a satellite imagery and a variety of spatial data layers that have been useful for catchment planning and management for improving water quality. The flow pathway data is modelled from digital terrain data.

This tool has been used to assess the location suitability of different Countryside Stewardship options in Mid-Tier applications. This tool has particularly come in useful when appraising the location of proposed livestock tracks. Livestock tracks can often be beneficial in reducing poaching, however, if not situated correctly in the landscape they can function as a conduit for sediment and nutrient laden water to enter a watercourse or farmyard. This is particularly the case where a track aligns with an overland flow pathway causing the track to wash out and potentially contribute to the diffuse water pollution issue.



(Left): Request received from a farmer showing proposed livestock track location.

(Right): A.L.E.R.T. output showing a clear overland flow pathway on roughly the same stretch proposed for a livestock track.

Outcome relating from these images: This track could act as a conduit for sediment and nutrient laden water to enter the farm yard potentially exacerbating to further problems unless we can sufficiently mitigate and reduce the inherent risks associated with the track through use of cross drains. We have shared this with colleagues to discuss whether we should support this provided there is sufficient mitigation included.

Match funding secured – none

North Devon Pioneer ELMS trail

Catchments: Wistlandpound (catchment outputs shared with DWT)

Projects: Natural England's North Devon Pioneer ELMS Trail, farm business engagement and planning in the Wistlandpound Drinking Water Safeguard Zone. This is a starting point for delivery of the new WINEP scheme with DWT.

Update for Quarter 1:

[There are no ODIs for this part of the project]

The North Devon Pioneer ELM trial is part of the Defra ELM Tests and Trials programme which Defra initiated in 2018 as a mechanism to co-design the ELM scheme with stakeholders and to help refine and improve the policy framework and delivery methods. It is hoped that the tests and trials will help Defra understand how critical building blocks of the new scheme could work in a real-life environment. This includes understanding the practicalities and requirements of the new scheme, such as how to incorporate local priority setting and what a Land Management Plan (LMP) should comprise.

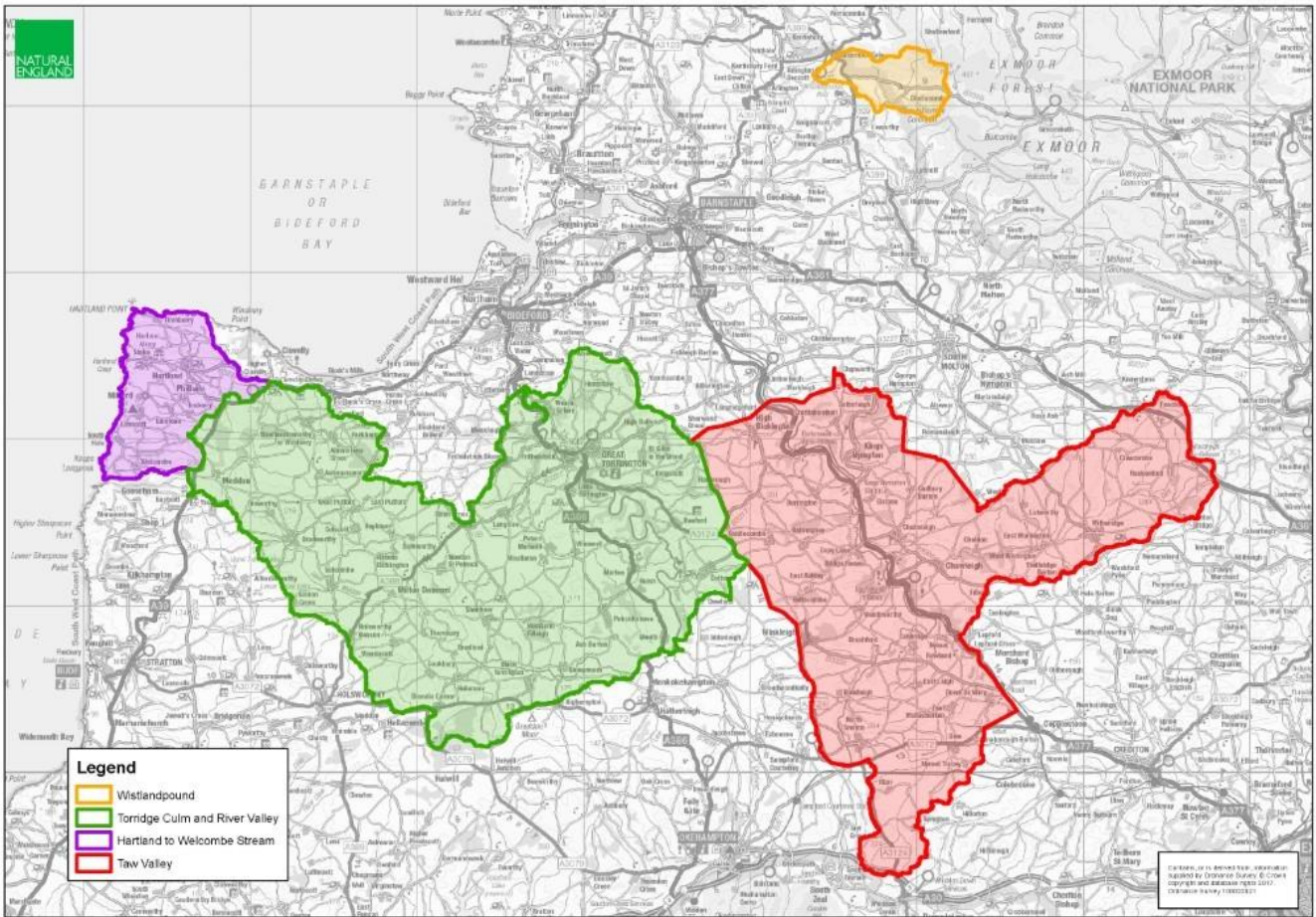
The goal of the North Devon Pioneer ELM Trial is to identify a mechanism to change the relationship between farmers, Government, and society by motivating behaviour change. At the heart of this trial is the ambition to gain consensus on the priorities for the landscape across a broad range of stakeholders, including land managers and communities, and clearly articulate these to land managers, encouraging them to make Natural Capital offers to meet the demand for public services. The trial will do this by working with stakeholders and farmers to agree local priorities for ELM delivery in the local area. Stakeholders will be presented with the current national priorities for the landscape area and will be asked to refine them, based on their local knowledge and any locally available data they hold. Landscape plans for each landscape area will then be prepared, which clearly articulate the key local priorities for each area.

We will then work with 28 farmers, across the four landscape areas, one of which is Wistlandpound to develop an LMP for each holding. To facilitate this process, we will create farm packs which show available baseline information regarding the quantity and quality of the Natural Capital on the holding. This is designed to help farmers and their advisers produce an LMP that delivers the agreed ELM priorities for their area, identified in the landscape plan.

The focus for quarter one has been identifying the four landscape areas within which the trial will operate (Wistlandpound, Hartland, Torridge Culm and river valley, and the Taw, shown on the map overleaf), and agreeing landscape priorities based on the six ELM objectives identified through the 25 Year Environment Plan: clean air, clean and plentiful water, protection from and mitigation of environmental hazards, thriving plants and wildlife, beauty heritage and engagement with the environment, mitigation of and adaptation to climate change.

A stakeholder consultation exercise is underway, run by FWAG SW, which includes a questionnaire with associated maps followed up with 1-1 calls and an online workshop to establish and agree the priorities in each landscape area. The results of this work will be available in the next quarter.

This will be followed by engagement with farmers and land managers in the landscape areas to agree how the identified priorities can be delivered at the local level.



Four trial landscape areas

During this quarter there has also been the development of farm scale Natural Capital indicators which will be tested on farms through the land management plans during the summer and autumn (Q2 and Q3). This work involves the input of specialists from Natural England, who are closely engaged with the ELM programme.

The recruitment of farmers to the trial has been underway since the end of May, the aim being to recruit around 70 farmers to participate in option 1: *Helping agree what ELM should deliver in your local area, and how this could be achieved* and up to 28 farmers to participate in option 2: *Testing the Land Management Plan template and creating three costed ELM land management scenarios for your farm*. DWT have assisted Natural England with contacting farmers in the Wistlandpound landscape area to encourage participation in the trial.

A specialist farm business finance contract is currently out to tender and will be let in early August. Farm business situation reports will be produced for the 28 farms participating in option 2 of the trial during the summer and autumn (Q2 and Q3).

Projects:

WINEP DWPA Investigations in Tavy, Meldon, Colliford and Avon catchments.

WINEP scheme monitoring outcomes in Exmoor, Roadford, Wistlandpound, Burrator, Stithians. Ongoing Business Impact and Mires Monitoring programmes.

Update for Quarter 1:

[There are no ODIs for this part of the project] but there are EA reporting and completion deadlines for the WINEP elements.

Due to COVID-19, the restriction of several activities has impacted on the planning of our work. University guidelines have prevented face to face meetings, all fieldwork and lab work. Purchasing of equipment has also been restricted. In this context, work has focused on the following areas:

Strategic planning

Draft monitoring plans have been created for each New Scheme, Investigation and Business as Usual (BAU) catchment.

Partners and project collaborations

Several meetings with project partners have been organised to establish a coherent approach for the monitoring of water quality in all new schemes, investigations and BAU catchments. Additionally, we have established regular communication with the SWEEP 009 team for the development of the UST3 reporting tool to ensure the integration of intervention reporting and monitoring.

Overall, we aim to establish a strong collaboration with all project partners in each catchment to create a cohesive and joint monitoring programme which will be both time and resource effective.

Fieldwork and lab work

In the context of new Covid-19 restrictions, a significant task has been to assess and amend our risk assessments covering all site visits, site installations, maintenance, and sample collection. These documents have now been approved by the University of Exeter; fieldwork and lab work will resume in the coming weeks.

However, the new health and safety requirements will bring changes to our ways of working; for instance access to laboratories and equipment is currently substantially restricted (e.g. opening hours and presence in the building), which will have a significant impact on the work that can be achieved.

Data collection

Building on previous phases of the project, a formal procedure is being put in place to facilitate data transfer and collection from SWW. Work is underway to establish a complete list of data requirements for each catchment. Environment Agency water quality data for the catchments of interest were obtained to enable analysis of historic long-term trends.

Data analysis

In addition to all the planning work, high resolution, optimised watershed modelling and flow routing in the Burrator catchment is underway.

Appendices

Appendix 1 – Summary of Q1 Match Funding

Catchment	Quarter 1 April -June	Quarter 2 July -Sept	Quarter 3 Oct-Nov	Quarter 5 Jan- March
WRT and DWT	£632,305			
CWT	£2,500			
FWAG	£0			
SW Peatland Partnership	£0			
SWLT	£0			
Catchment Sensitive Farming	£0			
Total	£634,805			

Table shows the value of match funding secured by each partner

Appendix 2 – Project Case Studies for Quarter 1

WRT Case Study – Coping with heavy rainfall

WRT have been working on a grant application for an extensive beef and sheep enterprise located in a valley on Parkhouse Water stream, which feeds into the River Exe (see Fig. 1). During heavy rainfall, the farm becomes waterlogged, causing rapid runoff.

Issues

- Heavily silted existing ponds reducing water storage capacity on the farm (See Fig. 2)
- Erosion from rapid runoff and stock poaching
- Sediment deposition and pollutants entering the watercourse, due to rapid runoff
- Featureless, straight ditches and poor drainage (see Fig. 3)
- Poorly located drainpipe and stock/vehicle access.



Figure 1. Location of farm on the Exe



Figure 2. Heavily silted existing ponds reducing water storage capacity on the farm

Figure 3: featureless, straight ditch

Solution

Installation of multiple new ponds and scrapes (see Fig. 4), de-silting and restoration of existing ponds, as well as woody dams in ditches to slow the flow of water through the farm, and allowing silt to drop out before the water enters the main stream. A gateway will be culverted to take clean water away and the area will be given a hardcore surface. The DWT advisor is also giving guidance for the Countryside Stewardship application, as the farm has semi-improved pasture and hay meadows that have the potential to increase species and structural diversity. Habitat creation through UST, combined with the planting of trees by the farmer, should help provide a solution to issues on the farm and enhance biodiversity. In addition, a programme of biodiversity and water quality monitoring is being set up to record changes.

Positive results

- Reduction in turbidity and suspended solids in the watercourse, plus reduced associated pollutants such as phosphate
- Reduced speed of run-off as the water will be held up by a series of ponds and woody dams
- Increased biodiversity from the increase in wetland habitat, particularly standing water
- Less sediment and pollutants entering the watercourse means less chemicals required to treat the water, thus reducing costs to SWW and the consumer.



Figure 4. Location of wetlands scrapes and ponds on Exe

CWT Case Study - Countryside Stewardship - benefits for water quality and wildlife

Through UST, Cornwall Wildlife Trust have been working with a key landowner in the Cober catchment since 2016, supporting their farm business through land management advisory and technical services. Soil testing and nutrient advice has already resulted in positive outcomes, improving grass yield and quality, whilst also safeguarding soil and nearby watercourses (the farm is adjacent to two tributaries of the river Cober). The majority of the farm is located within the upper Cober catchment, including a large wildlife-rich moorland County Wildlife Site (CWS), as well as landholdings within the Stithians catchment.

CWT are supporting the farm with their Countryside Stewardship Mid-Tier application this year for management options on the farm's Cober and Stithians holdings to address free cattle access to ditches and watercourses, and further yard interventions, to reduce dirty water volumes entering the river Cober. A jointly funded SWW and EA capital project in AMP6 for track resurfacing, yard concrete and fencing has already successfully reduced run-off from the farm.

The CWS holding ELS/HLS expires this year, but to safeguard the moor, our intervention and management advice is vital to ensure that a new agreement is put in place.

Our Ecologist is reviewing the current HLS agreement and developing a management plan to support the management agreement renewal with Natural England. Areas of semi-natural habitat and non-productive land are often discounted by landowners/farmers and without the support and advice offered through UST, are under-managed (or not managed at all) for the benefit of the farm business and/or wildlife.

Through our positive engagement on the main farm holdings, farmer confidence is high, and we will be supporting renewal of the HLS agreement and a Higher-Tier Countryside Stewardship application in 2021.



The CWS has historic features and considerable wildlife interest. A habitat of heath, acid grassland and mire, the site supports a range of plants and invertebrate species, attracting birds of prey and wintering Snipe. Harvest mice have been recorded locally and it is the preferred rutting site of red deer.

Over the winter months the Wild Cober Volunteer group have been doing practical tasks, such as clearing scrub and cutting firebreaks, to help manage the existing Stewardship.



Pale Butterwort

During a recent survey to review the current HLS agreement we recorded two specialist bog plants: Sundew (right) and Pale Butterwort (left). These records are 'significant' and the sundew has been verified as the rarer Oblong-leaved Sundew, the first record of the plant for this 10km square since 1982. Both plants are reliant on grazing to keep the vegetation short. The sundew only colonises bare ground, occurring where the cattle have lightly poached the ground.

These plants have a direct link to management of the site by grazing, and it is unlikely the owner would be motivated to graze the site without the benefit of Stewardship payments.



Sundew

The work that CWT are doing through UST to support Countryside Stewardship applications are vital for the survival of these plants, as well as other wildlife habitats that are at risk from being lost or destroyed.

FWAG Case Study – Grassland reseeding trial

Background

In this first quarter the HotE project set up a grass reseeding trial to test a technique which could reduce some of the risks associated with grass reseeds. The field is part of a beef and sheep farm covering 500 ha of grassland and moorland within the Headwaters of the Exe Catchment. They reseed a similar area each year on their improved grassland fields.

The issue

Typically, in preparation for grass reseeding, the soil is cultivated to create a very fine tilth to ensure good soil-seed contact. Inevitably, this can lead to over cultivation causing soil degradation which can have knock on effects to the services that a healthy soil provides. Our winter surveys of soil structure have identified this as a common issue in the catchment.



As you can see from this photo, in the soil profile in the field included in the reseeding trial, the survey found moderate compaction in the top layer of the profile and good structure at depth.

This led to the decision to reseed with a direct drill to preserve the soil profile.

Due to the dry conditions it was decided to undertake remedial action through slit aeration in the autumn.

Solution

The machinery used was a SimTech Aichesen direct drill which is relatively small, simple piece of kit. The seed feeder, which is a series of spring mounted, foam-line rotating discs, is suitable for any seed size making it suitable for a wide range of crops. It also boasts the ability to drill into untouched or cultivated soil, living or sprayed crop, providing an option for use in over-sowed existing swards.

The photo on the right shows the drill operating in field with minimum physical disturbance to soil structure.



Outcome

It is too early after the establishment of the grassland to monitor the impact. We plan to monitor the field over the coming months, looking at sward establishment and soil conditions. It is likely that the field will benefit from sward lifting to address some deeper, historic compaction; something that would have ideally been done before establishment, but this is more appropriate in early autumn when ground conditions are more suitable.

Benefits of this trial

The aim of the project is to raise awareness of the risks from grassland management to the environment from a range of issues such as erosion and run-off. A range of solutions are available to farmers from changing management practices to improve reseeding for the benefit of sward productivity and soil health. The benefits we are targeting are to preserve soil structure and carbon. We are targeting a reduction in the risk of creating compaction issues from de-stabilising the soil structure and matching the cultivation to any soil structural issue identified in the field. This also helps to improve water infiltration into the soil, reducing run-off risk and risk from faecal and nutrient contamination, and improving the swards resilience to drought conditions by improving water retention in the soil.

CSF Case Study – Maize under-sowing

Throughout June and July, we have been working with Farm Managers of the Hinton St Mary Estate and Sherborne Castle Estate to facilitate a trial of maize under-sowing on their respective estates. This is because a local contractor purchased an inter-row maize drill and we have been encouraging some Stour farmers to utilise the service and have been co-ordinating with the contractor and the farmers on its operation in the catchment.

Maize under-sowing is the practice of drilling grass into the rows of maize crops 6-10 weeks after the maize has been established. The benefits of this practice is that it reduces the need for further field operations in late autumn when the ground conditions may not be suitable, therefore preventing the likelihood of soil erosion whilst reducing nitrate leaching. It is still a relatively new concept for many farmers and by facilitating this we were able to secure the under-sowing of 13.5 ha in the Stour catchment.



(Left): Under-sown maize on the Hinton St Mary Estate which will provide instant cover after maize harvest thereby reducing bare maize stubbles over winter which are a usual sight in the Stour catchment (see right). By establishing a cover over winter, it will significantly reduce the likelihood of soil erosion and run-off compared to bare soils.