



Upstream Thinking

South West Water's Catchment
Management Programme
Upstream Thinking 3 (2020-2025)

AMP7 Quarterly Report

July - September
2020



South West Water

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 (2020-2025) are:



Schemes

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

Investigations

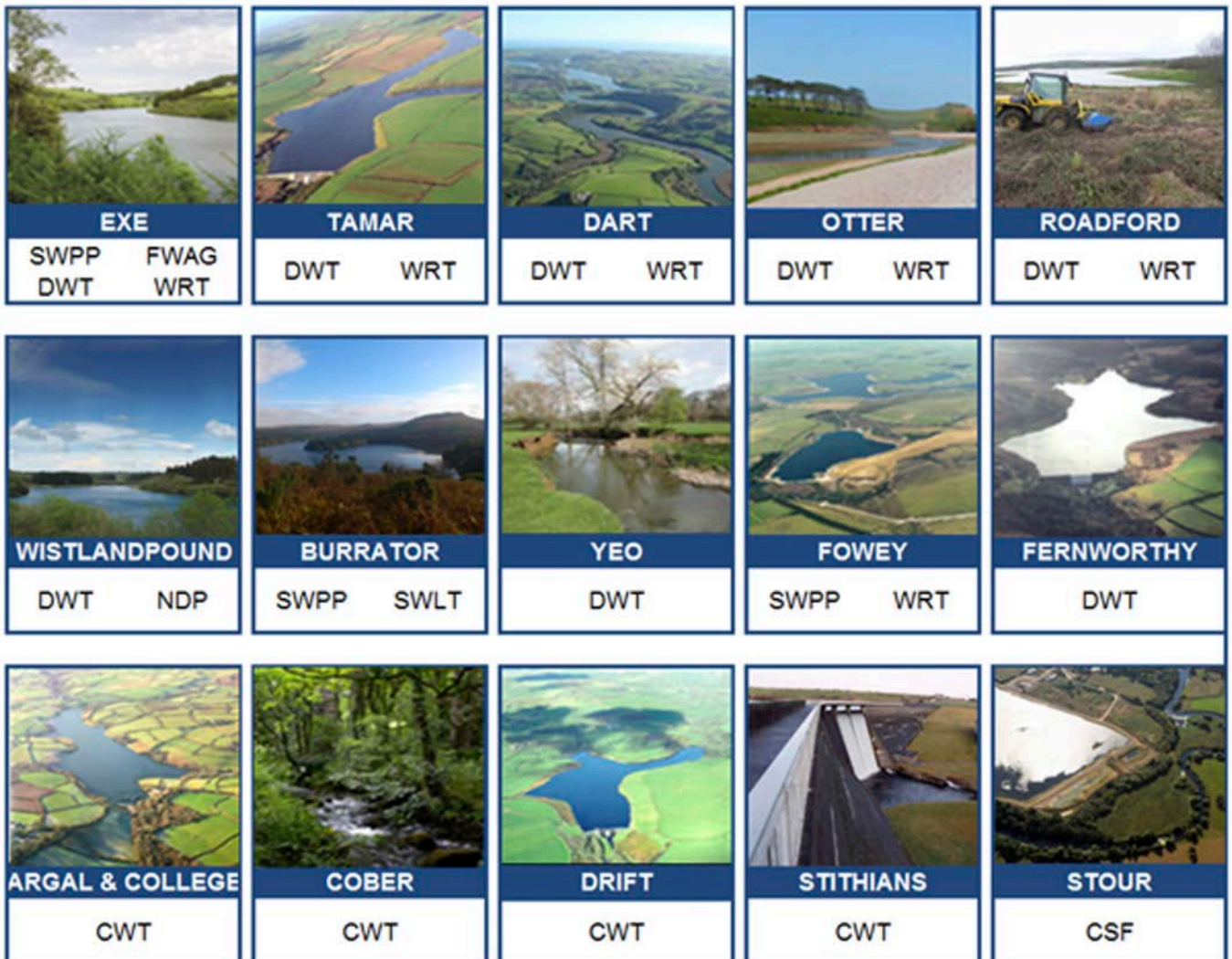
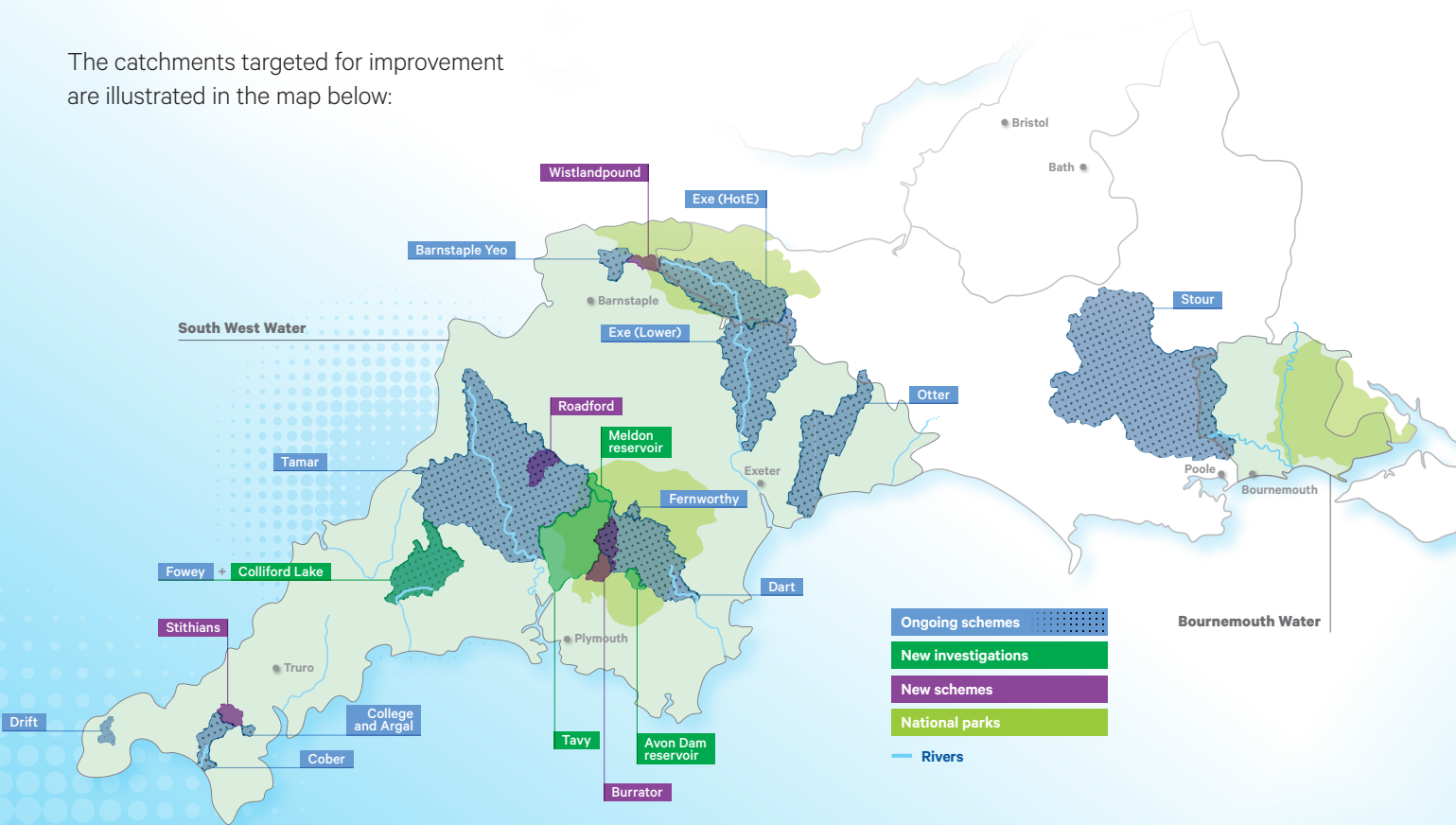
Burrator; Avon; Tavy; Meldon; Colliford (Fowey). These WINEP investigations are to be completed by March end 2022.

Upstream Thinking is managed by **Dr David Smith**, **Crawford Munro** and **Amber Willis** for South West Water.

The Delivery Partner Project Managers are:

Tom Hicks	Catchment Sensitive Farming
Daniel Poole	Cornwall Wildlife Trust
Ruth Testa	Devon Wildlife Trust
Adam Lockyear	Farming and Wildlife Advisory Group
Moira Manners	North Devon ELMS trail
Stephanie Knights	Westcountry Rivers Trust
Prof Richard Brazier	University of Exeter

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



Summary

2020-2025 AMP7 Upstream Thinking Programme

This five year programme is a combination of new Catchment Management Schemes and Investigations as specified on the EA WINEP and the continuation of ongoing AMP5/6 work in the SWW and Bournemouth Water areas. The outcomes contribute to:

- Improved raw water quality and supply and long-term business resilience
- The new Biodiversity Improvement ODI “**Hectares of new catchment management**” which is penalty/reward with one of the largest potential rewards in the AMP7 plan
- 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. To achieve this alongside the WINEP Investigation (2-year) commitments the programme is profiled to ensure sufficient funds in years 1 and 2 to provide the resources to the Delivery Partners for the stretch targets and outcomes.

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.

Westcountry Rivers Trust (WRT) and Devon Wildlife Trust (DWT)

Catchments

Exe, Tamar, Dart, Otter,
Fowey, Yeo, Wistlandpound,
Roadford, Fernworthy

Ongoing schemes

Exe, Tamar, Dart, Otter,
Fowey, Yeo, Fernworthy

New WINEP schemes

Wistlandpound, Roadford

Partner(s)

Westcountry Rivers Trust
(WRT) and Devon Wildlife
Trust (DWT)

ODI delivery in Q2

New hectares this month

1,651.7 ha

Total so far in Year 1

2,524.2 ha

Yearly target

4,100 ha for DWT
4,100 ha for WRT

Update for Quarter 2

WRT and DWT have been working together to develop a new water monitoring plan for UST3 so both organisations are targeted in its delivery and using the same sampling methodology. WRT have developed a tool using *Maptionnaire* for Farm Advisors from both organisations to map existing water quality monitoring sites, current issues (e.g. flow, pollution), NFM opportunities and priority habitat.

DWT have a target for S41 species recovery projects and Farm Advisors in each catchment have been working these up into plans which we hope to share shortly.

Dart

WRT have appointed a new Farm Advisor to support the Senior Farm Advisors on the Dart and Otter catchments. The WRT Farm Advisor for the Dart is working with the Dartmoor Headwaters Natural Flood Management project, evaluating the structure of the soil in the Dean Burn and Mardle catchments. The aim of the survey work is to identify problem areas where excess rainfall is unable to percolate through the soil profile, leading to inevitable coloured surface runoff, erosion, flooding and watercourse pollution. Remediation measures or land use change will be recommended as appropriate, including the use of soil aerators, subsoiling, buffer strips, change of cropping practice or woodland planting.

DWT work has been completed at a farm in the top of the catchment, restoring mires, and this is a real win for biodiversity and water quality in this area. One highlight this quarter, was a site visit to a community group in Staverton who are trying to improve the biodiversity across the village through restoration of the verges. These verges also present an important opportunity for filtering out sediments from run-off onto the roads and into the River Dart. The active group also hopes to encourage other landowners in the village to improve their biodiversity. DWT will be working with the group over the next year providing best practise advice on the restoration of the verges and involving them in water quality monitoring with the WRT citizen science project.

Priority species for the Dart catchment

Marsh Fritillary

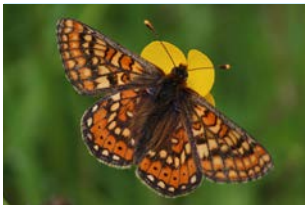


Photo: Andrew Taylor



Mire rewetting,
Dartmoor



Soil profile dug to evaluate soil structure in the catchment of the River Mardle



Conservation tillage drill in use and cover crop finally going in

Priority species for the Otter catchment

Southern Damselfly

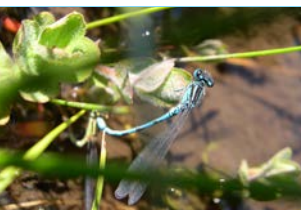


Photo: Roger Hamling

Priority species for the Tamar catchment

Marsh Fritillary
Willow Tit



Otter

A highlight for WRT from the Otter catchment this quarter was the Soil Health Day with Exe Farmers. The WRT Otter Farm Advisor was invited to speak at the Exe Valley Farm group's monthly meeting to discuss the wider societal and local on-farm benefits of healthy soils and improvements in their farm's efficiency/profits. Also discussed was the financial cost and impact of degraded soil to the UK economy and the farming sector. Using buried cotton as an indicator of soil health, we 'planted' two pairs of white pants in some grassland fields to measure the soils biological activity. Healthy soils should see a large proportion of the cotton being broken down into the soil after a two-month period (depending upon weather conditions).

DWT have been busy working with landowners to harvest wildflower seed allowing them to restore and create new meadows across the catchment. A large Higher-Tier Countryside Stewardship application has been submitted allowing for the restoration of 26 ha of grassland over the next two years. A Mid-Tier application was also submitted for roofing and yard works at a dairy farm in the upper catchment. A further three Countryside Stewardship applications were submitted by DWT for land in the catchment.

WRT's reduced tillage drill has been used on conservation plots and cover crops. Conditions were good at establishment, so now they will wait and see what the weather brings. Reduced tillage should help the soils build up soil organic matter and become more resilient.

DWT had a site visit with SWW to the DWT Venn Ottery nature reserve to look at areas where habitat could be improved for the Southern Damselfly – the S41 species for this catchment.

Tamar

WRT have appointed a new Senior Farm Advisor on the Tamar and DWT also welcomed a new Farm Advisor to the team.

There has been a lot of interest in watercourse fencing and woodland planting on the Tamar over the last few months. During this quarter, farmers have responded well to the biodiversity focus of this round and they are keen to plant trees as part of their biodiversity gains. Several grants are currently being worked up by WRT to include hedgerow planting and pond reinstatement on the River Carey. A new roof over a yard area has been proposed to reduce dirty water, with a treatment/ settlement pond to collect roof water run-off at a farm on the River Inny.

On the River Deer, the WRT Farm Advisor for the Tamar has been working on a proposal with a farmer to install a rainwater harvesting system to separate clean and dirty water and provide drinking water for their stock.

DWT have been creating and restoring meadows in the Tamar Catchment, with the Habitat Creation Officer harvesting and sowing seed. An introductory letter for UST3 has been sent to all DWT contacts and this is generating a lot of interest. Marsh Fritillary surveys have taken place with a successful visit to one SSSI resulting in 15 webs being counted, where in 2019 there was only one and in 2018 none. DWT will continue to work with the landowner to ensure good management of the habitat.

Although they were understaffed on the catchment during the main summer months, DWT did manage to submit two Mid-Tier Countryside Stewardship applications and are starting to work with landowners on applications for 2021.

Roadford

During the last quarter there has been approximately 300 ha of subsoiling undertaken on the Tamar and Roadford catchments, which were contracted under Channel Payments for Ecosystem Services, (WRT led EU project) and delivered in parallel with UST3 by WRT. DWT has recruited a new Farm Advisor for the catchment and they have been making contact with landowners. DWT has continued to work with South West Lakes Trust on their Higher-Tier Countryside Stewardship agreement, and will be undertaking the grassland restoration work in 2021.



Maize growing right up to woodland, a buffer will now reduce the impacts of this

Priority species for the Exe catchment

Greater Horseshoe Bat



Photo: Mike Symes

Exe

DWT have been working across the Exe catchment, with 15 Countryside Stewardship applications submitted this summer. There has been a focus on maize this year, with farmers being encouraged to take up options to reduce the impacts of growing maize on water quality and biodiversity. This has included encouraging buffer strips at the edges of maize fields where they join with natural habitats.

Bat monitoring has started to take place across the catchment which helps Farm Advisors to make recommendations which will link the landscape. One of the DWT Farm Advisors is working with Mid-Devon District Council to find a solution to stream erosion, causing sedimentation problems in the river.

Two farms have benefited from meadow oversowing, and we hope to see the benefits from that next year.

WRT are working with a farmer/contractor on the Exe to deliver a cover crop trial which includes beans and vetch pre-maize. Strip legumes have been described as the drivers of soil health. Following on from some success this year where a maize crop was established using a strip-till machine, the farmer is prepared to trial the cover crop on 15 ha of an 80 ha plot. The aim is to choose seed varieties that feed the soil biology including mycorrhizal fungi and enhance the glomalin that is produced, which binds the soil particles together making the structure more stable. The cover crop would also increase surface biodiversity by providing refuges for overwintering beneficial insects and birds, with a 'hungry gap' feed supply in March and April.

The farmer will also undertake nutrition trials and the inclusion of variable nitrogen reductions through sections of the fields to monitor the impact on the crop. This will hopefully tie in well with the nitrogen captured by the cover crop and show how they can further refine nutrient management to meet crop need based upon antecedent conditions/practices.



Burying pants on a Soil health day with Exe Farmers



Area set aside for potential wetland creation on a farm near Lower Fawton

Fowey

The new WRT Farm Advisor on the Fowey has received in-house soil health training, which included VESS scoring, SOC sampling, infiltration, and bulk density testing. The Fowey Farm Advisor has been generating interest with farmers in tree planting to join up coppiced woodland, improving grassland management, and shelter belts etc. A visit to a farm in Lower Fawton, initially interested in yard infrastructure, has led to identifying areas for tree planting, watercourse fencing, and possible wetland habitat creation. Several landowners have enquired about pond creation and management, and their wider benefits to biodiversity.

Duchy College have been awarded £1.2m of The National Lottery Community Fund to run The Farm Net Zero project in partnership with Westcountry Rivers Trust, The Farm Carbon Toolkit, The Soil Association, and Innovation for Agriculture. This has secured five years of match funding on the Fowey and part of the Tamar catchment for UST3.

Priority species for the Barnstaple Yeo catchment

Lesser Horseshoe Bat



Barnstaple Yeo

The summer has seen the Yeo Farm Advisor assist with two Mid-Tier Countryside Stewardship applications, including a plan for clean/dirty water separation on a farm spanning the Yeo and Coombe Martin catchments. A grant application has been approved for hard standing and tree planting on a farm which is currently undertaking more extensive works in their year, and which should, as a combined project, lead to significant improvements in both the Yeo and Wistlandpound catchments. Five landowners have taken up the opportunity for small scale tree planting in the catchment and we hope that the trees will be in the ground by the end of the year.

Lesser horseshoe bats will benefit from being the S41 species here, with their maternity roost at Arlington lying in the centre of the catchment. This will allow the Farm Advisor to plan visits to connect up the landscape leading out of the National Trust estate. Bat detectors are already being deployed.



Habitat entered into CS MT agreement

Wistlandpound

DWT have a new Farm Advisor in post spanning the three reservoir catchments that we work in. They have been working with Natural England on their ELMs trial, and visited five farms in September. This included four new landowners that are keen to continue working with UST.

DWT and University of Exeter had a joint visit to Wispoundland reservoir to look at water quality monitoring and opportunities for joint working. This will be followed up as the new water quality monitoring plan develops. In addition, DWT are liaising with the Forestry Commission over upcoming felling plans around the reservoir itself.



Fernworthy

After a brief pause in water quality monitoring earlier in the year, this recommenced when the final push to finish last winter's felling started in July. The Forestry Commission completed this work in September, and whilst there were challenges due to the inclement weather in August, it was possible to minimise impacts on water quality. DWT are continuing to work with the Forestry Commission on site restoration plans and future felling around the reservoir.

The new Farm Advisor has been liaising with South West Lakes Trust on biodiversity monitoring and our S41 species recovery plans. These are still being confirmed.

Priority species for the Fernworthy catchment

Marsh Fritillary

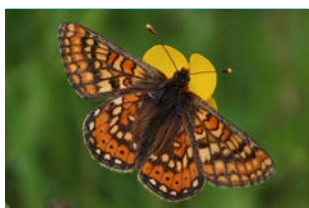


Photo: Andrew Taylor

Match funding secured in Quarter 2 July to September 2020

Source	Catchment	£
Countryside Stewardship	Otter (DWT)	171,864.97
Countryside Stewardship	Dart (DWT)	613,708.32
Countryside Stewardship	Exe (DWT)	211,855.76
Countryside Stewardship	Roadford (DWT)	80,648.98
The National Lottery Community Fund	Fowey & Tamar (WRT)	145,000.00
Total		£1,223,078.03

Cornwall Wildlife Trust (CWT)

Catchments

Argal and College, Cober, Drift, Stithians

Ongoing schemes

Argal and College, Cober and Drift

New WINEP schemes

Stithians

Partner(s)

Cornwall Wildlife Trust (CWT)

ODI delivery in Q2

New hectares this month

212 ha

Total so far in Year 1

412 ha

Yearly target

1,155 ha

Update for Quarter 2

The beginning of the quarter was focused on submitting Mid-Tier Countryside Stewardship applications, which will result in some key land management changes across the catchments, with benefits for soil health, water quality, grassland management and habitat enhancements for wildlife. CWT Farm Advisors and Ecologists supported 18 farmers to apply for land management and capital options. The total value of the five-year agreements is £742k, of which £475k is for capital works including over 10km of hedge repairs and fencing. A total 192 ha of land management options have been applied for, including 166 ha of low input grasslands, mainly deep-rooted herbal leys.

CWT and SWW UST project staff hosted a catchment tour for Cherilyn Mackrory, MP for Truro and Falmouth and Susan Davy, Pennon CEO, to highlight the benefits and delivery of the Upstream Thinking project. It was an opportunity to see first-hand the investment that has been made by UST as well as the support being offered to the farmer by CWT. Positive feedback was received from both Cherilyn Mackrory and Susan Davy, with the visit demonstrating the significant environmental improvements that can be achieved through CWT and SWW working in partnership.

Volunteer tasks have recommenced in catchments following the return of Volunteer Coordinators from furlough. Their return has highlighted the impact these groups have on the delivery of UST across the CWT catchments. (See the CWT case study in Appendix 1).

A new Farm Advisor has been recruited for the Stithians catchment. Due to its proximity to existing CWT catchments there will be a shared staffing resource with existing Farm Advisors from other catchment project teams. Despite the delayed start, farm visits, soil sampling and surveys are underway on new farms and Farm Advisors have capitalised on warm leads in the Cober and Argal catchments to discuss management advice on landholdings that cross-over into Stithians. There has been a positive response to date, with several farmers and landholders wishing to develop long-term management plans with support from CWT.

Detections of the pesticide Asulam were made in the Kennal sub-catchment of Stithians during late August. The samples were taken as part of CWT's routine monitoring and indicated the source as being in the upper reaches of the watercourse (as illustrated in the map). The presence of Countryside Stewardship agreements allows the application of Asulam using a knapsack sprayer in the period between July and September, however this land does not appear to be under a current management agreement. There were several detections of the herbicide in sub-catchment samples taken by SWW during 2019. These again were made outside of the application window, which may suggest that unauthorised usage is taking place. There are only a couple of landholdings where this could have originated from and follow up samples have been taken to trace the pesticide upstream and narrow down the source.



Asulam Detections upstream of Kennal Vale transfer station supplying Stithians Reservoir



Aquatic ecology survey

An aquatic ecology survey has been undertaken by Dr Bruce Forrest in the Stithians catchment. Macroinvertebrate monitoring was carried out in the other CWT catchments last autumn, with additional sampling planned for all four catchments in spring 2021. Invertebrates are good indicators of water quality and to monitor improvements in biodiversity of the watercourses over the APM7 delivery period, these surveys will be repeated at the end of the project.

Catchment Sensitive Farming funding has been secured in the Cober catchment to carry out soil sampling and associated Nutrient Management Planning Reports across five farms. The funding will also enable a Yard Infrastructure Audit to be undertaken on one of the catchment's largest dairy farms.

Farmers across the catchments have been implementing Mid-Tier Countryside Stewardship agreements that started this year. In the Argal and College catchment capital work to stock proof fields above College Reservoir is well underway, with the installation of fencing, new troughs and access gates to allow the introduction of a new small herd of conservation grazing ruby red cattle.



**Fields above
College Reservoir**

Two of the farm's fields have been taken out of low input management options to enable for the submission of an application for a More Woodland Grant. This is to support setting up a new agroforestry (grazed woodland), comprising largely of fruit and nut bearing trees, with 6m species rich meadow in between the tree rows. This area will also benefit from Countryside Stewardship capital works comprising of more water troughs and a moveable electric fencing so that it can be mob grazed, as well as a new permanent hedge line which includes 30 fruit trees. The farmer has said that he would not have been able to achieve this without the support of CWT's Farm Advisor, and looks forward to continuing working with CWT to develop the agroforestry grant project, as well as possible funding through Plantlife to support additional meadow creation.



Sowing seed by hand

Working in partnership with the Penwith Landscape Partnership (PLP) a meadow enhancement project has been undertaken in the Drift catchment. Overseen by UST Farm Advisors, PLP provided funding for the cultivations which was undertaken by two local farmers; seed was collected from a local wildflower donor site; then local volunteers sowed the seed by hand.

CWT's Ecologist in the Argal and College catchment has been supporting BF Adventure with their National Citizenship Scheme (NCS), delivering a wildlife walk to highlight the importance of heathland habitats and the relevance of protecting such habitats for climate change. As well as giving them an insight into the Upstream Thinking project, the talk also demonstrated how CWT are helping landowners across the catchment.

Match funding secured for

Quarter	Source	Catchment	£
Q1 April - June (not included in Q1 report)	DEFRA ELMS Test – Making ELM work for the horticultural sector	All CWT catchments – West Cornwall	29,445
Q2 May -September	DCSA Feasability Study	Lower Cober	10,000
	DCSA Feasability Study	Lower Fal	10,000
Total			£49,445

Farming and Wildlife Advisory Group (FWAG) South West

Catchments

Exe

Ongoing schemes

Headwaters of the Exe (HotE), the part of the on going R. 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

Partner(s)

Farming and Wildlife Advisory Group (FWAG) South West

ODI delivery in Q2 New hectares this month

182 ha

Total so far in Year 1

190 ha

Yearly target

1,750 ha

Update for Quarter 2

The FWAG delivery team have been providing advice to farmers applying for Countryside Stewardship on options within the HotE catchment. FWAG Farm Advisors have engaged with 23 farms in the catchment on a range of subjects including advice on 11 Countryside Stewardship applications, improved grassland management advice to three farms, conservation habitat management on six farms, developing three grant applications, awarding one capital grant and one revenue grant and signed two new grant agreements.

They have designed and trialled their catchment monitoring programme for autumn/winter 2020/21. The team met with the Environment Agency (EA) to discuss Natural Flood Management opportunities working with EA's WWNP (Working With Natural Processes) data.

FWAG has also been working with Devon Wildlife Trust and Westcountry Rivers Trust Farm Advisers in the lower Exe catchment and Otter to share ideas and refer enquiries from farmers.

The project continues to work with the Exmoor Hill Farming Network to promote the project through a monthly article in their agri-update newsletter.

The HotE project team employed independent infrastructure specialist Bob Watson to provide an infrastructure report to support previous advice to a farm in the catchment. The plan recommends covering a feeding area and new covered manure store. This is being progressed to a capital grant.



Manure store to be put undercover



Feeding area in front of barn in photo to be covered



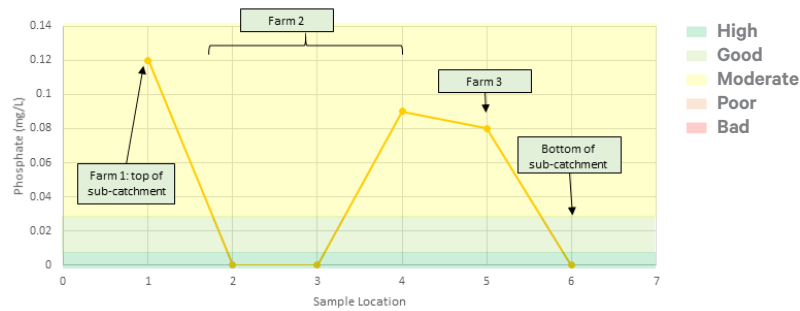
Monitoring equipment being tested in catchment

Monitoring

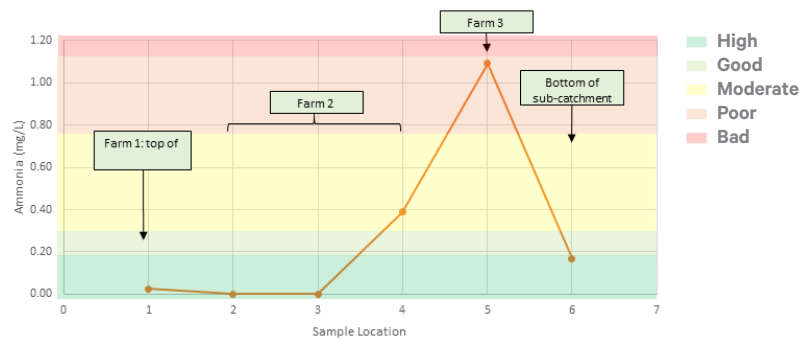
Farm Advisors started using the new spot sampling equipment to assess variation in water quality within a small sub-catchment in the project area where FWAG are engaged with all six of the landowners with land draining into the catchment. The initial results show the fine level of detail that can be obtained and Farm Advisors will be working with the farmers over the winter to regularly monitor the catchment at key risk points. An initial trial along a sub-catchment containing six farm businesses identified variation in water quality through the catchment. Further repeat monitoring to understand the variation in results over time will take place to establish the significance of the results before identifying whether interventions in the catchment are necessary.

The graphs below show how the data will be presented within catchment reports. Using EA catchment data for WFD standards, FWAG can present the water quality over time and location at a site and catchment level. The chart is coloured based on the thresholds within the standard to make a visual assessment of the results against the standards.

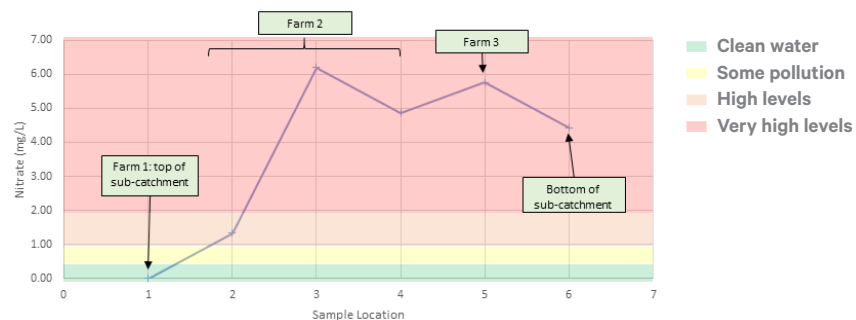
Phosphate



Ammonia



Nitrate



Initially the information will be used by the delivery team to target engagement. Site specific data will be shared with farmers who farm those sites, but wider catchment data will only be shared with the permission of all farmers involved in sub-catchments.

Grassland management

Two articles were published through the agri-update on identifying options for improving grassland swards for grazing and cutting (August) and assessing soil structure for compaction (September).

Working with one farmer and Natural England, FWAG are exploring options to amend a Higher-Tier Countryside Stewardship agreement to better manage winter grazing of cattle. With two other farms we continue to develop methodologies for recording grazing management to help planning of grazing for conservation, production, and water quality priorities. This has involved developing mapping templates which can be used with other holdings.

The permanent grassland field guide continues to be developed.

During the 2020 Countryside Stewardship application round, FWAG provided advice to 11 applicants within the HotE catchment. Suggestions included a range of low input grassland options and several areas of previously unrecorded species rich grassland which has been added to the Priority Habitat Inventory. These areas will contribute to the ODI target in January 2021 when the agreements go live.

Match funding secured in Quarter 2

None

South West Peatland Partnership

Catchments

Burrator, Upper Exe,
Bodmin moor catchments,
Dartmoor catchments

Ongoing schemes

DEFRA funded peatland
restoration on Dartmoor and
Bodmin moor

New WINEP schemes

- WINEP DWPA scheme 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)

Partner(s)

South West
Peatland Partnership

ODI delivery in Q2

New hectares this month

30 ha

Total so far in Year 1

30 ha

Yearly target

600 ha

During the Covid-19 lockdown the team have been using the time constructively to review, refine and compile all data relating to peatlands in the south west (e.g. mapping extent of peatland in the south west and on SWW land holdings and DWPA's).

They have also been compiling restoration plans for future sites and engaging with partners in planning the WINEP schemes delivery.

Update for Quarter 2

Exmoor

The final phase of 5 ha of peatland restoration and working with natural processes has been completed at South Regis Common. (total hectares across site 40 ha).

Bodmin Moor

The final phase of restoration of 20 ha, that was delayed owing to Covid-19 in March, was completed at Blackadon. Initial work over 5 ha at Priddacombe has commenced.

Dartmoor

At Burrator an estimate of costings for peatland restoration within this catchment are being developed. Delays to UXO surveys being completed across a restoration site are being resolved in order that practical works can begin in October.

Match funding secured in Quarter 2

None

South West Lakes Trust

Catchments

Burrator

Ongoing schemes

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

Partner(s)

South West Lakes Trust

ODI delivery in Q2

There are no ODIs for this part of the project

Update for Quarter 2

Phase 1 Habitat Survey

The drone survey to collect aerial footage of the wider Burrator catchment was completed in August and the final draft of the Phase 1 report was received mid- September. SWLT are working with the contractors to finalise the report and QGIS habitat files.

Reptile surveys

50 reptile mats have been put out across five locations to monitor for reptile activity and are checked monthly. Areas were chosen where records for reptiles are sparse and where management could potentially change. So far slow-worms and toads have been recorded. Ants seem to favour them for nesting under, one glow-worm larvae was found and a family of nesting field voles were recorded in September.



From left to right: **Glow-worm larvae, female slow-worm, young field vole**

Dormouse surveys

The nearest record of dormice to Burrator is in the village of Dousland recorded in 2001. There is suitable habitat for dormice on site so 44 dormouse nest tubes have been installed and monitored at five locations. No dormice have been recorded so far, but these will be kept in place and monitored next year.

Fungi surveys

The presence of fungi can vary from year to year, but this year we have managed to record a large variety, including the blushing bracket and an amazing pink wolf's milk slime mould.



Left:
Blushing bracket

Right:
Wolf's milk slime mould

Marsh fritillary web counts

After success at finding a marsh fritillary butterfly on the wing in May, a larval web search was undertaken in September to ascertain any breeding success. After ten hours of searching amongst the dense molinia tussocks one larval web with caterpillars was found, which confirms breeding success.



Left:
Searching for larval web

Right: **Marsh fritillary larval web**

Woodland/Forestry Management

Plans are being put in place for Higher-Tier Countryside Stewardship agreement and felling/thinning operations which will be scheduled for this winter. Options are being explored for tree species for re-stocking to improve biodiversity and water quality but also to consider planting species which will be resilient to climate change. SWLT are liaising with UST partners regards potential for water quality monitoring in relation to forestry operations, and in discussion with Forestry England and Dartmoor National Park Authority about scoping ideas for the future of the woodland resource around Burrator.

Mires Restoration

There was a site visit in early July with the Mires team to discuss mire restoration potential in the NE/E moorland section of the catchment. This section of the moor seems very dry with a few small areas of mire community but very molinia dominant with little grazing.



Mire habitat found in NW catchment

Upland winter bird survey

Tenders were received and a contractor has been chosen to start surveying moorland birds from mid-November until mid-February.

Introductory visits were made to SWW tenants and to the head of Sheepstor Common to explain about the Mires Restoration and Burrator Biodiversity projects happening in the Burrator Catchment. It was an opportunity to gain a better understanding of how the land is managed in terms of grazing, bracken control, agri-environment agreements, and discuss any issues/future opportunities.

Parrot's feather clearance

A small area (10m²) of Parrot's feather (an invasive non-native plant) was discovered by the Phase 1 Contractors in a small pond. Working with SWLT Invasive Species Officer, this was cleared and will be monitored to check for future growth.



Left:
Parrot's feather
Right: **Removing
parrot's feather**

Match funding secured in Quarter 2

None

Catchment Sensitive Farming (CSF)

Catchments

Dorset Stour

Project

Metaldehyde use engagement and other catchment management outcomes

Partner(s)

Catchment Sensitive Farming (CSF)

ODI delivery in Q2

New hectares this month

871 ha

Total so far in Year 1

885 ha

Yearly target

1,000 ha

Update for Quarter 2

Engagements

In July CSF engaged with 35 farmers in the Stour catchment providing advice and guidance related to their Countryside Stewardship applications. CSF farm visits in July were not permitted so they worked with farmers virtually through zoom meetings and calls. Farmers were sending in photographic and video evidence providing virtual farm tours of their farm yards.

Options and Items that improve water quality

Throughout this year's Countryside Stewardship application window, CSF had 12 farmers follow their advice to roof over some open yard areas to prevent rainfall from falling on dirty yards. As a result of their advice they also had 13 farmers include in their applications proposals to lay new yards or replace cracked or broken concrete in yards and 15 farmers incorporated a plan to install new livestock tracks to help with grazing and to reduce poaching and erosion.

Cover Crops – Muston Farm

CFS encouraged one farmer to adopt cover crops in their application securing 14 ha into a winter cover crop option. This option will protect the land over winter from soil erosion and runoff by establishing a dense cover which will be left until early February.

Roofing over an open feed yard – Densham Farm

This farm received some advice from CFS in the form of a farm infrastructure audit which identified that there is a high volume of clean water falling on the yards which are increasing the volume of slurry needing to be stored.

CFS recommended to the farmer that he should consider roofing over some of these open yards and as a result the farmer included in his Countryside Stewardship application a proposal to roof over the large open feed yard. This new roof will cover over 568m² of open foul yard and will reduce the amount of slurry produced which would otherwise have to be managed, stored and ultimately spread to land.

Seven farms were visited throughout August and September. Of those seven farms three had a farm infrastructure audit and report done. It is CFS's intention to follow these reports up with those farmers to understand from them if they will be delivering on the farm infrastructure recommendations. This advice will help those farmers understand the suitability of their farm infrastructure and to highlight specific problems which may require maintenance and capital investment which will reduce the risk of point and diffuse source pollution.

Dorset CSF have a new Farm Advisor who started at the end of this quarter. They will be helping with the delivery of this project and will also be assisting with the recording and reporting of interventions on the UST tool.



Open farm yard



Meeting with farmers

Ferric phosphate success

Following the announcement by Defra in September that the outdoor use of metaldehyde will be banned by 31st March 2022, CSF emailed 700 farmers to update them of the impending restriction. It was a chance to encourage all farmers in the Stour catchment to make the switch to ferric phosphate this autumn and to remind those farmers who plan to use metaldehyde slug pellets this autumn of the metaldehyde stewardship guidelines to reduce risk to the water environment.

From this metaldehyde advice CSF successfully motivated an arable business in the headwaters of the Stour to make the change from metaldehyde to ferric phosphate. The farm holding covers 256 ha combining a mainly arable business with cattle and sheep.

The soils on the farm vary from predominately stone brash to medium clays. The farm incorporates the straw from the break crops and are also incorporating wheat straw to raise the soil organic matter content.

Maize undersowing trial

This winter with Wessex Water CSF are looking to do some monitoring of the grass which back in June was undersown into standing maize crop. The maize is now off and they are looking to obtain some monitoring results to produce a case study which will be shared with other maize growers in the Stour catchment to encourage wider adoption of this practice.

This will involve the monitoring of grass growth and dry matter of the grass which was drilled into the standing maize crop in June of this year. Soil mineral nitrogen testing will also take place to look at nitrate levels at different depths in the soil profile which will be undertaken by the Wessex Water catchment management team.

The grass has established well between the maize stubbles and is providing good cover over-winter. There are little signs of ruts and soil erosion with some better conditions during this maize harvest. The benefits of undersowing maize is there is a reduced need for field operations at a time of year when weather and ground conditions may lead to a damaged soil structure.



Undersown maize –
The grass is providing good cover which protects the ground and prevents the likelihood of soil erosion.

Match funding secured in Quarter 2

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.

Partner(s)

North Devon Pioneer ELMS trail

ODI delivery in Q2

There are no ODIs for this part of the project

Update for Quarter 2

Throughout July, FWAG SW completed a stakeholder consultation exercise on behalf of Natural England (NE), resulting in a landscape plan for each of the four areas in the trial: Wistlandpound, Taw Valley, Torridge Culm and River Valley and Hartland. 18 stakeholders and 49 land managers/ farmers contributed to the consultation across the four areas. This process trialled how stakeholder consultation might take place through the new ELM scheme and a monitoring and evaluation report was submitted to Defra reflecting 'lessons learnt'.

28 farmers have been recruited to the main section of the trial from over 70 applicants. The main section of the trial will be testing the Land Management Plan template and creating three costed ELM land management scenarios for the farm. The enthusiasm of farmers to contribute to the trial reflects their wish to influence the development of the new ELM scheme. Five of these farms are within the Wistlandpound catchment and during August and September all have been visited by the NE Land Management Adviser and DWT UST Officer, to undertake the baseline natural capital assessments and ground-truth the mapping available for each farm.

Farm-scale natural capital indicators have been developed for the trial with the support of NE specialists during April to September and these indicators are being incorporated in the land management plan template. This has proved to be a novel and challenging area of work.

A specialist farm business finance contract was let in mid-August and farm business situation reports are being prepared for the 28 participating farms in the trial during August to November. The three ELM scenarios per farm (standard, medium and high) will then be costed using the income foregone + costs method and farmers will be able to see the impact of the ELM scenarios on their farm business finances.



Farms at Wistlandpound

University of Exeter (UoE)

Catchments

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.

Partner(s)

University of Exeter (UoE)

ODI delivery in Q2

There are no ODIs for this part of the project but there are Environment Agency (EA) reporting and completion deadlines for the WINEP elements.

Update for Quarter 2

UoE staff continue to work from home with University guidelines limiting face to face meetings, fieldwork and labwork. For these reasons several planned activities have not been possible. Despite this, progress is being made towards understanding water quality issues within the catchments of interest.

In this context, work has focused on the following areas:

Strategic planning

To assist with the design of monitoring plans and understand the spatial distribution of risk within a catchment, UoE staff have been appraising methods to map potential source areas for the contaminants of interest (DOC, manganese, geosmin and MIB).

Partners and project collaborations

UoE staff met on site with Devon Wildlife Trust to discuss proposed interventions and monitoring options within Wistlandpound catchment. They have continued to meet virtually with project partners including SWLT and WRT for the Burrator catchment, CWT for Stithians, and with the SWPP, to establish a coherent approach for the monitoring of water quality in all new schemes, investigations and BAU catchments. UoE staff have continued to liaise with the SWEEP 009 team to ensure data from the intervention reporting and monitoring tool is integrated within UST3 monitoring plans and any future analysis.

Fieldwork and labwork

Access to laboratories and field equipment continues to be substantially restricted (opening hours and presence in the building) limiting the work that can be achieved. However equipment has been carried out to ensure knowledge transfer between members of staff and facilitate future laboratory work when sampling becomes possible.

Data collection

South West Water has provided spot sample data from 2010-present for locations within catchments. Water quality data collected by the Environment Agency within catchments are being collated. Continuous data that may drive temporal changes in water quality (e.g. temperature, rainfall, river discharge, sunshine) have been collated for catchments. UoE are working on correlating water quality parameters with antecedent rainfall, stream discharge, and temperature conditions in an effort to understand the drivers behind poor water quality events.

Additionally, the SCADA data (continuous water quality parameters at WTWs) requested has been provided by SWW. This data will be used in future work packages.

Data analysis

A thorough literature review has been undertaken to identify potential (spatial and temporal) factors affecting DOC, manganese, geosmin and MIB concentrations in rivers and reservoirs. This information is being used to guide our risk mapping and consequently our monitoring plans.

High resolution, optimised watershed modelling and flow routing has continued for catchments where the current watershed boundary is considered insufficiently accurate.

Summary of Match Funding

Partner	Quarter 1 April - June	Quarter 2 July - September	Quarter 3 October - December	Quarter 4 January - March
WRT and DWT	£632,305	£1,223,078		
CWT	£29,445	£20,000		
FWAG	0	0		
SW Peatland partnership	0	0		
SWLT	0	0		
Catchment Sensitive Farming	0	0		
Total	£634,805	£1,243,078		

Table shows the value of match funding secured by each partner.

Appendix 1

Case study 1

DWT – Meadow Restoration: A win for People, Wildlife and Water

Devon Wildlife Trust has been working with a 70 ha holding on the west side of the Luppitt valley, ranging from an altitude of 120m beside the River Love at the base of the valley, to 260m at the top. The River Love, which it straddles, is a key tributary of the River Otter. It sits at the heart of a number of smaller farms which are managed in a wildlife sensitive way. It has the potential to be a real reservoir for wildlife, bringing huge added value to the local area.

The Issue

The farm has historically had up to five different graziers simultaneously, mainly from the neighbouring dairy farms. This has led to a fragmented management approach, making the land vulnerable to compacting soils because of poaching and inappropriate grazing. This issue has been magnified by the steepness of the land with fast flowing streams running directly into the main river with risks to water quality. The grassland in places is very diverse, but in others this has been reduced/is not evident. The potential for this site to be a reservoir for wildlife in a landscape of dairy farms is very high.



One of the fields to be restored



Restored springline mire

The solution

Initial engagement began with the restoration of the springline mires in UST2. These are a distinctive feature of the Otter catchment and they are one of the most biodiverse habitats locally. As they store water, filter sediment, and release water slowly they are also important for water quality and quantity.

Working with the landowners and their agents, and Natural England, a significant Higher-Tier Countryside Stewardship application has been submitted. At the heart of this is a proposal to restore 26 ha of meadow with a hay-making regime supported by DWT. The application will also allow for the restoration of further spring line mires, water slowing interventions and the vast majority of the seven kilometres of hedgerows to be sensitively managed for wildlife. It will be complimented by the implementation of additional UST recommendations by the landowners across the entire holding. A new grazer has been found who will manage the site with traditional breeds, to maximise the benefits for wildlife and water quality and a separate woodland management scheme is on the horizon. The owners have been on quite a journey within a relatively short space of time and they are keen to showcase this.

The Future

The landowners will know if the Higher-Tier Countryside Stewardship application has been successful in late 2020. If it is, the meadow creation and restoration work will begin in 2021, along with work to the other habitats on the holding.

DWT will work with the landowners to monitor the site, not only for botanical interest, but also for other species. It is hoped that the site will act as a reservoir for wildlife and that it will generate further interest from landowners within the parish.

Case study 2 CWT – Volunteers return after Covid-19 lockdown

Cornwall Wildlife Trust operates highly successful volunteer groups in the Drift, Cober and Argal and College catchments. These groups delivered 547 tasks and more than 3,600 volunteer days in AMP6, resulting in multiple benefits for the Upstream Thinking project. South West Lakes Trust (SWLT) run the UST volunteer groups in the Argal and College and Stithians catchment on behalf of CWT.

CWT Farm Advisors and Ecologists identify and contact farmers and landowners within the DWPA to offer free services such as soil testing and whole farm environment plans, plus tangible help and discussion, including possible targeted funding for capital projects towards improved water quality. The success of UST has been built upon these long-term, mutually beneficial relationships. The UST volunteer groups play an integral part in forming and cementing these relationships.

During the Covid-19 lockdown the main impact on CWT's UST project delivery was the suspension of the volunteer groups. Weekly tasks normally carried out by over 25 regular volunteers could not be completed.

The return of these groups in July has been unanimously positive, with volunteers, farmers and habitats all benefiting. The first task for the Wild Cober Volunteers was some hedge repairs and gate installation to enable the farmer to complete the field management component of their Mid-Tier Countryside Stewardship low-input grassland option. The farmer is elderly and no longer able to complete this work alone and therein lies the unique value of UST volunteer groups – they have the skills and equipment to do a job that might never get done, in order to get the result that is needed for the benefit of clean water and flourishing, diverse wildlife. Since being back on site the volunteers have helped to enhance/ improve over 7 ha of semi-natural habitat.

As well as supporting Mid-Tier Countryside Stewardship agreements, rebuilding hedges have tangible water quality and wildlife benefits: Cornish hedges have an exceptionally high habitat value (on a par with ancient oaks); they control stock, slow down surface run-off and have flood water retention properties.

All of the volunteers gain physical and mental health benefits from their work; they fully understand the UST deliverables and the impact they are having both immediately and for years to come. The recent graduate volunteer members are actively adding to their skill set, experience and contacts, whilst gaining an overall understanding of a modern, applied ecology, landscape-based, multi-discipline, private-sector funded project, all of which enhance prospects for an environmental career or supplement higher-level study. The farmer is appreciative of their efforts too and clearly enjoyed the chance to talk farming past and present, whilst also casting his beady eye over the work: his telling comments "I've seen a lot worse" and "tidn't everyone can throw up granite", I think letting us know that the job had passed inspection!

The volunteer groups are currently not running at full capacity, largely due to transport restrictions, but there are still 6-8 volunteers coming out on each task (approximately 20 volunteers each week). There has been an increase in the number of enquiries about volunteering with UST, which could be attributed to people wishing to spend more time outdoors post-lockdown. It has been evident how vital these regular sessions are for the volunteer's well-being, with many of them expressing how much they have missed the days out.

The volunteers are an invaluable part of the Upstream Thinking project, helping to deliver habitat management across our catchments. Their important conservation work, undertaken at no cost to the landowner, brings clear biodiversity benefits that would not have taken place without the hard work of these dedicated volunteer groups.



Wild Cober
Volunteers

Case study 3 SW Peatland Partnership – South Regis Common

Background to catchment : 5 ha in the Exe catchment (35 ha completed in previous year).

Problem

Historic reclamation, peat cuttings, drainage ditches, enclosure of the land and a variety of land management practices, have led to a degraded peatland habitat and a ditched and modified landscape. This has led to a loss of peatland habitat, release of carbon (gaseous and in dissolved form) and erosion of soils, all of which is entering into either the atmosphere or water.

Solution

The solution involves the restoration of peatland by the process of blocking peat cuttings and ditches in order to restore a more natural hydroecological system. Blocking of boundary ditches protects the peatland edge and captures water in order to slow flows of water and capture sediments. The creation of bunds within the landscape captures water and sediment. Planting of willow bundles in gullies and water flow pathways slows water flows, captures sediments and creates a living wet scrub/woodland habitat.

Outcome

The result of this work has seen 5 ha of peatland and nature recovery (40 ha across the whole site), whilst working in an historic environment sensitive area.

The wider benefits

Benefits of this work included reduced sediments entering Old Close Bottom at the headwaters of the River Bray Catchment as well as the protection of carbon stocks and habitats.



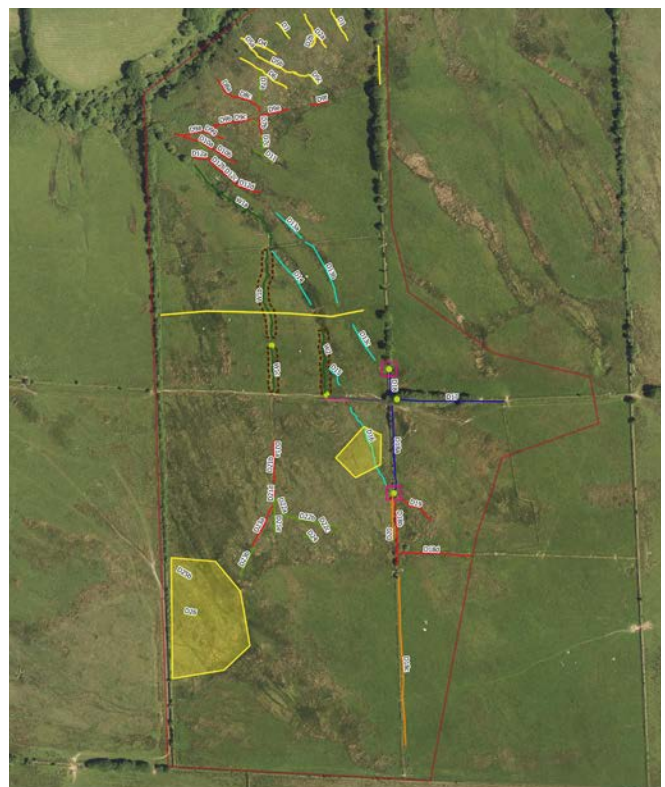
Bunds that captures water, sediment and creates a seasonal wetland habitat



Wooden block within a boundary ditch that slows the flow of water, sediment and creates a seasonal wetland habitat



Planting of willow bundles in gullies and water flow pathways to slow flows, capture sediments and create a living wet scrub/woodland habitat



South Regis Common: Map showing site and all of works carried out.



AMP7 Quarterly Report

July - September
2020

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