End of Year Summary 2018-2019

Sussex Flow Initiative (SFI) is a Natural Flood Management (NFM) project on the River Ouse catchment in Sussex. The project is a collaboration between the Sussex Wildlife Trust, the Woodland Trust, and the Environment Agency and is supported by Lewes District Council. This document summarises the project's achievements this year. For further details see the full end of year report.

Practical delivery

Our core aim is to demonstrate that NFM at a landscape scale can deliver flood risk reduction. We do this by demonstrating NFM methods and by supporting others to deliver NFM on the ground. This year we have:

Woodlands and hedgerows

- Planted 10,650 native shrubs/trees as hedgerows (1.62 km) and woodland (1.61 ha). This includes 360 m of cross-slope hedgerow, 170 m of floodplain hedgerow and 0.53 ha of floodplain woodland.
- Increased soil infiltration rates by up to 67 times[1] through our planting.
- Assisted with Countryside Stewardship applications that have delivered a further 500m of hedgerow, as well as fencing of 0.85 ha set aside for natural scrub regeneration.
- Trialled planting of a further 0.1 ha of plastic-free trees.
- Planted 150 rare Black Poplar trees over four sites.

Volunteers from the Environment Agency helping to plant cross-slope woodland near Lindfield

Floodplain washland storage

- Created three floodplain scrapes, increasing the flood storage capacity of the floodplain by approx. 400,000 L of water.
- Lowered river embankments on a section of the Cockhaise Brook, allowing an area of approx. 1.3 hectares to flood more frequently (equating to 2,600,000 L of storage if water depths reach 0.2 m).

[1] Healey et al., 2016. Trees, water storage and flooding in upland agricultural landscapes. Forest and Timber News.

Scrapes, ponds and temporary water storage

- Intercepted land drains and surface flow paths by creating a series of scrapes that can hold approx. 600,000 L of water following heavy rainfall, whilst providing important temporary habitat (0.13 hectares) for waders, amphibians, dragonflies, other aquatic invertebrates and rare wet heathland species.
- Blocked/intercepted land drains delivering water rapidly to adjacent watercourses, restoring the ability of water to move through soils and infiltrate into groundwater.
- Created one large sediment trap, combining a scrape and bund, able to store approximately 90,000 L of water following heavy rainfall.

Floodplain storage scrape and tree planting adjacent to the Cockhaise Brook

Large Woody Debris (LWD)

- Constructed > 90 LWD structures to hold back up to 90,000 L (1 m^3 per dam) of water per rainfall event.

Catchment wide influence

- Positively influenced around 420 hectares of land for NFM (2,460 ha if including advice given to landowners), of which approximately 29 ha (advice given to 151 ha) is within Flood Zone 2.
- Influenced at least 4.5 km of the river network using instream NFM work[2], and at least 10 km through land-based activities[3] (> 96 km if including advice given).
- Created/restored 7.0 hectares (6.7 ha of woodland[4] and 0.3 ha of open/standing water) of priority habitat contributing to Environment Agency targets in 2018/19.
- Given advice on land adjacent to > 7.5 km of watercourse failing to meet Water Framework Directive (WFD) environmental quality standards for phosphorous.
- Supported landowners and contributed to Countryside Stewardship applications, with two of these landowners (on 150 ha of land) entering into stewardship in 2018/19.

[2] Based on 50 m per woody structure

[3] Only including watercourses downslope and adjacent to tree planting, scrapes & floodplain reconnection (i.e. not including effects farther downstream)

[4] Including hedgerow (320 m of hedgerow is equivalent to 1 ha of woodland in terms of number of trees/shrubs planted)

- Delivered NFM upstream of 18 properties considered to be at "very significant risk" of flooding according to the Environment Agency.

Ecosystem services

- Contributed to provisioning services, including biodiversity, food, shelter, and timber.
- Contributed to regulating services, including pollination (> 10,650 native flowering trees/shrubs planted), carbon storage (up to 92 tonnes of CO_2 equivalent sequestered annually[5]), water purification and water storage (approximately 3,780,000 L of water per storm event)
- Contributed to cultural services benefitting human health and welfare, connecting people with their environment and restoring historic landscape features.

Volunteers & 'in kind' support

- More than 40 volunteers contributing > 300 volunteer hours, with a value in excess of £4,000[6].
- Partner organisations have contributed approx. £37,000 of their time 'in kind'[7], and other organisations and landowners have contributed at least £27,000 of their time 'in kind'.

Volunteers from the local community (top) and the Woodland Trust (bottom) helping to deliver NFM

[5] Natural England. Carbon Storage by Habitat: 13.7 tCO2-e ha^{-1} yr^{-1} sequestered when land is changed from improved grassland to woodland (year 2 – 21)
[6] Based on £100 per day for volunteers
[7] Based on Woodland Trust, EA, SWT & Sussex Biodiversity Records Centre including trees and comms support

Engaging and supporting local communities

SFI also supports local people to take positive action to help reduce flooding in their local communities. We do this in a range of ways including working with local flood groups, training local people in NFM delivery, and educational events and websites. This year we have:

Engaged with landowners

- Visited 30 landowners on 38 sites, covering approximately 5.6% of the land upstream of Lewes, on a total of at least 2,457 hectares of land.
- Of these 38 sites, 14 included floodplain areas on 'main river' or 'ordinary watercourses'.

Contributed to the evidence base

- Working with academics and students at four UK universities, and with national flagship NFM projects.

Worked in partnership

- Working with over 15 local and national stakeholders.

Worked with local communities

- Including Uckfield's Manor Park and Hempstead Fields Residents Association.
- Supported landowners to navigate the Flood Risk Consents required for delivering NFM.

Training

- This year we have trained at least 60, contractors and stakeholders in NFM delivery including Wild Sussex, Environment Agency, Woodland Trust, Groundsure Consulting, Dryad Tree Specialists, and Sussex Wildlife Trust.

Events

- Presented at national and local events reaching an audience of at least 600 people.

Websites and media

- Our social media posts have been seen > 155,000 times and engaged with > 3300 times.
- Our website had 1300 unique visitors, with 125 and 75 of these visitors reading our blogs and case studies respectively.
- Our posts on the Sussex Wildlife Trust website reached a further audience of 500 people.
- A radio interview with SFI on Radio Uckfield (potential audience of around 10,000 people).

The Future of SFI

SFI is pleased to announce that we have secured funding for at least another year of the project. This funding includes significant grants available to local communities to help them deliver NFM on the ground. We have some exciting new sites lined up to deliver further NFM this year, and we continue to work with our existing landowners to maximise the effectiveness of their NFM delivery, and to maintain and monitor the NFM projects on their land.

Long term collaboration at the landscape scale is crucial to achieving the greatest benefits for NFM across the Ouse catchment. We are also maximising our catchment-wide influence and exploring new opportunities to reach out landowners and local communities to provide advice on NFM. We hope to work more closely with Catchment Sensitive Farming officers this year, and to continue to train local stakeholders and volunteers in NFM delivery.

SFI have set out ambitious targets in a five-year vision document.

Examples of SFI's NFM delivery in 2018/19: Shallow scrapes/ponds intercepting land drains and overland flow (top-left and top-right), large woody debris (bottom-left) and cross-slope woodland planting (bottom-right)