

EDEN RIVERS TRUST NATURAL FLOOD MANAGEMENT (NFM) CASE STUDY: CAIRN BECK

BACKGROUND

In 2018 Eden Rivers Trust (ERT) was awarded a Defra-funded Natural Flood Management (NFM) project to implement measures at a catchment scale to help reduce the flood risk in two North Cumbrian communities at risk; Warwick Bridge and Cumrew.

These two communities are found within the catchment of Cairn Beck, a tributary of the River Eden.

Working closely with farmers, landowners, local community groups and project partners, a variety of NFM measures were implemented to help slow the flow of water during high rainfall events in this catchment.

NFM MEASURES NOW IN PLACE

- 8 new leaky dams
- Modification of 15 leaky dams installed in 2016
- Re-meandering 200m section of straightened river
- 3 NFM/biodiversity ponds
- 1.63km of kested hedgerows
- 1.7km riparian buffer strips

PROJECT EXAMPLES: RIVER RESTORATION - CAIRN BECK:

Re-meandering 200m of historically straightened river channel. Designs were completed by AquaUoS incorporating features including ponds, riffles, pools and gravel bars to slow the flow of water, store more water on the floodplain and improve in-stream and riparian habitats.



Image: Eden Rivers Trust

PONDS - CUMREW

A series of 2 offline ponds were designed and created to capture surface water flow. Water is stored to a permanent level for biodiversity. During high rainfall/flow more water can be stored up to the top of the height of the bund and slowly released.



LEAKY DAMS - NEWBIGGIN

8 leaky dams were constructed on Newbiggin Beck to help slow the flow of water and encourage water to spill onto the floodplain creating extra storage during high rainfall/flow events.



KESTED HEDGEROWS - CARLATTON FARM

700m of kested hedgerow were created to reduce the volume of runoff in the fields down to the river by intercepting surface water flows, rainfall and promoting infiltration to the soil.



RIPARIAN BUFFER STRIP - TOWNFOOT FARM

650m of riparian buffer strip were installed to help protect the river from livestock poaching and fine sediment input. The tree planting inside the buffer strip increases the roughness of the land which helps slow water and soil runoff.



Images: Eden Rivers Trust

CONCLUSION

The project has shown how multiple, different NFM measures can work together at a catchment scale. A 5km reach of connected NFM measures and habitat improvements has been created along the Cairn Beck river. The river restoration site has been highly successful during some high rainfall/storm events, enabling more water to be stored and slowing the flow travelling downstream. Additionally, these NFM measures have improved biodiversity and in-stream habitat, led to better water quality, increased carbon sequestration and created shelter for livestock.