

### “More NFM will be used at Croft and other properties in Herefordshire”

Iain Carter, National Trust’s Countryside Manager

#### What are leaky dams?

Constructed within the channel, leaky dams are permeable features which help to reduce the flood peak during high flow events by slowing the flow of water and pushing water onto the floodplain. Built using bankside materials, they come in varying sizes and designs.

During high flow events, leaky dams help to slow the flow of water within the channel and help reconnect the channel to its floodplain by pushing flood waters out onto the floodplain.

By temporarily attenuating small volumes of water within the channel and on the floodplain, they help to reduce the flood peak and flood risk to downstream communities. Leaky dams are also designed to allow the normal flow of water to pass beneath them and where appropriate are designed to allow the safe passage of fish.



FIGURE 2 PROJECT PARTNERS WORKING TOGETHER TO BUILD LEAKY DAMS AT CROFT CASTLE

#### Story at Croft Castle

Fishpool Valley at Croft Castle and the woodland area upstream of it (Lady Wood) is the source of the Ridgemoor Brook, which during normal times is a small trickling brook. However during periods of heavy rain, large volumes of water begin to flow down the brook, over the tracks and through the valley.

In an effort to slow the flow of water, in January 2020, staff from the National Trust, Forestry England, Environment Agency (EA), Wye and Usk Foundation (WUF) and Herefordshire Council worked collaboratively to install 27 leaky dams on the Ridgemoor Brook at Croft Castle.

Starting with a training day, which was led by experienced staff at WUF and EA, everyone developed their knowledge on the different techniques available to build and install leaky dams, for example, pleaching and pinning logs using natural materials. All staff involved were trained to use chainsaws and winches.

On the second day, using their shared experiences and skills, everyone worked collectively to build the remaining leaky dams. National Trust volunteers also helped out for the day, building the four leaky dams which are installed in Fishpool Valley SSSI.



FIGURE 1 EXAMPLES OF DIFFERENT TYPES OF LEAKY DAM

#### What are the benefits?

**Flood risk reduction** – Leaky dams temporarily attenuate small volumes of water, helping reduce the flood peak and slow the flow of water.

**Improved water quality** – Leaky dams provide opportunities for sediment deposition behind the structure. Faster flows created downstream of leaky dams are capable of cleaning gravels of silt.

**Habitat creation** – provide a valuable habitat for wildlife.



## Site details

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**Location:** Croft Castle

**Watercourse:** Ridgemoor brook

**NFM Catchment area:** Cheaton, Cogwell and Ridgemoor brooks

**Ownership:** National Trust, with an area of land managed by Forestry England

**Designations:** Fishpool Valley is a Site of Special Scientific Interest

**Protected Species:** White-clawed Crayfish



FIGURE 3 NATIONAL TRUST VOLUNTEERS AND STAFF BUILDING LEAKY DAMS IN FISHPOOL VALLEY

## NFM details

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### What was implemented?

27 leaky dams

### Costs

- National Trust staff and volunteers contributed their time for free
- Environment Agency staff contributed their time for free
- Remaining costs covered by the River Wye and Lugg NFM Project Construction Grant Scheme (NFM10 @ 100% contribution): £2,180

**Total cost: £2,180 (Approx. £81 per leaky dam)**

***“Dams are holding the water back and the valley is functioning much better.”***

***“Reduced soil runoff and improved water quality.”***

Iain Carter, National Trust Countryside Manager



FIGURE 4 LEAKY DAM AT CROFT CASTLE, 5 MONTHS LATER

## Who did the work?

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Collaborative project which involved staff and volunteers from the following organisations working together over a period of 2 day to implement the works: National Trust (staff and volunteers), Wye and Usk Foundation, Forestry England, Environment Agency (NFM advisor and operations team), Herefordshire Council (NFM Project Officer)



FIGURE 5 PROJECT PARTNERS USING EXISTING TREES TO WEDGE LEAKY DAM

## Consents

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**Site of Special Scientific Interest (SSSI) Consent** – Consent was required from Natural England to install the four leaky dams located within the designated SSSI Fishpool Valley area.

**Ordinary Watercourse Flood Defence Consent (FDC)** – In accordance with Section 23 of the Land Drainage Act 1991, Herefordshire Council as the Lead Local Flood Authority are responsible for ensuring alterations to watercourses will not increase flood risk. FDC consent was therefore required for the 27 leaky dams installed at Croft Castle.

## Thoughts from the landowner

Iain Carter, Countryside Manager at the National Trust gave us this useful insight into the works at Croft Castle:

**How did you find out about the River Wye and Lugg NFM Project?** In a meeting with the Wye and Usk Foundation

**What has the funding enabled you to do?** Build 27 leaky dams

**What changes to your land have you noticed since implementing the Natural Flood Management?** Water quality has improved in the pools in Fishpool Valley with less silt feeding into the pools. Water managed better through the valley with no dams overtopping in storms.

**What are the impacts to your business?** Local interest in the dams and their construction and function.

**Have you observed any other benefits from the NFM work?** Certainly, reduced soil runoff and improved water quality.

**Have you seen the NFM working during a heavy rainfall event, if so what did you notice?** Dams are holding the water back and the valley is functioning much better.

**How have you found the experience?** Really positive partnership working with outcomes.

**Will you continue to adopt Natural Flood Management practices in the future? If so which ones?** More NFM will be used at Croft and other properties in Herefordshire. I have also shared with colleagues in other Midlands National Trust portfolios.

**Have you implemented any other NFM on your land which hasn't been funded through the River Wye and Lugg NFM Construction Grant scheme? If so what have you implemented and how was it funded?** The concept is now embedded in the Ranger way of thinking and NFM techniques are frequently used.

**Any tips or advice?** To all land managers - lots of small interventions can make a big difference.

*Herefordshire Council would like to thank all involved for their support with implementing NFM at Croft Castle. This work forms part of the Defra funded River Wye and Lugg Natural Flood Management Pilot Project.*



National  
Trust



Forestry  
England



The Wye & Usk Foundation



Herefordshire  
Council



Environment  
Agency