



**Tuesday 9<sup>th</sup> July 2019**

**Working with drones and nature to reduce flooding in Lanchester**

Lanchester landowners have recently joined a new three-year natural flood management initiative that will aim to reduce flooding in the town centre. The initiative has been developed by multiple organizations working in partnership including Durham County Council, Wear Rivers Trust, Durham University, Durham Woodland Revival and landowners to improve flood resilience by working with natural processes to slow down the flow of water before it reaches the town centre which has endured many years of flooding.

Opportunities to slow the flow and store water away from the town centre were investigated by the Wear Rivers Trust and Durham University using Unmanned Ariel Vehicles or drones. The focus area for this research was the Alderdene catchment which flows from west to east into Lanchester and includes Newbiggin Lane, Lanchester Dairies and multiple small holdings. Drone flyovers enabled the project team to produce a detailed 3D representation of the catchment which could then be used to identify suitable areas for water storage and design and assess measures to slow and store water.

Wear Rivers Trust project manager, Steve Hudson said "It has been fascinating working alongside Durham University and using drone technology to map and prioritize areas for improving water storage. This new approach enables us to survey large areas in a short period of time, whilst producing detailed 3D catchment models which can be used to run rainfall and surface water runoff scenarios, highlighting exactly where these natural flood management techniques would be most effective".

Durham University, environmental risk masters research student, Ryan Todhunter said "The results from the drone flyovers were used to develop and rank the effectiveness of measures to intercept and store surface water runoff from six fields. These included the planting up of hedgerows and creation of in field water storage basins to intercept runoff from entering the burn and instream slow the flow measures such as tree planting, livestock fencing and leaky dam building."

Dr Sim Reaney from the Department of Geography at Durham University supervised the research part of the project. He said "This project showed how we can integrate the drone mapping with spatial analysis and simulation modelling to support the detail NFM planning. The approach effectively balances cost effectiveness and rapid site assessment with the need for detailed engineering design specifications for the NFM scheme."

The results of the drone surveys were presented to various landowners throughout the Alderdene catchment in September 2018 and due to the long history of flooding and understanding that a more holistic approach was needed to reduce flood risk in Lanchester, landowners were fully supportive of the proposed measures and have worked closely with the Wear Rivers Trust to develop them into deliverable multi beneficial interventions which will reduce flood risk whilst also improving wildlife and biodiversity.

Billy & Geoff Austin of Upper Houses Farm said "It's great to be working in partnership with the Wear Rivers Trust and other landowners on this project. By working together we have been able to share our knowledge, experience and expertise to help develop projects which will contribute towards reducing flooding and restore and maintain wildlife habitats."

Cllr Brian Stephens, Cabinet member for neighbourhoods and local partnerships at Durham County Council, said: "We are delighted to support this fantastic project, which complements the flood mitigation work we have already undertaken in the Lanchester area which includes the creation of a

new surface water drainage system”. “Reducing flooding in the town centre will make a significant difference to the lives of those who live and work there and is why we have pledged a further £20,000 over the next two years to the scheme, in addition to the £10,000 we have already contributed.”

Delivery of the natural flood management measures will be delivered over the course of the next three years and will be coordinated by the Wear Rivers Trust. The works will be funded by Durham County Council and Durham Woodland Revival.



Left to right: Patrice Carbonneau (Durham University drone pilot), Billy Austin (Upper Houses Farm) and David Tompkins (Wear Rivers Trust) sowing off a new surface water storage area along the Alderdene Burn

Photograph courtesy of Gary Halliday

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