

# **Trees & Upland Hydrology**

## **Upland Hydrology Group**

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Forestry Commission

- Forestry & Flooding Initiative
- Slowing the Flow at Pickering

Trees can help reduce flood risk in a number of ways:

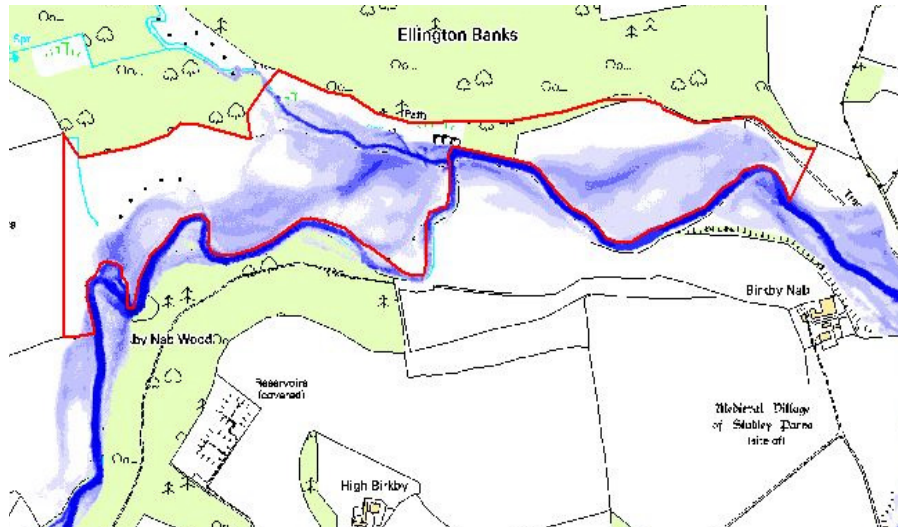
- Water use - trees use more water than other vegetation types - reduction by approx 10%
- Infiltration
- Reduced erosion
- Increased hydraulic roughness

Research at Pont Bren in Wales has demonstrated that infiltration rates in woodlands can be 60x higher than for badly compacted agricultural soils



Modelling in the Dales shows that targeted planting of 5% of catchment could reduce erosion and coarse sediment delivery to rivers by nearly 80%



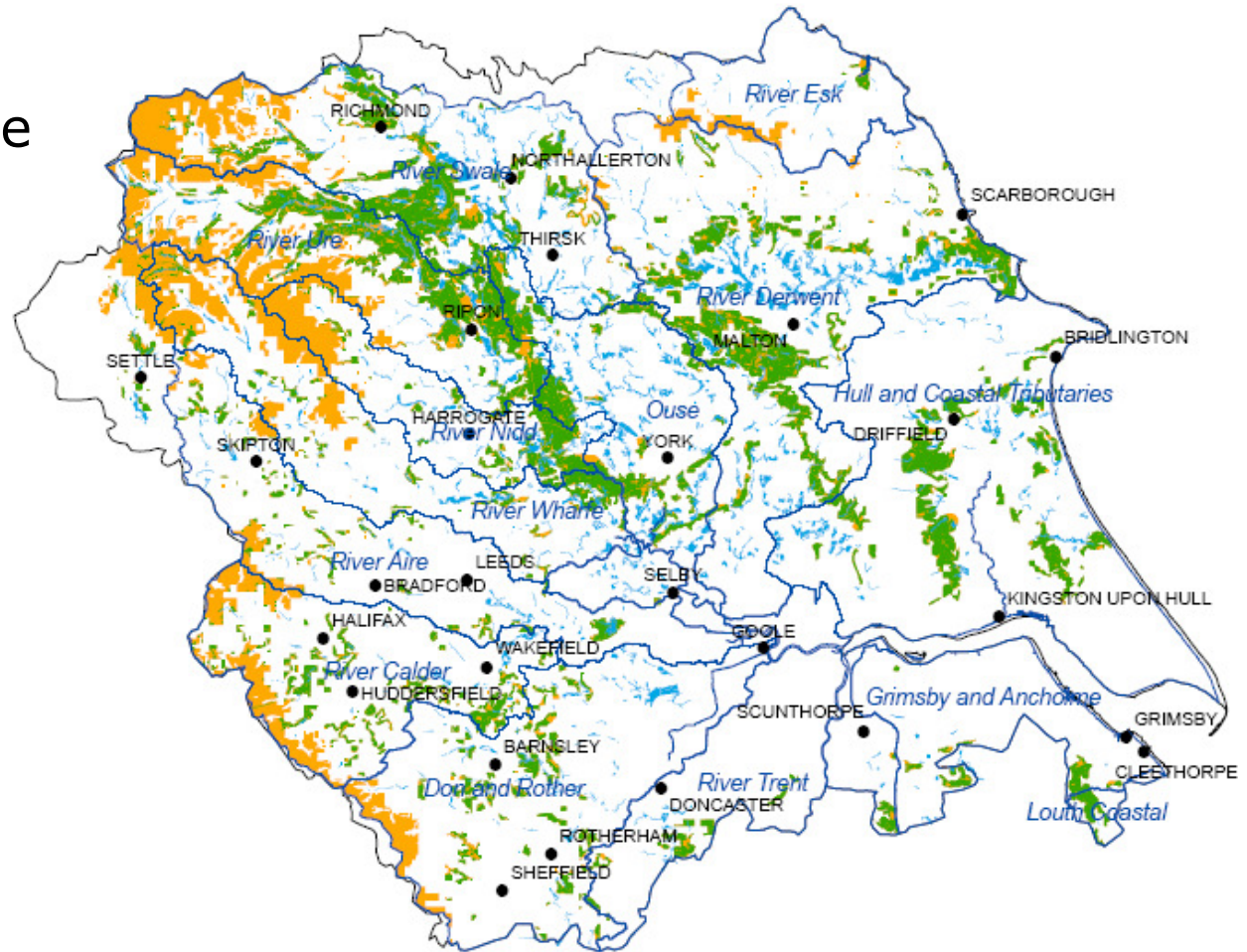


## Ripon 'desk study'

- Reduction in flood velocity up to  $1.8 \text{ m s}^{-1}$
- Mean flood depth increased by 44 cm within woodland
- Backwater effect extended to 170 m.


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- Ripon Multi-Objective Project
- Slowing the Flow at Pickering
- Catchment Flood Management Plans
- Regional Flood Risk Appraisal



Priority Areas for Potential New Woodland



0 5 10 20 Kilometers  




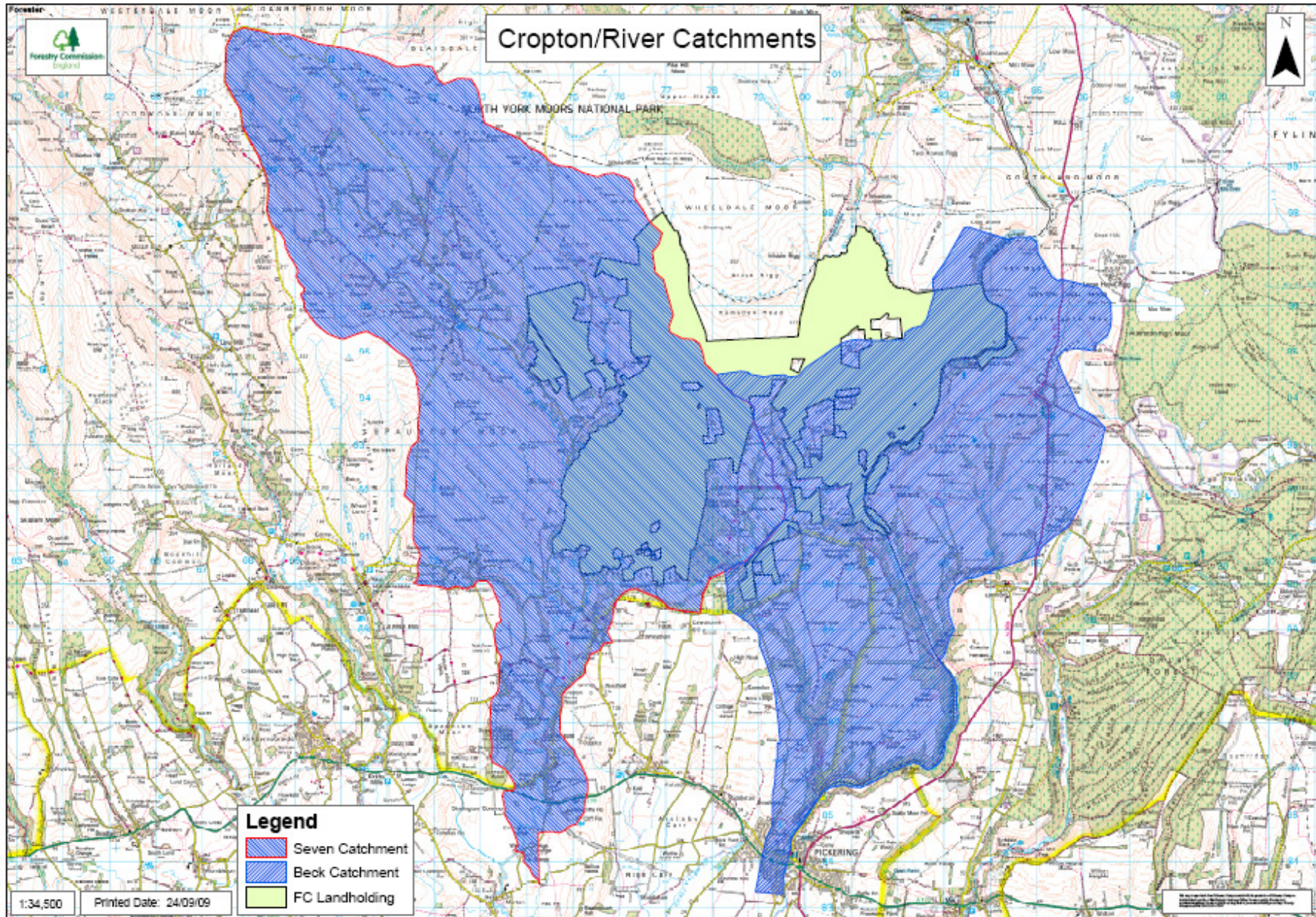
- Joint FC & YF funded programme, supported by EA
- Enhanced rates of grant:
  - Infiltration - standard EWGS £1800/ha + £2000/ha additional contribution
  - Erosion - £1800/ha EWGS + £3000/ha AC
  - Floodplain - £1800/ha EWGS + £4000/ha AC
- Additional staff on the ground promoting the programme and assisting with grant applications
- Targeted use of those staff using CFMP & RFRA priorities



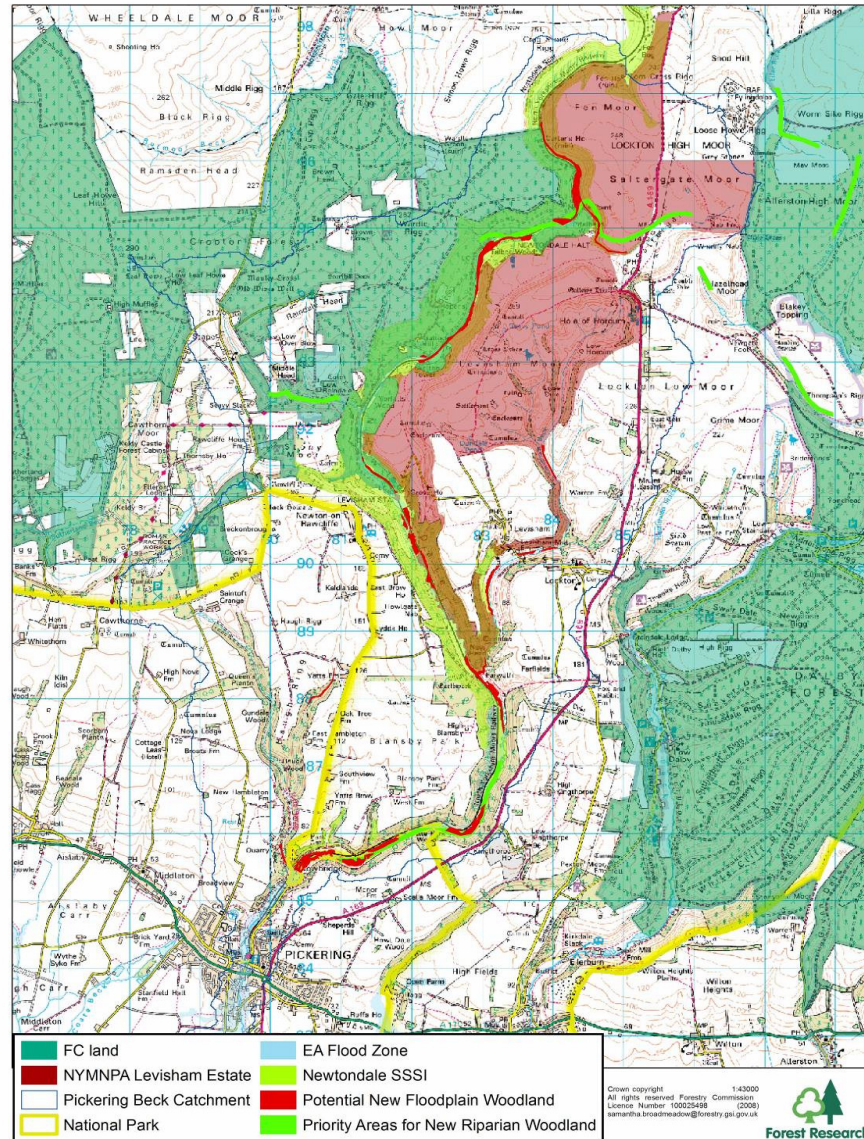


**Aim:** To demonstrate how the integrated application of a range of best land management practices across the catchment area can help to reduce flood risk at Pickering and Sinnington, as well as deliver wider multiple benefits for local communities.





Forestry and Flooding Opportunity Map - Pickering Beck Catchment





Forestry Commission  
England

# Woody Debris Dams



# QUESTIONS?

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