

Strategic Programme

Nature-based upstream storage features to manage flood risk



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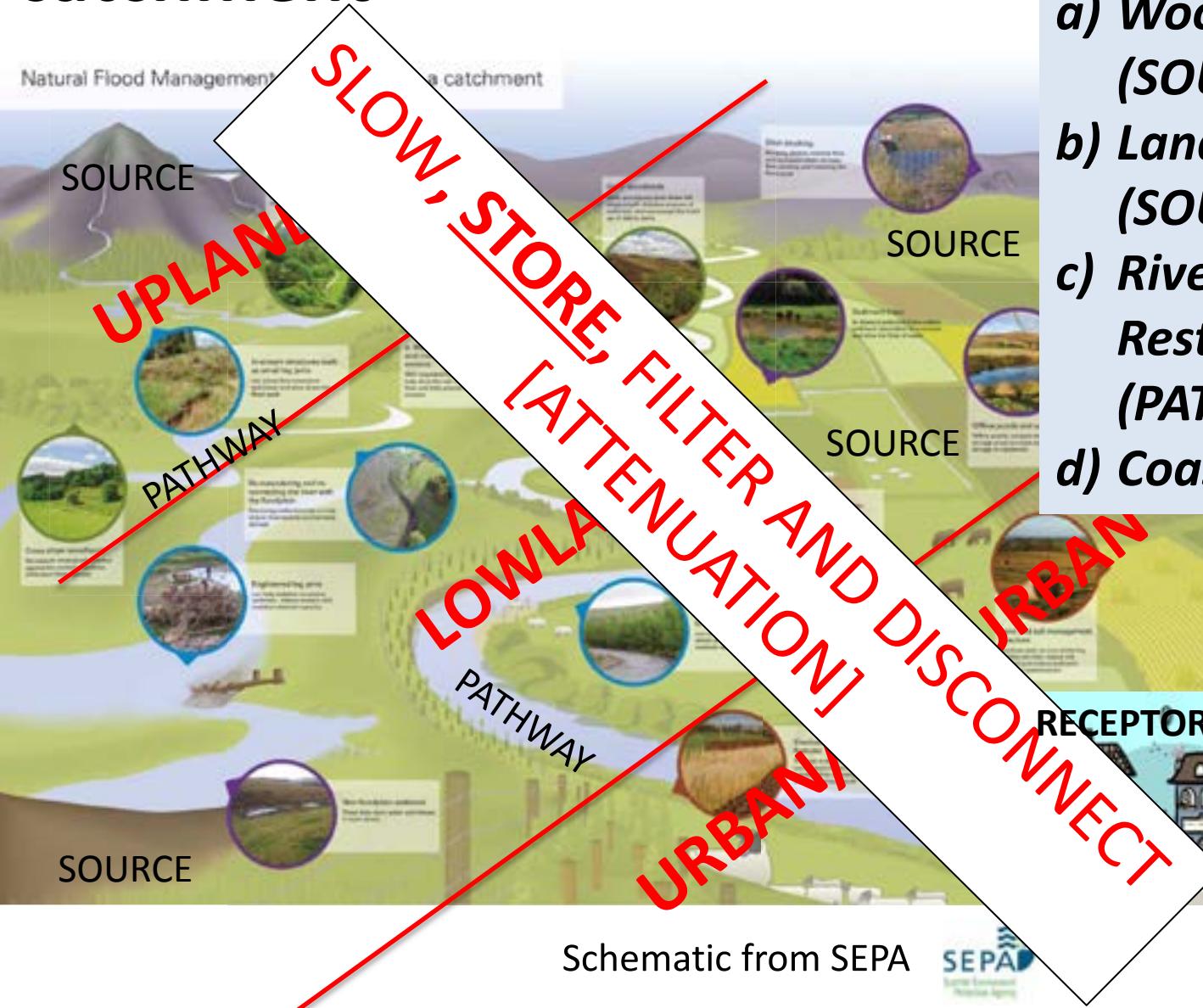


Vision for natural flood management (NFM) in Scotland:

Promote rural and urban landscapes with space to store water and slow down the progress of floods

A key science and policy question is “to what degree do these ‘natural’ measures reduce flood peaks at the catchment scale?”

NFM features within a catchment



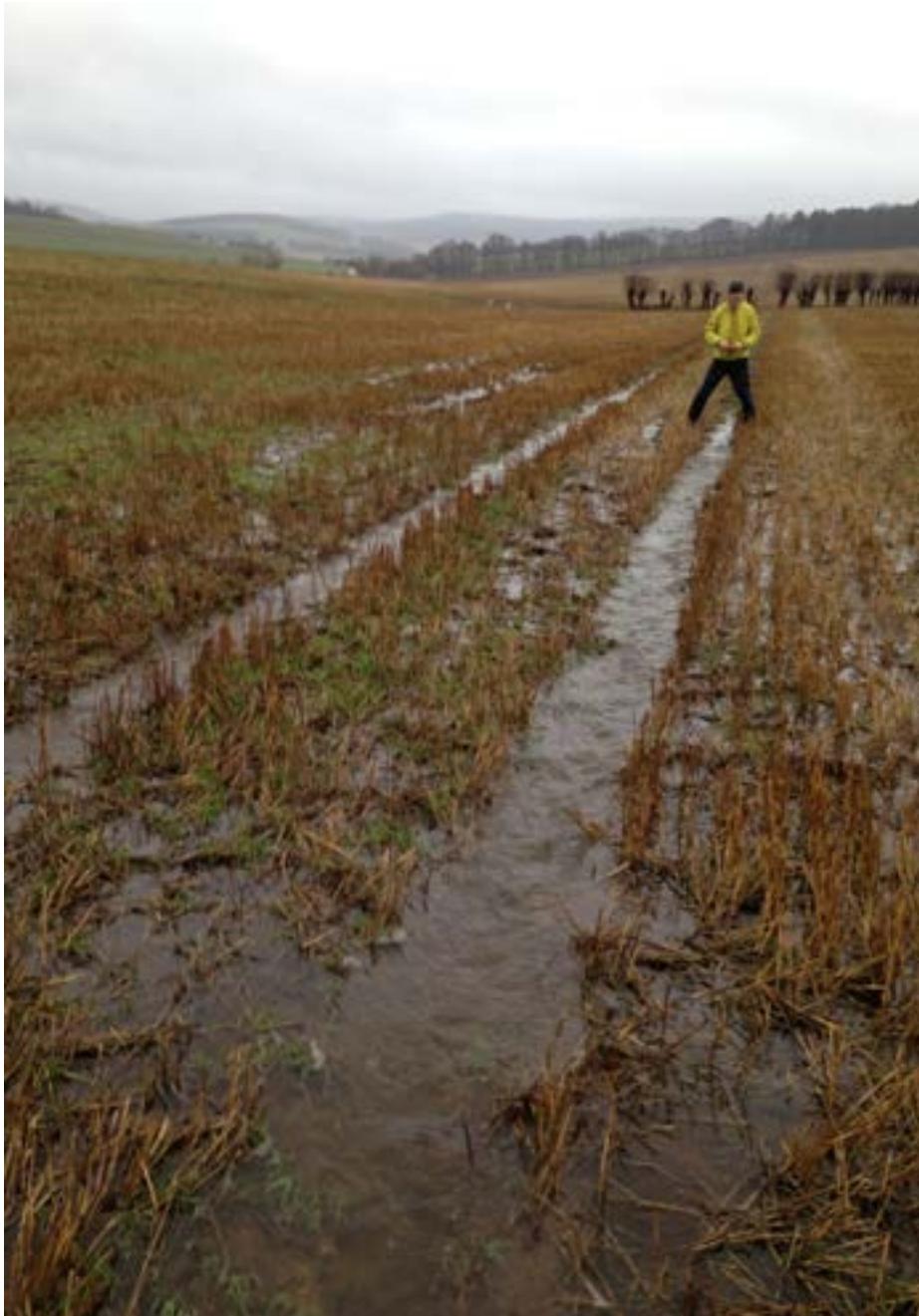
MEASURE

CLASSIFICATION

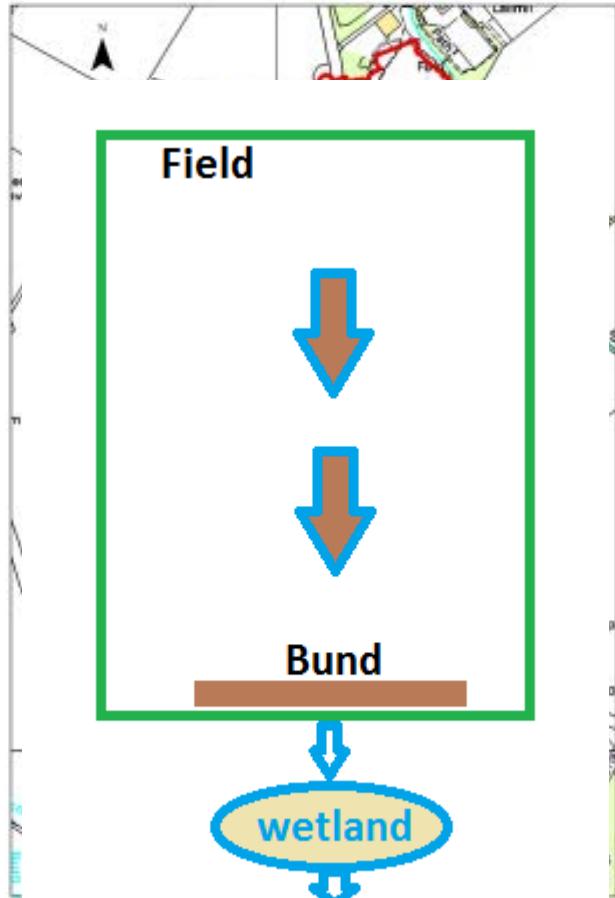
- a) *Woodland creation (SOURCE/PATHWAY)*
- b) *Land management (SOURCE)*
- c) *River and Floodplain Restoration (PATHWAY)*
- d) *Coastal*

Management at source

Case study: Tarland, Aberdeenshire
***“Managing surface runoff from
saturated soils”***



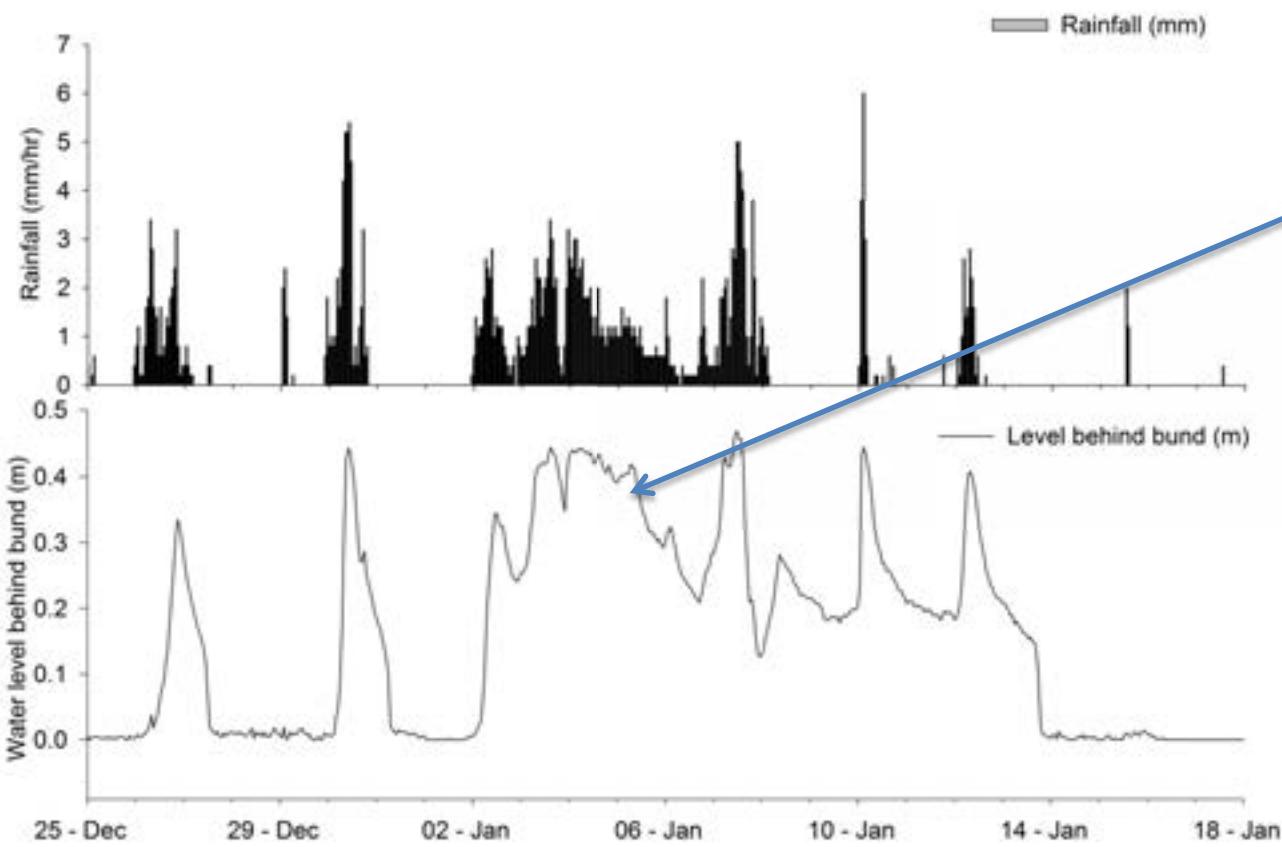
Source runoff management: attenuation



Disconnect runoff using a soil bund

Results – storage for multiday events

- Overland flow collected from upslope arable fields (38 ha).
- Bund effectively draining after most large storm events - additional storage capacity for following events.



Management along pathways

Case Studies: Upper Dee, Cairngorm National Park

“Management of rivers and floodplains”

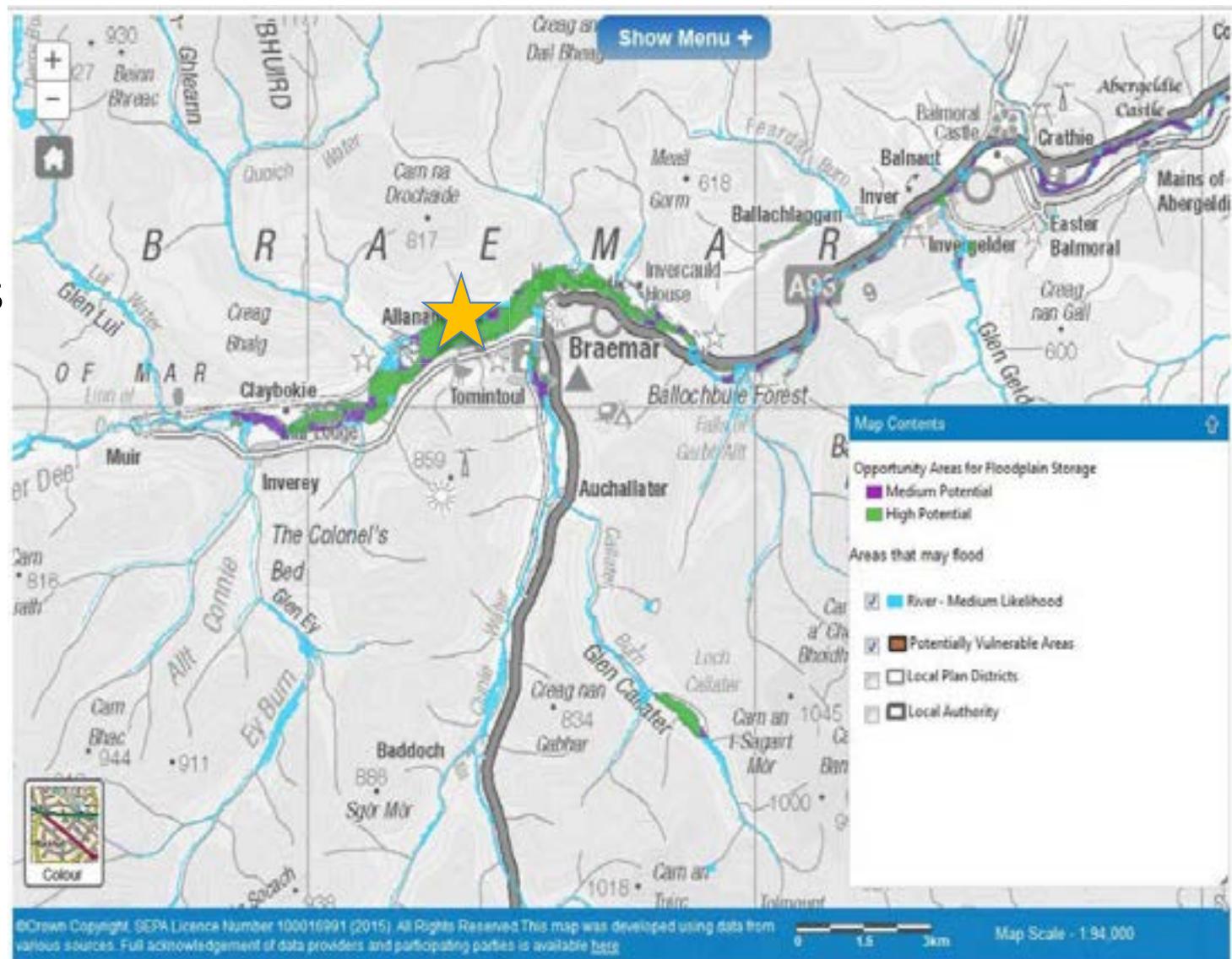


Study reach location

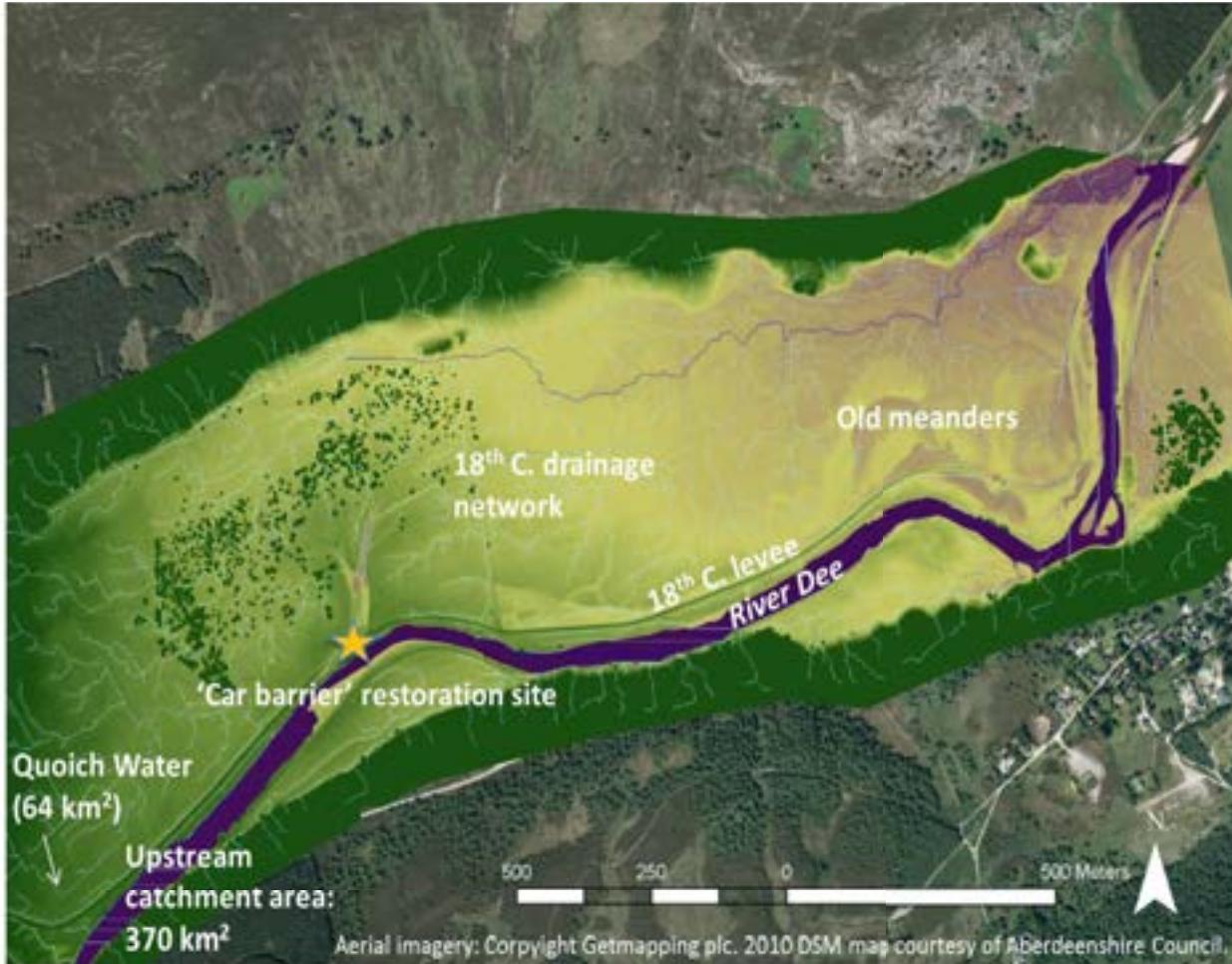


Pathway management: Using floodplains more effectively

SEPA Natural
Flood
Management
scoping maps



Mar Lodge study reach



Aims

- To reduce flooding and scour, providing additional water supplies during low flows, and diversify riverine habitats.
- Removal of waste and visual impact.

Anke
Addy



Precipitation and flooding

March 2015

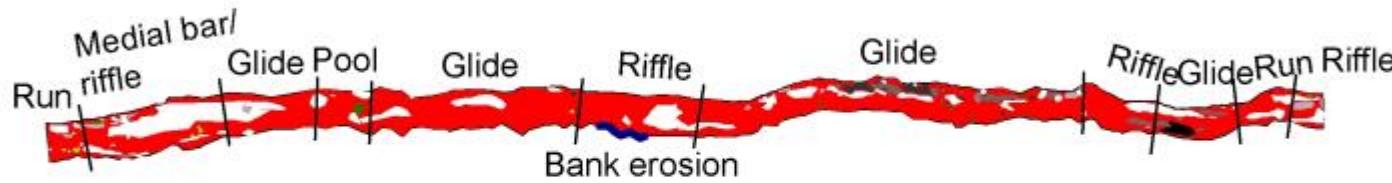




26th of March 2016, river discharge: $103 \text{ m}^3/\text{s}$

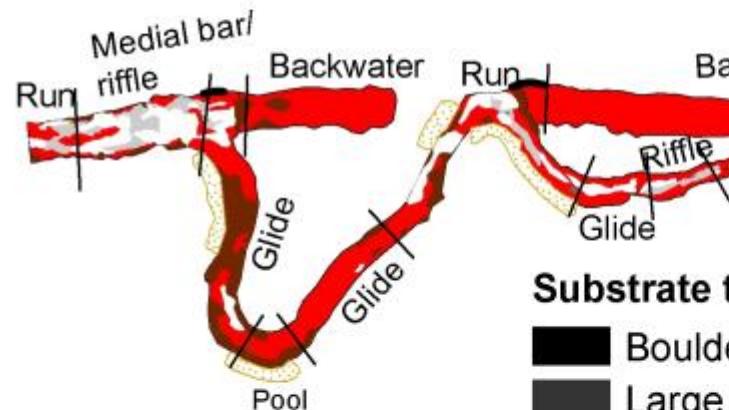
Logie burn, Dinnet: Reconnecting meanders

(A) Pre-reconnection

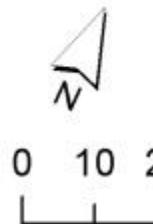


dee catchment
partnership

(B) Post-reconnection



Substrate 1
Boulders
Large
Small
Coarse
Medium
Plants



Concluding thoughts

- NFM (e.g. nature-based upstream storage features) can offer a catchment based approach to FRM
- Approaches may have varying impacts in space and time
- Local scale evidence built but more is needed
- NFM can be cost effective and deliver multiple benefits
- Not the silver bullet: works alongside other FRM approaches



Questions?

#SlowStoreFilter – what are your views?



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Scottish Government
Riaghaltas na h-Alba
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