



How can we make our environment more resilient to drought?

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The RSPB – some facts

- Over 1 million members
- 15000 volunteers
- 213 nature reserves (an area of 143,780 hectares)
- The RSPB works directly with more than 3,000 farmers and crofters every year.
- RSPB advisors involved in delivering advice to farmers on over 100,000 hectares of agricultural land


Environmental impacts of drought

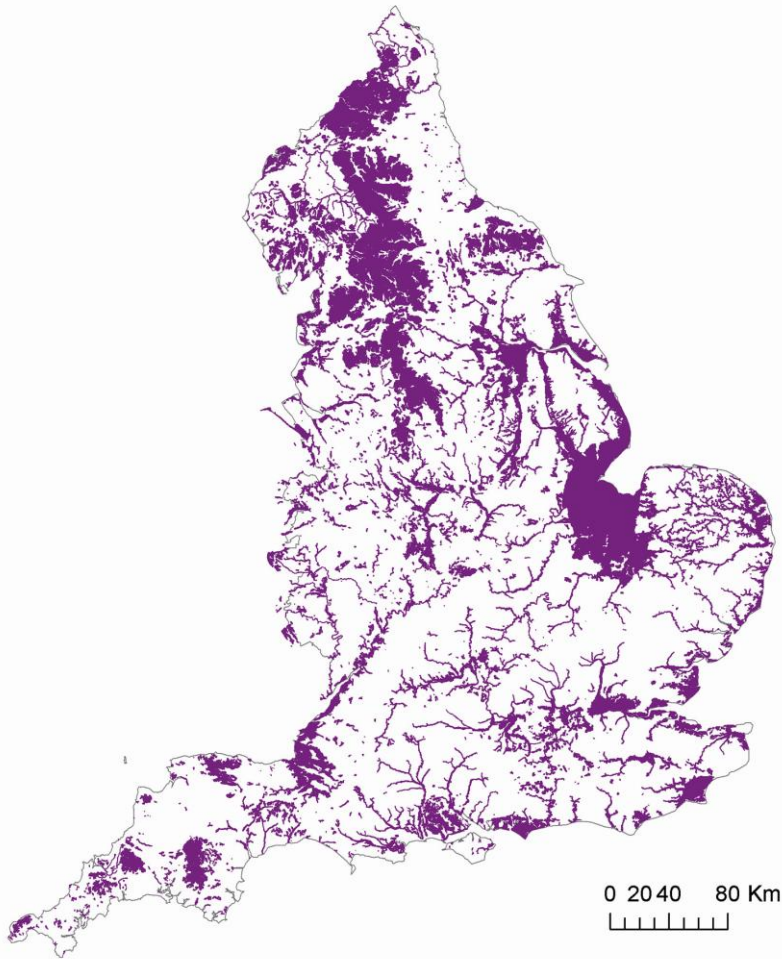
- Dried out spring-fed wetlands, river headwaters and spawning grounds
- Water quality deterioration
- Fire risk to blanket bog, upland and lowland heaths
- Loss of suitable habitat for amphibians, wintering waterfowl and breeding waders

**50 yr Wetland Vision
Overarching Maps**

Theoretical historic extent
of wetlands (indicative map)

'Where wetlands were'



 Landscapes of large and expansive wetlands

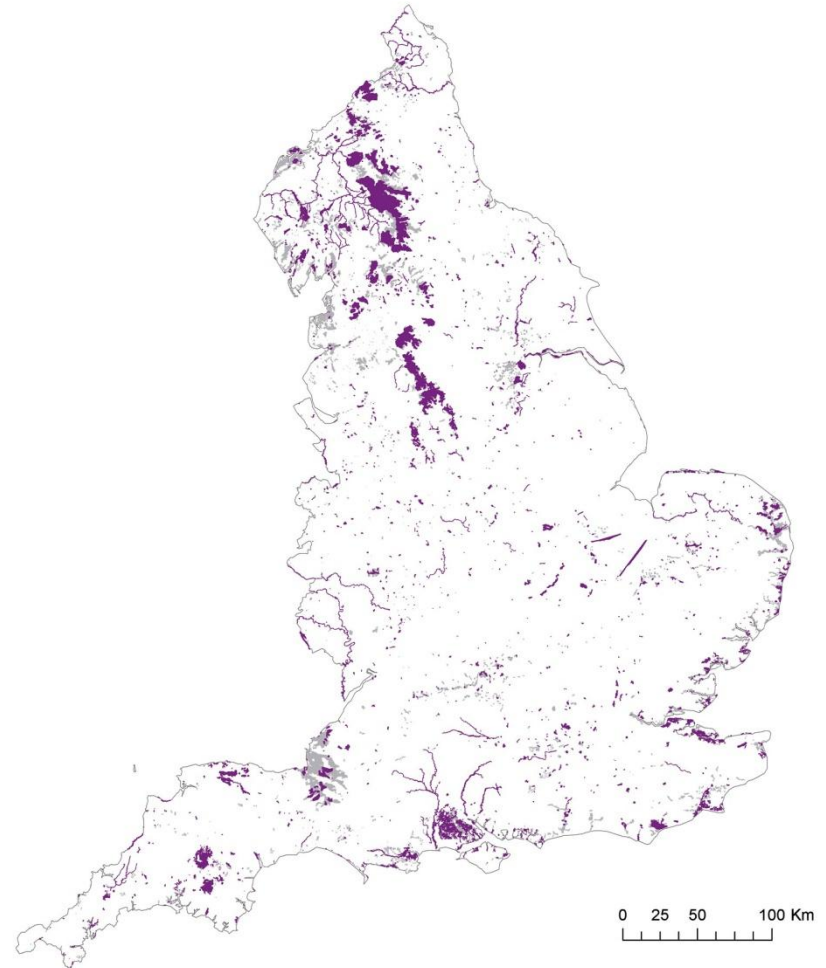


**50 yr Wetland Vision
Overarching Maps**

Current extent
of wetlands (indicative map)

'Today's wetlands'

 Current wetlands protected by designated
 Current wetlands



Making our environment more resilient to drought

- Efficient water management
 - Replace leaky sluices and bunds
 - Store water in 'reservoirs', 'ditches' and 'surface floods'
 - Target limited water to most productive areas

Maximise winter water storage

- Water needs bringing up to winter target levels as soon as possible. With the prospect of a dry Spring, the storage of additional water should be considered if it is available. The easiest way to achieve this is to 'store' on-site by increasing water levels - an extra 10cm of water gives an additional month of wetness

Efficient water management on nature reserves



Strategic water management

- When a Spring is likely to be dry target the available water to the proportion of the wetland that you can keep in near-ideal condition and sacrifice the remainder, rather than have all the site with inadequate water. The area targeted could be the best for breeding waders historically.

Keep it dynamic

- Regular drying is not a disaster for wetlands.
- Natural wetlands are usually very dynamic habitats, with feeding conditions for birds in a given area often varying greatly throughout the year, and between years, largely in relation to seasonal and annual variation in water levels.
- Conditions created in dry Springs should be seen as an opportunity to 're-fresh' habitats.

Making our environment more resilient to drought

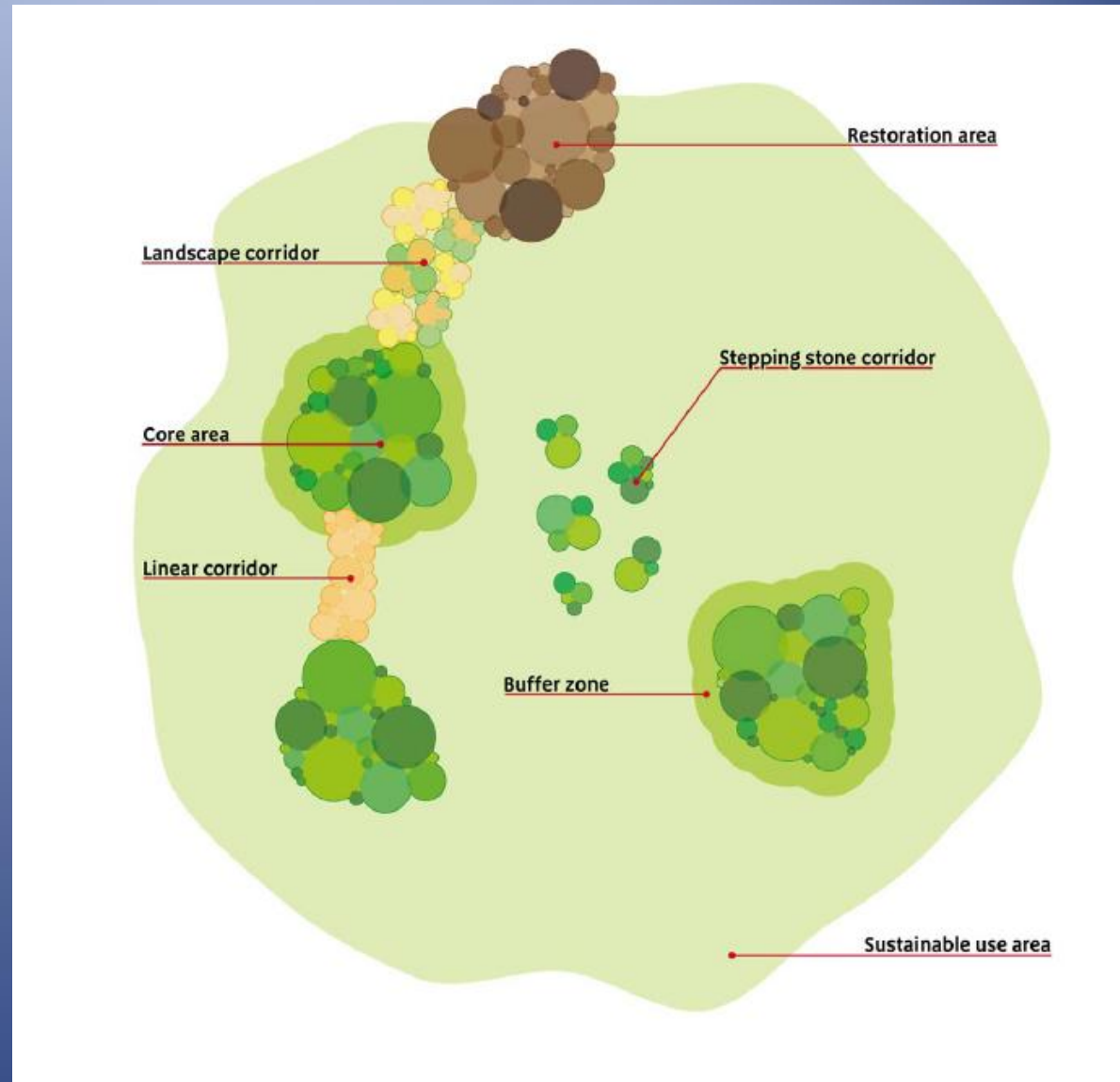
- Hydromorphological adaptation (*UKWIR project - Effectiveness of Alternatives to Abstraction Reduction*)
 - Make limited water go further by habitat repair and restoration.
 - Reverse damage to river morphology by shallowing, narrowing, creating meanders, riffles
- Bigger, higher quality wetlands and habitat patches (*Futurescapes, Living landscapes, NIAs*)

Landscape scale nature conservation

Ecological Restoration Zones:

Restore or create new high value areas so that ecological functions and species populations can be restored.

They should complement, connect or enhance existing core areas.



Components of ecological network (Lawton 2010)



nature's
voice

FUTURESCAPES

SPACE FOR NATURE,
LAND FOR LIFE



UK



Ham Wall, Avalon Marshes, Somerset

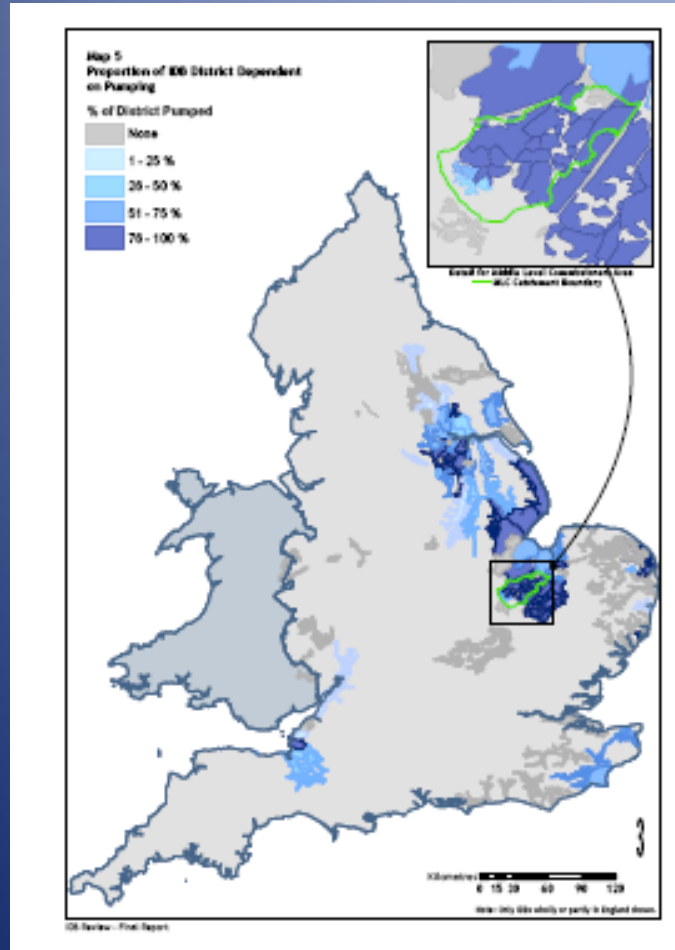
Making our environment more resilient to drought

- Accelerate programme of removing/reducing abstractions in and around sensitive rivers and wetlands
- Improve water quality by tackling agricultural diffuse pollution and WWTW discharges
- Stop/limit pump drainage in drought periods – retaining more water in the landscape for longer

Land drainage

- Area drained by extensive drainage channel systems in England and Wales = 2 million acres (800,000 hectares.)
- 3 million hectares drained in Victorian period (arterial and tile drainage)
- 1970-1985: 300,000 ha of wet grassland lost

Pump Drainage



1 million hectares in eastern and southern England is pump drained

Maintains conditions for dry-land intensive farming in former wetland basins and coastal levels

Over 500 pumping stations, 22,000 km of watercourse



Embrace 'slow water' principles *(Defra research project as part of Abstraction Reform programme)*

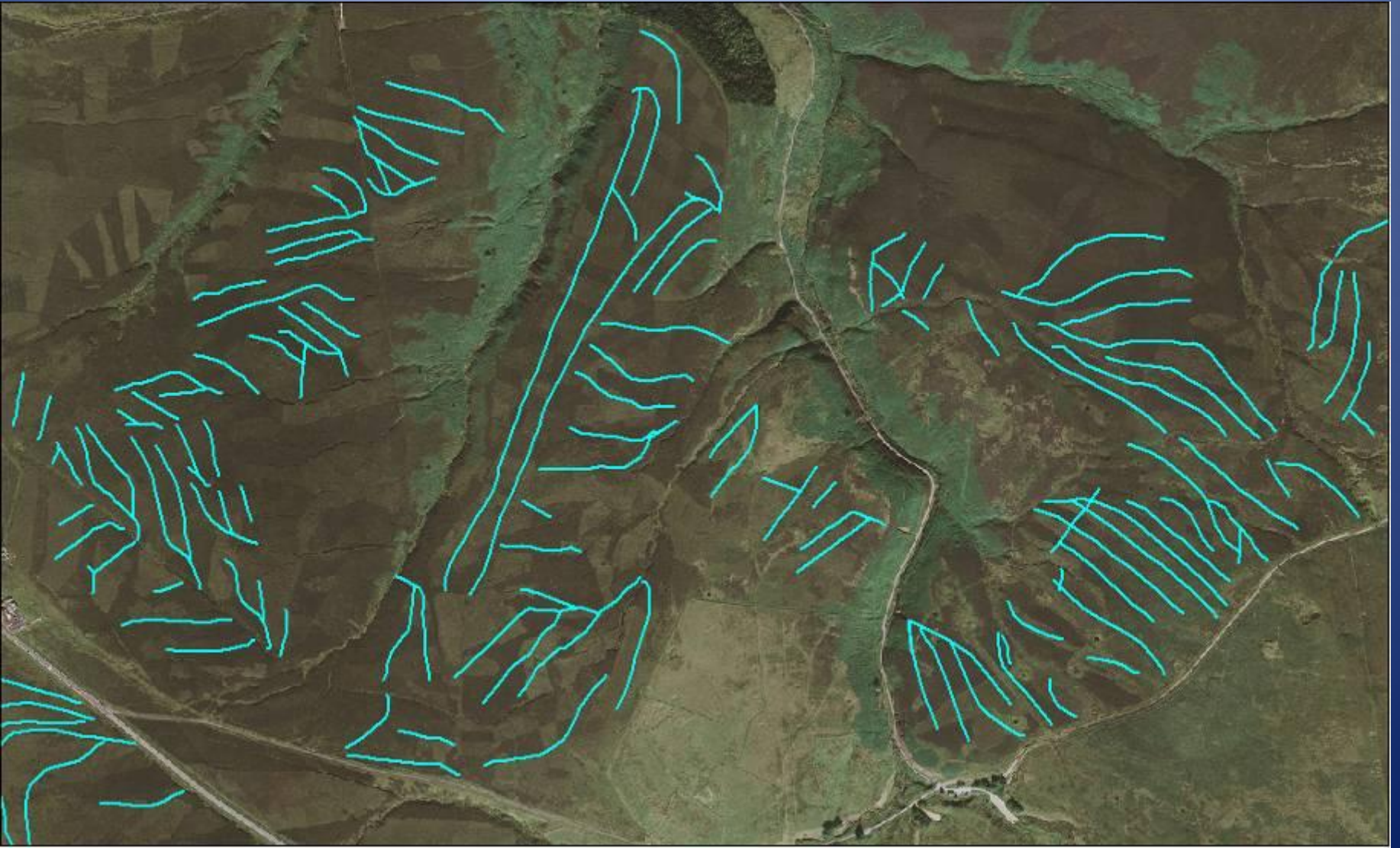
- Repair and re-create habitats that increase infiltration into groundwater and reduce and slow overland flow
 - Arable to chalk grassland
 - Woodland and scrub
 - Arable to heathland
- Reduce intensity of land-use above aquifers
 - Hard panned soils and reduced organic matter = fast overland flow and reduced infiltration
 - Reduce stock numbers







Moorland drainage











Making our environment more resilient to drought

- Promote sustainable drainage practices (Ponds, wet hollows and dips - retaining water)
- In 'Protected Areas' (drinking water and nature conservation) land should be managed for biodiversity, water quality and water provision as a priority

