

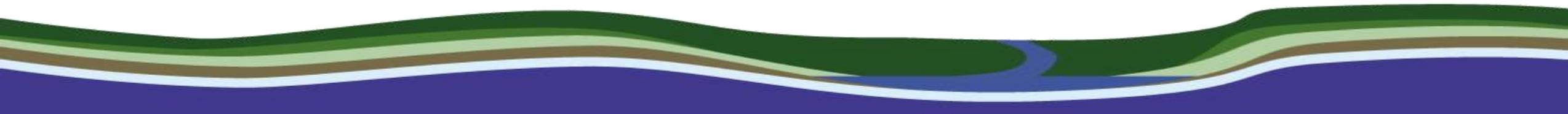


Aldford Brook Project

Catchment Characterisation

April 2018

This catchment characterisation provides an overview of the Aldford Brook water body and summarises findings from catchment walkover surveys, desktop survey and farm advisory work delivered in catchment by Reaseheath College advisors during 2015-2017. Associated GIS layers can be requested from the RADA team by contacting hub@reaseheath.ac.uk with permission from the Environment Agency.



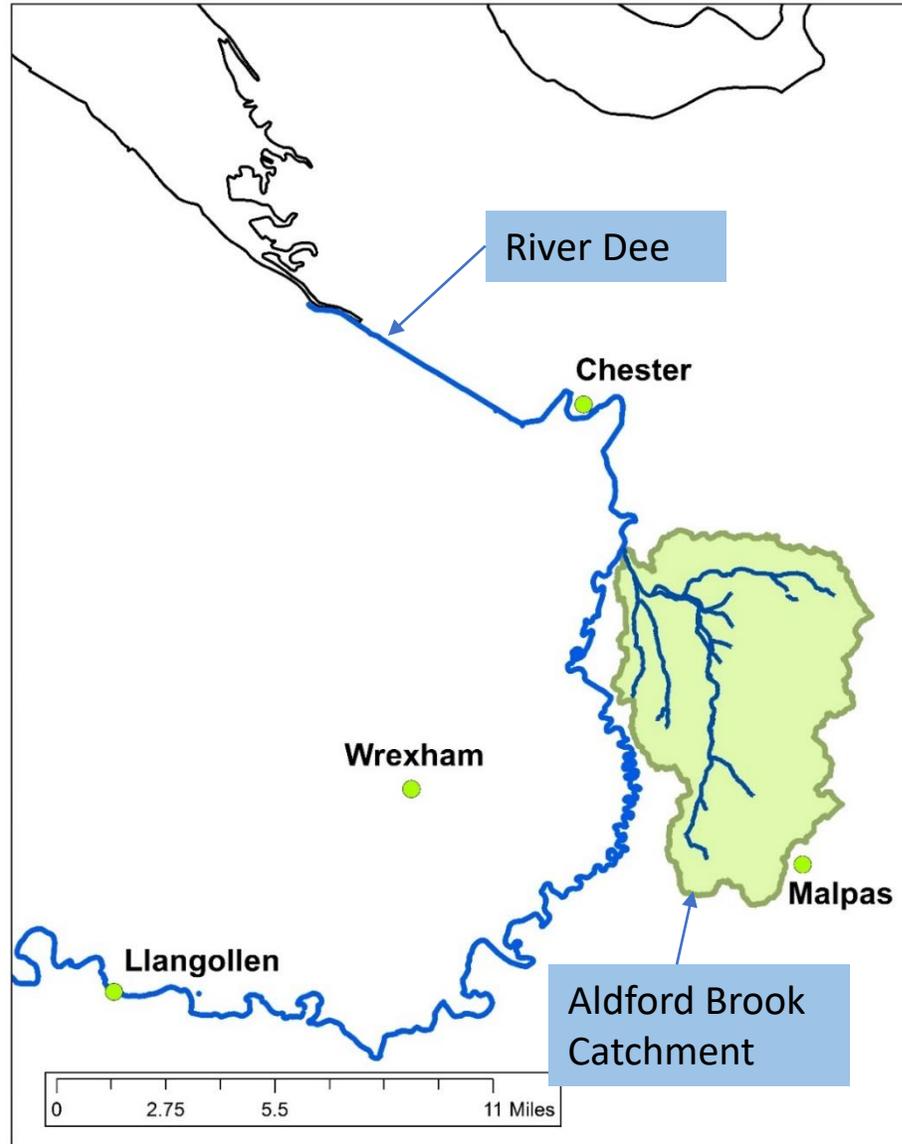
Aldford Brook 2016-17 Project Overview

- The project was funded by the Environment Agency and United Utilities, and delivered in collaboration with the Welsh Dee Trust and Reaseheath College with the aim of extend the activities of the successful Alford Brook CPAF project 2015-16.
- The objective of the project is to address the deteriorations of the ecological status of Alford Brook. This project aims are to:
 - reduce the amount of phosphate, pesticides and other pollutants entering Alford Brook by providing targeted farm advice and mitigation measures.
 - increase biodiversity by recommending mitigation measures that, in addition to improving water quality, create new habitat on the river corridor, record non-native invasive species and their suitability for treatment, promote connectivity between wildlife areas and enhance ecosystem services.
 - increase flood attenuation opportunities by identifying areas of rural land that flood during high rainfall resulting in increased sediment loading of watercourses that could be ameliorated by natural measures such as tree planting and riparian buffer strips.

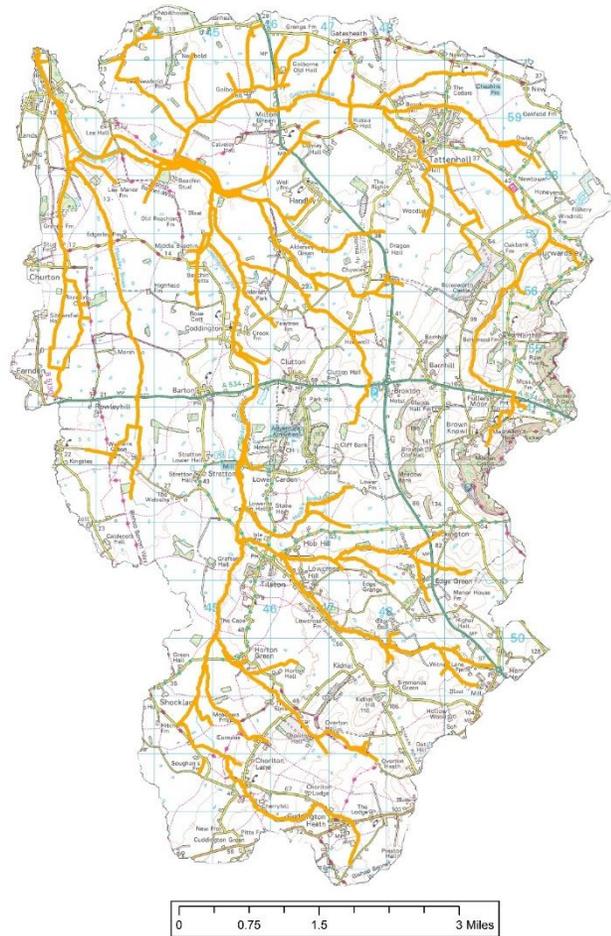
Aldford Brook Catchment Overview

Waterbody ID:
GB111067052120
Catchment area: 107.9km²
Main River length: 24.3km

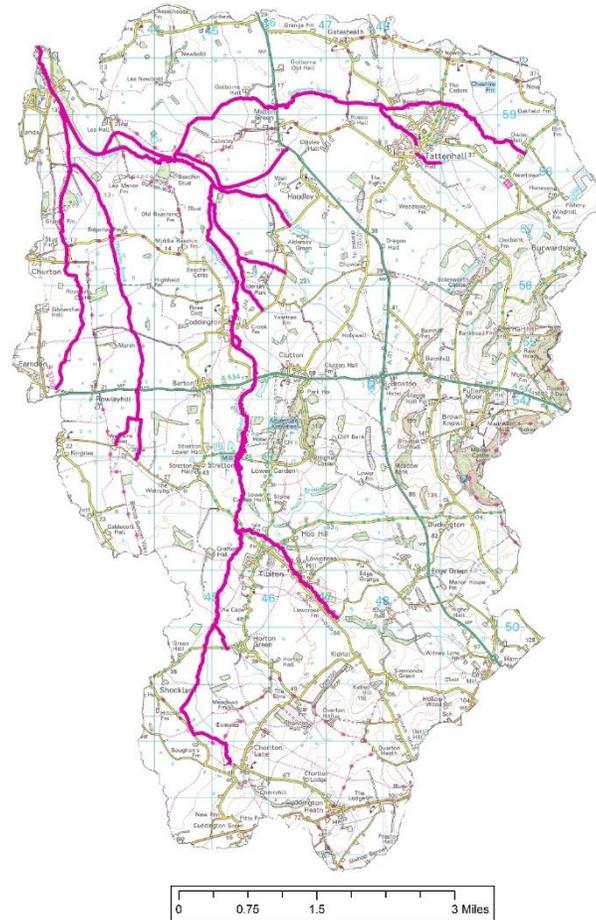
Not designated artificial or heavily modified



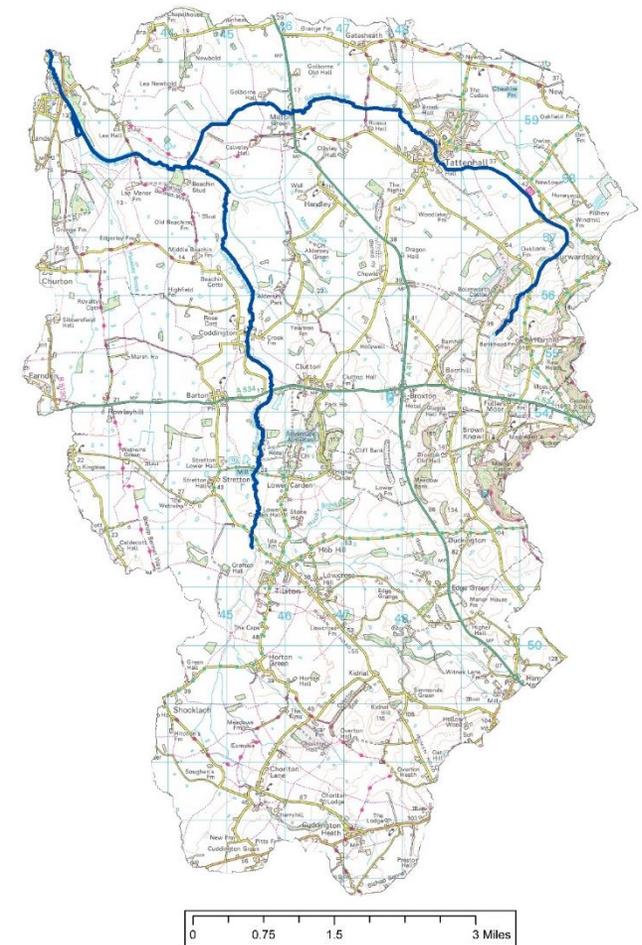
Detailed River Network



EA Main River



WFD River



Source: EA Main River, WFD River and DRN (Detailed River Network) from environment.data.gov.uk– note the DRN is under consultation in 2017 but there are no proposed insertions or deletions in the Aldford catchment.

Four *EA main river* tributaries

The Environment Agency is responsible for carrying out maintenance, improvement or construction work on main rivers to manage flood risk. If landowners want to carry out building or construction work near a main river they may need a Flood Risk Activities permit.

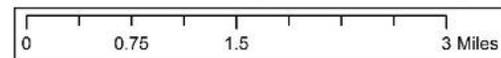
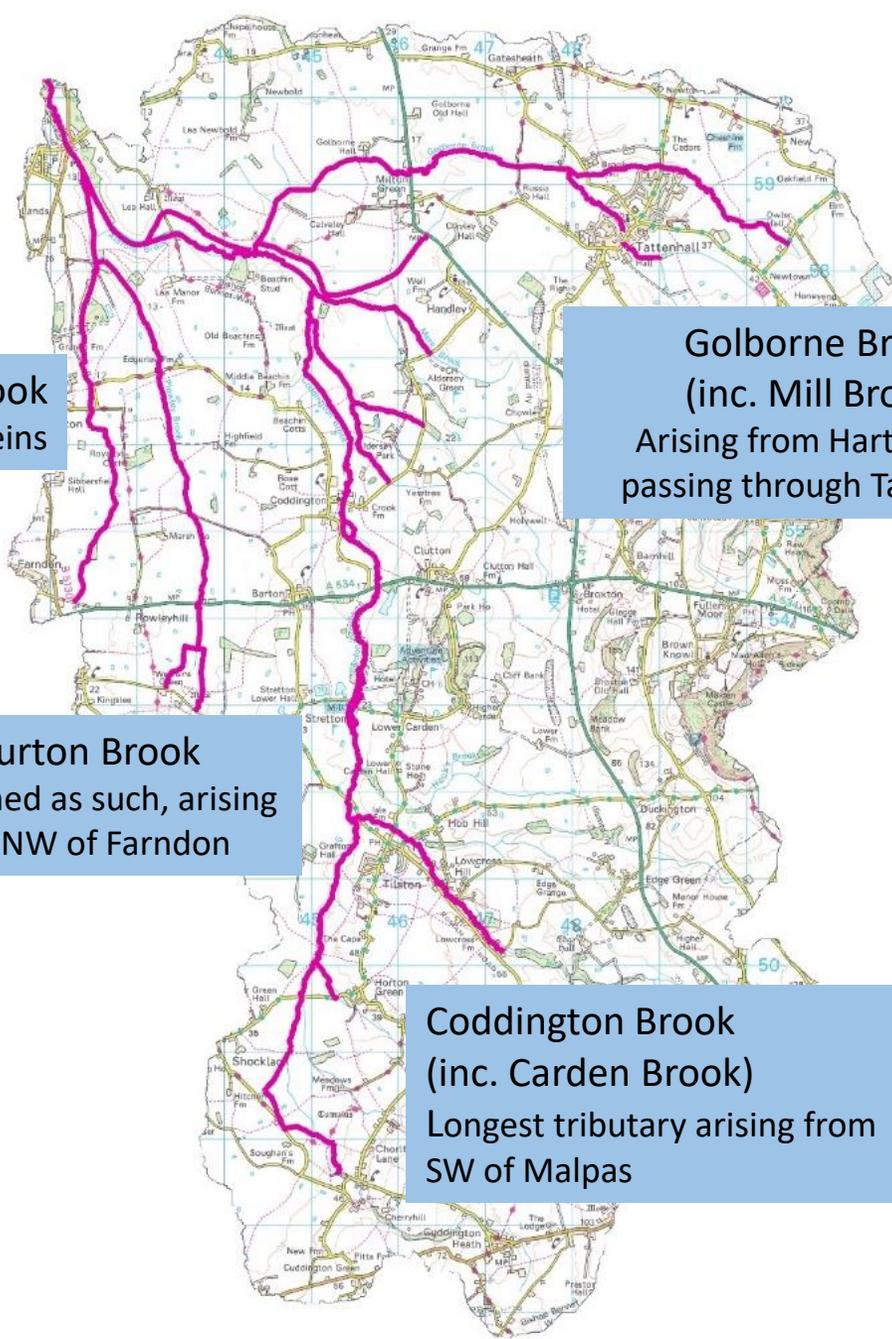
More information on Main River permits is available from www.gov.uk/guidance/flood-risk-activities-environmental-permits

Plowley Brook
Arising from The Wetreins

Golborne Brook (inc. Mill Brook)
Arising from Harthill and passing through Tattenhall

Churton Brook
Not named as such, arising from NW of Farndon

Coddington Brook (inc. Carden Brook)
Longest tributary arising from SW of Malpas



Minor Named Tributaries

- Mere Brook, Stoneyford and Aldersey Brook (inc. Holywell Brook)- arising from Aldersey, Handley and Milton Green and Clutton
- Keys Brook – arising from North of Tattenhall to join Golborne Brook

Non-main river watercourses are under Local Authority control, in this case Cheshire West and Cheshire Council. There is no Internal Drainage Board authority in this catchment. Permits may be required for some activities and works along Local Authority Rivers.

Water Framework Directive river

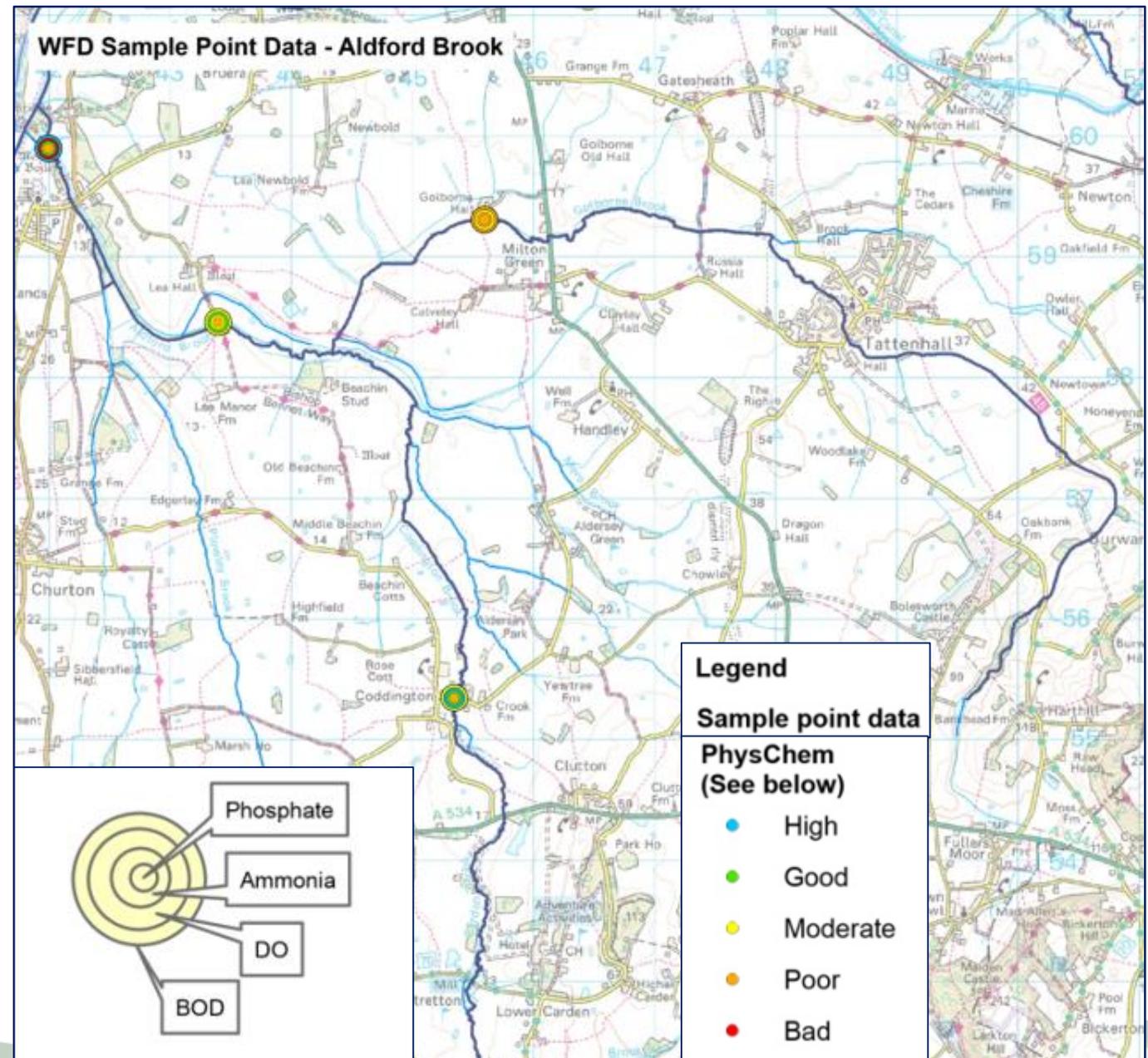
- WFD Water Body – the river and surface water catchment defined for the implementation of the Water Framework Directive. Note that much of the main river and tributaries network in the Aldford Catchment is not classified as WFD Water Body. Implications arise for reporting on WFD km enhanced.



Water Framework Directive Status

Four WDF Monitoring points

- two points on lower section
- one on each major tributary (Coddington Brook and Golborne Brook)





Custom Waterbody Summary Report

21 June 2017

11:00:59



Aldford Brook

Please be aware that data is based on the best available information as of the date shown above, and may be subject to change

WATERBODY ID	GB111067052120	CYCLE / LATEST VERSION	Cycle 2	2
TYPE	River	DESIGNATION	Not Designated A/HMWB	
LENGTH (km)		EASTING	342423	
AREA (km2)		NORTHING	358895	
Alkalinity		CATCHMENT AREA (Ha)		

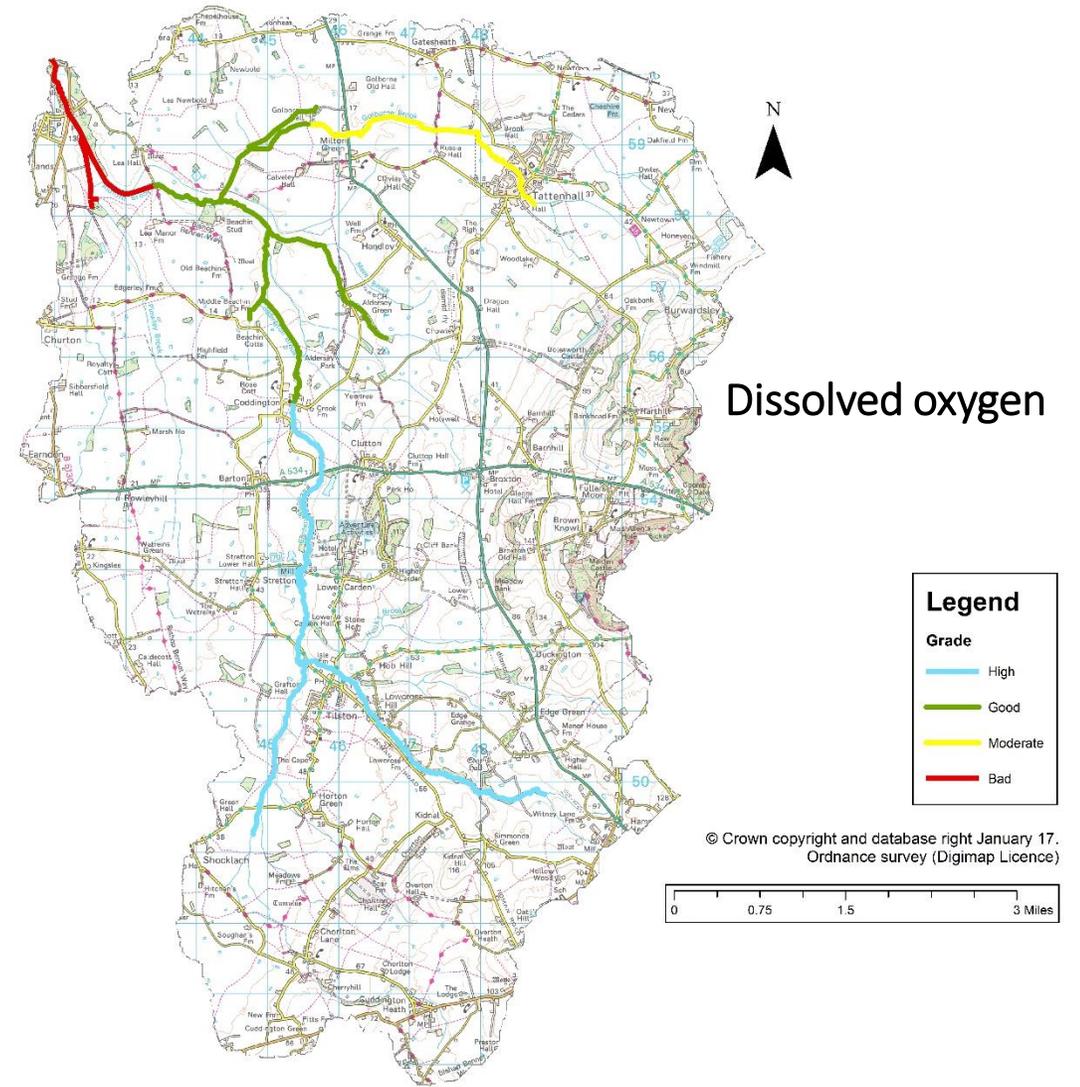
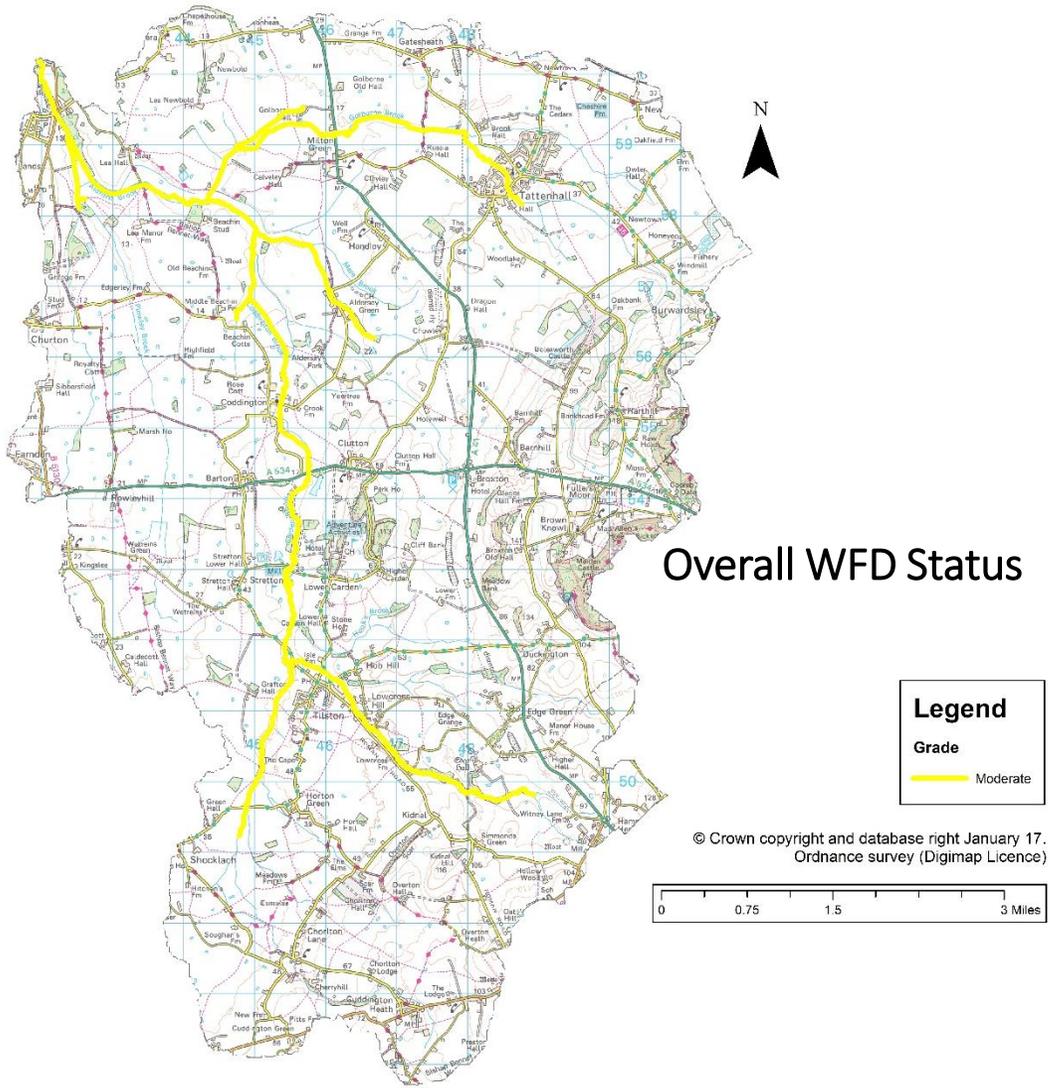
Geographical Boundaries	
EA AREA	Greater Manchester Merseyside and Cheshire
RBD	Dee
MAN CATCHMENT	Dee
OP CATCHMENT	Dee Lower Chester Weir to Ceiriog

Classifications

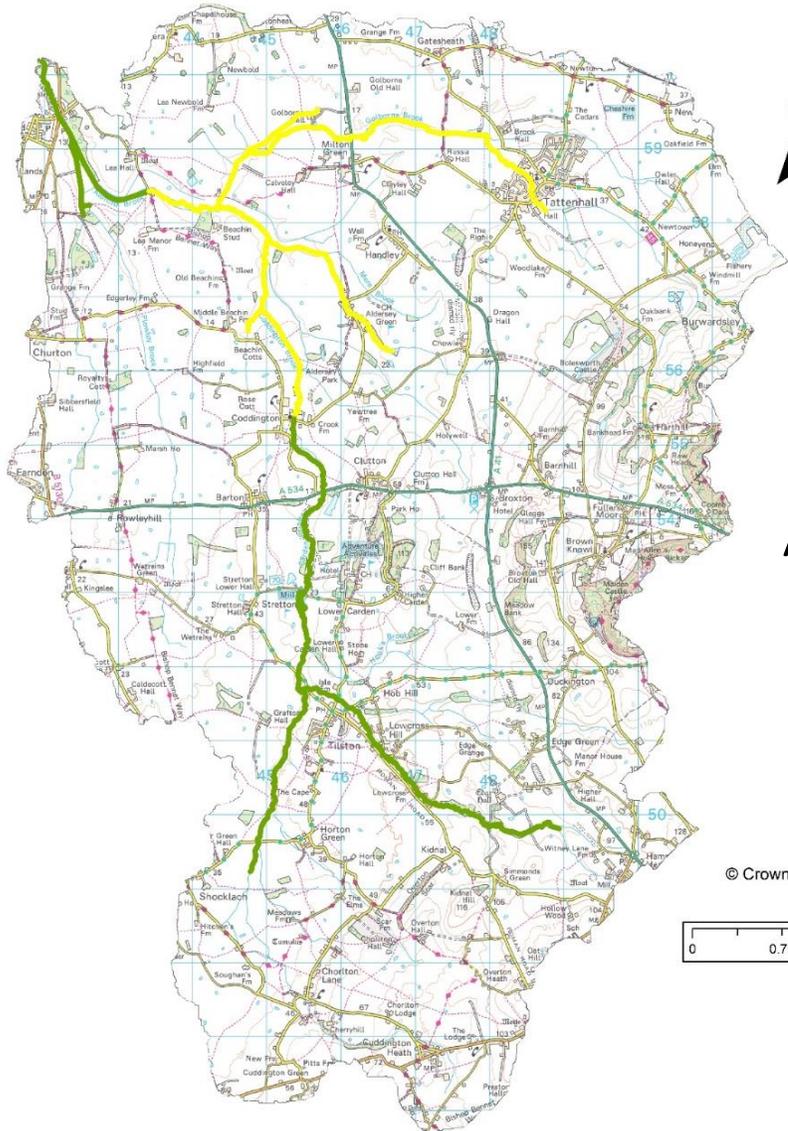
Yea	Overall	Ecological	Chemical	MMA	Invertebrates	Fish	Macrophytes and Phytobenthos Combined	Phosphate	Ammonia	Dissolved Oxygen	pH	Hydrological Regime
2013	Moderate	Moderate	Good		Good			Poor	Good	Poor	High	Sup Good
2014	Moderate	Moderate	Good					Poor	Good	Moderate	High	Sup Good
2015	Moderate	Moderate	Good					Poor	Good	Good	High	Sup Good
2016	Moderate	Moderate	Good					Poor	Moderate	High	High	Sup Good

Note: DNSG = 'Does Not Support Good', DNRA = 'Does Not Require Assessment'

Water Framework Directive Status



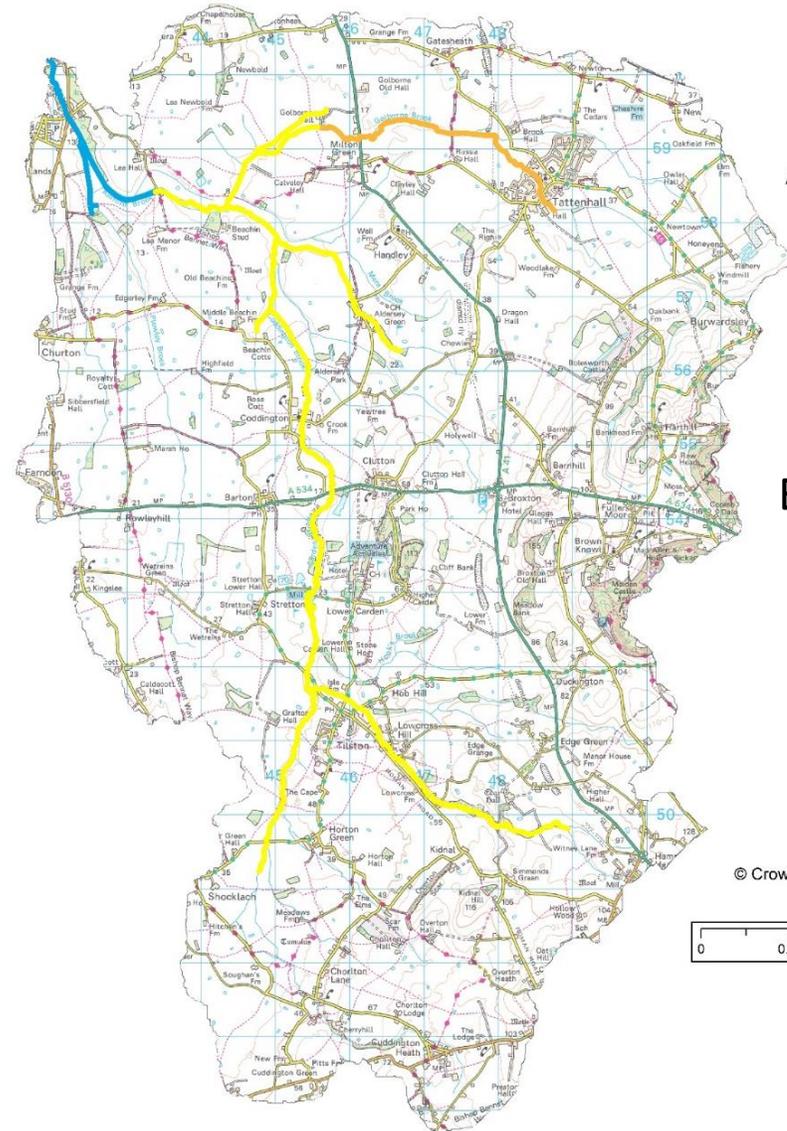
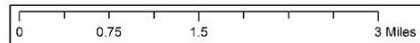
Water Framework Directive Status



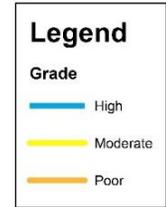
Ammonia



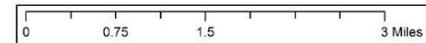
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Ordnance survey (Digimap Licence)



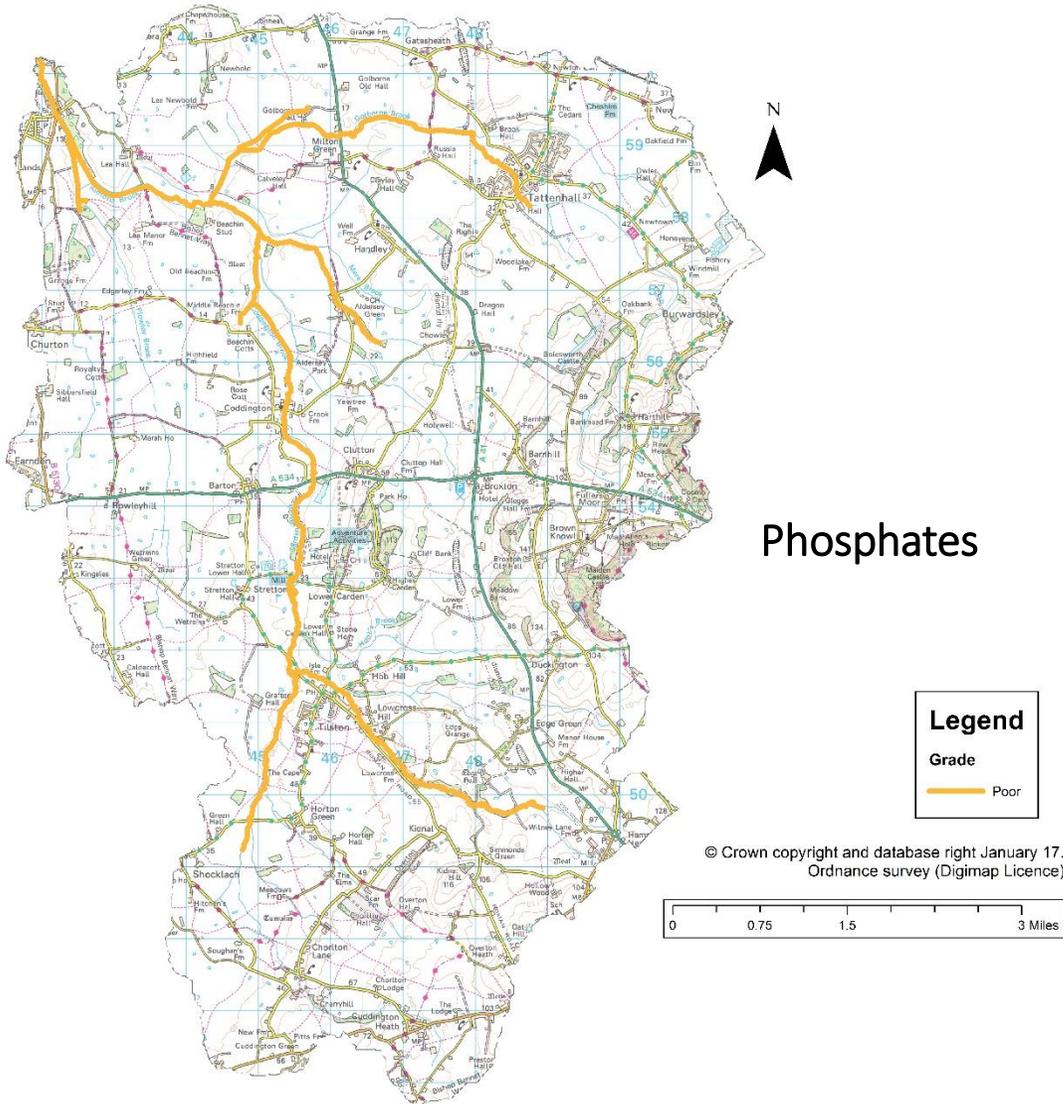
Biological Oxygen Demand



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Water Framework Directive Status



Invertebrates were monitored in 2009 and 2014, at both time were found to be GOOD status.

No invertebrate monitoring since 2014

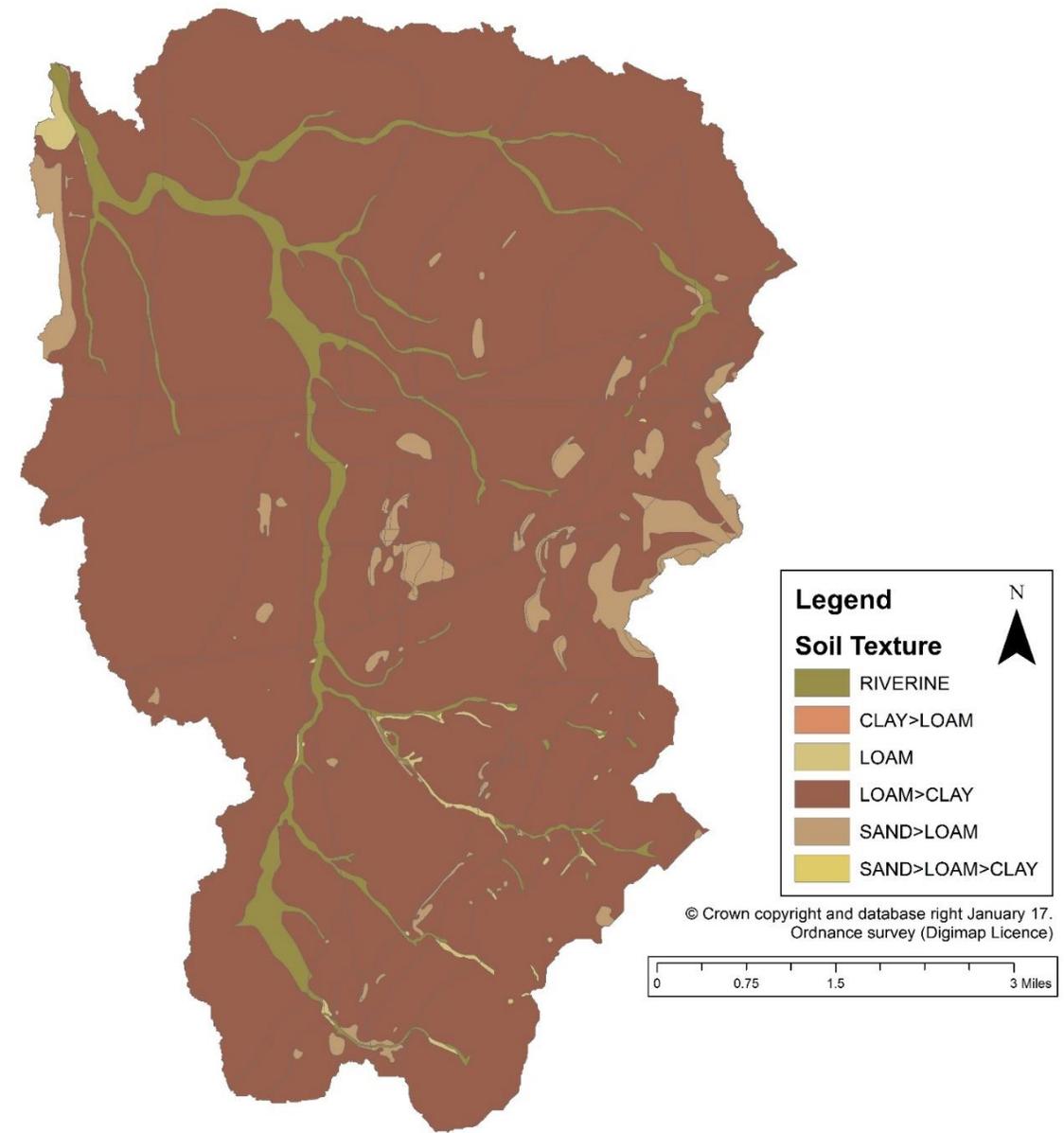


Land Use, Risk Factors and Pressures in Aldford Brook catchment



Soil Type and Erosion Risk

- largely *clay loams*
- *sandy loams to loamy sands*, mainly on sloping ground on Peckforton Hills
- patches of *sandy loam* soil on the flood plain, some quite large
- *riverine* soils along the brook and flood plains



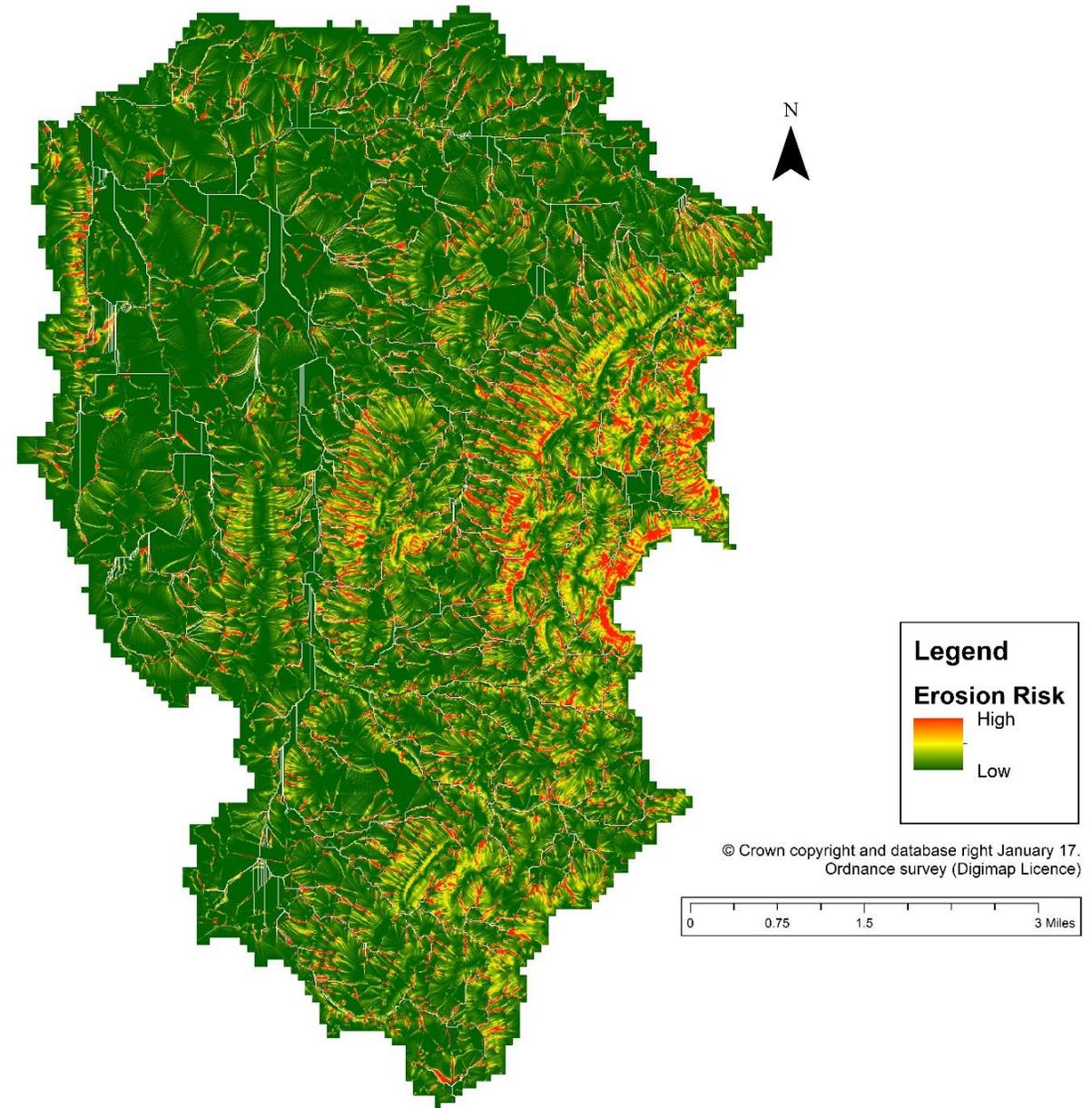
SCIMAP

Soil erosion risk

The RED and YELLOW areas to the East of the catchment have the following characteristics:

- Moderate to steeply sloping land
- Sandy soils rather than clay loams which dominate the plains to the west

The RED channels show more steeply sloping ravines and drainage channels.



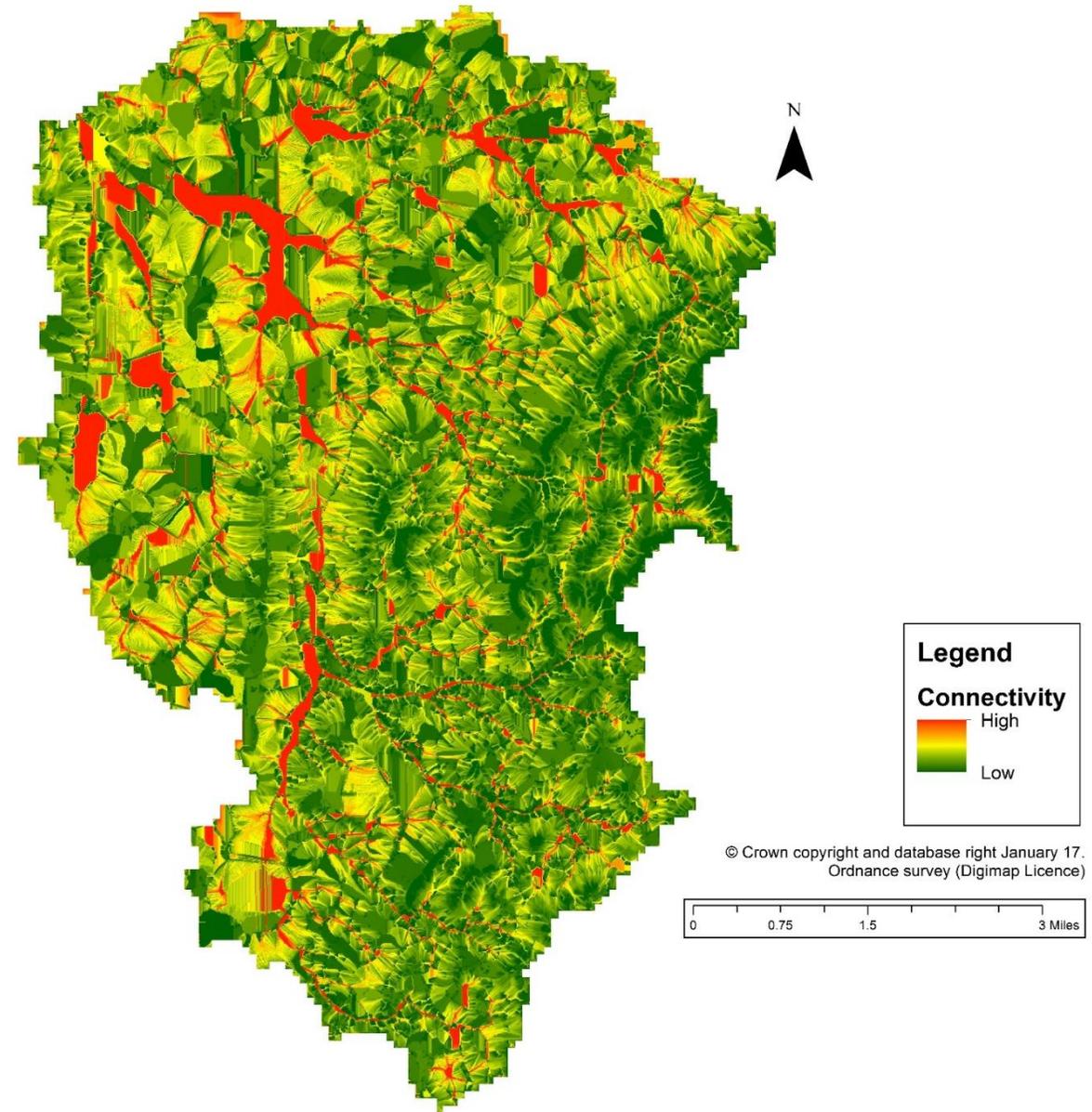
SCIMAP

Connectivity of land to watercourse

The connectivity describes the ease of travel of water (and pollutants) through the landscape, expressed as a measure of the probability of continuous flow to the river channel.

The RED areas show areas of high connectivity between land and watercourses, particularly prevalent along the floodplain areas.

YELLOW areas are largely areas of more slowly permeable clay loams and flat topography.

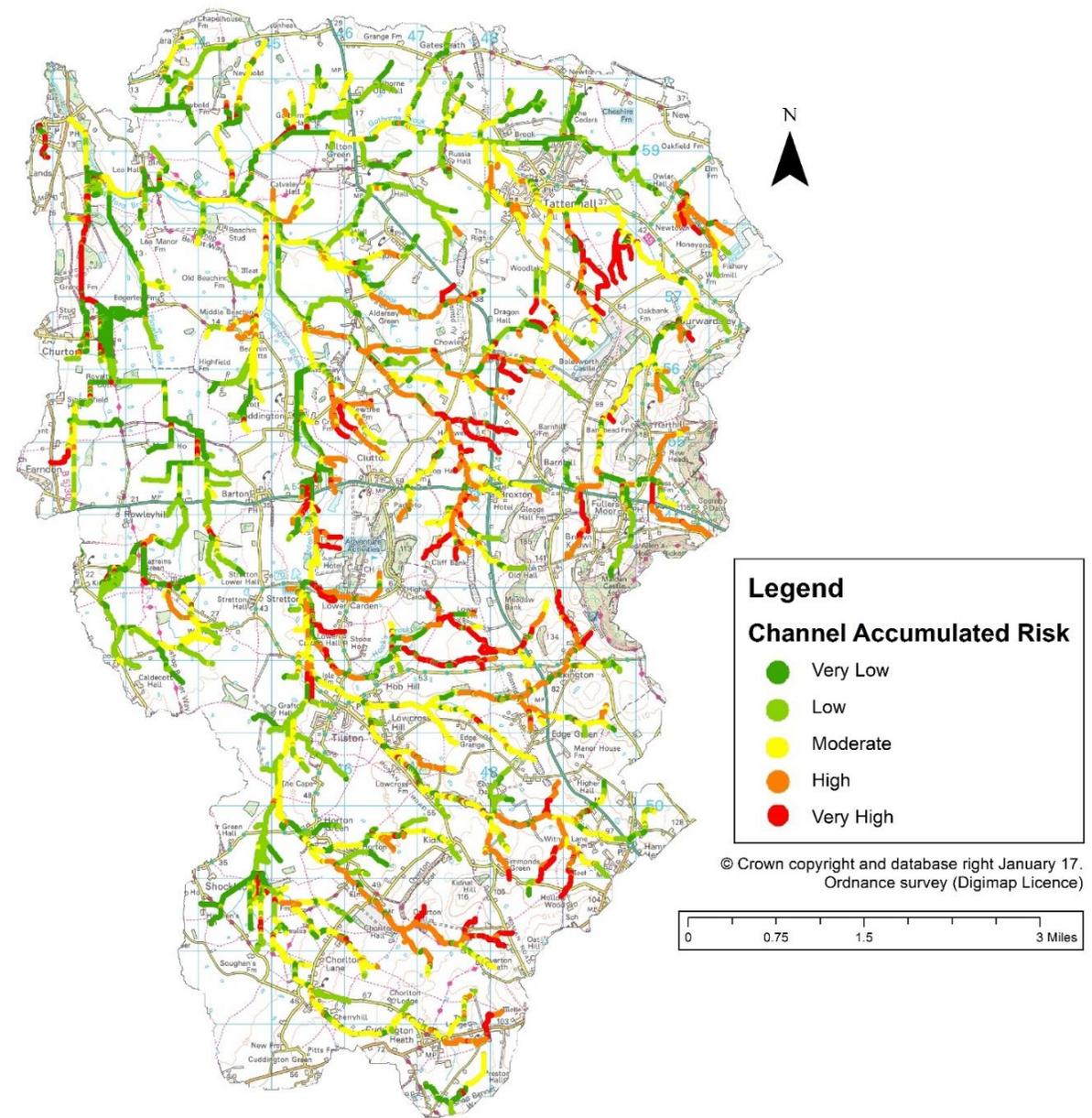


SCIMAP

Accumulated channel risk

This describes this accumulated risk of water and pollutant sources in the watercourse channels across the catchment, based on average annual rainfall, topography, soil erodibility and land cover.

Higher channel risk tends to be in the upper tributaries of the catchment, aside from a prominent long section of Plowley Brook.

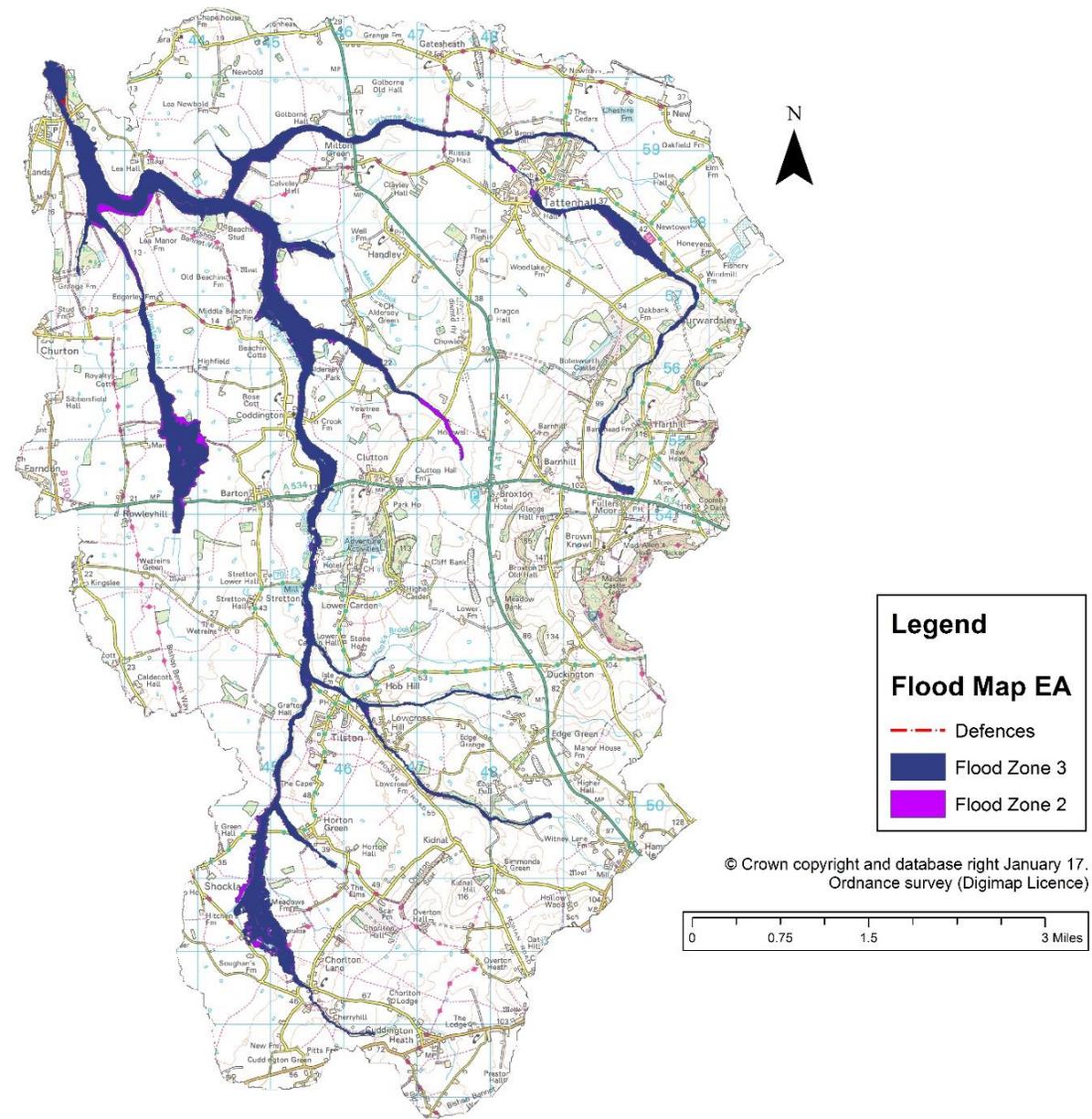


Flood Risk Map

These two colours show the extent of the natural floodplain if there were no flood defences or certain other manmade structures and channel improvements.

Flood Zone 3 (Higher risk) - area that could be affected by flooding from a river by a flood that has a 1 per cent (1 in 100) or greater chance of happening each year.

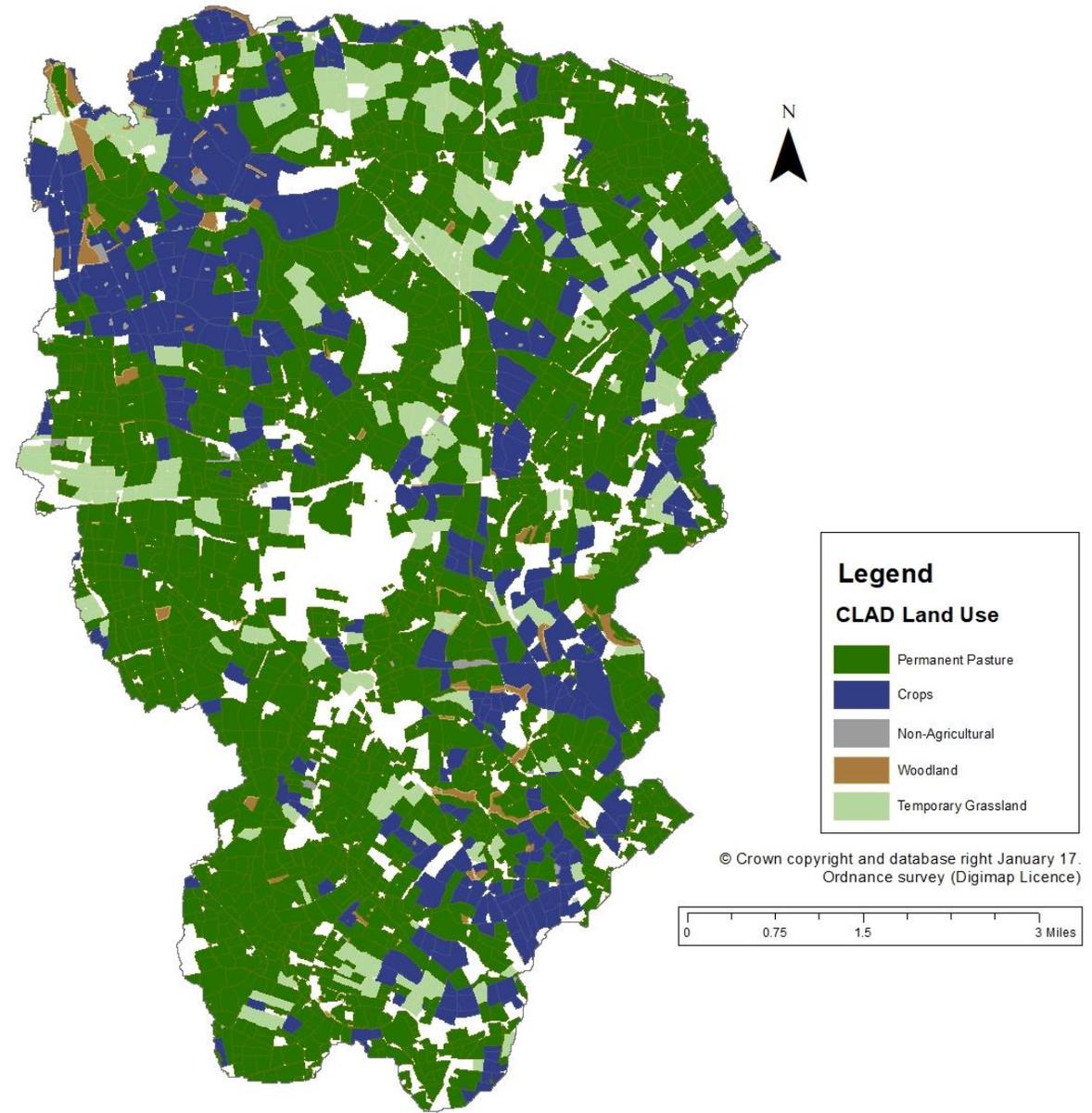
Flood Zone 2 (Lower risk) shows the additional extent of an extreme flood from rivers with up to a 0.1 per cent (1 in 1000) chance of occurring each year.



Land Use

Dataset based on CLAD 2014 Single Farm Payment land use code, ground checked with catchment walkover observations during 2015 and 2016.

White areas are mainly golf courses, estate parkland or unregistered land.



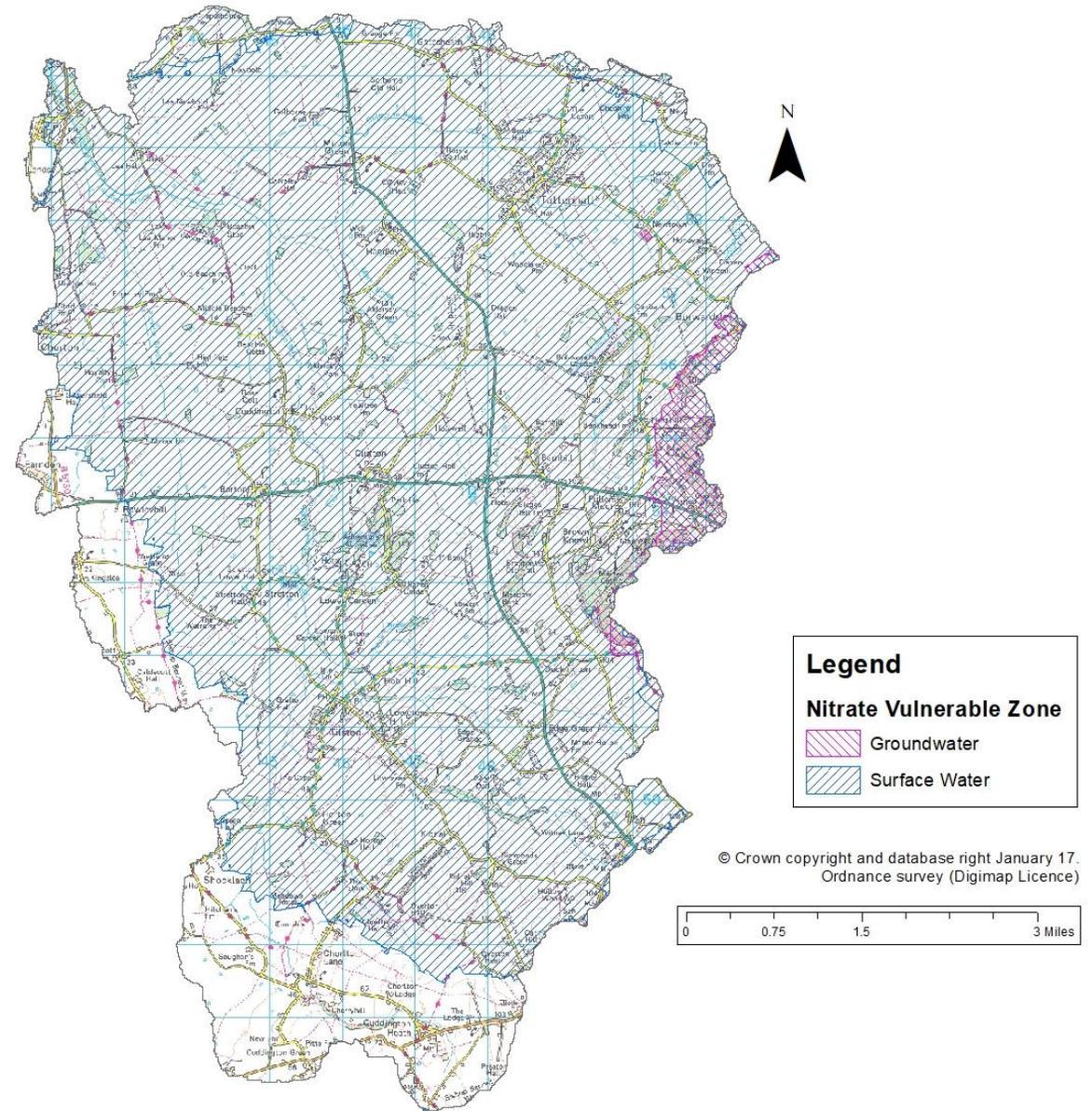
Nitrate Vulnerable Zones

A review of NVZ status for 2017 in the Aldford Catchment* states that 100% of the catchment is in a surface water NVZ (differing interpretation of catchment boundary from Defra map shown).

The Aldford Catchment has been a designated NVZ since 2006.

Reviews undertaken in 2009, 2013 and 2017 show an improvement in nitrate N status in modelled and monitoring data.

The catchment remains a designated NVZ due to some monitoring results indicating that some tributaries are still affected or could be affected by nitrate pollution.



Source Protection Zones

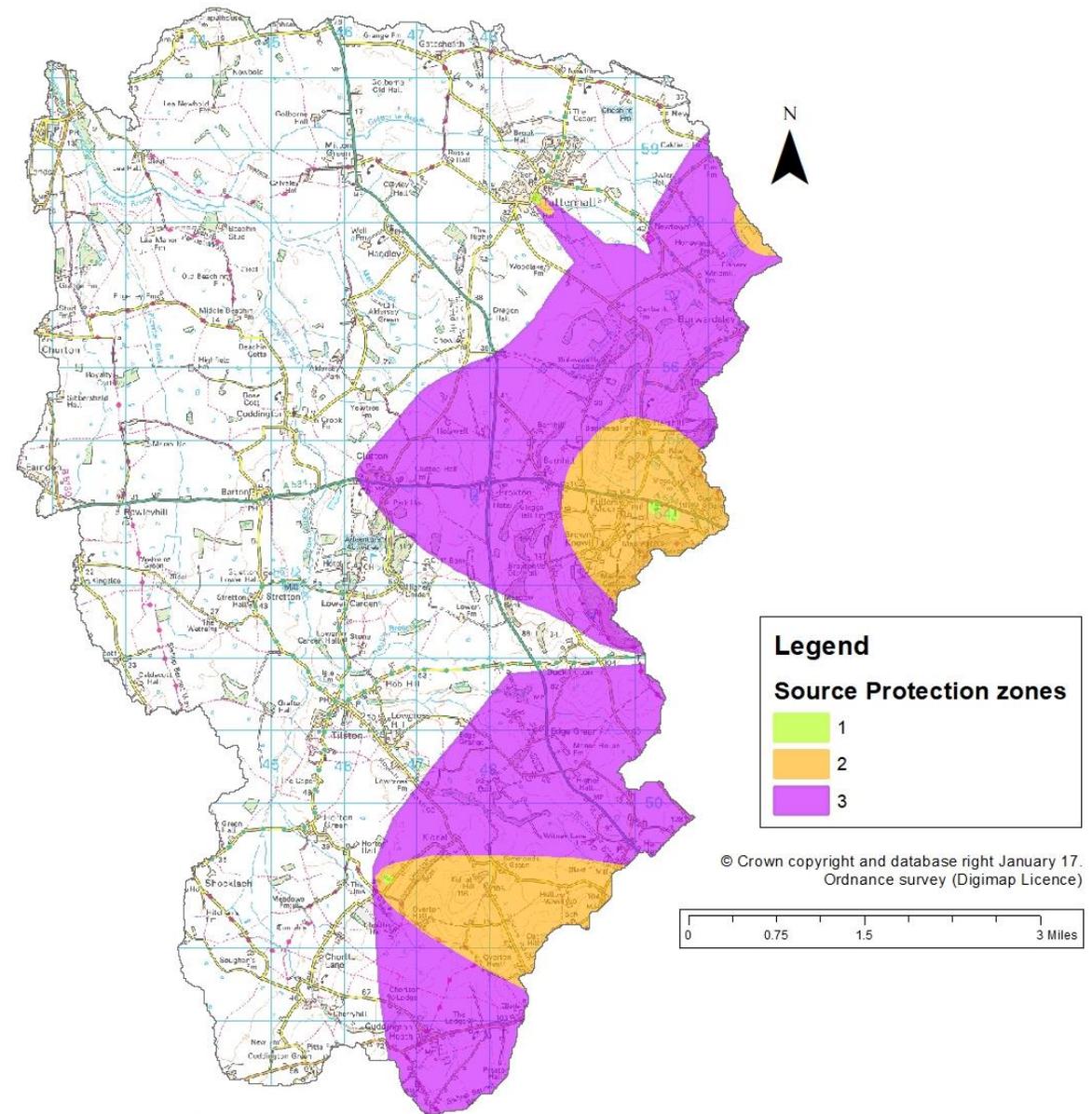
Ground water

Located around Severn Trent's boreholes that supply Market Drayton and environs.

Currently survey and investigation underway into dropping groundwater levels and water levels in the Aldford Brook surface water catchment.

Surface water

Whole catchment is a Surface Water Safeguard Zone (SgZ) for the River Dee abstraction

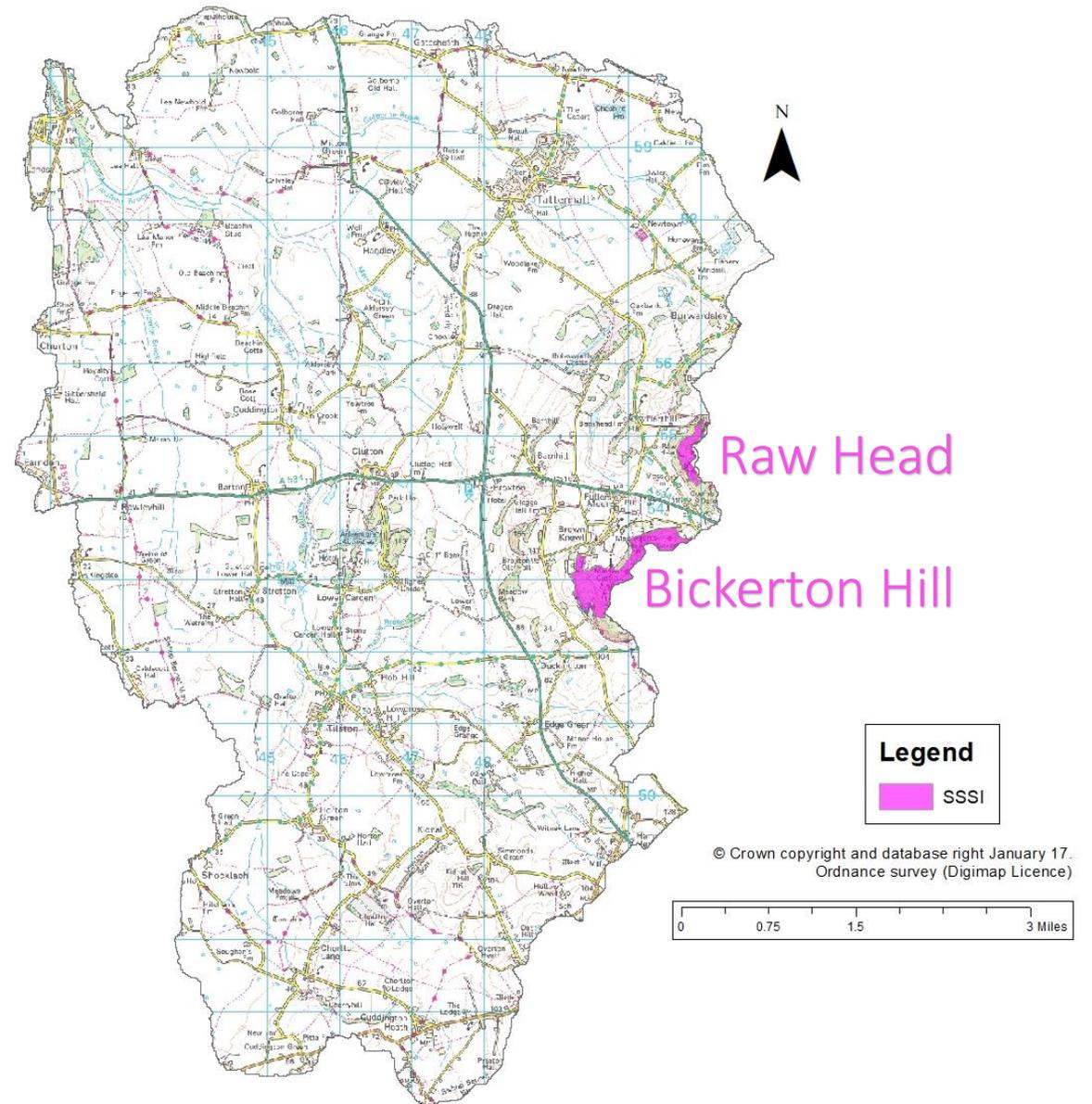


SSSIs and designated sites

Sites of Special Scientific Interest:

Raw Head – designated for geological interest

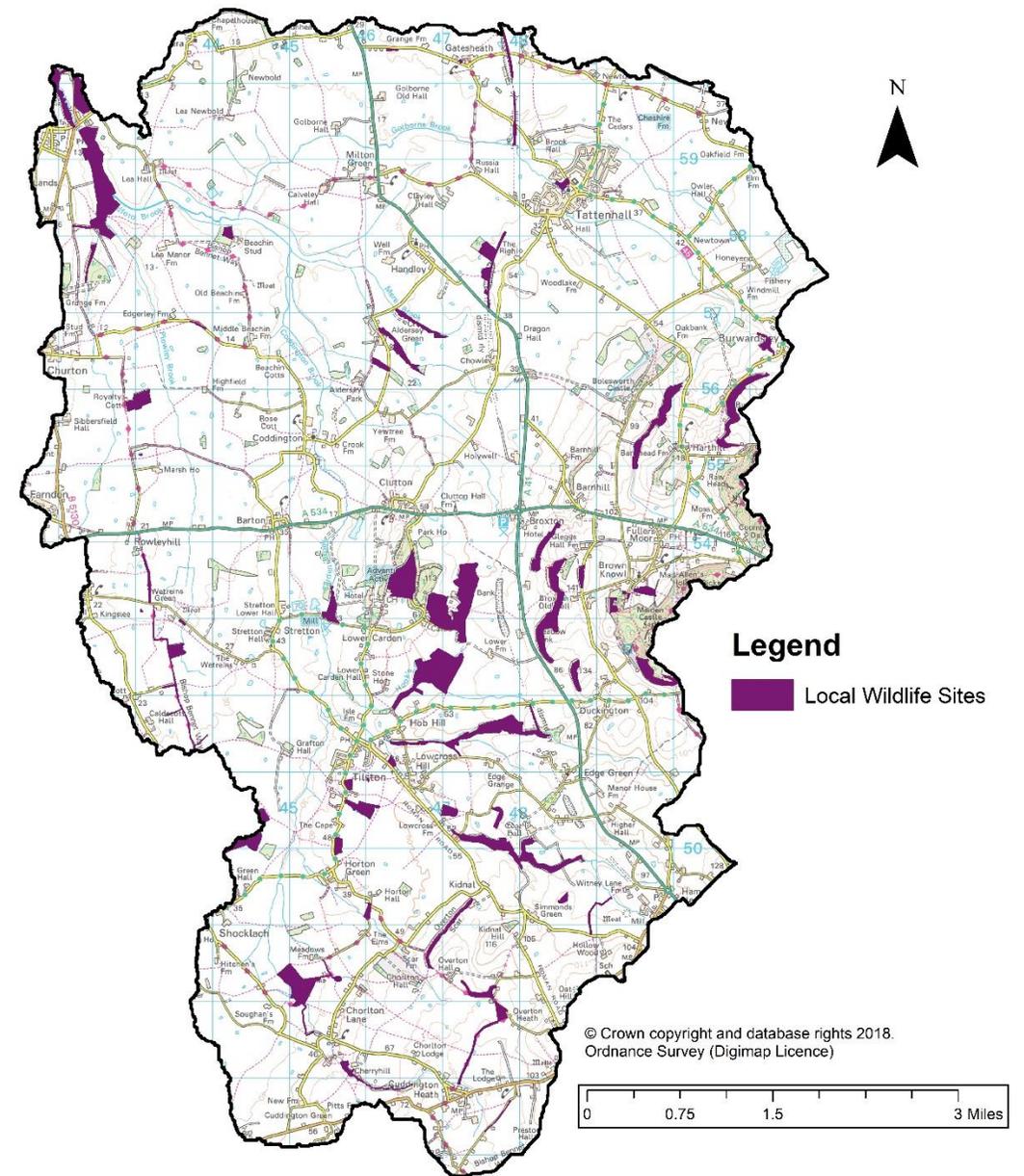
Bickerton Hills – designated for Lowland Heath



Local Wildlife Sites

Local Wildlife Sites (formerly known as SBIs, Sites of Biological Importance)

There are 66 Local Wildlife sites in the Aldford catchment which include a number of small species rich grassland sites, and clough woodland.





Aldford Brook Project

For further information on project outcomes contact Reaseheath Farm Environmental Services on 01270 613 195 or email hub@reaseheath.ac.uk

