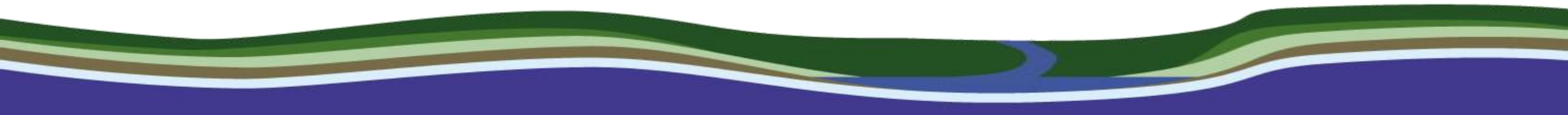


# Barnett, Sales & Edleston Brook Project

## Catchment Characterisation

March 2018

*This catchment characterisation provides an overview of the Barnett, Sales & Edleston brooks 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](mailto:hub@reaseheath.ac.uk) with permission from the Environment Agency.*



# Barnett, Sales & Edleston Brook 2017 Project Overview

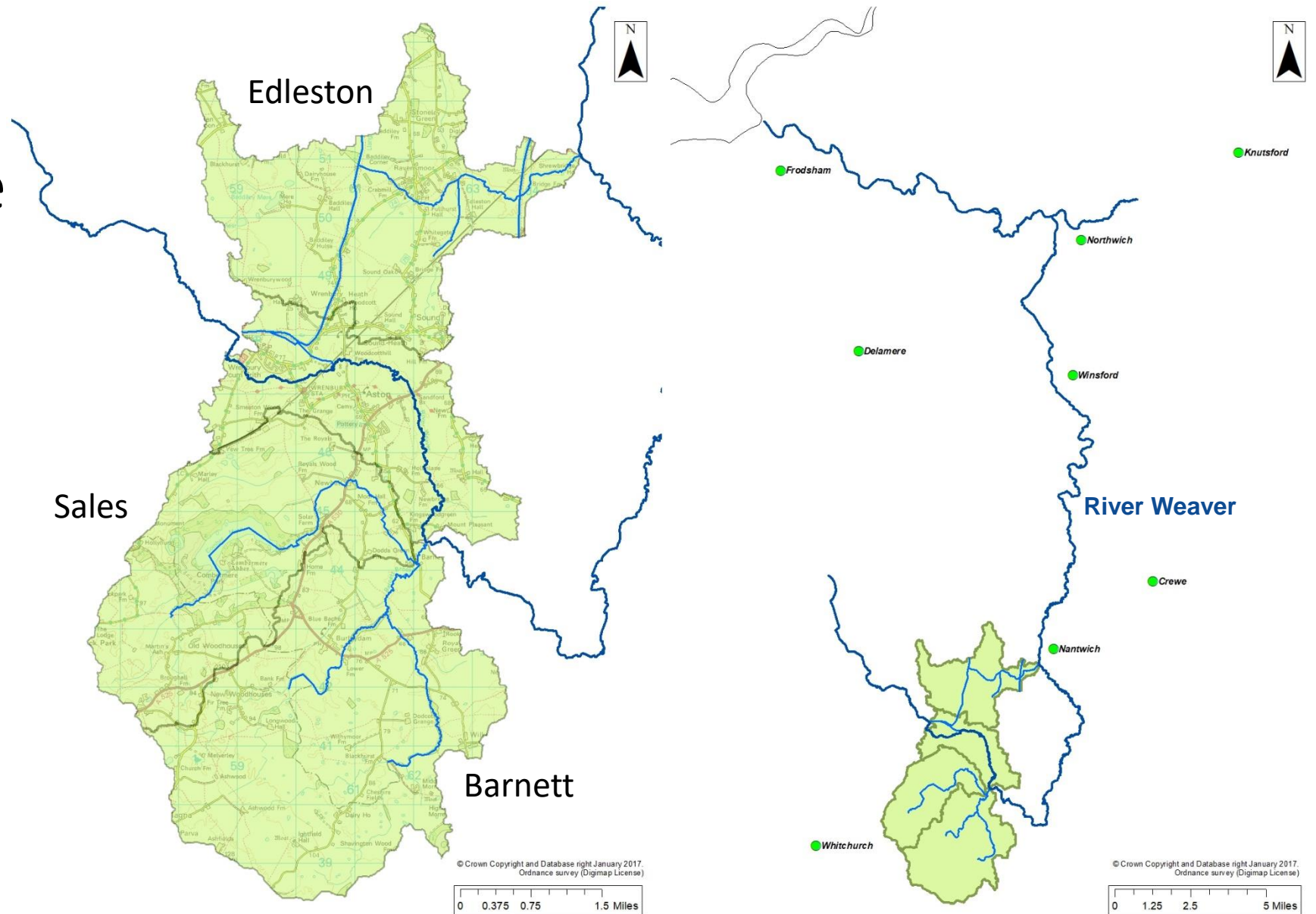
Under the European Union (EU) WFD, the Environment Agency (EA) has a requirement to ensure that all water bodies reach 'Good Ecological Potential / Status' by 2027. The North West River Basin Management Plan states that 67% of water bodies in the Weaver Gowy water management catchment are not achieving good ecological status due to agricultural pollution. A large scale focus on Cheshire's agricultural practices is needed if water quality is to improve.

Reaseheath College's Farm Environmental Services were funded to work with farmers in the Barnett, Sales & Edleston Brook catchments to identify mitigation measures for water quality improvements that offer business benefits as well as environment gain. The aim of the project was to:

- 1. Reduce the amount of phosphate and other pollutants entering Weaver Gowy waterbodies, specifically the Barnett, Sales & Edleston Brooks, by providing targeted farm advice and suggested mitigation measures.*
- 2. Increase biodiversity by prioritising mitigation measures that, in addition to improving water quality, create new habitat on the river corridor.*
- 3. 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 breaks, sediment ponds and riparian buffer strips.*

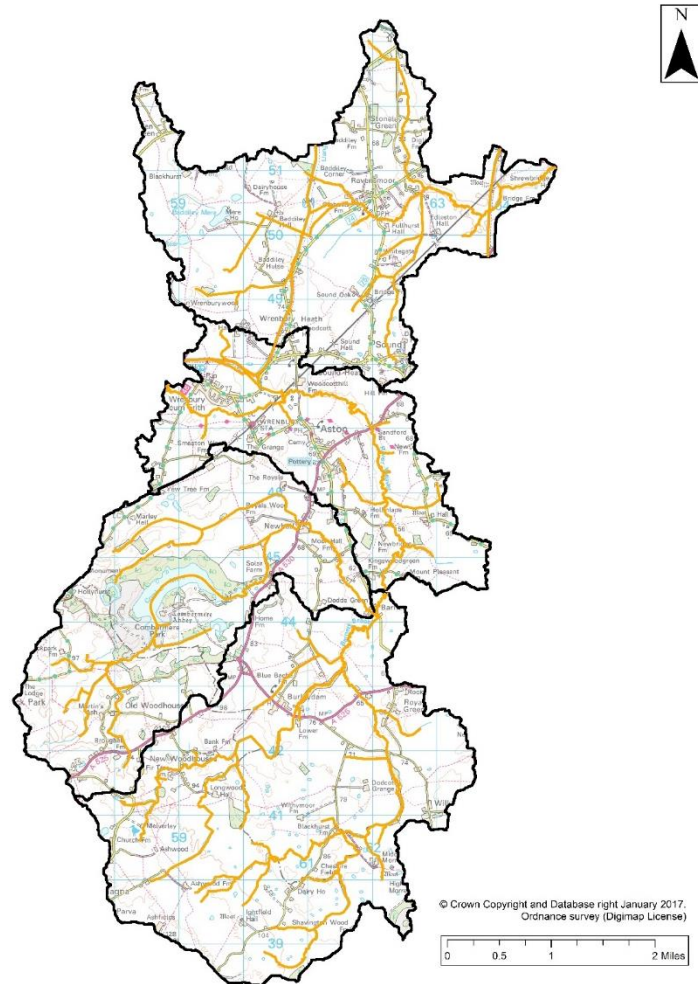
# Barnett, Sales & Edleston Brook Catchment Overview

- Edleston Brook  
ID:GB112068055250  
Area: 16.31km<sup>2</sup>  
Length Main River: 3.31km
- Sales Brook  
ID:GB112068055210  
Area: 14.88 km<sup>2</sup>  
Length Main River: 6.47 km
- Barnett Brook  
ID:GB112068055180  
Area: 22.48 km<sup>2</sup>  
Length Main River: 6.403 km

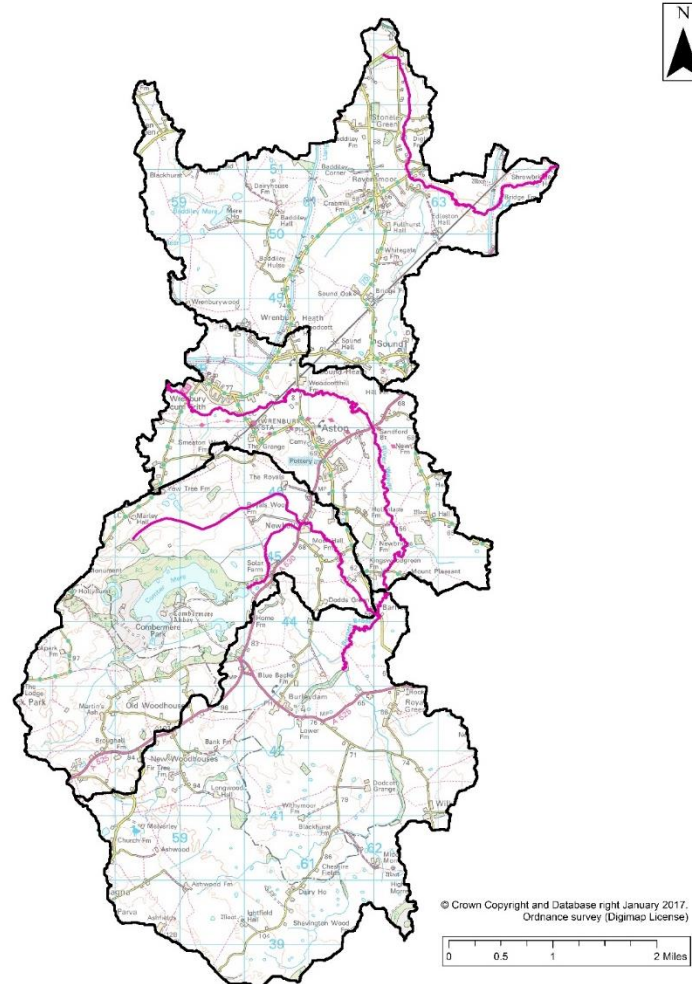




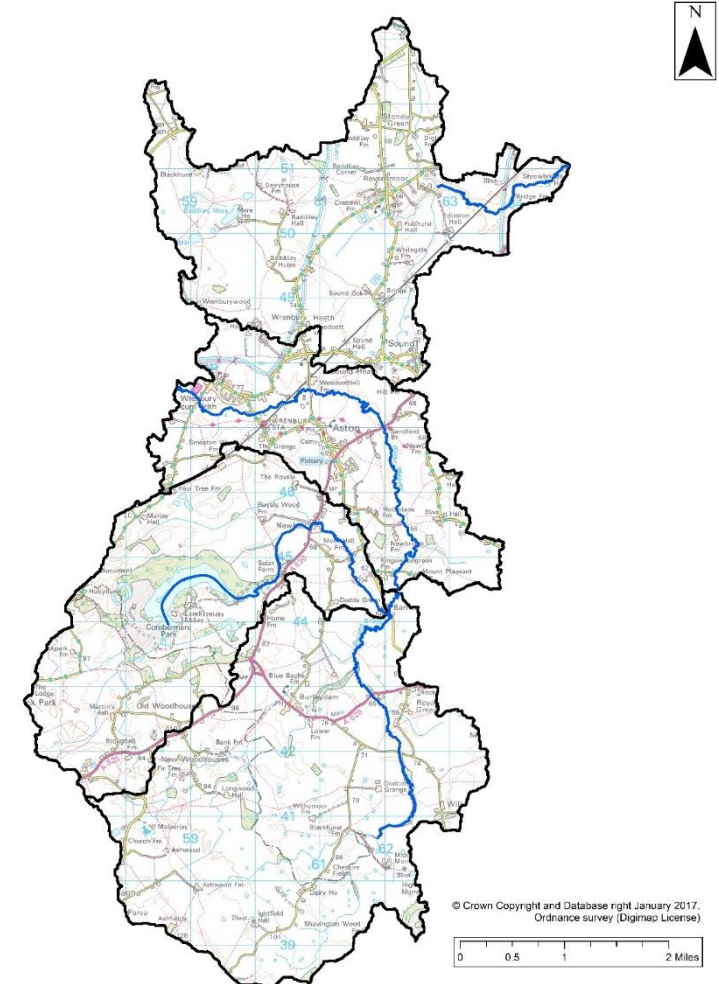
# Detailed River Network



# EA Main River



# WFD River



Source: EA Main River, WFD River and DRN (Detailed River Network) from [environment.data.gov.uk](http://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 **EA 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.

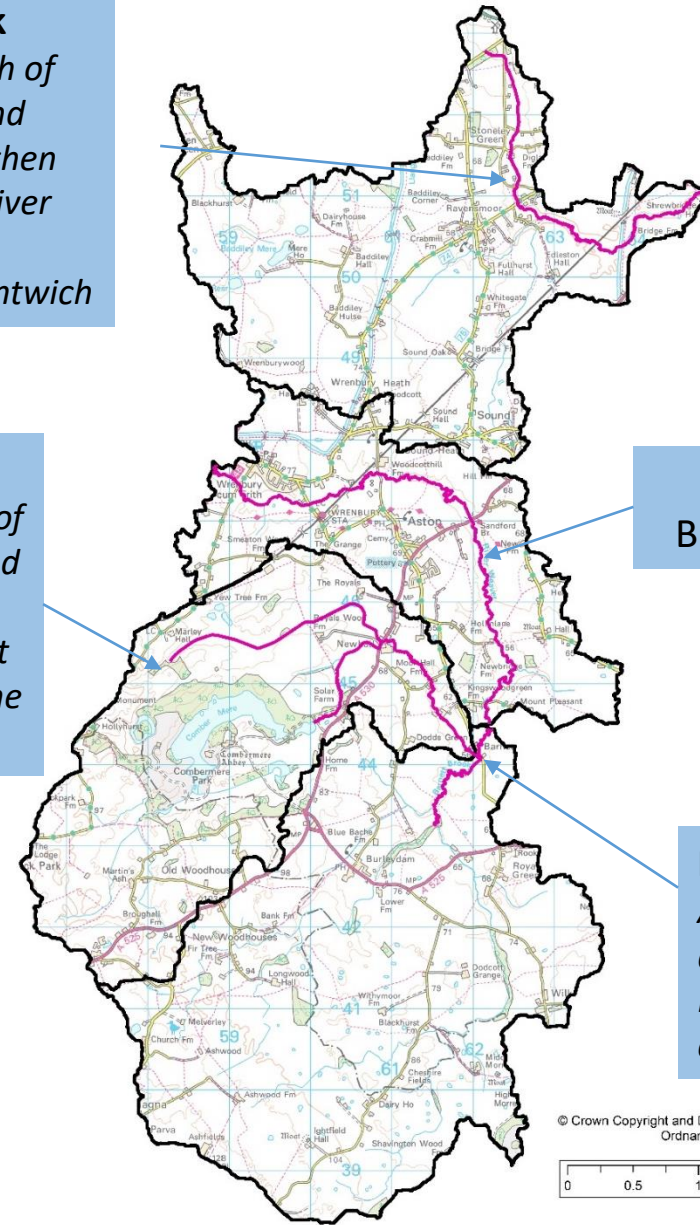
More information on Main River permits is available from [www.gov.uk/guidance/flood-risk-activities-environmental-permits](http://www.gov.uk/guidance/flood-risk-activities-environmental-permits)

**Edleston Brook**  
*Arises in the north of the catchment and flows south and then east to join the River Weaver at Shrewbridge, Nantwich*

**Sales Brook**  
*Arises in the NW of the catchment and flows east to join Barnett Brook just before it enters the Weaver*

River Weaver (Barnett Brook to Marbury Brook)

**Barnett Brook**  
*Arises in SE of the catchment and flows north to join the River Weaver in the NE of the catchment*







## Custom Waterbody Summary Report

15 June 2017  
13:31:36



Environment  
Agency

### Edleston 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	GB112068055250	CYCLE / LATEST VERSION	Cycle 2	2	<b>Geographical Boundaries</b>	
TYPE	River	DESIGNATION	Not Designated A/HMWB		EA AREA	Greater Manchester Merseyside and Cheshire
LENGTH (km)		EASTING	363890		RBD	North West
AREA (km2)		NORTHING	350418		MAN CATCHMENT	Weaver Gowy
Alkalinity		CATCHMENT AREA (Ha)			OP CATCHMENT	Weaver Upper

### Classifications

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

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



## Custom Waterbody Summary Report

15 June 2017  
13:33:35



Environment  
Agency

### Barnett 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	GB112068055180	CYCLE / LATEST VERSION	Cycle 2	2	<b>Geographical Boundaries</b>	
TYPE	River	DESIGNATION	Not Designated A/HMWB		EA AREA	Greater Manchester Merseyside and Cheshire
LENGTH (km)		EASTING	361940		RBD	North West
AREA (km2)		NORTHING	342726		MAN CATCHMENT	Weaver Gowy
Alkalinity		CATCHMENT AREA (Ha)			OP CATCHMENT	Weaver Upper

### 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	Poor	High	High	High
2014	Poor	Poor	Good		Good		Poor	Poor	Moderate	High	High	High
2015	Poor	Poor	Good		Good		Poor	Poor	Moderate	High	High	High
2016	Poor	Poor	Good		Good		Poor	Poor	Good	High	High	High

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



## Custom Waterbody Summary Report

15 June 2017  
13:29:31



Environment  
Agency

### Sales 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	GB112068055210	CYCLE / LATEST VERSION	Cycle 2	2	<b>Geographical Boundaries</b>	
TYPE	River	DESIGNATION	Not Designated A/HMWB		EA AREA	Greater Manchester Merseyside and Cheshire
LENGTH (km)		EASTING	360332		RBD	North West
AREA (km2)		NORTHING	345149		MAN CATCHMENT	Weaver Gowy
Alkalinity		CATCHMENT AREA (Ha)			OP CATCHMENT	Weaver Upper

### Classifications

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

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



## Custom Waterbody Summary Report

13 July 2017  
09:07:42



Environment  
Agency

### Weaver (Marbury Brook to Barnett 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

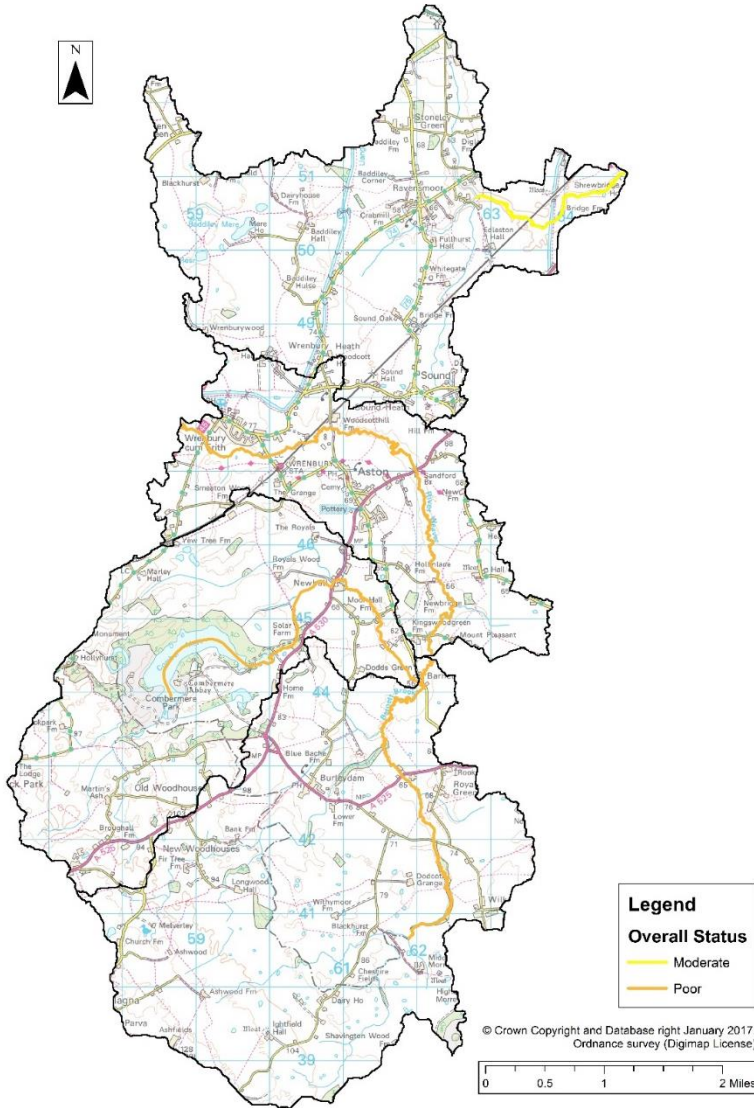
WATERBODY ID	GB112068055470	CYCLE / LATEST VERSION	Cycle 2	2	<b>Geographical Boundaries</b>	
TYPE	River	DESIGNATION	Not Designated A/HMWB		EA AREA	Greater Manchester Merseyside and Cheshire
LENGTH (km)		EASTING	361664		RBD	North West
AREA (km2)		NORTHING	347308		MAN CATCHMENT	Weaver Gowy
Alkalinity		CATCHMENT AREA (Ha)			OP CATCHMENT	Weaver Upper

### Classifications

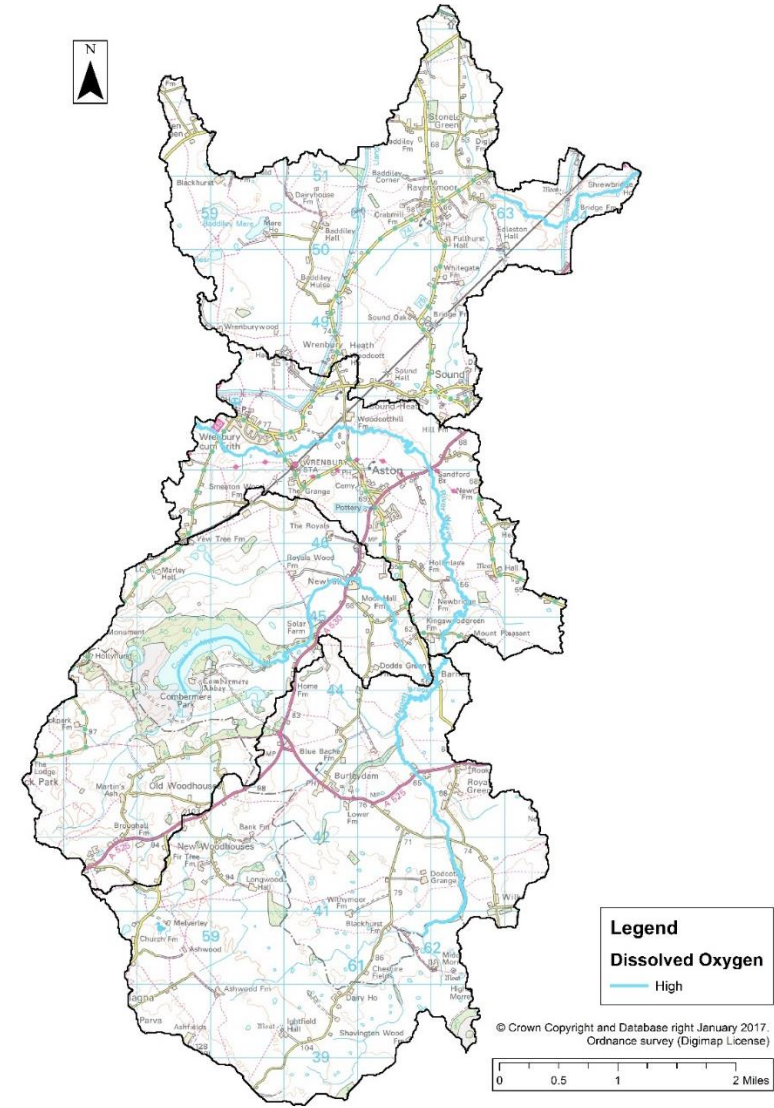
Yea	Overall	Ecological	Chemical	MMA	Invertebrates	Fish	Macrophytes and Phytobenthos Combined	Phosphate	Ammonia	Dissolved Oxygen	pH	Hydrological Regime
2013	Good	Good	Good						Good	High	High	Sup Good
2014	Poor	Poor	Good		Good		Poor	Poor	High	High	High	Sup Good
2015	Poor	Poor	Good		Good	Poor	Poor	Poor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

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

# Water Framework Directive Status



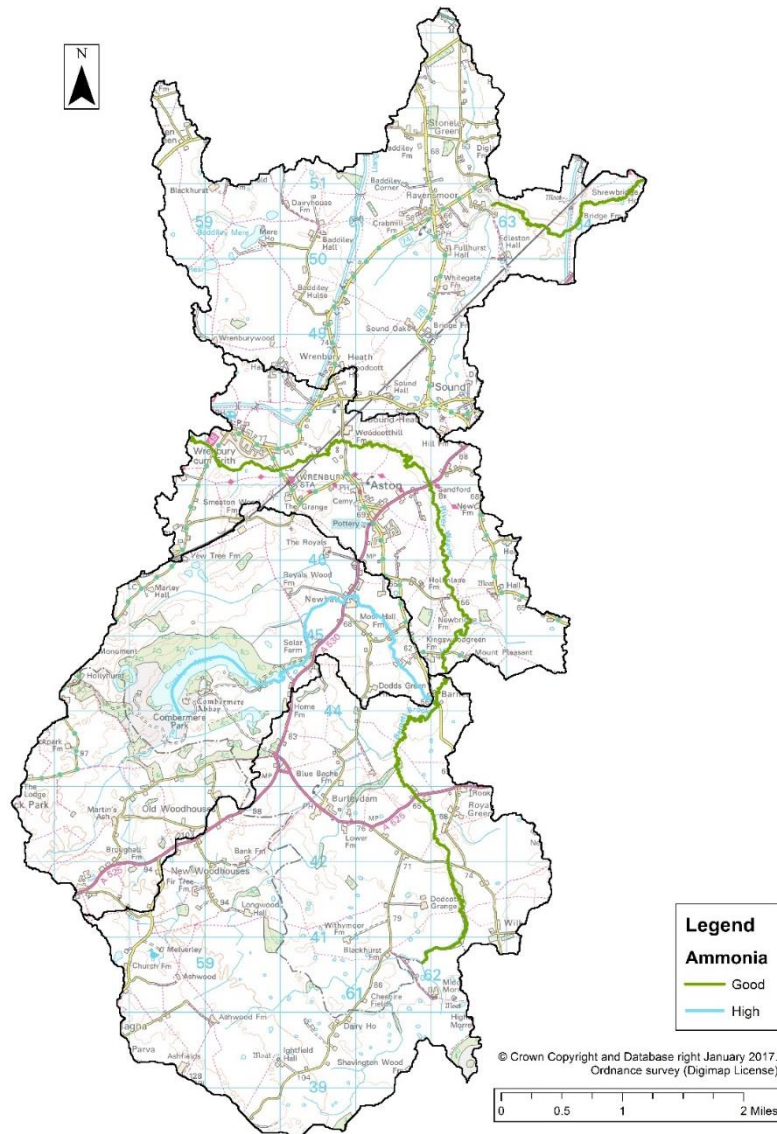
Overall WFD Status



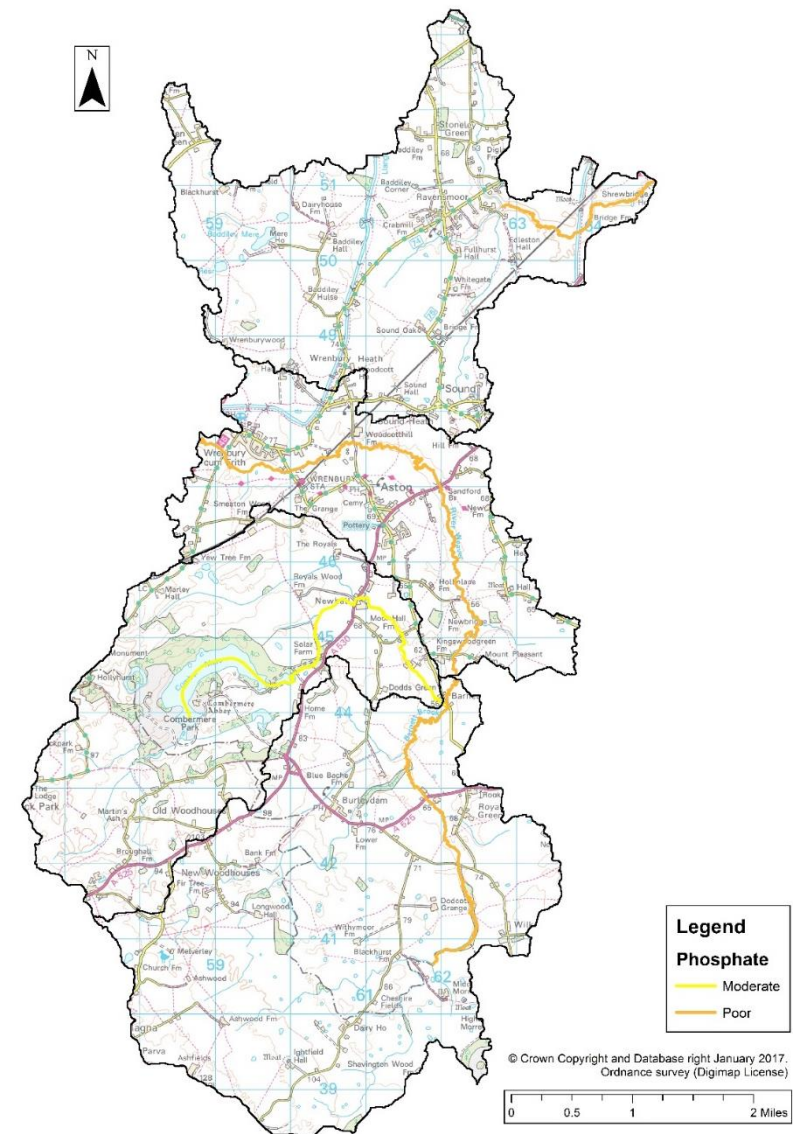
Dissolved oxygen



# Water Framework Directive Status



Ammonia status



Phosphate status





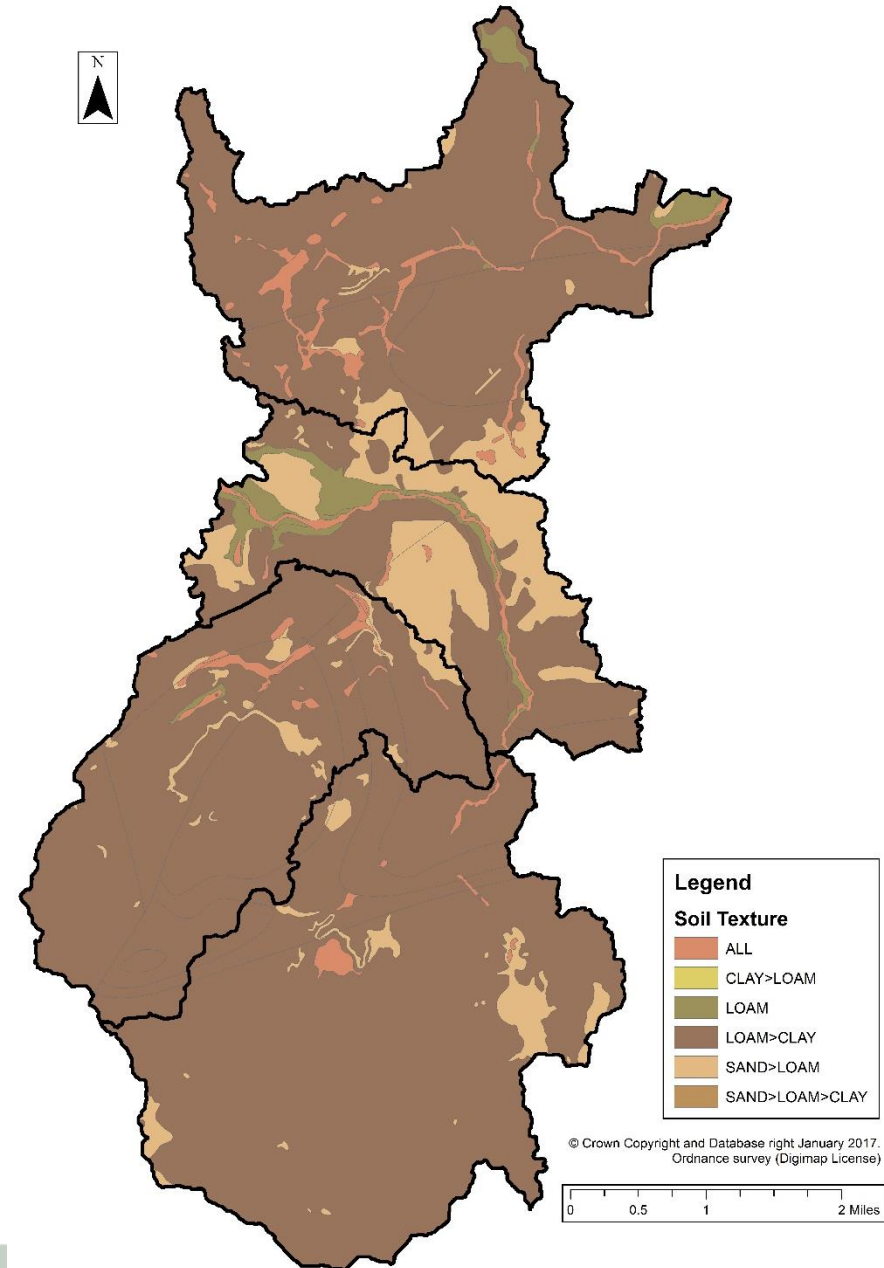
# Land Use, Risk Factors and Pressures in Barnett, Sales and Edleston Brook catchments



# Soil Types

largely **clay loams** – the main risks are associated with overland flow from compacted or poached fields. Organic slurry, dirty water, fertiliser, pathogens and fine sediment can all move in suspension or solution with overland flow or drain water

Area of **sandy loam** in Weaver catchment between Edleston and Sales Brook, south east corner of Edleston catchment and eastern area of Barnett catchment - vulnerable to leaching of nitrate and pesticides to groundwater and to wind erosion when cropped. High risk of soil erosion from bare soils.



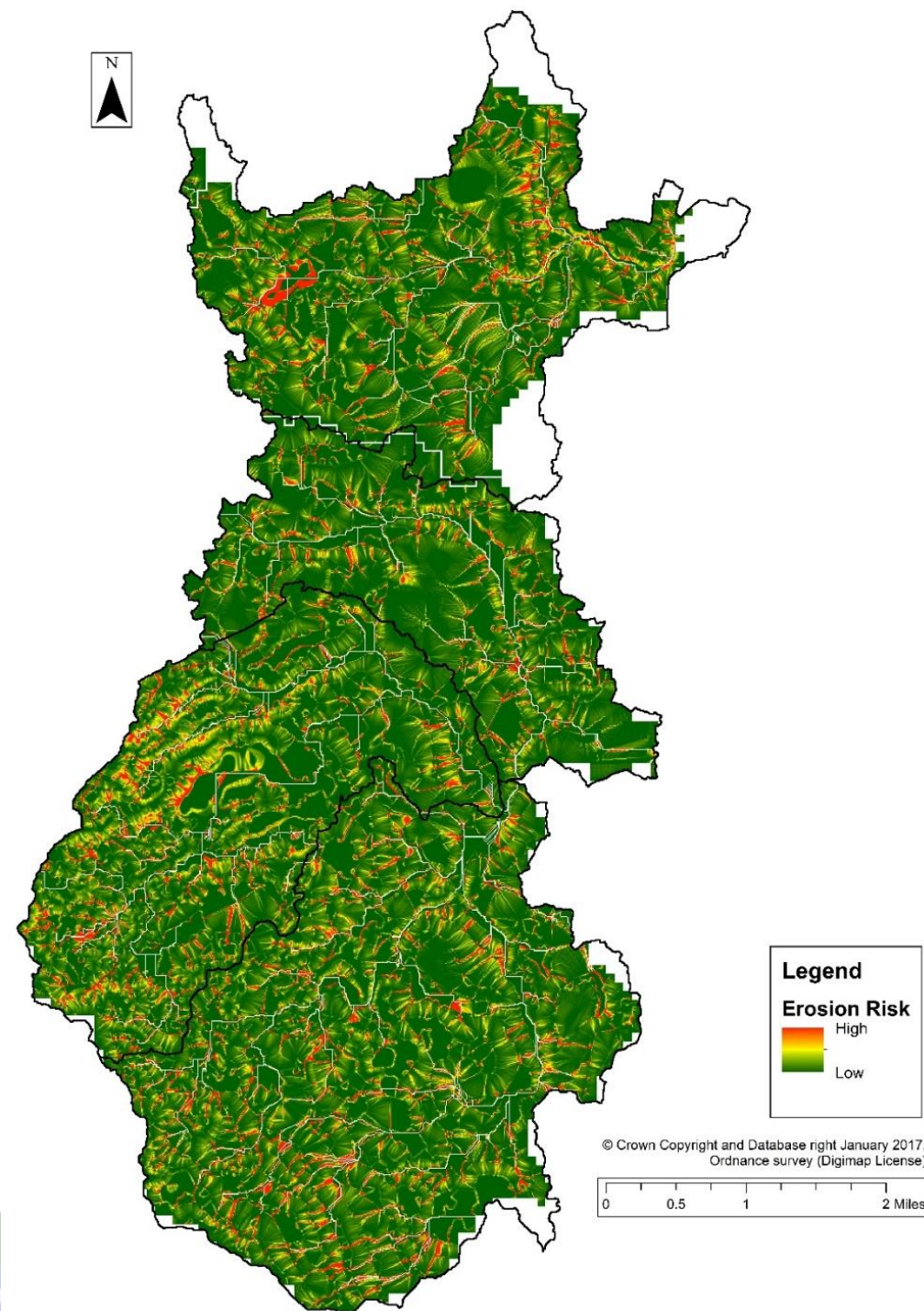


# SCIMAP

## Soil erosion risk

Localised **RED** and **YELLOW** areas where there are moderate slopes, particularly to the west of the catchments.

Majority of catchment is Green with a lower risk of soil erosion as it is mainly flat or very gently sloping.



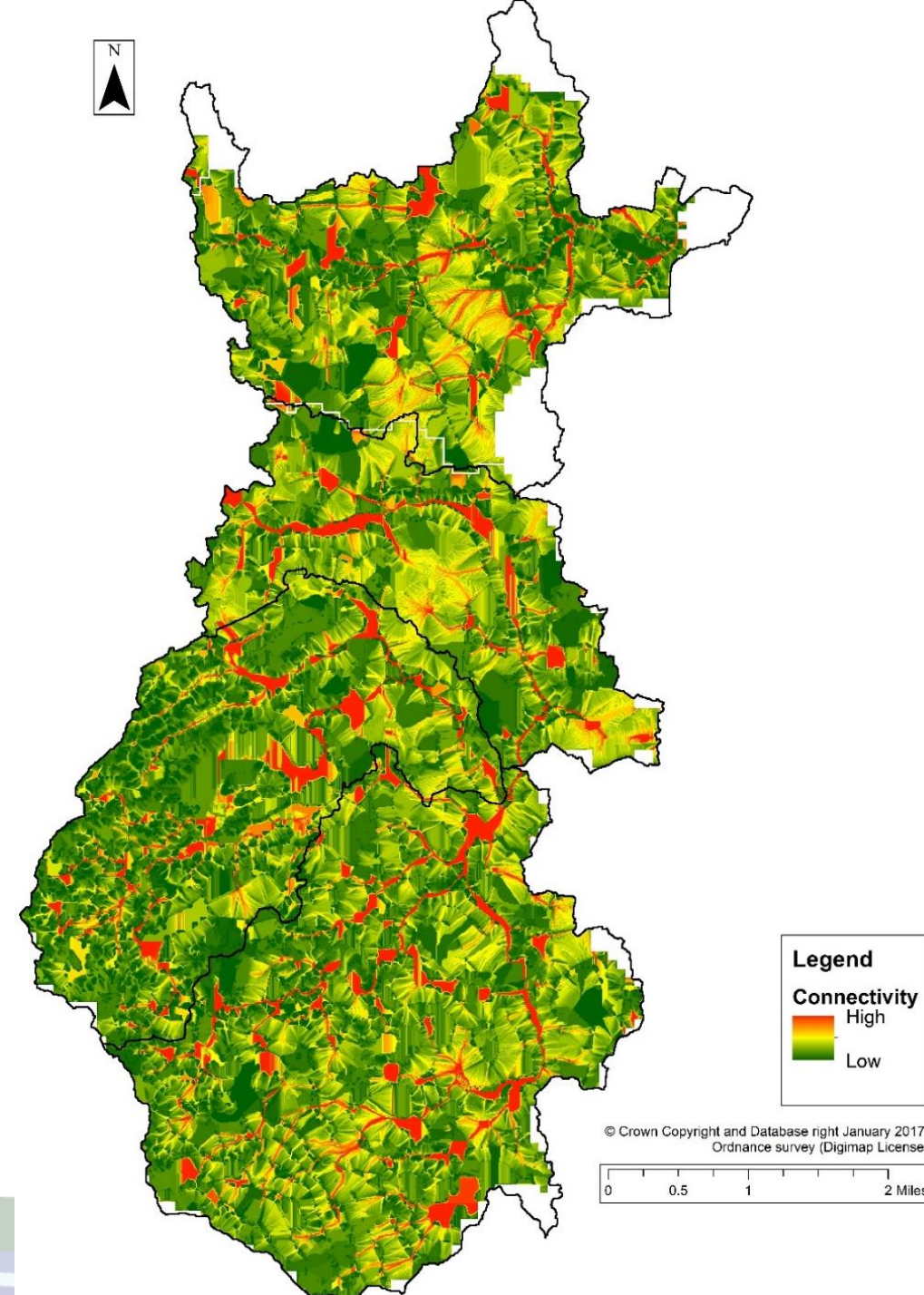
# SCIMAP

## 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.



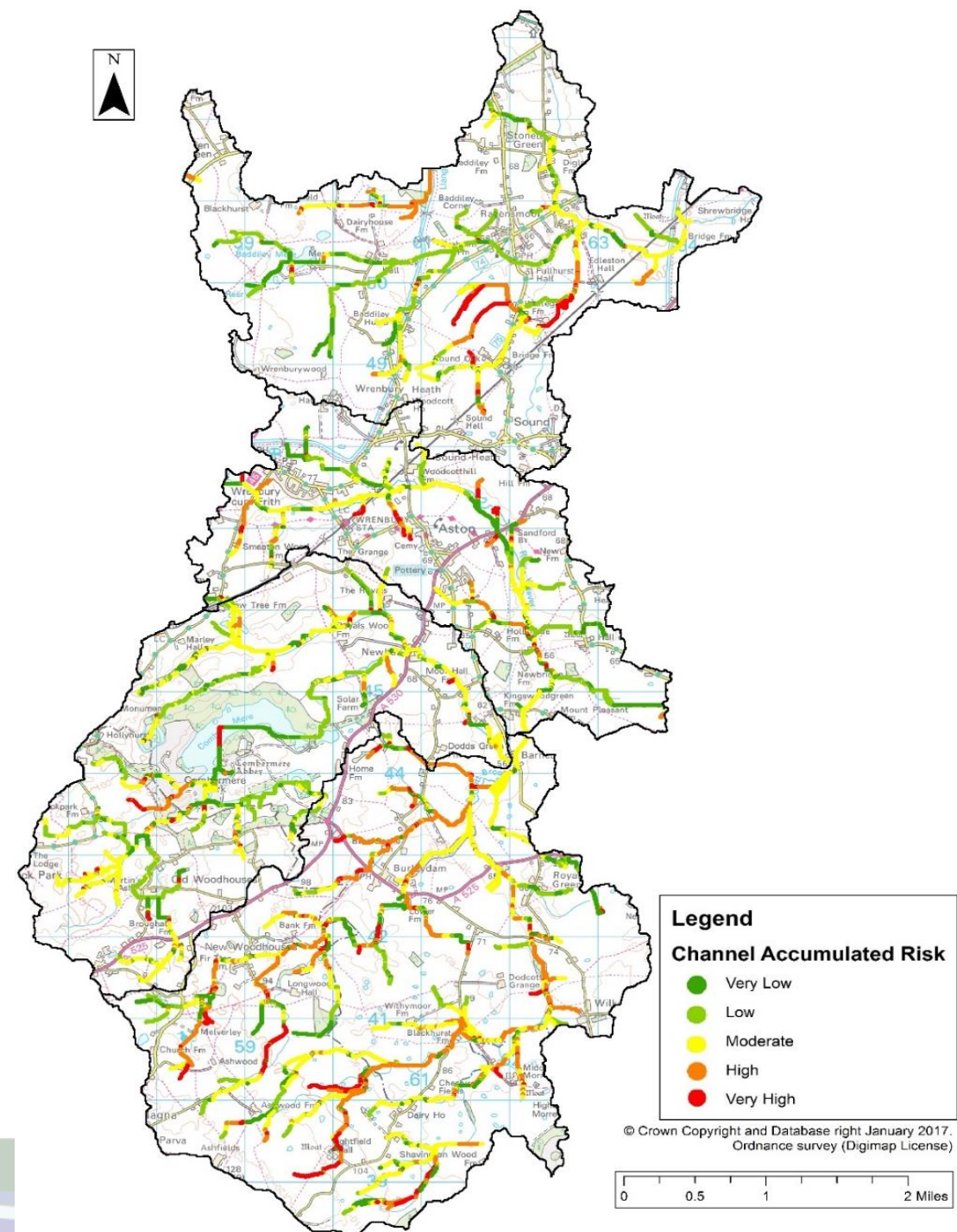


# SCIMAP

## 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 Barnett Brook. Low to moderate risk on the majority of tributaries in Edelston and Sales Brook. Small high risk area in SE tributaries of Sales Brook.



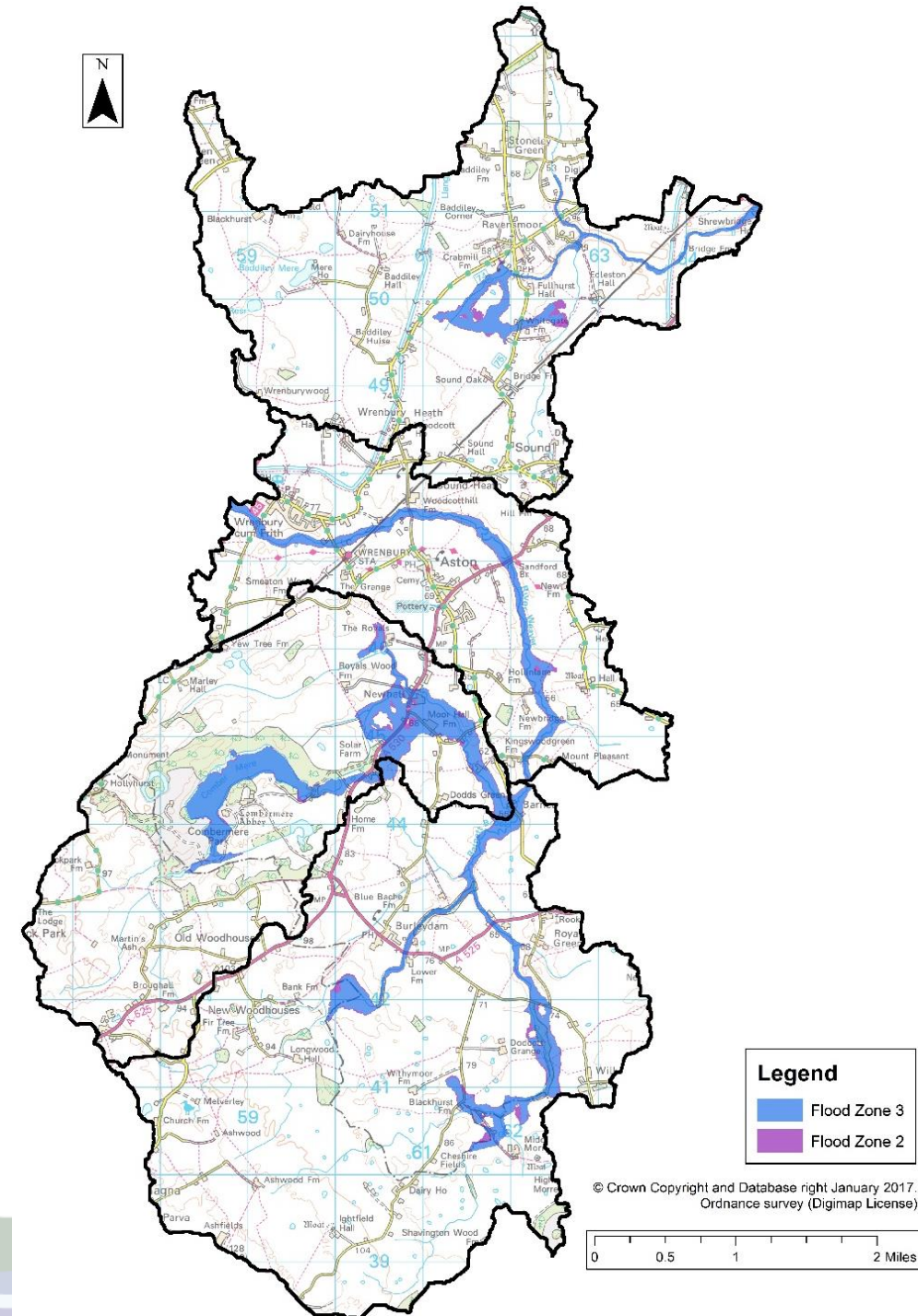


# Flood Risk Map

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.

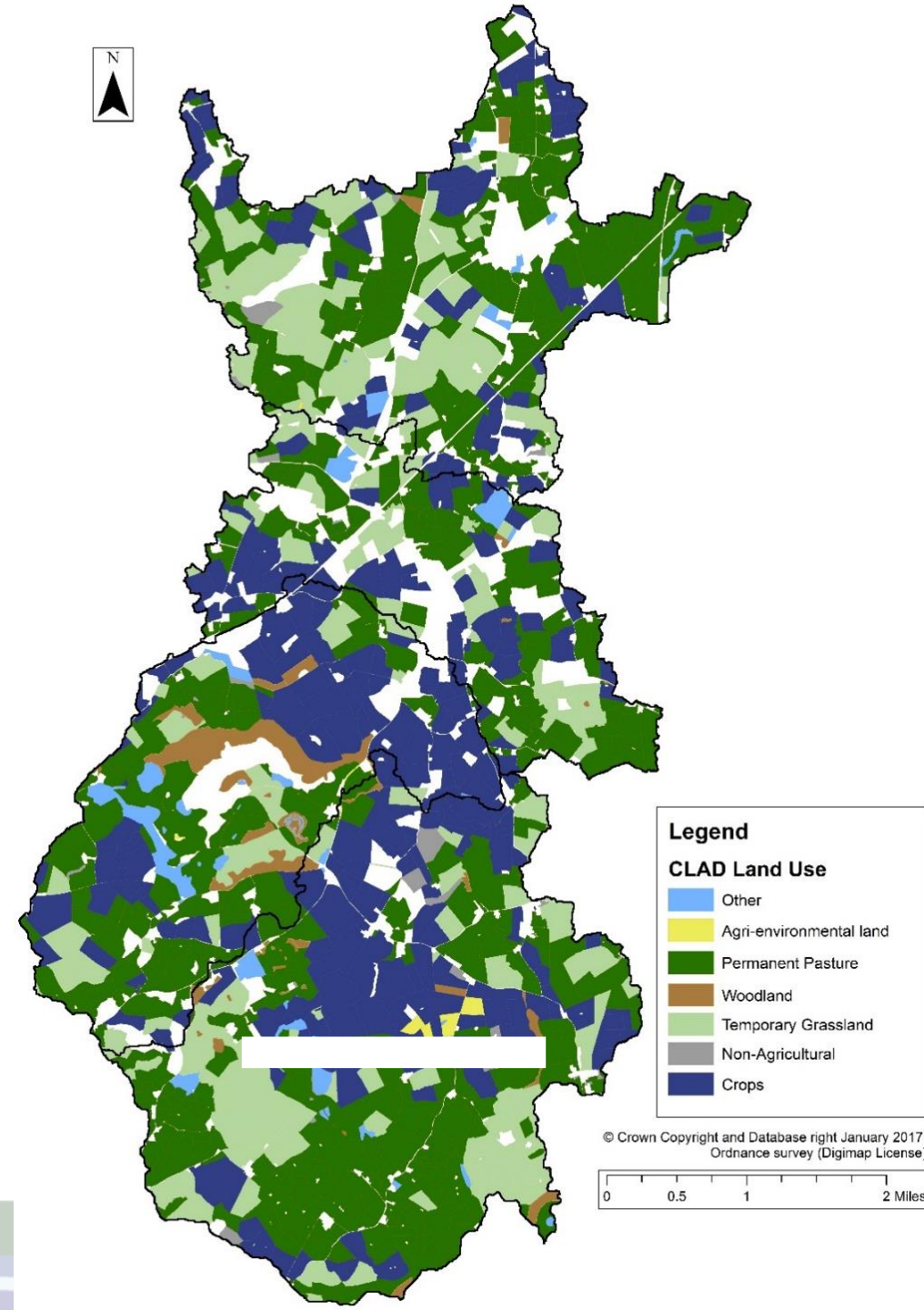
Flood Zone 2 (Lower risk) shows the additional extent of an extreme flood from rivers with up to a 0.1 per cent (1 in 1000) chance of occurring each year.



# Land Use

Dataset based on CLAD 2014 Single Farm Payment land use code, ground checked with catchment walkover observations during 2016/2017.

Majority of land permanent or temporary grassland. Main cropping area focused in north of Barnett Brook catchment and east of Sales Brook. Very little cropped land in Edleston brook Catchment.



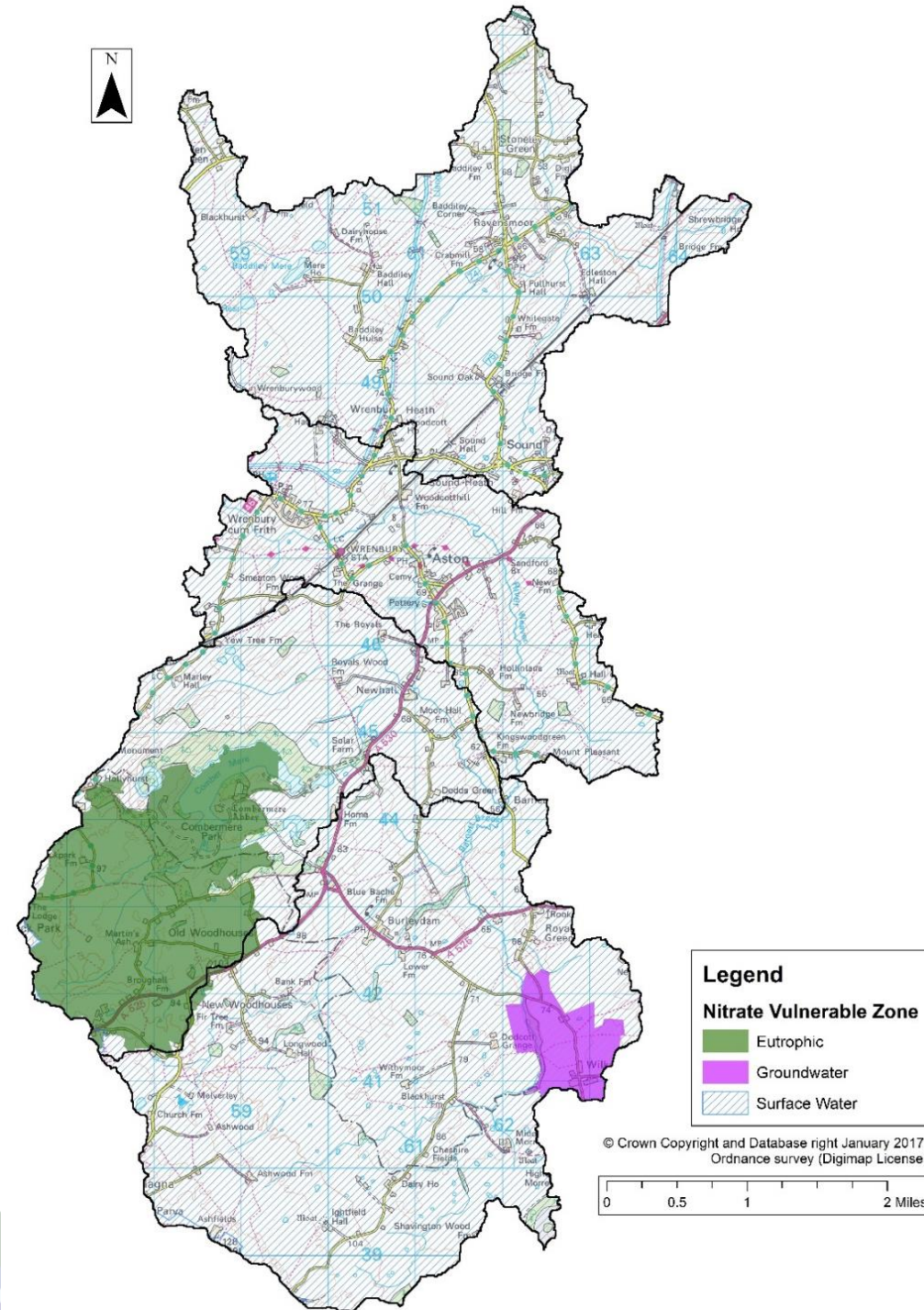


# Nitrate Vulnerable Zones

100% of Edleston catchment is a designated surface water NVZ

Approximately 50% of Sales Brook catchment designated is designated a Eutrophic NVZ around Combermere Lake, the rest surface water NVZ.

Small area of Groundwater NVZ in Barnett Brook catchment around Wilkesley, and the rest is a surface water NVZ





# SSSIs and Local Wildlife Sites

3 Sites of Special Scientific Interest

4 Local Wildlife Sites (formerly Sites of Biological Importance, SBI)

Melverley Farm

Comber Mere

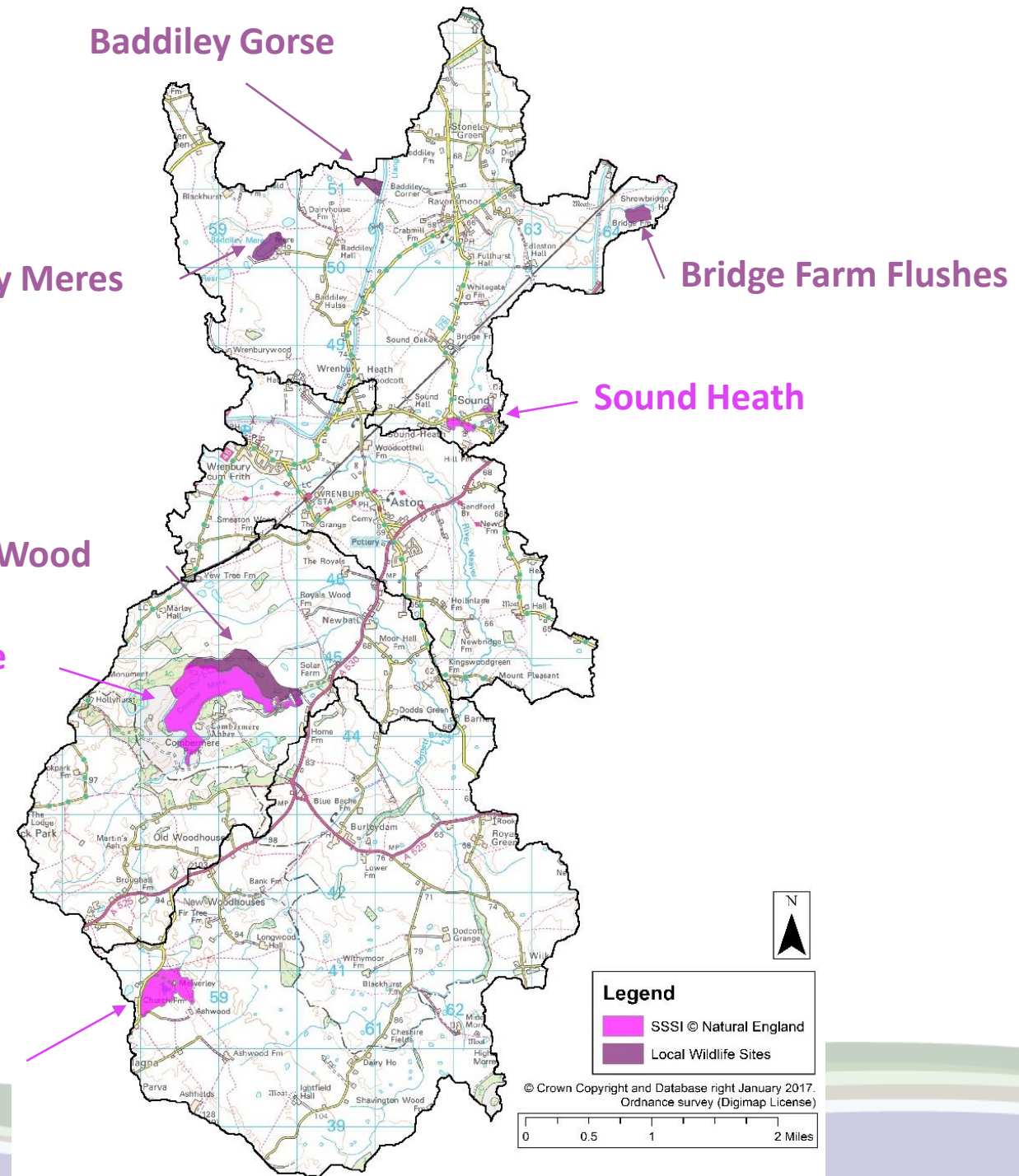
Combermere Big Wood

Sound Heath

Baddiley Meres

Baddiley Gorse

Bridge Farm Flushes



# Barnett, Edleston and Sales Brooks Pollution Prevention Project

*For further information on project outcomes contact Reaseheath Farm Environmental Services on 01270 613 195 or email [hub@reaseheath.ac.uk](mailto:hub@reaseheath.ac.uk)*

