

# Extensive assessment of the distribution of historic floodplain meadows in six Gwent river catchments: Rhymney, Sirhowy, Ebbw (including Ebbw Fawr and Ebbw Fach), Lwyd, Usk, and Lower Wye

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Floodplain Meadow fringing the River Usk at Kemeys Commander. OS Survey Drawing of Usk (1813), OSD 203 series 162. British Library.

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## Crynodeb gweithredol

Comisiynodd CNC Fjordr Ltd. i gynnal asesiad helaeth o ddolydd gorlifdir hanesyddol a oedd yn cael eu rheoli gynt fel tiroedd comin mewn chwe dalgylch afon yng Ngwent: Rhymni, Sirhywi, Ebwy (gan gynnwys Ebwy Fawr ac Ebwy Fach), Lwyd, Wysg, a Gwy Isaf.

Mae dolydd gorlifdir sy'n gyfoethog o ran rhywogaethau yn bwysig yn genedlaethol ac yn rhyngwladol, ond ychydig mwy na 10 ha o'r cymunedau glaswelltir hyn sy'n hysbys ledled Cymru gyfan, sy'n golygu eu bod yn eithriadol o brin. Fodd bynnag, mae'n debygol bod dolydd gorlifdir yn llawer mwy eang yng Nghymru cyn yr ugeinfed ganrif. Mae'r potensial i adnabod, mapio a chofnodi cyn-ddolydd wedi'i cael ei ddangos gan Fjordr Ltd. mewn asesiad cychwynnol yn nalgylchoedd afonydd Dyfrdwy, Wysg a Theifi ar gyfer CNC, gan adeiladu ar waith ar Afon Gwy Uchaf ar gyfer y Bartneriaeth Dolydd Gorlifdir.

Roedd yr asesiad cychwynnol o afonydd Dyfrdwy, Wysg a Theifi yn ddetholus, ac yn dewis ychydig yn unig o enghreifftiau o ddolydd gorlifdir yn eu rhannau uchaf, canol ac isaf i ddangos eu presenoldeb – a pha mor addas oedd y fethodoleg – yn nalgylchoedd Cymru. Ar y llaw arall, mae'r prosiect hwn yn un helaeth, ac yn cynnal adolygiad cynhwysfawr o'r dalgylchoedd gan ddefnyddio ystod o ffynonellau hanesyddol sydd ar gael yn rhwydd i sefydlu dosbarthiad llawn dolydd gorlifdir hanesyddol cyn belled ag y mae'r ffynonellau hynny'n caniatáu.

Mae'r dull yn creu un haen GIS yn unig sy'n cynnwys polygonau a phob un ohonynt yn cynrychioli maint dehongliadol dŵl gorlifdir (FPM), ynghyd â phriodoleddau strwythuredig. Mae'r haen – HISTMEAD Gwent 06 03 26.shp – yn addas i'w defnyddio ochr yn ochr â haenau eraill a ddefnyddir yn gyffredin o fewn rheolaeth dalgylchoedd a gellir ei defnyddio'n annibynnol gan reolwyr gan gadw cyfeiriadau at y deunyddiau ffynhonnell.

Mae'r canlyniadau'n dangos presenoldeb dolydd gorlifdir yn glir mewn dalgylchoedd yng Ngwent. Roedd modd adnabod dolydd gorlifdir o'r un nodweddion sy'n amlwg ar afonydd eraill, gan ddefnyddio'r un ffynonellau hygyrch. Nodwyd niferoedd is o ddolydd gorlifdir o fewn gorlifdiroedd Sirhowy, Ebwy Fawr, Ebwy Fach, ac Ebwy, sydd yn ôl pob tebyg yn adlewyrchu eu topograffeg a'u hanes diwydiannol. Serch hynny, mae nodi dolydd gorlifdir yn y dalgylchoedd hyn yn dangos, lle roedd amgylchiadau'n caniatáu, fod dolydd gorlifdir yn bresennol a gellir eu mapio a'u cofnodi gan ddefnyddio ffynonellau hanesyddol.

Mae'r ffynonellau a'r dulliau a ddefnyddiwyd ar gyfer y prosiect hwn yn awgrymu bod gorlifdiroedd Afonydd Wysg a Gwy wedi'u defnyddio'n helaeth ar gyfer dolydd gorlifdir, a hynny yn ôl pob tebyg o ddechrau'r cyfnod canoloesol hyd at ddechrau'r bedwaredd ganrif ar bymtheg. Mae cysylltiadau â safleoedd Rhufeinig a chynhanesyddol yn awgrymu bod y gorlifdir wedi'i reoli ar gyfer pori a gwair hyd yn oed yn gynharach yng Ngwent.

Er bod y newid yn nefnydd y tir dros y canrifoedd diwethaf wedi cael effaith amlwg arnynt, mae'r ffaith fod nifer fawr o orlifdiroedd hanesyddol wedi'u canfod ledled Gwent yn dangos maint a phwysigrwydd blaenorol y cynefinoedd hyn. Er bod y canlyniadau'n dangos faint o gynefin dolydd gorlifdir sydd wedi'i golli, maent yn awgrymu potensial sylweddol ar gyfer adfer y cynefin, ynghyd â chyfleoedd i ailgyflwyno rhywogaethau dolydd ac i ymgysylltu â'r cyhoedd hyd yn oed mewn ardaloedd sydd erbyn hyn yn ardaloedd trefol a phreswyl.

## Executive summary

NRW commissioned Fjordr Ltd. to carry out an extensive assessment of historic floodplain meadows formerly managed as commons in six river catchments in Gwent: Rhymney, Sirhowy, Ebbw (including Ebbw Fawr and Ebbw Fach), Lwyd, Usk, and Lower Wye.

Species-rich floodplain meadows are important nationally and internationally, but little more than 10 ha of these grassland communities are known across the whole of Wales, making them extremely rare. However, it is likely that floodplain meadows were much more extensive in Wales prior to the twentieth century. The potential to identify, map and record former meadows has been demonstrated by Fjordr Ltd. in an initial assessment in the Dee, Usk and Teifi catchments for NRW, building on work on the Upper Wye for the Floodplain Meadow Partnership.

The initial assessment of the Dee, Usk and Teifi was selective, picking out only a few examples of floodplain meadows in their upper, middle and lower reaches to demonstrate their presence – and the suitability of the methodology – in Welsh catchments. In contrast, this project is extensive, comprehensively reviewing the catchments using a range of readily available historic sources to establish the full distribution of historic floodplain meadows so far as those sources allow.

The method creates a single GIS layer containing polygons each representing the interpreted extent of a floodplain meadow (FPM), accompanied by structured attributes. The layer – *HISTMEAD Gwent 06 03 26.shp* – is suitable for use alongside other layers commonly used within catchment management and can be used independently by managers whilst retaining references to the source materials.

The results clearly demonstrating the presence of floodplain meadows in catchments in Gwent. Floodplain meadows were identifiable from the same characteristics that are apparent on other rivers, using the same accessible sources. Lower numbers of floodplain meadows were identified within the floodplains of the Sirhowy, Ebbw Fawr, Ebbw Fach, and Ebbw, probably reflecting their topography and industrial history. Nonetheless, the identification of floodplain meadows in these catchments demonstrates that where circumstances allowed, floodplain meadows were present and can be mapped and recorded using historical sources.

The sources and methods used for this project suggest that the floodplains of the Rivers Usk and Wye were used extensively for floodplain meadows, probably from the early medieval period to the early nineteenth century. Associations with Roman and prehistoric sites suggest management of the floodplain for grazing and hay even earlier in Gwent.

Whilst clearly affected by changing land use over recent centuries, the identification of numerous historic floodplain numbers across Gwent indicates the former extent and importance of these habitats. Although indicating the amount of floodplain meadow habitat

that has been lost, the results suggest considerable potential for habitat restoration, together with opportunities for reintroducing meadow species and for public engagement even in areas that are now urban and residential.

# 1. Introduction

This brief report summarises a project commissioned by Cyfoeth Naturiol Cymru/Natural Resources Wales (NRW) to provide an extensive assessment of historic floodplain meadows formerly managed as commons in six river catchments in Gwent: the Rhymney, Sirhowy, Ebbw (including Ebbw Fawr and Ebbw Fach), Lwyd, Usk, and Lower Wye. Floodplain meadows managed historically as commons – to which people had common rights to make hay and graze their animals – have distinct features that enable their identification in the landscape (Firth et al., 2026).

This report accompanies a shapefile – *HISTMEAD Gwent 06 03 26.shp* – that is the principal output of the project. It is also anticipated that the data will be made available to the Floodplain Meadows Partnership to add to its online Map of Historic Sites<sup>1</sup>.

NRW considers species-rich floodplain meadows to be important nationally and internationally, but little more than 10 ha of these grassland communities are known across the whole of Wales, making them extremely rare. Floodplain meadows were probably much more extensive across Wales in the past, reflecting the importance of hay for overwintering livestock and the extent of suitable floodplains. This assumption is supported by work on the Upper Wye by Fjodr Ltd. for the Floodplain Meadow Partnership (FMP) which identified, mapped and recorded numerous former meadows (Firth and Firth, 2024). It has been further supported by initial assessment on three river catchments – Teifi, Dee and Usk – funded by NRW (Firth and Firth, 2025); and by more intensive work on a section of the Dee funded by FMP (Firth and Firth, 2025).

The intention of this new project – HISTMEADGWENT – is to significantly extend the evidence base by comprehensive mapping of historic floodplain meadows on a regional scale, encompassing six catchments in Gwent. The project will:

- provide evidence of the previous extent and distribution of these now rare habitats;
- identify and facilitate opportunities for floodplain meadow restoration;
- inform catchment restoration programmes; and
- support discussion with landowners, managers and the wider public about the potential contribution of floodplain meadow restoration to nature recovery, flood alleviation, and carbon sequestration.

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<sup>1</sup> <https://floodplainmeadows.org.uk/discover/learn/history/historic-sites-map>.

Restoring historic floodplain meadows will contribute to each of the objectives in NRW's corporate plan<sup>2</sup> by helping to recover nature, increasing the resilience of communities (through flood alleviation), and minimising pollution.

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<sup>2</sup> <https://naturalresources.wales/about-us/what-we-do/strategies-plans-and-policies/our-corporate-plan-to-2030-nature-and-people-thriving-together/?lang=en>.

## 2. Methodology

### 2.1. Outline

The initial assessment of the Dee, Usk and Teifi – HISTMEAD – was selective, picking out only a few examples of floodplain meadows in their upper, middle and lower reaches to demonstrate their presence – and the suitability of the methodology – in Welsh catchments. In contrast, this project is extensive, comprehensively reviewing the selected catchments using a range of readily available historic sources to establish the full distribution of historic floodplain meadows so far as those sources allow.

The project does not encompass intensive work to search for and examine hard-copy maps and documents held in local record offices or other local sources. The resourcing of intensive studies (e.g. Firth and Firth, 2025) is suited to more localised projects than the regional scale of this project. However, through its mapping and recording approach, the project has been conducted in a way that would enable intensive work to follow at a later stage should circumstances allow or require.

The methodology used here was first developed for a project looking at the historic extent of floodplain meadows on the Dorset Stour and Thames Tributaries (Firth and Firth, 2022). Its application has developed subsequently through numerous investigations in England and Wales and is now backed by considerable experience in addressing different catchments in different regions (Firth et al., 2026), providing confidence as to its application in Gwent.

The method draws on a range of readily available sources, discussed below, to create a single GIS layer containing polygons each representing the interpreted extent a floodplain meadow (FPM), accompanied by structured attributes. The layer is suitable for use alongside other layers commonly used within catchment management and can be used independently by managers whilst retaining references to the source materials. The GIS layer is also compatible with the online Map of Historic Sites maintained by the Floodplain Meadows Partnership's map of historic sites<sup>3</sup>.

### 2.2. Study area

The project encompasses the following catchments where they are within Gwent (Figure 1):

- Rhymney downstream to boundary of Gwent near Began.
- Sirhowy.

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<sup>3</sup> <https://floodplainmeadows.org.uk/discover/learn/history/historic-sites-map>.

- Ebbw including Ebbw Fach and Ebbw Fawr.
- Lwyd from near Blaenavon to confluence with Usk.
- Usk from near Glangrwyney downstream – encompassing example floodplain meadows previously mapped in HISTMEAD project. Not including Olway Brook.
- Lower Wye from Upper Wye Gorge downstream, not including rivers Monnow and Trothy.

The project focuses on NRW Main Rivers<sup>4</sup> so does not include minor tributaries. However, this should not imply that floodplain meadows are absent from minor tributaries as floodplain meadows have been identified on very small watercourses in other projects. Floodplain land falling within England is excluded from the project. In the lower, tidal sections of the Usk (around Newport) and Wye (around Chepstow), saltmarsh predominates over meadow, so these stretches are also excluded (though see below).

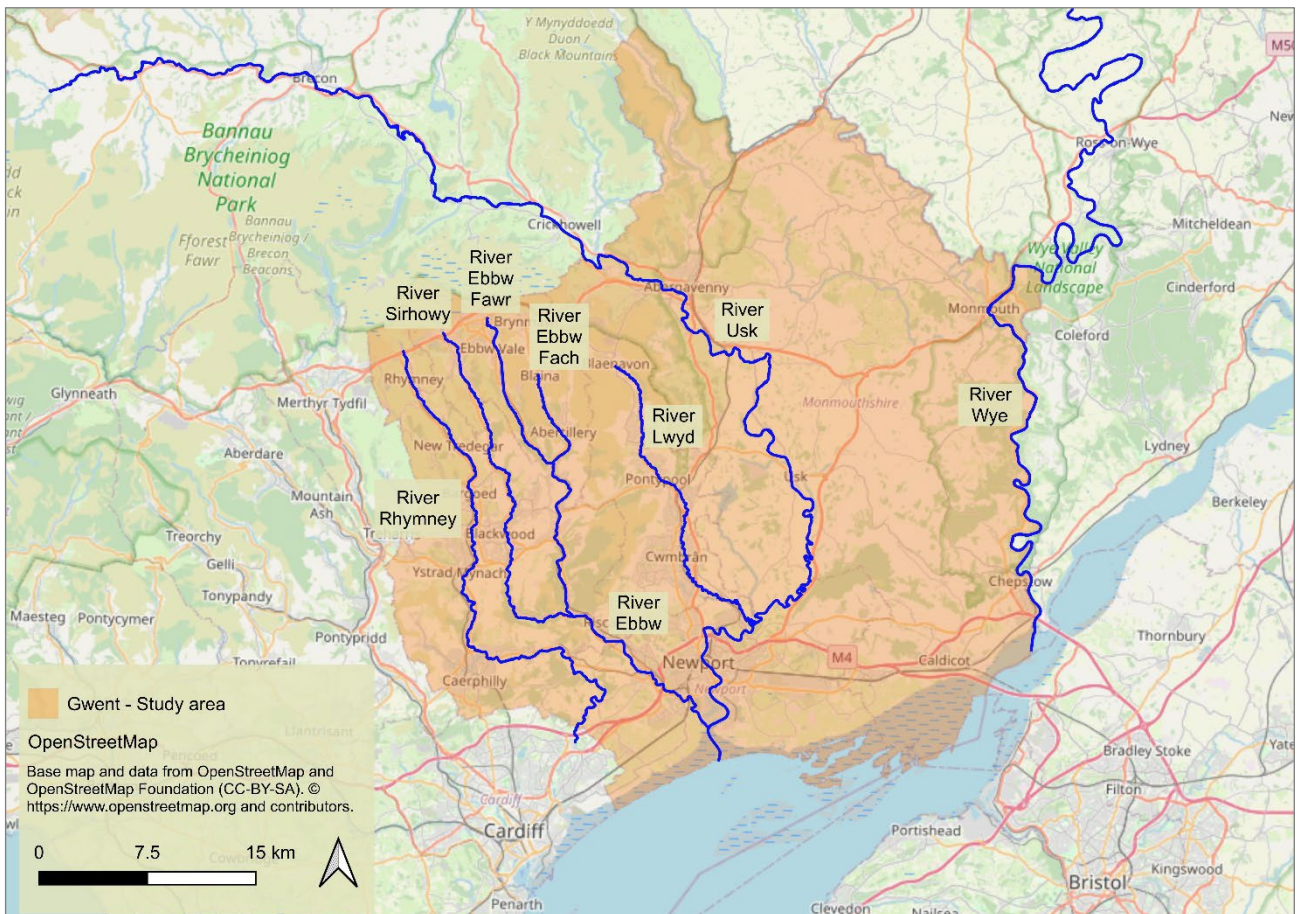


Figure 1 Location of Rivers within the Gwent Study Area.

<sup>4</sup> [https://datamap.gov.wales/layers/inspire-nrw:NRW\\_MAIN\\_RIVERS](https://datamap.gov.wales/layers/inspire-nrw:NRW_MAIN_RIVERS).

## 2.3. Identification, mapping and recording

The form of each floodplain meadow record is intentionally simple, comprising a single layer in a flat-file format that it can be readily included within third-party workspaces/GIS projects.

Identification of floodplain meadows is based on the presence of certain diagnostic features that, in combination, indicate floodplain meadows formerly managed as commons:

- The floodplain meadow is situated mostly in the modern floodplain.
- The floodplain meadow has one or more funnel-shaped entrances, usually coming off a drove-way or a trackway leading from a settlement.
- One of its boundaries (usually the longest) is bounded by the river, while two sides flare out from the funnel-shaped entrance.
- On tithe maps, the floodplain meadow may be subdivided into strips (doles) that respect the irregular nature of the boundaries of the floodplain meadow but are themselves regular in shape and size.
- Where there are enclosed fields within the extent of the floodplain meadow, these fields are in strip form (reflecting individual or multiple doles).
- The 'state of cultivation' recorded in tithe apportionments is usually either meadow or pasture, but very rarely arable. On the Lwyd and the Usk, it appears that 'grass' is used to denote meadow, in contrast to pasture.
- In tithe apportionments and other documentary sources the fields have plot names associated with meadows.

Individual polygons are mapped directly from georeferenced historic sources. In some cases, there may be inaccuracies in mapping from these early sources due to the methods used in historic surveys not being as accurate as in later maps. Georeferencing can also be problematic for old maps, which may not align with their modern counterparts. Where field boundaries or rivers on earlier maps are recognisable on later maps, imprecision in the earlier map can be corrected with the later, so that floodplain meadows are mapped with reasonably inferred boundaries. However, where it is evident that river courses have changed since the historic maps from which floodplain meadows have been identified, boundaries are mapped from historic maps rather than from the modern course of the river.

Attributes are recorded in the shapefile attribute table for each floodplain meadow as set out in Table 1.

Field name	Description of field
ID_HistFPM	Identifying number for each FPM.

Field name	Description of field
FPM_name	Defined by the area where the FPM is located, limited to 254 characters or specific name if one recorded on a source.
County	County in which FPM is located.
Parish	Parish FPM is within. This is the modern parish the floodplain meadow is in. This may differ to the historic parish, which will be named in the tithe map field. In Wales, communities are the lowest tier of local government, equating to parishes, hence community names are recorded in this field.
River	Name of the river on which the FPM is located.
ModLanduse	Modern land use as seen on the most recent satellite imagery.
FPMNotes	Description of the FPM – limited to 254 characters so necessarily concise.
Lammas	Reference to Lammas in sources. Yes/No field.
Funnel	Does FPM have a characteristic funnel-shaped entrance? Yes/No field.
Doles	Reference to doles, either in descriptions or visible on map sources such as tithe maps. Yes/No field.
Drove	Drove or lanes which connects a settlement to a meadow, often via a funnel-shaped entrance to the meadow. Yes/No field.
Common	Reference to Common in sources. Yes/No field.
Drainage	Reference to drainage in sources. Yes/No field.
Placenames	Reference to specific placenames associated with FPM in sources such as ham, mead, common, lots, allotments, doles.
Domesday	Whether there is a Domesday settlement with recorded acreage associated with the settlement in this parish. Obtained from Open Domesday <sup>5</sup> . The Domesday Survey did not encompass Wales, so recorded as n/a for this project.
Tithe_Ref	National Archives tithe apportionment or tithe map reference. The original Welsh parish name may differ to its modern community name recorded under the Parish field.
OS_Map_Ref	Historic OS Map reference.
OSSurvey_Ref	Historic OS Survey Drawing reference.
OtherMap	Any other historic map sources, such as estate maps, which reference the FPM.
Rep_link	Report or other reference material where the FPM is identified and if available, the link to the report or reference material.
Confidence	Confidence level in the identification of the FPM, with 1 being low and 5 being high.
Compileby	Name of person who created the record.
Compiledate	Date record created.

Table 1 Attributes of Floodplain Meadows recorded in shapefile.

<sup>5</sup> <https://opendomesday.org>.

The field for Confidence in the attribute table addresses the variability in information available about each FPM. A high confidence is assigned to an FPM where there are multiple sources or a high number of meadow criteria are met. Confidence levels range from 1 (low) to 5 (high) and are broadly based on the following:

- Level 1: Features such as boundaries following the edge of the floodplain only, but there are no documentary sources such as tithe plots or map names indicating meadows.
- Level 2: Single plot (regular) recorded in the tithe apportionment as a meadow lying within the floodplain, but no other physical indication of the meadow. Could indicated the remnant of a former meadow that has been enclosed.
- Level 3: Meadow name in a documentary source plus a typical meadow outline or some physical feature such as funnel-shaped entrance.
- Level 4: Meadow name in one or more documentary source and multiple features, such as doles, funnel-shaped entrance etc.
- Level 5: Meadow name in several documentary sources and all features (doles, funnel, drove) present, not encroached by enclosure.

## 2.4. Sources

The following readily accessible (online) sources have been used to identify, map and record floodplain meadows for this extensive project:

**Historic Ordnance Survey Six-inch maps** available in the project GIS via a WMS link to National Library of Scotland Map Images. Generally, the earliest edition, Epoch 1 (publishing date range 1854 to 1901), was the most used.

**Historic Ordnance Survey 25-inch 1<sup>st</sup> Edition (1868-1895) maps** available online<sup>6</sup>.

**Ordnance Surveyors' Drawings** made between 1780s and 1840 in preparation for the first edition of one-inch OS. The following OS Survey drawings were available online, accessed via the British Library Georeferencer page<sup>7</sup>:

- OS Survey Drawing Abergavenny, 1813
- OS Survey Drawing Llangollen, 1832
- OS Survey Drawing Newport, 21 1811
- OS Survey Drawing Chepstow, 1812

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<sup>6</sup> <https://www.peoplescollection.wales/locate>.

<sup>7</sup> <http://britishlibrary.georeferencer.com/start>.

- OS Survey Drawing Usk, 1813
- OS Survey Newport, 1811

**Tithe maps** dating from c.1840 were accessed from either The Genealogist website<sup>8</sup> where the tithe map and its apportionment records can be viewed for a subscription; or from The National Library of Wales<sup>9</sup> which enables the tithe to be accessed via a mapviewer for free. Local record offices also hold copies of the tithe maps, though this study has only used online sources.

**Google Satellite imagery** available online using Google Earth was used to record the current landuse of the floodplain meadow.

**Lidar** available from Welsh Government DataMap Wales was accessed via a WMS link<sup>10</sup>.

Background mapping included Open Street Map; WFD Operational Catchments (Cycle 3); river centrelines from NRW Main Rivers<sup>11</sup>; surface water area (indicating the modern extent of watercourses) from OS OpenMap Local (OML)<sup>12</sup>; and flood risk from rivers (indicating the extent of the modern floodplain) from NRW Flood Risk Assessment Wales<sup>13</sup>.

Third party IPR in data (e.g. data, images, maps) used in the project is retained by these third parties.

## 2.5. Place names

The tithe apportionments for parishes/communities include a mix of English and Welsh terms, with field names often recorded in Welsh. Welsh terms relating to meadows or which suggest meadow locations differ from the terms used in English. For this study, the place names collated for the HISTMEAD project were used (E. Firth and Firth, 2025, pp. 12–13), but in practice the range of Welsh names associated with meadows in Gwent proved to be quite limited.

<sup>8</sup> <https://www.thegenealogist.co.uk/tithe/>.

<sup>9</sup> <https://places.library.wales>.

<sup>10</sup> <https://datamap.gov.wales/maps/lidar-viewer/>.

<sup>11</sup> [https://datamap.gov.wales/layers/inspire-nrw:NRW\\_MAIN\\_RIVERS](https://datamap.gov.wales/layers/inspire-nrw:NRW_MAIN_RIVERS).

<sup>12</sup> <https://www.ordnancesurvey.co.uk/products/os-open-map-local>.

<sup>13</sup> <https://datamap.gov.wales/layergroups/inspire-nrw:FloodRiskAssessmentWales>.

## 3. Results

### 3.1. Overview

As noted above, this assessment is to record the extent of historic floodplain meadows on the Rivers Rhymney, Sirhowy, Ebbw (including Ebbw Fawr and Ebbw Fach,) Lwyd, Usk, and Lower Wye, to establish their presence and distribution within Gwent. The results present a comprehensive identification of all floodplain meadows based on the available sources.

A total of 239 floodplain meadows was identified, which were mapped and recorded in the shapefile *HISTMEAD Gwent 06 03 26.shp*. Summary information from the shapefile is provided in Appendix I, bound separately, which lists the floodplain number, name, notes and confidence level.

The count of floodplain meadows found along the floodplain of each river is summarised in Table 2.

River	Total
Rhymney	50
Sirhowy	8
Ebbw	18
Ebbw Fach	7
Ebbw Fawr	6
Lwyd	44
Usk	80
Lower Wye	26
Total	239

Table 2 Count of floodplain meadows on Rivers Rhymney, Sirhowy, Ebbw, Ebbw Fawr, Ebbw Fach, Lwyd, Usk, and Lower Wye.

The floodplain meadows were identifiable from the same characteristics that are apparent on other rivers, using the same accessible sources. However, it is notable that lower numbers of floodplain meadows were identified within the floodplains of the Sirhowy, Ebbw Fawr, Ebbw Fach, and Ebbw. As discussed below, this probably reflects the topography of these catchments, as the upper reaches of these rivers form steep valleys with constricted floodplains, so common meadows could not be as prevalent simply because there was insufficient space in the floodplain. These faster-flowing, more dynamic rivers would also have been less suited to common floodplain meadows which require relatively gentle inundation at critical times of the year, something the steep valley systems could not reliably provide. Many of the floodplain meadows identified on the Ebbw, Ebbw Fawr, Ebbw Fach and Sirhowy were often small plots, more likely part of individual farmsteads in the valleys rather than of larger settlements with commons.

Moreover, the industrial history of these valleys caused significant re-working of the landscape, removing earlier floodplain meadows even where they existed. In addition to their mineral resources, the fast-moving rivers in the valleys were ideal for powering mills and for processing coal and metal ores, so watercourses have been re-routed and canalised, obscuring earlier forms that might have supported floodplain meadows and indicated their presence. In any case, industrial pollution would have reduced the suitability of the water for meadow management.

Notwithstanding, the fact that some floodplain meadows have been identified in these catchments demonstrates that where circumstances allowed, floodplain meadows were present and are identifiable from historical sources. It is reasonable to postulate that floodplain meadows may have been more extensive in these catchments prior to industrialisation.

Criteria	Negative - no	Positive - yes	Positive - possibly	Sum of positives	% positive
Lammas	239	0	0	0	0
Common	227	12	0	12	5%
Funnel	197	32	10	42	18%
Doles	230	9	0	9	4%
Droves	191	42	6	48	20%
Drainage	216	21	2	23	10%

Table 3 Count of meadows exhibiting each criterion (n=239).

Table 3 shows that a relatively small proportion of the meadows identified by this study display the diagnostic features such as funnel-shaped entrances, droves, and the presence of doles that have been identified quite frequently on other rivers. This lack of diagnostic features might suggest either that less of the meadows present were managed in common historically on these rivers, or that the rivers in Gwent were so impacted by industrial activity and enclosure by the early 19<sup>th</sup> century, that these features did not survive either physically or in the details recorded by tithe surveys.

Placename	Count of floodplain meadows
dole	1
fishingham	1
ham	4
mead	3
waun	31
ynis	20
ynnis	6
ynys	2
none	178

Table 4: Summary count of floodplain meadows where meadow-related terms were found in the tithe (n=246: some meadows are associated with multiple terms).

The limited diagnostic features identified in this study is echoed in the scarcity of relevant field names recorded in the tithe apportionment (Table 4). Field names often preserve evidence of former meadows, with terms such as dol, ynis, and waun typically indicating historic floodplain meadow management even where the land had become arable by the time of the tithe survey. Although such names usually persist historically and are often still reflected in modern field names, the range of meadow-related names found in this study was unexpectedly narrow in comparison with similar studies on the Upper Wye, Dee and Teifi (Firth and Firth, 2024; Firth and Firth, 2025). Only two terms appeared repeatedly: ynis (with variations such as ynnis and ynys meaning an island or river meadow) and waun (a field maintained for hay production). Also, meadows were frequently recorded in the tithe apportionment simply as ‘meadow’ rather than using Welsh language/names, suggesting either a shift in naming conventions or a reduced cultural prevalence of Welsh terms by the mid-nineteenth century, at least among people compiling tithe apportionments and their informants.

The sections below briefly summarise results and examples from each catchment. Detailed results of recording each floodplain meadow are included in the accompanying shapefile and summarised in Appendix I. Some overall perspectives are presented in the discussion that follows.

## 3.2. Rhymney

The River Rhymney was examined from the town of Rhymney downstream to the boundary between Gwent and Cardiff, near Began. The upper reaches of the Rhymney flow through a steep-sided valley that became industrialised from the late 18th century.

Previously, this area consisted of small farmsteads with a low population, and its economy was primarily agricultural. The impact of the coal and iron industries had already altered the character of the valley by the time of the tithe surveys, and this, coupled with the narrow, constrained floodplain, is reflected in the number and confidence levels of the meadows identified along the Rhymney.

Nonetheless, a total of fifty floodplain meadows was identified along the River Rhymney: their distribution is illustrated in Figure 2.

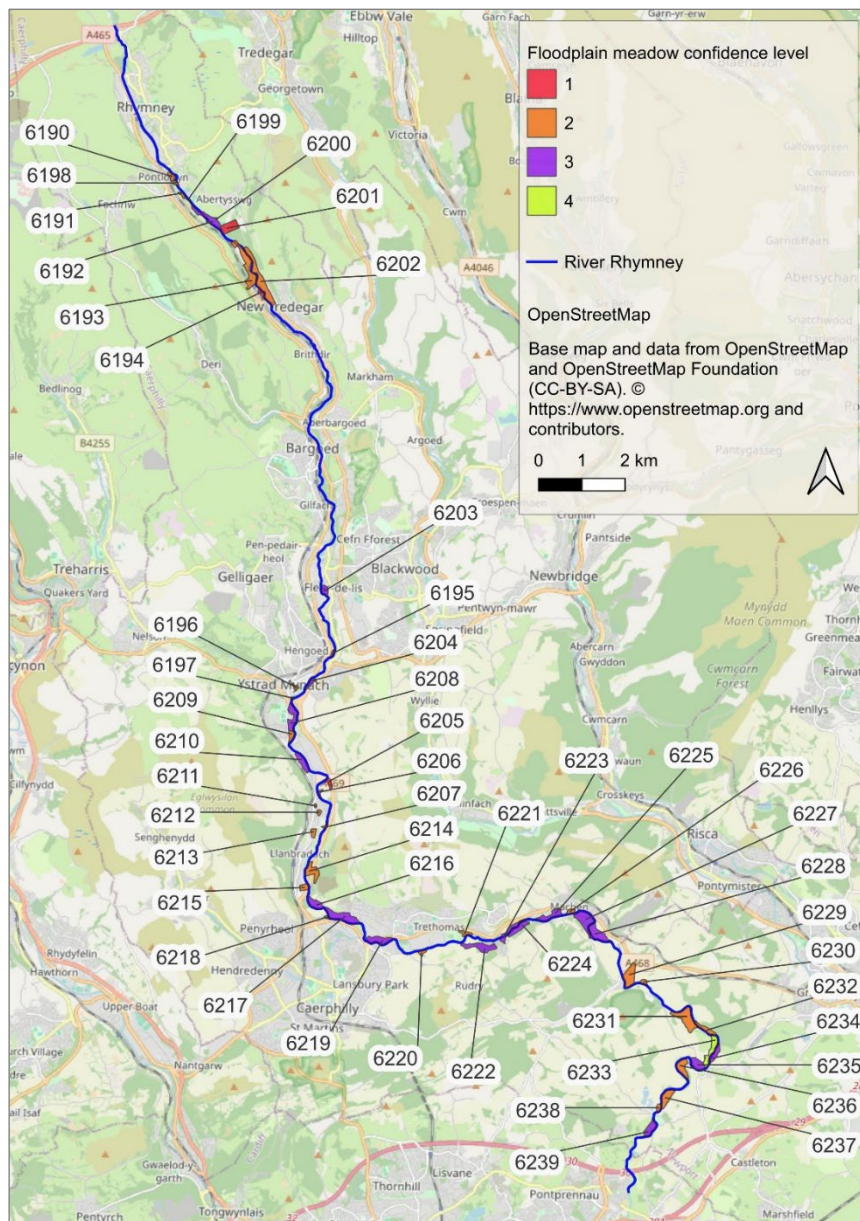


Figure 2 Distribution of floodplain meadows along the River Rhymney.

Meadow plots were found in small numbers in the upper reaches of the Rhymney: ten meadows were located between the town of Rhymney and New Tredegar. The confidence level of these meadows is low (between 1 and 2) because plots were recorded on the tithe apportionment as meadow, but no other characteristic features such as funnels or doles were identifiable. The meadows in this area were often small owing to the limited extent of the floodplain – although two larger areas of meadow (FPM 6202 and FPM 6193) were identified just outside of Tredegar. Downstream from New Tredegar to Fleur-de-lis, no floodplain meadows were identified at all. This stretch of the Rhymney has little to no floodplain, the valley is steep sided, and was already an industrial landscape by the early 19<sup>th</sup> century. In the lower reaches, the floodplain becomes more extensive as the valley widens and the river becomes more meandering. Here, floodplain meadows were found that more closely resembled those identified in other studies.

Throughout the length of the Rhymney, the floodplain meadows have been affected by the construction of railways, mills and other sites associated with 18<sup>th</sup> and 19<sup>th</sup> century industrial activity. At Machen, floodplain meadows were identified alongside and between industrial sites and railways: FPM 6219 is located between the river and a mill race for Machen Forge and Tinsplate Works (Scheduled Monument GM516). This site dates back to the 17<sup>th</sup> century and it is likely that the floodplain meadow dates back similarly, if not earlier.

Other floodplain meadows are located along this stretch of the Rhymney, including a large floodplain meadow opposite Machen (FPM 6227). This floodplain meadow was identified based on the form of its boundaries and the presence of plot 972 Waun Fawr, which translates as big field for making hay. All the other plots in this floodplain meadow had their land use recorded as arable in the tithe apportionment, but the form of the field boundaries suggest this could have been an area of floodplain meadow prior to inclosure. There is access to this meadow via a track (now a road) near the river, upstream of the meadow.

A total of three meadows were found that had funnel-shaped entrances. For example, FPM 6231 at Gwern Leyshon, Michaelstone y Fedw had a funnel entrance which led to the farm marked Gwern Leyson shown on the OS six-inch First Edition Map (Figure 3).

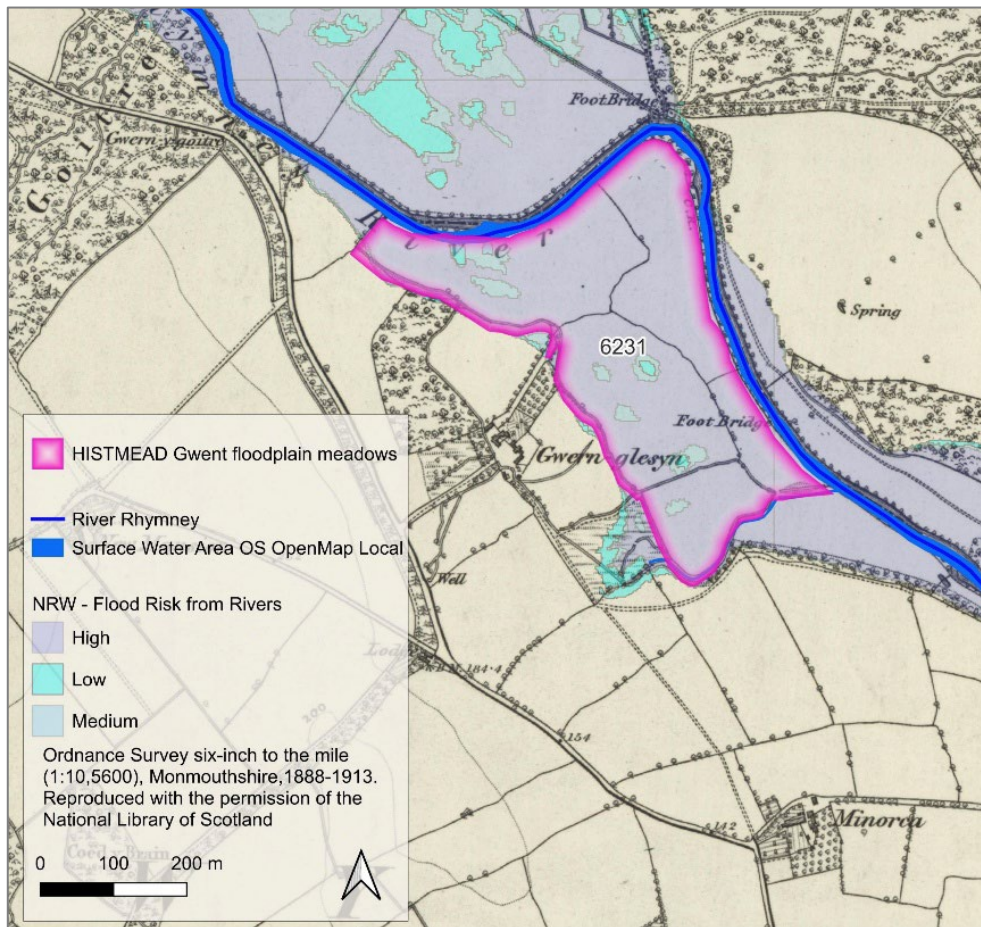


Figure 3 FPM 6231 Floodplain meadow at Gwern Leyshon, Michaelstone y Fedw.

Five floodplain meadows had droves leading to them including two of the floodplain meadows with funnel-shaped entrances (FPM 6231 and FPM 6227). Drove often become footpaths that cross floodplain meadows or roads running alongside them.

There was no direct evidence of either doles or commons in the floodplain meadows identified along the Rhyrne. The place name waun was found in the tithe plot names of eleven floodplain meadows, while ynis (and its variations) appeared as tithe apportionment names of fifteen floodplain meadows.

It is notable that there were meadows recorded along the Rhyrne where only the lower portion of each meadow lay within the floodplain, for example FPM 6190 in Gellygaer. Other meadow plots recorded in the tithe apportionment were adjacent to this floodplain meadow but entirely outside of the floodplain. As these other meadows were entirely outside the floodplain, they were not mapped as part of this project. Upstream of Sebastopol, Bedwellty FPM 6201 comprised tithe apportionment plot 1791 Cae Tai'r Tysswg Far, with tithe apportionment land use recorded as meadow. Again, only the lower

part of the meadow lies within the floodplain, and its original boundary was likely at the edge of the floodplain. This also occurs with other meadows along the river: in these cases, the floodplain meadows have been mapped according to their plot boundaries and assigned a low confidence level to reflect the fact that only a small area of the floodplain meadow would have flooded. Meadows lying partly in the floodplain but rising above areas that could flood have been identified in previous studies; in Gwent they adjoin meadows entirely beyond the floodplain. Outside the floodplain, sufficient nutrients to maintain the meadows may have been available from springs and smaller watercourses, but otherwise they would likely have required manuring by animals or manually. The need for hay despite the topographical limits to the area available for meadows in the floodplain no doubt prompted the maintenance of meadows on the less favourable valley sides.

### 3.3. Sirhowy

The Sirhowy rises at Nant-y-Bwch and continues downstream southwards to Cwmfelinfach, where it heads east towards its confluence with the Ebbw. The Sirhowy has a long industrial history, with evidence of lead mining from the Roman period in areas adjacent to the valley. From the 18th century onwards, the Sirhowy valley became a major centre for ironworking, followed later by extensive coal mining, which continued throughout the 19th and 20th centuries. This industrial development is likely to explain why so few floodplain meadows were found in this area. The Sirhowy Railway cut through the river valley and ran alongside the river. The impact of the industrialisation of the Sirhowy valley and resultant environmental consequences would have been significant, including the physical loss of any floodplain meadows and the pollution that would have affected the floodplain meadows that remained.

Eight meadows were identified along the River Sirhowy, as illustrated in Figure 4, with summary information from the shapefile provided in Appendix I.

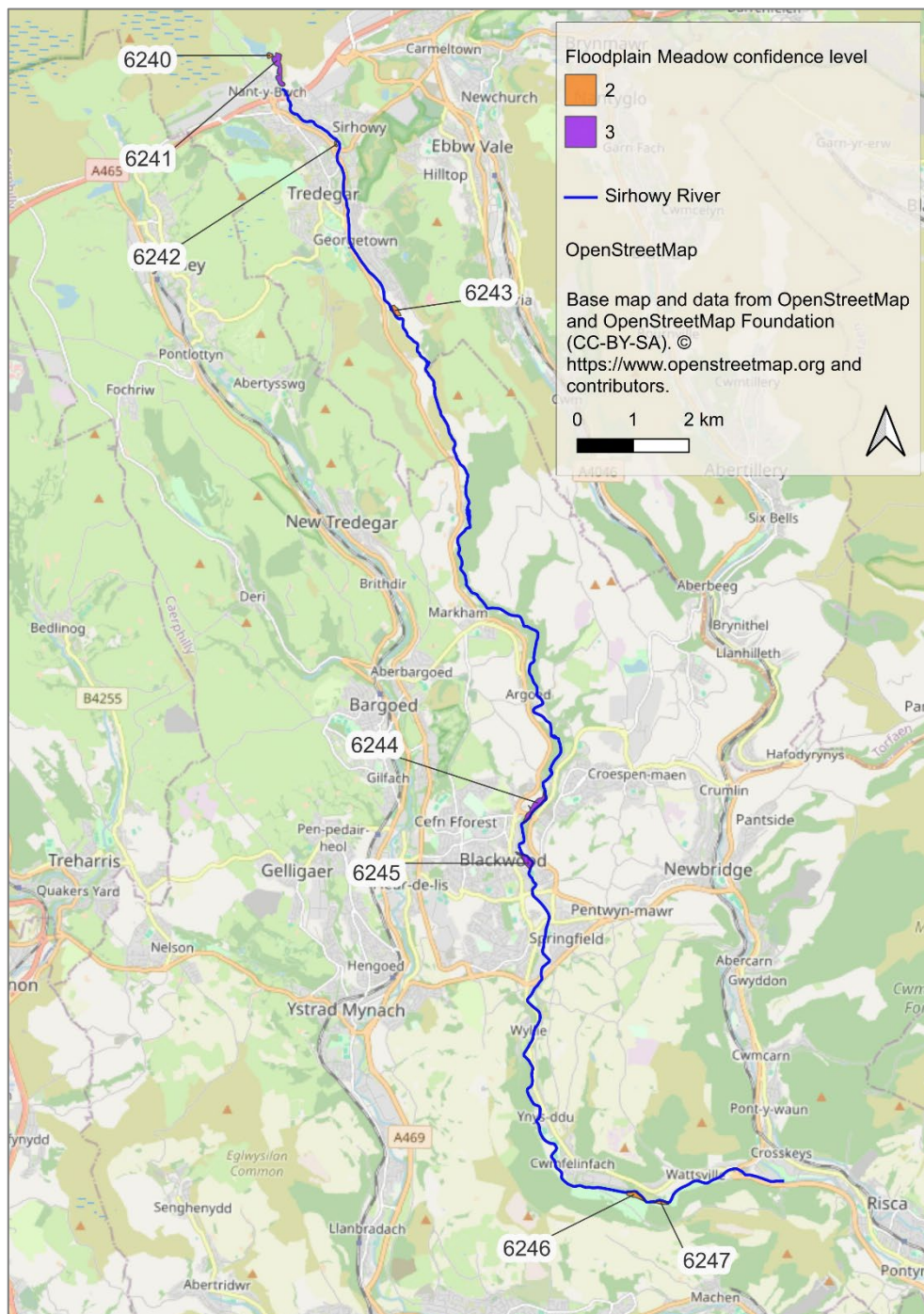


Figure 4 Distribution of floodplain meadows along the River Sirhowy.

As with other rivers in the region, the upper reaches of the Sirhowy passes through a steep valley with only small areas of floodplain. Despite this, two floodplain meadows were identified from the tithe apportionment records at Nant-y-Bwch, near the headwater of the Sirhowy (FPM 6240 and FPM 6241). Floodplain meadow FPM 6241 occupies a large area of floodplain and is recorded as meadow in the tithe apportionment record. There were no features such as funnel-shaped entrances or doles mapped on the tithe apportionment.

FPM 6240 is a small area of floodplain meadow next to a ford at Blaen. Between Tredegar downstream to just past Argoed, the floodplain is almost non-existent. In this stretch, only a single floodplain meadow was identified: FPM 6243 at Bedwellty. This floodplain meadow is a small plot recorded as Waste and Meadow on the tithe apportionment record: to its east are additional meadow plots, but these plots are all located outside of the floodplain and were not mapped.

FPM 6244 at Charlestown was the only floodplain meadow found with a funnel-shaped entrance, which led onto a trackway which was later cut by the railway.

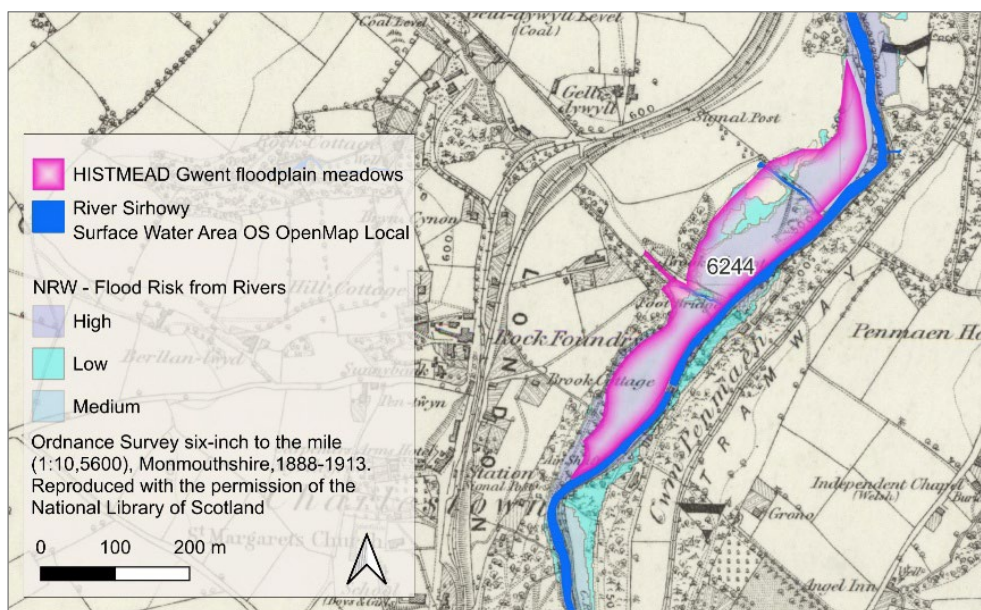


Figure 5 FPM 6244 at Charlestown on the Sirhowy, showing funnel-shaped entrance.

Meadows not within the floodplain but situated next to the River Sirhowy were recorded in the tithe apportionment records. At Fountains Inn, Bedwellty, several meadows outside of the floodplain were identified. Tithe apportionment plots 2072 and 2069 had a 'brake' (line of trees) with a stream running between them, and the meadows rose from 247.45m at the edge of the river to 271.23m so would not flood. On the opposite side of the river from the Fountains Inn meadows is another group of plots at Lower Farm, all recorded in the tithe apportionment as meadow. As with the plots at Fountains Inn, these were not situated within the floodplain. None of these meadows have been mapped, but they do illustrate that steeper slopes and plots outside the floodplain were being used as meadow, even though they were not floodplain meadows (Figure 6).

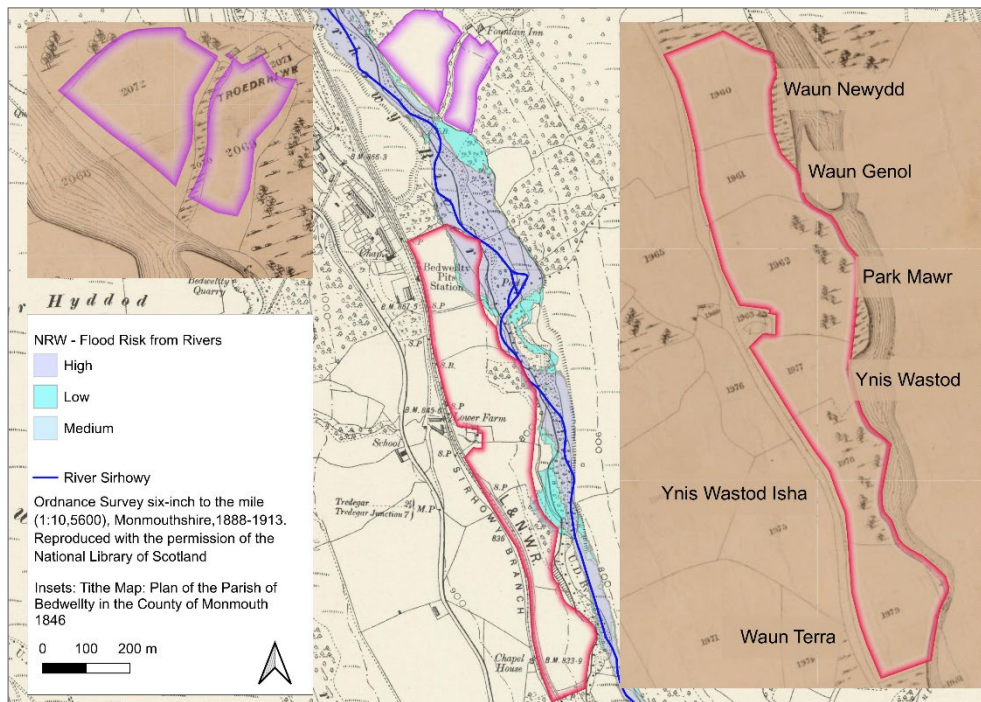


Figure 6 Examples of meadows close to the River Sirhowy but not in the floodplain.

### 3.4. Ebbw (including Ebbw Fawr and Ebbw Fach)

The Ebbw Fawr and the Ebbw Fach are tributaries of the Ebbw: from their confluence at Aberbeeg they form the River Ebbw. The Ebbw Fawr was examined from Beaufort downstream to its confluence with the Ebbw Fach, and the Ebbw Fach was examined from Blaina downstream to where it meets the Ebbw Fawr. Both rivers occupy narrow valleys. Prior to industrialisation, the surrounding uplands are likely to have been sparsely populated with small farmsteads within an agricultural economy.

All three rivers were significantly affected by the arrival of coal and ironworks as industrialisation took hold in the valleys from the 18th century onwards. The rivers powered ironworks and were also affected by contaminated waste. The Ebbw Fawr was culverted downstream through the Ebbw Vale in the 1930s to accommodate the Ebbw Vale Steelworks.

Few meadows were identified along either the Ebbw Fawr or the Ebbw Fach, as much of the valley landscape had already been transformed by industrialisation by the time of the tithe surveys. Floodplain meadows that were still surviving at the time of the tithe surveys, were then lost in the 19<sup>th</sup> and 20<sup>th</sup> century to further industrialisation and later residential development. The meadows identified along these minor rivers were often small, especially on Ebbw Fawr; although some larger meadows were still identifiable on tithe maps along the Ebbw Fach.

A total of 31 floodplain meadows were found along the River Ebbw Fawr, Ebbw Fach and Ebbw. Each minor river and the Ebbw is briefly summarised below: Figure 7 shows the distribution of the floodplain meadows on the Ebbw Fawr and Ebbw Fach; and Figure 9 shows the distribution on the Ebbw.

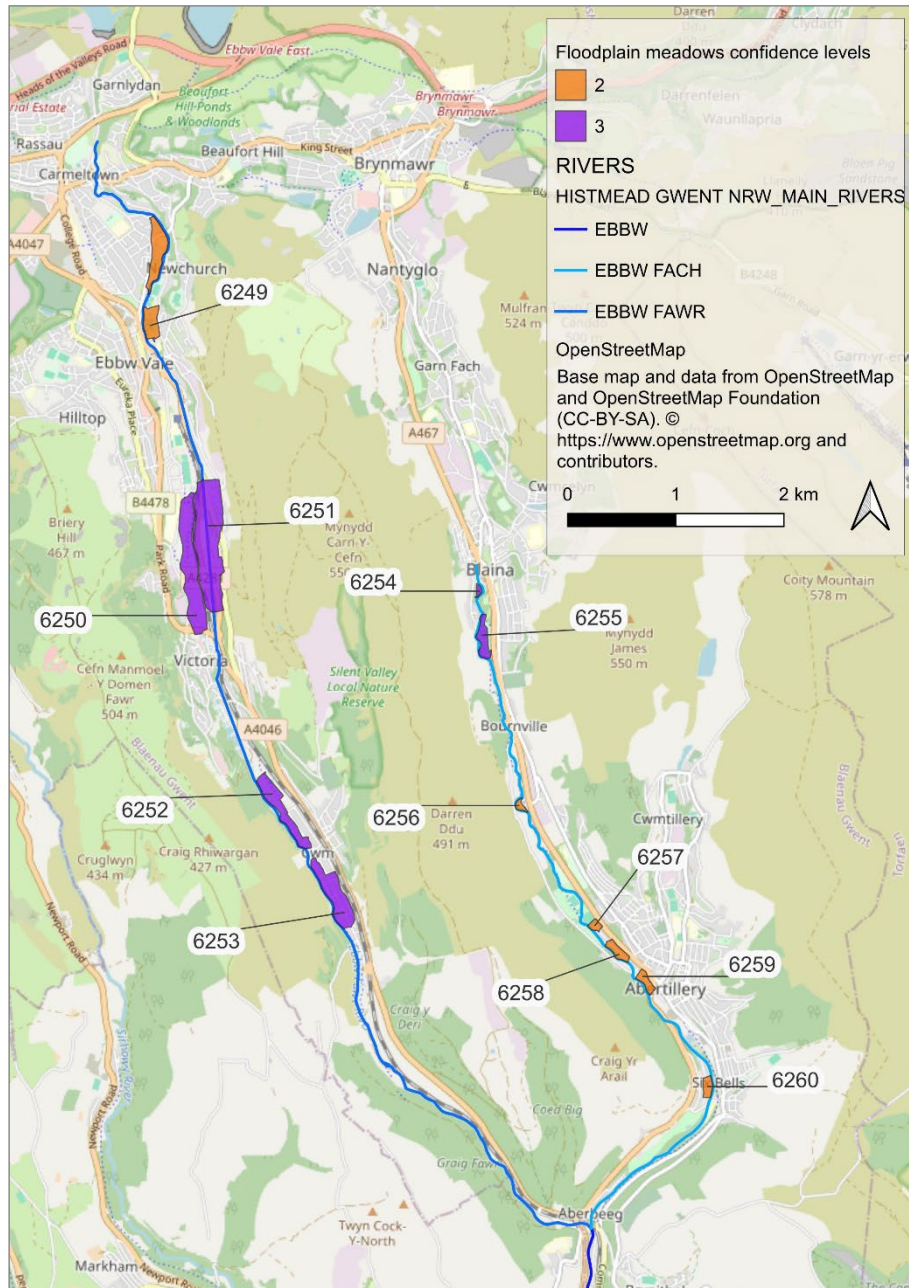


Figure 7 Distribution of floodplain meadows along the River Ebbw Fawr and Ebbw Fach.

## Ebbw Fawr

A total of six floodplain meadows were identified on the Ebbw Fawr. Of these, a pair of meadows were recorded either side of the Ebbw Fawr downstream of Ebbw Vale. On the east side of the river is FPM 6251, which includes the following tithe apportionment plots with meadow-related names: 45 Waun wan Llwarch; 46 Wain Weigh Lodd; 49 Wain Bryn; 50 Wain Drw; and 51 Ynis-y-Meadd. All these plots – plus plots 63 and 64 – had their land use recorded in the tithe apportionment as meadow. The 1844 tithe map (shown to the right on Figure 8) shows the group of plots aligned next to the river; but by the time of the OS six-inch First Edition map (surveyed 1877-79), these meadows had been replaced by the Bessemer Steel Works. This was the only group of meadow plots where there were meadow related names (waun, ynis and mead) recorded on the tithe apportionment record for either the Ebbw Fawr or Ebbw Fach.

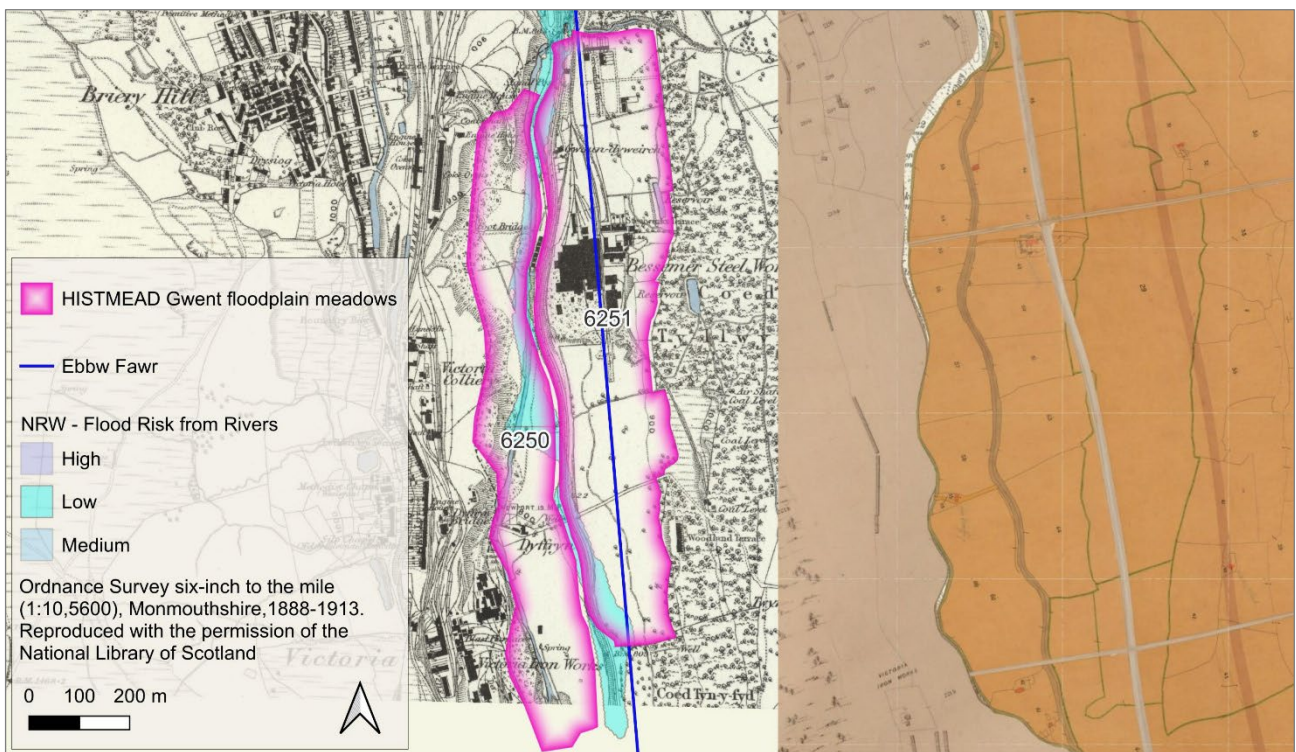


Figure 8 FPM 6250 and FPM 6251 shown on the OS six-inch map of Monmouthshire, alongside No. 2 Plan of the Parish of Aberystroth Monmouthshire Surveyed in 1841<sup>14</sup>. To the west, the Plan of the Parish of Bedwellty in the County of Monmouth, 1846<sup>15</sup> is also shown.

<sup>14</sup> [https://discover.library.wales/permalink/44WHELP\\_NLW/n02b04/alma99353120602419](https://discover.library.wales/permalink/44WHELP_NLW/n02b04/alma99353120602419).

<sup>15</sup> [https://discover.library.wales/permalink/44WHELP\\_NLW/n02b04/alma99353133402419](https://discover.library.wales/permalink/44WHELP_NLW/n02b04/alma99353133402419).

On the opposite side of the Ebbw Fawr is another group of plots, identified as FPM 6250, all with land use recorded as meadows in the tithe record. The tithe map shows that these meadow plots were situated between the Ebbw Fawr and a second, unnamed watercourse that appears to have been a former course of the Sirhowy. As with FPM 6251, these meadows had been replaced by the Victoria Colliery by the time of the OS six-inch First Edition map. The Ebbw Fawr is now culverted here making it difficult to even determine the extent of the original floodplain in this area: but at the time of the tithe survey, it seems these meadows would have both been situated in a floodplain, albeit narrow, and are likely to have been floodplain meadows.

## Ebbw Fach

Seven meadows were mapped along the Ebbw Fach (Figure 7), all comprising of one or two plots where land use was recorded in the tithe apportionment as meadow. Two meadows had funnels tentatively identified (FPM 6254 and 6255) but no other characteristics were found on any of the other meadow plots on the Ebbw Fach. As a result, most of the meadows were recorded as being low confidence.

## Ebbw

The Ebbw flows from the confluence of the Ebbw Fach and the Ebbw Fawr at Aberbeeg, where the valley is still narrow with limited floodplain, downstream to its confluence with the River Sirhowy at Crosskeys. The Ebbw then continues downstream to Newport where it joins the Usk as it enters the Severn Estuary. The distribution of the meadows along the Ebbw is illustrated in Figure 9.

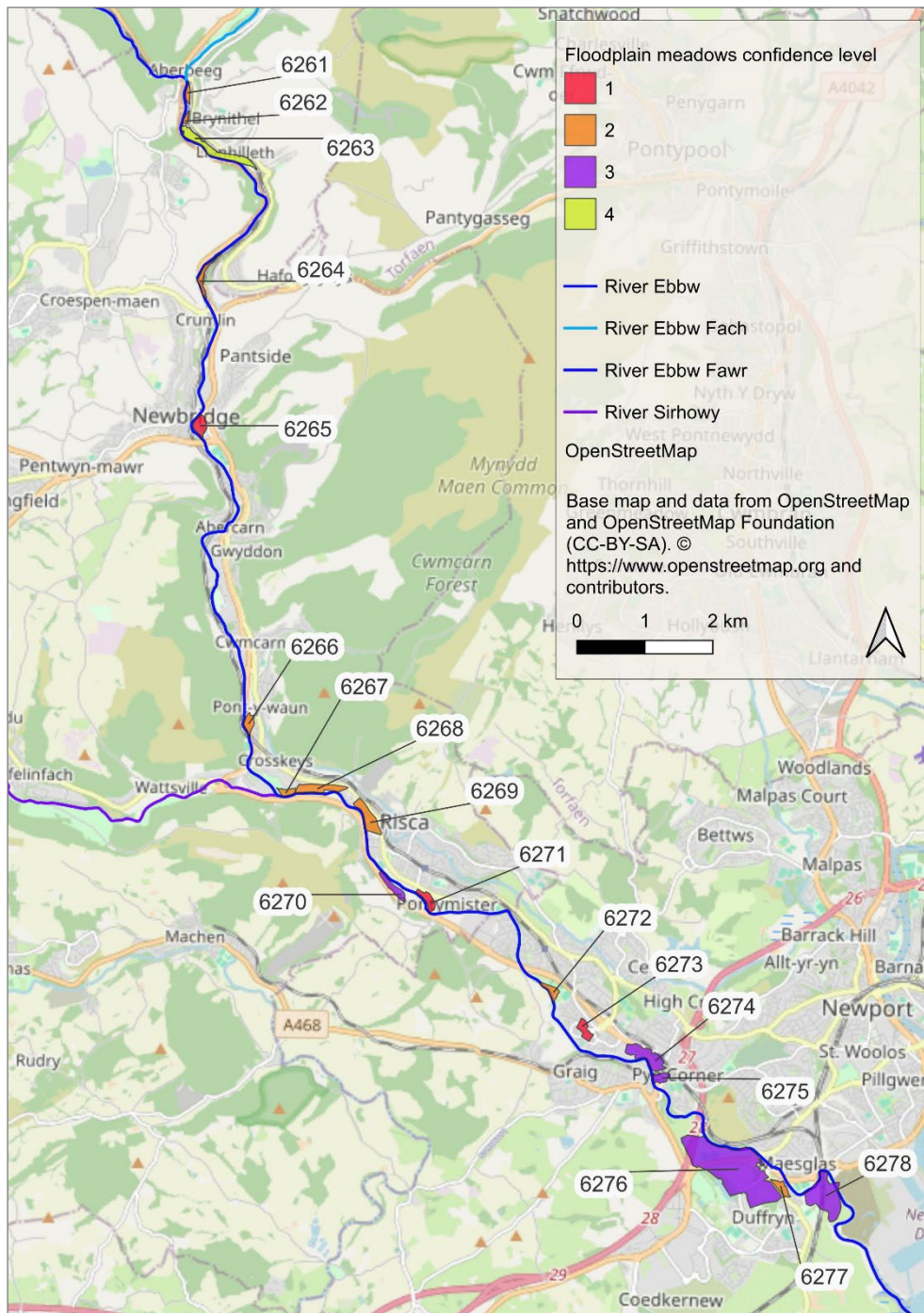


Figure 9 Distribution of meadows along the River Ebbw.

Although the first part of the River Ebbw has a very narrow floodplain, three meadows were identified between Aberbeeg and Llanhilleth (FPM 6261, 6262 and 6263). Beyond this point, the floodplain becomes quite constricted and no floodplain meadows were found until Newbridge, where a possible floodplain meadow was identified (FPM 6265). This

meadow has been given a low confidence level as there was no available tithe apportionment to suggest land use. However, the boundaries all follow the floodplain, suggesting it may have been the location of an earlier meadow. No further meadows were identified on the Ebbw until Machen, because much of the landscape around the river between Newbridge and Crosskeys had been altered by railway construction in the 19th century.

At Risca, FPM 6269 is marked on both the OS 25-inch First Edition map and the OS Six-Inch Monmouthshire First Edition map as Green Meadow. Plot 453, recorded in the tithe apportionment, lies within the area of Green Meadow, and is recorded as Wann (possibly a misspelling of Waun) with its land use recorded as meadow. No other tithe apportionment entries refer to meadow plots in Green Meadow, but it is possible that prior to inclosure, this area formed part of a larger floodplain meadow. Other surrounding plots are listed as arable, waste or pasture. The lower part of the former meadow is now used as a sports field.

At Bassaleg, plots that may originally have been part of a larger medieval floodplain meadow were identified next to Rogerstone Castle (Figure 10). FPM 6273 comprises tithe plots 676 Cae Ffynnon; 675 Erw Tyr; and 701 Cae Cenol. The land use for all these plots is recorded in the tithe apportionment as meadow. The surrounding plots lack any meadow related names in the tithe apportionment records.

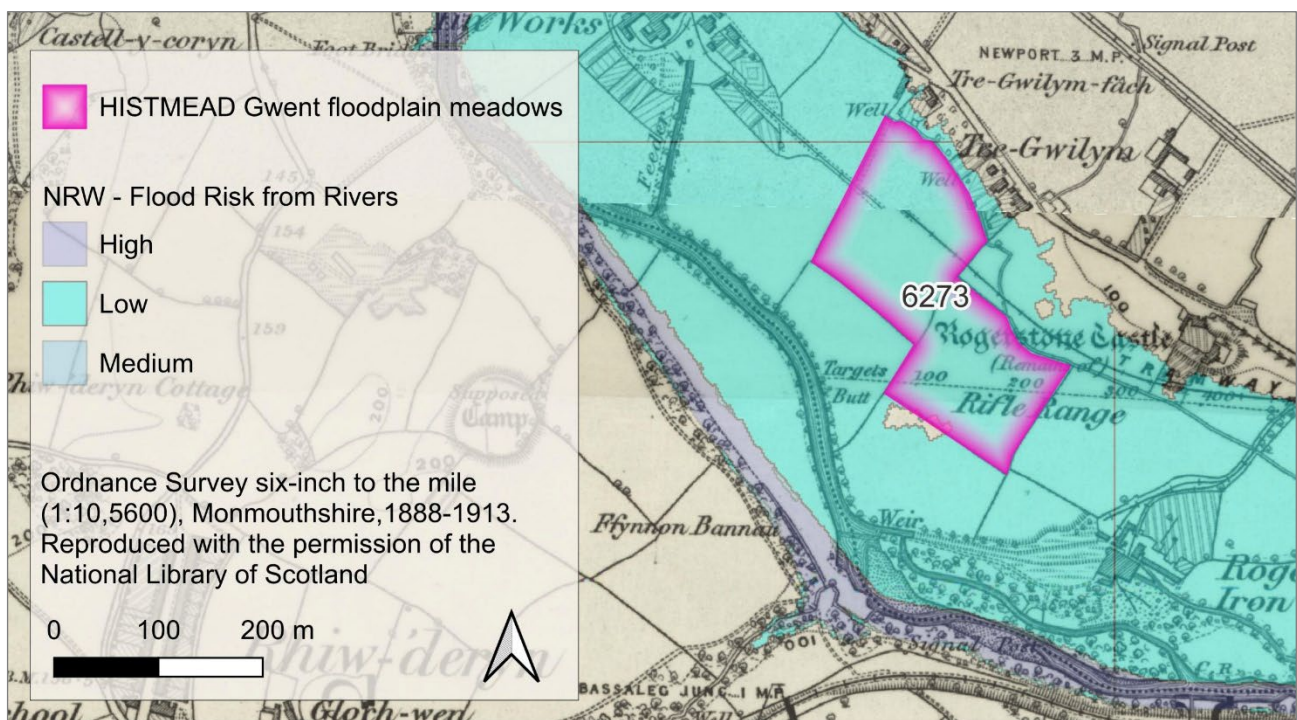


Figure 10 FPM 6273 floodplain meadow plots located next to Rogerstone Castle at Bassaleg.

Other references to medieval landscapes were found at Tredegar House, at Bassaleg. Here plots with land use recorded in the tithe apportionment as meadows were recorded on the tithe survey as being part of a farm named 'Tredegar Park, Desmesne and Woods' (FPM 6276). Tredegar was a medieval manor and the reference to Desmesne confirms this land was part of the former manorial estate. The area in which the tithe plots appear is shown on the OS six-inch map as being within the deer park. Birrell (1992, p. 117) notes 'It was common practice to reserve the hay of certain meadows in or near parks exclusively for the deer', so the use of these floodplain meadows likely extends back into antiquity when the land here would have been used exclusively by the Lord of the Manor for hay production and grazing.

As the Ebbw continues downstream, it reaches the tidal limit (the Highest Point to which Ordinary Tides flow' on the OS six-inch map) at Maesglas (meaning 'green field'). FPM 6278 is situated at this tidal limit. The meadow comprises three plots identified in the tithe apportionment records: plot 100 Waun Patrick; plot 102 Dole bach; and plot 101 Dole. The first two plots have their land use recorded as meadow and the third is recorded as pasture. The plot name Dole indicates that this floodplain meadow may historically have been a common meadow. Plot 100 is not situated within the present floodplain, which may be the result of the construction of the railway on an embankment in the mid-19<sup>th</sup> century. The railway bisected the original meadow and altered its topography and drainage patterns. River embankments and drains shown on the OS six-inch First Edition map were probably constructed to prevent tidal waters from inundating the meadow at high tide. Seaward of this point, saltmarsh – important for grazing – would have predominated alongside the estuarine river, with reclamation of the levels behind embankments.

### 3.5. Lwyd

The River Lwyd rises at Blaenavon and joins the River Usk at Caerleon. From the 16<sup>th</sup> and 17<sup>th</sup> centuries, the landscape around the Lwyd, particularly around Pontymoel and Pontypool, became a major centre for the iron and tin industries, with Blaenavon renowned for its ironworks. Industrial activity, along with mine discharge, severely affected the river's water quality, which would also have impacted any floodplain meadows. The river was rerouted in places to accommodate railways and tramways, and its narrow valley catchment contributes to flash-flooding, especially around Pontypool, Abersychan and Ponthir. In flood conditions, the Lwyd can become a torrent, making many parts of the valley unsuitable for floodplain meadows. The upper reaches are steep-sided and much of the river corridor became industrialised and urbanised during the 19<sup>th</sup> century. The Lwyd becomes tidal at Caerleon.

A total of 44 floodplain meadows was identified along the Lwyd: their distribution is illustrated in Figure 11. From Blaenavon to Pontypool, narrow meadows are evenly distributed along both sides of the river where areas of floodplain are available. Meadow plots recorded along this river were not always completely within the floodplain and often

only the lower part of the meadow would flood. The meadows mapped tend to be narrow and small in size. Below Pontypool the floodplain begins to widen and identified meadows were evenly distributed from Lower New Inn downstream to Caerleon.

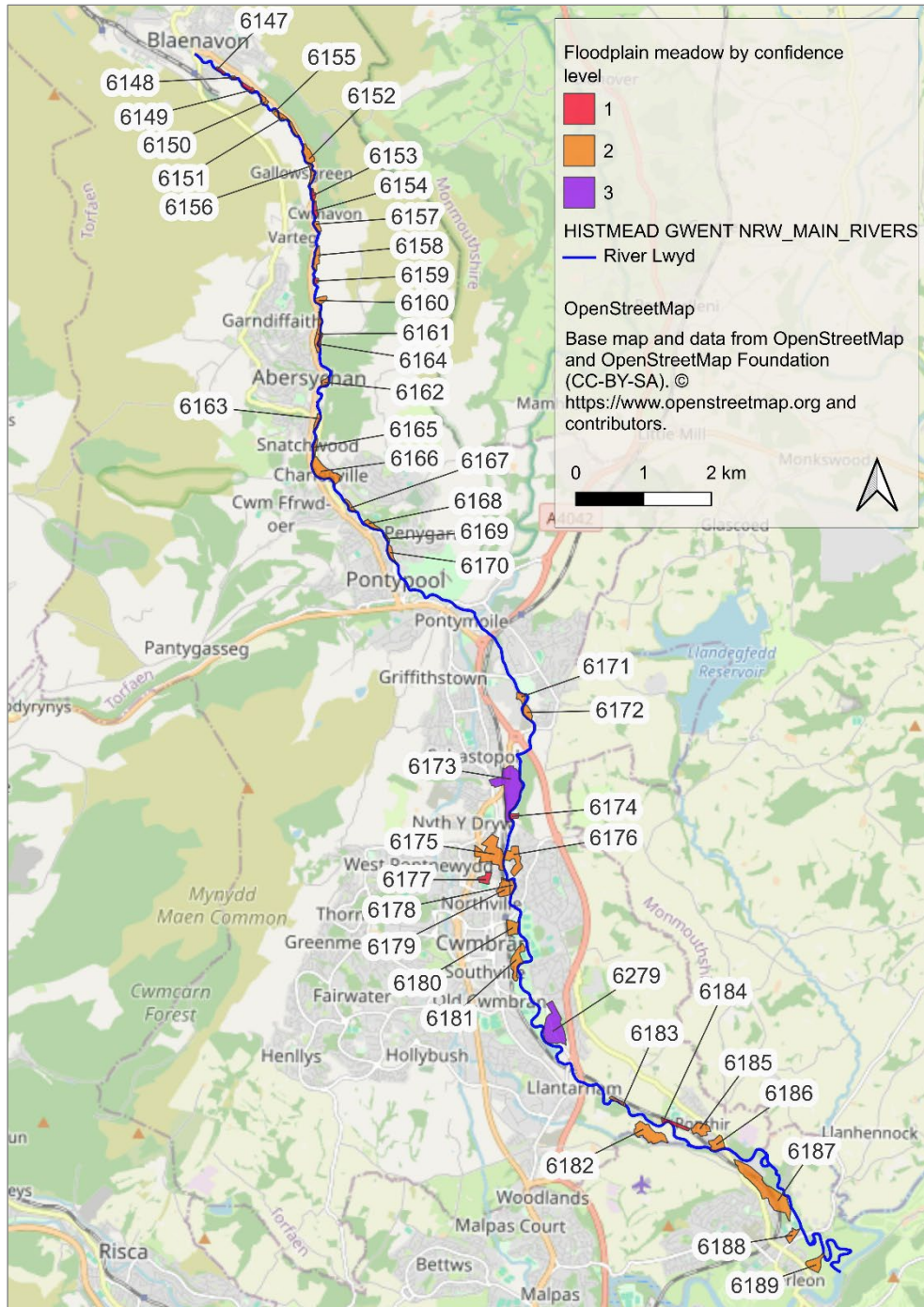


Figure 11 Distribution of floodplain meadows along the River Lwyd.

Very few of the meadows along the Lwyd had any features such as funnel-shaped entrances or doles. They often comprised either single or small groups of plots recorded on the tithe apportionment as grass, in contrast to plots recorded as pasture. Little evidence of drains was noted either on the tithe map or on the lidar, in part because a high number of these former meadows are now in residential or urban areas.

FPM 6189 was the meadow furthest downstream identified on the River Lwyd. Positioned near the medieval Castle Mound at Caerleon, it may be contemporary with the castle. All the plots were recorded as meadows in the land use column of the tithe apportionment. The OS 25 inch First Edition Map and the OS six-inch First Edition Map both show this floodplain meadow mostly behind embankments to prevent it being inundated at high tide (Figure 12). Floodplain meadows FPM 6116 and FPM 6117 are nearby on the River Usk, also protected by embankments.

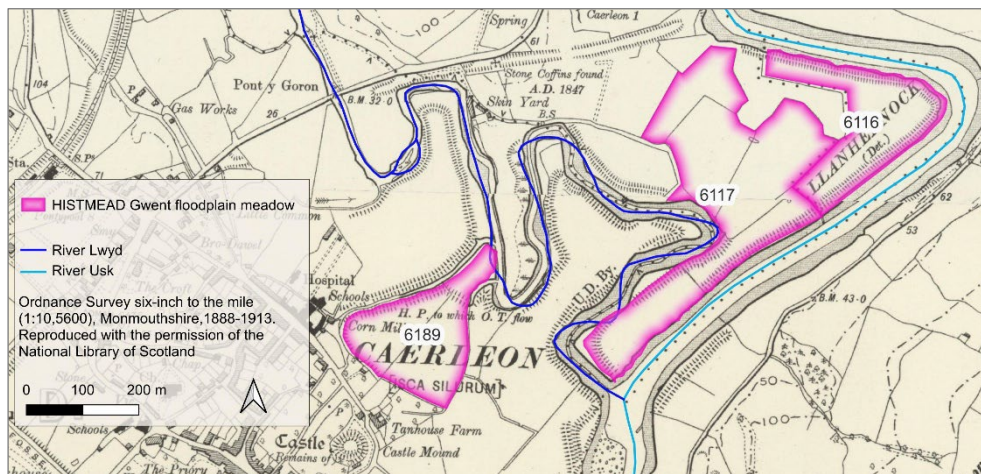


Figure 12 FPM6189 at Caerleon on the River Lwyd, near FPM 6117 and FPM 6116 on the River Usk.

### 3.6. Usk

The River Usk enters Gwent at Glangrwyney and flows southwards to Newport. It does not have an intense industrial history, with its importance lying in its use for navigation from the Severn Estuary: its tidal reaches made Newport an important port. Most of the river through Gwent passes through wide and shallow valleys with rolling hills, forming a predominantly rural landscape. Evidence of farming along the Usk dates back to the Iron Age, continuing into the Roman period as indicated by multiple sites near the river. The earliest evidence for haymaking in the UK dates to the late Iron Age and Roman periods, so places like Great Bulmore Roman settlement (Scheduled Monument MM176), which lies close to the Usk, may have used the floodplain to produce hay from areas that

subsequently became meadows identifiable from title apportionment records (FPM 6094, FPM 6092, FPM6091 and FPM 6093).

Overall, 80 meadows were identified along the catchment of the River Usk, as illustrated in Figure 13. Meadows were found within the floodplain all the way along the Usk, distributed regularly along both sides of the river. Much of the floodplain is still agricultural so the survival of meadow features is good: they have not been developed into residential or urban areas and many former meadows appear still to be in use as pasture.

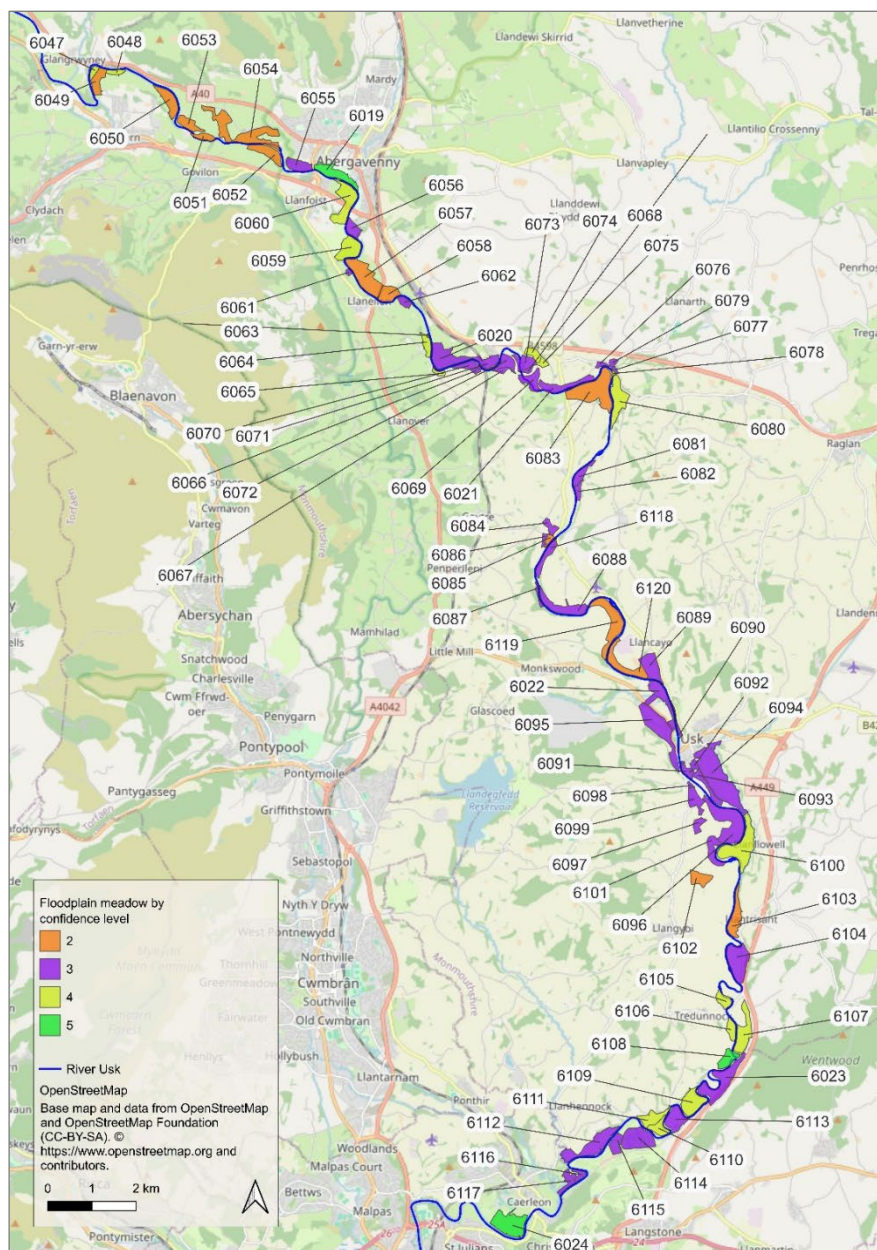


Figure 13 Distribution of floodplain meadows along the River Usk.

Nineteen meadows on the Usk show evidence of funnel-shaped entrances, while 26 meadows show evidence on the OS 25 inch First Edition of droves or roads leading to them. Only four floodplain meadows showed evidence of doles on tithe maps (FPM 6116, 6115, 6095 and 6080). Six common meadows were tentatively identified mainly based on the presence of doles. Placenames of meadows on the Usk are limited to ynis/ynnis (six meadows), ham (one meadow), and waun (six meadows).

At Abergavenny, two meadows are recorded on the tithe apportionment that lie directly south of Abergavenny Castle. It is likely they were being used in the medieval period as common meadows (Figure 14). The drove from FPM 6019, The Castle Meadow, is shown leading from the funnel-shaped entrance of the floodplain meadow to the castle. Drains can be seen across FPM 6055. Neither of these meadows however, had any signs of doles on the tithe map.

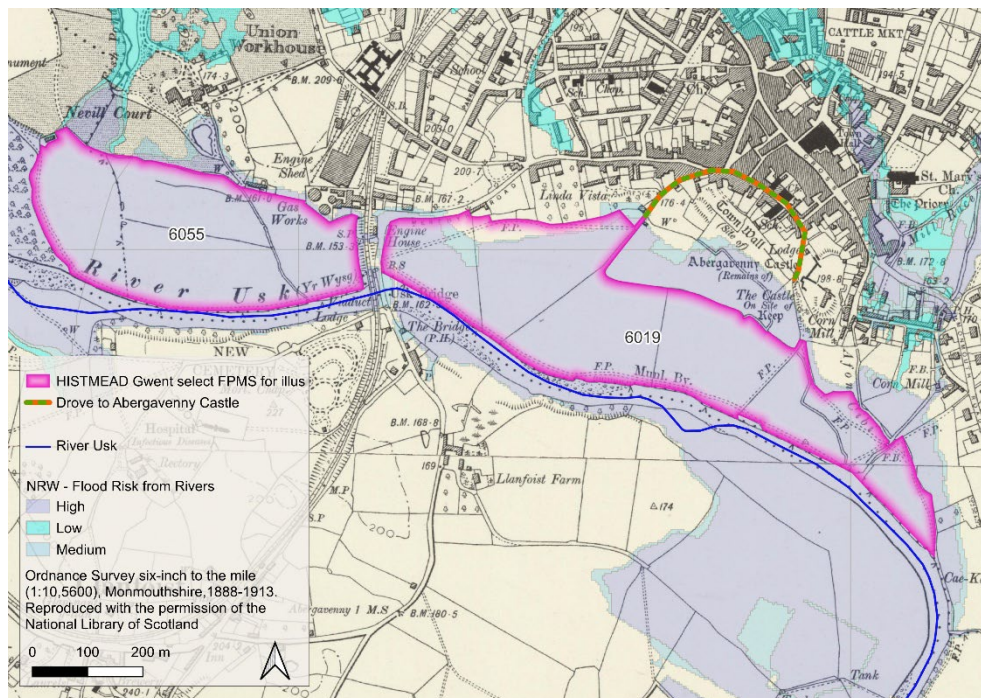


Figure 14 FPM 6055, Floodplain Meadow at Abergavenny and FPM 6019, The Castle Meadow, Abergavenny.

In the parish of Monkswood there is no tithe map available and no reference to meadows could be found. However, the OS 25 Inch First Edition names a plot as 'Ancient Walls (track of) and Chapel Meadow' (Figure 15). This meadow could also be seen on the 1813 OS Survey Drawing for Usk. Coed-Y-Mynach/Monkswood was linked to the lands of the Cistercian abbey of Tintern (hence the name 'Monkswood'), which potentially could date this meadow back to the medieval period. Examination of the Tintern Abbey archives may

reveal further information about meadows associated with Tintern both on the Usk and on other rivers such as the Wye.

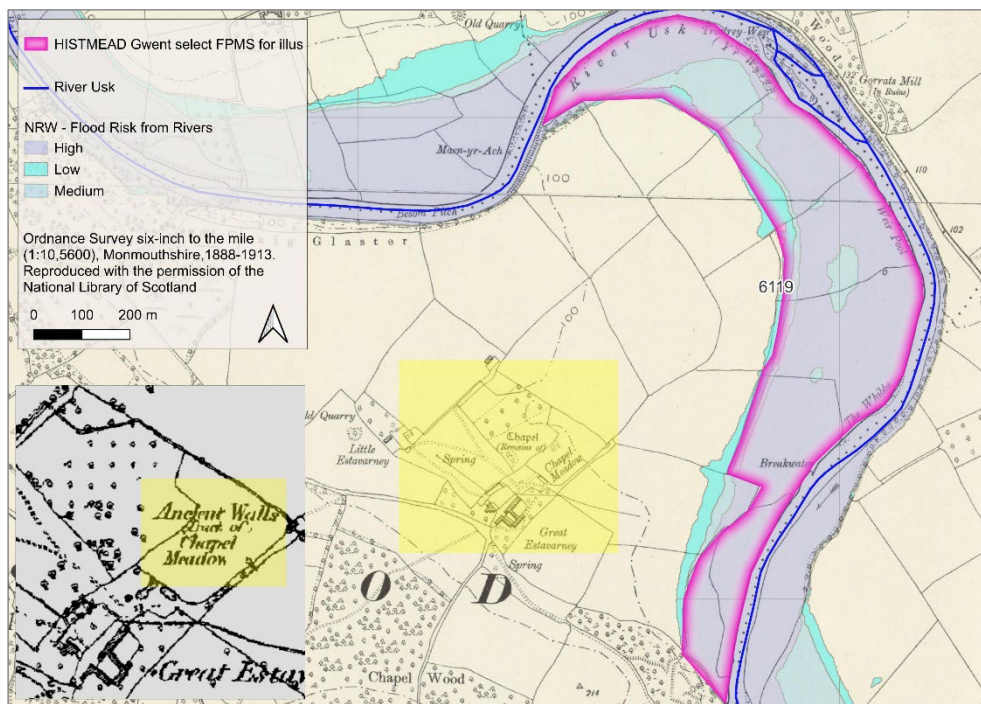


Figure 15 FPM 6119 Chapel meadow at Great Estavarney, Monkswood. Insert map from OS 25 inch First Edition<sup>16</sup> showing detail of the former chapel and reference to Chapel Meadow.

Medieval churches were observed at the edge of the floodplain meadows along the Usk – as noted above at Monkswood. Table 5 lists these churches and the associated floodplain meadows identified in this study. The churches are often all that remain of deserted or shrunken medieval and post medieval settlements. Sometimes these churches are located near medieval castles or mounds. The coincidence of medieval churches and floodplain meadows has been noted in other catchments, such as the Dorset Stour where St Bartholomew’s Church is located adjacent to a floodplain meadow at Shapwick on the River Stour (Firth and Firth, 2020).

<sup>16</sup> <https://www.peoplescollection.wales/maps?keywords=OS%2025%20inch>.

Church name	Parish	FPM
St Peter's Church	Llanwenarth	FPM 6054
Chapel (remains of)	Llanellen	FPM 6062
St Bartholomew's Church	Llanover	FPM 6065
St Cadoc's Church	Llangattock juxta Usk	FPM 6071
St Michael's Church	Llangattock juxta Usk	FPM 6021
St Mary's Church	Llanvair Kilgeddin	FPM 6083
All Saint's Church	Kemeys Commander	FPM 6118 FPM 6088
Chapel (remains of)	Monkswood	FPM 6119
St Peter and St Paul's and St John's Church	Llangibby	FPM 6103
St Andrew's Church	Tredunnock	FPM 6105
St Bartholomew's Church	Llantrisant	FPM 6107
All Saints Church	Kemys Inferior	FPM 6023

Table 5 List of Churches and associated floodplain meadows located along the River Usk.

### 3.7. Lower Wye

The Lower Wye enters Gwent at Dixton Newton through the gorge at Lady Park Wood, continuing downstream to its confluence with the River Severn at Chepstow (Figure 16). As with other catchments in this study, the breadth of the floodplain is quite limited. Much of the River Wye passes through gorges in its lower reaches, with steep wooded cliffs and very little available floodplain. Historically, the river was an important transport route and its tributaries a source of power until the early 19<sup>th</sup> century. The wooded areas alongside the river were exploited for charcoal used in the surrounding iron smelting sites. The stretches above Tintern were more accessible for industrial use, while below this the gorges made it difficult to gain access to the river. The Wye was also a popular destination for visitors from the 18<sup>th</sup> century, with its picturesque views of Tintern Abbey drawing interest from people travelling along the river.

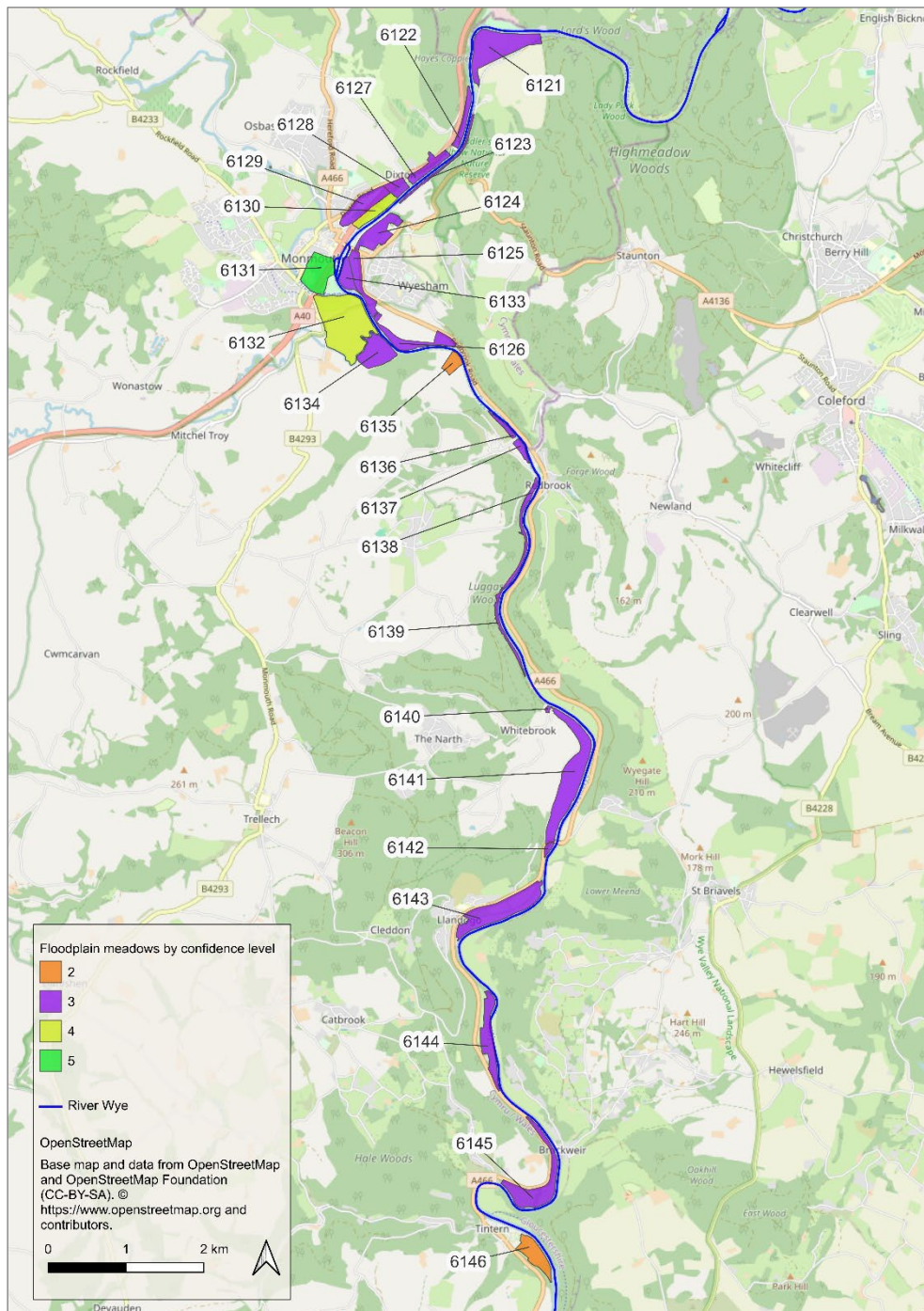


Figure 16 Distribution of floodplain meadows along the River Wye.

At Monmouth, the floodplain is quite extensive as the confluence of the River Monnow and the Wye lies adjacent to the town. Chippenham Mead (FPM 6131) in Monmouth itself is discussed below. Floodplain meadows were located just outside Monmouth along Dixon Road, with Old Dixon Road passing through them. These meadows were probably one

large meadow originally but have been mapped here as groups of floodplain meadows according to parish boundaries and the development of the road network: FPM 6129 and FPM 6130 are separated by Old Dixton Road; upstream and adjoining them is FPM 6128, located next to St Peter's Church in the parish of Dixton; and FPM 6127 is upstream of the church. All these meadows have strips recorded within them, suggesting that they once formed part of a common meadow.

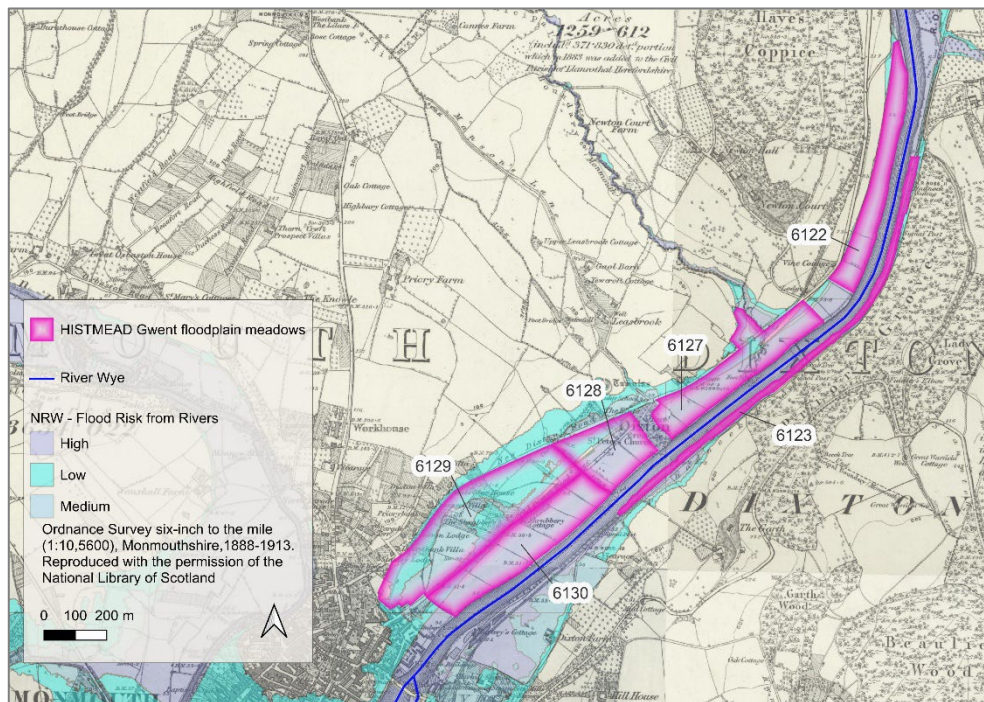


Figure 17 Floodplain meadows at Monmouth and Dixton.

The title apportionment records show that much of the available floodplain along the Lower Wye was being used as meadows, even in the areas where very little floodplain was available. On the opposite side to the meadows along the Dixton road noted above, there is a very long, narrow floodplain meadow, FPM 6123 (Figure 17). It comprised multiple long, narrow meadow plots recorded on the title apportionment as: plot 330 Part of Boat House Meadow; 331 Boathouse Meadow; 338 Upper Meadow; 389/392 Meadow; 390 Lower Meadow; and 391 Wye Meadow. These floodplain meadows are shown on the title map in long narrow strips, end to end with a road running parallel alongside of them. In the 19<sup>th</sup> century, these meadows were lost, becoming the route of the GWR Ross and Monmouth railway.

As the Lower Wye leaves Monmouth and flows to Penallt and on downstream to Whitebrook, the floodplain becomes very narrow with trees covering the steep valley sides. There is a very narrow floodplain that the title apportionment records as multiple meadows (FPM 6136 Honest Meadow at Penallt; FPM 6137 Chapel Meadow at Penallt; 6138 Lower

Redbrook Meadow at Penallt; and FPM 6139 The Cadory and Mill Meadow, Llandogo). These long, narrow meadows continued all the way to Tintern, occupying the constricted floodplain during the early 19th century. Several are downstream of the tidal limit at Bigsweir Bridge: they were all impacted by construction of the Wye Valley Railway in the 1870s.

A large meadow was identified from the tithe apportionment record at Tintern Parva (FPM 6145). This floodplain meadow was adjacent to St Michaels Church, in an area of floodplain upstream of the church. The church itself is sited close to the banks of the Wye within the floodplain. A road runs along the back boundary of the floodplain meadow and in the 19th century the meadow was cut into two by the embanked Wye Valley Railway and Tintern Station.

Unfortunately, there was no tithe map available for the parish of Chapel Hill where Tintern Abbey is located. However, documentary reference to a meadow was found in a pre-nuptial settlement from 1727 that mentioned a meadow at Tintern Parva: ‘...a parcel of meadow called Large Meadow (2a.) abutting onto the River Wye on the South’<sup>17</sup>. As the floodplain is very constricted in most of this area surrounding Tintern Abbey, it is possible that the meadow being referenced is an area immediately downstream of Tintern Abbey that was within the floodplain (FPM 6146). This was the meadow furthest downstream identified on the Lower Wye.

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<sup>17</sup> Doc Number 9375: Part of Penrice and Margam Estate Records 1727, <https://archives.library.wales/index.php/pre-nuptial-settlement-of-1-and-2-regarding-manor-or-lordship-of-itton-with-rights-members-and-appurtenances-in-co>.

## 4. Discussion

### 4.1. Evidence for common meadows

The total number of floodplain meadows identified as common meadows is summarised by river in Table 6.

River	Yes
Ebbw	1
Ebbw Fach	0
Ebbw Fawr	0
Lwyd	1
Rhymney	0
Sirhowy	0
Usk	7
Wye	3
Total	12

Table 6 Count of common floodplain meadows on each river (n=239).

Common meadows were identified on the basis of the presence of doles, which indicate that the meadow was divided and managed in common or named commons. Doles were recorded in nine meadows, and a total of 12 commons were identified across all the eight rivers. It is likely that other common meadows existed but that by the time the of the tithe survey, they had already been inclosed and were no longer being managed in common.

On the River Wye at Monmouth, FPM 6131 Chippenham Mead was located between the confluence of the River Monnow and the River Wye. The meadow is shown on the 1813 OS Survey Drawing for Usk, where it is marked as Chippenham Mead (Figure 18). In the 17<sup>th</sup> century the mead was used for horseracing and the track is just about visible on the 1813 OS Survey Drawing for Usk. FPM 6131 Chippenham Mead is still registered as Common Land.



Figure 18 Earliest maps showing FPM6131 Chippenham Mead at Monmouth. To the left is Charles Budgen's 1813 OS Survey Drawing of Usk<sup>18</sup> and to the right is Chippenham Mead shown on the OS 25 inch First Edition Map<sup>19</sup>.

Doles are marked on the tithe map for Chippenham Mead (Figure 19) and the OS 25 inch First Edition map marks 'stones' across the meadow. Stones were often used to mark the location of each dole and these markers have been found mapped on the OS 25 inch First Edition maps on other meadows in Dorset, on the River Severn and on the River Dee. In some places these stones survive in situ<sup>20</sup>.

<sup>18</sup> Charles Budgen's 1813 OS Survey Drawing of Usk: File:002osd00000003u00162000.jpg. (2024, August 21). *Wikimedia Commons*. Retrieved February 11, 2026, from <https://commons.wikimedia.org/w/index.php?title=File:002osd00000003u00162000.jpg&oldid=914294077>.

<sup>19</sup>. OS 25-inch First Edition Map available at <https://www.peoplescollection.wales/maps>.

<sup>20</sup> <https://floodplainmeadows.org.uk/discover/learn/history>.



Figure 19 Chippenham Mead on the River Usk as shown on the Monmouth Parish Tithe Map<sup>21</sup>.

A possible common meadow was also identified at Llanbaddock on the River Usk (FPM 6095 – Floodplain Meadows at Rhayder Farm, Llanbaddock). This site contains multiple meadow plots, including ten small, uniformly sized square plots in the south. Although their boundaries are not marked with dotted lines, as is often seen on other tithe maps, their consistent size and shape suggest they may once have been doles. Each plot is assigned to a different farm, which could indicate the remnants of a former common meadow. Although doles generally are strips, there are examples of square doles on other rivers. This meadow lies within the floodplain but not directly alongside the River Usk: historically it may have formed a single common meadow with FPM 6022 (Henrhiw Farm), which lies adjacent to the river. On the OS 25-inch First Edition map, the two meadows are shown as being separated by a road.

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<sup>21</sup> Map of Monmouth Parish in the County of Monmouth by W. H. Apperley, 1844, accessed at [https://discover.library.wales/permalink/44WHELP\\_NLW/n02b04/alma99353560702419](https://discover.library.wales/permalink/44WHELP_NLW/n02b04/alma99353560702419) .

## 4.2. Evidence for funnels and droves

Funnel-shaped entrances and their associated droves are the distinctive entrances that enable livestock to move on and off floodplain meadows and other commons used for grazing, found in landscapes from the Bronze Age (Oosthuizen, 2013) onwards. Funnel-shaped entrances were observed on 32 of the meadows identified with a further ten ‘possibles’: their distribution by river is summarised in Table 7.

River	Possible	Yes
Rhymney	1	3
Sirhowy	1	1
Ebbw	0	2
Ebbw Fawr	1	0
Ebbw Fach	0	2
Lwyd	0	0
Usk	7	19
Lower Wye	0	5
Total number of funnels	10	32

Table 7 Summary of the distribution, by river, of floodplain meadows with funnel-shaped entrances (n=239).

The overall occurrence of funnel-shaped entrances across all the rivers was low compared to other studies. The survival of the funnel-shaped entrance depends on the degree to which subsequent changes to boundaries – because of inclosure, for example – respected earlier features. In some cases, the original form of the meadow has been completely lost, whereas in others the enclosure pattern is more organic and preserves these earlier forms.

Many of the meadows identified in this study are located on rivers that have been heavily affected by industrialisation and had already undergone inclosure by the time of the tithe survey. On the Lwyd and the Ebbw Fawr, for example, no funnel-shaped entrances were observed, but around one quarter of the meadows retained this feature on the Usk. By way of example, FPM 6118, located at Kemeys Commander on the River Usk, is shown on the 1813 OS Survey Drawing for Usk as a meadow lying adjacent to the river (Figure 20). The drove from Kemeys Commander can be seen running from All Saints Church to the funnel entrance of the floodplain meadow. This illustrates the relationship between the funnel and drove, and how they are associated with the settlement. These features form an integral part of the management system of floodplain meadows, enabling the movement of the animals to and from the settlement to common grazing. It also shows how the historic boundary followed the floodplain, and how the post inclosure fields later grew around them.

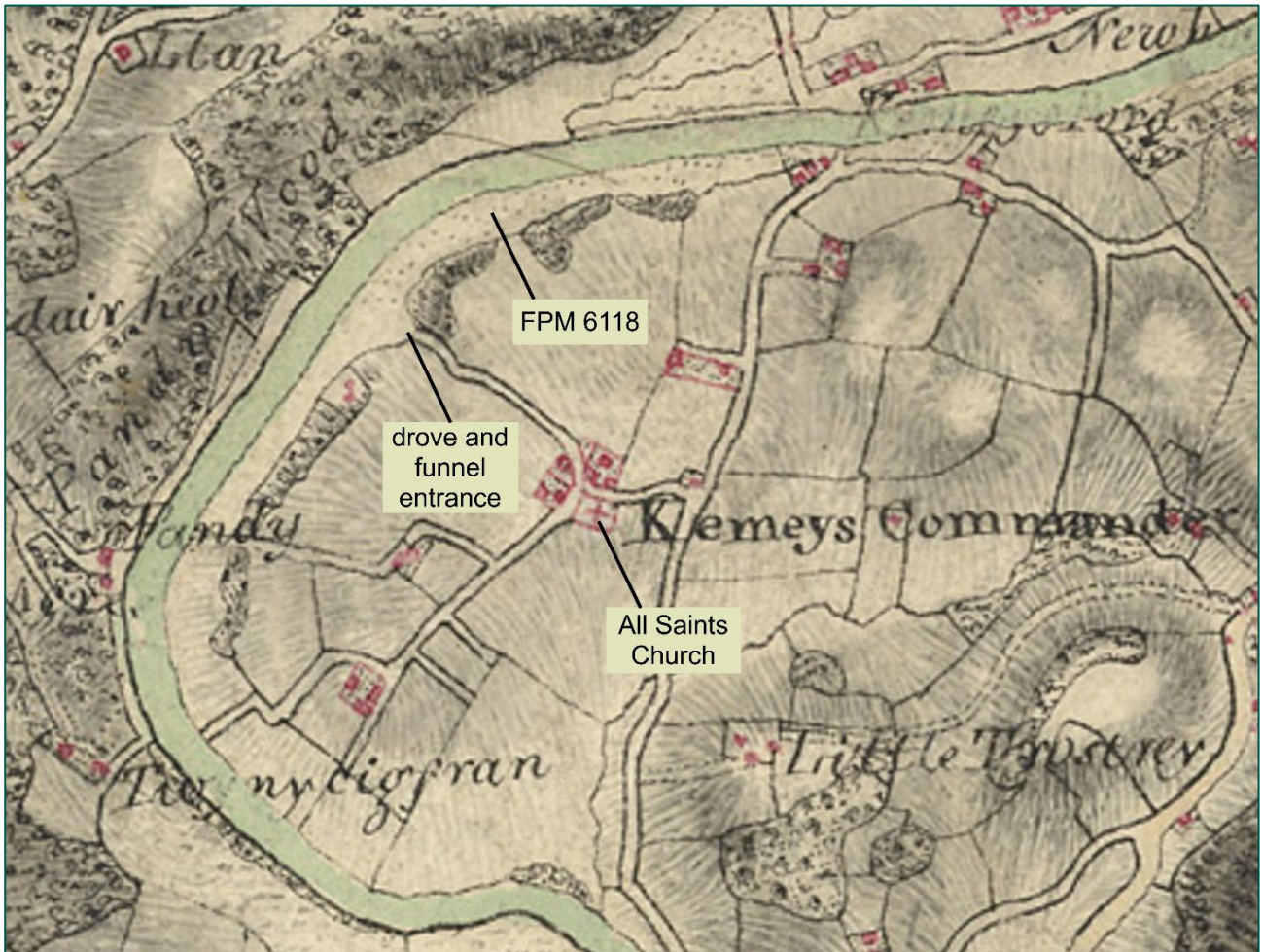


Figure 20 FPM 6118 Floodplain meadow at Bridge Inn, Kemeys Commander.

### 4.3. River dynamics and floodplain meadows

All the rivers in this study show signs of physical modification by people, such as canalising sections to improve water flow or creating channels to supply mills with water, sometimes resulting in islands or altered courses. Rivers were culverted to take water away from areas where railways were constructed. All these actions impacted the landscape, changing the boundaries of floodplain meadows and the availability of water to flood them. Additionally, river channels have been altered dramatically by natural processes: these changes are visible through comparisons with earlier maps, and in lidar data that shows such former channels. Some of these old river channels were sufficiently clear to be mapped on earlier OS Survey maps or they are preserved in field boundaries. At Llanvihangel (Figure 21), for example, historic OS maps show how the River Usk has moved across the landscape: plots to the north east clearly represent former river channels. The modern course of the river is quite different from that shown on the OS 25-

inch and OS six-inch maps: such river dynamics may affect the survival and visibility of former floodplain meadows.

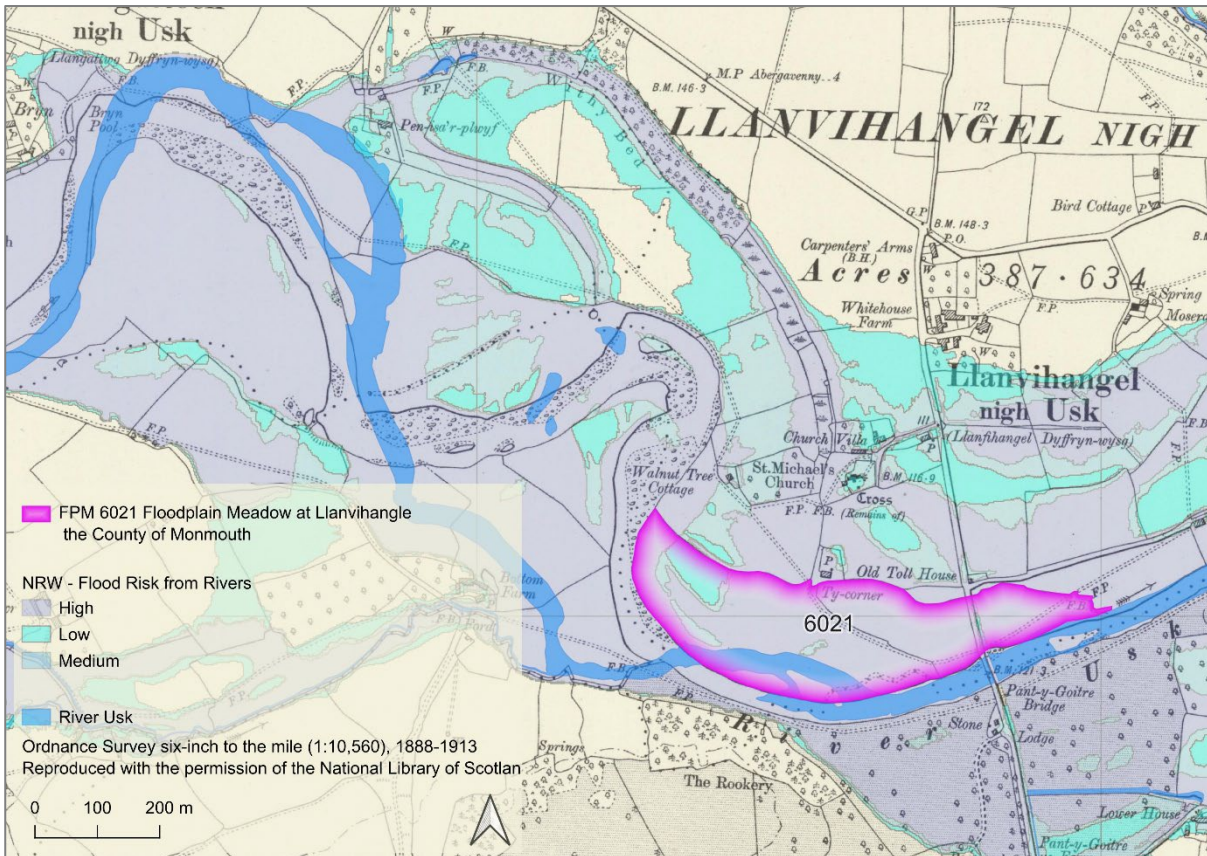


Figure 21 FPM 6019 Floodplain meadow at Llanvihangel nigh Usk, showing the former river channel and the modern flood risk.

At Llanvair Kilgeddin, just downstream, lidar data illustrates how the Usk has altered multiple times. The area marked as meadow (FPM 6083) has been given a low confidence level not only because only one plot on the tithe map was recorded as meadow, but also because it is possible that continual shifts in the course of the Usk may have led to poor meadow conditions through soil or vegetation loss, perhaps implying that this was not a suitable location for a meadow.

## 4.4. Floodplain meadows and changing land use

The form of floodplain meadows can survive into nineteenth century mapping, as demonstrated by this project, even if the practices that gave rise to them were lost. Moreover, it is not uncommon for former meadows to become arable at the time of inclosure, but meadow related names can indicate their previous use. This place name information is often recorded in the tithe map alongside their contemporary cultivation category: plots with meadow names but arable cultivation at the time of the tithe survey are present on all eight rivers. The lack of meadow related names in the tithe apportionments means that it is possible that some historic meadows have been missed, where former meadows have become arable without leaving a trace in their name.

All the rivers in the study were affected to some extent by the industrialisation. This is most marked in the catchments in the north west of Gwent, but even on the Wye, the construction of the railway impacted many former meadows. Many meadows still identifiable in the mid-19<sup>th</sup> century were then lost in the 20<sup>th</sup> century as the land was used for residential areas and other purposes, their importance for vital hay having been eclipsed. This is unsurprising where floodplain meadows offered relatively rare, flat ground: even if their former use indicated a history of regular flooding.

Notwithstanding, 129 of the floodplain meadows identified in this project appear – based on modern aerial imagery – to be at least partly in use as pasture, with examples in all of the catchments other than the Ebbw Fawr. Even where urban development has occurred, 20 former floodplain meadows are now sports grounds, whose margins might still provide scope to encourage meadow species as well as opportunities for public access and engagement on the importance of meadows.

## 4.5. Floodplain meadows with historic sites

Floodplain meadows in the form examined here are likely to date back to the early medieval period and have earlier antecedents in terms of floodplain grassland management in the Roman, Iron Age, and even Bronze Age periods (Firth et al., 2026). Their antiquity can be inferred, to some degree, by historic sites in their vicinity, of which there are many examples spread across most of the catchments examined. Meadows associated with medieval and Roman sites are summarised in Table 8:

River	FPM	FPM name	FPM notes
Usk	6020	Floodplain meadow near Castle Arnold at Llangattock, Monmouth	Tithe plots 356 Big Ynis, 305 The Upper Meadow, and 304/302 The Lower Meadow adjacent to the medieval site of Castle Arnold. There are arable plots within this area as well. Funnel-shaped entrance near the gravel pit (OS Survey Drawing).

River	FPM	FPM name	FPM notes
Usk	6023	Floodplain meadow adjacent to Kemeys Inferior Mound and Bailey Castle	Tithe records show plots 3, 12, 13, 15, 23, and 24 as meadow. Plot 3 is adjacent to Kemeys Inferior Mound and Bailey Castle (medieval), suggesting the meadow could date back to the medieval period. Possible entrance near the church (plot 25).
Usk	6048	Floodplain meadow at Lower Common Farm	Plots 1791 (grass) and 1792/3 (pasture) are possibly former meadows. A funnel-shaped entrance leads to the meadow near Lower Common Farm. Above this area, medieval ridge-and-furrow is visible on the lidar.
Usk	6077	Floodplain meadow at Llanarth	Tithe plot 3 is recorded as meadow. Its location to the southeast of the medieval site of Twyn y Cregen Castle Mound suggests it may have been associated with the medieval settlement.
Usk	6078	Floodplain meadow at Llanarth	Tithe plots 1, 2 and 4 have land use recorded as meadow. Their location to the southeast of the medieval site of Twyn y Cregen Castle Mound suggests they may have been associated with the medieval settlement.
Usk	6079	Floodplain meadow at Llanarth	Tithe plot 4 Meadow. The location of this meadow to the south east of the medieval site of Twyn y Cregen Castle Mound (Scheduled Monument MM080) and may be associated with the medieval settlement.
Usk	6107	Floodplain meadow at Llantrisant	Tithe plot 499/500/549/550 with land use meadow and plots 548/545 pasture. Associated with Scheduled Mon medieval moated site located north end of meadow, and mound and baily Castle in the south. OS Survey drawing does show an entrance near south end.
Wye	6127	Wye Meadow, Malabrook Meadow, Old Mill Meadow and Curled Cat Meadow at Dixton	Tithe plots 251 Wye Meadow, 226 Malabrook Meadow, 227 Old Mill Meadow, 225 Curled Cat Meadow, and 224/223 Meadow at Dixton. These meadows lie southeast of the medieval site of Dixton Mound (Scheduled Monument MM125).
Wye	6128	Church Meadow, Brick Meadow, Dixton Meadow and Angel Meadow at Dixton	Tithe plots 215 Meadow, 214 Church Meadow, 213 Brick Meadow, 212 Dixton Meadow, and 211 Angel Meadow lie south of the medieval site of Dixton Mound (Scheduled Monument MM125). Plot 212 is a narrow strip and could be a former dol.
Wye	6129	Meadows at Monmouth, adjacent to Old Dixton Road	Tithe plots 795/796/789/800/798/799 Meadow and 788 Burgage Meadow all have land use recorded as grass. There is a single arable plot (797) located in the centre of these meadows. Near medieval site of Dixton Mound (Scheduled Monument MM125)
Wye	6130	Dixton Meadow, Monmouth	Dixton Meadow comprises tithe plots 790 First Dixton Meadow, 791 Second Dixton Meadow, 792 Meadow, 793 Third Dixton Meadow, 801 Fourth Dixton Meadow, 803 Sixth Dixton Meadow and 802 Fifth Dixton Meadow. Near Medieval Dixton Mound (Sched Mon MM125)
Wye	6131	Chippenham Meadow at Monmouth	Tithe plots in this area named Patch in Chippenham, a piece of registered common land, and used in 18th century for horse racing. Tithe shows meadow divided into multiple doles marked by dotted boundaries. OS 25 Inch marks stones. Likely medieval origins

River	FPM	FPM name	FPM notes
Wye	6132	Turnpike, Byefields, Great Meadow, Ox Lease Meadow and Middle Meadow at Monmouth	Tithe plots 729/728 Part of Turnpike Meadow, 726/727 Byefields Meadow, 725 Great Meadow, 724b Part of Meadow, 724/724a Part of Middle Horn, 724 Quarry Close, 722 Ox Lease Meadow, 723 Middle Meadow all land use grass. Tithe shows doles. Possibly medieval?
Wye	6146	Possibly Large Meadow at Magna	Document from 1727 indicates a meadow at Tintern Parva: '...a parcel of meadow called Large Meadow (2a.) abutting onto the River Wye on the South' which could be this area. Adjacent to medieval Tintern Abbey. No tithe available so low confidence score.
Lwyd	6147	Possible floodplain meadow near Blaenavon	Tithe plot 241 The Worlod, with land use recorded as grass. It is possible that this is a meadow, it is located within the floodplain. Likely to have medieval origins given proximity to Tintern Abbey.
Lwyd	6182	Floodplain meadow at Ty Isaf, near Lantarnam Abbey, Llanvihangel Llantarnam	Tithe plot 1033/1034/1035/ Ty Issa, with land use recorded as meadow. Surrounded by a watercourse and with a drain running through the centre. Adjacent to medieval sites Lantarnam Abbey (Cistercian Abbey) and of Castle Mound, Graig Wood.
Lwyd	6189	Floodplain meadow at Caerleon	Tithe plots 182. 183 and 184 all with land use meadow. Meadow is surrounded by watercourses and lies to the northeast of medieval Caerleon Castle and meadows possibly date back to then. Embankments surround the northwest and west boundaries.
Rhymney	6232	Floodplain meadow at Park Wood, Bassalleg	Tithe plot 909 Ynis Hir, land use recorded as pasture, although the meadow related name and its position in the floodplain suggest former meadow use. A footpath crosses the floodplain, and there is a medieval priory nearby.
Rhymney	6239	Floodplain meadow at Farm which is named 'Part of Cefn Mabley Demesne' near Cefn Mably Park, Michaelstone y Fedw	Tithe plot 438 Ynishir is recorded as pasture. The name translates as 'Long River Meadow.' Its description as part of the Cefn Mabley Demesne suggests a medieval origin.
Ebbw	6273	Floodplain meadow plots next to Rogerstone Castle, Bassalleg	Tithe plots 676 Cae Ffynnon, 675 Erw Tyr, and 701 Cae Cenol are all recorded as meadow. Surrounding plots lack meadow names or use, but their proximity to the medieval Rogerston Castle site may indicate an early medieval meadow of unknown extent.
Ebbw	6276	Floodplain meadows at Tredegar Park, Demesne, and Woods.	Tithe plot 169 Old Park, 149 The Four Acres, 150 cae duffryn, 147 waun, james harris, 145 Old Orchard, 153 cae dan ty, all with land use recorded as meadow. Farm name indicates a medieval origin - demesne lands points to a medieval manor being here.

Table 8 Floodplain meadows associated with medieval and Roman sites.

## 5. Conclusion and recommendations

This extensive assessment sought to establish the extent of historic floodplain meadows on the main river channels of the Rhymney, Sirhowy, Ebbw (including Ebbw Fawr and Ebbw Fach) Lwyd, Usk, and Lower Wye, using a methodology developed by Fjodr in other catchments and previously tested for NRW in catchments in Wales. The results present a comprehensive identification of all floodplain meadows based on the available sources.

A total of 239 floodplain meadows has been identified, mapped and recorded as detailed in the accompanying shapefile – *HISTMEAD Gwent 06 03 26.shp* – which is the principal output of this project. It is intended that the data in the shapefile will be made available to the Floodplain Meadows Partnership to add to its online Map of Historic Sites. Summary information from the shapefile is also provided in Appendix I, bound separately, which lists the floodplain meadows by unique identifier with their names, notes and confidence level.

The results clearly demonstrating the presence of floodplain meadows in catchments in Gwent. Floodplain meadows were identifiable from the same characteristics that are apparent on other rivers, using the same accessible sources. However, it is notable that lower numbers of floodplain meadows were identified within the floodplains of the Sirhowy, Ebbw Fawr, Ebbw Fach, and Ebbw, probably reflecting the topography of these catchments with their steep valleys and constricted floodplains, but also the industrial history of these valleys, which caused significant re-working of their landscapes and removed earlier floodplain meadows even where they existed. Nonetheless, the identification of floodplain meadows in these catchments demonstrates that where circumstances allowed, floodplain meadows were present and can be mapped and recorded using historical sources. It is reasonable to postulate that floodplain meadows may have been more extensive in these catchments prior to industrialisation.

Although there are some good examples among the floodplain meadows observed in this project, a relatively small proportion display the diagnostic features such as funnel-shaped entrances, droves, and the presence of doles that have been identified quite frequently on other rivers. This might suggest either that less of the meadows present were managed in common historically on these rivers, or that the rivers in Gwent were so impacted by industrial activity and enclosure by the early 19<sup>th</sup> century, that these features did not survive either physically or in the details recorded by tithe surveys.

The limited diagnostic features identified in this study is echoed in the scarcity of relevant field names recorded in the tithe apportionment. Field names often preserve evidence of former meadows, with terms such as dol, ynis, and waun typically indicating historic floodplain meadow management. The range of meadow-related names found in this study was unexpectedly narrow in comparison with other studies of Welsh rivers. Only two terms appeared repeatedly: ynis and waun. Meadows were frequently recorded in the tithe

apportionment simply as 'meadow' rather than using Welsh language/names, suggesting either a shift in naming conventions or a reduced cultural prevalence of Welsh terms in Gwent by the mid-nineteenth century.

The sources and methods used for this project suggest that the floodplains of the Rivers Usk and Wye were used extensively for floodplain meadows, probably from the early medieval period to the early nineteenth century. Examples of floodplain meadows in the vicinity of medieval castles and field systems emphasises the longevity of meadows prior to the 19th-century sources predominantly used in this project: associations with Roman and prehistoric sites suggest management of the floodplain for grazing and hay even earlier in Gwent.

Whilst clearly affected by changing land use over recent centuries, the identification of numerous historic floodplain numbers across Gwent indicates the former extent and importance of these habitats. Although indicating the amount of floodplain meadow habitat that has been lost, the fact that over half of the floodplain meadows identified by this project are under pasture suggests considerable potential for habitat restoration. Even where former floodplain meadows are in urban and residential areas, their coincidence with facilities such as sport grounds might still provide scope for the reintroduction of meadow species on their margins, together with opportunities for public engagement.

The information about floodplain meadows in Gwent set out here provides a basis for the following steps:

- Assessing identified floodplain meadows for the survival of their historic forms and features (e.g. boundaries; droves; access).
- Carrying out ground truthing for ecology, hydrology and soils in places where historic floodplain meadows can be attested, to establish if floodplain meadow habitats and species may in fact survive at these locations.
- If circumstances permit, carrying out palaeo-environmental investigations in suitable contexts, accompanied by scientific dating, to better understand the origin and development of floodplain meadows.
- Using the approach tested in this project to develop restoration proposals for floodplain meadows at both strategic and site-specific scales.

Further work to develop baseline understanding and appreciation of floodplain meadows in Wales might warrant consideration, including:

- Developing accessible information on the history of floodplain meadows for farmers, land managers and the public to support restoration and engagement activities.
- Identifying, mapping and recording historic floodplain meadows in other catchments in Wales, to extend the range of comprehensive mapping as set out here.
- Undertaking detailed research into historical sources such as estate maps and documentary records to extend the time depth of floodplain meadows. Although opportunities will depend on the availability of historical documents, this approach

may be helpful in better understanding the history of floodplain meadows in the following circumstances:

- places where industrialisation occurred at an early stage;
- places where rivers were especially dynamic and changed their routes;
- tidal reaches where there may have been competition between floodplain meadows, grazing saltmarsh, embankment and reclamation.

## 6. References

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## Data Archive Appendix

Data outputs associated with this project are archived on server-based storage at Natural Resources Wales.

The data archive contains:

A The final report in Microsoft Word and Adobe PDF formats.

B A GIS layer – Histmead Floodplain Meadows.shp – generated in the course of the project.

Metadata for this project is publicly accessible through Natural Resources Wales' Data Discovery Service <https://metadata.naturalresources.wales/geonetwork/srv> (English version) and <https://metadata.cyfoethnaturiol.cymru/geonetwork/cym/> (Welsh Version). The metadata is held as record no NRW\_DS161515.

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