

Welsh floodplain meadows:

Strategic summary

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Crynodeb Gweithredol

Mae dolydd gorlifdir sy'n gyfoethog eu rhywogaethau yn hynod brin yng Nghymru, ond mae'n debyg iddynt fod yn llawer mwy helaeth cyn dyfodiad gwrtaith artiffisial, o ystyried pwysigrwydd hanesyddol gwair ar gyfer bwydo da byw dros y gaeaf a bod gorlifdiroedd ymhlith y tiroedd mwyaf ffrwythlon ar gyfer tyfu porthiant.

Mae adfer dolydd gorlifdir sy'n gyfoethog eu rhywogaethau yn cyd-fynd ag amcanion cynllun corfforaethol Cyfoeth Naturiol Cymru (CNC) sef adfer natur, gwrthsefyll newid hinsawdd, a lleihau llygredd. Yn y blynyddoedd diwethaf, mae'r Bartneriaeth Dolydd Gorlifdir wedi gweithio gyda CNC ac eraill ar sawl prosiect sydd wedi ceisio llenwi bylchau mewn gwybodaeth a/neu lywio gwaith adfer dolydd yn y dyfodol.

Roedd hyn yn cynnwys gwaith modelu potensial adfer yn seiliedig ar amrywiaeth o ffactorau gan gynnwys cemeg pridd a hydroleg, ymchwilio i ehangder hanesyddol dolydd, adolygu data o'r Arolwg o Laswelltir yr Iseldir yng Nghymru yn erbyn diffiniadau cyfredol o laswelltir *Sanguisorba officinalis-Alopecurus pratensis* (MG4) cymuned dolydd gorlifdir cyfoethog eu rhywogaethau, a gwaith maes yn ystod haf 2024 i gasglu data a rhoi cyngor ar adfer tir i dirfeddianwyr â diddordeb. Pwrpas y ddogfen hon yw rhoi trosolwg lefel uchel o'r gwaith hwn, gan gynnwys, lle bo'n bosibl, asesiad o ba rai o'r safleoedd yr ymwelwyd â nhw sy'n debygol o fod yn addas ar gyfer creu neu adfer dolydd gorlifdir.

Cyfyngwyd yr adolygiad o ddata'r arolwg o laswelltir i chwech o gellioedd, gan nad oedd digon o samplau yn y gweddill i wneud dyfarniad rhesymol ar eu dosbarthiad. Fodd bynnag, mae adolygiad o'r cwadratau unigol sy'n weddill yn awgrymu bod gan y mwyafrif ddigon o gymeriad MG4 i beidio â chael eu diystyru, ac felly byddai'n ddefnyddiol casglu digon o samplau ychwanegol i ganiatáu adolygu'r cwadratau sy'n weddill fel cellioedd unfurf pan fydd adnoddau'n caniatáu.

Canfuwyd tystiolaeth o ddolydd gorlifdir hanesyddol ym mhob un o'r ardaloedd a astudiwyd. Yn afon Dyfrdwy, afon Teifi, ac afon Wysg, nododd asesiad cychwynnol o'r rhannau uchaf, canol ac isaf enghreifftiau o ddolydd ym mhob ardal. Ar ran uchaf afon Gwy, canfu asesiad mwy cynhwysfawr nifer o ddolydd wedi'u gwasgaru ar hyd yr afon. Er nad ymwelwyd â'r un o'r dolydd hyn o dan y Bartneriaeth Dolydd Gorlifdir yn 2024, mae gwaith modelu blaenorol mewn ardaloedd lle'r oedd wedi'i gynnal, a/neu gymhariaeth â set ddata'r Map Priddoedd Cenedlaethol yn dangos y dylai'r rhan fwyaf o'r safleoedd a nodwyd allu cynnal cymunedau glaswelltir cyfoethog ei rywogaethau.

Mae nifer o safleoedd ar ran uchaf y Gwy, y Ddyfrdwy a'r Teifi yn ymddangos ar gyfresi pridd Fladbury neu Alun, y gwyddys eu bod yn cynnal yr ardaloedd o ddolydd gorlifdir cyfoethog eu rhywogaethau sy'n weddill yng Nghymru. Maent felly'n deilwng o ymchwil pellach i'r posibilrwydd o'u hadfer. Yn yr un modd, o'r safleoedd yr ymwelodd y Bartneriaeth Dolydd Gorlifdir â nhw yn 2024, mae'r mwyafrif yn addas i'w hadfer i laswelltir sy'n fwy cyfoethog ei rywogaethau. Fodd bynnag, ni chyflwynodd yr un ohonynt ddigon o dystiolaeth i fod yn sicr ynghylch pa gymuned Dosbarthiad Llystyfiant Cenedlaethol fyddai'n darged yn yr ardaloedd hyn, ac a fyddai hefyd yn werth ymchwilio ymhellach iddynt o ran cemeg a hydroleg eu priddoedd.

Executive summary

Species-rich floodplain meadows are extremely rare in Wales but are likely to have been much more extensive prior to the advent of artificial fertilisers, given the historic importance of hay for feeding livestock over winter and that floodplains offer some of the most naturally fertile land for growing fodder.

Restoration of species-rich floodplain meadows aligns with Natural Resources Wales' (NRW) corporate plan objectives of nature recovery, climate change resilience, and minimising pollution. In recent years, the Floodplain Meadows Partnership (FMP) have worked with NRW and others on several projects which have sought to fill gaps in knowledge and/or inform future meadow restoration.

This included modelling of restoration potential based on a range of factors including soil chemistry and hydrology, investigation of the historic extent of meadows, review of data from the Lowland Grassland Survey of Wales (LGSW) against current definitions of the species-rich floodplain meadow community *Sanguisorba officinalis-Alopecurus pratensis* grassland (MG4), and fieldwork during summer 2024 to collect data and provide advice on restoration to interested landowners. The purpose of this document is to provide a high-level overview of this work, including where possible an assessment of which of the sites visited are likely to be suitable for floodplain-meadow creation or restoration.

Review of the LGSW data was limited to six stands as the remainder lacked sufficient samples for a reasonable judgement to be made on their classification. However, review of the remaining individual quadrats suggests that the majority have enough MG4 character to not be discounted, and it would therefore be useful to collect sufficient additional samples to allow review of the remaining quadrats as homogenous stands as and when resources permit.

Evidence of historic floodplain meadows was detected in all the areas studied. In the Dee, Teifi, and Usk, an initial assessment of the upper, middle, and lower reaches identified examples of meadows in each area. On the Upper Wye a more comprehensive assessment found numerous meadows distributed along the length of the river. Whilst none of these meadows were visited by FMP in 2024, previous modelling in areas where it had been undertaken and/or comparison against the National Soils Map dataset indicates that most of the sites identified should be capable of supporting species-rich grassland communities.

Several sites on the Upper Wye, Dee and Teifi occur on the Fladbury or Alun soil series which are known to support the remaining areas of species-rich floodplain meadow in Wales and are therefore worthy of further investigation into their restoration potential. Similarly, of the sites visited by FMP in 2024, the majority are suitable for restoration to more species-rich grassland. However, none presented sufficient evidence to be certain about what NVC community would be a target in these areas and would also be worthy of further investigation into their soil chemistry and hydrology.

Introduction

Species-rich floodplain meadows are extremely rare in Wales, with just 9 ha and 3 ha respectively of the National Vegetation Classification (NVC) communities *Sanguisorba officinalis-Alopecurus pratensis* (MG4) grassland and *Cynosurus cristatus-Caltha palustris* (MG8) grassland recorded during the Lowland Grassland Survey of Wales (Stevens et al., 2010).

However, these meadows are likely to have been much more extensive across Wales prior to the advent of artificial fertilisers, given the historic importance of hay for feeding livestock over winter and that floodplains offer some of the most naturally fertile land for growing fodder.

Restoration of species-rich floodplain meadows aligns with Natural Resources Wales' (NRW) corporate plan objectives of nature recovery, climate change resilience, and minimising pollution. In recent years, the Floodplain Meadows Partnership (FMP) have worked with NRW and others on several projects which have sought to fill gaps in knowledge and/or inform future meadow restoration as follows.

- GIS modelling of floodplain meadow restoration potential in the upper Wye catchment.
- GIS modelling of floodplain meadow restoration potential within NRW's south-east Area Statement boundary.
- GIS modelling of floodplain meadow restoration potential in Carmarthenshire.
- Outreach work to raise the profile of floodplain meadows and build networks.
- Site visits undertaken in 2024 to collect data to detect any unknown areas of MG4 or MG8 and/or provide advice on restoration to interested landowners.
- Review of Lowland Grassland Survey of Wales data against the new definitions of MG4 (Prosser et al., 2023) to determine if any areas of *Cynosurus cristatus-Centaurea nigra* grassland (MG5) containing *S. officinalis* could be reclassified.
- Research on the historic extent of floodplain meadows on the upper Wye, the Dee, the Teifi, and the Usk (undertaken by historic environment consultants Fjordr¹).

The purpose of this strategic summary is to provide a high-level overview of this work, including where possible an assessment of which of the sites visited are likely to be suitable for floodplain-meadow creation/restoration.

¹ <https://fjordr.com/>

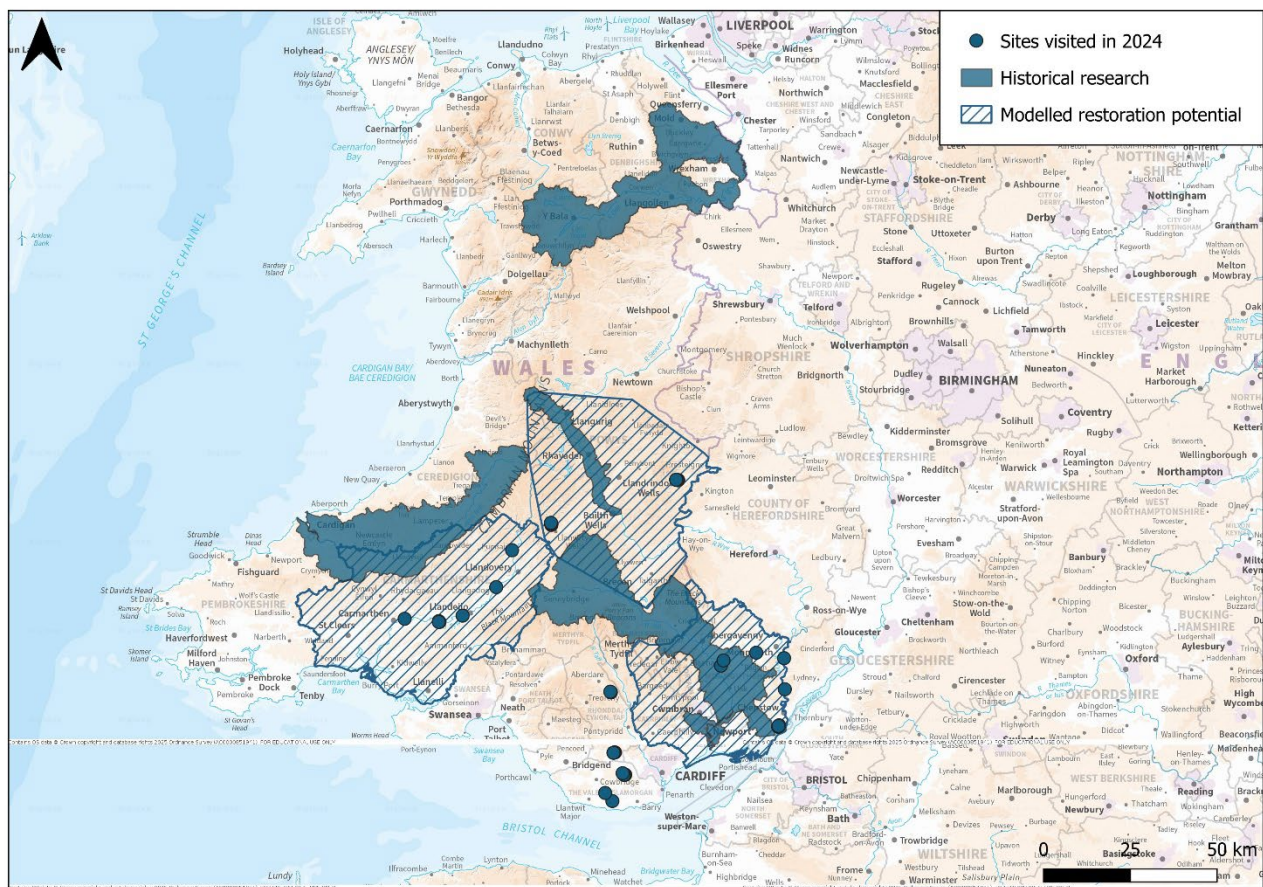


Figure 1: Location of restoration modelling, historical research, and FMP site visits undertaken in 2024.

Historic research, modelling of restoration potential and field visits

Upper Wye

Historic meadows

A total of 82 historic floodplain meadows were identified on the Upper Wye from its confluence with the Afon Tarennig to Llanfaredd, typically located around settlements and farmsteads (Firth & Firth, 2024). Gaps in the distribution of meadows, attributed to a narrow floodplain restricted by natural topography, were identified between Llangurig and Rhyader and Rhayader and Llanwrthwl Bridge, the latter section having been further reduced by the Cambrian Railway.

The site visits undertaken by FMP in 2024 did not coincide with any of the historic meadows, so their current status or restoration potential cannot be verified. However, comparison against the National Soils Map dataset (NATMAP)² indicates that most of the sites identified occur on soils which should be capable of supporting species-rich grassland communities (see Appendix 1).

The historic meadows identified in the area surrounding Llangurig (Figure 2) largely occur on the Fladbury soil series, a clay alluvium, which is very suitable for species-rich floodplain meadows. The soil chemistry and hydrology values associated with this series in the NATMAP dataset (see Appendix 1) indicate suitability for MG8, however MG4 is also a possibility, given numerous English MG4 sites occur on this soil type, along with the Welsh sites Far Hall Meadow and Old Pulford Brook Meadow Sites of Special Scientific Interest (SSSI) where both MG4 and MG8 have been recorded.

A handful of historic meadows identified in this area occur on soils that are more acidic than the normal range for MG4, MG5, and MG8, which may indicate past hay production was supported by the application of lime, shell sand or basic slag.

² <https://www.landis.org.uk/data/nmsoilscapes.cfm>

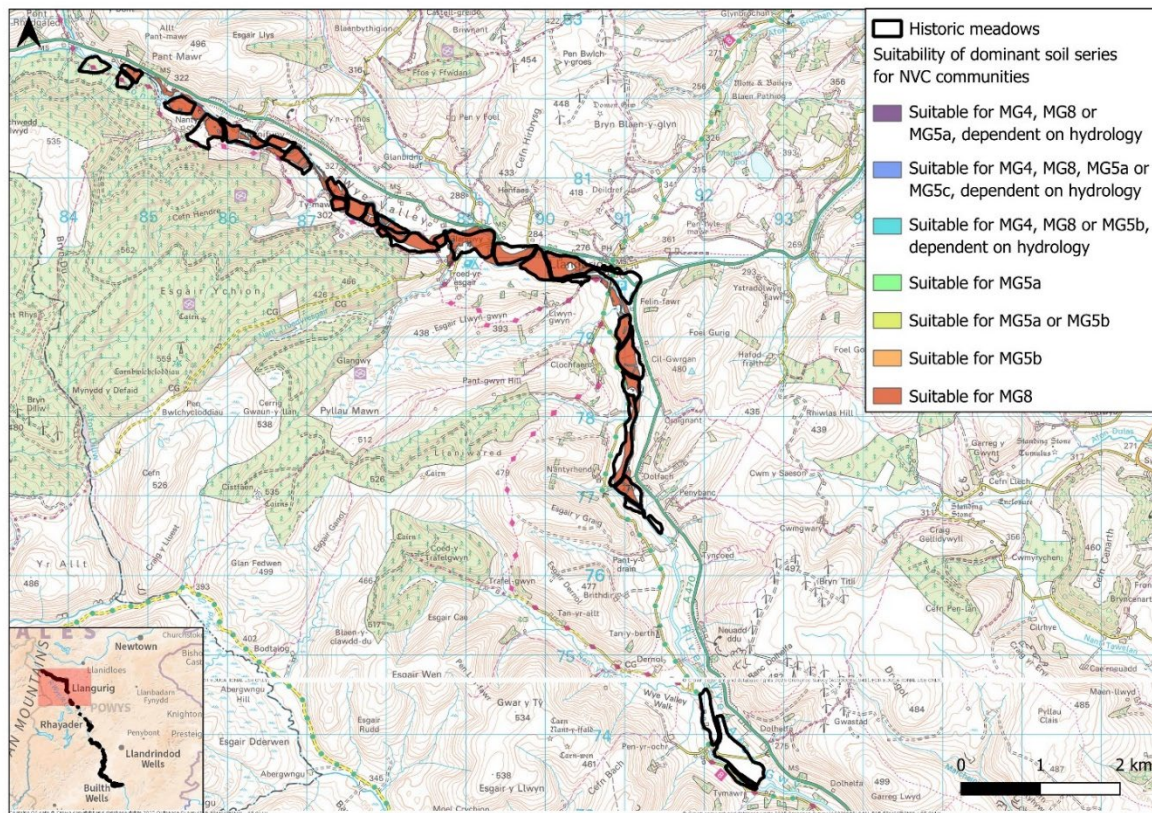


Figure 2: Indicative restoration suitability of mapped soil series in historic floodplain meadows (Llangurig)

Most of the meadows identified further south around Rhayader (Figure 3), Newbridge-on-Wye (Figure 4), and Builth Wells (Figure 5) occur on the Alun soil series, a deep loamy alluvium which is suitable for species-rich floodplain meadows. This series has no associated depth to gleying attribute³ in the NATMAP dataset and could therefore support MG4, MG8 or MG5 dependent upon site-specific hydrology, and is mapped in known areas of both MG4 and MG5 in Wales at Crabtree Green Meadow SSSI.

Small areas of three other series also coincide with the historic meadows identified in these areas. These are Hopsford (a deep loam), which falls within the soil hydrology and pH ranges for MG5a; Barton, a silty loam which could support MG4, MG8 or MG5a depending on hydrology; and Denbigh, a medium loam suitable for MG4, MG8, MG5a or MG5c, again depending on hydrology.

³ This attribute is used as a rough proxy for water table height to determine suitable hydrological conditions for the different species-rich floodplain meadow communities.

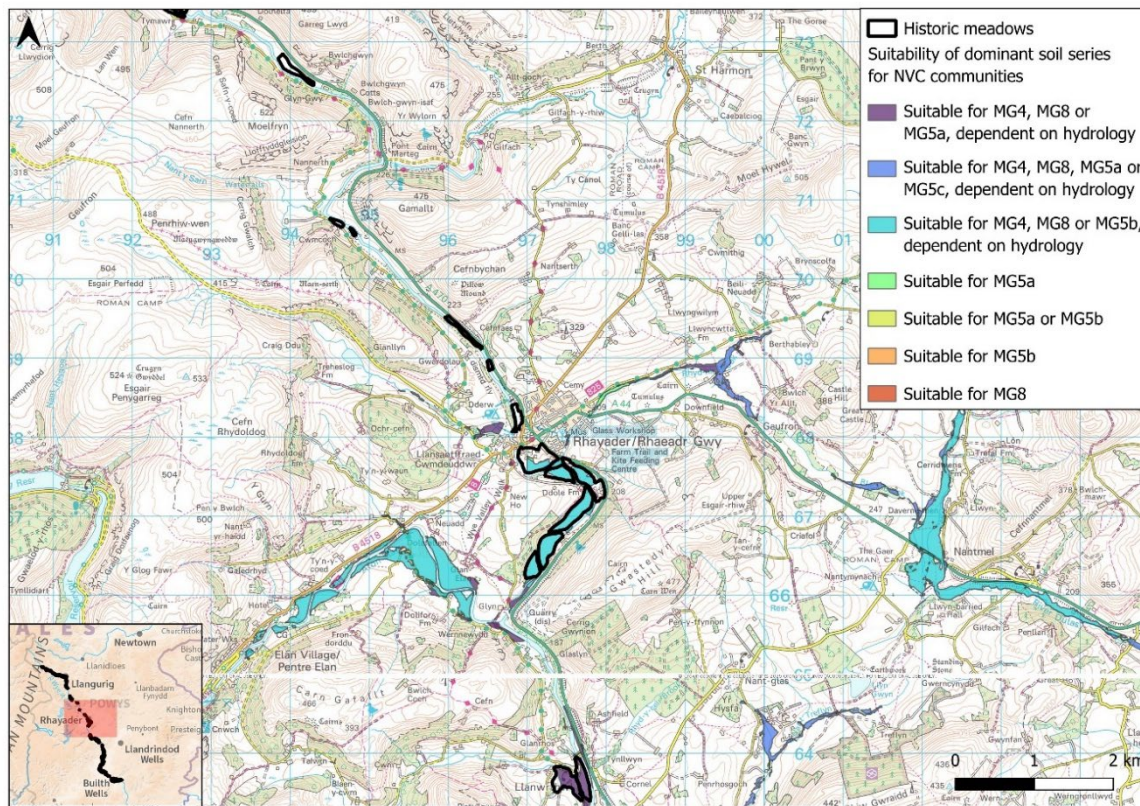


Figure 3: Indicative restoration suitability of mapped soil series in historic floodplain meadows (Rhyader)

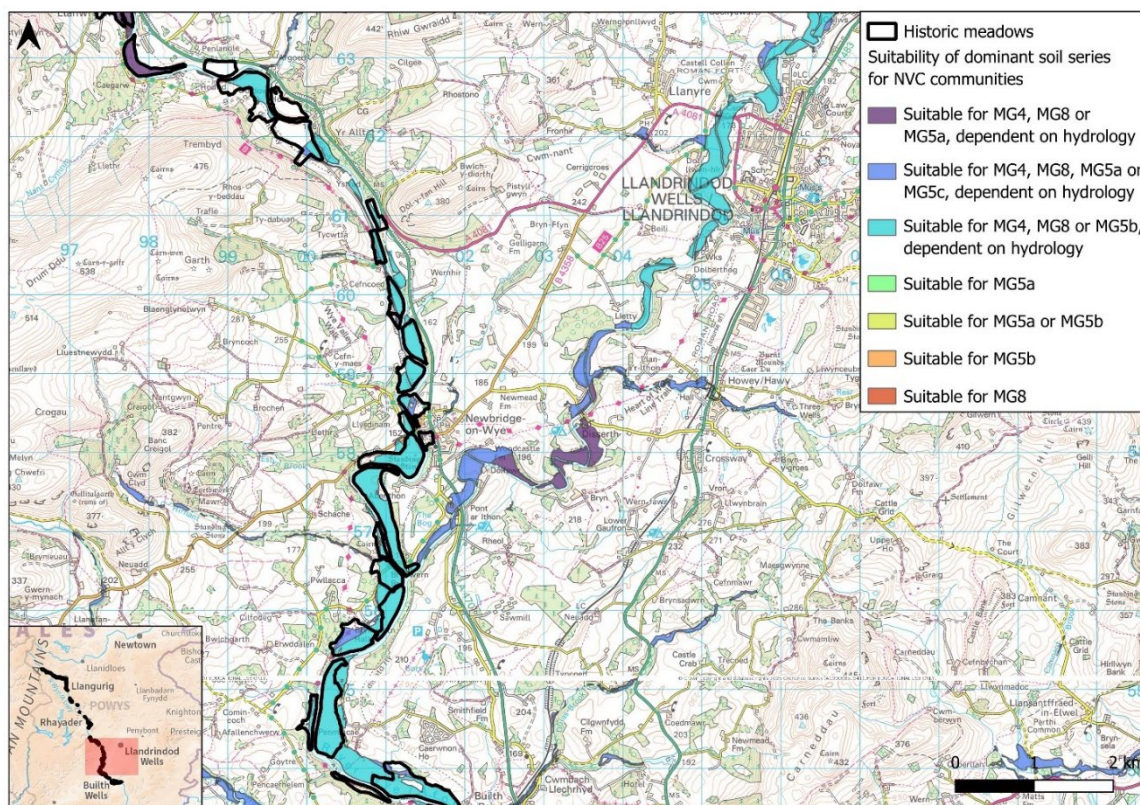


Figure 4: Indicative restoration suitability of mapped soil series in historic floodplain meadows (Newbridge-on-Wye)

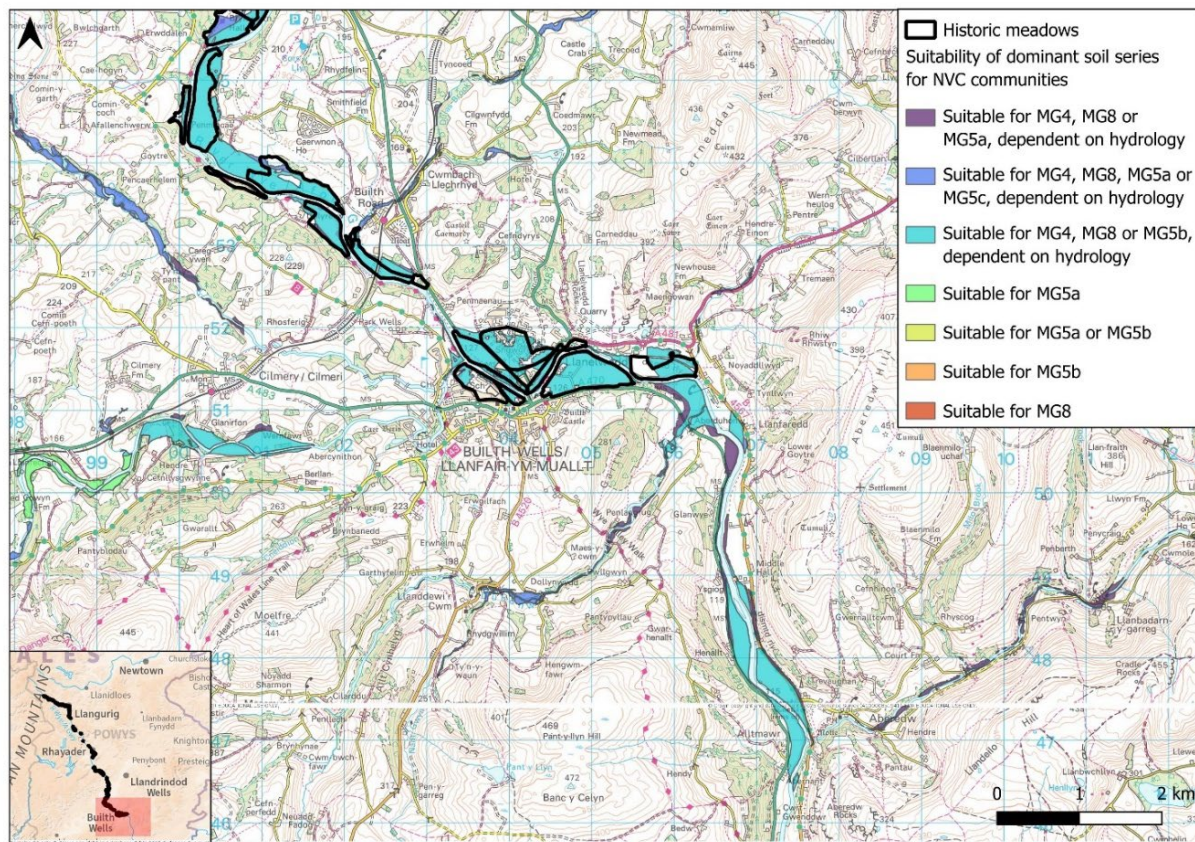


Figure 5: Indicative restoration suitability of mapped soil series in historic floodplain meadows (Builth Wells)

Visited sites

Two sites were visited by FMP in the Upper Wye Area during 2024. Downton Farm is located just outside New Radnor, where Arrow is the dominant mapped soil series. This is a light loamy drift which NATMAP pH and hydrology attribute data indicate is likely to be suitable for MG5b. Examination of the soil profile and discussion with the landowner during the field visit confirmed most of the site is likely to sit at the dry end of the hydrological gradient for species-rich floodplain meadows (more suitable for MG5), however, there are some paleochannels and lower lying areas present which could potentially support MG4. The area surveyed is currently species-poor permanent pasture with high stocking levels (sheep and sometimes cattle,) but is a good prospect for restoration to species-rich grassland having remained unploughed with occasional applications of farmyard manure for at least 50 years.

Several fields associated with a project run by the Freshwater Habitats Trust on the Irfon at Llanwrtyd were also visited. Here the dominant mapped soil series is Trent, a well-structured loamy alluvium which is suitable for species-rich floodplain meadows and likely to support MG5a based on its NATMAP attribute data. The fields visited already support a moderately species-rich grassland at the drier end of the hydrological gradient, with *Sanguisorba officinalis* and *Alopecurus pratensis* present but in very small amounts. The fields have some potential for increasing species-diversity, but this may be limited by the landowner's requirement for grazing until June when stock can be safely moved to higher

ground and subsequent cutting for hay/haylage in September to give time for a reasonable crop to be harvested.

Southeast Wales

Historic meadows

Thirteen historic meadows were identified on the Usk (Firth & Firth, 2025). None of these were visited by FMP during 2024, although Castle Meadows at Abergavenny has been visited previously. Six of the meadows identified fall within the boundary of NRW’s south-east Area Statement where floodplain meadow restoration potential has previously been modelled (O’Rourke et al., 2021). The restoration potential for species-rich grassland communities calculated by the model for each of the historic meadows identified is set out in Table 1.

Table 1: Modelled restoration potential of identified historic meadows on the Usk

Site name	Modelled restoration suitability	Comment
The Castle Meadow, Abergavenny	MG4/8: Moderate MG5a/b: Very high	Examination of soil profile during previous site visit (2018) suggests MG5 is likely to be an appropriate target.
Floodplain meadow near Castle Arnold at Llangattock	MG4/8: Moderate MG5a/b: Very high	
Floodplain meadow at Llanvihangle	MG4/8: Moderate MG5a/b: Very high	
Floodplain meadows at Rhadyr	MG4/8: Low/Moderate MG5a/b: High/Very high	Parts of parcel now developed/ woodland & unlikely to be suitable for restoration. Remainder arable/grassland.

Site name	Modelled restoration suitability	Comment
Floodplain meadow adjacent to Kemeys Inferior Mound and Bailey Castle	MG4: Moderate MG8: Very high MG5c: Moderate	Within tidal range of Usk.
Floodplain meadow at Caerleon	MG4: Moderate MG8: Very high MG5c: Moderate	Partly developed (demolished building & golf course). Within tidal range of Usk.

Five of the remaining seven historic meadows (Figures 6-8) occur on the Walford soil series a well-drained, reddish light loamy river alluvium which NATMAP pH and hydrology attribute data indicate is likely to be suitable for MG4, MG5a or MG8 depending on local hydrology. For two sites, one at Sennybridge and one at Cwmwysg (Figure 6), the dominant mapped series is Newbiggin, a reddish medium loamy drift with siliceous stones which should be capable of supporting MG5 or MG8, again depending on site hydrology.

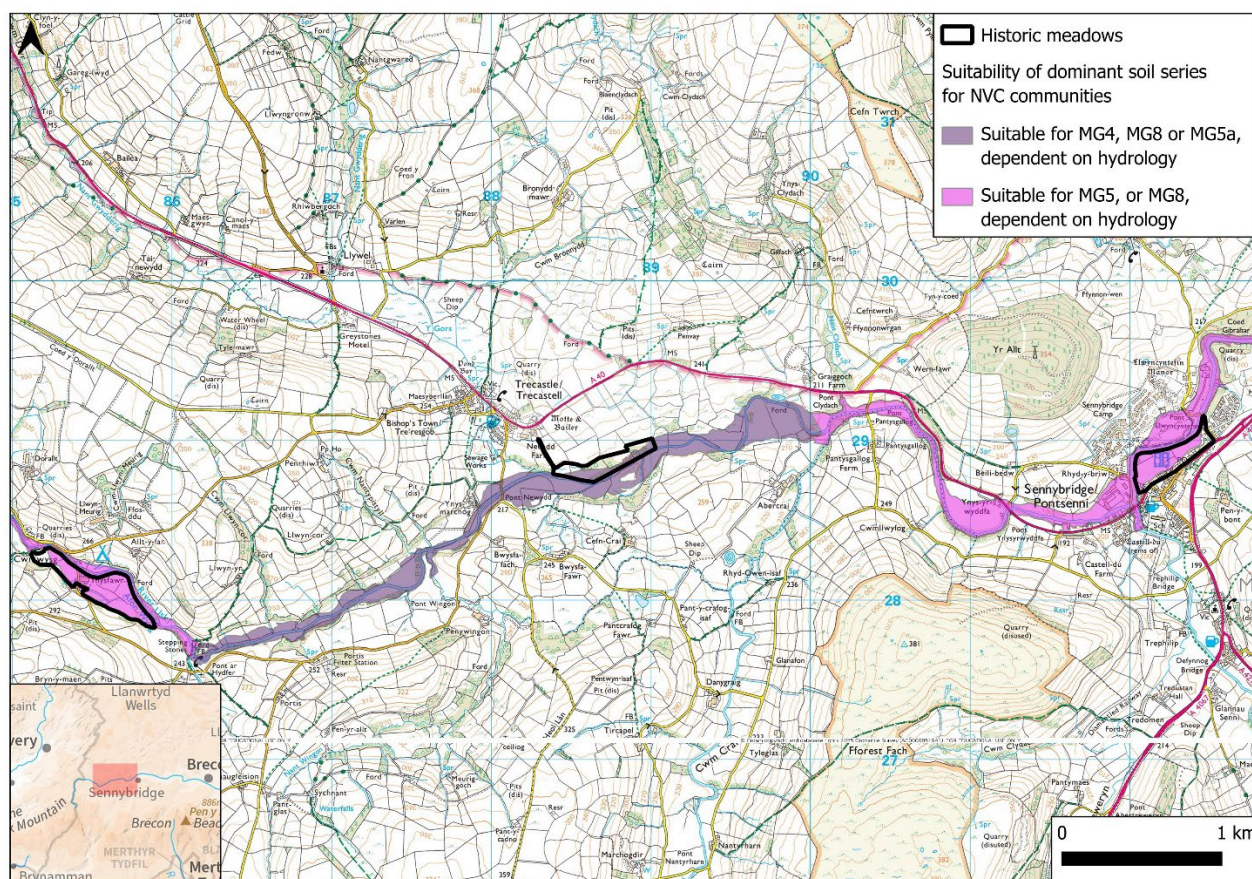


Figure 6: Indicative restoration suitability of mapped soil series in historic floodplain meadows (Sennybridge)

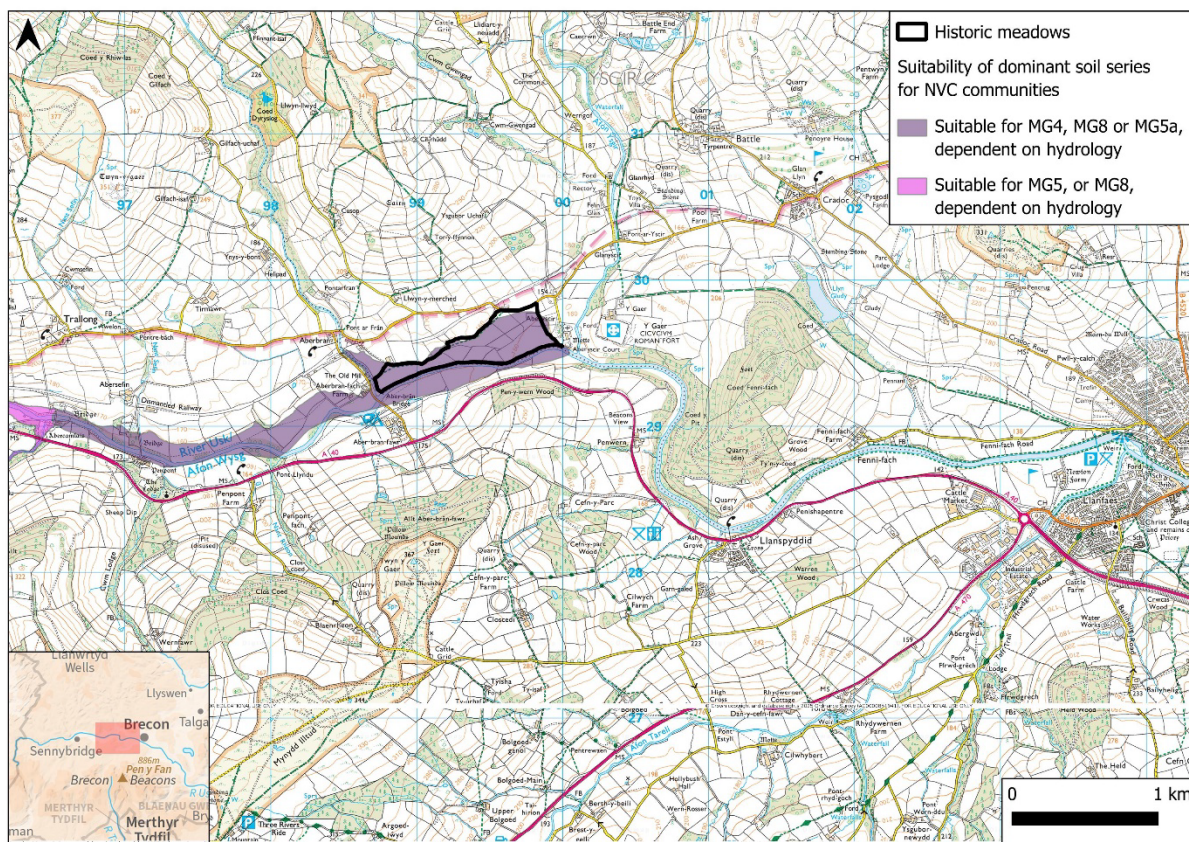


Figure 7: Indicative restoration suitability of mapped soil series in historic floodplain meadows (near Brecon)

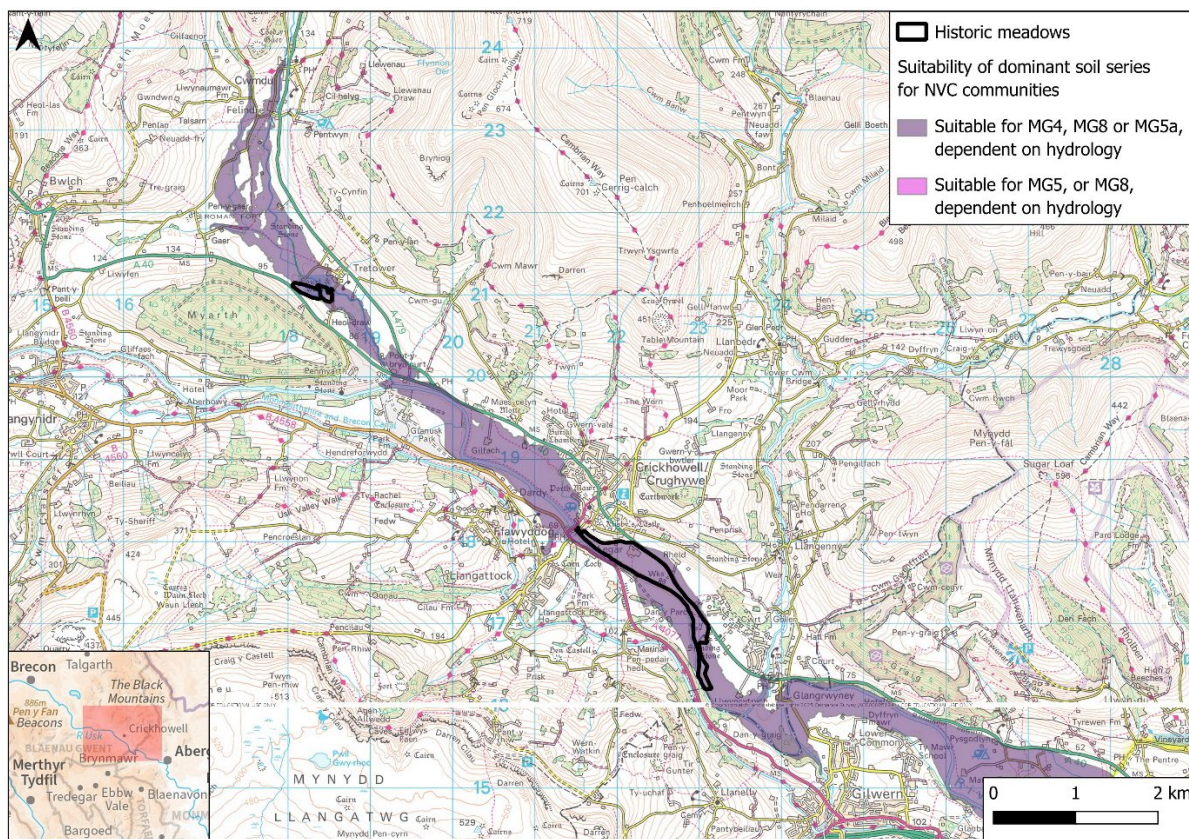


Figure 8: Indicative restoration suitability of mapped soil series in historic floodplain meadows (Crickhowell)

Visited sites

Five sites visited by FMP in 2024 fall within the modelled area. Their modelled potential for restoration to species-rich grassland communities and a summary of the fieldwork findings are set out in Table 2.

Table 2: Modelled restoration potential and fieldwork summary of sites visited in Southeast Wales area

Site name	Modelled restoration suitability	Summary of fieldwork findings
Wallstone Farm, Chepstow	MG4: Low/Moderate MG5a/b: Varies from Low-Very high across the site MG5c: High/Very high (with some areas unsuitable) MG4: Moderate/High	Former arable. One field MG7d likely reverting to MG15b ⁴ , one field closer to MG15b. Potential for restoration to species-rich grassland in the two fields surveyed but would benefit from some P reduction and investigation of potential compaction. Remaining fields have very high legacy P levels and restoration would be a much longer-term prospect.
Monmouthshire Meadows Group acquisition at Redbrook	MG4: Low MG8: Moderate MG5a/b: Very high	Neglected grassland with frequent <i>Filipendula ulmaria</i> , <i>Arrhenatherum elatius</i> , and <i>Geranium pratense</i> , most likely MG1c. Good prospect for restoration to species-rich grassland with consistent management/nutrient reduction (possibly to MG6d depending on drainage).
New House Farm, Dingestow	MG4/8: Moderate MG5a/b: Very high	Small section of field within flood zone. Currently MG15b, good potential for restoration to species-rich grassland with consistent hay meadow management/nutrient reduction.

⁴ MG15b. *Alopecurus pratensis*-*Poa trivialis*-*Cardamine pratensis* grassland, *Lolium perenne*-*Ranunculus acris* subcommunity (Wallace & Prosser, 2017).

Site name	Modelled restoration suitability	Summary of fieldwork findings
Gwent Wildlife Trust acquisition at Llanfair Kilgedden	MG4: Low MG5a/b: High MG8: Moderate	Former arable with good potential for restoration to species-rich grassland. One of the two fields may have lateral movement of groundwater and potential for MG8. The other is drier and likely to be suitable for MG5. Wildlife Trust and NRW have installed dipwells to investigate hydrology.
Ffynnonau Farm, National Trust Clytha Estate	MG4/8: Moderate MG5a/b: Very high	Moderately species-rich grassland (MG6 & some MG1) with good potential for increasing diversity with continued consistent management. Examination of soil profile and discussion of flood regime with the landowner suggests MG5 is likely to be an appropriate target community.

Ceredigion and Carmarthenshire

Historic meadows

Twenty historic meadows were identified on the Teifi (Firth & Firth, 2025), of which none were visited by FMP in 2024 but twelve fall within Carmarthenshire where floodplain meadow restoration potential has been modelled (Table 3).

Table 3: Modelled restoration potential of identified historic meadows on the Teifi

Site name	Modelled restoration suitability	Comment
Floodplain meadow to the east of Cwmann, Pencarreg	MG4/8: High MG5b: Moderate	N/A

Site name	Modelled restoration suitability	Comment
Floodplain meadow to the northwest of Cwmann, Pencarreg	MG4/8: Moderate/High MG5b: Moderate	N/A
Floodplain meadow to the west of Cwmann	MG4/8/5b: High	N/A
Lampeter Common	MG4/8/5b: High	Partially developed.
Floodplain meadow at Dolgwm Mill, Pencarreg	MG4: Moderate MG8: Low MG5b: Low	N/A
Floodplain meadows Llanwenog, Cardiganshire/Ceridigion (6036 & 6037)	MG4: Moderate MG8: Moderate/High MG5b: Moderate	N/A
Floodplain meadow to the southwest of Rhyddlan, Llanwenog	MG4: Moderate MG8: Low/Moderate MG5b: Low	N/A
Floodplain meadow at Llanfihangle-ar-arth	MG4/8: Very low/Low MG5b: Low	N/A
Floodplain meadow at Llandyfriog, Cardiganshire	MG4: High MG8: Moderate/High MG5b: Moderate/High	N/A
Floodplain meadow at Canarth, Carmarthen	MG4/8: Very low/Low MG5b: Very low	N/A

Site name	Modelled restoration suitability	Comment
Argoed Meadow, Cenarth, Carmarthen	MG4: Low/Moderate MG8: Moderate MG5a/b: Low/Moderate	Partially developed.

Comparison against the National Soils Map dataset for the remaining eight historic sites shows that most occur on soils which should be capable of supporting species-rich grassland communities. Sites identified in the upper to mid reaches at Pontrhydfendigaid, Llanddewi Brefi, and Cellan (Figures 9-11) occur on the Fladbury soil series and those from Lampeter to the lower reaches at Llechryd (Figures 11-12) on Alun which as discussed above are both known to support some of the few remaining areas of MG4 and/or MG8 in Wales.

The exception to this is one site close to Strata Florida Abbey near Pontrhydfendigaid (Figure 9) where the dominant mapped series is Powys. This is described as a shallow loamy lithoskeletal soil over mudstone and sandstone or slate and is therefore likely to be too shallow for MG4 or MG8 but could support MG5a or MG5c. There is also a small area of Barton series on one site near Llanddewi Brefi (Figure 10). This is a silty loam which could support MG4, MG8 or MG5a depending on hydrology

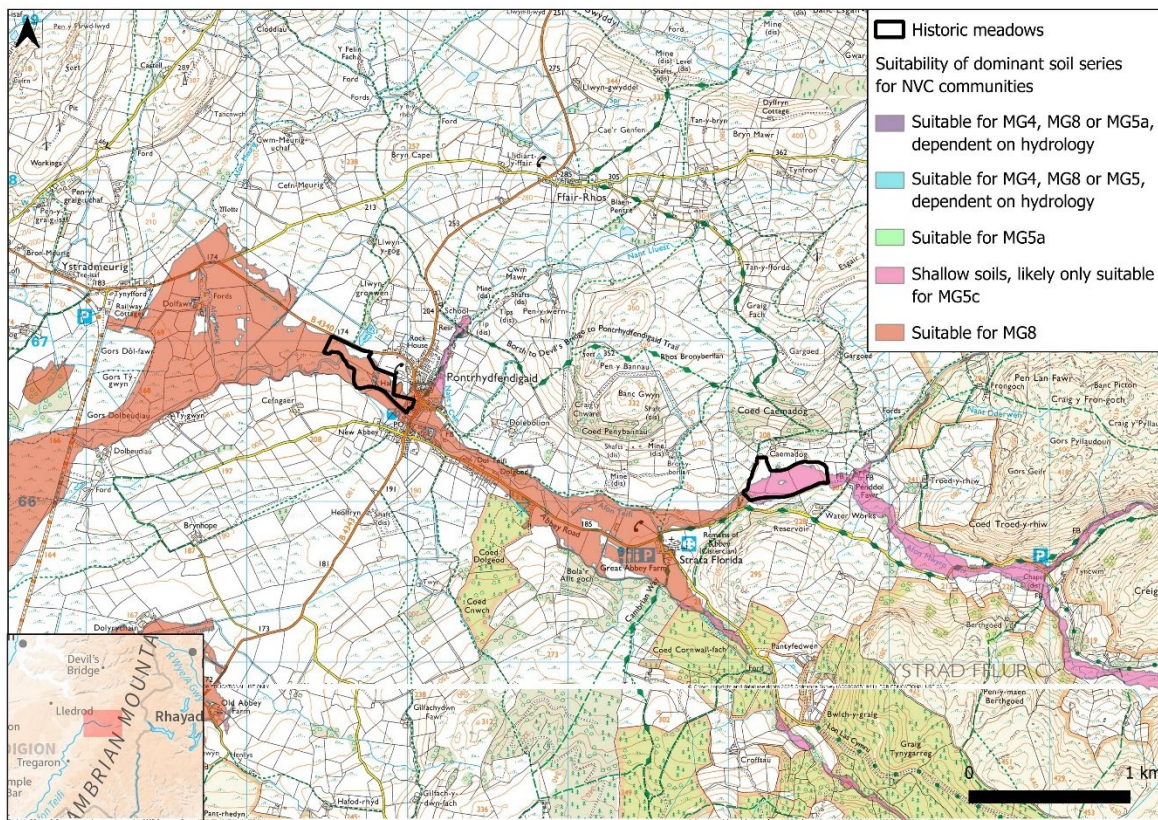


Figure 9: Indicative restoration suitability of mapped soil series in historic floodplain meadows (Pontrhydfendigaid)

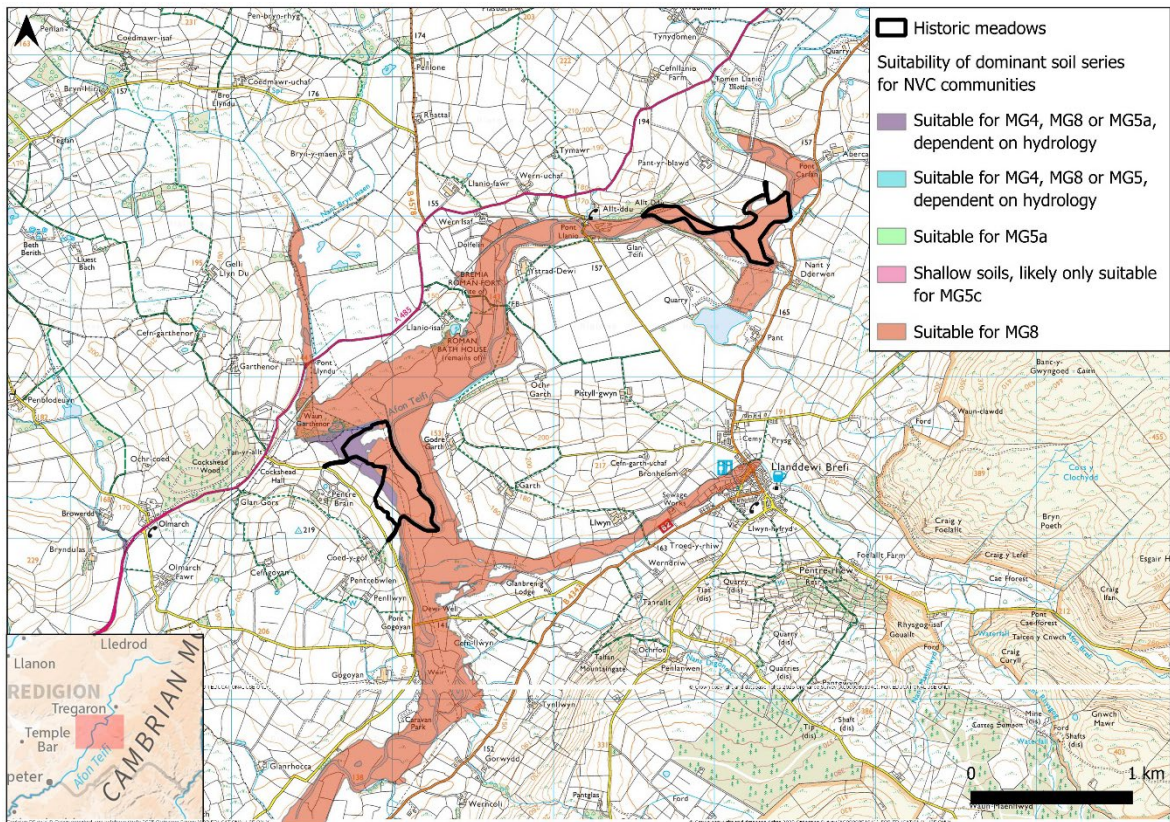


Figure 10: Indicative restoration suitability of mapped soil series in historic floodplain meadows (Llanddewi Brefi)

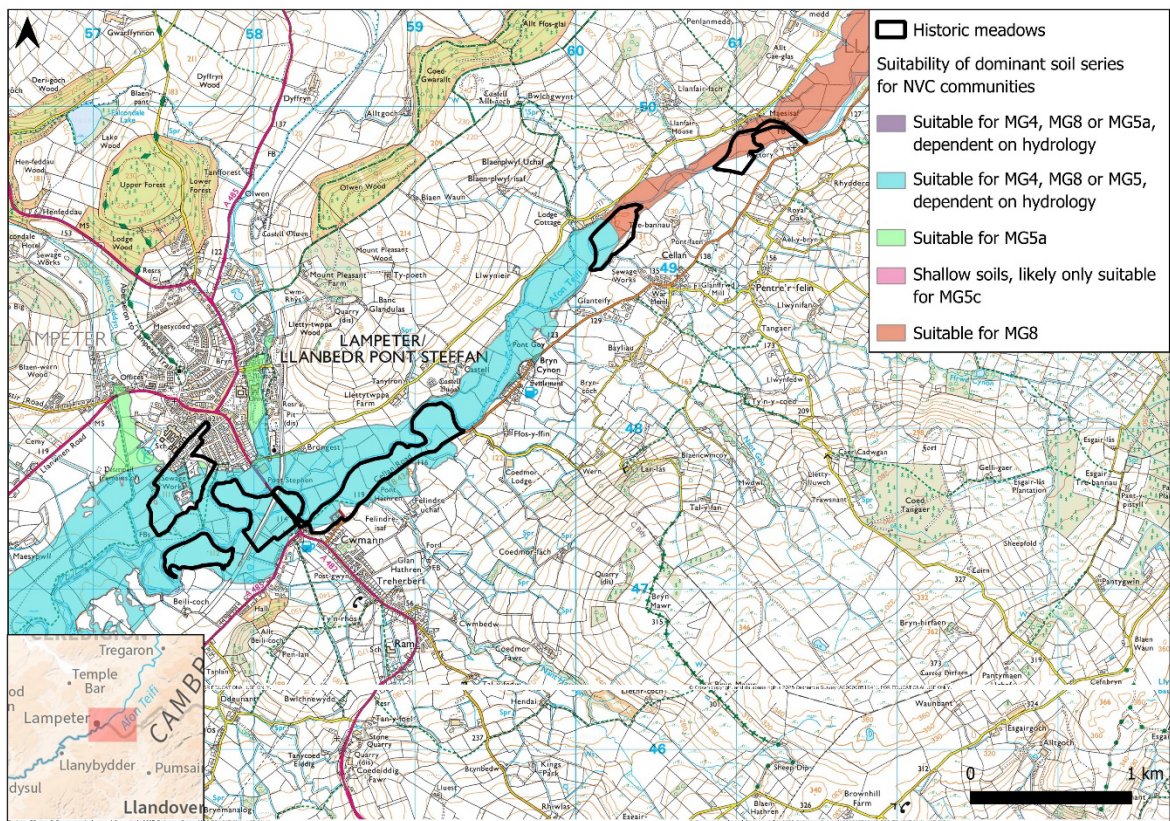


Figure 11: Indicative restoration suitability of mapped soil series in historic floodplain meadows (Lampeter)

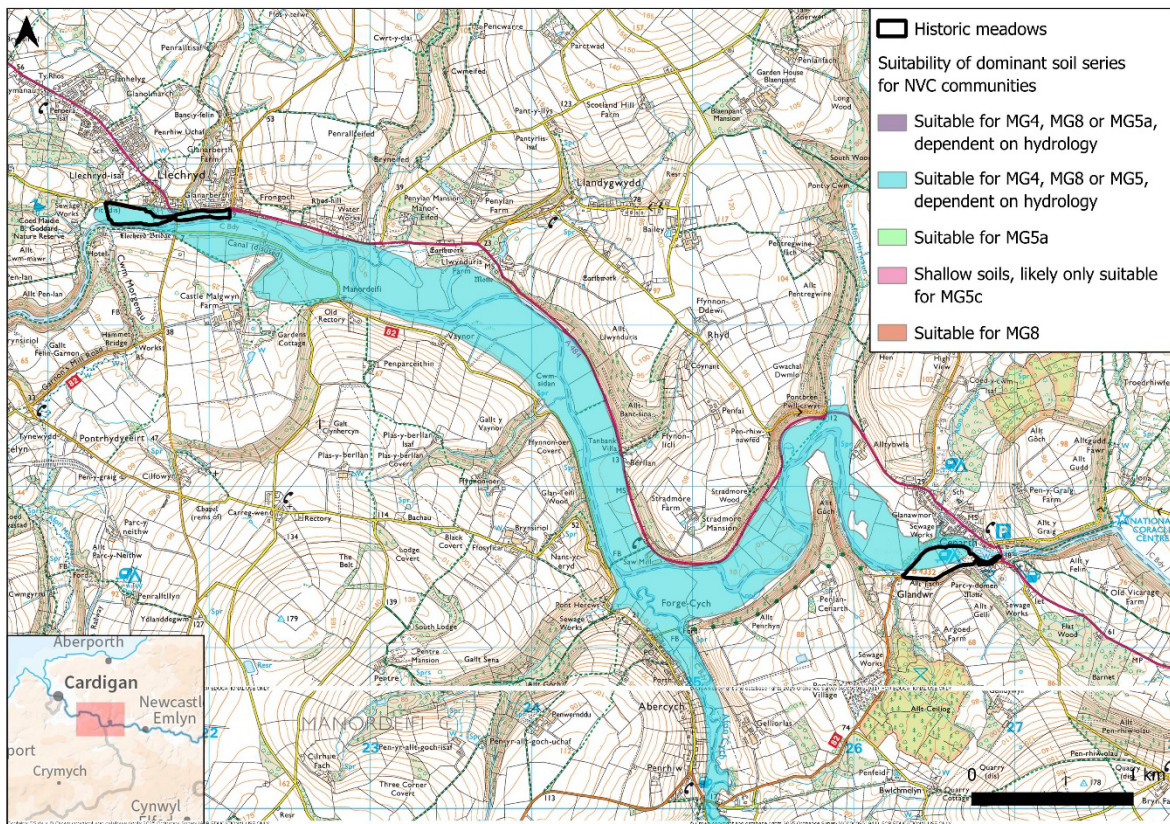


Figure 12: Indicative restoration suitability of mapped soil series in historic floodplain meadows (Llechryd)

Visited sites

Five sites visited by FMP in 2024 fall within the area covered by restoration modelling in Carmarthenshire (Appendix 2). Their modelled potential for restoration to species-rich grassland communities and a summary of the fieldwork findings are set out in Table 2.

Table 4: Modelled restoration potential and fieldwork summary of sites visited in Carmarthenshire

Site name	Modelled restoration suitability	Summary of fieldwork findings
Penstacan y dol, Cilycwm	MG5a: Very high	Dry grassland with a few patches of <i>Sanguisorba officinalis</i>, likely transitional between MG6 and MG5a. Good potential for increasing diversity (& already in a payment by results trial). MG5 is a reasonable target, as soil profile showed gravel at 30 cm, site reportedly hasn't flooded in 50 years and has old clay pipe underdrainage.
Brownhill Farm, Llangadog (NRW acquisition)	MG4: High/Very high MG8: Moderate/High MG5b: Moderate	Species-poor grassland (MG6) with some areas of M23b. Good potential for restoration to species-rich grassland (intention is to manage part of the area as hay meadow). Soil profile in dry area showed gleyed layer at 60 cm and gravel at 75 cm, indicating MG5 is likely to be a reasonable target.
Butts Meadow, National Trust Dinefwr.	MG4/8: Moderate/High MG5b: Moderate/High	Large area of species-poor grassland currently undergoing restoration via management change to an annual hay cut. No gleying observed in the soil profile to 1m but Manganese nodules observed at 40-50 cm indicating some water table fluctuation in the MG4 zone (but only one profile taken in a very large area).
Land at Llanarthney	MG4/8: Moderate/High MG5a: High (one field only) MG5b: Moderate/High	Species poor agriculturally improved grassland (MG7), anecdotal records of <i>Fritillaria meleagris</i> from owner. Restoration would be a long-term prospect given history of high levels of slurry application (includes one field where a failed restoration attempt was made).

Site name	Modelled restoration suitability	Summary of fieldwork findings
Waun Fawr, Bishop's Palace, Abergwilli (Tywi Gateway Trust)	MG4/8: Moderate MG5a: High (northern section only) MG5b: Moderate (southern section only)	Currently species-poor but in the process of restoration. Has previously received green hay from the Welsh Botanic Gardens and one <i>Sanguisorba officinalis</i> seedling and several <i>Platanthera chlorantha</i> plants were observed during the 2024 field visit. The Tywi Gateway Trust and NRW have installed dipwells to investigate hydrology.

South Wales Central

Visited sites

Table 5: Fieldwork summary of sites visited in South Wales Central area

Site name	Modelled restoration suitability	Comment
Peace Park, Mountain Ash (Rhondda Cynon Taff CBC)	N/A	Ongoing restoration from former amenity grassland by Rhondda Cynon Taff CBC. Currently a very variable grassland with no clear NVC community but some similarities to MG8 in damper areas. No indication of excessive waterlogging in the soil profile so should continue to improve with regular hay cuts. Dominant mapped soil series is Walford (likely to be suitable for MG4, MG5, or MG8 dependent on hydrology).
Pwll Waun Cynon, Mountain Ash (Wildlife Trust of South and West Wales)	N/A	Ongoing restoration by the Wildlife Trust, currently MG4c/MG6d. No indication of excessive waterlogging in the soil profile so should continue to improve with regular hay cuts. Dominant mapped soil series is Walford (likely to be suitable for MG4, MG5, or MG8 dependent on hydrology).

Site name	Modelled restoration suitability	Comment
Pant Marsh, Talbot Green (Rhondda Cynon Taff CBC)	N/A	Interesting mosaic of neglected swamp and mire communities including populations of <i>Cirsium dissectum</i> , <i>Carex vesicaria</i> and <i>Potentilla palustris</i> with good potential for increasing diversity with regular management. Some small areas of grassland also present which have potential for restoration to more species-rich swards. Dominant mapped soil series is Fladbury which is very suitable for species-rich floodplain meadows.
Lan Lay, Peterstone-super-Ely (National Trust)	N/A	Already moderately species-rich grassland (MG5a & MG5c). Currently in restoration management and should improve with consistent hay cuts and grazing but NT have had issues with access and timing for hay cutting as well as dog fouling and invasive weeds. Also includes an interesting non-meadow field with a mosaic of mire communities including some remnant M24 desperately in need of management to prevent further scrub encroachment.
Land at Peterstone-super-Ely	N/A	Large area of species-poor agriculturally improved grassland (MG6 & MG7) adjacent to National Trust Lan Lay. Some potential for restoration to species-rich grassland. No soil profile taken (informal access along public footpath only) but dominant mapped soil series here is Fladbury which is very suitable for species-rich floodplain meadows.
Flemingston Moors	N/A	Currently species-poor permanent pasture. Soil profile indicates water table fluctuation at 20-30 cm and gleying at 40 cm. Water quality testing suggests high legacy phosphorus levels, meadow management would help to reduce this and increase botanical diversity. Dominant mapped soil series is Thames which is very suitable for species-rich floodplain meadows.

Site name	Modelled restoration suitability	Comment
Fonmon Castle Land	N/A	Currently species-poor grassland with brackish influence further south. Extensive grazing management recently introduced after a period of neglect. Soil profile in the drier area to the north indicates water table fluctuation from 30 cm and gleying at 60-70 cm. Good potential for restoration to species-rich grassland with meadow management & nutrient reduction (water quality testing suggests high legacy phosphorus levels). Dominant mapped soil series is Tetbury (likely to be suitable for MG4, MG5, or MG8 dependent on hydrology).

Dee

Historic meadows

Fourteen historic meadows were identified on the Dee (Firth & Firth, 2025). None of the meadows were visited by FMP in 2024, but Old Pulford Brook SSSI, which has been previously visited by FMP, still supports MG4 and previously supported MG8 (Stevens et al., 2010) forms part of one of the identified sites (Figure 13).

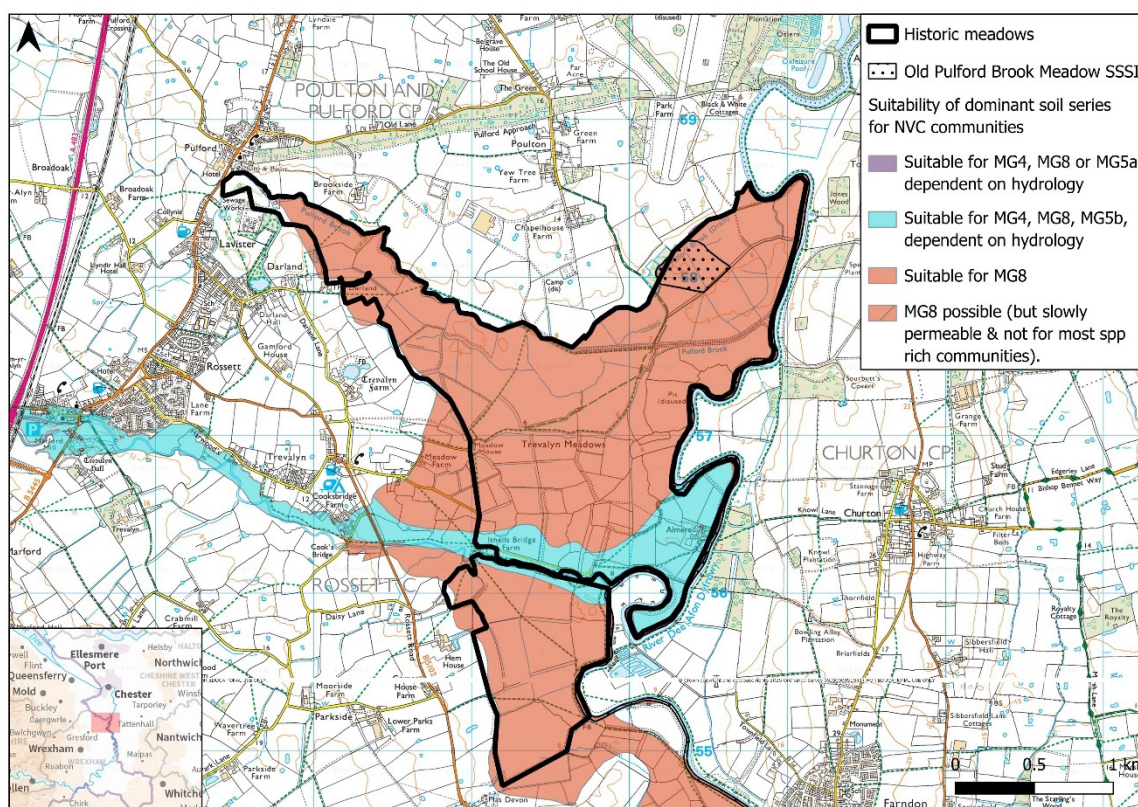


Figure 13: Indicative restoration suitability of mapped soil series in historic floodplain meadows (Wrexham)

Comparison against the National Soils Map dataset (NATMAP)⁵ indicates that the remaining historic meadows identified (Figures 14-17) occur in areas where the dominant soil series should be capable of supporting one or more species-rich grassland communities (see Appendix 1). The majority overlie Fladbury or Alun series, both of which are suitable for species-rich floodplain meadow vegetation and coincide with known areas of extant MG4 and MG8 at Old Pulford Brook and Far Hall Meadow SSSIs and MG4 and MG5 at Crabtree Green SSSI respectively.

The historic meadow near Graig Farm, Ruabon, Wrexham (Figure 14) coincides with the Newport series. This series could support MG4, MG8 or MG5a dependent on-site specific hydrology. The meadow at Pentre overlies the Hallsworth series which could potentially

⁵ <https://www.landis.org.uk/data/nmsoilsapes.cfm>

support floodplain meadow vegetation but is slowly permeable so considered unlikely for most species-rich communities.

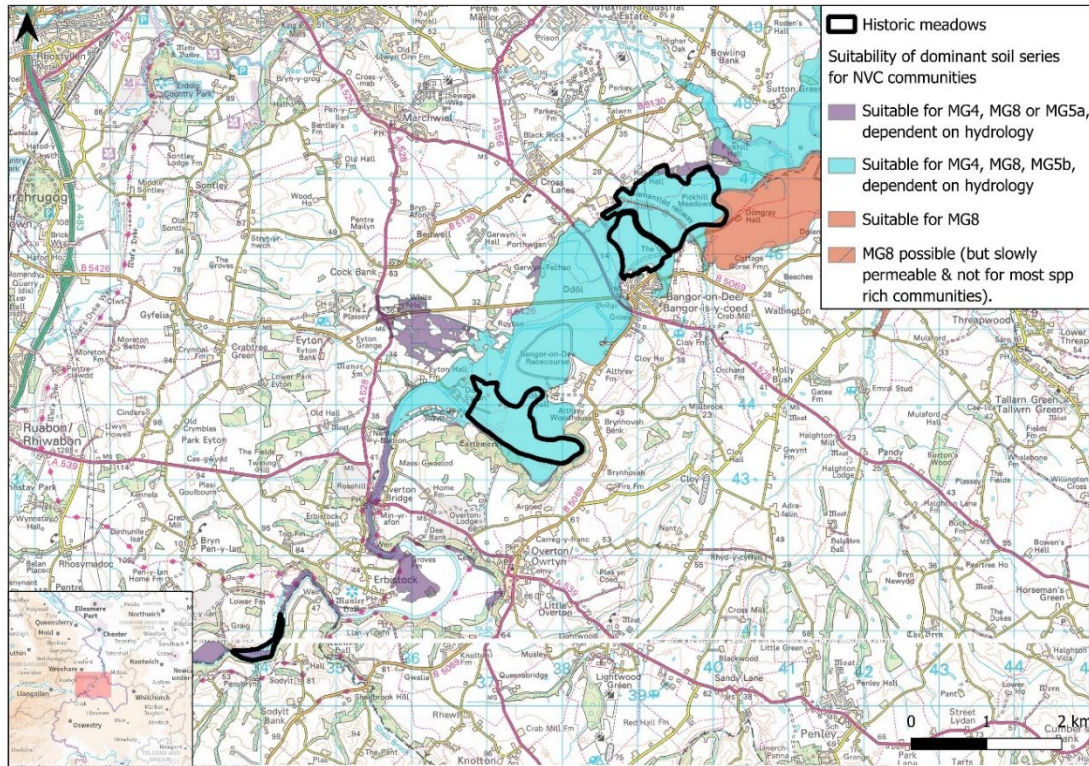


Figure 14: Indicative restoration suitability of mapped soil series in historic floodplain meadows (Bangor-on-Dee)

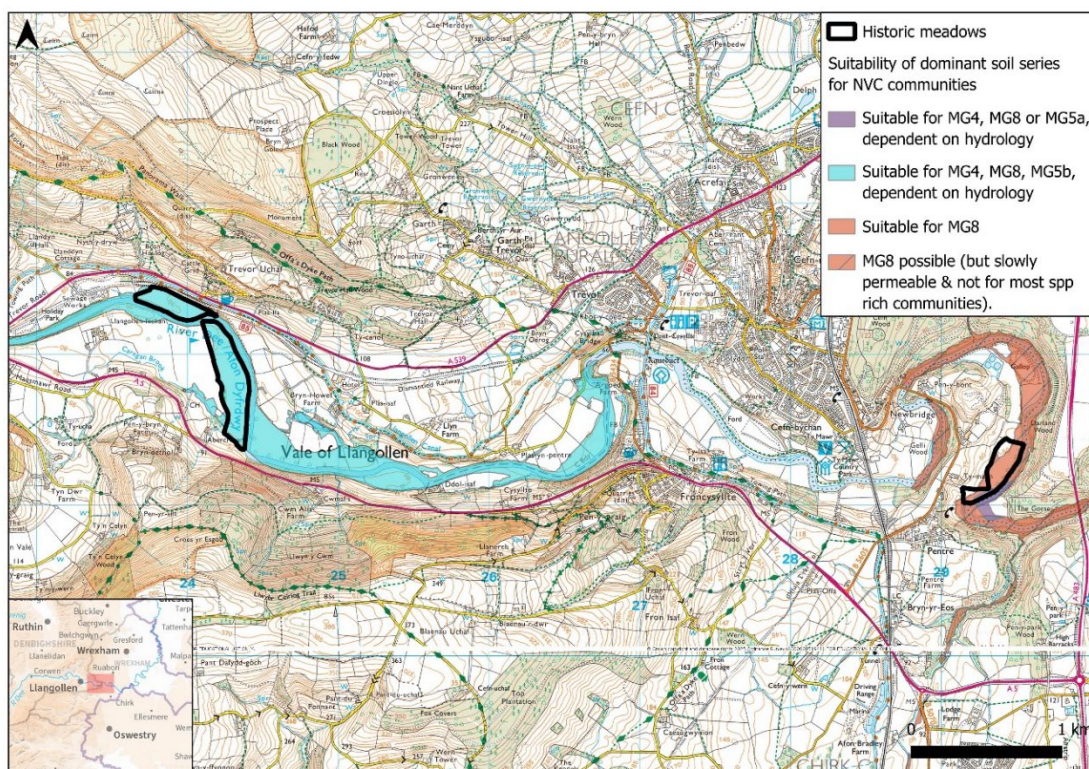


Figure 15: Indicative restoration suitability of mapped soil series in historic floodplain meadows (Newbridge)

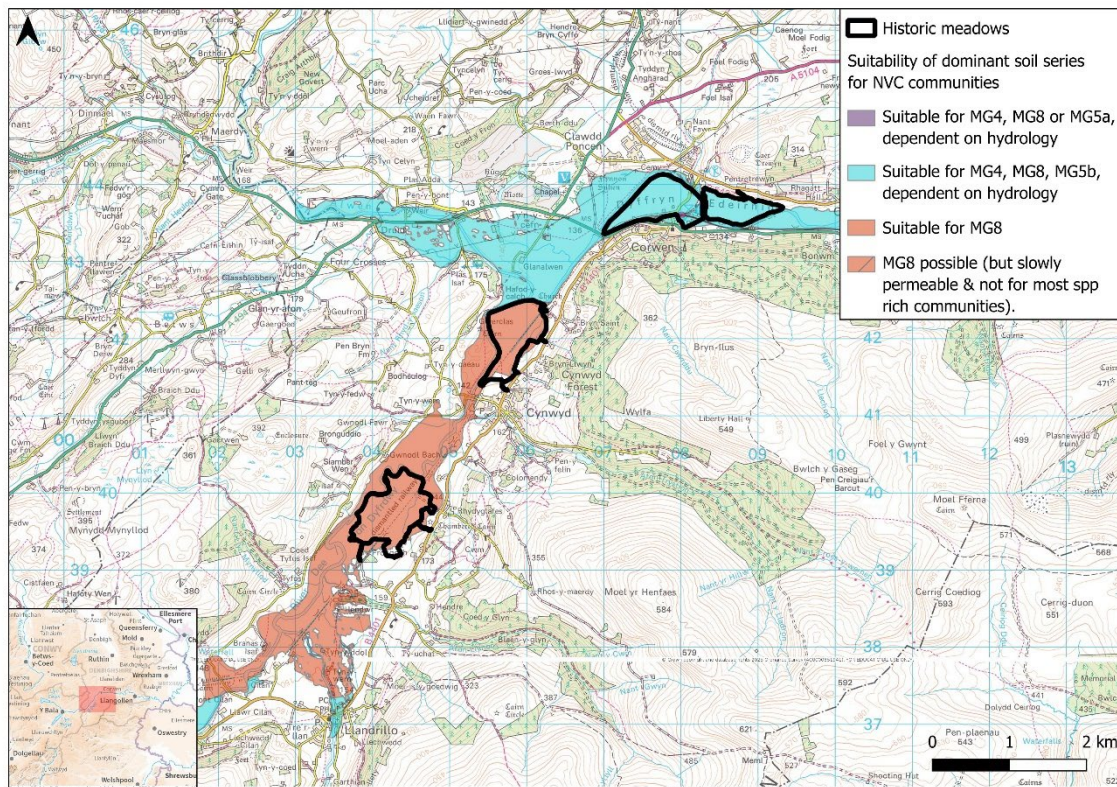


Figure 16: Indicative restoration suitability of mapped soil series in historic floodplain meadows (Corwen)

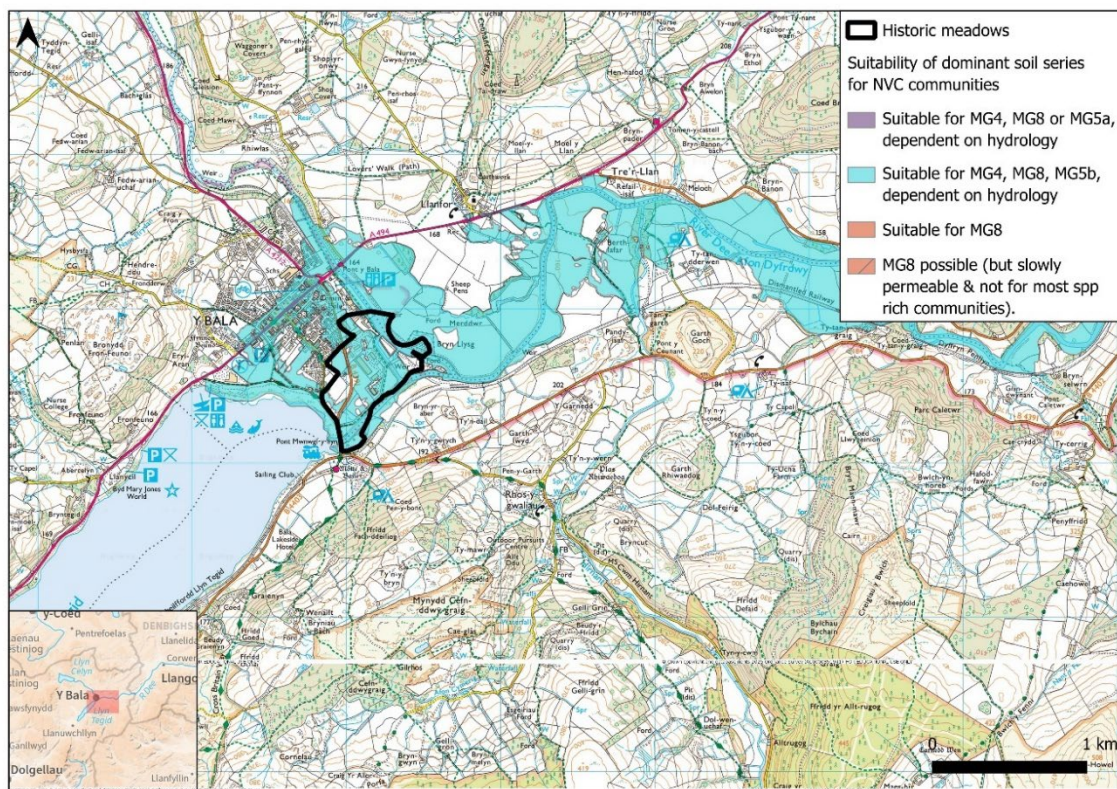


Figure 17: Indicative restoration suitability of mapped soil series in historic floodplain meadows (Bala)

Review of Lowland Grassland Survey of Wales Data

The results of this piece of work are summarised here and can be read in full in the technical report 'Welsh Floodplain Meadows: Review of Lowland Grassland Survey of Wales data' (O'Rourke, 2025).

The Lowland Grassland Survey of Wales (LGSW) recorded less than 10 ha of the MG4 floodplain meadow community, *Sanguisorba officinalis-Alopecurus pratensis* grassland (Stevens et al., 2010). However, since the conclusion of the LGSW, four new sub-communities of MG4 have been defined, the driest of which (MG4a) has a significant overlap of species with *Cynosurus cristatus-Centaurea nigra* grassland (MG5) (Prosser et al., 2023). The project reviewed data from the LGSW to determine if any stands of MG5 containing *S. officinalis* could be reclassified as drier expressions of MG4 under the new definitions.

Review of the data was limited to six grassland stands as the remainder lacked sufficient samples for a reasonable judgement to be made on their classification. However, review of the remaining individual quadrats suggests that the majority have enough MG4 character to not be discounted, and it would therefore be useful to collect sufficient additional samples to allow review of the remaining quadrats as homogenous stands as and when resources permit. This could potentially be completed alongside scheduled monitoring or prioritised as follows:

- Sites with stands within the flood zone (Cae Llwyn, Crabtree Green Meadow, Llofft-y-bardd Meadows, Pen-rhiw-Meredydd, and Rhiw).
- Sites where local knowledge or hydrological data suggest a groundwater-fed system suitable for MG4 may be present.
- Stands containing quadrats where RMAVIS results have very close similarity coefficients for MG4 and MG5 or where MG4 is the top result.

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Appendices

Appendix 1: Indicative suitability of soil series underlying historic meadows for species-rich floodplain grassland

Table 6: National Soil Map attributes for series coinciding with identified historic meadows in the Upper Wye and Dee & their suitability for species-rich floodplain meadow plant communities

Soil association	Dominant series	Description	Depth to gleying (cm) ⁶	pH ⁷	Indicative suitability for NVC communities
0561b TEME	ALUN	Light loamy river alluvium	No value recorded	6.9	MG4, MG8, MG5b, dependent on local hydrology
0541x EAST KESWICK 1	ARROW	Light loamy drift with siliceous stones	60	6.6	MG5b
0541j DENBIGH 1	BARTON	Medium silty material over lithoskeletal siltstone	No value recorded	5.8	MG4, MG8, MG5a, dependent on local hydrology
0541n TRUSHAM	DENBIGH	Medium loamy material over lithoskeletal mudstone and sandstone or slate	No value recorded	5.6	MG4, MG8, MG5a, MG5c, dependent on local hydrology

⁶ This attribute is used as a rough proxy for water table height to determine suitable hydrological conditions for the different species-rich floodplain meadow communities. 15-30 cm is considered a suitable range for MG8, 15-30 cm for MG4, and >50 cm for MG5. Series lacking a recorded value are treated as having potential to support multiple communities depending on site specific hydrology.

⁷ pH 5.5-8.0 is considered a suitable range for MG8, 5.4-7.2 for MG4, 5.4-6.5 for MG5a, 6.4-7.8 for MG5b, and 5.1-5.7 for MG5c.

Soil association	Dominant series	Description	Depth to gleying (cm) ⁶	pH ⁷	Indicative suitability for NVC communities
0811b CONWAY	FLADBURY	Clayey river alluvium	15	6.6	MG8
0813e COMPTON	FLADBURY	Clayey river alluvium	15	6.6	MG8
0713g BRICKFIELD 3	HALLSWORTH	Clayey drift with siliceous stones	20	7	MG8 possible (but slowly permeable & not for most spp rich communities).
0541v RHEIDOL	HOPSFORD	Medium loamy drift with siliceous stones	60	5.9	MG5a
0541w NEWNHAM	HOPSFORD	Medium loamy drift with siliceous stones	60	5.9	MG5a
0541r WICK 1	NEWPORT	Sandy drift with siliceous stones	999	6.2	MG4, MG8, MG5a, dependent on local hydrology
0561c ALUN	TRENT	Medium loamy river alluvium	60	6.4	MG5a/MG5b

Appendix 2: Criteria for floodplain meadow restoration potential modelling, Carmarthenshire

Modelling of floodplain meadow restoration potential was undertaken for Carmarthenshire as part of the Moondance project. This work followed the same method as for the Resilient Floodplains Gwent Project and can be found in the technical report for that piece of work (O'Rourke et al., 2021) with some adjustments to the input datasets to reflect more recent data which are set out in tables 12-14.

Table 7: Biophysical factors and constraints for creation/restoration of floodplain meadows in Carmarthenshire

NVC community specific factors: MG4 *Alopecurus pratensis*-*Sanguisorba officinalis* grassland

Factor	Criterion and reason for selection	Source dataset	Original criterion score	Standardized criterion score	Weighting
Suitable soil hydrology	Depth to gleying (cm), Used to identify soils within the known water table depth range for NVC community	NATMAP SOILSERIES hydrology	30-50	1 (potentially suitable) or 2 (suitable) ⁸	30%
Suitable soil chemistry	Soil pH (-log[H+] in water). Used to identify soils within the known pH range for NVC community.	NATMAP HORIZON fundamentals	5.4 – 7.2	0 or 1	30%
Co-occurrence of NVC community constants.	Level of co-occurrence of NVC community constants (calculated from BSBI records post 2000). Used to identify areas where target NVC community may exist or have previously existed.	Layer modelled from BSBI data.	1 – 11 species	0-1	20%

⁸ DGLEY value of 999 implies no recorded gley layer. These are treated as potentially suitable soils for all communities.

NVC community specific factors: MG5a *Cynosurus cristatus*-*Centaurea nigra* grassland (*Lathyrus pratensis* subcommunity)

Factor	Criterion and reason for selection	Source dataset	Original criterion score	Standardized criterion score	Weighting
Suitable soil hydrology	Depth to gleying (cm), Used to identify soils within the known water table depth range for NVC community	NATMAP SOILSERIES hydrology	>50	1 (potentially suitable) or 2 (suitable)	30%
Suitable soil chemistry	Soil pH (-log[H ⁺] in water). Used to identify soils within the known pH range for NVC subcommunity.	NATMAP HORIZON fundamentals	5.4 – 6.5	0 or 1	30%
Co-occurrence of NVC community constants & subcommunity preferentials.	Level of co-occurrence of NVC community constants (calculated from BSBI records post 2000). Used to identify areas where target NVC community may exist or have previously existed.	Layer modelled from BSBI data.	1 – 15 species	0-1	20%

NVC community specific factors: MG5b *Cynosurus cristatus*-*Centaurea nigra* grassland (*Galium verum* subcommunity)

Factor	Criterion and reason for selection	Source dataset	Original criterion score	Standardized criterion score	Weighting
Suitable soil hydrology	Depth to gleying (cm), Used to identify soils within the known water table depth range for NVC community	NATMAP SOILSERIES hydrology	>50	1 (potentially suitable) or 2 (suitable)	30%
Suitable soil chemistry	Soil pH (-log[H ⁺] in water). Used to identify soils within the known pH range for NVC subcommunity.	NATMAP HORIZON fundamentals	6.4 – 7.8	0 or 1	30%
Co-occurrence of NVC community constants & subcommunity preferentials.	Level of co-occurrence of NVC community constants (calculated from BSBI records post 2000). Used to identify areas where target NVC community may exist or have previously existed.	Layer modelled from BSBI data.	1 – 18 species	0-1	20%

NVC community specific factors: MG5c *Cynosurus cristatus*-*Centaurea nigra* grassland (*Danthonia decumbens* subcommunity)

Factor	Criterion and reason for selection	Source dataset	Original criterion score	Standardized criterion score	Weighting
Suitable soil hydrology	Depth to gleying (cm), Used to identify soils within the known water table depth range for NVC community	NATMAP SOILSERIES hydrology	>50	1 (potentially suitable) or 2 (suitable)	30%
Suitable soil chemistry	Soil pH (l-og[H+] in water). Used to identify soils within the known pH range for NVC subcommunity.	NATMAP HORIZON fundamentals	5.1 – 5.7	0 or 1	30%
Co-occurrence of NVC community constants & subcommunity preferentials.	Level of co-occurrence of NVC community constants (calculated from BSBI records post 2000). Used to identify areas where target NVC community may exist or have previously existed.	Layer modelled from BSBI data.	1 – 17 species	0-1	20%

NVC community specific factors: MG8 *Cynosurus cristatus*-*Caltha palustris* grassland

Factor	Criterion and reason for selection	Source dataset	Original criterion score	Standardized criterion score	Weighting
Suitable soil hydrology	Depth to gleying (cm), Used to identify soils within the known water table depth range for NVC community.	NATMAP SOILSERIES hydrology	15-30	1 (potentially suitable) or 2 (suitable)	30%
Suitable soil chemistry	Soil pH $-(\log[H^+]$ in water). Used to identify soils within the known pH range for NVC community.	NATMAP HORIZON fundamentals	5.5 – 8.0	0 or 1	30%
Co-occurrence of NVC community constants.	Level of co-occurrence of NVC community constants (calculated from BSBI records post 2000). Used to identify areas where target NVC community may exist or have previously existed.	Layer modelled from BSBI data.	1 – 9 species	0-1	20%

General factors

Factor	Criterion and reason for selection	Source dataset	Original criterion score	Standardized criterion score	Weighting
Broad habitat types	Used to identify existing habitat type & suitability for restoration/creation ⁹ .	Habitats recorded by NRW terrestrial Phase1 habitat survey of Wales (1979-1999).	2: Suitable 1: Potentially suitable	1 or 2	20%

Constraints (areas excluded from opportunity spaces)

Factor	Criterion and reason for selection	Source dataset	Original criterion score	Standardized criterion score	Weighting
Existing development	Used to identify buildings/built up areas for removal from opportunity space.	Habitats recorded by NRW terrestrial Phase1 habitat survey of Wales (1979-1999).	N/A ¹⁰	N/A ¹⁰	N/A ¹⁰
Existing development	Used to identify buildings/built up areas for removal from opportunity space.	Built Up Areas (Wales) 2022	N/A ¹⁰	N/A ¹⁰	N/A ¹⁰
Broad habitat types	Used to identify areas of existing habitat unsuitable for habitat creation/restoration for removal from opportunity space ¹⁰ .	Habitats recorded by NRW terrestrial Phase1 habitat survey of Wales (1979-1999).	N/A ¹⁰	N/A ¹⁰	N/A ¹⁰

⁹ See Table 8 for detailed scoring of suitable Phase 1 habitats.

¹⁰ Areas removed from opportunity spaces.

Factor	Criterion and reason for selection	Source dataset	Original criterion score	Standardized criterion score	Weighting
Existing priority habitats	Includes land-cover types such as acid grassland, blanket bog, or purple moor grass and rush pastures. Used to identify areas of existing value unlikely to be suitable or desirable for habitat creation.	Schedule 7 Priority habitats (excluding coastal and floodplain grazing marsh)	N/A ¹⁰	N/A ¹⁰	N/A ¹⁰

Table 8: Creation/restoration suitability scoring for existing habitats (floodplain meadows)

Terrestrial Phase 1 habitat survey of Wales code	Terrestrial Phase 1 habitat survey of Wales name	Suitability for habitat restoration/creation (0: unsuitable 1: potentially suitable 2: suitable)
B.2.2	Semi-improved neutral grassland	2
B.4	Improved grassland	2
B.5.1	Marshy grassland Juncus dominated	2
B.6	Poor semi-improved grassland	2
E.3.3.1	Modified flood plain mire	2
J.1.2	Amenity grassland	2
A.2.1	Dense scrub	1
A.4.1	Felled broadleaved woodland	1
A.4.2	Felled coniferous woodland	1
A.4.3	Felled mixed woodland	1
B.3.2	Semi-improved calcareous grassland	1

Terrestrial Phase 1 habitat survey of Wales code	Terrestrial Phase 1 habitat survey of Wales name	Suitability for habitat restoration/creation (0: unsuitable 1: potentially suitable 2: suitable)
B.5.2	Marshy grassland Molinia dominated	1
C.1.1	Bracken	1
C.3.1	Tall ruderal herb	1
F.1	Swamp	1
F.2.2	Inundation vegetation	1
J.1.1	Arable	1
J.1.3	Ephemeral/short perennial	1
?	Habitat code illegible on the original vegetation map	0
A.1.1.1	Semi-natural broadleaved woodland	0
A.1.1.2	Planted broadleaved woodland	0
A.1.2.2	Planted coniferous woodland	0
A.1.3.1	Semi-natural mixed woodland	0
A.1.3.2	Planted mixed woodland	0

Terrestrial Phase 1 habitat survey of Wales code	Terrestrial Phase 1 habitat survey of Wales name	Suitability for habitat restoration/creation (0: unsuitable 1: potentially suitable 2: suitable)
B.1.1	Unimproved acid grassland	0
B.1.2	Semi-improved acid grassland	0
B.3.1	Unimproved calcareous grassland	0
D.1.1	Dry acid heath	0
D.2	Wet heath	0
D.5	Wet heath/acid grassland mosaic	0
D.6	Basic dry heath/calcareous grassland mosaic	0
E.1.6.1	Blanket bog	0
E.1.6.2	Raised bog	0
E.1.7	Wet modified bog	0
E.1.8	Dry modified bog	0
E.2.1	Acid/neutral flush	0
E.2.2	Basic flush	0

Terrestrial Phase 1 habitat survey of Wales code	Terrestrial Phase 1 habitat survey of Wales name	Suitability for habitat restoration/creation (0: unsuitable 1: potentially suitable 2: suitable)
E.3	Fen	0
E.3.1	Valley mire	0
E.3.1.1	Modified valley mire	0
E.3.2	Basin mire	0
E.3.2.1	Modified basin mire	0
E.3.3	Flood-plain mire	0
G.1	Standing water	0
G.2	Running water	0
H.1.1	Intertidal mud/sand	0
H.1.2	Intertidal cobbles/shingle	0
H.1.3	Intertidal rocks/boulders	0
H.2.6	Salt marsh	0
H.3.1	Mud/sand above mhw	0

Terrestrial Phase 1 habitat survey of Wales code	Terrestrial Phase 1 habitat survey of Wales name	Suitability for habitat restoration/creation (0: unsuitable 1: potentially suitable 2: suitable)
H.3.2	Shingle/gravel above mhw	0
H.6.4	Dune slack	0
H.6.5	Dune grassland	0
H.6.7	Dune scrub	0
H.6.8	Open dune	0
H.8.1	Hard cliff	0
H.8.2	Soft cliff	0
H.8.4	Coastal grassland	0
I.1.1	Inland cliff	0
I.1.1.1	Acid/neutral inland cliff	0
I.1.2	Scree	0
I.1.2.1	Acid/neutral scree	0
I.1.2.2	Basic scree	0

Terrestrial Phase 1 habitat survey of Wales code	Terrestrial Phase 1 habitat survey of Wales name	Suitability for habitat restoration/creation (0: unsuitable 1: potentially suitable 2: suitable)
I.1.4	Other rock exposure	0
I.1.4.1	Acid/neutral rock	0
I.1.4.2	Basic rock	0
I.2.1	Quarry	0
I.2.2	Spoil	0
I.2.3	Mine	0
I.2.4	Refuse-tip	0
J.1.5	Gardens	0
J.3.4	Caravan site	0
J.3.5	Sea-wall	0
J.3.6	Buildings	0
J.3.7	Track (not comprehensively digitised)	0
J.4	Bare ground	0

Terrestrial Phase 1 habitat survey of Wales code	Terrestrial Phase 1 habitat survey of Wales name	Suitability for habitat restoration/creation (0: unsuitable 1: potentially suitable 2: suitable)
NA	Not accessed land	0

Table 9: Factors for prioritisation of grassland opportunity spaces in Carmarthenshire

Biophysical opportunity spaces: Weighting 55%

Theme	Benefit	Description and reason for use	Source dataset	Classes relevant to target habitat	Original criterion score	Standardized criterion score
N/A	N/A	Used to identify likely suitability for creation or restoration of MG4 grassland.	MG4 biophysical opportunity space	N/A	1.2-3.5	0-1
N/A	N/A	Used to identify likely suitability for creation or restoration of MG5a grassland.	MG5a biophysical opportunity space	N/A	1.2-4.3	0-1
N/A	N/A	Used to identify likely suitability for creation or restoration of MG5b grassland.	MG5b biophysical opportunity space	N/A	1.2-4.5	0-1
N/A	N/A	Used to identify likely suitability for creation or restoration of MG5c grassland.	MG5c biophysical opportunity space	N/A	1.6-4.4	0-1
N/A	N/A	Used to identify likely suitability for creation or restoration of MG8 grassland on mineral soils.	MG8 (mineral soils) biophysical opportunity space	N/A	1.2-3.1	0-1

Ecosystem services: Weighting 30%

Theme	Benefit	Description and reason for use	Source dataset	Classes relevant to target habitat	Original criterion score	Standardized criterion score
Natural flood management (NFM)	Demand for Natural Flood Management	Areas of demand for NFM	SCCAN demand for Natural Flood Management	N/A	0 or 1	0 or 1
Natural flood management (NFM)	Floodwater storage	Best estimate of locations of high flow accumulation across the land surface or in smaller channels, where it may be possible to temporarily store water and attenuate flooding during high flows.	WWNP Runoff Attenuation Features 3.3% AEP – Wales	N/A	0 or 1	0 or 1
Natural flood management (NFM)	Floodwater storage	Best estimate of locations of high flow accumulation across the land surface or in smaller channels, where it may be possible to temporarily store water and attenuate flooding during high flows.	WWNP Runoff Attenuation Features 1% AEP - Wales	N/A	0 or 1	0 or 1
Water quality	Sediment capture/ Reduction	The dataset shows areas where management action could be taken to reduce sedimentation in coastal and transitional waterbodies, as well as lakes and rivers.	SCCAN sedimentation reduction opportunities	Opportunity for habitat restoration	1	0-1

Theme	Benefit	Description and reason for use	Source dataset	Classes relevant to target habitat	Original criterion score	Standardized criterion score
Water quality	Sediment capture/ Reduction	The dataset shows areas where management action could be taken to reduce sedimentation in coastal and transitional waterbodies, as well as lakes and rivers.	SCCAN sedimentation reduction opportunities	Opportunity for habitat restoration in priority area	2	0-1
Water quality	Sediment capture/ Reduction	The dataset shows areas where management action could be taken to reduce sedimentation in coastal and transitional waterbodies, as well as lakes and rivers.	SCCAN sedimentation reduction opportunities	Opportunity for habitat restoration or riparian planting	1	0-1
Water quality	Sediment capture/ Reduction	The dataset shows areas where management action could be taken to reduce sedimentation in coastal and transitional waterbodies, as well as lakes and rivers.	SCCAN sedimentation reduction opportunities	Opportunity for habitat restoration or riparian planting in priority area	2	0-1
Water quality	Reduce nutrient enrichment	The dataset shows areas where management action could be taken to reduce nutrient enrichment in coastal and transitional waterbodies, as well as lakes and rivers.	SCCAN opportunities to reduce nutrient enrichment	Opportunity for habitat restoration	1	0-1

Theme	Benefit	Description and reason for use	Source dataset	Classes relevant to target habitat	Original criterion score	Standardized criterion score
Water quality	Reduce nutrient enrichment	The dataset shows areas where management action could be taken to reduce nutrient enrichment in coastal and transitional waterbodies, as well as lakes and rivers.	SCCAN opportunities to reduce nutrient enrichment	Opportunity for habitat restoration with some priority	2	0-1
Water quality	Reduce nutrient enrichment	The dataset shows areas where management action could be taken to reduce nutrient enrichment in coastal and transitional waterbodies, as well as lakes and rivers.	SCCAN opportunities to reduce nutrient enrichment	Opportunity for habitat restoration with moderate priority	3	0-1
Water quality	Reduce nutrient enrichment	The dataset shows areas where management action could be taken to reduce nutrient enrichment in coastal and transitional waterbodies, as well as lakes and rivers.	SCCAN opportunities to reduce nutrient enrichment	Opportunity for habitat restoration with most priority	4	0-1
Water quality	Reduce nutrient enrichment	The dataset shows areas where management action could be taken to reduce nutrient enrichment in coastal and transitional waterbodies, as well as lakes and rivers.	SCCAN opportunities to reduce nutrient enrichment	Opportunity for habitat restoration or channel belts	1	0-1

Theme	Benefit	Description and reason for use	Source dataset	Classes relevant to target habitat	Original criterion score	Standardized criterion score
Water quality	Reduce nutrient enrichment	The dataset shows areas where management action could be taken to reduce nutrient enrichment in coastal and transitional waterbodies, as well as lakes and rivers.	SCCAN opportunities to reduce nutrient enrichment	Opportunity for habitat restoration or channel belts with some priority	2	0-1
Water quality	Reduce nutrient enrichment	The dataset shows areas where management action could be taken to reduce nutrient enrichment in coastal and transitional waterbodies, as well as lakes and rivers.	SCCAN opportunities to reduce nutrient enrichment	Opportunity for habitat restoration or channel belts with moderate priority	3	0-1
Water quality	Reduce nutrient enrichment	The dataset shows areas where management action could be taken to reduce nutrient enrichment in coastal and transitional waterbodies, as well as lakes and rivers.	SCCAN opportunities to reduce nutrient enrichment	Opportunity for habitat restoration or channel belts with most priority	4	0-1
Water quality	Reduce nutrient enrichment	The dataset shows areas where management action could be taken to reduce nutrient enrichment in coastal and transitional waterbodies, as well as lakes and rivers.	SCCAN opportunities to reduce nutrient enrichment	Opportunity for habitat restoration or riparian planting	1	0-1

Theme	Benefit	Description and reason for use	Source dataset	Classes relevant to target habitat	Original criterion score	Standardized criterion score
Water quality	Reduce nutrient enrichment	The dataset shows areas where management action could be taken to reduce nutrient enrichment in coastal and transitional waterbodies, as well as lakes and rivers.	SCCAN opportunities to reduce nutrient enrichment	Opportunity for habitat restoration or riparian planting with some priority	2	0-1
Water quality	Reduce nutrient enrichment	The dataset shows areas where management action could be taken to reduce nutrient enrichment in coastal and transitional waterbodies, as well as lakes and rivers.	SCCAN opportunities to reduce nutrient enrichment	Opportunity for habitat restoration or riparian planting with moderate priority	3	0-1
Ecosystem resilience	Floodplain reconnection	Best estimate of locations where it may be possible to establish reconnection between a watercourse and its natural floodplain, especially during high flows.	WWNP Floodplain reconnection potential	N/A	0 or 1	0 or 1

Theme	Benefit	Description and reason for use	Source dataset	Classes relevant to target habitat	Original criterion score	Standardized criterion score
Ecosystem resilience	Enhance habitat connectivity	Priority Ecological Networks (PENs) in the terrestrial environment are versions of the all-Wales habitat networks that show areas of connectivity between Protected Sites, and as such provide a framework to inform the location of action to build functional resilient ecological networks based on our most important places for biodiversity. Typical actions would be habitat improvement, restoration, or creation, located within the boundaries of a PEN, or situated at its margins to consolidate, extend, or link different PENs.	Priority Ecological Networks (PENs), semi-natural grassland	N/A	0 or 1	0 or 1

Areas with potential for influence over land management: Weighting 15%

Theme	Benefit	Description and reason for use	Source dataset	Classes relevant to target habitat	Original criterion score	Standardized criterion score
NRW land holdings	N/A	Land owned by NRW, used to identify areas with increased probability of management intervention.	Ex EAW Landholdings Ex CCW Landholdings current	N/A	0 or 1	0 or 1
NRW Glastir agreements	N/A	Glastir/land management agreements, used to identify areas with increased probability of management intervention.	Glastir Advanced commons Glastir Entry commons Glastir Water Quality parcels (1&2) Glastir Entry Extents 2023 Glastir Advanced Extent	N/A	0 or 1	0 or 1

Theme	Benefit	Description and reason for use	Source dataset	Classes relevant to target habitat	Original criterion score	Standardized criterion score
Local Nature Reserves	N/A	Boundaries of Local Nature Reserves (LNRs) in Wales. Local Nature Reserves are established and managed by local authorities, following consultation with Natural Resources Wales (NRW) under the National Parks and Access to the Countryside Act 1949. Used to identify areas with increased probability of management intervention (also included in sensitivities layer).	Local Nature Reserves (LNR)	N/A	0 or 1	0 or 1

Data Archive Appendix

Data outputs associated with this project are archived in NRW's Document Management System.

The data archive contains:

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

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