Ecology and terrestrial resources

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Legislation	• Environment (Wales) Act 2016 • Habitats and Species Regulations 2017 • Wildlife and Countryside Act 1981 • Natural Environment and Rural Communities Act 2006 • Environment (Principles, Governance and Biodiversity Targets) (Wales) Act 2026
National policy and guidance	• Planning Policy Wales • Technical Advice Note (TAN) 5 'Nature Conservation and Planning'

Other guidance	• Biodiversity and resilience of ecosystems duty (section 6): guidance for public authorities (and Section 7 lists of habitats and living organisms) (updated 2026)
	• NRW State of Natural Resources Report
	• NRW Area Statements
	• Various NRW resources on DataMapWales (or NRW's Environmental Information portal) e.g.:
	  ○ Peatlands of Wales
	  ○ Ancient Woodland
	  ○ Habitat Networks
	  ○ Priority Ecological Networks

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Introduction

1. This chapter summarises some of the key principles underpinning ecology and biodiversity considerations in casework, but is far from exhaustive. Decision-making should therefore generally be taken in accordance with Policy 9 of Future Wales (FW) and other relevant development plan policies, and in line with the principles established in Planning Policy Wales (PPW) and Technical Advice Note (TAN) 5 'Nature Conservation and Planning'.

2. Note that although TAN 5 contains some important policy principles and useful practical guidance, it is dated in places. Any tensions should be resolved in favour of FW and PPW which are more up to date.

Legal framework and duties

3. The legal framework governing habitats, species and designated sites is wide-ranging and complex. Below is a summary of those aspects which you are most likely to encounter in planning casework.

Habitats and species

4. Section 6 of the Environment (Wales) Act 2016 ('the EW Act') both replaces and enhances a previous duty under section 40 of the Natural Environment and Rural Communities Act 2006 ('NERC Act') for public authorities to have regard to the purpose of conserving biodiversity. This 'Section 6 duty' is to **seek to maintain and enhance biodiversity and in so doing promote the resilience of ecosystems**, though there is a proviso that public bodies must do so only so far as consistent with the proper exercise of their functions.

5. Section 7 of the EW Act requires WG to publish and maintain lists of species and habitat types that are regarded as of 'principal importance' for the purpose of maintaining and enhancing that biodiversity. These lists were updated in March 2026. Published alongside the '*Biodiversity and resilience of ecosystems duty (section 6): guidance for public authorities*', (WG, 2022), these should be regarded as statutorily 'protected'.

6. Other legislation also confers 'protected' status on habitats and species. Animal and plant species listed in Schedules 1 and 5 of the Conservation of Habitats and Species Regulations 2017 ('the Habitats Regulations') are 'European Protected Species' (EPS). The Wildlife and Countryside Act 1981 ('the W&C Act') also affords various types of protection to habitats and species (including raptors, which currently do not feature on the Section 7 list). The annexes to TAN 5 explain the interplay between these statutes but note that the lists are not up-to-date and references to the NERC Act have since been (largely) superseded by the EW Act.

7. Under the Habitats Regulations it is unlawful to damage or destroy a breeding site or resting place of a wild animal of an EPS without a licence. Whilst separate from obtaining planning permission, regulation 3(4) of the Habitats

Regulations requires planning authorities to have regard to the provisions of the Habitats Directive in so far as they might be affected by the exercise of those functions. This means that whether development could harm an EPS, and the potential need for a licence, are material considerations.

Designated sites

8. The protection and management of designated sites (and the features for which they are designated) is achieved chiefly via the Habitats Regulations and the W&C Act. Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are designated under the former legislation; previously known as European or 'Natura 2000' sites, they now form the 'National Site Network'. Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) and Ramsar sites are protected via the W&C Act. PPW refers to all of these designations as '**statutory designated sites**'.

9. These designations can overlap. SPAs and SACs, for example, are often notified as SSSIs and some may be designated as Ramsar sites. However, the 'qualifying features' of overlapping designations may differ.

10. By law, development which could affect a SAC or SPA must follow the prescribed process set out in the Habitats Regulations. However, PPW and TAN 5 also indicate that development affecting a Ramsar site, or a *potential* SAC, SPA or Ramsar site, should be treated in the same way.

11. PPW notes that SACs and SPAs are of 'European importance' and, given the similar treatment of Ramsar sites and the fact that their designation is in line with an international convention concerning waterfowl and wetlands, it is evident that both law and policy confer the highest level of protection to qualifying features connected to these designations. In contrast, PPW notes that SSSIs are of 'national importance'. Nonetheless, both law and (increasingly) policy confer a high level of protection to those features for which SSSIs, NNRs and proposed SSSIs are designated.

12. Other types of site, such as Sites of Importance for Nature Conservation and Regionally Important Geodiversity Sites, are also afforded protection via the planning system but these are not statutorily protected. As with statutory sites, the emphasis is on the conservation of features for which the sites have been designated, which may accord with a Local Biodiversity Action Plan.

Statutory environmental principles and biodiversity targets

13. The Environment (Principles, Governance and Biodiversity Targets) (Wales) Act 2026 establishes an Office of Environmental Governance Wales (OEGW) to oversee public authorities' compliance with environmental law, defines statutory 'environmental principles' and makes provision for the setting of biodiversity recovery targets.

14. Sections 5 (1) and (2) say that a devolved public authority (including WG, PEDW and local planning authorities) must have regard to the 'environmental principles' when carrying out functions in connection with the assessment of

plans and programmes under the SEA Regs (e.g. the production of national planning policy or Local Development Plans). The environmental principles are defined in section 2 as:

(a) the precautionary principle so far as relating to the environment
(b) the principle that preventative action should be taken to avoid environmental damage
(c) the principle that environmental damage should as a priority be rectified at source
(d) the polluter pays principle.

15. The duties established in the Act apply to policymaking rather than to individual regulatory and planning decisions made by WG or authorities acting on its behalf (including PEDW). While the OEGW may review planning decisions, this would mainly be to assess how effective national and local planning policies are. Advice on how the Act may affect decision-making is provided later on.

Policy concepts

Biodiversity net benefit and the step-wise approach

16. In line with the Section 6 duty, FW policy 9 and PPW require development to provide a net benefit for biodiversity. PPW defines this as "the concept that development should leave biodiversity and the resilience of ecosystems in a significantly better state than before".

17. PPW is clear that the means of achieving this net benefit is by implementing the **step-wise approach**, and not (for example) by seeking to quantify net impacts via a standard metric. That said, decision-makers will need to apply judgment to determine whether the nature and extent of proposed enhancements would outweigh any adverse impacts on certain habitats and species, or the attributes of a particular ecosystem (as described in the DECCA framework below); and would therefore, on balance, achieve the net benefit sought by policy.

Ecosystems and the DECCA framework

18. The State of Natural Resources Report (SoNaRR) identifies **eight ecosystem types across Wales** and assesses the resilience of each. They are:

The eight recognised ecosystems in Wales	
Coastal margins	Enclosed farmland
Freshwater	Marine
Mountain, moorland and heath	Semi-natural grassland
Urban	Woodland

19. **Ecosystem resilience** is the capacity of an ecosystem to deal with pressures and demands placed on it, either by resisting, recovering or adapting to them whilst retaining its ability to deliver ecosystem services now and in the future. The 'DECCA framework' is used in PPW to describe the attributes of a resilient ecosystem. A resilient ecosystem shows a good level of:

- **Diversity** – in various ways such as genetic diversity, species diversity, diversity within/between ecosystems, and structural diversity.
- **Extent** – for example, its area is large enough to sustain populations and support ecological processes.
- **Condition** – where the impacts of pressures/demands are managed so that the environment can support a range of organisms and healthy populations.
- **Connectivity** – where organisms can move within and between different ecosystems (e.g. for foraging, migration, dispersal of seeds and genes).
- **Adaptability** – the ability of the ecosystem to adapt to, resist and recover from a range of pressures, e.g. from climate change.

20. Natural Resources Wales (NRW) publishes information on the extent, condition and location of ecosystems – see below.

21. **Ecosystem services** are the benefits provided by ecosystems that contribute to making human life both possible and worth living. Examples of ecosystem services include products such as food and water; the control of flooding, soil erosion and disease outbreaks; and intangible well-being benefits to humans.

NRW Area Statements, Nature Network Maps, etc

22. In the context of the Section 6 duty, PPW refers to documents published by NRW which provide evidence on ecosystems and natural resources:

    - The SoNaRR at the all-Wales level.
    - 7 Area Statements which each outline the key challenges facing terrestrial and marine localities.
    - Geographic information on DataMapWales (or NRW's 'Environmental Information Portal' which support the Area Statements (e.g. by mapping the distribution of peat and ancient woodland).

23. When referring to 'Nature Network Maps', PPW includes links to 'modelled habitat networks' on DataMapWales which geographically indicate ecological connectivity between certain habitats (e.g. native woodland, heathland, bog) through which species can move. Three levels of habitat network are identified and provide an indicator of ecosystem resilience:

    - 'Core networks' are habitat networks used by species which require extensive habitat and disperse poorly,
    - 'Focal networks' are habitat networks used by species which are tolerant of smaller habitat patches and with greater dispersal ability, and
    - 'Local networks' are habitat networks used by species which can persist within small habitat patches and have very limited dispersal abilities.

24. These form the basis of 'Priority Ecological Networks', also linked to from PPW, which show areas of connectivity between statutory designated sites.

Green infrastructure and green infrastructure statements

25. Green infrastructure is the network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect places. It may comprise an entire ecosystem or a system of urban parks or rights of way. Small-scale features such as verges, trees, drainage ditches, gardens, hedges, green roofs/walls may also contribute to a network.

26. PPW says that a green infrastructure statement (GIS) should be submitted with all planning applications, proportionate to the scale and nature of the development proposed. This will describe how green infrastructure has been incorporated into the proposal and "must be used for demonstrating how the step-wise approach has been applied". For minor development, a GIS is likely to be succinct and may simply constitute a paragraph or two within a planning or appeal statement. For development requiring Environment Impact Assessment (EIA), a GIS may be incorporated within the Environmental Statement (ES).

Precautionary principle

27. The 1992 Rio Declaration, to which the UK is a signatory, defined the precautionary principle as follows: '*Where there are threats of serious or irreversible environmental damage, a lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation*'.

28. The precautionary principle is of paramount importance when considering effects on features protected under the Habitats Regulations. However, PPW also uses the term in relation to considering the effectiveness of ecological mitigation. As a general rule, the application of the precautionary principle should follow the relative importance of the features which may be affected by a development and the seriousness of the potential harm. In applying it, you should first consider the risk of serious or irreversible harm occurring; and then consider whether that risk could be acceptably managed.

Decision-making

29. The overall approach to assessing impacts on a feature of importance (whether or not designated) is as follows:

Has the choice of location, siting and design followed the step-wise approach?

⇩

If it has not been possible to avoid, does the proposal minimise impact/loss?

⇩

Assess the value/quality of the feature.

⇩

Would it be destroyed?

⇩

Is it irreplaceable in terms of the definition in PPW footnote 129? Are measures proposed to mitigate and/or restore and how achievable are they?

⇩

Are measures proposed to compensate on or off site and how achievable are they?

⇩

If the feature would be truly lost, weigh the impact of that loss taking into account its quality, scarcity, effectiveness of any compensation and any other negative impacts against the benefits of the proposed development.

30. More detailed guidance is provided below.

Applying the step-wise approach and DECCA framework

31. The onus is on the applicant to demonstrate that a proposal can be justified in line with the stages of the step-wise approach. Whether they have done enough at each step is a judgement for you to make. Thus, just because a protected habitat (for example) is not wholly 'avoided' at step 1 does not mean that you cannot go on to consider whether those direct effects have been minimised at step 2, and so forth.

32. To demonstrate compliance with the Section 6 duty, your decision or report should be seen to reflect the principles of the step-wise approach. It need not refer to the specific steps but should prioritise avoidance and minimisation of impacts (through siting or design) over mitigation, for example.

33. As a general rule, the rigour with which the step-wise approach is applied should be proportionate to the scale of the proposal and reflective of the extent and quality of affected ecological features. Some examples of reasoning are included in Annex 1.

> **Step 1:** The first principle is to **avoid** damage to biodiversity, particularly (but not only) within statutory designated sites and sites which contain "protected species and habitats which are irreplaceable". If there would be potential harmful environmental effects, to get to step 2 the applicant must demonstrate that reasonable alternatives to the **location, siting and design** of the proposal have been "fully considered".

34. For EIA development the description of reasonable alternatives included in the ES may be a useful means of determining whether other options for the location, siting and design of a proposal have been "fully considered" in the context of key ecological features subject to direct effects. For householder schemes, requiring an assessment of alternative sites would be futile; consequently, the focus will be on whether key ecological features have been avoided via the proposal's micro-siting and design. However, if the choice of development site has been subject to an active decision by an applicant, an

assessment of alternatives may be required for you to reach a reasoned decision in relation to step 1, even for minor developments.

35. PPW says that proposals in statutory designated sites are, as a matter of principle, unacceptable and must be excluded from site searches undertaken by developers; and that it will be wholly exceptional for development to be justifiable in such instances. The law relating to statutory designated sites is more nuanced and focuses specifically on the effect of development on the **features** for which sites have been designated. Thus, if a proposal falls within the boundary of a designated site, your decision or report should:

    - Be clear about the extent to which the development would (or would not) avoid both direct and indirect impacts to features for which the site has been designated,
    - After applying the step-wise approach, conclude on whether the proposal would conserve and enhance qualifying features **and** ecosystem(s) of which they form part (as defined in the SoNaRR and supporting evidence),
    - Recognise the inherent unacceptability of the location in national policy terms, and
    - If necessary, reach an overall finding as to whether the circumstances would be 'wholly exceptional', taking into account national policy, your findings regarding any benefits to qualifying features, and other benefits.

36. PPW says that the same approach should apply to sites "containing protected species and habitats which are irreplaceable". In such cases your approach should be similar to that taken for qualifying features within designated sites as described above. Where the presence of such species/habitats on a development site has only come to light following the collation of ecological evidence by the applicant, it would be unreasonable to expect them to seek an alternative site, and consequently your focus should be on whether the proposal's siting and design avoids such features. However, if it is evident that the development site was publicly recognised for containing such species/habitats prior to the application being prepared (e.g. by being recorded on NRW's Nature Network Maps or from a site's planning history) then the location should be justified via an assessment of alternative sites.

37. In considering whether a site "contains" a protected species, you should consider and reach a finding on the site's functional connection to, and importance for, that species, e.g.:

    - Whether it is a local population which relies on the site year-round, or is (e.g.) a transitory, occasional, or wintering visitor,
    - How the site is used by the species – e.g. for foraging, breeding or refuge,
    - The extent of the site and its habitats which support the species, and
    - Connections between the site's use by that species to wider ecosystems.

38. PPW defines "habitats which are irreplaceable" as "habitats, and the natural resources which underpin them, which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity". It provides

examples of such habitats, although others may exist. If this arises, you should be clear about the value/quality of any affected feature, whether it would be destroyed, and whether it is 'irreplaceable' in terms of the definition in footnote 129.

39. Advice on how to approach development affecting specific habitats is provided later on.

> **Step 2:** Damage to biodiversity must then be **minimised** by maintaining and restoring the largest possible area of habitats or features of importance, ensuring that their location provides connectivity to adjacent habitats and supports the conservation status of local populations of key species.

40. Beyond step 1, PPW seeks to ensure that adverse effects on "any area of existing habitat supporting biodiversity and functioning ecosystems" and "key species" are minimised, mitigated, and restored or compensated for. Whilst protected species and habitats should remain the priority, you should also consider any habitats within the site which may contribute to broader ecosystem resilience.

41. At step 2 you will need to gauge the site's relative 'value' in ecological terms prior to development occurring. For larger developments the baseline condition of the site should be established via an ES, Preliminary Ecological Appraisal and/or the GIS. For smaller developments where there is no technical evidence, you may need to rely on the GIS, plans and/or your site observations. Consider:

    - Does the site contain any natural or semi-natural habitats? Even a domestic lawn may have some value as a habitat to invertebrates and micro-organisms and support the resilience of an ecosystem.
    - In your view, does the development's siting and footprint minimise the loss of existing habitats within the site and would any lost habitats be of lesser or equal value/condition to others on the site (prior to development)?
    - Would the chosen arrangement of the development within the site minimise direct effects on species?
    - Would the development avoid severing connections to neighbouring habitats, particularly to or between designated sites (statutory or non-statutory)? If evidence is lacking, you may need to rely on your site observations; NRW's Nature Network Maps may also help to establish whether a site may contribute to the resilience of broader ecosystems.

42. If the development's siting would result in a direct loss of a protected habitat or have a significant direct effect on a protected species, and you are not satisfied that there are no other options which would result in a lesser impact, the conclusion is likely to be that there would be significant harm which may not be justified. However, if the impacts are to an unprotected habitat or the effects on habitats/species are unclear, your finding may instead be of an 'adverse' rather than 'harmful' impact and you should go onto consider step 3.

43. If the scheme is retrospective or there is an allegation of pre-emptive site clearance works, you may not be able to reach a view as to whether impacts have been minimised, particularly if there is no definitive record of the previous condition of developed areas of the site. Consequently, unless you are dismissing an appeal for other reasons, you may need to seek the views of the parties and, if serious doubt remains, dismiss the appeal irrespective of any mitigation, restoration or compensation measures.

> **Step 3: Mitigation/restoration** measures may then be used to address adverse residual effects, such as repairing damaged habitats, limiting disturbance to species, and building ecosystem resilience within the site/wider area.
>
> **Step 4:** If harm would still result, **compensation measures on the site or immediately proximate to it** may then be used to secure benefits which might offset any loss, reduction or adverse effects on other features.

44. Although PPW says that enhancement measures (to achieve a net benefit for biodiversity) should be considered at each stage, it is logical to address this alongside steps 3-5, as such measures will be synonymous with restoration and compensatory measures.

45. It is common for development to have an adverse effect on an ecological feature which cannot be wholly mitigated. For example, on a site comprised of grassland, the construction of a dwelling would result in the quantitative loss of habitat – a direct impact which no form of mitigation could completely address. In such a scenario, to achieve a biodiversity net benefit, restoration or compensatory measures may also be proposed. In this example:

    - **Mitigation** might require works to be carried out outside the nesting season for grassland birds, and propose the installation of green roofs (i.e. reducing the magnitude of direct and indirect impacts on affected bird species).
    - **Restoration** might refer to a management plan to improve the condition/quality of the remaining grassland.
    - **Compensation** might refer to tree/hedge planting or bat boxes which could offer benefits to less-affected species within the same ecosystem.

46. In line with PPW, **before** considering any proposed compensatory measures, you should be clear about the magnitude of any residual harm to ecological features **after** any mitigation and restoration measures. If the residual harm would be substantial (e.g. due to the extent of the loss of a protected habitat in good condition) then you may find that no form of compensatory/enhancement measures would achieve a net benefit for biodiversity.

47. If there would be damage to an ‘irreplaceable’ feature as defined in PPW, the practicability of any mitigation, restoration and compensation measures should be carefully scrutinised.

48. For smaller schemes it is common for bat or bird boxes to be proposed to achieve a net benefit. Whilst the evidence is likely to be thin, you should be clear in your mind about the potential nature of any ecological harm caused by the development and whether the proposed measure would be mitigatory or compensatory. For example, an extension built on an area of lawn would lead to the permanent sealing of soil (an issue identified in the SoNaRR) with likely loss of soil-resident species and potential incremental impacts on birds which eat invertebrates and earthworms. In this scenario, the installation of a bat box would be compensatory rather than mitigatory as it would offer benefits to species unlikely to be affected by the development. In contrast, a green roof could provide an alternative habitat for invertebrates and mitigate effects on bird species. Your approach should, however, be proportionate to the likely impacts.

49. Compensatory measures which are proposed adjacent to or in proximity to the site should be considered no less favourably than those which would take place within the site. However, it is essential that the applicant has control over the land and if there is doubt you may need to seek further evidence. The compensatory measures should also aim to provide the same ecological function for the species/habitat that the development is damaging, or where this is not possible, provide functions and properties which would achieve benefits for linked species/habitats within the same ecosystem types.

50. In summary, you should consider:

- Have mitigation measures been proposed to reduce any residual harmful effects (direct, indirect or cumulative) to species and habitats? Are they practicable? If you consider that mitigation measures could be employed which have not been suggested, you should seek the views of the parties.
- Are restoration/compensatory measures proposed for areas of retained habitat? Are expected gains in the extent and condition of habitats clearly expressed? Would they avoid damaging existing features? Are enhancement objectives clear and able to be monitored? Would any required management arrangements be feasible and compatible with existing or neighbouring land uses? Would they be in place for sufficient time to achieve the sought-after improvements (PPW refers to a ‘long-term’ management plan)?
- Similarly, are any restoration/compensatory measures proposed for species feasible, sufficient and appropriate to the site context?
- Would the restoration and compensatory measures contribute to the diversity, extent, condition and connectivity of broader ecosystems (as defined by NRW) and help species to adapt to climate change?

Step 5: As a last resort **off-site compensation measures** may be appropriate.

51. Off-site compensatory measures may be justified if you are satisfied that a biodiversity net benefit could not be achieved within the site or on land

immediately adjacent/proximate. Your assessment of any such measures should be similar, and similarly rigorous, to the approach at step 4. In addition, there should be some tangible link between the conservation objectives of the compensation land and the damage caused by the development.

> **Step 6:** If there is residual harm and/or the applicant has not adequately demonstrated (by following the step-wise approach) that lesser harm to ecology could not result, then **planning permission should be refused** other than in wholly exceptional circumstances.

52. Particularly for larger schemes and where there are clear public benefits, any harm should be weighed in the balance in the normal way. If certain features would be truly lost, the impact of that loss should be evaluated taking into account its quality, scarcity, effectiveness of any compensation and any other negative impacts against the benefits.

53. "Wholly exceptional" may not mean "unusual". Rather, the test should be whether there is such a strong justification for a development that it warrants being treated as an exception to the strict application of the step-wise test.

Determining whether there is a net gain for biodiversity

54. This is matter for you to judge but your finding should be supported by clear and logical reasoning which is based on the step-wise approach and uses DECCA terminology. Some pointers:

- Establish the exact boundaries of any **designated sites** and be clear about the **qualifying features** for which they have been designated.
- So far as possible, establish the **baseline condition** of site-based habitats and species (prior to development or pre-emptive site works).
- Have in mind the site's function in relation to **broader ecosystems** and linked habitats, using information published by NRW where necessary.
- Be clear about any **quantitative losses** to habitats and, if known, estimated quantitative impacts on key local species populations.
- Establish the nature and magnitude of **direct, indirect and cumulative** impacts to habitats and species prior to and following mitigation/restoration and reach a view as to whether an adverse effect would be harmful.
- Where compensatory measures are proposed, ensure that they are **appropriate to the ecosystem** type and relate to the harm caused by the development.
- Balance both **quantitative and qualitative** adverse and beneficial effects, and consider whether enough has been done at each 'step', to reach an overall conclusion on whether there would be a net gain for biodiversity which would support the resilience of relevant ecosystem types.

Development Plan allocations pre-dating the step-wise approach

55. A Local Development Plan (LDP) which pre-dates the publication of PPW edition 12 may include allocated sites which overlap with statutory designations and/or contain protected species and habitats.

56. In some cases, the LDP's Sustainability Appraisal (SA) may enable you to demonstrate that the sequential process of site selection was analogous to the step-wise approach. However, you should consider whether there may have been any significant change to designations, or habitats and species present on the site, since the SA was undertaken.

57. PPW para 6.4.17 indicates that implementing the step-wise approach in decision-making "may not be possible" if "certain progress towards fulfilling the allocations…[has already] been made". This may logically include site preparatory works or the granting of outline permission, for example.

58. If, however, there is no evidence of delivery of an allocation following the adoption of an LDP, and the SA could not be regarded as a satisfactory and representative substitute for the step-wise approach, PPW may be a material consideration which may outweigh policy conflict. In general terms, the greater the standing of the designation and/or the harm which would result, the more likely a departure from the LDP would be justified.

Statutory 'environmental principles' and 'biodiversity targets'

59. The environmental principles defined in the Environment (Principles, Governance and Biodiversity Targets) (Wales) Act 2026 are well established in planning policy, and are largely reflected in TAN 5, which all LDPs post-date. They are therefore unlikely to considerable bear on decision making. However, once WG has set legally binding biodiversity targets these will influence plan-making and become a material consideration in decision-making.

Development affecting certain species and habitats

Surveys

60. A Phase 1 Habitat Survey, also referred to as a Preliminary Ecological Appraisal, indicates the location of habitats and wildlife present on a site. This initial phase of survey is the industry standard for all UK ecologists and may recommend more detailed surveys to be undertaken either before planning permission (particularly for EPS – see below) or prior to construction.

61. You should scrutinise not only the results of the surveys but also determine their adequacy, particularly in relation to:

    - Whether they have been undertaken by a competent person,
    - Whether the timing of the surveys is appropriate to the species, and
    - Whether the information is sufficiently up to date.

62. See Annex 2 for guidance on the timing and currency of surveys.

Protected species – alleged impacts/conditions

63. Whether or not a site contains a protected species can be difficult to resolve if there is no site-specific evidence of the presence or absence of that species. In such circumstances, the 'precautionary principle' should be applied.

64. Para 6.2.2 of TAN 5 says that (emphasis added):

- Developers should not be required to undertake surveys for **protected species** unless there is a **reasonable likelihood** of them being present, but
- The **level of likelihood** that should trigger a requirement for developers to undertake surveys should be **low** where there is a possibility that **European protected species** might be present.

65. A logical interpretation of this is that a survey may not be required where disturbance to species protected under the EW Act (e.g. nesting birds) is alleged rather than evidenced, but even a low likelihood of an EPS (e.g. bats) being disturbed may trigger the need for a survey.

66. You should only attribute weight to an allegation of a species' presence or absence if it is made by a competent ecologist. Evidence provided by other parties is likely to attract limited weight without professional endorsement. Reports and surveys should similarly be prepared by a competent ecologist; if there is ambiguity about this, seek clarification from the parties.

67. If a Council ecologist has alleged the presence of a protected species, you should consider whether their view is reasonable, even if they have provided little explanation or evidence. For example, would there be clear disturbance to a roof void which could be used by bats or birds? Are there natural habitats within commutable distance for the relevant species? Is the site well lit? However, apply caution – protected species can be tolerant of urban contexts.

68. Both TAN 5 and WG Circular 016/2014 are clear that the presence of protected species is a material consideration which must be established at the application stage, and so if a survey for protected species is needed it must be undertaken **prior to planning permission being granted**. Consequently, if you disagree with an allegation that a protected species is present, you must not impose a condition requiring a survey.

69. See Annex 1 for example reasoning.

Trees, woodland and hedgerows

70. PPW says that the removal of trees, woodland and hedgerows will only be permitted where it would achieve significant and clearly defined public benefits. Where this is unavoidable, compensatory planting will be required:

- At a minimum ratio of at least 3 trees of a similar type and compensatory size planted for every 1 lost.

- For woodland or a shelterbelts compensation planting must be at a scale, design and species mix reflective of the area lost, with a minimum of 1,600 trees per hectare for broadleaves and 2,500 trees per hectare for conifers.

71. Interpreting this in line with the step-wise approach suggests that it is effects on trees, woodland and hedges which are likely to **offer the greatest support to ecosystem resilience (i.e. native and naturalised species)** which should principally be avoided or minimised. The removal of exotic trees or shrubs and their replacement with native species may offer the "significant and clearly defined public benefits" sought by national policy, and so should be considered in your assessment even if the planting ratios are not met. If, however, there would clearly be a loss of native species, the extent and type of any compensatory planting should reflect that set out in the above guidance, unless other forms of habitat restoration or enhancement would offer similar or greater benefits for biodiversity and connected ecosystems.

72. PPW identifies **ancient woodland, veteran trees, ancient hedgerows and wet woodlands** as examples of "habitats which are irreplaceable", and which should be avoided other than in wholly exceptional circumstances. NRW's Ancient Woodland Inventory, available on DataMapWales, identifies the boundaries of the four categories of ancient woodland. Identifying the other habitat types will be more difficult unless there is ecological evidence before you. You may need to make a judgment based on, for example, your observations of the maturity of a tree, the apparent diversity of tree and shrub species within a hedgerow (in general – the greater the range, the older the hedgerow), or where the floor of broadleaved woodland is notably boggy with established aquatic plants, seeking the views of the parties where necessary.

Soils

73. Soils not only deliver growing, drainage and carbon storage ecosystem services, but also provide a habitat to a diverse array of micro-organisms and invertebrates (it has been estimated that around 59% of all terrestrial biodiversity is in soil). The health and diversity of these species is essential to soil function and quality, and thus to supporting its ecosystem services. The ecological value of soil can be affected by development via:

    - Loss – e.g. through disposal to landfill and run-off or erosion,
    - Compaction – e.g. due to trafficking of heavy vehicles, laydown of materials, and poor stockpiling which can affect the soil structure and starve micro-organisms of oxygen,
    - Sealing – e.g. from impermeable surfaces such as asphalt, paving and concrete, which limit water and gas exchange.

74. An intrusive soil survey will assist in establishing a development's potential effects on the soil resource. For example, it should tell you:

    - Soil thickness – and thus the volume of soil which would be affected,
    - pH levels – and thus the relative level of micro-organism and fungi activity,

- Nutrient content – i.e. how fertile the soil is, and thus whether any proposed habitat and planting scheme is appropriate.

75. However, unless there is a credible indication that the soils underlying a development site are particularly valuable to an ecosystem service (e.g. for biodiversity, carbon storage or food growing), and the proposal's footprint or construction activities would cover an extensive area which may result in the loss of or damage to soils, an intrusive soil survey will not normally be needed.

76. Although it will depend on the character of the soil resource, as a rule of thumb the less disturbed the soil resource, the greater its potential biodiversity value. If there is no evidence about soil disturbance, you will need to form a view based on the use of the site. The table below may be used as a guide.

Most disturbed	Developed (sealed) or excavated land
	Arable land
	Improved or permanent grassland
	Parkland and gardens (urban or rural)
	Forestry plantations
	Semi-natural or unimproved grassland or scrub
	Mature woodland
Most undisturbed	**Species-rich grassland**
	Ancient woodland or ancient hedgerows

77. PPW identifies **long undisturbed soils** as examples of "habitats which are irreplaceable" and which should therefore be avoided other than wholly exceptional circumstances. Such soils are most likely to underly those habitats marked in bold in the above table. However, note that if the ancient woodland is categorised as a 'Plantation on Ancient Woodland Site', soils underlying areas of non-native coniferous species are less likely to be 'long undisturbed'.

78. It is important to note that PPW defines "habitats which are irreplaceable" as those which would be **technically very difficult** (or take a very significant time) to restore, recreate or replace **once destroyed** (emphasis added). In this regard, sedimentary soils differ from other habitat types as they are capable of being moved, stored and re-sited without loss of function or value. A Soil Management Plan may consequently secure appropriate protection of the soil resource via mitigation or restoration measures, although its likely effectiveness should be carefully considered if the affected resource is of a significant quality/quantity.

Peatland

79. PPW includes specific policy on peatlands, noting that they are an extremely fragile resource which risk the resilience of the ecosystems they support. It affords considerable weight to their protection and says that unless material considerations indicate otherwise it will be necessary to refuse permission for development that does not protect the resource. Alongside **peatland**, in the context of the step-wise approach PPW also identifies **blanket bog and**

lowland fen (the latter being a wetland which may occur on peat soils) as examples of “habitats which are irreplaceable”.

80. NRW’s ‘Peatlands of Wales Map’, available on DataMapWales, denotes the broad location and the estimated thickness and carbon stock of peatlands across Wales. It indicates that the resource is mainly confined to uplands and coastal lowlands. PPW indicates that this map should be used as the basis for avoiding direct effects at step 1 of the step-wise process. It is, however, merely indicative and thus, if there is potential for adverse effects to arise, an intrusive peat survey should be undertaken. As with a soil survey, this should characterise the peat resource, including its thickness, quality and carbon storage function.

81. In their natural state, peatlands are waterlogged systems where plant remains decompose without loss of carbon dioxide. As a result, they accumulate carbon, in the form of peat, at a rate of approximately 1mm per year. This long-term carbon storage sets peatlands apart from many other ecosystems.

82. Peat is also distinct from other soils as it accumulates only in the absence of air and is formed in-situ. If water loss occurs, oxygen-fuelled microorganisms will be able to access it, leading to its decomposition. If moved, the material will technically become a sedimentary soil, threatening its value as a habitat and carbon sink. Consequently, it is clearly preferable for peatland restoration to take place in-situ, e.g. by addressing erosion and drainage issues. If relocation of peatland is proposed, careful scrutiny of the evidence will be required to satisfy you that there is a reasonable prospect of the purported benefits being achieved.

83. The IUCN UK Peatland Programme’s ‘Peatland Code’ indicates that, to be eligible for restoration, blanket and raised bogs must be at least 30cm deep. Peat surveys may focus particularly on the effects of development on areas of ‘deep peat’ (of 40-50cm or more). Note, however, that PPW makes no distinction between deeper and shallower areas of peat. That said, your assessment of effects should take account of the depth and quality of the peat resource, including functional connections between deeper and shallower areas; its consequent value to biodiversity and carbon storage; and the extent to which it might be affected by the proposal, whether directly (from permanent loss) or indirectly (e.g. from potential dewatering).

84. Restoration and enhancement of peatland to compensate for any loss may be attributed weight as a benefit, particularly if the evidence indicates that the existing resource is degraded and has become a carbon dioxide emitter, and that restoration by other means is unlikely. Any proposal to move, store and re-site peat is likely to be acceptable only if it is demonstrated that the function/health of the resource would not be affected (likely to be only the shallowest areas of peat of no tangible in-situ value to ecosystem services).

Grassland

85. PPW identifies **species rich grassland** as a “habitat which is irreplaceable” and should therefore be avoided. They have a high diversity of native wildflowers

and grasses and are capable of supporting populations of insects, birds, bats, amphibians and other animals. They can be difficult to identify and so technical evidence will be important in determining their quality and extent.

86. Types of grassland which may be species-rich include acid grassland, neutral grassland, calcareous grassland, and purple moorgrass and rush pasture. The quality of grassland habitats is often undermined by poor management, such as overgrazing, application of herbicides and fertilisers, and invasion by non-native species. Consequently, restoration of existing grasslands is often a feasible enhancement measure.

Annex 1: Examples of reasoning

Householder scheme

Low likelihood of protected species being affected

TAN 5 states that developers should not be required to undertake surveys for protected species unless there is a reasonable likelihood of them being present. The Council has provided no evidence of the presence of protected bird species in the locality or any indication of their likely presence on the appeal site. Given the densely developed, well-lit nature of the area, and the considerable separation distance from natural or semi-natural habitats and features, I consider there to be no reasonable likelihood of protected bird species being present on the site. Consequently, a survey is not required.

Possibility of an EPS being affected

An existing roof void would be removed by the proposal and other sections of the roof space would likely be affected during the construction phase. Due to the nature of the works and the site's rural setting, the Council's ecologist has recommended that a preliminary appraisal is undertaken to establish if bats, which are European Protected Species, are present.

TAN 5 advises that developers should not be required to undertake surveys unless there is a reasonable likelihood of protected species being present. Nonetheless, it also states that the level of likelihood that should trigger the need for a survey should be low where there is a possibility that European Protected Species might be present. In the absence of a preliminary roost assessment, I cannot conclude with any certainty that the proposal would not adversely affect bats. Whilst I have considered whether such evidence could be secured via a pre-commencement condition, TAN 5 advises that surveys should be completed and any necessary measures to protect species put in place before planning permission is granted.

Major development

Step-wise and DECCA example

Although the layout of the scheme would allow features of ecological importance to be retained, the evidence indicates that there would be a quantitative loss of marshy grassland and broadleaved woodland, both of which are protected habitats under section 7 of the Environment (Wales) Act 2016. The Preliminary Ecological Appraisal (PEA) concludes that the loss of these habitats, without mitigation, would represent an adverse impact of moderate magnitude, including in relation to ecosystem resilience.

The proposed restoration, mitigation and enhancement measures relate to existing areas of marshy grassland and broadleaved woodland. The PEA evaluates these as being of moderate local value, making enhancement for species and ecosystems entirely feasible. Nonetheless, whilst I accept that quantitative loss may be offset by qualitative improvements, details are lacking from the evidence in

relation to the scope for restoration and enhancement. For example, beyond scrub clearance, there is no indicative definition of target species mix for areas of restored grassland against which the loss of habitat and enhancement objectives could be monitored. Controlled grazing of this grassland is the clear preference of the PEA yet other evidence indicates that this may not be feasible, with the effects and timing of other techniques such as burning not properly established, calling into question the viability of the necessary long-term management arrangements.

There is also little clarity on the extent of broadleaved woodland which may need to be removed or the measures required to enhance the quality of existing woodland. Some dwellings appear to be sited within the root protection areas of Category A trees, casting doubt on whether the proposal would be compatible with their long-term retention. It is also unclear whether the proposed replacement woodland could be accommodated without further loss of marshy grassland. Moreover, although the affected habitats may individually be of only moderate local value, NRW's Nature Network Maps indicate that they are inherently associated with broader grassland and woodland ecosystems within the River Amman corridor.

There is therefore insufficient evidence to demonstrate that the loss of protected habitats has been minimised and that the proposed mitigation, restoration and enhancement measures would provide a net benefit to biodiversity and secure the resilience of ecosystems and green infrastructure assets.

DNS – excerpts

Site selection and reasonable alternatives

The ES confirms that the ecological value of land was considered at the site selection stage, with professional judgment applied with the intention to ensure that, as far as is reasonable for a desk-based evaluation, significant direct effects on irreplaceable habitats and protected species would be avoided. The ES also records how the results of detailed surveys brought about iterative revisions to the scheme's layout with the intention of avoiding direct impacts on certain sensitive site-level habitats and species. Having regard to the evidence, reasonable alternatives which would result in lesser harm to protected species and habitats have been adequately discounted via the site selection and design processes.

If the site contains protected species and habitats that are irreplaceable

The ES confirms that the site contains grassland, scrub and woodland habitats and that much of the site is likely to have original soils in situ which may be relatively undisturbed. Excluding sites containing such habitats and resources at the site selection stage could, however, unjustifiably rule out the consideration of sites which in other respects may be acceptable, particularly in the light of public benefits which may be wholly exceptional. Whilst several protected species have been observed within the site or are likely to be present, the mobility of species across site boundaries will inevitably present challenges to identifying direct effects at the site selection stage. Moreover, species exhibit diverse characteristics and vulnerabilities which may be specific to families or genera and may require detailed consideration on a case-by-case basis.

Minimisation of effects on habitats

The land-take of built form would be modest relative to the site as a whole. Proposed access tracks would partly use an existing network and would be of a length and width appropriate to their required use. These factors would assist in minimising direct permanent or temporary losses of undisturbed soils and other habitats, which are mainly confined to semi-improved grassland or dense bracken of no local botanical value.

Minimisation and mitigation of effects on species

The proposal would not directly affect foraging habitat for bats, sever commuting features or disturb existing bat roosts. The principal potential adverse effect on bat species relates to mortality or barotrauma is associated with turbine collisions. This would be minimised by blade tips being set off from favoured habitats and further mitigated via a scheme to secure the feathering and control of turbine rotation speeds when idle. Whilst bat fatalities would remain likely, the evidence indicates that the most affected species would be common pipistrelle, which is common and widespread. Potential effects on bat species during construction would be adequately mitigated via conditions.

The mortality risk to reptiles would be heightened during the construction period but the limited areas of affected habitat and the application of mitigation measures would ensure that effects on site-based populations would not be significant. Permanent loss of habitats favoured by reptile species would also be limited in extent and a profusion of refugia within the site would further limit adverse effects.

Empirical evidence indicates that wind farms cause negligible disturbance or displacement to raptor species such as red kite. Proposed operational areas are well separated from nest sites and favoured raptor habitats. Modelling indicates that collisions with turbines during the operational period would not significantly affect the viability of regional populations of goshawk or red kite. Permanent loss of grassland habitat for ground nesting birds would be minimal, and mitigation measures secured via condition would ensure that effects on these species during the construction phase would not be significant.

Mitigation of effects on peat

Surveys confirm that the site contains a peat bog which would lie marginally within the indicative radius of influence of the turbine 3 excavation. Any dewatering risk would, however, occur only during the 4-6 week construction period. As a precautionary measure, tests carried out at an observation borehole would establish the hydraulic behaviour of bedrock prior to construction, the results of which would inform the micro-siting of the turbine if necessary. Furthermore, any shallow water accumulating within the turbine excavation could be returned to the peat bog during construction. Consequently, the ecological value of the peatland and its capacity to act as a carbon sink would be safeguarded.

Minimisation and mitigation of effects on soils

The site is currently used for sheep grazing on land of poor agricultural value. The ES assumes that much of the site hosts original and relatively undisturbed soils. The relative sensitivity and typology of soils has been estimated via a Phase 1 geo-environmental survey, which recommends a further Phase 2 ground investigation prior to construction. This would seek to characterise soil chemistry, with deeper testing carried out where needed to inform the detailed design of the development. Conditions to secure the approval and implementation of a Materials Management Plan (MMP) would ensure that soils were stored and handled according to best practice during construction, avoiding soil compaction by vehicles and stockpiles, cross-contamination, and loss of organic matter due to erosion and run-off, thereby safeguarding the long-term structure, function and quality of soils.

Enhancement and net benefit for biodiversity

The outline Habitat Management Plan (HMP) identifies measures for enhancing habitats within the site and for periodic monitoring to be undertaken to track the diversity, extent and condition of vegetation, water levels and target species. Clearance of bracken and scrub, planting of devil's-bit scabious, fencing and controlled grazing are specifically intended to enhance the condition of habitats for marsh fritillary butterfly, securing wider ecological connectivity for this species of conservation concern from a nearby Site of Special Scientific Interest to the wider landscape. Controlled livestock grazing is proposed to improve botanical diversity in an area of peat bog dominated by purple moor grass and a planting scheme would aim to increase the diversity of plant species within semi-improved acid grassland. Thus, whilst there would be some permanent loss of habitats, it is clear from the evidence that the HMP would address past overgrazing and poor management which has led to significant habitat degradation in several areas, with significant benefits for several species which would, overall, provide a net benefit for biodiversity and secure the resilience of ecosystems.

Annex 2: Ecology surveys – timing and currency

Timing of surveys

Species	When to survey (weather dependent)
Badgers	Any time of year February to April or October to November for bait-marking surveys to establish territories
Bats (preliminary roost assessment)	Any time of year (trees are best surveyed without foliage)
Bats (hibernation roosts)	November to mid-March
Bats (summer roosts)	May to August
Bats (foraging and commuting)	April to October for spring, summer and autumn behaviour
Bats (swarming)	August to October
Birds (breeding)	March to August (species dependent)
Birds (winter behaviour)	October to March
Birds (migration)	March to May or August to November (species dependent)
Dormice	April to November
Great crested newts	Mid-March to mid-June (mid-April to end of June for eDNA)
Invertebrates	April to September
Natterjack toads	April to May (aquatic survey) July to September (terrestrial survey)
Otters	Any time of year
Reptiles	April to mid-October
Water voles	Mid-April to September
White-clawed crayfish	July to September

(Based on Natural England's Standing Advice)

Currency of surveys

Preliminary Ecological Appraisals are typically valid for 2 years from survey completion, in line with CIEEM best practice guidelines. After two years they will normally need to be updated to ensure there have been no significant changes.

The currency of species-specific surveys will vary and should normally be identified within the survey. The following may be used as a guide but if there is doubt, seek the views of the parties.

Age of data	Report/survey validity
Less than 12 months	Likely to be valid in most cases.
12-18 months	Likely to be valid in most cases with the following exceptions: • Where a site may offer existing or new features which could be utilised by a mobile species within a short timeframe.

	• Where a mobile species is present on site or in the area and may have created new features of relevance (e.g. roosts/setts). • Where species-specific guidance dictates otherwise.
18 months to 3 years	An ecologist will need to undertake a site visit (and may also need to update the Preliminary Ecological Appraisal) to review the validity of the report, based on: • Whether the site supports, or may support, a mobile species which could have moved on to the site, or changed its distribution within a site. • Whether there have been significant changes to the habitats present (and/or the ecological conditions / functions / ecosystem functioning upon which they are dependent) since the surveys were undertaken, including through changes to site management. • Whether the local distribution of a species in the area around a site has changed (or knowledge of it increased), increasing the likelihood of its presence.
More than 3 years	The report is unlikely to still be valid and most, if not all, of the surveys are likely to need to be updated.

(Based on CIEEM Advice Note April 2019)