

Biodiversity Net Gain Guidance for Farmers and Land Managers in the South Pennines





The Importance of South Pennine Upland Grasslands

Post war agricultural policies have encouraged farming practices that can be harmful to the biodiversity of grasslands, like using herbicide, ploughing and re-seeding and applying inorganic fertilisers. The old farming ways were much less intensive, using only as many livestock as the land can naturally support. Today only fragments of old un-intensified grassland remain.

Old grasslands are better for biodiversity as they tend to have more plant and flower species and important fungi which in turn support a large number of insects. The high insect numbers attract birds and small mammals to feed, which in turn attract predators like barn owl and kestrel.

The new Biodiversity Net Gain (BNG) approach gives farmers the option to revert back to more traditional less intensive ways of farming without losing out financially.

Natural Capital and Ecosystem Services

Grasslands that have rarely, if ever, been ploughed make them much better at storing soil carbon and holding on to rain water. More resilient and structurally diverse grasslands will be better assets in terms of providing carbon capture and storage, water retention, pollination, healthy soils, visual and recreational amenity.

Landscape and Cultural Heritage

Preserving and restoring our natural grasslands provides opportunities to re-invigorate traditional management techniques such as dry-stone walling and hay production.

Grasslands for Biodiversity

Enhancing grassland can have immediate benefits for the soils which support them and the other organisms which live in them.

Where upland grassland exists within a mosaic of other habitat such as woodland, heathland and wetland, these habitats provide a key resource for local wildlife. The following groups are likely to particularly benefit from enhanced habitat.

Upland Birds

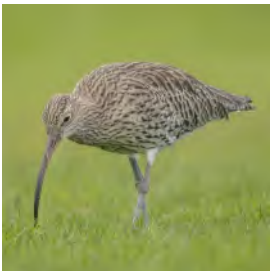
Longer and more varied grassland swards provide breeding habitat for species such as meadow-pipit, skylark, snipe and lapwing. More diverse grassland provides foraging for seed eating birds such as twite and linnet, and better hunting grounds for predatory species such as the barn owl, kestrel and short-eared owl. Life-rich soils and cover plants provide better forage for sensitive upland breeders such as curlew and golden plover.

CHEGD Fungi

This acronym summarises the groups of fungi which are an important part of, and depend upon, our more natural grassland. Farming practices in the South Pennines such as not ploughing are particularly favourable to fungi. Such less intensive farming of grasslands should provide more, and better habitat for this group - but their consideration in plans will be important to ensure conditions work in their favour.

Invertebrates

Grassland with a diverse range of species and structures will provide habitat for a wide range of invertebrates which will in turn provide pollination, or prey for other fauna. Declining populations of butterflies and moths could significantly benefit from herb rich grassland on which their caterpillars feed.



What is Biodiversity Net Gain ?

Biodiversity Net Gain (BNG) is an approach to development and land management that leaves biodiversity in a measurably better state than before the development took place.

Currently, although certain sites are protected, there are limited mechanisms to value, maintain, enhance or create wider habitats. As a result, habitats continue to be lost to built development, reducing nature's ability to connect and thrive.

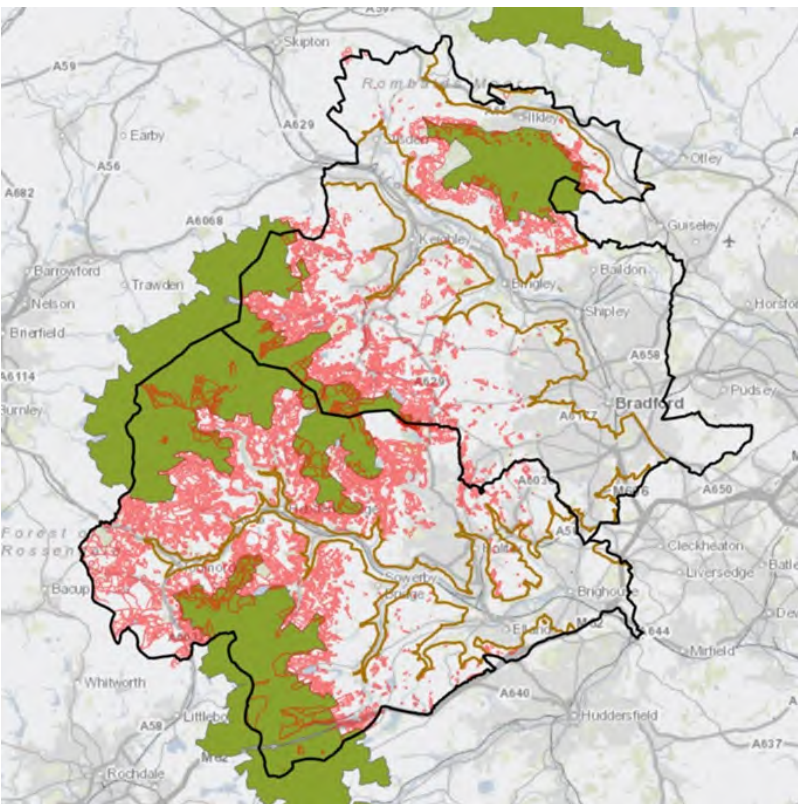
While saving wildlife in protected nature reserves has its place, scientific evidence informs us that nature recovery requires a strategic approach at the landscape scale, making places for nature that are “bigger, better and more joined up”.*

Biodiversity Net Gain is now established within The Environment Act (2021) which operates as the UK’s new framework of environmental protection since leaving the EU. BNG fits with other new tools and requirements introduced by the Act to aid nature recovery including:

Conservation Covenants - a new type of legal agreement to conserve land for nature long-term. These will be secured - with a *responsible body* such as a local authority or local Wildlife Trust.

Local Nature Recovery Strategies - a new spatial strategy to identify areas with opportunity to recover nature. Land included in these strategies will have a higher value in relation to Biodiversity Net Gain. An example of this approach is the strategic map of upland grassland in Bradford and Calderdale—illustrated left—which can help to identify optimal areas for ancient grassland recovery.

Habitat and Species recovery targets—aims at reversing the decline in key wildlife populations and the network of sites that support them.



Strategic mapping of upland grassland areas in Bradford and Calderdale

Maps accessible from:

<https://cbmdc.maps.arcgis.com/apps/webappviewer/index.html?id=02285e4c910047ec86121cfdd5b65dad>

<https://www.calderdale.gov.uk/v2/maps/biodiversity-and-geodiversity>

*Lawton, J.H., Brotherton, P.N.M., Brown, V.K. et al. (2010). Making Space for Nature. Report to Defra



Developers need to replace the Biodiversity lost on their sites



You are paid for creating or enhancing high value habitats for the developer

Why should you be interested in Biodiversity Net Gain ?

BNG offers a new green finance mechanism which land managers can use to fund habitat management and maintenance on their land.

From November 2023, when a developer applies for permission to build on land, they must show that they will deliver a 10% gain in biodiversity. This increase must be measured using the Defra Biodiversity Metric tool - which converts habitats to "Biodiversity Units", by assessing the existing biodiversity on-site and comparing this to the expected biodiversity after development. Biodiversity units are calculated using the size of the habitat, its condition, distinctiveness and location.

If achieving a biodiversity net gain is not feasible on the site, developers may be able to deliver biodiversity units elsewhere. This means purchasing biodiversity units off-site from someone else who is able to enhance the biodiversity on their land.

Land managers can generate biodiversity units to sell to developers by creating or enhancing habitats. The monetary value of generated units varies depending on the local area or the type of habitat but may be around £20,000 per biodiversity unit. This is to cover the initial costs, future management and monitoring required for a period of 30 years.

Land included within a Local Nature Recovery Strategy will have a higher biodiversity value within the metric and therefore a higher market value.

How does it work ?

In order to generate Biodiversity Units to sell, as a land manager, you will also need to use the Defra Biodiversity Metric to assess the existing biodiversity on your land (baseline score) and the increase you could expect following changes in management. This survey should be undertaken by a suitably qualified ecologist.

Once you have had a baseline assessment of the areas of your farm you'd like to use for BNG offsetting, you can begin to enhance those habitats to create biodiversity units, or you can wait until you receive BNG payments linked to development before you begin.

Officially, only habitat created or enhanced since 30th January 2020 can be used to sell Biodiversity Units, but habitat created or enhanced in advance of selling to a developer will have a higher value in terms of the number of Units it is worth. Record keeping will be important, as detailed in the box below. BNG payments will be dependent on the needs of local development to offset, so sale will depend on local demand and there may be some time before you are able to sell BNG units.

You may enter as much or as little of your farm into BNG agreements as you decide. You might choose to enter some areas into Countryside Stewardship agreements and others into BNG (see.p.7).

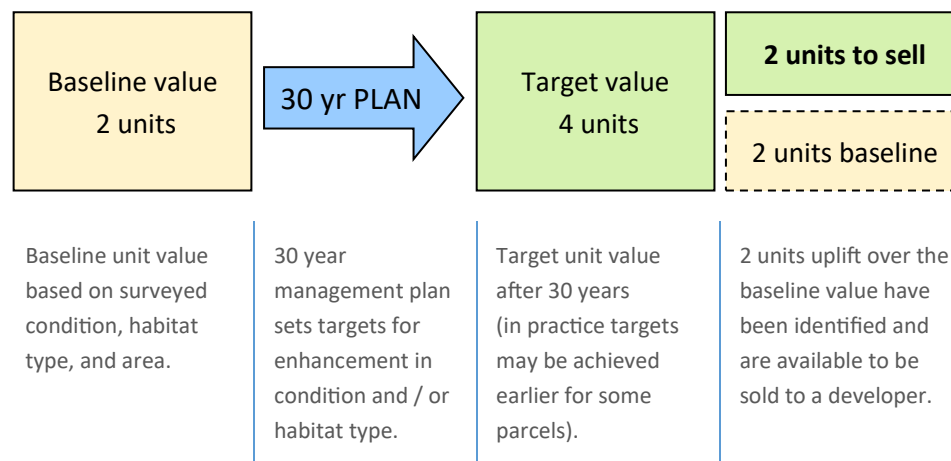
It is suggested the following evidence should be retained as a minimum for record keeping in regards to creating or enhancing habitat in advance:

- Completed baseline habitat metric calculations and condition assessments
- Completed post-intervention metric calculations and condition assessments
- A Habitat Management and Monitoring Plan
- Monitoring surveys or progress reports undertaken since the work began
- That an ecologist has conducted the habitat surveys and assessments and completed the metric

In addition, any permissions, discussion, official consultation and additional evidence in the form of ecological surveys and photographs may also be beneficial.

Example:

A Hectare of productive grassland might be surveyed to have a value of two Biodiversity Units. This is your baseline score and you will need to enhance it for biodiversity to have something to sell to a developer. After enhancing the condition of the grassland, it could be worth four Biodiversity Units. Therefore, you have two additional units to sell to the developer, and you agree to keep the field in this enhanced condition for 30 years.



Grassland Condition

Grassland value and providing biodiversity units

It is important to note that good farming practice by itself does not constitute a saleable biodiversity gain.

Biodiversity Net Gains need to be evidenced through the DEFRA Metric as the difference in Unit scores between when the baseline assessment was carried out, and the target Unit scores assessed to be achievable for each land parcel in the scheme.

As Biodiversity Units are calculated from the area, distinctiveness (habitat type), location and condition, most of these factors are fixed for a given parcel, so change in *condition* will most commonly be used to achieve a gain in most circumstances.

Grassland condition (for biodiversity value purposes) is assessed under a number of condition criteria that are defined within the Metric. To give you an idea, the criteria shown in the table are a summary of those that your grassland parcels would be assessed under.

The table is an summary example of the criteria that are used to assess more distinctive grassland types. This shows that an uplift in condition from poor to moderate may be achievable by targeting management at one or two key criteria.

	Grassland Condition Criteria (medium and high distinctiveness)	Baseline Condition Poor	Target Condition Moderate
1	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type. Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward.	X	✓ (essential)
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	X	✓
3	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	✓	✓
4	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	✓	✓
5	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.	✓	✓
6	There are greater than 10 species per metre squared. NB - This criterion is essential for achieving good condition (non-acid grassland types only).	N/A	N/A

What will I need to do ?

Overall, grassland which is improved for biodiversity will be less productive, and require less intensive farming. The parcels you put into a BNG uplift scheme may require a change of priority from **farming livestock** supported by the available grassland, to **farming grassland** supported by the available livestock.

The following pages provide examples of management that will work towards achieving the grassland enhancements needed to achieve an uplift in biodiversity condition.



Less like this

Its very unlikely you will be ploughing and reseeding, but harrowing then overseeding with hay from flower rich parts of your farm, or from other farmers nearby may be a common approach.

Sometimes hard grazing might be needed for short periods to control problem species and open up seed gaps.

In most cases you will need to reduce the intensity of farming on the land, cutting less often, reducing livestock levels and not using artificial fertilisers or herbicides. Muck spreading may be used in some areas but not too much, and not where important mushrooms and toadstools are known to be thriving.



More like this

Management Examples

Removing or restricting grazing



Purpose

Grazing is beneficial to maintaining good grassland structure, but less intensive grazing should increase species diversity and improve sward structure leading to better conditions for biodiversity.

Grazing levels are critical as too little grazing can allow undesirable species to thrive, while too much can reduce diversity by preventing seeding and producing a low cropped sward with less value to wildlife.

Sheep and cattle in low numbers will selectively graze in different ways to create areas of high and low intensity grazing pressure. The grassland condition criteria require at least 20% of the sward is less than 7cm and at least 20% is more than 7cm

Cattle, being heavier footed can improve structural diversity of soils through localised trampling and opening of the sward which provides opportunity for new seed germination and variation in small scale moisture levels.

Management must ensure excess trampling does not result in poaching or physical damage to the soils in line with good grass management.

Benefits

Creating a more naturalistic grassland with areas of long and short sward grasses has huge benefit to supporting a greater diversity of associated herbaceous plants, as well as conditions for insects, small mammals and nesting birds. This is more difficult to achieve in hay meadows which will have more uniform sward heights and is perhaps more suited to permanent pasture farming.

Considerations

The right stocking density and grazing regime will need to be determined through reference to best practice examples and some trial and testing in the field.

Temporary or permanent fencing, walling or other stock controls may be best reviewed to control grazing on a manageable rotation.

Management Examples

Cutting later / Cutting less



Photo © Gethin Evans (cc-by-sa/2.0)

Purpose

Multiple silage cuts through the growing season often require additional inputs so are rarely ever going to uplift biodiversity condition. Cropping a longer sward for hay later in the season is more likely to be used as an enhancement.

For meadows grown for a single hay crop there are a range of options that enhance the biodiversity value. For example, an occasional delayed cut (1 in 5 years) until August or September allows some late seeding species the opportunity to seed.

Retaining areas of long grass also provides continuity of cover. Leave some field margins long after cutting the main hay crop. This can be done in rotation across different years so that periodic cutting of all areas prevents scrubbing over by woody species.

Benefits

Generally, cutting later in the season (generally late June to late July in most years) benefits species diversity by allowing a greater variety of plants species to flower and seed.

Flowering herbs within the sward will also provide resources for pollinating insects, and invertebrates such as caterpillars that depend on particular plants for food.

Ground nesting birds such as skylark will also benefit from a long sward through the nesting season (March—August).

Considerations

Following a hay crop, some aftermath grazing will help make germination niches which will be important for maintaining diversity.

Management Examples

Minimise damage



Purpose

Physical damage to grassland will be one of the criteria its condition is assessed on. This could be in the form of poaching, vehicle tracking, or other sources of damage or erosion.

Some of the measures already proposed, such as changes to stock density at different times of year, may have the added effect of reducing physical pressures from excess trampling for example.

Any identified damage may require a bespoke solution to bring it down to an acceptable level and this should be considered within the management plan when deciding on where and when particular farming activities may be carried out.



Benefits

Generally, undamaged grassland has greater value to wildlife.

Damage to the sward needs to be offset against the benefits that some disturbance from trampling and breaking of the turf can bring. A small proportion of bare soils also counts as a positive habitat indicator as base soils provide opportunity for germination and conditions needed by particular insects.

Considerations

Reducing damage in one area may create additional pressure on others. Timing and location of stock movements and seasonal weather will be factors to consider.



Management Examples

Reduce fertiliser and other inputs



Purpose

Grassland diversity is greater where soil nutrients are lower, since competition from grasses is reduced and conditions become tolerable to a greater number of species.

This often requires changing the practice of manuring or fertilizing for agricultural “improvement”, to a regime where manuring and fertilizing is reduced, and stock are not given feed supplements while grazing the grassland.

Good husbandry will need to be balanced against this requirement and a rotational grazing or feeding regime may be devised which allows this to be achieved for particular grassland parcels.

For example, supplementary feed may be given outside the BNG grasslands on fields outside the scheme managed for higher productivity; though the impact on other areas should not reduce their biodiversity value. Feeding over hard standing and more considered manure management may be required to prevent adverse impacts.

Benefits

Reducing soil nutrients (nitrates in particular) will discourage regrowth and competition from nettles, and other nutrient hungry weeds.

Reducing inputs lowers overhead costs.

This may be compatible with other schemes to reduce excess nutrient loading.

Considerations

Upland grasslands are often naturally acidic so adding lime works against their ability support the natural range of plants that would be found in such areas.

Management Examples

Overseeding/ green hay / planting



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Purpose

Diversity of grassland species can be directly improved through over-seeding with mixes appropriate to the target grassland habitat type.

Seeding, or direct plug planting may present the greatest potential for converting the grassland to a higher distinctiveness habitat type e.g. 'Modified grassland' to 'other neutral grassland' or 'upland acid grassland'.

Yellow rattle (*Rhinanthus*) is often introduced to reduce cover of dominant grasses as its roots draw water and nutrients from neighbouring grasses and can be highly effective at reducing overall dominance of the hungrier grasses which outcompete more delicate and desirable herbs.

Benefits

Seeding can more quickly enhance the number of plant species present in the sward and ensure they are more consistently present throughout.

Seed of local origin should be sourced wherever possible and spreading hay from a local species rich meadow is often best as plants will be adapted to local soils and climate, and locally distinctive plant varieties can be conserved.

Considerations

Conservation meadow mixes can be effective but need to be matched to local soils types. Careful selection and monitoring is required - particularly where land is still to be utilised for hay production. as occasionally species can become dominant and result in loss of productivity.

Management Examples

Control bracken / undesirable plants



Purpose

Where undesirable plants are large, woody, easily identifiable and few in number a control regime which cuts down, uproots or kills off individual plants may be best.

Digging out or cutting should be used in preference to herbicide, though choice will depend on the target species and context.

Where undesirable species are small, numerous and are spread throughout a grassland, farming methods which make the conditions less favourable to the weed species will be required.

Grazing can be effective at controlling undesirable plants but only if stock density and feed inputs do not work against the reduction of soil nutrients. Short term high density grazing rotations with no additional feed could be an effective option.

Benefits

Plants species that work against biodiversity by becoming too dominant are often the same weed species that reduce grassland value as pasture.

Plants such as thistle, nettles, dock or bracken can be tolerated in small numbers but reducing cover of these will greatly benefit a range of other species to thrive.

Considerations

Some weeds species which are listed under Schedule 9 of the Wildlife and Countryside Act should be prioritised for control as it would be a breach of the Act to allow them to spread into the wild. For plants such as Himalayan balsam or giant hogweed, grazing is often the most effective long term control, so where such species are identified, changes to grazing need to be carefully assessed.

Can BNG work with other environmental payments ?

Yes, if you receive payments through the RPS or through another market such as the Woodland Carbon Code you can still use your land to sell Biodiversity Units.

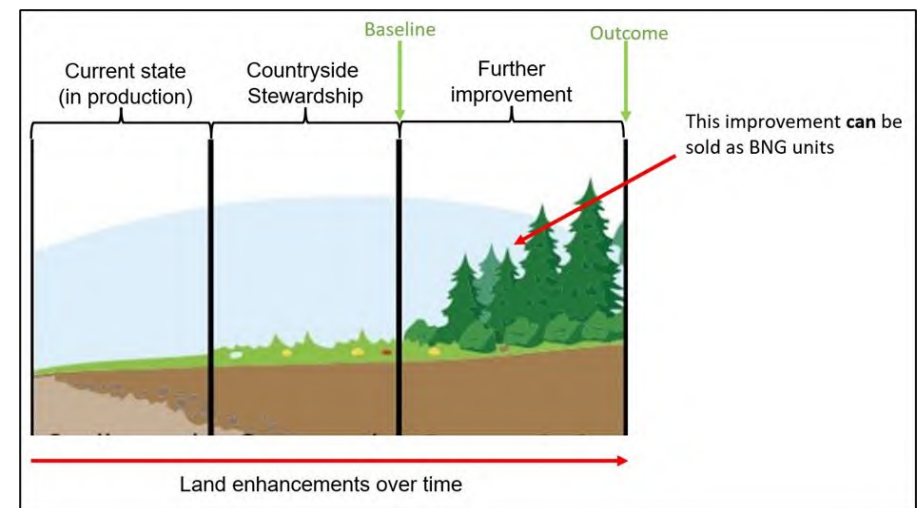
Biodiversity Net Gain does not replace agri-environment schemes, such as Countryside Stewardship or Sustainable Farming Incentive. You may still be able to sell Biodiversity Units and receive payments on the same landholding, provided they are not for the same action (known as double-counting) and do not conflict. If you are already in an agri-environment agreement you should check this before selling biodiversity units.

For example:

Having some land parcels in Countryside Stewardship does not prevent other parcels being entered into BNG. This **horizontal stacking** is more likely to be allowed.

Vertical stacking of schemes on the same parcel can be achieved for parcels already under a scheme like Countryside Stewardship. However the use of BNG must provide **additionality** i.e. some additional benefit that is not already being delivered.

In order to avoid double counting, in practice your BNG metric baseline may have to begin at the point after the enhancement period of your other environmental scheme, even if enhancement haven't actually happened yet.—as illustrated right.



Frequently asked questions



How long is it for?

Biodiversity recovery needs time and commitment. You will need to enter your land into a BNG agreement for 30 years.

Can I change my mind once I've signed up?

You will need to legally secure your land for at least 30 years to create and maintain the habitat enhancement you have agreed to once you have sold units to a developer. BNG is a long-term commitment and land will need to be registered as a Biodiversity Gain Site.

Will I still be able to use my land how I want to?

You will need to create a Habitat Management and Monitoring Plan for your land which will need to be agreed with the Local Planning Authority when you sell your Biodiversity Units. This should be created with input from a qualified ecologist, but can take into account the existing and future management of your land to prevent conflict between land use and environmental outcomes.

How and who keeps check of the outcomes?

Regular monitoring reports will be required to be submitted to your Local Planning Authority to ensure habitats are being delivered. A typical time scale might be monitoring undertaken in years 1, 2, 3, 4, 5, 10, 15, 20 and 30. An independent surveyor may be required to undertake or validate these surveys, this cost should be factored into the price you sell your units for.

Do I need to enter my land into a BNG agreement at a certain time?

No, there are no deadlines or time limits for when you can apply to register your land for BNG. However, BNG payments will be dependent on the needs of local developers so it may be some time before you are able to sell BNG units.

When will I get paid?

You'll need to agree this when you enter into an agreement to sell biodiversity units. Payments could be a lump sum, staged payments or by results. However you receive your payment, you will need to ensure it covers the costs to manage, maintain and monitor your land for the full 30 year time frame.

How do I get started?

Entering some of your land into a Biodiversity Net Gain scheme will require some preparation and careful consideration of your best options.

Your land will be put into a legal agreement, such as a Conservation Covenant, and periodically assessed over the duration of the scheme to ensure targets within the agreement have been delivered; so the implications for this over the 30 year period will need to be fully assessed.

Much of the BNG process will be set by central government who will administer some aspects of the scheme such as land registration. Other aspects will involve the local planning authority or other agencies authorised to administer and broker Biodiversity Units.

As the scheme itself is likely to develop over the lifetime of an agreement, there may be new opportunities to benefit from. Importantly, if targets are delivered ahead of time there may be potential to sell additional enhancement on the same land if this does not affect targets in the original agreement.

Working with land agents and farmer cooperatives can be a great benefit in finding out what is likely to work best in your own situation.



Further information

Guidance on Biodiversity Net Gain and the Biodiversity Metric: <https://nepubprod.appspot.com/publication/6049804846366720>

Little Book of BNG from British Standards: <https://www.bsigroup.com/en-GB/standards/bsi-knowledge/sustainability/the-little-book-of-biodiversity-net-gain/>

Government BNG Guidance Brochure: https://naturalengland.blog.gov.uk/wp-content/uploads/sites/183/2022/04/BNG-Brochure_Final_Compressed-002.pdf

Government guidance on selling biodiversity units as a land manager: <https://www.gov.uk/guidance/sell-biodiversity-units-as-a-land-manager>

Biodiversity Net Gain – Principles and Guidance for UK Construction and Developments <https://cieem.net/i-am/current-projects/biodiversity-net-gain/>