Response to the Environment Bill Targets Policy Paper

Introduction

If all the targets proposed in Defra's Targets Policy Paper were established in law with sufficient ambition, this would represent considerable progress towards creating a comprehensive framework of targets to restore our natural environment.

We support the proposal to set more than one target in each priority area, as this reflects the complexity of environmental systems. To be fully comprehensive, however, there are a number of areas where the scope, ambition and longevity of targets should be broadened to embrace critical aspects of the natural environment. In particular:

- In the terrestrial environment, a target for the **extent, condition and connectivity of wildlife-rich habitat outside the protected area network** is necessary to ensure delivery of the Nature Recovery Network

- in the marine environment **a biodiversity target for marine species** and a target for **highly protected marine areas** would energise efforts to secure better management in our seas;

- for water, **a long-term freshwater outcome target** aimed at improving habitat quality by restoring the natural function of catchments would complement the "pressures" targets proposed by DEFRA, going beyond the existing Water Framework Directive target for 2027;

- for air, **limit values, exposure reduction targets and emissions targets** should be set for all harmful pollutants, including targets for reducing the deposition of nitrogen which can harm habitats; and

- for waste and resources, a **target to reduce the UK's global footprint** of environmental harm would ensure that improving the natural environment here does not simply export harm abroad and that the impacts of UK supply chains on the global environment is minimised.

For other targets we suggest a different metric from that proposed by DEFRA, to provide a more accurate picture of status. So for species extinction risk we recommend an indicator based on a list of priority species, rather than using the Red List index methodology.

Of course, for all targets, setting a headline national target must then inform sector-specific objectives and goals for local delivery.

In this paper, we set out our views on targets for each of the four priority areas and conclude with a section on further targets that the government should be considering in order to drive improvements of the natural environment and people's enjoyment of it.

Biodiversity targets

Success for biodiversity relies on a comprehensive and robust framework of targets that addresses the environment as an integrated system.

We welcome Defra's consideration of targets for species abundance and extinction risk, and for the condition of protected habitats on land. However, to ensure that wildlife is genuinely recovering, additional targets will be needed for species at sea and for the extent, condition and connectivity of habitats outside the protected area network.

These targets are essential complements to new international commitments expected at the Convention on Biological Diversity next year. Setting a comprehensive scope of targets, with an early indication of ambition to reverse the decline in nature, would be a powerful signal of political leadership.

These targets could be presented as a single, headline target for nature's recovery, with a "one out all out" approach to species abundance, distribution and extinction risk and habitat extent, condition and connectivity, on land, in freshwaters and at sea.

Pre-existing legal requirements

"Favourable conservation status" (FCS) is the objective for species and habitats listed in the annexes to the Birds & Habitats Directives (and under the Bonn Convention on Migratory Species and the Bern Convention on the Conservation of European Wildlife and Natural Habitats). The EU legislation will be rolled over at the end of the Transition Period via the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and the government is using these Regulations to ensure the UK continues to meet its international commitments under the Conventions.

The definition of FCS is now improving, and a deadline for achieving FCS would be needed to make it a SMART target. The 2019 Regulations require regular six yearly assessment of FCS (most recent reporting was 2019).[1]

The UK Marine Strategy Regulations (2010) require an ecosystem-based approach to the management of human activities in the marine environment, to ensure that the pressure they exert 'is kept within levels compatible with the achievement of good environmental status' (GES). A series of descriptors are used to define the characteristics of GES for the marine area, underpinned by specific environmental targets and indicators. Descriptor 1 requires that biological diversity is maintained, and targets have been set for cetaceans, seals, birds, fish, pelagic habitats and benthic habitats. The Regulations require the necessary management measures to be put in place in order that GES is achieved or maintained by 2020. However, the 2019 Assessment of GES showed that UK seas are in a poor state, with only 4 out of 15 indicators meeting Good Environmental Status (GES). The ambition

---

[1] We support the continuation of a statutory six yearly reporting cycle, that builds on the approach currently coordinated by the European Commission. This can offer a basis for developing SMART targets (e.g. proportion of habitats and/or species in a Favourable Conservation Status by a set date), however, we propose that biodiversity targets are developed that look across a broad range of species and habitats and that this will be much wider than that currently covered by the Birds and Habitats Directives reporting mechanisms. Lessons learned through these exercises can help when developing biodiversity targets for England.

of targets, baselines and actions in the Marine Strategy is weak, and there are no deadlines attached to operational targets.

Relevant provisions of the Water Framework Directive are summarised in the Water section.

Defra proposals for species targets

Species Target objective: improve the overall status of species populations on land and in freshwaters

- A target on species' conservation status based on the 25YEP indicator "D5 Conservation status of our native species" (in development, this indicator will track changes in the conservation status of terrestrial, freshwater and marine species using established IUCN Red List categories and criteria)

- A target on species abundance based on the abundance component of "D4 Relative abundance and/or distribution of widespread species" (in development, this indicator will track changes in relative abundance of species which are widespread and characteristic of different broad habitats in England; an interim indicator has been developed for a narrower range of taxa).

Link Proposals for species targets

We welcome Defra's proposal to consider both species abundance and extinction risk. We agree that species targets should be constituted of two nested elements, but with some adjustments:

Species Extinction Risk: to ensure that extinctions and the threat of extinctions as a result of human activity have ceased, we recommend a target based on the **change in conservation status of priority species threatened with extinction**, rather than one based on the Red List methodology. We recommend using an aggregate priority species indicator, focused on the species with the highest extinction risk and using measures of abundance and distribution. This will only be reliable if there is regular and consistent monitoring, so additional investment will be needed to ensure robust data.

The priority species indicator should use as its starting point the priority species listed under s41 of the Natural Environment and Rural Communities Act 2006, refined to sift out those lower risk species not threatened with extinction.

Measuring extinction risk using the Red List Index methodology at a national scale presents only a partial picture of species conservation status and recovery. The index measures change between Red List risk categories of species through time so at this scale it is a relatively crude and insensitive measure of biodiversity change. England-specific Red List assessments are currently limited to a small number of taxonomic groups compared with the Great Britain level and are carried out infrequently. The sensitivity of a Red List Index at either scale may be too low for an accurate picture without a large increase in assessment efforts. With the time lag on both declarations of extinction and the period where the factors causing the extinction were operating, it would be extremely difficult to hold a current administration to account for real world events that may have taken place five years before.

Of course, targets for reducing extinction risk are a very low bar for nature and cannot be seen as a measure of real success unless they are accompanied by targets for wider nature recovery. They set a "floor" for species conservation but not an upward ambition. It is worth noting that for these reasons, IUCN has developed the "Green List" methodology, which is more geared to species recovery.

<u>Species Abundance and Distribution</u>: We propose a target based on the **average abundance per species, supported by measures of distribution per species (marine and terrestrial)** using aggregate indicators for abundance and distribution and building on the State of Nature approach. This would ensure that abundant species remain abundant and that depleted populations recover.

Measures of abundance and distribution are significantly correlated and provide complementary ways to gauge the changing fortunes, though abundance is the more robust measure. Both changes in distribution/occupancy and changes in abundance can act as faithful measures of the recovery of species populations. But for declining species, changes in distribution/occupancy will always be less steep than the equivalent changes in abundance because abundance can fall very significantly inside an occupied square before it is lost from that square. In fact, species occupancy can be increasing while abundance declines and ultimately, we are interested in the numerical abundance of species.

If a measure of distribution/occupancy is used in addition to abundance, this will have the benefit of greatly expanding the number of species and different taxa that can be included in an indicator. The default species population measure for EC Habitats Directive reporting is 'occupied squares' (e.g. 1km); this provides a simple population metric and measure for distribution, though lacks sensitivity on abundance trends. The benefit of using trends in abundance on the other hand, when available, is that they are more robust and precise and easier to interpret.

An indicator of abundance/distribution must weight species equally in a composite geometric indicator in order to avoid the most common species dominating. Both abundance and distribution targets should include species found in freshwater, marine and terrestrial ecosystems.

In addition, we propose a specific target for increasing the abundance of marine species, including species that are commercially exploited. At the moment, the abundance and diversity of wildlife in the marine environment is neglected by Defra's proposals and marine life could continue to dwindle. An overall target for marine life could be complemented by a specific target for increasing the abundance of fish stocks.

DEFRA proposals for habitats targets

- A target on the condition of terrestrial legally protected sites

- A target on the condition of Marine Protected Areas (MPAs)

Both condition targets to be based on the condition element of D2 (from the 25YEP Outcome Indicator Framework): Extent and condition of protected sites – land, water and sea

- A target on actions to restore or create habitat outside the protected sites series, based on the following indicators:

  o Hectares of habitat restored or created through implementation of agri-environment scheme or other measures;

  o Hectares of habitat maintained in favourable condition through agri-environment scheme or other measures.

Link proposals for habitats targets

Condition of protected sites, including species features: We welcome Defra's inclusion of a quality element to habitats targets in both marine and terrestrial protected areas but need reassurance that such targets will be ambitious and underpinned by robust metrics of site condition. For terrestrial protected sites (SSSI) the target should be based on their achievement of favourable condition, defined as being in effective management with demonstrable evidence of ecological recovery, including assessment of species features. Data on SSSI condition following a decade of declining effort and investment in monitoring is currently extremely poor and should not be used as a reason for setting less challenging targets.

We broadly support the focus on condition assessment by feature rather than by unit – at unit level it is possible for the assessment to overlook features (e.g. birds move between units, eroding saltmarsh in unit 1 might be offset by accreting saltmarsh in unit 2) and the unit focus has led to a concentration on habitat at the expense of species features. However, it is important to retain some form of spatial element as on the ground checks are needed to identify problems at the site and then to attribute to the right land owners (a desk based assessment of redshank on the Humber using WeBS is more meaningful than counting how many there are in Unit 42 – but also misses the septic tank leaking into, or the over-grazing of, Unit 42). We would welcome further clarity on how this new system will work, and better understand how it sits in the context of an area-based target.

We welcome the inclusion of an explicit target for the marine environment within the Environment Bill targets framework. Whilst 40% of English waters are now designated as Marine Protected Areas, less than 5% of these areas have effective management measures fully in place, so the designation is not having effect. A legally binding target on the condition of Marine Protected Areas will help to ensure that these areas are protected and restored to favourable condition.

Due to the importance of Marine Protected Areas, this target should be achieved in the short/medium-term. It should not be seen as a long-term aim because species and habitats in these sites are already at risk. We suggest that the specific target should be phrased as follows:

The proportion of Marine Protected Areas that are effectively managed, using a 'whole site' approach where relevant, monitored and are in a favourable condition should be more than 75% by 2030, and more than 95% by 2040.

In addition, we propose **a target for the percentage of marine and terrestrial environments that are designated and well-managed for nature.** Designation alone is not sufficient. For example, only parts of National Parks and AONBs will ever be managed properly for wildlife. Sites that are included under this target must also be effectively managed, with demonstrable evidence of ecological recovery. As an interim target, this should align with the new commitment that by 2030 at least 30% of the area of land and sea is effectively protected and managed for nature. The inclusion of National Parks and AONBs within this figure will only be appropriate to the extent they are transformed into exemplars of land well-managed for nature, climate and people, including outperforming the rest of the countryside on SSSI condition. At sea, a target for Highly Protected Marine Areas would be an appropriate measure of effectiveness.

Extent, condition and connectivity of species-rich habitats outside the protected area network: We are concerned that DEFRA is proposing an action based target for terrestrial habitats outside protected areas as this would not capture extent, condition and connectivity but instead rely on uptake of agri-

environment schemes. These are voluntary mechanisms with a limited time span and whilst government should report on uptake and coverage of schemes, it is vital that they monitor the success of agreements in creating and improving lasting wildlife habitats. There is considerable uncertainty about the structure of the new Environmental Land Management (ELM) schemes and the extent of ecological monitoring to assess condition.

In particular, we note that an action-based target would not record losses of habitat and could suggest that progress is being made (such as the creation or restoration of 500,000 hectares of priority habitat), while in reality losses elsewhere are undermining those efforts.

Instead, we propose **the use of an outcome indicator of the extent, condition and connectivity of species-rich habitats**.[2] This would be a critical target to ensure development of an effective Nature Recovery Network, which must include wildlife-rich habitat outside designated areas, as well as protected sites. Habitats outside the protected areas network should use NERC s.41 priority habitats (or level 4 in the UK Habitats Classification system) as a starting point for defining "species-rich", but these could be refined down to a shorter list for the purposes of target setting, e.g. flower-rich open habitats, broad-leaved native woodland, aquatic, coastal (comprising saltmarsh, mudflats, dune, lagoon and shingle).

Habitat area should use a "net" figure to quantify extent: losses as well as gains in mature habitat should be measured so that mature, rich habitats are not netted off against new, featureless habitats. CEH's land cover satellite data is now freely available and can support compilation of this data. Any areas of habitat restoration need to be secured for the long term. We recognise that the indicators to support a clear habitat extent target outside the protected area network are still evolving, with some errors expected in current mapping of habitats. However, this should not be a reason to avoid setting this target. Indeed, Defra is planning to set targets in other areas where monitoring and recording methodologies are currently being updated and where data is known to be deficient, such as SSSI condition.

- CEH is working with DEFRA and Natural England on the habitat quality element of indicator D1 to develop a hierarchical indicator, i.e. a summary indicator for habitat quality composed of individual indicators, similar to the model used for native woodland condition monitoring. It is proposed that indicators fall under the functional elements: soil nutrient status, presence and conservation status of characteristic species, naturalness of hydrology, vegetation structure and management, soil sediment condition and processes and habitat heterogeneity. This structure is partly based on Common Standards Monitoring (CSM) used for statutory protected sites, where the feature of interest for a land parcel is the habitat and the condition indicators are habitat based. The increased conservation policy focus on restoration of natural function requires measuring habitat quality in new ways across habitats and landscapes but also further analysis to understand what quality looks like in what may be new transitional habitat types.

---

[2] Condition should include ecological function. Functions are the ecological processes occurring at a number of temporal and spatial scales and they vary greatly between habitat types. For example, tree regeneration and nutrient cycling are important functions in native woodland habitats. Fragmentation can disrupt the functioning of habitats which are not naturally fragmented and is a factor that should be taken into account when assessing Structure and functions. Similarly, characteristic species in that habitat should be present and at a favourable level – and this can be used as a measure of functionality.

- Connectivity is best measured in terms of progress towards achieving connectivity (or reducing fragmentation) within defined, mapped networks into which habitat restoration is being targeted. The metric must relate to what needs to be done – i.e. at a local level an officer must be able to plan habitat restoration work, or develop a Local Recovery Network, and understand how this would contribute to a national connectivity target. To keep a metric simple and understandable, we suggest that wildlife rich habitats are initially divided into three broad categories – open and flower rich, woodland and wetland. For two of these categories nationally mapped networks already exist. Firstly, B-Lines, is a well-established national network of mapped corridors, produced through a locally led process, that link together remaining open flower-rich habitats (pollinator habitat), to provide a template for targeting habitat restoration and creation. Secondly the Wetland Vision https://www.lunevalleyfloodforum.org.uk/uploads/1/2/3/7/123753072/wetlandvision_tcm9-132957.pdf sets out a template for where wetland habitats should be restored that would maximise wetland connectivity. We will focus on B-Lines here and in the Appendix to provide an example of how such a measure would work. B-Lines use real habitat data to both initially map B-Lines and to identify where the biggest gaps are, allowing the prioritisation of habitat creation and restoration. A target is likely to be based on a decrease in habitat fragmentation rather than an increase in connectivity. This approach could be applied to other broad habitat types once connectivity maps for these are similarly developed and agreed.[3]

A target for wildlife-rich habitats in the wider landscape would be relevant to local nature recovery maps, allowing local authorities to plan where habitats should be improved, including weighing up how any piece of land should be allocated to a habitat network.

Ocean recovery: Whilst reinforcing the legal obligations for achievement of favourable condition for MPAs is welcome, this ignores the wider marine environment and the lack of progress in achieving Good Environmental Status in line with the Marine Strategy. Going beyond Good Environmental Status, to recover the marine environment and enhance blue carbon habitats would bring economic, societal and environmental benefits. For this reason, we recommend an additional target on ocean recovery, with the aim to increase the health, integrity and connectivity of wildlife-rich marine and coastal ecosystems, providing nature-based solutions to societal goals.

This target is based on the existing Good Environmental Status target within the Marine Strategy, but extends it to include trends in area, fragmentation, quality and carbon stocks/stores of marine and coastal ecosystems. This would form an Ocean Recovery Index.

The Index could include indicators such as:

- The structure and function of benthic habitats (broad habitat types under descriptor 1 & 6) is stable or recovering. There should be no adverse impacts through changes in species composition and their relative abundance by physical disturbance.

- Area of habitat is stable or increasing. Loss caused by physical damage to predominant and special habitats (broad habitat types under descriptor 1 & 6) should be prevented, and action taken to restore lost and damaged habitat.

- The volume of carbon stored in marine ecosystems and trends in sequestration and emissions.

---

[3] See Annex 1

In addition, existing Marine Strategy targets should be strengthened to better address those aspects of the marine environment that are at greatest risk. For example:

- Changes in abundance of marine, coastal, and coastal margin birds should be within individual target levels in 90% of species (90% of marine and coastal bird species are recovered by 2030 to levels defined in the 1985-1988 national seabird census).

- There should be an increase in the average trophic level of marine predators to ensure healthy ecosystem functioning.

- All commercial fish stocks are fished at or below their maximum sustainable yield.

- By 2025, the estimates of bycatch for marine mammals, birds and other taxa are all less than half of the estimates for 2018, and measures are in place that have reduced the risk of bycatch in UK fisheries.

- By 2050 total bycatch in UK fisheries (including marine mammals, birds and other taxa) has been reduced to the occasional accident.

A headline target for nature: We recommend the targets proposed above are treated as a basket, with the overall target aim being the recovery of species by 2050. To succeed in reaching this target, success would be required in all the underlying elements (species abundance/distribution, species extinction risk, habitat extent and quality). If one of these elements is failing, then the overall assessment would be a failure – a one out, all out approach. There is clear scientific evidence to suggest that if the underpinning elements are heading in the right direction, species abundance will recover.

Additional biodiversity targets

Light Pollution: Studies have shown that light pollution is a key factor driving insect declines, as it can affect their mating, feeding, lifecycle and predation. Light pollution has increased in the UK, but the number of studies on the impacts of light pollution on insects is limited. We recommend both that more research should be carried out and that DEFRA sets a series of targets for the levels of light pollution. These could be framed as interim targets toward the delivery of long-term species targets. The Campaign to Protect Rural England has produced colour bands measuring light pollution levels across England at night, with Band 1 being the darkest and Band 9 the brightest.[4] Targets could be set to increase the percentage of land in the darkest bands and reduce the percentage in the brightest and also to increase the number of Dark Skies reserves.

Soil Health: All of England's soils (including peatlands) should be sustainably managed by 2030, as set out in Government's 25 Year Plan for the Environment. Monitoring soil health should be given higher priority in order to bring it in line with current air and water quality monitoring in the UK. Currently it lags woefully behind[5]. Government should develop long term, ambitious targets on metrics of soil

---

[4] https://www.nightblight.cpre.org.uk/images/resources/Night_Blight_cpre.pdf
[5] EA (2019) Environment Agency National Requests team response: Air and Water monitoring. FOI no:NR115635. Available here

health which incorporate the 25 Year Environment Plan ambition of achieving sustainable soil management by 2030 as an interim target.

Broad-leaved native woodland cover: The Government should set a target for broad-leaved native tree cover and condition in England to contribute toward delivery of UK-level targets. Such a target could be an interim target for delivery of long-term species and habitats targets. For example, a target to reach a minimum of 17% tree cover by 2050 would represents the low end of the 17-19% range expected to be recommended for the UK by the Committee on Climate Change in its 6th Carbon Budget later this year. In expanding broad-leaved native tree cover it will be important that there is not a simplistic "quantity" target. It is important that an expansion in broad-leaved native tree cover is delivered in a way which delivers on "quality" consistent with the views set out in the Wildlife and Countryside Link response to the draft England Tree Strategy.[6]

---

[6] https://www.wcl.org.uk/docs/Link%20England%20Tree%20Strategy%20response%2010.09.20.pdf

Air quality targets

The Government's intention to set new targets for air quality has focused on reducing fine particulate matter ("$PM_{2.5}$"), as one of the most harmful pollutants to human health. This is a positive recognition that more needs to be done to drive down concentrations of this harmful pollutant. So far, however, the Government has fallen short of committing itself to meeting World Health Organization ("WHO") guideline levels of $PM_{2.5}$. It has also failed to indicate intention to set long-term ambition to reduce any other forms of harmful air pollution.

The narrow scope of proposed new targets is concerning given that many existing air pollution targets are due to expire in 2030. The Government's current proposals should be supplemented with commitment to use the Bill framework to set new, more ambitious targets for all harmful pollutants and their pre-cursors to protect people's health and the environment in the long-term and across the board. This should include commitment to achieve WHO guidelines of $PM_{2.5}$ by 2030 at the latest.

It should also address the problem of eutrophication caused by air pollution, especially ammonia from agricultural sources, which is a major driver of decline in ecosystem function.

Pre-existing legal requirements

Existing action to manage and improve air quality is largely driven by EU-derived regulations, most notably the Air Quality Standards Regulations 2010 and the National Emission Ceilings Regulations 2018, which place obligations on the UK government. A separate regime exists for local authorities under the Environment Act 1995.

The Air Quality Standards Regulations 2010 set legally binding limit values for concentrations in outdoor air of major air pollutants that impact public health. These include particulate matter (PM_{10} and $PM_{2.5}$), nitrogen dioxide (NO_2), sulphur dioxide, benzene, lead and carbon monoxide.[7] Limit values can apply as hourly, 8-hourly, daily and annual means. The Regulations impose a duty on the Secretary of State to ensure that limit values are not exceeded after set attainment deadlines and to draw up air quality plans to address any exceedances that do occur in the shortest possible time.

The Regulations also establish:

- An exposure reduction target for $PM_{2.5}$, by reference to a three year rolling average urban background concentration, with an obligation on the Secretary of State to take all necessary measures not entailing disproportionate costs to meet it by 2020;
- Target values for the concentration of ozone, $PM_{2.5}$, arsenic, cadmium, nickel and benzo(a)pyrene, with an obligation on the Secretary of State to ensure that all necessary measures not entailing disproportionate costs are taken to ensure they are not exceeded;
- Long-term objectives for the concentration of ozone, by reference to a five year rolling average, with an obligation on the Secretary of State to ensure that all necessary measures not entailing disproportionate cost are taken to attain those objectives;

---

[7] https://www.legislation.gov.uk/uksi/2010/1001/schedule/2/made; https://www.legislation.gov.uk/uksi/2010/1001/part/2/made

- Critical levels for the concentration of nitrogen oxides ("NO_x") and sulphur dioxide for the protection of vegetation, with an obligation on the Secretary of State to ensure that those levels are not exceeded.

The National Emission Ceilings Regulations 2018 – set national emission limits (ceilings) for NO_X, $PM_{2.5}$, sulphur dioxide, ammonia and non-methane volatile organic compounds with binding emissions reduction commitments for 2020 and 2030 against the total anthropogenic emissions for 2005. The Secretary of State must ensure that in 2025 the total emissions of each of the relevant pollutants do not exceed the linear reduction trajectory, unless they determine that it would be more economically and technically efficient to not do so.

Defra proposals for Air Quality Targets

- reducing the annual mean level of fine particulate matter ($PM_{2.5}$) in ambient air (as required by the Environment Bill)

- in the long-term, reducing population exposure to $PM_{2.5}$

Link proposals for air quality targets

Our proposals on air quality focus on the level of ambition needed for the environment and human health and on ensuring that the set of air quality targets remains effective and comprehensive once existing objectives expire.

The Bill should establish a mechanism by which binding air quality targets must be set within secondary legislation and periodically reviewed and updated in light of the latest scientific evidence.

Whilst binding targets already exist within domestic legislation, these are in many cases too weak to protect human health and the environment and/or apply only for a finite period. For example:

- **Limit values:** A number of the existing limit values in the Air Quality Standards Regulations 2010 are less stringent than guideline levels set by the World Health Organization (WHO). For example, the legal limit for annual average $PM_{2.5}$[8] concentrations is 2.5 times higher than the WHO guideline, and whilst the WHO guidelines include a 24 hour mean concentration for $PM_{2.5}$ there is no such short-term limit value set out in existing legislation.
- **Emission reduction commitments**: The existing emission reduction commitments set out in the National Emission Ceilings Regulations 2018 only extend to 2030. No binding commitments to further reduce national pollutant emissions apply beyond this date, nor is there an established mechanism by which future targets must be set going forward.
- **Exposure reduction targets**: The existing exposure reduction target for $PM_{2.5}$ only extends to 2020 and equates to achieving average exposure in excess of WHO guidelines. It is not strong enough to set the dial for future ambition to protect people and the environment.
- **Nitrogen deposition reduction targets**: The government's Clean Air Strategy commits to reducing damaging deposition of reactive forms of nitrogen by 17% over protected priority sensitive habitats by 2030. To date this is a non-binding policy commitment, and no legally binding target exists in current legislation.

---

[8] Fine particulate matter pollution

In order to secure long-term ambition to protect human health and the environment, in addition to retaining existing duties to meet limit values for nitrogen dioxide under the Air Quality Standards Regulations 2010 and emission reduction commitments under the National Emission Ceilings Regulations 2018, the targets set under the Bill should in the first instance include:

- **Limit value for PM$_{2.5}$** which reflects WHO guideline levels, with an attainment deadline of 2030 at the latest. Given the existing and compelling evidence on the harm that this pollutant does to human health, the timeframe within which the target must be set should be accelerated, with secondary legislation to secure this commitment laid before Parliament within three months of the Bill receiving Royal Assent.

- **Emission reduction commitments for NO$_x$, PM$_{2.5}$, sulphur dioxide, ammonia and non-methane volatile organic compounds** for 2037 and beyond.

- **Exposure reduction target for PM$_{2.5}$** for 2037 and beyond. There is no "safe" level of PM$_{2.5}$, so a target that requires action from the government to drive down average exposure could help provide the legal impetus for continuous improvements, even where concentrations are already below the ambient concentration limit value. In doing so, this type of approach could help maximise public health gains across the country. We therefore broadly support the Government's proposals to set a new exposure reduction target for this pollutant under the framework of the Bill. However, a legal framework that drives down average exposure, but allows very high levels of pollution to remain in some areas would not be a fair one. Any exposure reduction target would need to sit alongside an ambitious ambient concentration limit value that provides a minimum level of protection for everybody. We also urge the Government to set a target that prioritises action around schools, nurseries, playgrounds, care homes and hospitals to better protect some of the most vulnerable members of our communities.

- **Nitrogen deposition reduction targets** for 2037 and beyond.

Resources and waste targets

Defra's proposed targets on resources and waste would constitute important "bookends" for the economy, reducing resource inputs and residual waste. To ensure a transition to a more circular economy, these long-term targets should be supported by further measures and interim targets to support reuse and repairability. In addition, the Government should set a long-term target to reduce the UK's global footprint, ensuring that supply chains do not cause habitat destruction and over-extraction in other countries.

A footprint target should aim to reduce the area and resources footprint on one hand, and also ensure that UK supply chains are not driving harm, such as deforestation and pollution. The global footprint target should ensure that goods the UK is importing and business it is conducting overseas are consistent with the standards set at home, and do not drive harm to ecosystems or species.

DEFRA Proposals for Resources and Waste Targets

- increase resource productivity

- reduce the volume of 'residual' waste we generate

Link Proposals for Resources and Waste Targets

We welcome the proposed targets for the Resources and Waste chapter of the Environment Bill, focusing on upstream resource productivity and downstream residual waste reduction.

In combination, these targets present an opportunity to improve the environmental and social impacts of materials throughout their full lifecycle. They will also drive down the resulting waste which has driven such an increase in public support for action on plastic and other materials. This dual focus is required to reduce the consumption of environmentally and socially unsustainable raw materials and minimise the impact of waste pollution. This is necessary to deliver the commitment in the 25 Year Environment Plan to leave our environment in a better state for future generations as well as the Resources and Waste strategy.

It is critical that these targets lay the groundwork for us to use materials in a more productive way and where material usage continues, that they deliver a more circular economy. The longer term goal must be to significantly reduce England's global materials footprint, and work in coordination with UK governments to reduce the UK's global footprint together.

However, the targets require significant strengthening as follows to achieve that aim:

Sector specific targets must be set for both resource productivity and residual waste reduction. An economy wide target will not offer sufficient incentive for different sectors to transition to more sustainable processes. This would risk targets being achieved by minor changes in certain sectors whilst more challenging areas are left unchanged, undermining the purpose of the targets entirely. To

deliver on their ambitions, we propose DEFRA adopt a more ambitious approach, matching and surpassing the lead set by policy in other countries such as France's waste prevention plan.[9]

For waste production the target should cover minimisation of waste in each category: household; municipal; commercial and industrial; and construction, demolition and excavation. For resource productivity, the most important sectors include construction, vehicle manufacturing, electronics, food and textiles. Ideally, a resource productivity target should cover all the following sectors:

● Agriculture

● Mining, raw material processing

● Construction and infrastructure

● Manufacturing

● Sale, retail and transport

● Private service activities and hospitality

● Public services

Sector wide targets should be supported by an amplification network. Germany was one of the first countries in the world to set targets and principles for increasing sustainable use of resources through their Resource Efficiency Programme[10]. This programme included amplification networks which brought sectors together to discuss learnings and share successes in resource efficiency. The largest of these groups is the Resource Efficiency Network (NeRess)[11] which was established by the German Government but is now maintained by its members and grant funding. This programme has improved collaboration across sectors and accelerated action, so we recommend the Government implements similar networks to support the delivery of this target.

Resource productivity must be measured by raw material consumption (RMC). We strongly support this proposed measurement for resource productivity because it offers a far stronger measurement than domestic material consumption (DMC) which only properly considers material sourced within our borders.[12] RMC includes both domestic and foreign extraction of materials needed to produce the goods and services for the UK. The UK is increasingly a net importer of materials – domestic extraction accounted for just under a half (47%) of material footprint in 1990; by 2017, this had fallen to just over a fifth (21%). It is important to consider both domestic and overseas extraction to avoid offshoring resultant impacts. It provides a clearer picture of material use across the whole supply chain, both domestically and globally. It therefore takes into account our global materials footprint, which, in a

---

[9] European Environment Agency; 2016; Overview of national waste prevention programmes in Europe: France Fact sheet. Available here.

[10] German resource efficiency programme. 2016. Federal ministry for Environment, Nature conservation, Building and Nuclear Safety. Available here

[11] https://www.neress.de/startseite/

[12] DMC includes the weight of imports of final products (and subtracts any exports), but doesn't account for any of the production/supply chain waste that occurs outside the country. (For some products, this may be the bulk of the waste they're responsible for throughout their lifecycle.)

world where global footprint is of increasing concern, will be vital for this target to drive necessary behaviour and system change.[13]

Material footprint metrics should provide an in depth measurement to understand, reduce and improve our resource use across land, water and carbon, by including additional indicators for footprints aside from a simple weight-based measure. This target would create a more holistic approach to waste and resources policy across the spectrum and avoid policies being siloed which could save Government time and resources and minimise unintended consequences.

In addition, Defra should adopt the JNCC metric that measures the impact of UK consumption on biodiversity overseas and further explore how this can be expressed as a target.

Resource productivity must use an ambitious baseline. Resource productivity must be ambitious, and government should ensure that the target set through the environment bill is at least as ambitious as the commitments it has previously made in its industrial strategy and resources and waste strategy to at least double resource productivity by 2050. Of course, a measure of resource productivity can go up, but total resource use (and associated impacts) can go up at the same time. The Government must ensure that total footprint is falling at the same time as productivity is rising.

Future Targets for Resources and Waste

Though these targets provide a strong basis for reducing resource use and waste, if we are to move to a truly circular economy, additional targets will be required in the future. Ahead of the next round of target setting we propose that DEFRA take steps to collect the data required to deliver these targets. These should include:

Reuse targets for materials and packaging. To achieve a circular economy we must prioritise reuse, but reusable packaging currently competes on an unlevel playing field. Entrenched structures, powerful marketing interests and economic investments made in production lines and supply chains support the continued use of single-use packaging. A transition to reusable and refillable packaging solutions will require a holistic suite of measures and ambitious targets for material reuse should be a part of that.[14] This ambition would help focus the UK on supporting the scale-up of refillable business models such as Loop and CupClub and signal support for their adoption. Without this ambition, we risk cementing the status quo dependency on single-use packaging and missing a major opportunity to embed the waste hierarchy into UK packaging laws. There is growing momentum on reuse and refill systems but the initiative landscape risks fragmentation and as yet solutions are not scalable. Additionally, the direction of travel in the EU includes consumption reduction targets, this is a critical element if we are to reduce the amount of resources used in the UK economy.

Reducing single use packaging, while incredibly important, is unlikely to contribute much to weight-based (or carbon based) consumption reduction targets (packaging currently makes up about 20 per

---

[13] https://www.wwf.org.uk/sites/default/files/2020-07/RiskierBusiness_July2020_V7_0.pdf. We are already in a position to make progress on reducing our deforestation and ecosystem conversion footprint and should be prepared to be compliant with no-deforestation by 2023.

[14] Based on a comprehensive data gathering exercise looking at reduction strategies in UK supermarkets that can achieve a 50% reduction in single use packaging by 2025, we recommend that half of this proposed reduction (25%) must come from a switch to reusable packaging, rising to 50% by 2030.

cent of household waste). To achieve real progress against this measure, consumption reduction targets would also need to cover other areas, too, including electronic waste (the UK has the second highest e-waste generation rate in the world, after only Norway), textiles and furniture.

Targets for resource and waste pollution. We recognise the challenge of measuring raw material sourcing and downstream impacts of waste leakage resulting in pollution, as highlighted by the plastic pollution crisis that has rightly caused outcry from the public. However, ambitions to reduce residual waste and increase resource productivity should also be assessed on their ability to ensure a cleaner, less polluted environment. To assess opportunities for such measurements, Government should review existing obligations to reduce pollution on land and in waterways and seas and develop clear targets for reducing pollution in the natural environment. For example, this could include aligning with the OSPAR and UK Marine Strategy target that marine litter does not exceed 13 litter items per 100m either floating, on beaches or on the seafloor. Similar targets should also be set for land and waterways. This is a good example of the granular detail we need to get to for all areas if we are to reduce not just plastic pollution but all waste pollution.

Water targets

Freshwater ecosystems are in need of urgent improvement, with current legally binding targets under the Water Framework Directive appearing almost beyond reach at current rates of progress. Addressing the pressures on the water environment through specific targets for abstraction and pollution reduction would help to drive improvements.

Nevertheless, a long-term outcome target for the state of the water environment is essential for accountability and to drive investment in environmental improvement. We are concerned that under current plans, the first round of targets would leave no overall long term outcome target after the WFD target date of 2027, which will be just four years away when the targets framework comes into force. Defra's proposed pressures targets should be strengthened and set alongside a new long term outcome target that adds to and goes beyond the Good Status objective of the WFD.

Pre-existing legal requirements for water demand

No legal targets currently exist for water demand, however Water Industry Business Plans contain non-statutory five-year targets for the water industry for 2020-2025 with companies suffering financial or reputational penalties imposed by the regulator Ofwat, if they fail to meet targets, i.e. common or bespoke performance commitments. These vary by company and do not include a set target for per capita consumption (PCC) as there was for leakage.

DEFRA proposal for a target on reducing overall water demand

A target on the volume of water distributed or abstracted by water companies, which could reflect both water lost in leakage and a new target on per capita consumption (PCC).

Link proposal for a target on reducing overall water demand

Although a water industry target would help to achieve Water Framework Directive waterbody and groundwater targets as well as Common Standards Monitoring Guidance targets for habitats, we recommend a more ambitious target set on *all* licensable abstraction, from all waters, by all sectors, based on flow rates. This would apply to all abstractors, and encourage efficiency at all stages: abstraction, processing, distribution (including leakage) and use (storage and water efficiency). However, monitoring and enforcement mechanisms for non-water industry abstraction are less well developed and would require investment in the abstraction licencing regime. Any target applying to the water industry should apply to total abstraction rather than distribution input, to ensure that water is treated carefully at all stages of use.

Pre-existing legal requirements to reduce pollution from agriculture

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 bring across the requirements of the EU Water Framework Directive; the leading driver to improve water quality. The Regulations require us to bring all waters to 'Good Status' by 2021, which consists of:

Good Chemical Status: the absence of priority substances (pollutants); and Good Ecological Status: requires various targets to be met relating to the biota or the conditions that affect them, e.g. nutrient levels.

Environment Agency analysis shows that it would be cost-beneficial to achieve this target for 75% of waters[15]. Yet the latest figures for England's surface waters show that now, **none** achieve Good Status, due to every single waterbody failing Chemical Targets. The proportion of waters achieving Good *Ecological* status or above remains at 16% overall, and 14% for rivers specifically.[16] Where status targets cannot be achieved due to reasons such as technical feasibility or disproportionate cost, a deadline of 2027 applies instead, with later dates applying in the case of certain priority substances.

These targets continue to apply into the future if achievement dates are missed, although the Environment Bill in its current form gives powers to amend these targets.

The Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) (England) Regulations 2010 (SAFFO) and The Reduction and Prevention of Agricultural Diffuse Pollution (England) Regulations 2018 aim to reduce water pollution caused by farming practices, as a contribution towards these targets. However, non-compliance is widespread and enforcement is lacking, as demonstrated by the River Axe Catchment Regulatory Project which found that 95% of farms did not comply with storage regulations and 49% of farms were polluting the river Axe.[17]

DEFRA proposal to reduce pollution from agriculture

DEFRA proposes to develop a target on phosphorus and nitrate in agriculture, but the policy paper gives no further detail.

Link proposal to reduce pollution from agriculture

We note that although there are targets for nitrates or phosphorus for defined waterbodies (where each is the relevant limiting factor), a general pressure reduction target could have wider applicability (i.e. driving action for all waters, not just WFD waterbodies), and would also benefit the marine environment, e.g. through reducing impact on seagrass meadows.[18]

Activities undertaken to support delivery of N and P targets could have wider benefits (e.g. enhanced soil management could reduce sediment and pesticide runoff, and targets could look to incorporate these). There is no current standard or target on sediment; in-river targets are complex, so a pressure reduction target may be easier to develop. Any option would need to be supported by appropriate delivery tools, such as non-application zones. However, other water pollutants derived from agriculture would instead require more focussed activity (e.g. veterinary medicines).

We recommend that in addition to pressures targets, the Government should set a percentage target for the area of *all* surface waters meeting clean water standards (equivalent to WFD high status). This should supplement but not replace ongoing outcome targets for waters in line with WFD good status.

A clean water target could incorporate all pollutants noted above, and would be valuable as targets for the *state* of water bodies provide real evidence of the success of approaches in delivering environmental change. 'High' recognises that WFD 'good' standards are insufficiently protective for much biodiversity, and 'all' drives action for the full range of freshwater habitats and not just WFD monitored waterbodies.

---

[15] See Footnote 3 in Government's 25 Year Plan to improve the Environment.

[16] https://data.gov.uk/dataset/41cb73a1-91b7-4a36-80f4-b4c6e102651a/wfd-classification-status-cycle-2

[17] https://www.salmon-trout.org/wp-content/uploads/2020/03/Final-Axe-Regulatory-Report.pdf

[18] Currently, Nitrates targets only apply in nitrate vulnerable zones, and these should be kept below 50mg/l (a target based on drinking water abstraction needs), which is a weak limit. There are no WFD targets for nitrates, only ammonia

The target could be achieved by habitat enhancement and/or creation, alongside ongoing improvement of existing habitats (e.g. the creation of clean-water ponds and other small waters) and is innovative in that it would drive action to protect and enhance headwaters (as these are typically the cleanest waters, with small catchments, and so are good candidates for achieving further improvements in water quality).

Pre-existing legal requirements to reduce pollution from wastewater

The Urban Wastewater Treatment Directive (UWWTD) requires the collection and secondary treatment of wastewater in all communities of >2000 and more advanced treatment for communities >10,000 in designated sensitive areas and their catchments. Although compliance is high[19], the Directive relates only to direct discharges of treated wastewater from relevant Wastewater Treatment Works (WwTW) and not to storm overflows from WwTW, discharges from combined sewer overflows (CSOs) on combined sewers, or wastewater from smaller public or private sewerage systems.

DEFRA proposal to reduce pollution from wastewater

DEFRA proposes to develop a wastewater target which focuses on phosphorus and nitrate. No further detail was provided.

Link proposal to reduce pollution from wastewater

We support a sustainable management of wastewater approach, using a combined metric that considers (for example): progress towards 'zero pollution incidents', proportion of wastewater treated to tertiary standard, proportion of wastewater managed via nature-based solutions, area of habitat protected via first-time sewerage schemes or 're-routing' of water industry infrastructure, sustainable disposal to land of sewage sludge (to include new standards/programmes e.g. for microplastics, anti-microbial resistance), volumes of wastewater into re-use, etc.

Reducing the impact of pollution from abandoned metal mines on the water environment

Whilst mine pollution impacts water quality in a relatively low proportion of waterbodies compared to pollution from agriculture and wastewater, the impact can be severe, and may increase with climate change as extreme weather mobilises pollutants, impacting human as well as waterbody health.

In comparison to pollution from coal mining, the science to support remediation of metal mines is in its infancy. A target could therefore be beneficial in driving both delivery and, where necessary, R&D.

The treatment of point source discharges is relatively well understood, although would benefit from the development of innovative solutions, including techniques which are passive, or can be powered by locally generated renewable energy, given the remote location of many mine sites.

Dealing with pollution from diffuse sources (spoil heaps) is more challenging, so a target could drive R&D programmes to develop remedial solutions that are cost effective and sensitive to the historical nature of many abandoned metal mines. A sub-target specific to spoil heaps may therefore be beneficial in driving action.

---

[19] 10th Technical assessment on the Urban Waste Water Treatment Directive (UWWTD) implementation 2016

Pre-existing legal requirements for habitat quality

Water Environment (Water Framework Directive) (England and Wales) Regulations 2017

Protected Areas: Objectives must be met by Dec 2021 (or dates set in other EC Directives) for areas requiring special protection under other EC Directives and waters used for the abstraction of drinking water (termed protected areas).

Link proposal for habitat quality

In addition to the water targets mentioned above, we recommend a target on restoring the natural function of catchments, to be based on a natural function score for all catchments, increasing year on year. This is an essential component of recovery in the freshwater environment. Outside of protected areas there are no targets for the quality of freshwater habitats, yet a specific focus is appropriate given the work undertaken by Natural England to set out how the restoration of natural function can underpin freshwater and wetland conservation.[20] (NB. If an outcome-based target is developed for the extent, condition and connectivity of all habitats as outlined above, these considerations should form part of the ambition for standing and flowing waters and wetland habitats within that target, rather than being taken forward separately).[21]

No catchment is likely to achieve total natural function therefore 'X% functioning naturally' would not be realistic. Instead an 'increasing score' approach would drive ongoing improvements in *all* catchments. A score could be made up of specific sub-metrics such as % of *all* waters with natural water quality. The target could be further refined to include an area-based target *e.g. increase naturalness score by X% in 40% of waterbodies by 2040* to align with eNGO aspirations of '30% of land protected and managed for nature by 2030'.

'Restoring natural function' is ambitious, new and interesting, and would create a focus on the quality of our freshwaters, as well as physical modifications (a major reason for failure not adequately tackled under the WFD) to support naturally functioning rivers. This could deliver wider benefits, e.g. barrier removal for migratory fish, floodplain connectivity for flood and floodplain management. Naturalness components could include area of clean water (high status chemistry and biochemistry), length of watercourse with connected, hydrologically functioning floodplain, high status biology, etc.

Future Water Targets

Reducing the impact of chemicals on the water environment

Whilst DEFRA are considering how to tackle legacy chemicals (increasingly important in light of the latest WFD Classification data), a priority must also be to prevent 'future legacy chemicals' entering the water environment now, by regulating the chemicals that are in products; i.e. restricting chemicals of concern and replacing them with safer alternatives, using the approach employed by REACH. UKWIR's Chemical Investigation Programme Phase 2 Report[22] noted that chemicals that have all been heavily regulated such as tributyltin and triclosan were all reporting downward trends in the water environment, demonstrating the effectiveness of this control measure.

---

[20] A narrative for conserving freshwater and wetland habitats in England (NERR064)
[21] NB environmentally sensitive connectivity, recognizing that in some cases connecting habitats (like polluted and pristine waters) may have negative environmental consequences.
[22] https://ukwir.org/the-chemicals-investigation-programme-phase-2,-2015-2020

A target on the number of (preferably groups of) chemicals for which a threshold value has been defined would be valuable to then inform development and operation of an early warning system as proposed by the EA. Monitoring should instantly 'trigger the alarm' when threshold values for individual substances or mixtures of substances are approached, and lead to prompt action - including practical management measures, and the consideration of regulatory control. As evidence grows, the most harmful chemicals should be phased out as a priority from products and all uses leading to environmental releases.

Other Targets

Clause 1 of the Environment Bill gives the SoS a power to set long-term targets for the environment and people's enjoyment of the natural environment and we recommend that the power is used as a matter of urgency for the setting of a **target for people's access to a thriving and healthy natural environment**.

We would also support the use of this power to set **a global footprint target**. The 25 Year Environment Plan (EIP) includes a welcome and clear commitment to leaving a lighter footprint on the global environment and the government have re-emphasised this commitment through its decision to consult on due diligence requirements for businesses. Given the globalised nature of economic systems countries need to address policy on imports to reduce their footprint overseas and avoid simply offshoring environmental impacts. To meet global goals and bend the curve on biodiversity loss we must address both production and consumption footprints.[23]

Footprint measurement is complex; to live within the environmental limits of one planet requires a suite of environmental conditions to be met, all of which should be tracked. However, the science is moving on apace and recent WWF work on defining targets for halving the footprint of consumption and production globally (publication forthcoming) could be adapted for the UK. Therefore, in addition to our recommendations for materials consumption footprint and overseas biodiversity impacts in the waste and resources section, we would like to see a commitment from Government to working with us to refine an overarching global footprint target.

---

[23] As an illustration of consumption and production footprint:
In 1990, greenhouse gas emissions embodied (released as part of the production processes in the product's supply chain) in imports accounted for 14% of UK consumption emissions. In 2016 this had risen to 46%. Nearly half of the UK's consumption-based account is from emissions released overseas and not affected by domestic climate policy.
From WWF report (2019): Dynamics of carbon emissions in the UK: exploring evidence of offshoring and recommendations for climate policy

Annex 1: connectivity metrics

The B-Lines mapping methodology uses basic least cost modelling to find the best routes to connect habitat patches while crossing a less favourable landscape. It is designed to be both simple and pragmatic, using local expert knowledge and experience of the landscape to interpret habitat maps and identify key corridors.

As B-Lines modelling has already identified the 'best' routes for habitat improvements we can therefore take the amount of wildflower-rich habitat in the mapped lines as a measure of connectivity. This takes advantage of both the least cost approach which is used to designate the lines and a fragmentation approach to assess their fullness. However, to ensure connectivity we need to ensure that species are able to disperse between the stepping stones created in the B-Lines, and are not concentrated together in only one part of the zone in question.

The guiding principles for B-Lines use a 500-metre maximum distance between habitat patches of a minimum area of 2 hectares, so to determine the connectivity within a B-Line we need to look at the proximity of the various habitat patches. For simplicity, this can be considered as the percentage of the B-Lines in an area that contains flower-rich habitat that is within 500 metres of other flower-rich habitat. The examples below provide a hypothetical example of how this could work.

This approach to measuring connectivity could adapted to both broad-leaved native woodland and wetland habitat building on the work by Forest Research on Integrated Habitat Networks and the Wetland Vision.
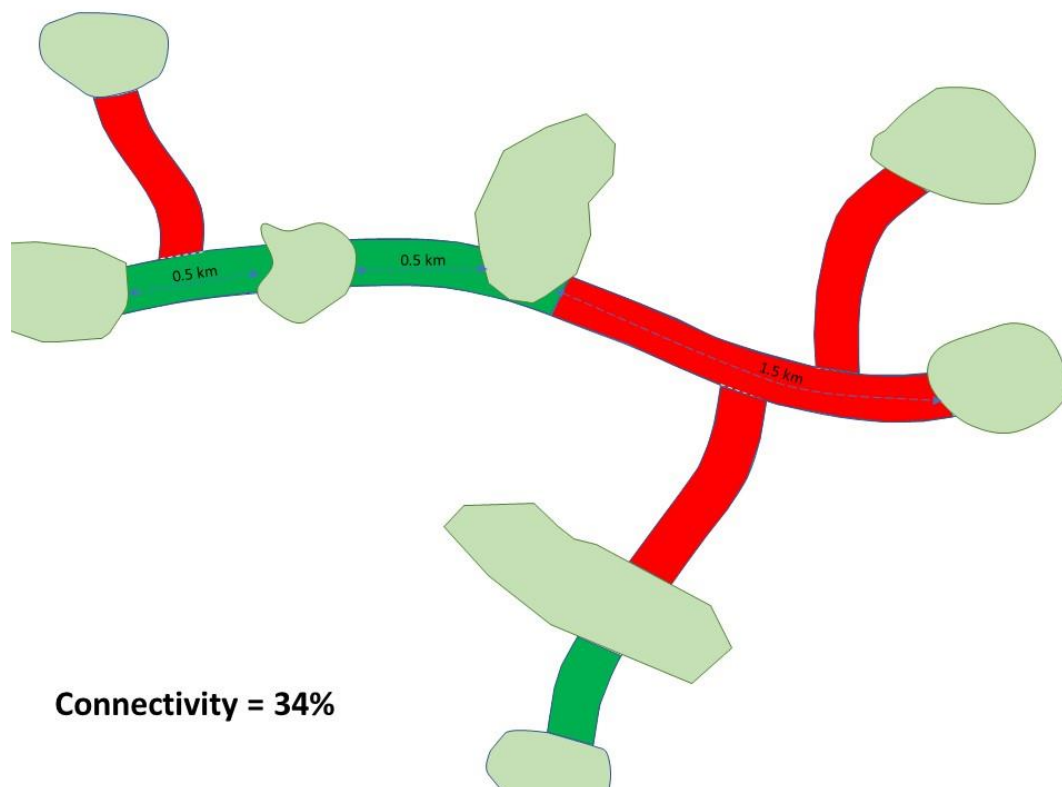
Connectivity = 34%

a) The pale green patches represent areas of existing wildflower-rich habitat. In this example there are only three patches which meet the criteria of being within 0.5 kilometres of other patches. The

connectivity within this area of B-Lines is calculated by dividing the length of functionally connected B-Line by the total length of B-Line and reporting it as a percentage.

New habitat

Connectivity = 73%
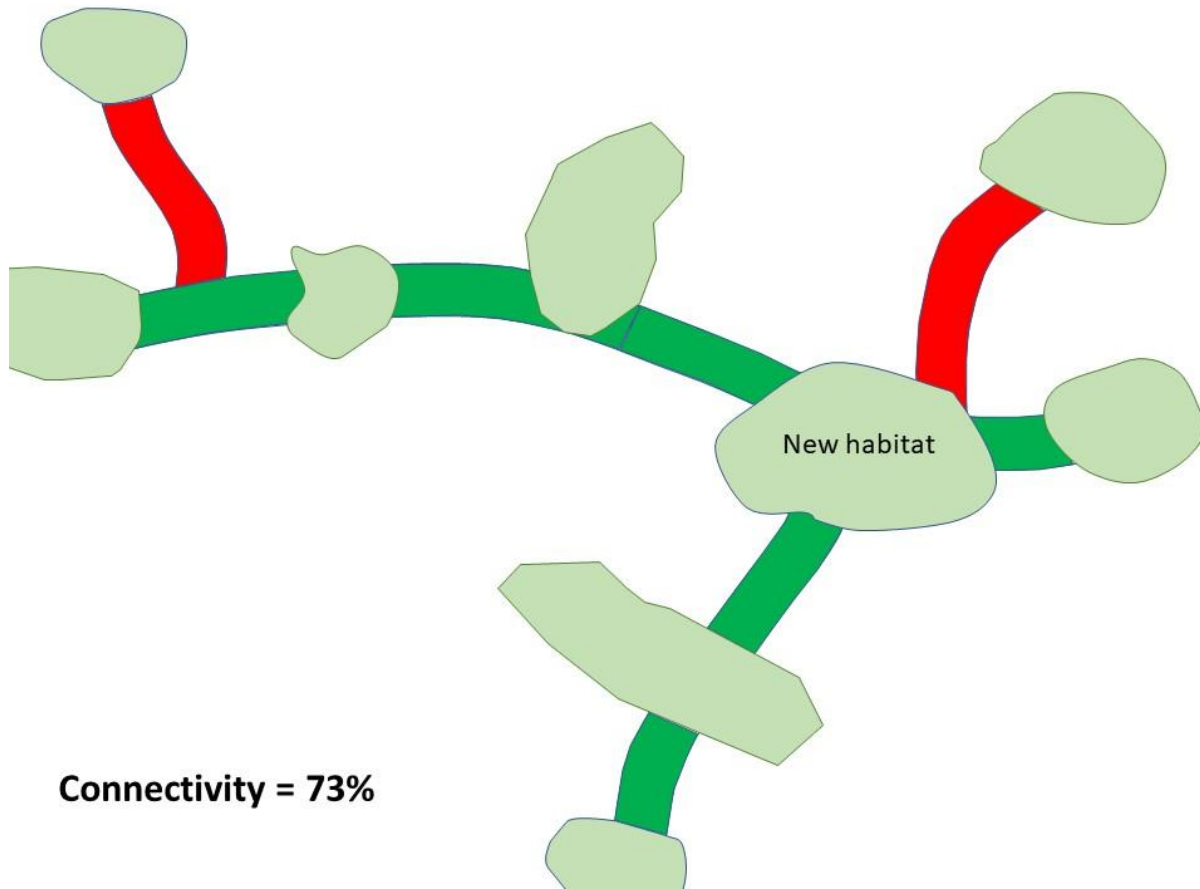
b) In this example a patch of wildflower-rich habitat has been created/restored in the B-Line which is within 0.5 kilometres of other patches. This results in a longer stretch of B-Lines in the area being functionally connected.