Nature Recovery Network: Further Information

Purpose

To provide a draft nature recovery network map for Cornwall that reflects the stated goals and ambition of the nature recovery network as outlined in HM Government 25 Year Environment Plan. The map brings together mapping of existing nature networks, connecting corridors and habitat opportunities to identify those areas of mainland Cornwall that are envisaged as part of a nature recovery network.

Background

The UK Government's 25-Year Environment Plan (Defra 2018) set out the ambition to develop a growing and resilient network of land, water and sea that is richer in plants and wildlife. The plan identifies the development of **nature recovery networks** to deliver on the recommendations from Professor Sir John Lawton's report[1] that wildlife will require more habitat; in better condition; in bigger patches that are more closely connected.

The network, including the identification of potential areas for restoration and creation, will also act as a strategic framework for integrated planning and delivery of environmental objectives (Nat Cap Committee 2017) such as greater public enjoyment, pollination, carbon capture, water quality improvements and flood management. The concept of the nature recovery network outlined in discussion documents (Defra 2019) is that existing protected sites, which constitute our best areas for wildlife, should form the core of any network. However, for nature to recover there is a need to extend and link these existing sites, both to support wildlife and recover the range of economic and social benefits that nature provides.

Nature recovery networks are envisaged as informing respective **local nature recovery strategies** described in the UK Environment Bill (2020 part 6 sect 96-99) by providing key elements specified within the bill. These elements include mapping areas of particular biodiversity importance not under statutory protection (97.3.c) and mapping opportunities

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[1] Lawton JH, Brotherton PNM, Brown VK, Elphick C, Fitter AH, Forshaw J, Haddow RW, Hilborne S, Leafe RN, Mace GM, Southgate MP, Sutherland WJ, Tew TE, Varley J, Wayne GR 2010. *Making Space for Nature: a review of England's wildlife sites and ecological network.* Report to Defra.

for recovering or enhancing biodiversity in terms of habitats while taking into account other environmental benefits (97.2.c).

It is also expected that nature recovery networks will help inform other mechanisms for delivery of the 25-Year plan including a new system of support for farmers to encourage the restoration of habitats for endangered species and the recovery of soil fertility. The plan explicitly states the intention to ensure broader landscapes are transformed by connecting habitats into larger corridors for wildlife.

The creation of nature recovery network implies a process of spatial prioritization derived, at least in part, from the mapping of landscape habitat, services, benefits and constraints. Such an approach has been adopted in the creation of the existing nature network and habitat opportunities presented on Lagas, and these outputs form the basis of the nature recovery network for mainland Cornwall.

The 25 year plan also commits to exploring how new data, tools and strategies, including the nature recovery networks, could be used to bring wider environmental improvements to the planning system. To fulfill this intention, the nature recovery network is used to map the strategic planning zones used by Cornwall Council's Net-gain & Biodiversity Off-setting planning tool.

Methodology

Nature recovery network mapping

Mapping of the network directly derives from the following Lagas mapping products:

- *Existing Nature Network map***:** identifies the most important areas of Cornwall in terms of biodiversity and the provision of key ecosystem services and connecting corridor opportunities that link these areas.

- *Habitat opportunity maps***:** identify suitable areas of mainland Cornwall for the restoration/creation of woodland, wetland and heathland habitat that are likely to deliver the greatest 'strategic benefit' in improved habitat connectivity and service provision.

Figure 1 outlines the relationship between Lagas map products and their role in the development of a nature recovery network map.

Key decisions in the mapping of the nature recovery network are:

- The size of the existing nature network core area and connecting corridor opportunities was set to ~29 percent of the area of mainland (of which 4% is connecting corridors) and therefore corresponds to the area shown in the Existing Nature Network and connecting corridors map on Lagas

- Size of the habitat opportunity areas to be included in the network was set to the sum of existing woodland and heathland habitat and twice the area of existing wetland habitat (above mean high water). This area equates to that described in the Combined Habitat Opportunity Map on Lagas and corresponds to ~15 percent of mainland Cornwall.
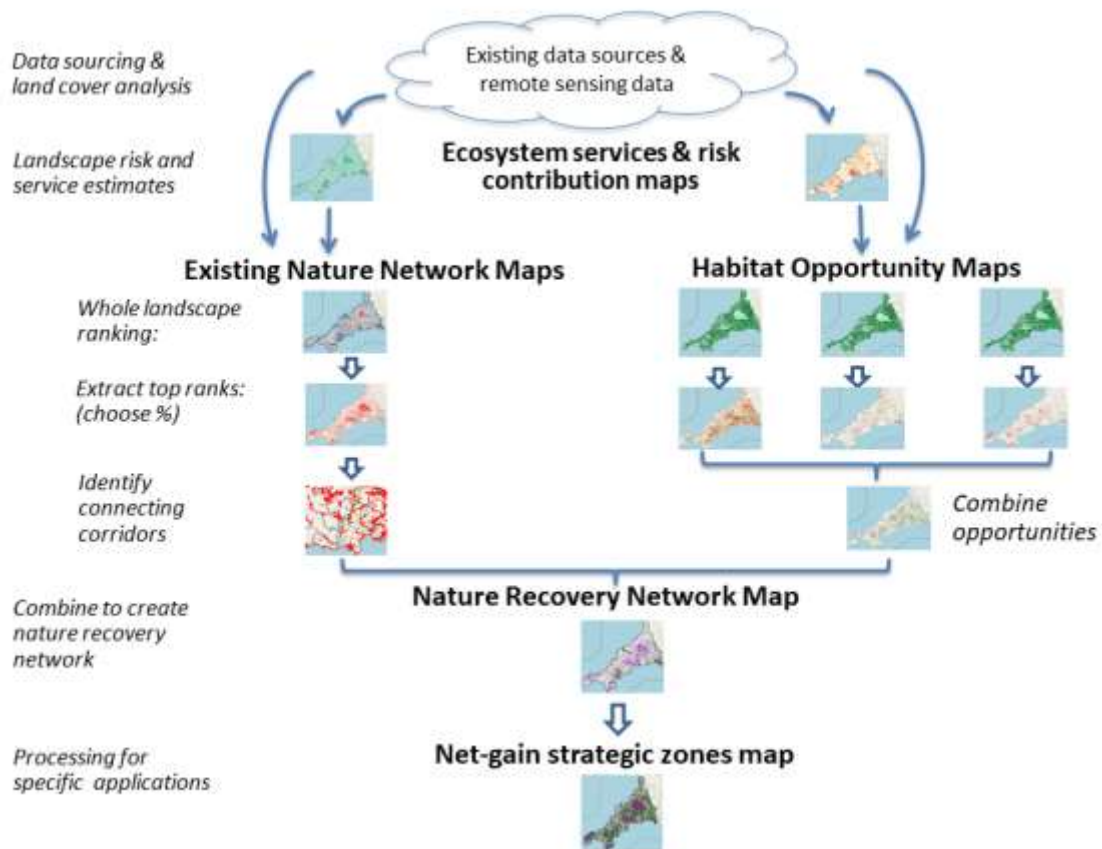
Figure 1: Outline of the work-flow for mapping the nature recovery network and the relationship between different mapping products viewable on Lagas.

Because of some overlap between the existing nature network and opportunity areas, the total area included in the nature recovery network equals ~40 percent of the area of mainland Cornwall.

The nature recovery network map shows five different areas making up the network:

- Core areas from the existing nature network

- Top woodland habitat opportunity areas

- Top heathland habitat opportunity areas

- Top wetland habitat opportunity areas

- Connecting corridor areas that do not form part of the habitat opportunity areas.

Net-gain strategic zones mapping

The map presents the nature recovery network as two exclusive zones:

The 'network zone' corresponds to areas derived from the existing nature network core area and linking corridor opportunities.

The 'opportunity zone' corresponds to all remaining habitat opportunity areas.

To assist interpretation, the nature recovery network grid-cell (or 'raster') map is converted to a vector map where the area shape better reflects the underlying natural features. The process involves the buffering and smoothing of the grid-cell map, including the filling of many 'holes' within the network (see figure 2).
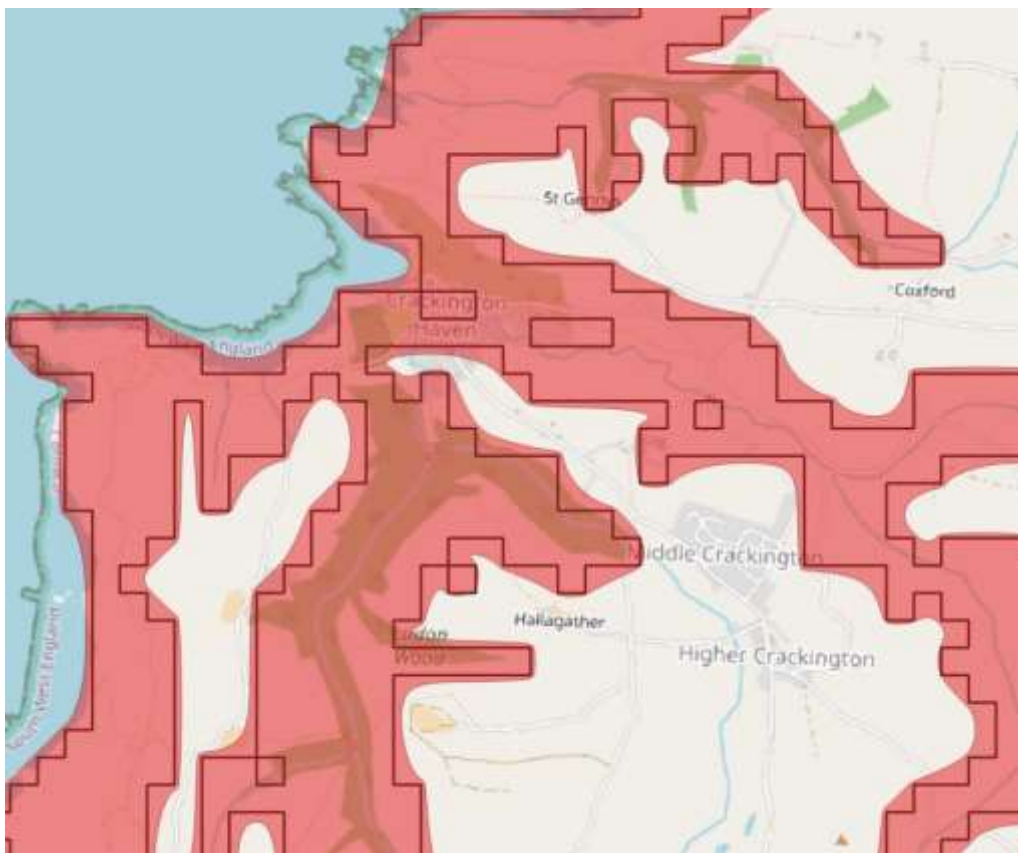

Figure 2: Strategic zone 'vector' areas compared with the grid-cell *Nature recovery network* map from which it derives. For clarity the strategic zones are shown as a single area in red with the nature recovery network boundary shown in outline only. The figure illustrates how (i) the zones can better correspond with underlying natural features (such as rivers) (ii) the zones simplify the grid-cell map in particular by filling small 'holes' within the network (see centre section of figure) , and (iii) the area of the strategic zones is greater than the underlying grid-cell map.

Types of map

Nature recovery network: provides a grid-cell map of the proposed nature recovery network for mainland Cornwall.

Strategic zones for Cornwall net-gain tool: provides the two strategic zones for use with Cornwall Council's Net-gain & Biodiversity Off-setting planning tool.

Uses and Applications

✅ **The nature recovery network map provides a county-wide network of existing natural capital 'assets' and 'opportunities' for further growth through improved connectivity and habitat creation.**

✅ **The mapping provides a strategic network for the whole of mainland Cornwall to help guide future policy decisions and interventions at a county-wide level.**

🔴 Specific applications of the nature recovery network are likely to involve additional processing of the nature recovery network map according to specific end-uses.

🔴 Further processing, as for the net-gain zones, involves technical decisions (for example buffering, smoothing and/or simplification of grid cell areas) that should be guided by end-use applications and users to ensure they are fit for purpose.

🔴 Caution is needed when using the network to inform interventions or decisions involving a different spatial scale or scope than the mapping work. For example, the mapping is only suitable to inform small-scale habitat creation when individual decisions are to form part of a broader, county-wide strategy.

ℹ️ The network can only act as a guide for interventions or decisions concerned with a similar spatial scale and scope as the mapping.

ℹ️ Opportunity costs (for example, any loss in agricultural productivity due to habitat creation) are generally not captured by the mapping process creating the network.

ℹ️ There is no absolute demarcation between existing 'assets' and 'opportunities' as in many cases an area may provide value in term of existing biodiversity and provision of ecosystem services.

ℹ️ The network is indicative not prescriptive. Many factors affecting the biodiversity value, service provision or suitability for habitat creation cannot be captured by the mapping process.

Data source – use and copyright

Data used in the creation of nature network and the other maps described in figure 1 are listed here.