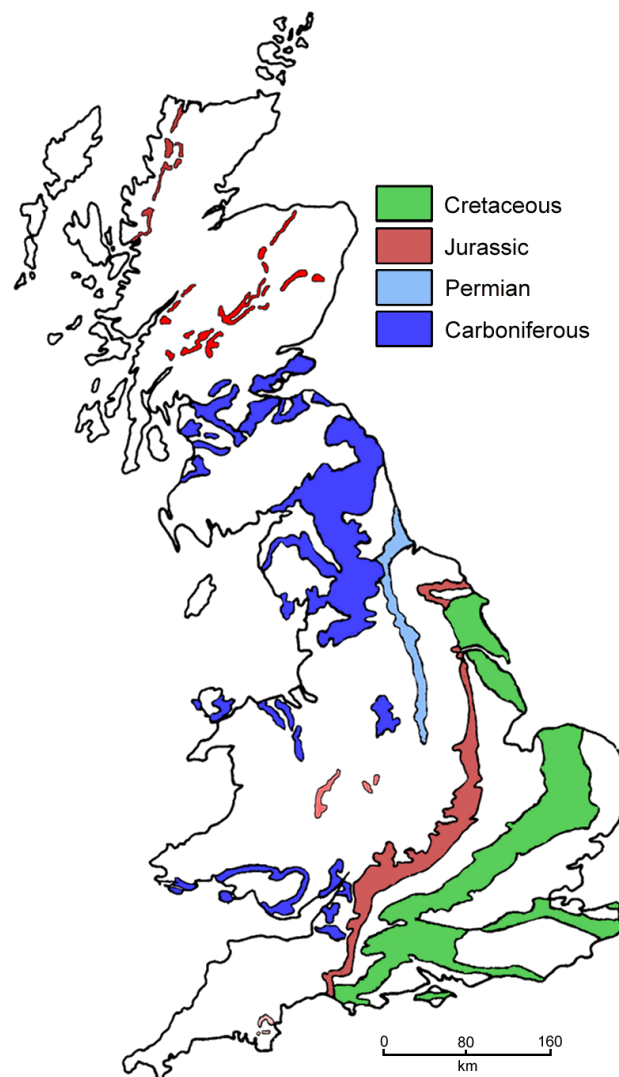


The Rationale Behind Big Chalk

Everyone involved in conservation at all scales from individual fields up to entire Protected Landscapes now have to look across their boundaries to understand and develop links with their surrounding areas. As wildlife moves northwards to a new climate space, where will it be coming from and where will it go? Most importantly, does it have the connected nature recovery network across our boundaries that it needs?

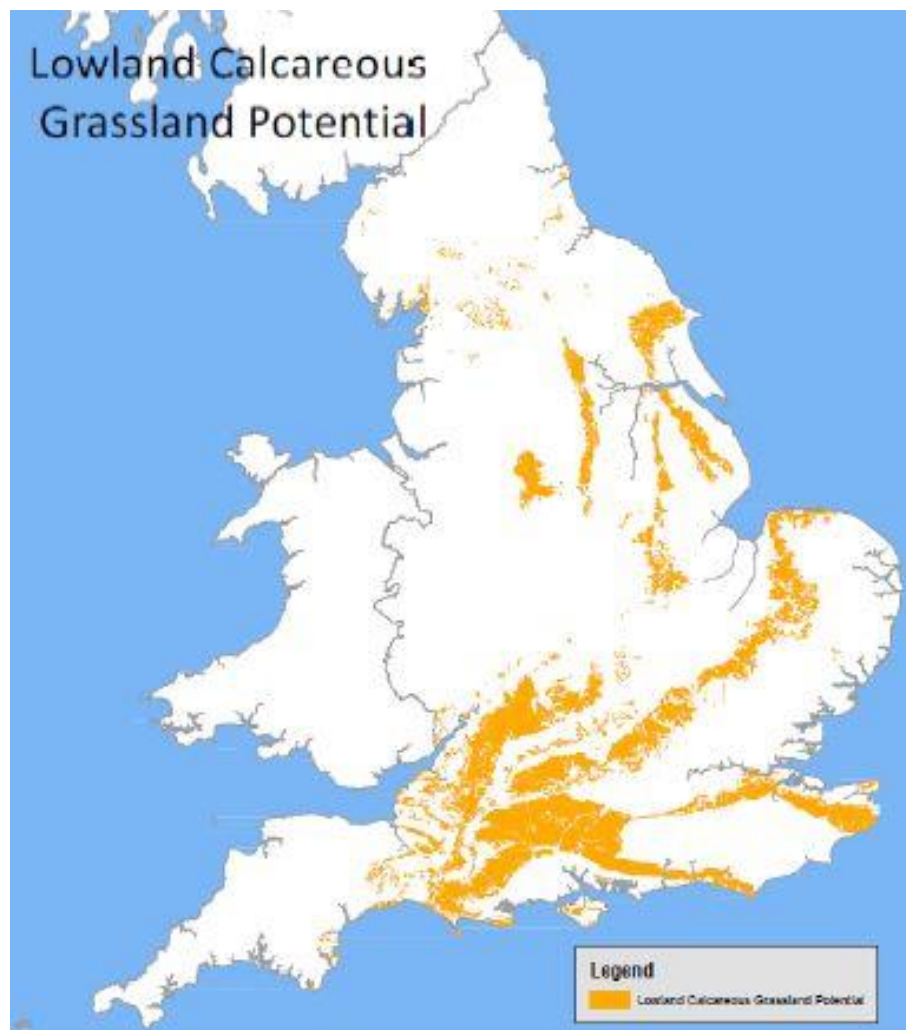
This bigger perspective helps people working within our particularly species rich calcareous landscapes appreciate the true significance of nature recovery work. Habitat restoration in a single field may be a critically important link enhancing a pan England nature recovery network, similarly an area between two calcareous designated landscapes may form an important bridge between them.

The UK geological map shows us the distribution of the Cretaceous chalk and Jurassic limestone bedrocks amongst others that heavily influence the habitats of calcareous landscapes.



Using lowland calcareous grassland as a proxy for a range of calcareous habitats (it is the only widely distributed and surveyed habitat that is restricted to calcareous landscapes) we can gain a better understanding of their habitat links.

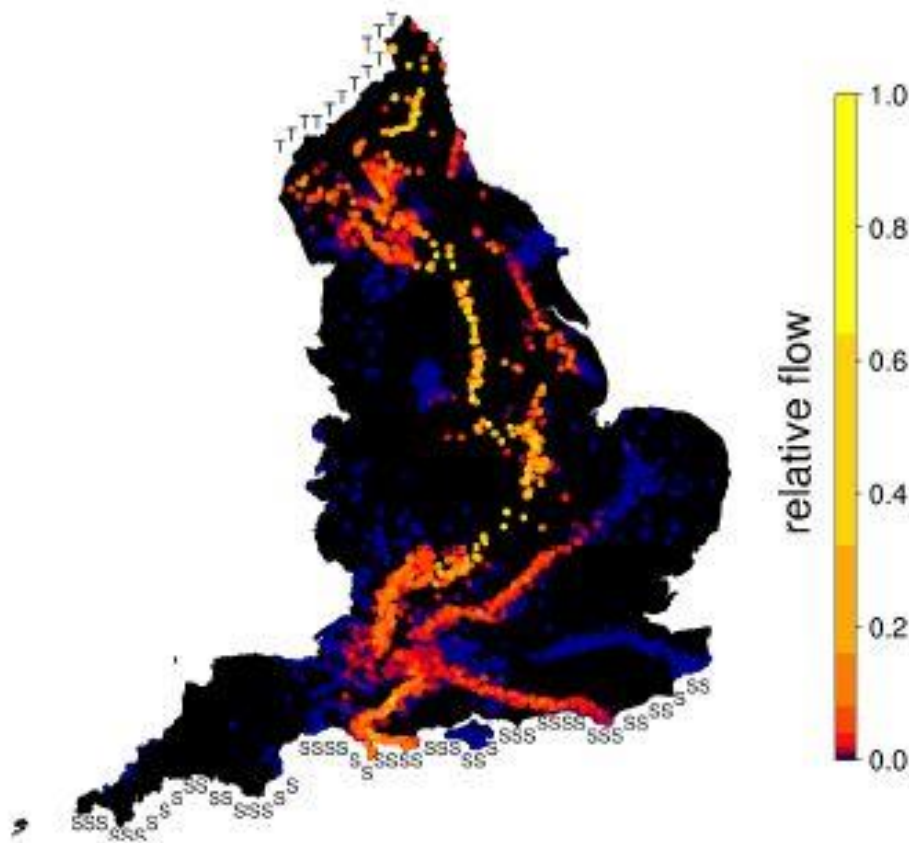
Natural England have produced habitat potential maps which show areas where appropriate conditions exist to support the creation of habitat i.e., the area has qualities relating to a particular habitat that suggest that creation and/or restoration is likely to be successful. Habitat potential is assessed through the identification of physical conditions, often soil type, that support the creation of particular habitats.



Habitat Potential Map for Calcareous Grassland. © Natural England 2019. Soils Data © Cranfield University (NSRI) and for the Controller of HMSO 2019. © Crown Copyright and database rights 2019. Ordnance Survey 100022021.¹

¹ Nature Networks evidence handbook. Natural England. Page 55

“Condatis²⁶: (Hodgson *et al.* 2012) is a decision support tool that helps identify the best locations for habitat creation to increase connectivity across landscapes. Condatis is based on the analogy of electrical circuit boards (wires and resistors) as a way to represent landscapes and model the way a species moves through them. The ability of species (the electrical current) to move through the landscape (the circuit board) varies depending on the configuration of the habitat patches (the wires and resistors). The tool uses a source/destination approach that replicates the movement of a species across latitudes or altitudes in response to climate change.”²



Flow output from Condatis for Lowland Chalk Grassland Habitat using a 4 km dispersal distance with the source defined as the south coast of England (S) and the destination the border between England and Scotland (T), using only priority habitat data for England (Source: Alison *et al.* 2018). © Natural England 2019. Map produced using Condatis (Wallis, D.W. & Hodgson, J.A. (2018) Condatis 0.6.0. <http://wordpress.condatis.org.uk/>). Contains public sector information licensed under the Open Government Licence v3.0.

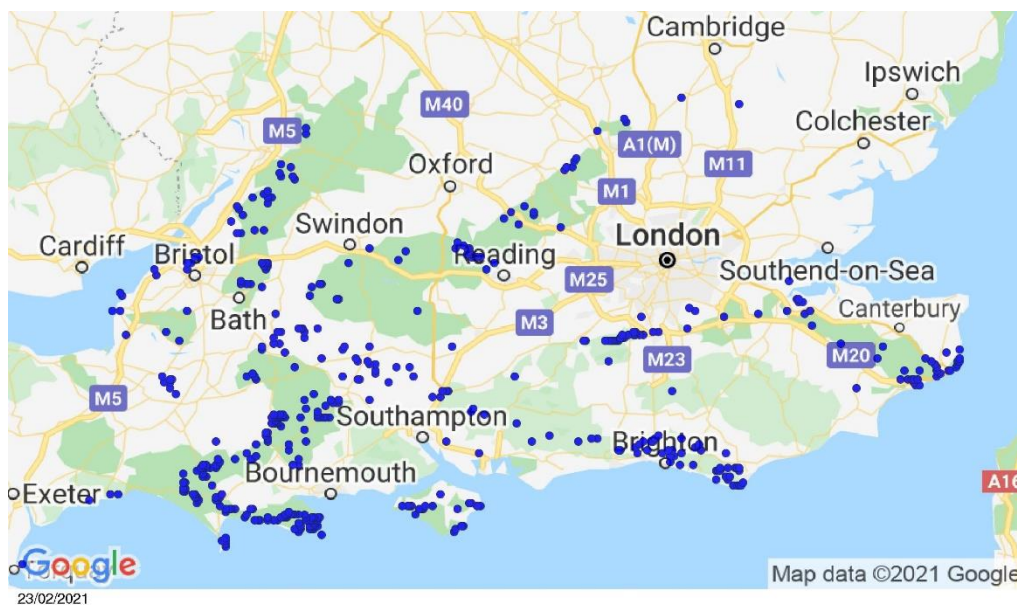
² Nature Networks Evidence Handbook. Natural England. Page 65

The distribution of selected species can also provide an insight into the larger picture. The Duke of Burgundy butterfly is not a calcareous specialist but it is a species of marginal grassland and open woodland habitats requiring large cowslip or primrose leaves for egg laying that have grown in partial shade. It demonstrates the importance of the calcareous landscapes and the links between them to species with diverse habitat requirements.



Duke of Burgundy butterfly distribution, source: National Biodiversity Network Atlas, February 2021.

The Adonis blue butterfly is a calcareous grassland specialist even relying on an association with a calcareous species of ant for its larvae to overwinter. It has extended its range northwards and is occupying a wider range of sward heights and aspects in recent years as a result of climate change



Adonis blue butterfly distribution, source: National Biodiversity Network Atlas, February 2021.

Big Chalk is a visionary scheme focussed on the calcareous landscapes (chalk and limestone) running from the south coast to the midlands. Due to their history and the character of the underlying geology these landscapes have a greater variety of species than any other in the UK. Their species rich habitats, when combined, will enable the most species to recover and adapt to climate change. Big Chalk represents the best opportunity for the most species to flourish, spread and adapt to climate change offered by the English Landscape.

Big Chalk has the primary objective of building a robust nature recovery network on a geographical scale greater than the usual local authority or even regional boundaries. It will be achieved through transforming these landscapes by the application of the Lawton principles at a hitherto unimagined scale.

The Big Chalk programme area is enormous covering some 24,867 sq. km with a north south reach of 215 km. It was derived following extensive stakeholder consultation by adding a 1km buffer to areas with calcareous soils. (Defined as soils rated as high or variable high for carbonate content within the British Geological Survey, UK Soil Observatory Soil Parent Material Model).

