

Area 04 -Cotswold Limestone Lowlands

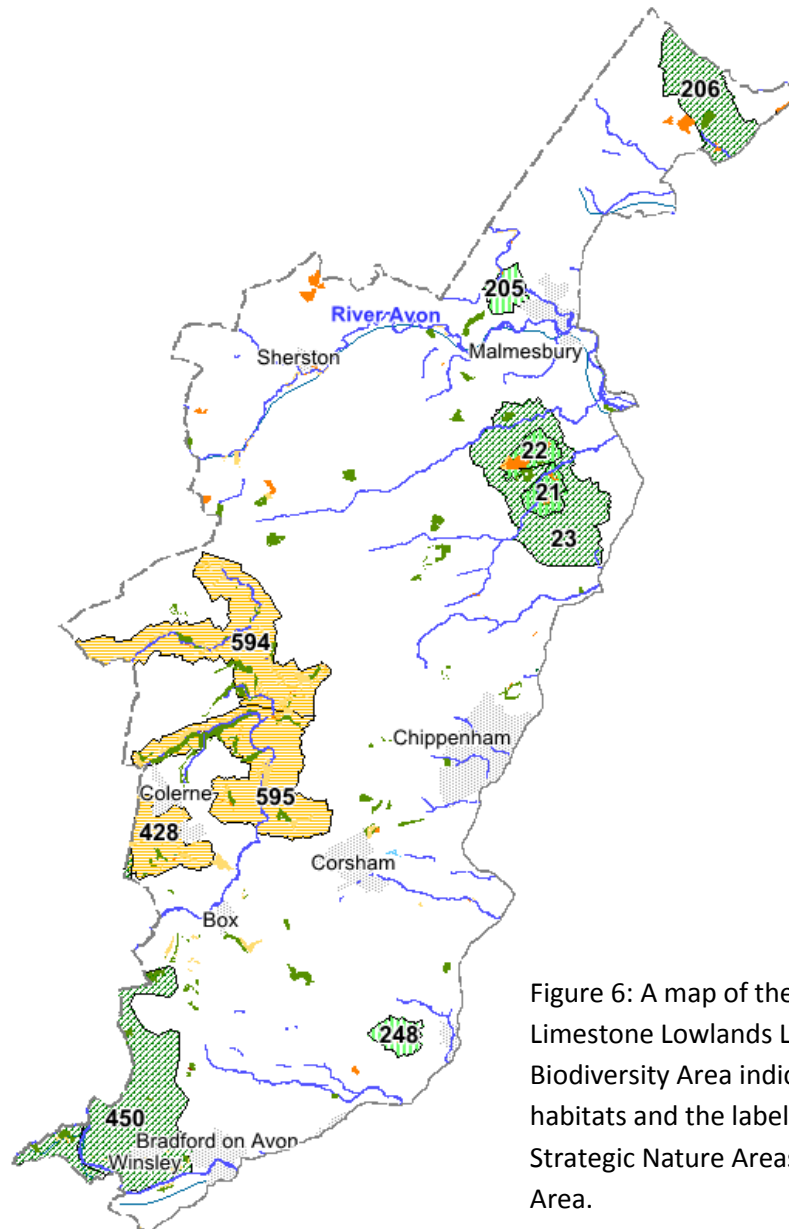


Figure 6: A map of the Cotswolds Limestone Lowlands Landscape Biodiversity Area indicating priority habitats and the labelled, numbered Strategic Nature Areas within this Area.

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Strategic Nature Areas by Main Habitat

- Chalk Downland
- Coastal and Floodplain Grazing Marsh
- Limestone Grassland
- Neutral Grassland
- Neutral Grassland and Woodland
- River
- Woodland
- Woodland and Chalk Downland
- Woodland and Neutral Grassland

Priority Habitats

- Lowland mixed deciduous woodland
- Lowland meadows
- Rivers
- Lowland calcareous grassland
- Wet woodland
- Eutrophic standing waters
- Purple moor-grass and rush pastures
- Lowland mixed deciduous woodland/Lowland wood-pasture and parkland
- Reedbeds
- Lowland fens
- Mesotrophic lakes
- Lowland wood-pasture and parkland
- Ponds

4.4.1 Area Profile

National Character Areas – [Cotswolds \(107\)](#), [Avon Vale \(117\)](#)

Landscape Character Types – Limestone Lowland (16), Limestone Valleys (10), Limestone Wold (9)

Landscape Character Areas – Malmesbury-Corsham Limestone Lowlands (16A), By Brook Limestone Valley (10A), Avon Limestone Valley (10B), and Cotswolds Dip Slope (9A).

AONBs – Cotswolds AONB covers the western half of the Area

Related BAPs - None

SNAs – There are 10 SNAs in Area 04, as well as The River Avon and a section of the Midford Brook in the south. See [here](#) for SNA targets for Area 04

Geology – The lowlands and wolds of Area 04 are characterised by an underlying geology of ancient great oolitic limestone of the Jurassic period, whilst the limestone valleys to the east of the Area are dominated by landslip and Inferior oolite or lias.

Community Area Boards – Malmesbury, Chippenham, Corsham, Melksham, and Bradford on Avon

4.4.2 Background

The Cotswolds Limestone Lowland Biodiversity Landscape Area is a rolling limestone region which has been largely farmed, but which has also retained significant areas of unimproved limestone grassland and areas of woodland.

The limestone wolds in the far west of the Area form a landscape of raised and gently undulating farmland underlain by ancient great oolitic limestone that slopes away to the east. The area is dissected by two steep and narrow tributary valleys, flowing into the By Brook and forming part of the Bristol Avon catchment. Hedgerows of varying quality, but with few hedgerow trees, enclose fields but are replaced by stone walls closer to settlements.

Moderately broad river valleys with gently undulating valley floors and steep limestone sides have been created to the east and south of the wolds by two rivers and their tributaries; the River Avon and By Brook. Many of the SSSIs found in Area 04 are concentrated along the course of these rivers, where significant areas of species rich lowland calcareous grassland and woodland are present along the valleys, especially where the valley sides are steepest and have escaped clearing for agriculture. Prime examples of lowland calcareous grassland can be found at West Yatton Down, Rack Hill, and Honeybrook Farm, one of the few remaining non-intensively managed lowland farms in Britain on which agricultural chemicals have never been used³.

Many good examples of rarer lowland mixed deciduous woodland types occur in the south of the Area. This includes Midford Valley Woods, on the slopes of the Midford Brook, which comprise some of the best examples of southern calcareous ash-wych elm woods on the oolitic limestone of the Wiltshire Cotswolds. North of this, Inwood is a structurally varied and botanically rich example of southern calcareous ash-wych elm and dry ash-maple woodland that has a particularly rich ground flora including large populations of the now rare spiked star-of-Bethlehem and the scarce meadow saffron.

There are very important sites for bats within the Area with Box Mine and Winsley Mines in the south designated as SSSIs and forming part of the [Bath and Bradford-on-Avon Bats SAC](#). They comprise networks of man-made tunnels which are used by bats for hibernation, mating and as a staging post prior to dispersal¹. The SAC contains around 15% of the UK's overwintering populations of greater horseshoe bats (*Rhinolophus ferrumequinu*), as well as a small number of Bechstein's bats (*Myotis bechsteinii*) and lesser horseshoe bats (*Rhinolophus hipposidero*¹¹).

The limestone landscape extends to the east of the river valleys of the Avon and By Brook forming the limestone lowlands, a large expanse of undulating lowland farmland used for arable and some permanent pasture and neutral meadows. The area is criss-crossed by shallow river valleys and still retains a strong hedgerow network. At the eastern boundary of the Area the underlying geology gradually transitions from the underlying geology of limestone to the clays of the Avon Vales to the east.

4.4.3 Priority Habitats

Priority Habitats	Area (ha)
Lowland mixed deciduous woodland	575.82
Lowland calcareous grassland	353.61
Lowland meadows	150.35
Rivers	101.93
Eutrophic standing waters	4.88
Wet woodland	2.12
Lowland wood-pasture and parkland	1.84
Lowland mixed deciduous woodland/Lowland wood-pasture and parkland	1.4
Reedbeds	0.47
Lowland fens	0.44
Purple moor-grass and rush pastures	0.21
Mesotrophic lakes/Ponds	0.04
Eutrophic standing waters/Ponds	0.02
Total	1193.13

4.4.4 Priorities and Opportunities for Conservation

1. Woodland

- Ancient Woodland
- Bats

2. Limestone Grassland

- Limestone grassland and butterflies
- Arable plants
- Farmland birds

3. Neutral Grassland

- Unimproved neutral meadows

4. Rivers

1. Woodland – SNAs: 23, 206, 450, 515

Ancient Woodland

The steep sided valleys of the limestone valleys include some extensive clusters of lowland mixed deciduous woodland which form an important component of the wider Cotswolds woodland network; a nationally significant feature for climate change adaptation of woodland species. While the cover of woodland remains fairly stable, most of the remnant woodlands are small and fragmented, and therefore also tend to be undermanaged and in poor condition. Priorities in relation to this habitat therefore include:

- Secure favourable management of existing ancient woodland sites
- Buffer / extend ancient woodland sites with appropriate new woodland planting
- Improve connectivity between ancient woodland sites through hedgerow and woodland planting, particularly where it would help to link woodlands in a north – south axis.

Bats

This area supports internationally important roosts of Annex II bat species and also forms part of a nationally important landscape and migratory route for these species, linking with other nationally important roosts extending from Gloucestershire, through western Wiltshire (this area), eastern Somerset, Dorset and south Devon. Priorities for bats in this area are therefore:

- Study important roosts to improve understanding of how bats use the surrounding landscapes for commuting / foraging
- Protect and enhance suitable habitats around important roost sites
- Maintaining mature and veteran trees, particularly those known to be used for roosting
- Identifying and favourably managing the next generation of mature / veteran trees
- Managing existing hedgerows and woodland used for foraging and commuting routes
- Hedgerow planting and woodland creation to improve connectivity between key roosting / foraging sites
- Retaining and extending cattle grazed pastures which provide important foraging sites for bats.
- Maintaining the important mosaic of woodland, grassland and open water habitats which help support such a rich diversity of bat species
- Identifying and mapping important roosting sites and foraging grounds for the rarest species

Existing conservation projects and initiatives

- **The Wiltshire Batscapes project** – West Wiltshire has been recognised as a key area for bats within the region and through projects such as the proposed Batscapes Project, work is planned to improve habitats for bats and increase the level of bat monitoring in this area. West Wiltshire is not within an HLS target area but this project aims to help farmers within the Batscapes project area into Entry Level Stewardships and, in the case of exceptional farms, Higher Level stewardship, as well as providing capital works grants towards habitat restoration that benefits bats.

2. Limestone Grassland – SNAs: 428, 594, 595

Limestone grassland and butterflies

The steep valleys of the By Brook and associated tributaries support mainly linear strips of species-rich unimproved calcareous grassland, which in turn support diverse populations of associated declining butterfly species including the rare marsh fritillary. Knowledge of the extent of limestone grassland is good, however knowledge of important butterfly populations is very patchy. As with woodland habitats, this network of grassland sites forms part of the wider Cotswolds landscape forming a nationally significant feature facilitating climate change adaptation for grassland species. There has been severe loss of limestone grassland and butterfly populations due to grassland improvement, conversion to arable, use of pesticides and neglect (scrub encroachment), leaving small isolated habitats / populations. Many remaining areas could still be at risk. Priorities for action include:

- Butterfly surveys of limestone grassland sites
- Informing landowners and managers where they own / manage important limestone grassland / butterfly sites
- Protect and secure favourable management of remnant limestone grassland habitat
- Avoid use of pesticides on / near known limestone butterfly populations
- Reconnect limestone grassland networks, using stepping stone sites where necessary, particularly where known populations of limestone butterflies exist
- Restore degraded meadows by clearing scrub
- Create new limestone grassland sites in strategically important locations of suitable geology using seed sources of local provenance

Farmland Birds

Outside the steep limestone valleys, the majority of the dip slope and rolling landscapes are heavily farmed, but supports important populations of farmland birds including the 'Arable 6' (lapwing, grey partridge, turtle dove, yellow wagtail, tree sparrow and corn bunting), which have all suffered significant declines in the past 50 years. Knowledge of important farmland bird populations is considered to be good. Many populations have now stabilised, however farmland birds are still vulnerable to changes in farmland management as a result of changing crop prices and policy reform such as the Common Agricultural Policy. Priorities for farmland birds in this area are therefore:

- Sowing wild bird seed mixtures
- Creating and maintaining skylark plots
- Beetle banks
- Fallow plots
- Cultivated field margins
- Low input cereals
- Planting, restoring and sensitive management of hedgerows
- Sensitive crop management

Arable Plants

The Cotswolds is recognised as an important area for rare arable plants such as sheppard's needle and indigenous species such as Cotswold penny-cress, which have gone through significant declines due to advanced seed cleaning, increased use of fertiliser, new high yielding crop varieties and the introduction of herbicides. Knowledge of arable plant populations is poor. As with arable birds, rare arable plants are also vulnerable to changing crop prices, development (particularly photovoltaic farms) and policy reform which might favour less sensitive land management practices.

- Surveys to identify important sites / areas for rare arable plants
- Target important sites and surrounding areas for sensitive management
- Create uncropped cultivated margins – no herbicide / pesticide
- Control pernicious weeds in September (if necessary)

Existing conservation projects and initiatives

- **Cotswolds Area of Outstanding Natural Beauty (AONB)** - The Landscape Biodiversity Area overlaps with the extent of the AONB which is well placed to coordinate conservation efforts at a landscape scale. The **England Biodiversity Strategy Delivery Plan** includes actions to encourage and support new and existing large scale initiatives for improved ecological networks across the Area of Outstanding Natural Beauty (AONB) designated landscapes. Additionally, AONB partnerships must integrate **Biodiversity 2020 and ecosystem targets** into all AONB Management Plan Reviews by Mar 2014. The AONB administers a **Sustainable Development Fund**, a regional grants scheme available to individuals, groups or businesses that have ideas or projects that will improve the Cotswolds both now and in the future.
- **Cotswolds Nature Improvement Areas** – The Cotswolds has identified two Nature Improvement Areas (NIAs) for the Cotswolds AONB; the Cotswolds Scarp NIA and the Cotswolds Valleys NIA. Although not successful in the first round of the government's NIA funding it is still the Cotswold Ecological Networks Forum's preferred method for the delivery of conservation effort at the landscape scale within the Cotswolds AONB. These NIAs have been identified from the SW Nature Maps Strategic Nature Areas and aim to link up and better manage existing sites across the project area. It is important to maintain the momentum generated from the NIA application process and to engage partners from across the environmental and business sectors to ensure that this project can be taken forward

3. Neutral Grassland – SNAs: 21, 22, 205, 248

Unimproved neutral meadows

Lowland hay meadows are mainly found on the limestone lowlands to the east and north of the wolds and valleys, generally closely associated with the course of the River Avon and its tributaries where alluvium and valley gravel have been deposited. Notable examples include Harries Ground, Rodbourne; a nationally important species rich area of lowland meadow which is also known to support the nationally scarce marsh fritillary butterfly. The abundance of Devil's-bit scabious is of

particular importance as the food plant for the larvae of the marsh fritillary butterfly. This butterfly prefers Devil's-bit scabious growing with upright leaves in relatively tall grassland as it is at this site. Issues include cessation of traditional meadow management practices. Priorities for neutral meadows are:

- Protect and secure favourable management of known lowland neutral meadows through agri-environment schemes or promotion of traditional meadow management
- Ensure that management of sites is in line with habitat requirements of notable meadow plants and species including the marsh fritillary butterfly.
- Enlarge existing neutral sites through habitat creation
- Identify clusters of lowland meadow sites and target action to conserve stepping stones to connect meta-populations and dispersal of neutral grassland species.

4. Rivers – SNAs: 851, 859, 861 – Avon; 1040 – Midford Brook; 664 - Thames

Most of the Cotswold rivers represent key examples of oolitic limestone rivers, have high wildlife value and are of national importance. The Bristol Avon and By Brook rivers have created the extensive river system which is a key priority habitat within the area and has been integral in shaping the landscape and creating the conditions for many of the associated priority habitats. The upper reaches of the Bristol Avon begin in this area and support populations of salmonids and white clawed crayfish in the limestone valleys which do not occur further downstream in the clay vales. Riparian habitats include remnants of water meadows and riparian woodland, although much of these habitats have been lost, while other riparian habitats are vulnerable to poaching and development pressures. The river itself and the flora and fauna it supports are vulnerable to sedimentation due to thin cornbrash soils which are prone to erosion, particularly on steep slopes and in areas in arable production. Priorities in this area are therefore:







- Restore water meadows and riparian woodland
- Protect and manage riparian habitats sensitively
- Revert arable to grassland and plant woodland / buffer strips in areas of high erosion risk
- Improve fish habitats by creating reefs, creating riffles, removing barriers and sensitive bankside management
- For projects to enhance white-clawed contact the Environment Agency first

Existing conservation projects and initiatives

- **The By Brook and Bristol Avon** – Running through the north of the Area, these Rivers represent important wildlife corridors that support a range of associated habitats. Although neither is included as a priority catchment in the Environment Agency's Catchment Sensitive Farming Project, both have issues with agricultural run-off and invasive species. Both are covered by the **Wiltshire Rivers Monitoring Scheme** which is run by a network of volunteers who monitor Wiltshire's rivers to check for signs of pollution incidents affecting riverine fauna and flora. The Rivers have also been a focus of projects to mitigate the spread and impact of non-native invasive crayfish and the **Wiltshire Invasive Plants Project (WIPP)** which undertakes active removal of invasive plant species along the By Brook.

Additionally, opportunities for flood storage have been identified on the Upper Avon which may provide opportunities for the creation of floodplain/ wet grassland habitats. The **Bristol Avon Catchment Management Plan** outlines the strategic plan for the entire catchment and provides guidance on further opportunities for conservation within the Bristol Avon catchment.

4.4.5 Conservation Initiatives

	'Bees for Everyone'	A project to raise public awareness of the importance of bumblebees and the problems that they face, and conducting active habitat management to safeguard, restore and create valuable bumblebee habitats.	8, 9, 10	Click folder for project details	 Bumblebee Conservation Trust website
	Meadow research project	Floodplain Meadows Partnership (based at the Open University) has been monitoring the plants, soils and water of key floodplain meadows for many years. This information is used to develop our understanding of how these resilient communities change in response to wider environmental factors and help guide the management of floodplain meadow sites.	1. North Meadow and Cullispen Farm SAC	Click folder for project details	 Floodplain Meadows Partnership research site
	Great Western Community Forest	The purpose of GWCF is to create a multi-purpose forest throughout Swindon from the centre of the town and into the surrounding countryside. Multi-purpose forestry encompasses the creation and use of a diverse natural and built environment including trees and woodland, grassland, wetlands, hedgerows, ponds and rivers.	1, 2, 3 & 5	Click folder for project details	Click icon for GWCF webpage 

Please see the attached table of current conservation initiatives within the particular Landscape Biodiversity Areas