

4. ECOLOGICAL CHARACTER

ECOLOGICAL CONTEXT

The Natural Areas (NAs) and sites with statutory and local nature conservation designation within Wiltshire are shown on **Figures 14, 15 and 16**.

NAs are sub-divisions of England identified by English Nature as being unique on the basis of their physical, wildlife, land use and cultural attributes. This approach provides a wider context for conservation action, and offers a framework for setting objectives relevant to nature conservation. A total of eight NAs fall within the county boundary, these are:

- Berkshire and Marlborough Downs
- Cotswolds
- Hampshire Downs
- New Forest
- Midvale Ridge
- South Wessex Downs
- Thames and Avon Vales
- Wessex Vales

The northern half of the county comprises a central flat low-lying area, the Thames and Avon Vale NA, that runs roughly in a north to south direction following the course of the Bristol Avon. The river floodplain is dominated by arable agriculture, although areas of neutral, generally damp grassland together with scattered woodland blocks are also characteristic. The floodplain has retained a strong hedgerow network, and mature trees, particularly crack willow *Salix fragilis* and the native black poplar *Populus nigra* subsp. *betulifolia* are often found along ditches and streams.

To the east and west the Thames and Avon Vale is bordered by chalk plateaus. To the east is the Berkshire and Marlborough Downs NA, which is essentially a chalk downland landscape, characterised by rolling farmland, with remnant areas of calcareous grassland, and scattered woods. To the north of the Berkshire and Marlborough Downs, and extending into the Thames and Avon Vale from the east is the Midvale Ridge NA. This Ridge forms a low band of limestone hills, and is characterised by sandy, free draining soils that support a mixture of dry woodlands, sandy pastures and arable fields interspersed with many small settlements.

To the west of the Avon Vale is the Cotswolds NA, a rolling limestone region which is largely farmed, but has also retained significant areas of unimproved limestone grassland, and areas of woodland, particularly along the scarp slopes where woodland cover is relatively continuous.

The southern half of the county is dominated by the South Wessex Downs NA. This NA is similar in character to the Berkshire and Marlborough Downs, and comprises a landscape that is strongly characterised by the underlying chalk geology. The South Wessex Downs are especially important for the numerous and often extensive areas of remnant unimproved chalk grassland, and is of international importance for both its chalk grassland and chalk rivers, and for the many notable animal and plant species associated with these habitats.

The Wessex Vales NA extends into the South Wessex Downs from the west, and forms a narrow finger which extends east almost to Salisbury. The Wessex Vales corresponds approximately with the extent of sand and clay deposits, which overlie the chalk bedrock.

Grassland

The county support a wide variety of grassland type including examples of unimproved calcareous, neutral and acid grassland. **Unimproved calcareous grassland** is a key habitat within the county and as a whole the resource is of international importance. The total amount of calcareous grassland within the county is estimated to be in the region of 18,000 to 24,000 ha, which equates to around 50% of the total calcareous grassland resource in the UK¹.

The majority of the calcareous grassland is associated with chalk downland of south, central and east Wiltshire. This includes a number of extensive sites, including the largest expanse of chalk downland remaining in north-west Europe in Salisbury Plain which totals 19,689ha, of which around 13,000ha are open downland. Smaller areas of oolitic limestone grassland also occur in the north-west of the county on the Cotswold Hills.

Unimproved calcareous grassland comprises species-rich plant communities, including characteristic and widespread plant species such as sheep's fescue *Festuca ovina*, oat grasses *Helictotrichon pratense*/*H. pubescens*, quaking grass *Briza media*, glaucous sedge *Carex flacca*, spring sedge *C. caryophyllea*, salad burnet *Sanguisorba minor* and wild thyme *Thymus polytrichus*. However, these grasslands also support many nationally rare and scarce plant species, such as early gentian *Gentianella anglica*, tuberous thistle *Cirsium tuberosum*, dwarf sedge *Carex humilis*, and bastard toadflax *Thesium humifusum*. In addition to their botanical significance, these grasslands also support diverse assemblages of butterflies, including internationally important populations of the marsh fritillary *Eurodryas aurinia*, and the rare silver spotted skipper *Hesperia comma*, as well as many other notable invertebrates.

These grasslands typically support a scrub component, which are often rich in woody shrub species such as spindle *Euonymus europaeus*, privet *Ligustrum vulgare*, buckthorn *Rhamnus cathartica*, dogwood *Cornus sanguinea*, and whitebeam *Sorbus aria*. Where management maintains an appropriate balance between scrub and open grassland, these areas provide valuable habitat mosaics. The county also supports scrub communities with inherent nature conservation interest, in particular stands of juniper *Juniperus communis* scrub (UK BAP priority habitat), for example at Porton Down SAC.

Unimproved neutral grassland occurs as mostly small fragmented sites scattered widely throughout the county. The two principle unimproved neutral grassland communities that occur in Wiltshire are MG4 meadow foxtail – greater burnet community a grassland associated with seasonally flooded hay meadows and MG5 black knapweed – crested dog's tail community. Wiltshire is particularly notable for supporting a nationally significant area of the uncommon MG4 grassland community, this includes two relatively large sites in the Upper Thames Valley in north Wiltshire, namely North Meadow NNR and Clattinger Farm SSSI.

Small areas of **acid grassland** also occur within the county, perhaps most notably within the New Forest, and these add further diversity to the county's grassland resource.

Arable farmland

Arable farmland (defined as land under crops, fallow and set-aside) accounts for around 40% of the land area of Wiltshire and makes a significant contribution to the overall character and ecological value of the county. The majority of this arable farmland (around 63%) is

¹ Wiltshire BAP Forum (2002) Wiltshire Biodiversity Action Plan.

used for cereal production and so is intensively managed under modern farming systems. However, Wiltshire supports some of the most ecologically rich arable land in the UK, and is a stronghold for many declining plant and animal species associated with this habitat type. The steep chalk scarps and river valleys that are often farmed less intensively, are generally associated with a greater variety of commercial crops, and these crops are often grown in rotation with grassland leys. In addition, large areas of downland such as Salisbury Plain, also provide important areas for a range of characteristic arable species.

Wiltshire is a nationally recognised stronghold for a number of nationally declining plant and animal species associated with agricultural land. Relevant examples include:

- important populations of brown hare *Lepus europaeus*, a species that has suffered a substantial decline since the early 1960s, and is a priority species under the UK BAP;
- a range of farmland bird species, including stone curlew *Burhinus oedicanus*, grey partridge *Perdix perdix*, tree sparrow *Passer montanus* and skylark *Alauda arvensis*. These species have suffered a rapid decline across the UK due to changing agricultural practice, and many are priority species under the UK BAP;
- a range of notable arable plant species including pheasant's-eye *Adonis annua*, broad-leaved spurge *Euphorbia platyphyllos*, dense-flowered fumitory *Fumaria densiflora*, narrow-fruited cornsalad *Valerianella dentata* and Venus's-looking-glass *Legousia hybrida*. These species and many others have declined due to a shift from mixed farming and spring sown crops to increased specialisation, early autumn sowing and the increased use of fertilisers and pesticides.

Opportunities for landowners to enhance local biodiversity are available through voluntary agri-environment schemes, such as the new Environmental Stewardship scheme. Such schemes provide a mechanism to compensate farmers for costs incurred in changing their land management practices to bring about environmental benefits. Examples of such measures include the management of arable field margins, and in some cases whole fields, which can be used to benefit arable plants, ground nesting birds and invertebrates. The integration of nature conservation and commercial production objectives, presents a real opportunity for retaining and enhancing biodiversity within the county.

Hedgerows

Hedgerows are a valuable ecological resource, providing refuge for many species of plant and animal, and an important link between fragmented habitats parcels. Although hedgerows occur throughout the county, they are of limited occurrence within the landscape of the Berkshire and Marlborough Downs and South Wessex Downs Natural Areas.

Woodland

Wiltshire supports a significant number of woodlands, and has a total of around 8% woodland cover. About half of this is recognised as being of ancient origin, of which 46% is semi-natural and 54% replanted. Woodland is distributed widely throughout the county, although areas of open chalk downland, for example around Salisbury Plain and the Marlborough Downs support very little woodland, and areas around Longleat Hills/Maiden Bradley and Clarendon/Bentley have large and extensive tracts of woodland cover.

The most widely distributed woodland comprises oak *Quercus robur*, ash *Fraxinus excelsior* and field maple *Acer campestre* woodland. This is typical of slightly calcareous brown earths, and often supports a rich assemblage of woody scrub and woodland ground flora plant species. Good examples include the Longleat Wood SSSI and Out Woods SSSI, the latter of which supports notable populations of lily-of-the-valley *Convallaria majalis* and angular Solomon's seal *Polygonatum odoratum*.

More locally distributed are beech *Fagus sylvatica* and yew *Taxus baccata* woodlands, both of which are found in association with chalk and limestone regions of the county. Wet woodlands occur in wetter parts of the Wessex Vale, and in the small area of the New Forest. These wet woods are generally dominated by alder *Alnus glutinosa* for example at Spye Park SSSI, or willow *Salix* spp., as at Loosehanger Copse and Meadows SSSI.

Ancient woodlands are widely scattered throughout the county, and are of high nature conservation importance, due to the diverse animal and plant communities which they support. These ancient woodlands range from Savernake Forest, a large and ecologically diverse woodland with a long and complex history of management, through to small remnant fragments which are interspersed within the downland and river valley landscapes.

Wood-pasture and parkland

There are now few remaining examples of wood-pasture within Wiltshire, although relict sites such as Savernake Forest are important examples which possess high restoration potential. Parkland is more common and widely distributed within the county. Both wood-pasture and parkland typically support a valuable mosaic of grassland, scrub and woodland communities, often including ancient trees. These habitats are especially notable for supporting important assemblages of deadwood invertebrates, fungi, bats and birds.

Rivers and associated habitats

The majority of the water courses within the county feed one of five major river systems, these are:

- **Salisbury Avon** – covers the majority of south Wiltshire, and includes the Nadder, Wylye, Till, Bourne, Ebble and Nine Mile river tributaries.
- **Bristol Avon** – located in the north-west of the county, and includes the Biss, By, Semington and Brinkworth Brooks and River Marden.
- **Thames** – located in the north-east of the county, and includes the Upper River Kennet, and the Ray, Cole, Key, Churn, Bydemill Brook, Swill Brook and the Thames.
- In the south-east corner of the county is the River Dunn which is a small part of the **River Test system** and in the south-west some headwaters (the Shreen and Ashfield water) of the **Dorset Stour**.

The most ecologically notable of these are the characteristic chalk streams, particularly the River Avon System SAC and SSSI (Salisbury Avon) and the river Kennet SSSI. These chalk rivers and their tributaries are typically gravel bottomed, and typically characterised by clear waters. They are valued for supporting abundant and rich aquatic plant communities, diverse fish assemblages, and for their varied aquatic invertebrate fauna, including many species with a restricted distribution within the UK. Of the aquatic vegetation types present, beds of

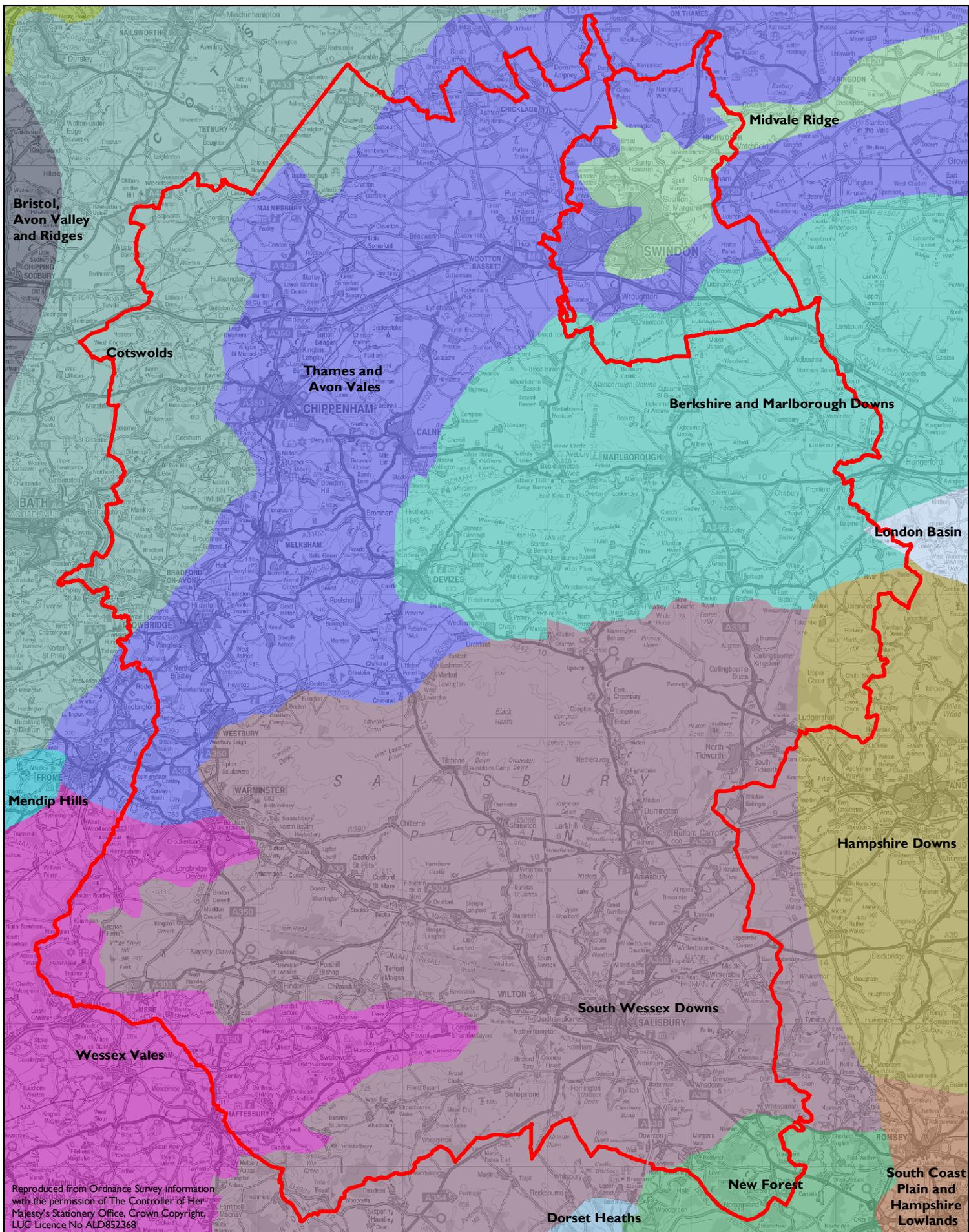
floating water crowfoot *Ranunculus* subgenus *Batrachium* are particularly notable, as this vegetation type is uncommon in chalk rivers across the UK and throughout Europe. In addition, these rivers provide an important habitat for Desmoulin's whorl snail *Vertigo moulinsiana*, a small and rare mollusc associated with emergent and marginal tall swamp vegetation such as sedges *Carex* spp., reed *Phragmites australis* and reed sweet-grass *Glyceria maxima* found along the margins of river channels.

Although some small areas of rough pasture and fringing woodland occur within the floodplains of these rivers, associated wetland habitats such as traditional water meadows and unimproved marshy grassland are now relatively uncommon. Most of these wetland features have been subject to agricultural improvement, and arable agriculture and improved grassland now dominate the floodplains.

Although not of such outstanding ecological interest, other rivers within the county such as the Bristol Avon also support an ecologically valuable range of associated habitats, including damp neutral grassland and small woodlands.

Open Water

The county supports a range of open water features including natural ponds, gravel pits, man-made lakes, and canals, all of which provide important wildlife habitat. However, the most notable area of open water habitat within the county is Cotswold Water Park, which includes a number of open water and grassland SSSI. As a whole the Park represents a series of around 130 lakes formed by mineral extraction in the Upper Thames floodplain on the Gloucestershire/Wiltshire border. These lakes and surrounding habitats are of high ecological value, and have been the subject of a specific local BAP. The following species are included within the Cotswold Water Park BAP; water vole, otter, bittern, tufted duck, pochard, gadwall, reed bunting, freshwater white clawed crayfish, and lesser bearded stonewort *Chara curta*.



WILTSHIRE LANDSCAPE CHARACTER ASSESSMENT

Figure 14:
Natural Areas

Key
 Wiltshire

Character Area boundary (shaded and labelled)

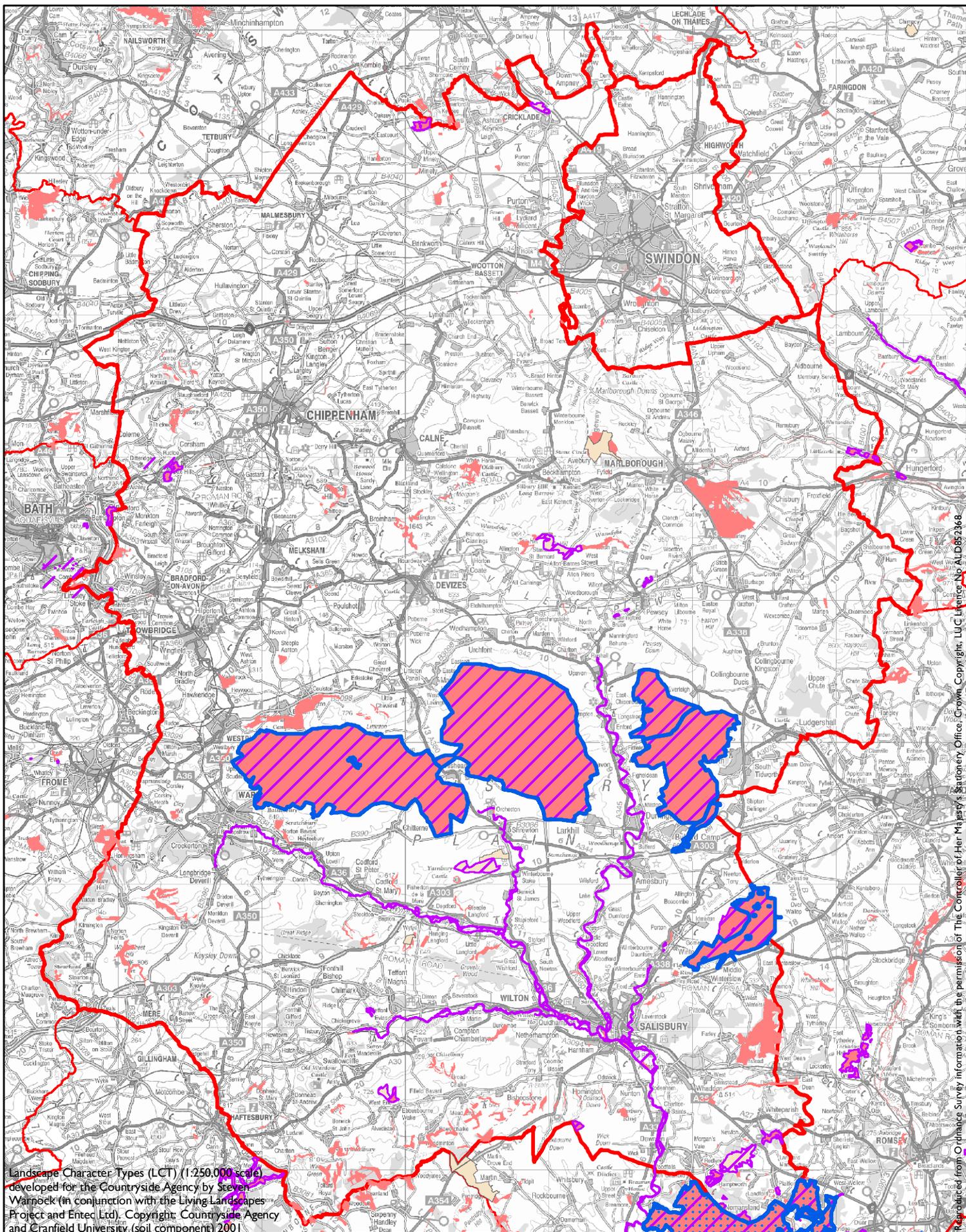
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Landscape Character Types (LCT) (1:250,000 scale) developed for the Countryside Agency by Steven Warpeck (in conjunction with the Living Landscapes Project and Entec Ltd). Copyright: Countryside Agency and Cranfield University, (soil component) 2001

WILTSHIRE LANDSCAPE CHARACTER ASSESSMENT

Figure 15:
Statutory Nature Designations

- Key
- Wiltshire and Swindon
 - Other county boundary
 - NNR
 - SSSI
 - SPA
 - SAC
 - RAMSAR

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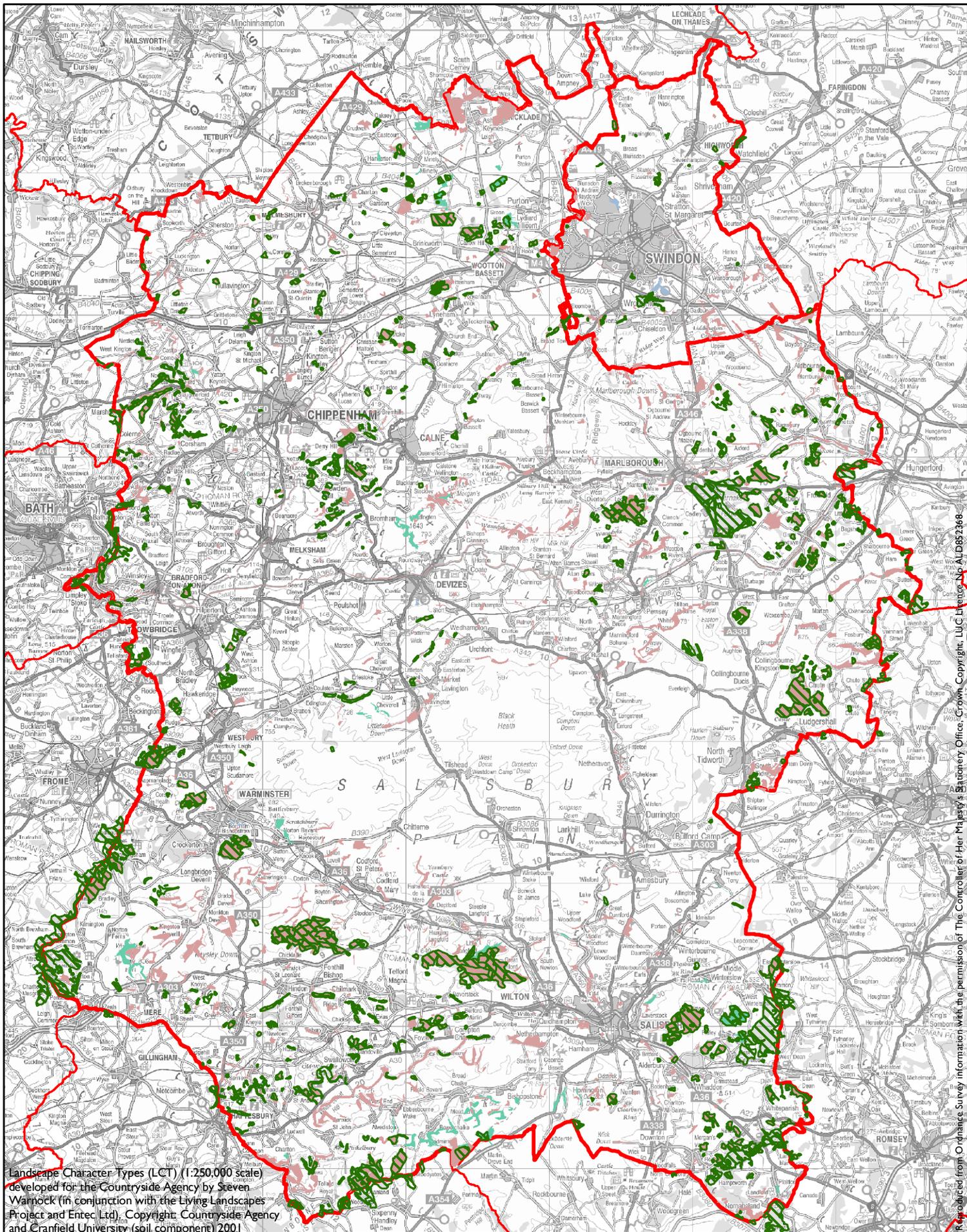
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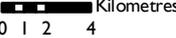
WILTSHIRE LANDSCAPE CHARACTER ASSESSMENT

Figure 16:
Local Wildlife Sites

Key

- Wiltshire and Swindon
- Other county boundary
- County Wildlife Sites
- Local Nature Reserves
- Wiltshire Wildlife Trust (ownership)
- Woodland Trust (ownership)
- Ancient Woodland

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