



2 Geology

2.1 Introduction

The geology of the county is the major factor determining its topography (the hills and valleys) and its soils. These, together with the climate, determine the natural vegetation and habitats which support the range of species and influence farming practices. The combination of all these results in the distinctive landscape of each part of the county.

The solid geology of Hertfordshire is relatively simple, being largely Chalk of the Cretaceous

period, overlain in the south and east by London Clay. In the far north and north-west of the county are small areas of Gault Clay. Throughout much of the county, the superficial deposits which overlay the solid geology complicate the picture. These include the Clay-with-flints of much of west Hertfordshire, including the Chilterns dip slope; the boulder clay of central and east Hertfordshire; and the gravels of the Vale of St Albans and the river valleys.

2.2 Natural areas/joint character areas

Based on the precise geology and landscape, combined with wildlife and natural features, Hertfordshire can be divided into broad areas where similar features occur. Areas which share similar types of wildlife and natural features are termed 'Natural Areas'. Five Natural Areas have been identified in Hertfordshire. Within each broad Natural Area there may be more than one 'Character Area', where differences in the landscape are defined more precisely. These Natural Areas and Character Areas have been agreed through the English Nature/Countryside Commission Joint Character Map Programme. A summary description for the Natural Areas/Joint Character Areas covering Hertfordshire is provided below:

Chilterns: Within Hertfordshire the Chilterns extend from Tring to Hitchin and down towards Welwyn, St Albans and Watford. The area consists of rolling chalk hills, capped with Clay-with-flints superficial deposits. Within Hertfordshire the north-west facing steep chalk scarp slope only outcrops on either side of Tring, with the gentler south-east facing hills of the dip slope covering a much larger area. The Chilterns contain the most varied landscape in the

county, with some of the best tracts of scenery and most hilly topography. Typically the area is well wooded and has a lack of standing water. The fields are generally large, with few hedges on the scarp or hill tops, but more hedges on the dip slope. Key habitats include ancient woodland, chalk grassland, chalk streams, neutral grassland and heathland.

London Basin: This area covers the whole of London and most of the surrounding river catchments which feed the Thames. Hertfordshire is solely within the Northern Thames Basin Character Area. The geology consists of mostly London Clay, overlain with other superficial sand and gravel deposits. The area has a complex topography, with many valleys cut into it, including major rivers feeding the Thames, such as the Lee and Colne catchments, as well as dry valleys. Within Hertfordshire, the eastern area is heavily wooded, the central area more open and the valley sides of the western area more wooded again. Field patterns are often small in the east, but larger in the west and along the river valleys. Pasture is the dominant land use to the east, while arable increases towards the west. Key habitats include ancient woodlands,

heathlands, neutral grasslands and the wetlands of the river valleys.

East Anglian Plain: This area covers a large part of east Hertfordshire, extends west to Stevenage and northwards throughout East Anglia to Norwich. The Hertfordshire section is wholly within the South Suffolk and North Essex Clayland Character Area. The geology consists of underlying Chalk with a covering layer of Boulder Clay over most of the area, though glacial sands and gravels are found along the river valleys. In the east the Boulder Clay is chalky but becomes more acidic to the west. The area is a plateau, broadly flat and dissected by river valleys, with an undulating topography. Arable farming is the dominant land-use, but hedges, isolated trees and woods give a wooded feel and the irregular field pattern still survives in places, despite large-scale hedge removal. Key habitats include unimproved meadows, river valley wetlands (including spring sources and grasslands) and scattered ancient woodlands.

East Anglian Chalk: This area runs north-east from the Chilterns, through Hertfordshire and south Cambridgeshire. The geology is largely Chalk, with some superficial deposits. The chalk hills are gentler than the Chilterns, and the landscape more open, as a result of being covered by the Anglian ice sheet. Fields are generally large and there are few hedges or woodlands. Arable farming is the dominant land-use with small areas of pasture, particularly close to villages. Key habitats include chalk grasslands and arable margins.

West Anglian Plain: This area only occurs at the northernmost tips of the county within the Bedfordshire & Cambridgeshire Claylands Character Area. The geology is Gault Clay forming an open clay plain, with isolated outliers of chalk, though none of these are present in Hertfordshire. Field pattern is generally of large rectangular field surrounded by straight enclosure hedges. Some fields retain evidence of old ridge and furrow patterns. Land use is generally mixed arable and pasture with little woodland. Key habitats include neutral grasslands.

Individual habitat action plans refer to these Natural Areas, with key sites listed by Natural Area. The Natural Areas also provide a basis for identifying key areas and sites for prioritising actions, particularly through the identification of Key Biodiversity Areas (see Chapter 3).