

# 1 Rural environment

## 1.1 Kent's rural landscape

### 1.1.1 Land-use and land-use change

85% of the land in Kent is classified as rural. In the South East, Kent and Hampshire are the largest rural areas, both have over 300,000 hectares (1,200 square miles). Kent constitutes 19% of the rural land in the South East and 3% of the area of rural England.

**Table 39: South East rural area by county**

Source: ONS

Rural Area	Hectares	Rural %	% of South East Rural area	% of England rural area
Hampshire	311,572	85%	19.8%	3%
Kent	302,327	85%	19.2%	3%
Oxfordshire	239,019	92%	15.2%	2%
West Sussex	170,246	86%	10.8%	2%
East Sussex	149,385	87%	9.5%	1%
Bucks	131,949	84%	8.4%	1%
Surrey	110,265	66%	7%	1%
West Berks UA	66,351	94%	4.2%	1%
Isle of Wight UA	32,070	84%	2%	0%
Milton Keynes UA	21,237	69%	1.3%	0%
Other UAs	41,871	45%	2.6%	0%
<b>South East Total</b>	<b>1,576,292</b>	<b>83%</b>	<b>100%</b>	<b>14%</b>

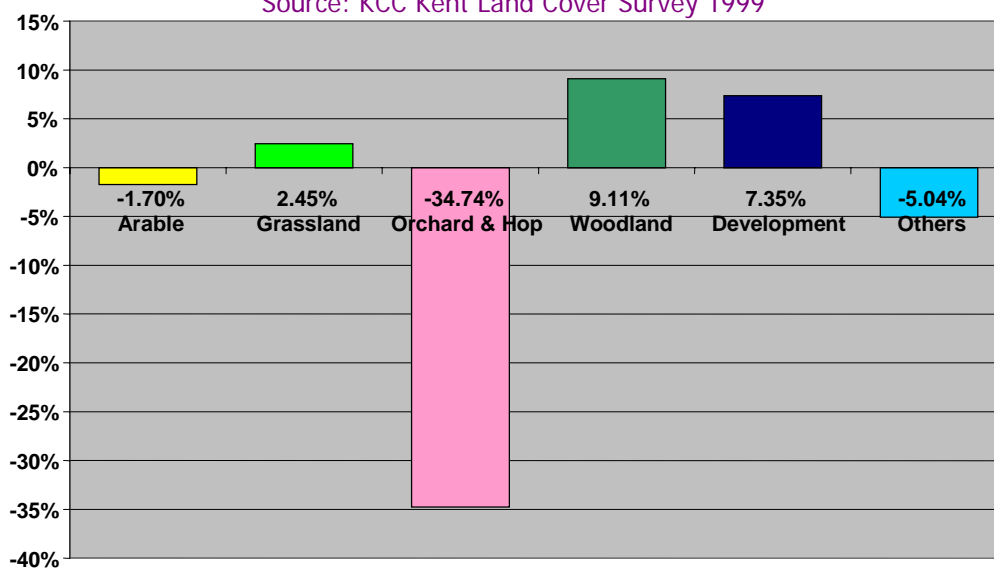
Around two-thirds of Kent's land is agricultural (arable, horticulture and improved grassland), with woodland comprising a further 10.6%. Urban development and gardens take up around an eighth of the land area, while the rest is made up from a variety of semi natural habitats. When compared to the South East and England, Kent has proportionally, more ancient woodland cover, slightly less arable and grassland, more freshwater and coastal habitats and significantly more built up urban and garden areas.

The Kent Land Cover survey mapped land cover change in Kent and Medway over the decade up to 2000. The major changes were a decline in the area of orchard and hops in Kent, which decreased by a third, a 9% increase in the area of woodland and a 7% increase in the area of developed land. Developed land including gardens and green open spaces, changed by 4,131 hectares or 16 square miles increasing the total in Kent and Medway to 233 square miles

**Table 40: Kent habitat areas**  
 Source: KCC Environment Strategy 2005

Kent habitats	Area (ha)	% of Kent Land-area	South East%	England %
Arable & Horticulture	149,700	38.6%	47.1%	36.2%
Improved grassland	97,300	25.1%	26.5%	30.2%
Built-up area and gardens	52,000	13.4%	9.0%	8.8%
Broad-leaved woodland	45,200	11.6%	9.8%	8.2%
Semi-natural grassland	15,100	3.9%	4.4%	8.0%
Coastal habitats	15,000	3.9%	0.3%	0.4%
Rivers & ponds	7,800	2.0%	0.7%	0.7%
Coniferous woodland	3,800	1.0%	1.2%	2.5%
Inland rock	1,200	0.3%	0%	0%
Wetland	1,000	0.3%	0.7%	2.0%
Heathland	50	0%	0.3%	3.0%
<b>Total</b>	<b>388,150</b>			

**Figure 60: Kent land cover change**  
 Source: KCC Kent Land Cover Survey 1999



**Table 41: Kent Landcover Change**  
Source: KCC Kent Land Cover Survey 1999

<b>Kent and Medway Broad Landcover</b>	<b>ha. 1990</b>	<b>ha. 1999</b>	<b>90-99 ha. change</b>	<b>90-99 ha. % change</b>
Arable	138,520	136,172	-2,348	-1.70%
Grassland	102,876	105,394	2,518	2.45%
Orchard & Hop	21,701	14,162	-7,539	-34.74%
Woodland	44,561	48,619	4,058	9.11%
Development	56,177	60,308	4,131	7.35%
Others	25,042	23,780	-1,262	-5.04%
<b>Total</b>	<b>388,877</b>	<b>388,435</b>	<b>-442</b>	<b>0%</b>

Source: KCC Kent Land Cover Survey 1999

### 1.1.2 Countryside character

Kent's varied natural environment and rich history gives the county's countryside its special and valued character. High quality, distinctive landscapes are a key feature of rural Kent, with 52% of the county being covered by landscape designations. The Countryside Agency's Countryside Character approach recognises 7 character areas in Kent, reflecting the diversity and of Kent's countryside, which ranges from the Weald and the North Downs to the North Kent Plain and Swale Estuary and Romney Marshes.

Each of the character areas has a unique make-up of geology, soils, biodiversity, appearance, settlement and land use patterns, history, locally distinctive architecture, and degree of tranquillity.

Two of these areas, the Kent Downs and the High Weald, have been designated as Areas of Outstanding Natural Beauty (AONBs). Together they cover 32% of the area of Kent. These are nationally important landscapes, which have a similar status to national parks. The emphasis within them is to conserve their natural beauty whilst having regard to the area's economic and social well being. A further 20% of land is deemed to be of such high quality that it has been given an additional local designation as a Special Landscape Area (SLA).

Kent also has two sections of Heritage Coast, stretching from Kingsdown to Dover and from Dover to Folkestone. Kent's 18km of Heritage Coast represents about a quarter of the 74 km of the South East's designated Heritage Coast.

Figure 61: Kent countryside character areas

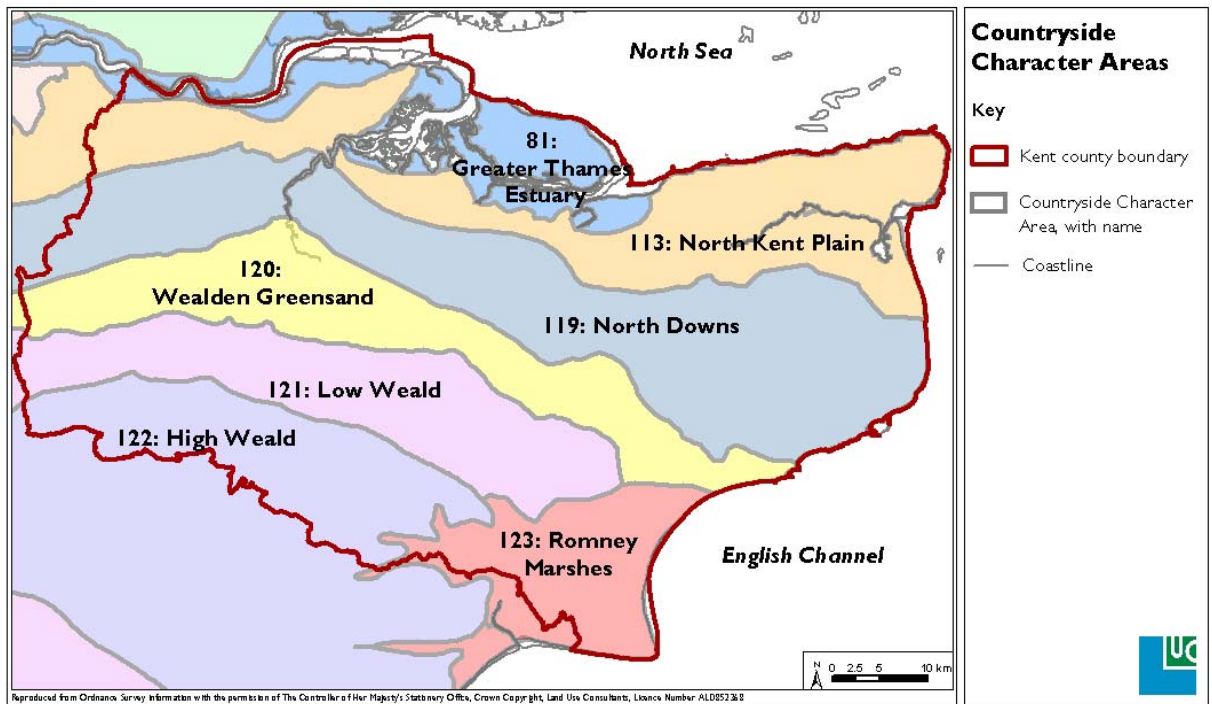
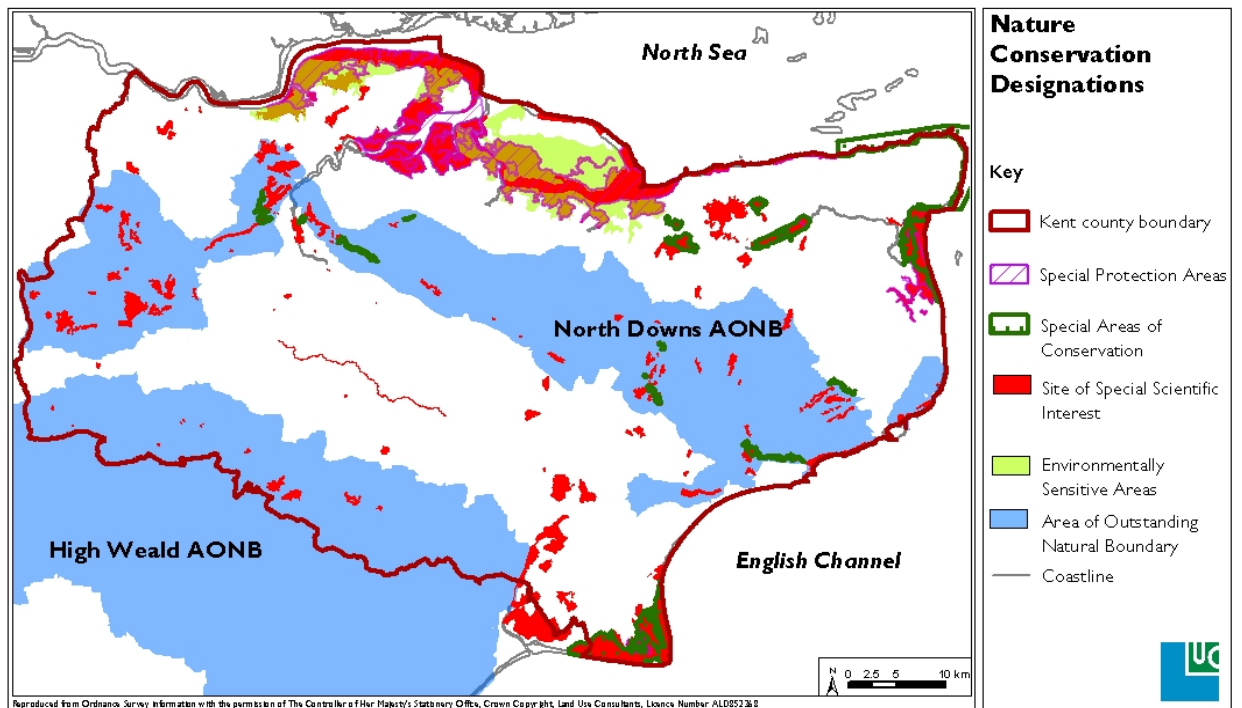


Figure 62: Kent countryside designations



## 1.2 Kent's environmental resources

### 1.2.1 Biodiversity

There are a wide range of habitats in Kent including wetlands, woodland, chalk grassland and habitats related to lowland arable farming and fruit cropping, extensive cereal field margins, ponds and old orchards. All are valuable for their biodiversity. Kent has 40% of the UK's shingle habitat, just under 20% of its unimproved marsh grazing land and saline lagoons and 10% of its reed beds. In total, semi-natural habitats in Kent cover some 112,000 hectares or 28% of the county<sup>1</sup>.

The importance of these habitats in national and international terms is reflected by the high proportion of land which has an environmental designation. RAMSAR sites are internationally important wetlands. Kent has 8 sites covering 21,000 ha in the north Kent Marshes, Pegwell Bay and Dungeness. These represent almost three-quarters of the area designated across the South East. Kent also has 15 'Natura 2000'<sup>2</sup> sites along the north coast and within Romney Marsh gravel pits, wetlands at Stodmarsh and Blean Woods. There are 11 National Nature Reserves covering 2,500ha within Kent and over 100 Sites of Special Scientific Interest (SSSI) covering 33,000ha. This represents almost a quarter of the SSSI area in the South East region.

**Table 42: Kent nature conservation areas**

Nature Conservation Designations	Level of Importance	Kent Sites	Kent Area ha	% Kent Area	SE Sites	SE Area ha	Kent % SE Sites	Kent % SE Area
RAMSAR	International	8	21,000	5%	11	55,916	73%	38%
Special Protection Area (SPA), Special Area of Conservation (SAC)	EU Natura 2000	15	24,700	6%	90	89,119	17%	28%
Site of Special Scientific Interest (SSSI)	National	101	33,000	9%	684	139,438	15%	24%
National Nature Reserve	National	11	2,500	1%	36	7,878	31%	32%
Site of Nature Conservation Interest (SNCI)	County	481	28,500	7%	-	-	-	-
Local Nature Reserve (LNR)**	County	15	933	0%	-	-	-	-

Source: Defra KWT

Many of these habitats provide a stronghold for UK Biodiversity Action Plan priority species such as the Water Vole, Great Crested Newt, Song Thrush and Dormouse. Kent's woodlands are home to the Nightingale and Heath Fritillary. The Silver spotted skipper, Early Gentian, Late Spider Orchid and Ground Pine are found in the county's chalk grassland while Shepherd's Needle and Dormouse inhabit cereal field margins. Lowland arable areas are important for the Grey Partridge and Serotine Bat while the Great Crested Newt is found in freshwater habitats such as ponds. 16% of the county has been designated for its nature conservation interest.

However, changes in agricultural practices and the impact of development on the countryside have been important factors contributing to a decline in biodiversity in the county. Bird populations are often used as a general indicator of biodiversity. The trend in Kent as elsewhere, is one of continuing and long-term decline.

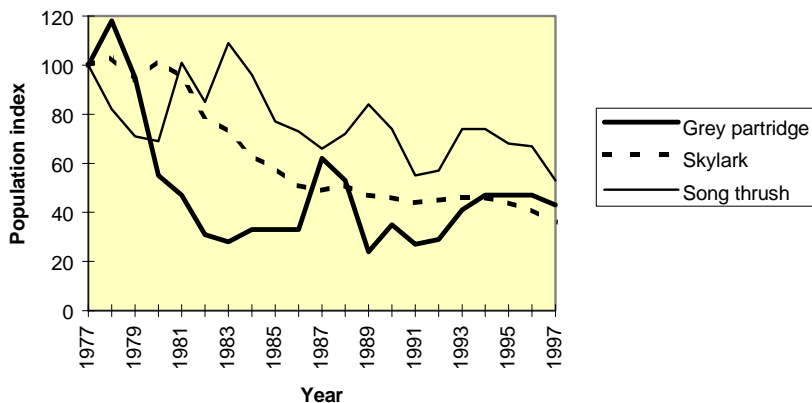
<sup>1</sup> this figure includes some woodland but not commercial orchards

<sup>2</sup> European Natura 2000 sites are EU Special Protection Areas and Special Areas of Conservation

**Figure 63: Kent farmland and woodland bird populations**

Source: Kent Ornithological Society 2000

**Farmland bird populations in Kent 1977-1997**



**Woodland bird populations in Kent 1977-1999**

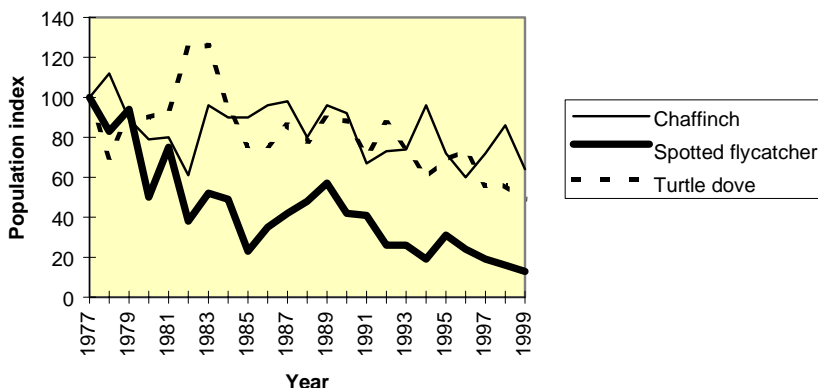
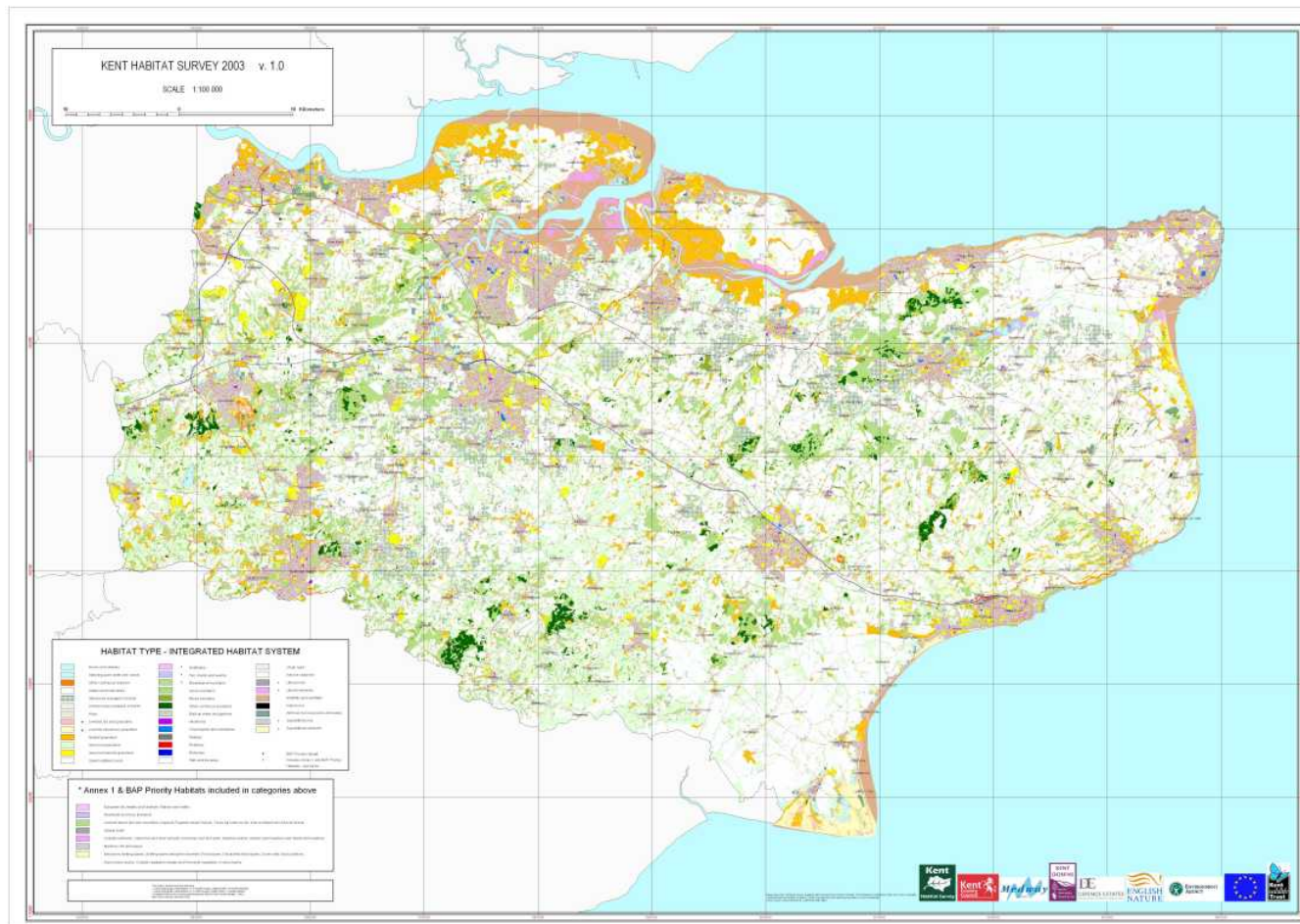


Figure 66, below shows the scattered distribution and diversity of habitat types in Kent. The areas of different habitats often occur as fragments within the landscape. There is considerable potential through environmental schemes and land management changes to safeguard and extend existing habitats and to create and improve linking sites as “wildlife corridors” and “stepping stones” between the larger habitat areas.

Land surplus or marginal to farming could, under different land management, become valuable habitat. This is the challenge for the future. Figure 67 shows as an example the capability of currently farmed land, which with revised land management, could become Chalk Grassland Habitat.

**Figure 64: Kent habitats**  
Source: KCC Kent Habitat Survey 2003



### 1.2.2 Woodland

Kent is part of the most wooded region in England. The South East has over 270,000 hectares of land covered by trees or woods (14%), including nearly 40 percent of England's total ancient woodlands. Kent has 39,487 hectares of woodland, which is 10.6% of its land area and 14% of the woodlands in the South East.

Despite having the second most extensive area of woodland and slightly more hectares of woodland than Surrey, West Sussex and East Sussex, Kent is often referred to as the “least wooded” county in the South East. This is because Kent has a larger geographical area than most other counties which makes the percentage of land covered by woodland lower.

Kent has the largest proportion of Ancient Woodland in the South East - almost three quarters, (73%) of Kent's woodland is Ancient Woodland. There are 27,000 hectares of ancient woodland on 1,257 sites. This is almost a quarter (22%) of the Ancient Woodland in the region. Ancient woodland is particularly rich in biodiversity and is of high conservation value.

The dominant forest type in Kent is broadleaved woodland. Almost a quarter 9,408 ha (24%) of Kent's woodland is coppiced. Mixed woodland is 12% and conifer

woodland 8%. There are over 2,000 woods in Kent, 70% of them are small woods, less than 10ha in size.

**Figure 65: Chalk grassland habitat opportunity**

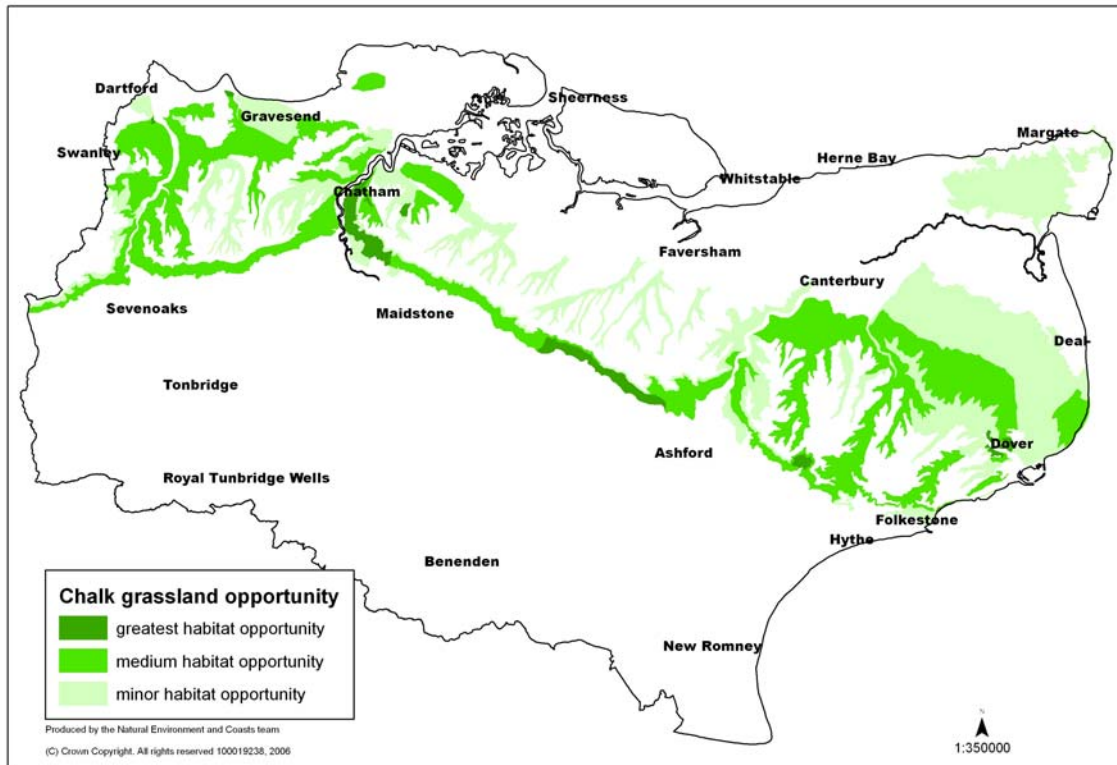


Figure 66: Kent woodland

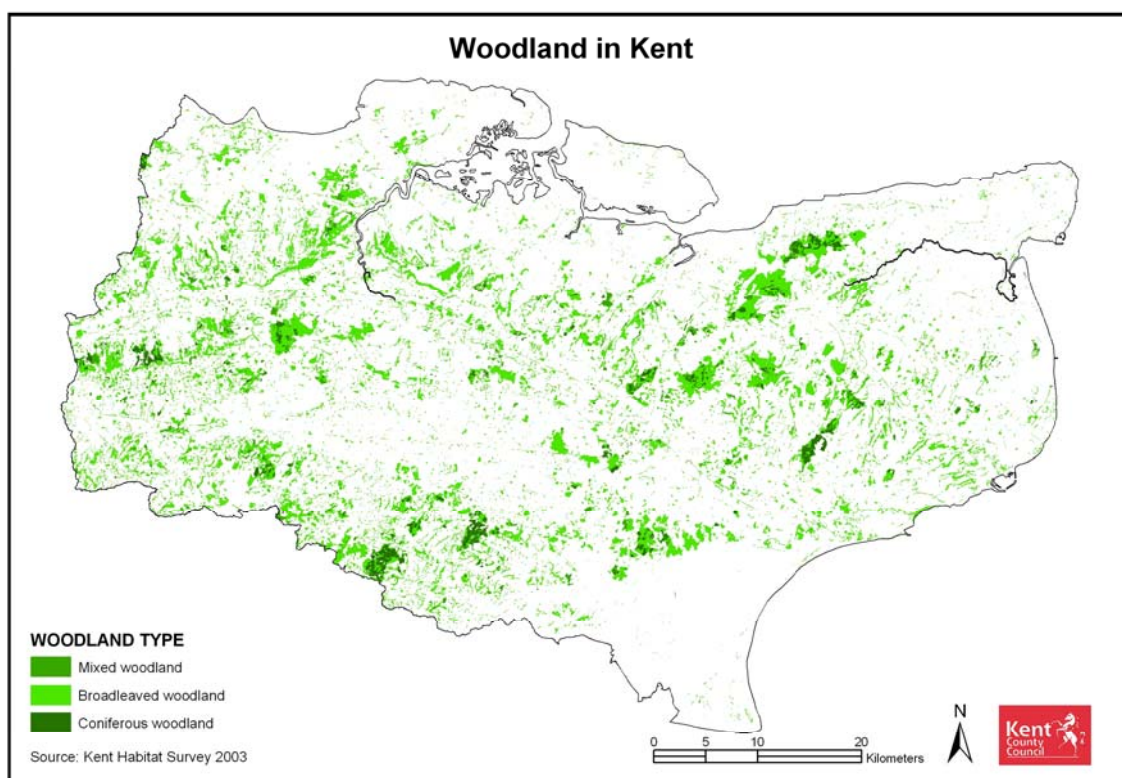


Table 42: South East ancient woodland area by county

Woodland	Total Ancient Woodland	Ancient Woodland % of Woodland	Total Woodland area	% of SE Ancient Woodland	% of SE Woodland cover	County Land area	% Woodland cover
Berkshire	5,370	30%	17,630	4%	7%	125,880	14%
Buckinghamshire	8,795	52%	16,890	7%	6%	187,675	9%
East Sussex	18,190	63%	28,870	15%	11%	179,540	16%
Hampshire	27,970	43%	65,730	23%	25%	377,870	17%
Isle of Wight	1,510	34%	4,490	1%	2%	38,015	12%
Kent	27,060	73%	37,210	22%	14%	373,500	10%
Oxfordshire	7,725	46%	16,875	6%	6%	260,595	6%
Surrey	9,280	25%	36,815	8%	14%	167,715	22%
West Sussex	16,830	45%	37,175	14%	14%	198,810	19%
<b>Total SE</b>	<b>122,730</b>	<b>47%</b>	<b>261,685</b>	<b>100%</b>	<b>14%</b>	<b>1,909,600</b>	<b>14%</b>

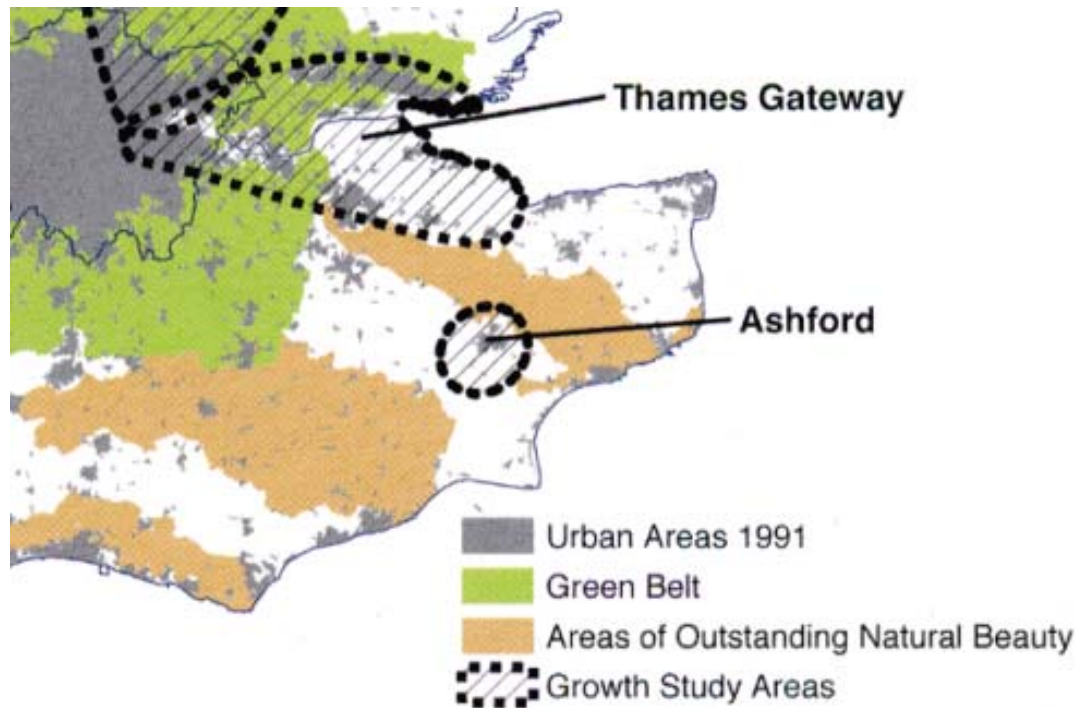
Source: FC National Inventory of Woodland and Trees (2 ha+)

The majority (80%) of woodland in Kent is in private ownership on large estates, farms and in small parcels associated with houses. Only a small proportion of woodland in Kent is managed by the Forestry Commission (10%) while other public bodies such as local authorities and voluntary sector bodies, the National Trust, Kent Wildlife Trust and Woodland Trust, own another 10% between them. Over half of Kent's woodland (51%) is also designated as either a Site of Special Scientific Interest (37%) or County Wildlife Site (13%). In addition to woods, Kent has 2 million trees in hedgerows, fields and parks.

Kent's woodlands are an important environmental resource, which need to be sustainably managed. Figure 68 shows some work which has been done to model potential future uses for the woodland around Ashford.

### 1.2.3 Growth areas impact

Figure 67: Thames Gateway and Ashford growth areas



In July 2002 the Government designated two Growth Areas in Kent, the Thames Gateway and the Ashford area. The Thames Gateway aims to create some 84,000 new jobs and 17,000 indirect jobs and build an estimated 40,000-50,000 new houses by 2020. By 2031 Ashford will provide at least 31,000 new homes and 28,000 new jobs.

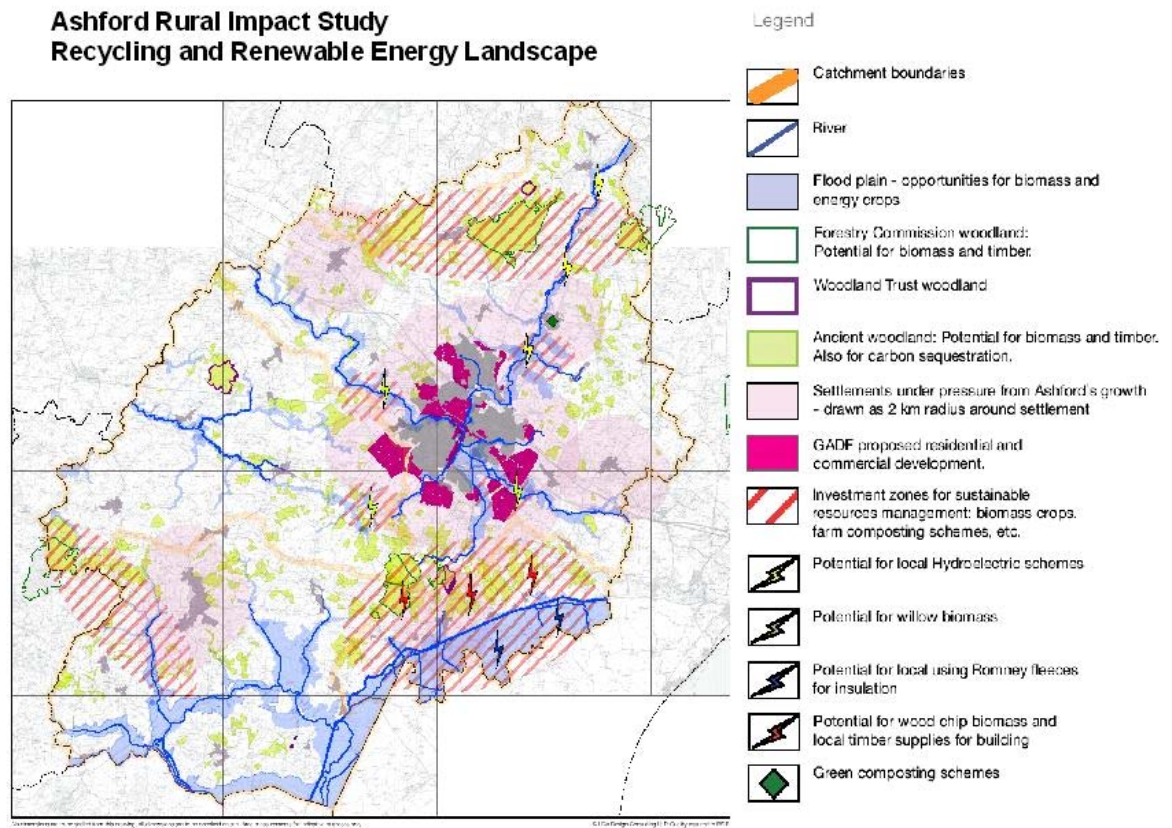
Both areas will have significant impact on the urban fringe environment and on landscape management in the adjacent rural areas. Growth area funding has been committed to support the delivery of key components of green infrastructure, including:

- rural/urban fringe - improving the interface between the urban and rural environments
- habitat creation - creating and restoring new areas of countryside to improve green space provision
- habitat protection - providing rare and sensitive habitats with increased protection through buffering and habitat enhancement works

There are potential opportunities for rural businesses and land managers in “peri-urban” areas to respond to the new challenges of being located in close proximity to growth area markets.

**Figure 68: Ashford impact study**

Source: Ashford Borough Council, Ashford Futures, CoAg, GOSE, SEEDA KCC (2005)



### 1.2.4 Water quality and availability

The biological water quality of Kent's rivers is generally better than that for England and Wales, with over 97% of rivers in good or fair categories in 1995. Chemical water quality is declining both in Kent and nationally, despite improvements during the early 1990s. In fact the decline has been more rapid in Kent than in the rest of England & Wales.

Figure 69 shows River Quality Objective (RQO) compliance. This is an agreed strategic target, expressed in terms of River Ecosystem standards. It is the level of water quality that a river should achieve in order to be suitable for its agreed uses. RQO is used as the planning basis for all activities affecting the water quality of a stretch of watercourse.

The South East is one of the driest, yet most densely populated parts of the UK and domestic water consumption is 160 litres per head per day (unmetered), which is

higher than the UK average. The Environment agency has highlighted that per capita water consumption has risen between 3 to 5 percent in the last 10 years.

Given that 80% of water in Kent comes from groundwater and the increased demands that the growth areas of Kent Thameside and Ashford will create, this has a number of implications for river flows and future infrastructure planning.

Global warming is predicted to further increase water stresses in the county. The South East's average surface temperature has risen by 0.5 degree C during the 20th Century and there has been a shift between summer and winter rainfall. The South East could be facing winters that are warmer, wetter and more variable, while summers could be hotter and drier with up to a 60 percent decrease in precipitation and temperatures 4 degrees Celsius or warmer by the 2080's.

Figure 70 below provides information on the availability of water resources within a catchment. This "resource availability status" indicates the relative balance between committed and available resources in a particular area. It highlights where abstraction needs to be reduced and shows where additional abstraction may be possible. It should be noted that this resource availability status is indicative only and does not replace the licence determination process that is applied to all licence applications.

Figure 69: Kent river quality

River Quality Objective 2004 compliance

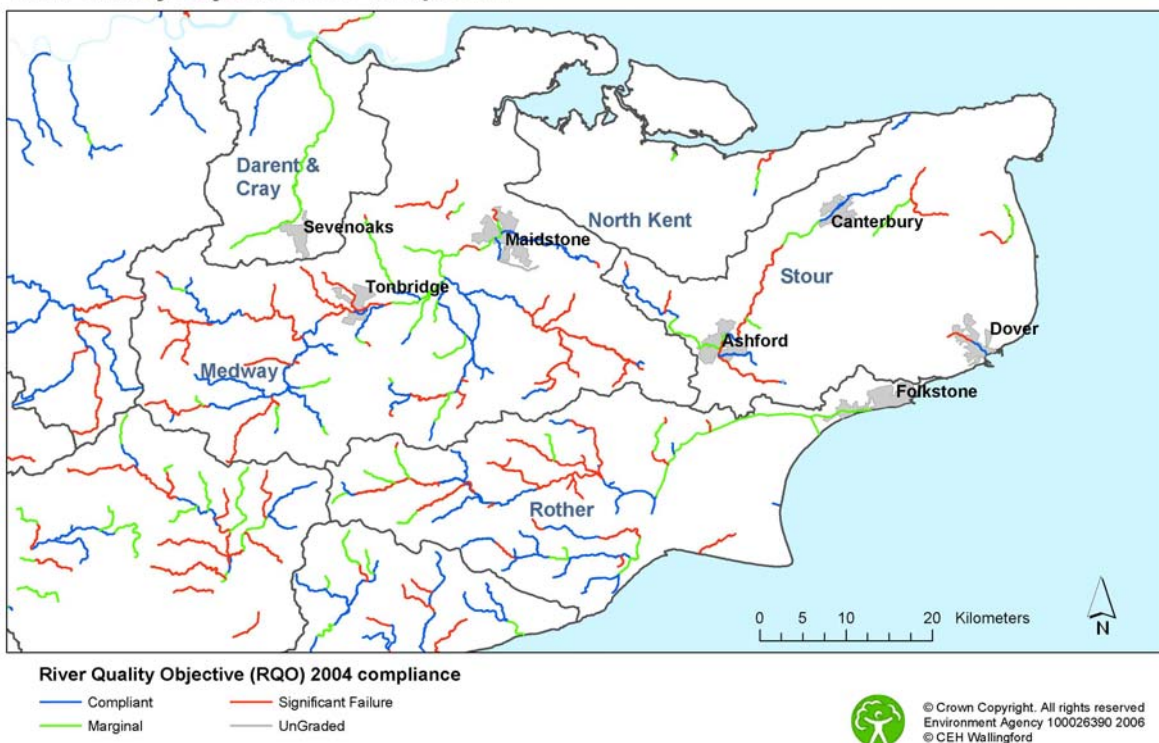
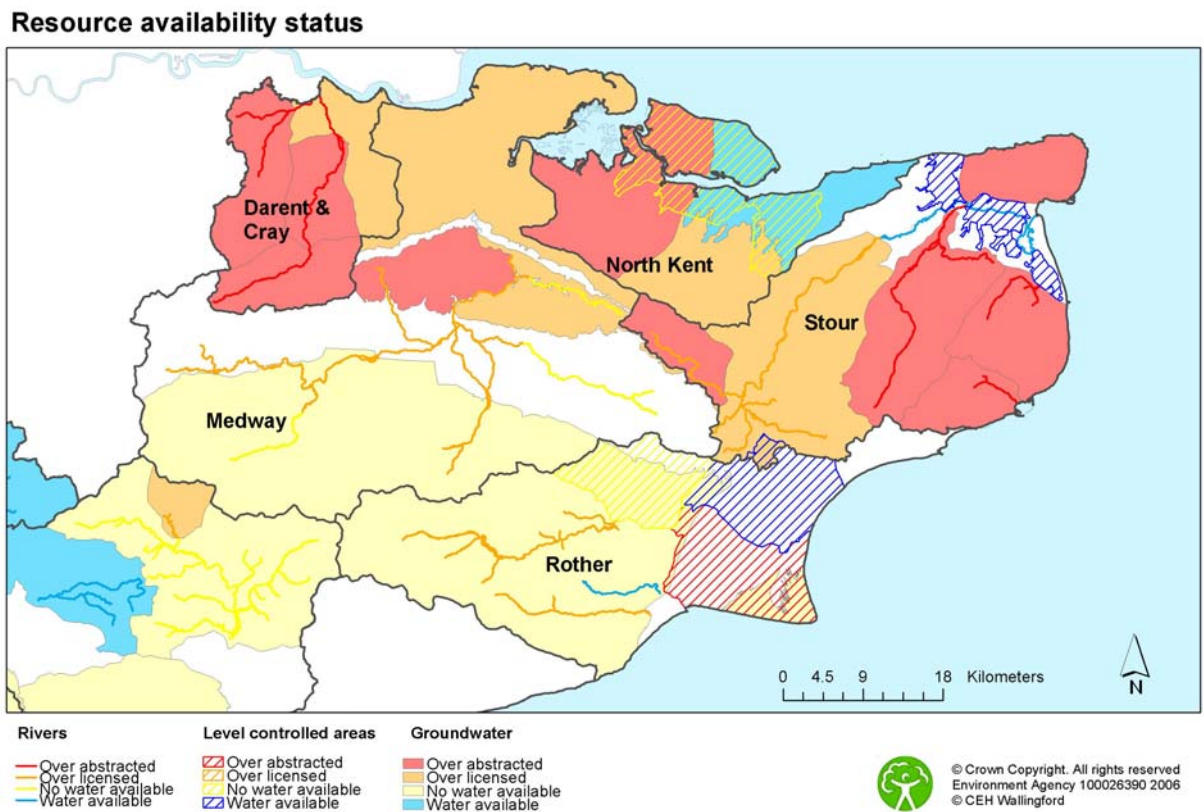


Figure 70: Kent water availability



## 1.3 Climate change

### 1.3.1 Climate change scenarios

The UK 2002 Climate Impacts Programme (UKCIP02) has developed 4 alternative scenarios of how climate change may affect the UK climate over the next hundred years, based on different predictions of future global emissions of greenhouse gases (high, medium-high, medium low and low).

#### *Wetter Winters*

The projections predict significantly wetter winters and an increase in frequency of heavy downpours. It is likely that winter rainfall will also be more intense, increasing the risk of flooding. In the South East winter rainfall could increase by up to 30 percent by 2080.

#### *Drier Summers*

Summers are likely to become drier everywhere, and in parts of the South East summer rainfall may decrease by up to 50 percent by 2080. In summer, soil moisture could be reduced by up to 40% by 2080 across large parts of England. Together with expected more intense rainfall, the risk of both urban, flash, and river or fluvial flooding will increase. Water resources will be reduced as rainfall becomes more seasonal, but increasing storage capacity at every scale from rainwater butts to reservoirs could alleviate the reduction.

*Warmer Summers*

There will be greater warming in the south and east than in the north and west as seen in Figure 70. Warming in excess of 4 degrees Celsius is predicted in Kent by 2080 in the medium-high and high scenarios. This warming is likely to be more pronounced in summer and autumn than in winter and spring.

**1.3.2 Drivers of climate change**

Transport has been the fastest growing source of carbon dioxide in the UK because of the increases in road traffic. Emissions from the increase in road traffic have outweighed improvements in vehicle efficiency. UK emissions of greenhouse gases that cause climate change fell by 12.9 percent between 1990 and 2003. Emissions of carbon dioxide, which accounted for over 85 percent of the total UK greenhouse gas emissions in 2003, fell by 5.6 percent.

In addition to energy use and transport, land management and waste disposal play a key role in the emissions of greenhouse gases into the atmosphere. Regimes for animal husbandry, crop management, forestry and landscape management all affect the rate of carbon emissions by soil, flora and fauna, whether as carbon dioxide, methane or other greenhouse gases. Likewise, they affect the way soil, flora and fauna absorb the gasses from the atmosphere. Different waste management practices will also lead to different emissions, for example from putrescible or combustible materials. Changes to our climate will, in turn, impact on soil and plant processes and thus the future rates of greenhouse gas emission and absorption resulting from these processes.

Carbon dioxide has an effective lifetime in the atmosphere of around 100 years so even if carbon emissions were reduced, it would take decades for this to make a substantial change to the rate of rise of concentrations in the atmosphere. To eventually stabilise concentrations of carbon dioxide, global emissions would have to fall by 60-70%. Surface temperatures and sea levels would continue to rise for several further centuries (see Scenario 2 Figure 70).

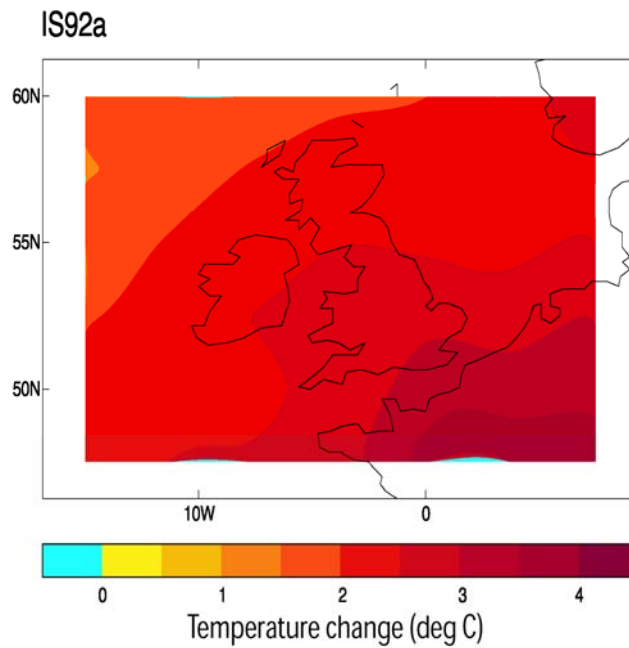
**3.3.3 Effects of climate change**

The following trends are predicted for the South East:

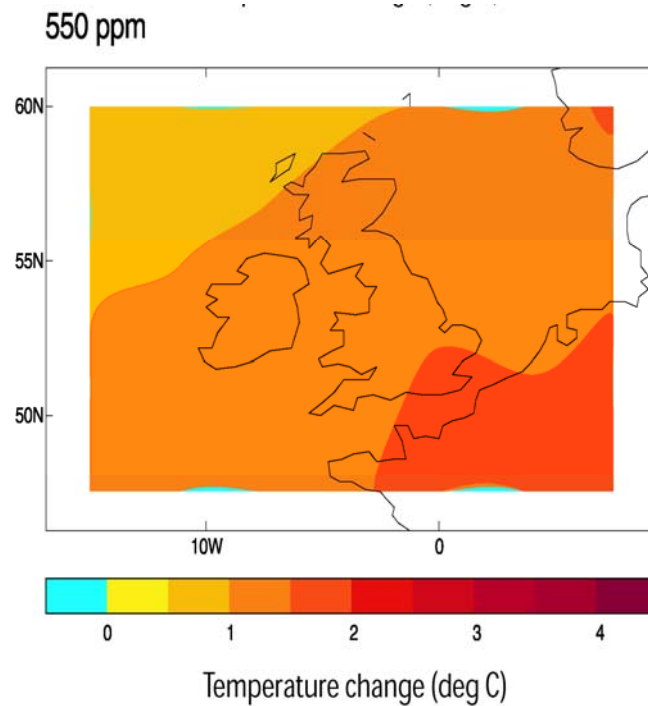
- The impacts of climate change will be increasingly felt in the South East with wetter, stormier winters and drier, hotter summers.
- With less water available in the summer, the increased incidence of droughts will have implications for crop yields and land use, the supply of water, the maintenance of river flows, and the ability of receiving waters to dilute treated effluent. Pipe systems are likely to be more prone to cracking and drier summers could also lead to increased incidences of subsidence, with implications for homeowners and insurance companies.
- Decreased summer rainfall in the South East will place surface water reservoir supplies under increasing pressure in some areas.
- Sea levels are rising around the region's coastline, threatening important coastal habitats and increasing the risk of coastal flooding. Depending on emission levels, sea level in the South East will rise between 26cm and 86cm above the current level.
- Changes in storminess, sea-level and land movement mean that storm surge heights will increase by the greatest amount off the coast of South East England.

- Changing rainfall patterns and rising sea level are likely to increase the risk of flooding, not only along rivers and coasts but also in urban areas where high intensity rains can quickly overwhelm inadequate drainage systems. This will carry health risks and have significant environmental impacts on water quality and fisheries (see Figure 71).
- The potential of development sites in coastal and fluvial areas could be reduced.

**Figure 70: Temperature rise climate impact scenarios**  
Source: UK 2002 Climate Impacts Programme (UKCIP02)

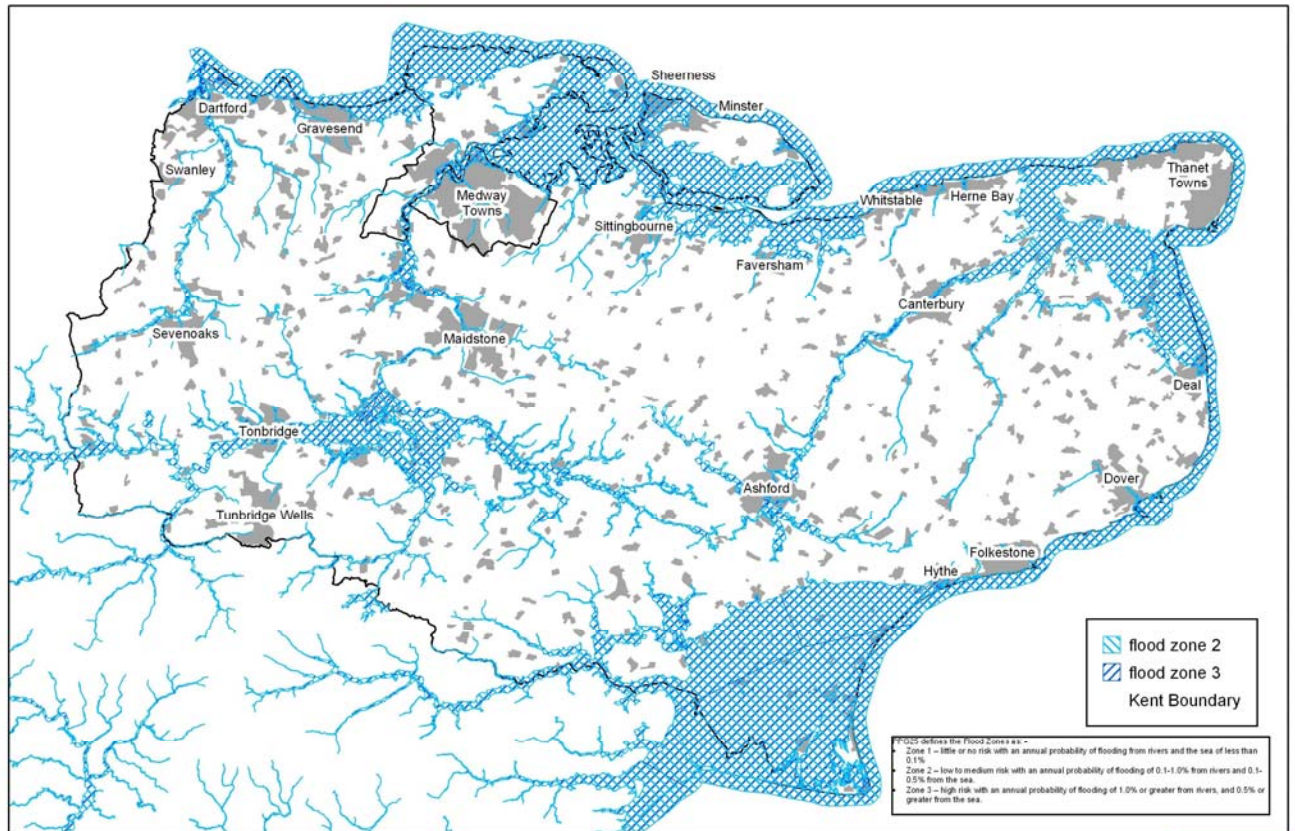


*Scenario 1 – Medium High Avg. annual temp. rise (deg C) by the 2080's relative to the 1961-1990 avg.*



*Scenario 2 Stabilising CO<sub>2</sub> emissions at 550ppm Avg. annual temp. rise (deg C) by the 2150's relative to 1961-90 avg*

Figure 71: Flood zone risk



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*Blue areas could be flooded, if there were no flood defences, by a flood from the sea with a 0.5% (1 in 200) or greater chance of happening each year or by a flood from a river with a 1% (1 in 100) or greater chance of happening each year*

### 3.4 Rural environment: key messages

85% of the land in Kent is classified as rural. In the South East, Kent and Hampshire are the largest rural areas, both have over 300,000 ha. (1,200 sq. miles). **Kent constitutes 19% of the rural land in the South East** and 3% of the area of rural England.

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Kent is part of the most wooded region in England – it has 39,487 hectares of woodland, which is 10.6% of its land area. **The county also has the largest proportion of Ancient Woodland in the South East** - almost three quarters.

(73%) of Kent's woodland is Ancient Woodland. Ancient woodland is particularly rich in biodiversity and is of high conservation value.

Water is becoming an increasingly scarce resource. **The South East is one of the driest, yet most densely populated parts of the UK** and domestic water consumption is 15 litres per head per day, which is higher than the UK average. The Environment Agency has highlighted that per capita water consumption has risen between 3 to 5 percent in the last 10 years. Global warming is predicted to further increase water stresses in the county.

Climate change is also meaning that **the South East could be facing winters that are warmer, wetter and more variable, while summers could be hotter and drier** with up to a 50 percent decrease in precipitation and increases in surface temperatures of 4 degrees Celsius. There is a need to minimise the impact of climatic change, yet to adapt to its inevitable consequences.