

Chilterns Conservation Board - March 2007

Initial assessment of potential impacts of climate change on key characteristics of the Chilterns.

Special Features and Qualities of Chilterns AONB	Relevant Aspects of Climate Change	Nature of Impact	Timescale		Response		CCB role
			Short Term	Long Term	Mitigation	Adaptation	
Chalk Grassland	Hotter and drier summers Earlier spring	<p>Changed growing seasons</p> <p>Disrupted ecological relationships.</p> <p>Changed species composition.</p> <p>New species of invertebrate</p> <p>Grass Fires</p> <p>Year round breeding of rabbits – increased grazing pressure</p>	Low	Medium		<p>Provision of water supply to enable grazing.</p> <p>Link sites to facilitate species migration</p>	<p>Monitoring</p> <p>Support for grazing related infrastructure</p> <p>Support for site planning and management</p>
Woodland	<p>Earlier spring</p> <p>Hotter and drier summers</p> <p>Fewer frosts (timing)</p> <p>More frequent gales</p>	<p>Drought stress/soil moisture deficits</p> <p>Windblow</p> <p>Reduced growth rates/crown and root die back</p> <p>More disease/pests</p>	Low	High	Woodland creation	<p>More careful species selection.</p> <p>Promote demand for wood fuel</p> <p>Link woods to</p>	<p>Information</p> <p>Monitoring</p> <p>Promote and assist with preparation of long term management plans</p>

		<p>Change in species composition - Reduced suitability for beech in particular</p> <p>Changing associated flora and fauna – both losses and gains</p> <p>Scrub fires</p>				facilitate species migration.	
Chalk Streams	<p>Variable rainfall patterns but probably wetter winters and drier summers</p> <p>Hotter Summers</p>	<p>Erratic Flows.</p> <p>More frequent and unpredictable periods of drought and flood.</p> <p>Longer growing seasons may reduce percolation to the aquifer</p>	High	High		<p>Reduce demand for water</p> <p>Reduce Abstraction</p> <p>Protect Stream Bed</p> <p>Flood Management</p>	<p>Information</p> <p>Lobby for reduced abstraction and demand reduction</p> <p>Help protect channel in times of prolonged drought</p> <p>Promote flood prevention plans</p> <p>Promotion of design of development to reduce run off</p>
Farmland	<p>Hotter Summers</p> <p>Milder Winters</p> <p>Fewer Frosts</p>	<p>Longer growing seasons</p> <p>Variable and unpredictable yields</p> <p>Opportunities to grow new crops including biofuels</p> <p>New pest species and greater abundance of pests</p> <p>Summer drought stress for</p>	Medium	Medium	<p>Reduce use of fertilisers</p> <p>Conserve soil organic matter.</p> <p>Reduce food miles – seek local markets</p> <p>Grow biofuels</p>	<p>New crops</p> <p>Avoid crops requiring irrigation</p> <p>New production methods</p> <p>Different</p>	<p>Monitor changes</p> <p>Support promotion of local markets and procurement policies</p> <p>Provide guidance of growing biofuels</p>

		<p>crops Summer drought stress for livestock</p> <p>Possibility of more insects, which may support more farmland birds.</p> <p>Demand for water to irrigate crops</p> <p>Hedgerows and field trees subject to drought stress.</p> <p>Crop fires (mostly accidental)</p>				breeds of livestock	
Wet Grassland	Hotter and drier summers	<p>Soil moisture deficits</p> <p>Changed species composition</p> <p>Changed hydrology</p>	Medium	High		Safeguard sites in times of drought	<p>Monitoring</p> <p>Advice</p> <p>Site identification</p>
Acid Grassland/Heath	Hotter and drier summers	<p>Associated species may benefit e.g. reptiles</p> <p>Heath fires</p>	Low	Medium		Encourage spread of heath	<p>Monitoring</p> <p>Advice</p> <p>Site identification</p>
Built Environment	<p>Hotter summers</p> <p>Heavy rain</p> <p>Milder winters</p>	<p>Design of new housing needs to reflect climate change.</p> <p>Installation of solar panels and wind turbines</p>	Low	Medium	<p>Enhanced energy efficiency</p> <p>Reduced energy</p>	<p>Change design of houses/all buildings</p> <p>Bigger rainwater</p>	<p>Guidance</p> <p>Lobbying for higher building standards.</p> <p>Promotion of energy efficiency</p>

		<p>Increase in timber boring insects.</p> <p>Drainage capacity/flooding</p> <p>Demand for air conditioning</p> <p>Flooding of roads</p> <p>More pollution events from run off.</p> <p>Road verge fires</p> <p>Storm drains overwhelmed resulting in pollution incidents</p>			<p>demand</p> <p>Installation of renewable energy capacity</p> <p>Use of building materials with low embodied energy.</p> <p>Use of permeable surfacing to reduce run off</p>	<p>goods</p> <p>Rainwater storage</p> <p>Re-design gardens to use less water.</p> <p>Porous surfaces</p> <p>Use of vegetation provide shade/cooling</p> <p>Cutting of road verge vegetation to reduce fire risk</p> <p>Storm drains with bigger capacity</p>	<p>Promotion of local building materials</p> <p>Promotion of water conservation</p>
Historic Environment	<p>Hotter Summers</p> <p>Heavy rain</p>	<p>Erosion of soil covering</p> <p>Windblown trees damaging sites</p>	Low	Low		<p>May need to import soils and divert recreation uses</p>	
Enjoyment and Understanding	<p>Hotter Summers</p> <p>Milder winters</p>	<p>Hot summer weather will deter visits.</p> <p>Mild winter weather may lead to increased number of visits.</p>	High	High	<p>Promote visits without use of car – close to home.</p>	<p>Give greater weight to weather dependency at planning stage of events, e.g.</p>	

		Some sites and routes will be damaged –water logging in winter and erosion in summer				avoid hottest months, provide under cover areas Hold events in and visits to shady woodland	
Economy	Seasonal variability Hotter summers Milder winters	Opportunity to introduce new crops and livestock breeds Expanded demand for wood and other biofuels. More visitors in winter Promotion of local food Promotion of local building materials. Trend for more UK based holidays			Promote local produce. Develop tourism profile as an alternative to long distance destinations Develop wood fuel market Develop markets for new crops/breeds	Give greater weight to uncertainty of weather in business activity	Promotion of the issues

Notes

- (1) Summer rainfall may be as high higher than at present but its effectiveness will be reduced. This will happen because more rainfall will fall in shorter period and run off without recharging the aquifer or even affecting soil moisture deficits.

Renewable Energy	Potential	Impacts	Conclusion
Solar	Medium	Installation of panels on houses and other buildings	To be promoted, with need for control in conservation areas and on listed buildings. Guidance needed to avoid visual intrusion
Wind	Medium	Little potential for large-scale generation. Impact of large turbines in prominent locations would not be acceptable	Small scale turbines may be appropriate in specific locations. Guidance to be prepared
Wood	High – for use of standing timber Low – for fast grown crops. Priority is to use wood fuel to generate heat not electricity	Less than 15% of the sustainable yield from existing woodland is being harvested. Larger areas of woodland would be thinned and felled than recently.	Significant scope to promote timber production from existing woods for wood fuel. Limited scope for short rotation coppice or other fast growing species - soils are not generally suitable
Biofuel	Medium	Large scale growing of miscanthus (Elephant Grass) would not be appropriate and is unlikely as soils are generally not suitable. May be more acceptable where it is grown in large fields currently used for arable crops.	Unlikely to have a major impact but growing of miscanthus needs to be monitored. Guidance should be produced
Hydro	Low	A few sites along the Thames may be suitable. Need to avoid disruption to hydrology and landscape intrusion of new infrastructure. The variable flow along all other streams suggests potential is low.	Could be supported in a small number of locations subject to minimised damaging environmental impacts.

Waste Incineration	Low	Incinerator, storage and residues, transfer of waste	Likely to be few, if any, acceptable sites within the AONB
Ground Source Heat	Medium	None	Can be promoted especially for properties with large gardens and fields