

NEW FOREST NATIONAL PARK AUTHORITY

AUTHORITY MEETING – 18 JANUARY 2007

CLIMATE CHANGE UPDATE

Report by: Stephen Trotter, Director of Conservation and Enhancement

Summary:

1. Unavoidable climate change is likely to have significant impacts on the special qualities of the New Forest in the years and decades to come.
2. The New Forest National Park needs a coherent strategy and an action plan to help guide the Authority and key stakeholders in adapting and preparing for the uncertainties, likely changes and challenges that lie ahead.
3. A process for developing a strategy and action plan is proposed.

Recommendations:

1. **To note the report.**
2. **To approve the proposed content, process and timetable for the development of an adaptation strategy and action plan for the National Park.**

Resources and Corporate Plan:

Mostly staff time required in the short term.

Corporate Plan: Objective C8

Papers:

NFNPA 152/07	Cover Paper
NFNPA 152/07 Annex 1:	Climate change predictions for the South East of England
NFNPA 152/07 Annex 2:	Preliminary evaluation of the potential impacts of climate change on the interim list of special qualities
NFNPA 152-07 Annex 3:	Defra Technical Report. 2004. Scientific and technical aspects of climate change, including impacts and adaptation and associated costs

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1 Background

- 1.1 There is widespread evidence and overwhelming consensus amongst scientists that human-induced global warming and climate change is now taking place due to emissions of carbon dioxide and other pollutants. Scientific models, based on the best available information, predict that there is a high probability that these unavoidable changes will have fundamental impacts on the climate and environment of the Earth.
- 1.2 There is also considerable uncertainty about the precise nature and extent of the likely changes we could experience in future. We will continue to have to deal with incomplete knowledge and uncertainty about the science of climate and climate change, and about the direction and magnitude of future socio-economic trends. As the Stearn Report (2006) makes clear ‘The science of climate change is reliable, and the direction is clear. But we do not know precisely when and where particular impacts will occur. Uncertainty about impacts strengthens the argument for mitigation (and adaptation)’. Details of how climate change may affect the South East and the New Forest are presented in **Annex 1** and a national summary is provided in **Annex 3** (Defra publication: Scientific and technical aspects of climate change, including impacts and adaptation and associated costs. 2004).
- 1.3 Human society has developed and adapted to the relatively stable climate that has prevailed over the last 10,000 years or so. The predicted scenarios for climate change will have a significant impact on the economic, social and environmental well-being of our current society – and we are likely to witness major changes locally in the New Forest.
- 1.4 There are two main challenges for society:
 - Can we adapt to the impacts of climate change, extreme weather and related events?
 - Can we mitigate the long term causes of global warming?

- 1.5 Adaptation can mean any action taken to minimise the adverse effects of climate change or to take advantage of any potential benefits. Adaptation can be a one-off coping with a problem or it can be a learned response. Adaptation strategies vary considerably between different types of organisation, and can be undertaken at a range of scales, from central or local government policy to modest private projects by individuals, households and businesses but it is primarily about an immediate local response to change. There are two main approaches to adaptation:
- *building adaptive capacity*. This involves creating the information and conditions (regulatory, institutional, managerial) that enable adaptation actions to be undertaken; and
 - *delivering adaptation actions*. This involves taking actions that will help to reduce vulnerability to climate risks, or exploit opportunities (after Defra 2006). Adaptation will need to address changes to both 'average' and 'extreme' weather conditions.
- 1.6 Mitigation is concerned with addressing the causes of warming by reducing emissions by seeking to reduce the quantity of greenhouse gases released to the atmosphere. This requires a global effort and has a long lag period of 30 – 40 years because of the time it takes for changes in concentrations of greenhouse gases to take effect.
- 1.7 The Stearn Report (2006) notes 'The scientific evidence that climate change is a serious and urgent issue is now compelling. It warrants strong action to reduce greenhouse-gas emissions around the world to reduce the risk of very damaging and potentially irreversible impacts on ecosystems, societies and economies. With good policies the costs of action need not be prohibitive and would be much smaller than the damage averted'.
- 1.8 For the New Forest, the causes of climate change are in the main outwith our sphere of influence although we should make whatever contribution we can to the global and national effort for mitigation. However, it is more appropriate for the Authority to focus on how we can deliver our purposes – particularly in conserving the special qualities of the National Park where possible - in the context of climate change. The priority should therefore be adaptation rather than mitigation.
- 1.9 The Corporate Plan 2006-07 identified the need for the Authority to prepare a draft action plan to help meet the long term challenges of climate change in the New Forest. This will involve:
- Reviewing the most recent scientific evidence and predictions about the likely impacts of climate change in the New Forest

- Identifying the key strategic issues, barriers and how we might adapt to anticipated change in the New Forest
- Consulting and involving stakeholders on developing the policies and priorities for the action plan.

1.10 Whilst it is important to recognise the uncertainty over the severity, extent and rate of climate change, this should not prevent the Authority from planning and preparing for the future, as is the case for other economic, social, or environmental changes in the future where there is also considerable uncertainty.

1.11 This paper updates Members on progress towards these objectives and outlines a timetable for how the Authority will achieve them.

2 Predicted climate change in the New Forest and the South of England

2.1 Details of currently available information and predictions on how climate change may affect the South East and the New Forest are presented in **Annex 1**.

2.2 The headline predictions are summarised in Table 1 below.

Table 1: A summary of likely climate change in the New Forest and South East in the coming decades

All figures are derived from the UKCIP02 scenarios (Hulme *et al.*, 2002). Where a range is given this relates to the low emissions (assuming large cuts in present emissions) and high emissions ('business as usual') scenarios, but also reflects geographical variation within the South East.

Winter represents the average for December, January and February; summer represents the average for June, July and August.

The climate changes projected to the 2020s are similar across all scenarios. This is because some climate change is already inevitable as a result of past Greenhouse gas emissions. Climate changes beyond the next few decades depend on future emissions, but even the low emissions scenario represents an acceleration of climate change when compared with the 20th century.

Relative to the baseline period of 1961 - 1990, the main climate changes projected for the South East by the 2050s are:

- Increase in winter temperatures of 1.0 - 2.0 °C
- Increase in summer temperatures of 1.5 - 3.5 °C
- Increase in winter precipitation by 0 - 20%
- Decrease in summer precipitation by 10 - 40%

Under the high emissions scenario, by the 2080s, summer temperatures may be more than 4.5 °C higher on average, with many more very hot days. Summer precipitation may be less than half that of the baseline period.

Winters will become more reliably warm. Winter precipitation will increase, but become more variable, with some winters being particularly wet. Winter rainfall intensities will increase.

Summer will become more reliably dry, although temperatures may vary more widely from year to year.

Cloud cover and relative humidity are likely to reduce, particularly in summer. Soils will become drier, especially in summer and autumn. Wind speeds may increase in winter, but this is only predicted with low confidence.

In terms of extreme events, by the 2050s, under the medium-high emissions scenario, for England and Wales:

- A dry summer, similar to 1995, will occur on average one year in three
- A warm dry year, similar to 1999 (37% drier than average), will occur on average three years in four.

Winter	<p>On average winters are predicted to become wetter and milder with less frost / ice / snow cover leading to increased flood risk. Greater night-time than day-time warming in winter. This could result in:</p> <ul style="list-style-type: none"> ▪ Longer growing seasons ▪ Less cold-weather disruption to transport ▪ More pests ▪ Reduction in cold related illness and deaths ▪ Increased flood risk ▪ Increased soil erosion and pollutant leaching
Summer	<p>On average, summers will be much hotter and longer but with lower rainfall. Greater warming in summer and autumn than in winter and spring. Greater day-time than night-time warming in summer. This could result in:</p> <ul style="list-style-type: none"> ▪ Increased tourism and leisure ▪ Enhanced yields of crops ▪ New crops being viable ▪ Changes in species and habitats ▪ Increase in hot weather health problems ▪ Increased risk of drought and increase in heathland / grassland / woodland (?) fire risk ▪ Increased risk of water shortages ▪ Increase in low river flows and water quality problems ▪ Reduction in soil moisture and changed hydrology ▪ Increase in ground movement and infrastructure damage e.g. in buildings ▪ Increased tree stress and loss ▪ Increased need for winter rain storage, especially for agriculture
Sea level	<p>Sea level is predicted to rise by around 841mm by 2115 leading to increased risk of coastal erosion and flooding and loss of important coastal habitats, increased risk to coastal power stations and industry</p>
Wind speed	<p>Possible higher wind speeds leading to more frequent risk of damage to essential infrastructure and an increased likelihood of large insurance claims</p> <p>Winter depressions become more frequent including deepest ones</p>

Rainfall	<p>Extreme rain events may happen twice as often by the 2080s leading to an increase in flood risk and risk of damage to essential infrastructure / increased likelihood of large insurance claims. By the 2020s:</p> <ul style="list-style-type: none"> ▪ Winters could be 5 to 15% wetter (Winters 10 to 30% wetter by the 2080s) ▪ Summers could be 15 to 30% drier (Summers 25 to 55% drier by the 2080s) ▪ Heavy rainfall episodes in winter become more common ▪ There could be greater contrast between summer (drier) and winter (wetter) seasons ▪ Summers as dry as 1995 (37% drier than average) become more common ▪ Snowfall totals and the incidence of frost may decrease significantly
Cloud cover	<ul style="list-style-type: none"> ▪ Reduction in summer and autumn cloud and increase in radiation ▪ Small increase in winter cloud cover

Data sources: South East Climate Change Partnership, SECTORS Report 2004; South West Region Climate Change Impacts Scoping Study, 2003

- 2.3 The next revision of the official scenarios and predictions will be published in 2007. Climate change policies may need to be reviewed if there are large changes in the forecasts.
- 2.4 There is no intention for the Authority to commission its own research into local climate change forecasts but there may be scope to commission further external studies to provide an evidence base for proposals on how we might adapt to the challenges ahead and on some of the cumulative and inter-related effects across different sectors. The Authority should liaise with others undertaking research into climate impacts on, for example, species and habitats.

3 Potential impacts on the New Forest National Park

- 3.1 A number of potential impacts on the special qualities (as listed in the interim statement approved by the Authority in 2006) are listed in **Annex 2**.

4 Current action

- 4.1 The National Park Authority has already supported practical action in partnership with others, and through the Sustainable Development Fund, to help their projects adapt to the challenge of climate change in the New Forest. Table 2 describes these eight innovative projects each of which involves an element of adaptation.

Table 2: Projects supported by the New Forest National Park Authority

<p>1 Minstead Study Centre – Water and Energy Project</p> <p>The project aims to promote awareness of sustainability issues by creating, in their new Eco-Dormitory, a system to allow efficient use of resources. The project includes installation of solar panels and paper pulp insulation and a decorative metering display which will show levels of use of energy. [This is part of a larger project].</p>
<p>2 New Forest Study Centre Re-build – Sustainable and Inspirational</p> <p>The project is to install a biofuel heating system and rainwater harvesting system in the proposed rebuild of the New Forest Study Centre. [This is part of a larger re-build project].</p>
<p>3 Discover the New Forest</p> <p>This project is establishing focus groups to research the needs of five different target groups in New Milton with regard to accessing the New Forest by public transport.</p>
<p>4 New Forest Barbastelle & Bechstein’s Bat Research</p> <p>Barbastelle and Bechstein’s bats are two of the UK’s rarest bat species. This project will carry out research to identify areas of the Forest where each species exists and assess the foraging areas and roost locations of colonies. It is anticipated that the research will ultimately be used to inform management of the Forest for these species in future.</p>
<p>5 The Mill at Gordleton – Waterwheel Renewal Project</p> <p>In partnership with Southampton University this project will re-instate a waterwheel in an old flour mill that has been converted into a small hotel and restaurant, to generate electricity for the hotel. The project will act as a flagship hydroelectric scheme.</p>
<p>7 Ipley Manor District Heating System</p> <p>The project is to provide heat to five dwellings for space heating and hot water through a district heating system using a woodchip boiler. The woodchip will be produced on site from timber obtained through the sustainable management of the estate woodlands. This project will act as a flagship woodfuel scheme.</p>
<p>8 New Forest Electric Vehicle Hire</p> <p>The project is to establish an electric car hire scheme in the New Forest based in Burley with additional hire centres in Lyndhurst and Brockenhurst. The scheme will initially use ten cars which are pollution free and have a speed limit of 45mph.</p>

- 4.2 The Authority has started work to minimise the ecological footprint of its own activities and adopted an environmental policy at its November meeting in 2006. This includes the objective 'to reduce our overall carbon emissions'. The various daughter documents that support the National Park Management Plan, such as the Biodiversity Action Plan, will specifically address climate change adaptation issues for their particular subject.
- 4.3 A wide range of partner organisations have begun to investigate how they plan to adapt their activities to future climates including Hampshire County Council (including the ESPACE project), the South East Protected Landscapes Partnership, New Forest District Council, the Forestry Commission and Natural England.
- 4.4 The process to produce the second round of Shoreline Management Plans for the Solent has started under the leadership of New Forest District Council. This will examine specifically how management of the coast can be adapted to climate change on the coast. A study is underway to model the impact of rising sea levels on the assets and features of the North West Solent coast.
- 4.5 The Department for Local Communities and Government has recently launched a consultation for a new Planning Policy Statement on *Planning and Climate Change*. Consultation is due to close on 8 March 2007. This will be a supplementary document to Planning Policy Statement 1: Delivery Sustainable development. Clearly it will inform the Authority's future approach to climate change and will help to influence the evolving adaptation strategy.

5 Proposed climate change principles for the New Forest National Park Authority

- 5.1 The overarching aims should be to work (based on advice from the South East Climate Change Partnership, 2006):
- to reduce the extent of future global climate change, through effective measures to reduce net emissions of greenhouse gases by the National Park Authority and others within the National Park;
 - with a changing climate and natural processes, where possible, to adapt to the impacts (risks and opportunities) both within and beyond the boundaries of the National Park.
- 5.2 Many of the principles and guidance that the Authority might adopt as policy are already provided by Government and the UK Climate Impacts Programme (UKCIP). It is proposed that the Authority should adopt relevant elements of this good practice. UKCIP advises that adaptive strategies should be based on the following three principles:
- Act Now

- Plan for the future
- Keep a watching brief.

5.3 It is proposed that the Authority develops an Adaptation Strategy and Action Plan based on the outline below.

Draft Contents of a New Forest National Park Adaptation Strategy / Actions

1 Review of current practice

- current national guidance e.g. PPG25, PPS1
- check own environmental policy
- review own guidance e.g. sustainability check-lists

2 Consider **impact** of weather and future climate scenarios on **the National Park and its special qualities**. Devise a strategy to adapt to change. Clarify roles and responsibilities (internally and externally) and identify those with a responsibility for delivering practical actions.

3 Be aware of climate change **advice** (SECCP, UKCIP), and raise issues with Members, staff and stakeholders; consider **training needs**, sources of **information** and **budget** implications.

4 Assess potential threats and opportunities

- become familiar with climate change and socio-economic scenarios
- review outcomes of Local Development Document plan horizon against UKCIP02 scenarios for 2020s
- liaise with other protected areas and join the South East Climate Change Partnership.

5 Use existing tools e.g. Strategic Environmental Assessment, Environmental Impact Assessment, Sustainability Assessment and Appropriate Assessment to **increase resilience of plan to future climate change**.

6 **Monitor climate change indicators** with standard planning indicators (e.g. flood events and housing completions).

7 Ensure strategy is **integrated** across development control and forward planning with additional advice available for applicants.

8 **Co-ordinate liaison** between stakeholders in the New Forest, oversee and **facilitate the communication** of the adaptation strategy and plans

to the wider public.

9 Produce an **action plan** for adaptation.

10 Ensure **full compliance** with *The Planning Response to Climate Change Advice on Better Practice ODPM 2004*.

5.4 It is vital that the Authority starts to act immediately. Climate change impacts are already happening and the sooner we start to prepare the better the long term prospect of successfully adapting to change. By improving the New Forest's resilience, we can aim to minimise the damage to the special qualities and reduce the level of disruption whilst maximising benefits from the new opportunities.

5.5 Many of the steps the Authority could take to adapt to climate change are likely to have other benefits as part of good ongoing and sustainable management and so it should not be constrained by the uncertainty associated with what the future climate will bring. They can be justified for other reasons for example to build the National Park's sustainability and prosperity.

5.6 The key will be to work in ways that can be flexible enough to respond quickly and dynamically to events and uncertainty about the real impacts of climate change. The Authority needs to incorporate an element of flexibility and responsiveness in its developing and emerging policies and projects with which it is directly involved.

5.7 The Authority should use existing mechanisms and processes to make adaptation to climate change a mainstream part of its work. This should be reflected in all of our plans, strategies and policies – and be tested by the requirement to undertake Environmental Appraisal, Sustainability Appraisals and Appropriate Assessments. In delivering our National Park purposes, the Directorates and Development Control should develop a range of integrated and consistent tools to adapt to and / or mitigate for climate change.

5.8 The Authority needs to set out how it will achieve these goals in an adaptation action plan. However if this is to be an effective plan it will require the involvement and ownership of a wide range of stakeholders in the New Forest and beyond its boundaries – and we need to develop the plan in close liaison with others, particularly other Authorities.

6 A process for developing an adaptation plan for the New Forest

6.1 A draft outline process for producing a strategy and action plan is given in Table 3 below.

Table 3: Draft process for producing an action plan

Involvement of stakeholders	<ul style="list-style-type: none"> ▪ Establish joint working with agencies and local authorities; ▪ Arrange a conference with the key agencies and NGOs to look at local adaptation; ▪ Produce an adaptation document for all agencies; ▪ Join the South East Climate Change Partnership. 	Spring 2007
Communication	<ul style="list-style-type: none"> ▪ Spread the word: Members, local authority officers, Consultative Panel, developers and the public need to be aware of the impacts of climate change and how to adapt to it in the New Forest National Park; ▪ Establish a website where the public have access to information on local impacts of climate change and can contribute their pledges to what they're going to do / ideas / discussion forum; ▪ Establish projects to work with business and individuals to prepare for climate change; ▪ The Authority should develop a comprehensive range of advice for Development Control that can be used by applicants to help new development be more resilient. They should generally be based on principles of reversibility, living well within ecological limits and capacity so that there are ample tolerances to cope with unexpected change. 	By end of 2007
Monitoring success and change	<ul style="list-style-type: none"> ▪ Develop a series of indicators to measure change. 	By end 2007
Link to Management Plan, and daughter documents and developing policies	<ul style="list-style-type: none"> ▪ Draw the above into an action plan with regular revisions and events to maintain the momentum; ▪ Ensure that climate change issues are addressed in each of these documents. 	By end 2008
Coast	<ul style="list-style-type: none"> ▪ Work with the Shoreline Management Plan process to ensure a long term vision for the coast to adapt to anticipated changes. 	By end 2008

Recommendations:

- 1. To note the report.**
- 2. To approve the proposed content, process and timetable for the development of an adaptation strategy and action plan for the National Park.**

Further Information and useful resources

Anon. 2004. *Scientific and technical aspects of climate change, including impacts and adaptation and associated costs*. Defra. September 2004.

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