

Biodiversity and Climate Change Adaptation Seminar, October 2008
Morning Workshop notes

Ecosystem Services

- Slapton Ley will be affected
- What the natural environment delivers for human benefit
- Water absorption
- Water cleaning
- Fertility (soils)
- Pollination
- Oxygenated air
- Somerset Levels and Moors (and coast) – extensive coastal and fluvial managed realignment to recreate a naturally functioning floodplain providing a full range of ecosystem services
 - Farming enterprises dependent on an intact wetland system not working against it
 - Rapid recreation of floodplain and coastal wetlands in place in time to allow species scope to adapt
- Sustainable farming practices and forestry
- Well connected thriving wildlife habitats
- Well managed water supplies – blanket bog restoration
- Strategic coastal realignment

Spatial Targeting

- Networks of wildlife friendly green spaces linking towns and countryside
- Greater ecological resilience by way of landscape scale conservation management e.g. climate proofing the Nature Map to facilitate spatial targeting
- New landscapes
- New species assemblages
- Spaces for biodiversity that allow adaptation related to the scale of the biodiversity interest
- 20% of SW available in the right places for biodiversity to move about
- Planning regime that takes into account biodiversity when developing climate change measures – strategic level
- Use S106 more
- Nature Map
- Regional prioritisation of key assets is fundamental
- Need wide partnerships and funding to deliver measurable results
- A marginal change based in influences on the agriculture sector. Our relationship with landholders is key if we want to make a difference
- Sites connected by functional corridors that prevents isolation of sites
- Sites that provide good quality habitats that are not impacted by other impacts i.e. developments

Adaptation

- Net positive social outcomes from a variety of decisions taken by a variety of stakeholders while adapting to a changing climate
- Maintain species richness
- Working with natural processes
- New housing will have increased adaptation to climate change e.g. use of materials
- Housing zero carbon heating
- Reduction in 60% piped water capture recycle/re-use
- Housing built to have natural cooling systems
- Process of responding viably to change
- Farming systems developed and valued to achieve habitat networks
- Habitat corridors and provision as central components of all new development
- Bringing all species and habitats through climate change without loss

Ecological Network

- Knock down St.Thomas! – Reinststate marshland
- Large scale
- Quick, simple, not requiring too much management
- Replacements for lost habitats
- A spatial element
- Wide area
- Connections
- Supporting wildlife
- Allowing movement
- More people/everybody has wildlife garden(s)
- A landscape which is permeable to as many species as possible and robust in its ability to function ecologically
- Greater connectivity of sites
- Species/habitats spread over wider area
- Populations greater, more diverse
- Species able to relocate to adjacent areas
- Creation of new habitats
- Wet woodland project – re-link habitats
- Peatland restoration
- Restoring ancient woodlands
- Managing habitats as ecosystem
- Porlock Marsh – managed realignment

Landscape Scale

- Managed realignment
- Woodland creation and linkage
- Implement SW Nature Map
- Protect and enhance Mendips AONB and North Somerset Levels and Moors
- Reduction in intensity of farmed landscape to allow for unpredictable change
- Permeability through landscape – large areas which allow species migration
- Restoration of entire Clyst Valley – from Topsham to Ashclyst forest

- Plan for likely scenarios at as large a scale as possible
- Think beyond biodiversity – big problems, big ideas
- Change in vegetation
- Change of species on high moors
- Salinity working upstream
- Mire project on Exmoor: the re-wetting through grip blocking at drainage ditches on blanket bog over the whole of Exmoor. This will provide valuable habitat and create a carbon sink through the peat
- Increased shading of rivers, particularly headwaters and working with landowners to influence land management, such as grazing, to ensure a wetted, shaded, cooler river corridor
- The creation of 'natural links' between existing areas of fragmented moorland to provide habitat and corridors using Environmental Stewardship#
- Expand genetic pool
- Bournemouth/Poole, East Dorset conurbation - linking local nature reserves through planting/greenways/hedgerow/river
- A robust, functioning landscape, with increased areas of semi-natural habitat and improved connectivity between these areas, enabling species to move in response to a changing climate
- Holistic, multi-functional approach

Climate Space

- Loss of species and habitats
- Making room for water – increased tides, more localised flooding, knock on for habitat management
- Making room for specific species specialised habitat
- Drying of upland areas
- Loss of salt marsh
- Erosion – is there space for specialised niche species
- Mitigation to protect and enhance biodiversity and habitats
- Exe Estuary - Roosting bird habitat, by providing alternatives to squeezed current costs
 - Taking advantage of likely flooding protection at Dawlish Warren
- Managed realignment on Axe Estuary and wetland restoration further up Axe valley
- Restoring or creating areas of heathland to mitigate for the potential loss of heathland on the Pebblebed Heaths in East Devon. Possibly extending heathland in the higher Blackdown Hills
- Redefined coast with no major loss of wildlife
- Landscape scale management allowing species movement
- More inundation – reduction of hard sea defence
- Identification/protection of potential biodiversity habitat areas
- Diversity of tree species restored using habitats for various wildlife species
- A physical space which by reason of climate effects will dictate species presence
- A space in time, where we have an opportunity to act
- The area of land which climatically is suitable for a particular species or habitat

Ecological Resilience

- Planning for different levels of intervention – depending on which scenarios take place
- What future for the Dartmoor blanket bog? Can we protect it?
- Change in temperature – how adaptable species are coping with changes in temperature and availability of water
- Capability to compete with invasive species with changes in temperature and water availability
- Increased invasive species coming in via transport etc. – are they better able to cope with the changes than natives?
- Mitigation to protect and enhance biodiversity and protect what we have
- Gloucestershire – Extension of wetland areas to protect against extreme flooding events
- Creation of green corridors along major rivers, reversal of trend to develop on floodplains

- Relies greatly on having a strong ecological network in place – enabling wildlife to adapt to climate change and remain viable
- Change our operational cycles (spraying, harvesting timber) to minimise damage on wildlife cycles and habitats
- Careful planning of our operations according to species and seasons
- Expanding and linking habitats
- Motivated landowners
- Ability of natural systems to respond to change in a way which minimises any adverse impact
- Restoring original habitats – bogs and valley mire
- Change in choices of species we plant (trees, scrubs..)
- Create mosaic of habitats – encourage wildlife finding new places to colonise

Mitigation

- Shelter belts
- Wind barriers
- Storm barriers
- Reinstatement of river – off banks, against heavy rainfall
- Research: what are species' ecological requirements? Dispersal abilities? Response to climate change?
- Landscape scale wider countryside habitat enhancement and creation
- Habitat fragmentation and degradation
- Compound effects of climate change on biodiversity – address these
- Conserve and enhance what biodiversity we have now
- You are speaking to the converted here. It is time for action in terms of mitigation and adaptation
- Flood erosion in catchment areas – mitigate by harvesting rainwater - so increase number of small water tanks/reservoirs
- Increased micro-generation sites – windmills etc.
- New types of crops/vegetation to absorb water
- North Somerset – investigate opportunities for managed realignment (salt marsh creation)
 - Protect peat habitats of North Somerset Levels and Moors
 - Scrubbing out of ????????grassland on public sites
 - Encourage habitat hedge planting as boundaries rather than farming

- Promote tall grass habitat
- Sustainable Development Fund – hydro-schemes
 - Woodchip boilers
 - Sheepwool as insulation
 - working in partnership with local climate change action groups
 - Sustainable transport network
- De-fragmented semi-natural habitats for wildlife permeability and ecosystem services – water retention, flood control
- Reorganisation of development control and regulation to reduce carbon and water use and enhance recycling of resources and sustainable transport and energy provision
- Techniques to reduce the effects of climate change

Habitat Connectivity

- Habitat diversity allowing for potential collectives of species
- Recognise and conserve corridors connecting 'prime' habitats (and marginal habitats?)
- Consider international scale i.e. habitat connectivity unrestrained by arbitrary boundaries
- Priority habitat expanded and joined through targeted changes in land-use. Needs to take on board the science of climate change
- Changes in policy-making with longer climate change and biodiversity central partnership working with all relevant sectors to look at land use in a joined-up way
- Creating and managing habitat corridors to allow species to adapt to increasing temperatures
- 'Who knows'
- Prevent further fragmentation
- Interconnect different habitats (e.g. rivers with grassland)
- Monitoring of change
- Landscape perspective to land management
- Larger interconnecting habitats of high ecological value
- More use of land bridges as replication of the Dutch Dookervaaarderplassen model
- The setting aside of land to 'see what happens'
- Functional ecological links not simplistic corridors/stepping stones

- Providing the space for habitats and species to adapt
- Linking one habitat to another e.g. hedges, wetland, arable, grassland, mosaic habitat – ecosystem approach
- Development of large scale initiatives that create opportunity for wildlife to colonise
- Engage with people to experience benefits of large scale conservation work
- Restore upland 'sponges' for wildlife but function to protect base flows and water quality in rivers
- Green river corridors – link with woodland. Set back development to protect from flooding
- Habitat creation (or space for the regeneration) is required because of the losses already incurred which has fragmented landscapes
- Having more habitats

- Expanded habitats
- Important to connect a diversity of habitats/protected habitats to aid opportunity to adapt
- Minimise losses to existing habitats and species by maximising connectivity through a landscape scale approach e.g. Plantlife's Important Plant Area Programme
- Connectivity will enable natural ecosystems to work providing ecosystem services, allowing species movement and therefore facilitating adaptation
- How will biodiversity adapt to climate change? Species will be able to migrate
- Connectivity is dependent on favourable land use which is still economically viable
- Strong protection for sites but key to have more flexibility due to changes in species and habitat range distribution to accommodate climate change. Buffers, links and extending key habitats essential!
- Using planning control to control new developments, but also involve new habitat creation where possible as a condition of planning permission
- Planting of new nature woodlands to link existing blocks – green corridors
- Improved woodland condition i.e. control of invasive species such as Beech and Rhododendron

Landscape permeability

- We need to keep the messages simple i.e. less jargon! Even the terms mitigation and adaptation are overly complicated
- Successful adaptation will be increased in natural habitats and better management of them – favourable condition
- Large habitat 'units' that are: high quality, connected (habitat corridors?), valued, managed, 'useful' (agriculture, recreation etc.), buffered (?)
- Vital role of rivers and varied altitude/aspect at local level
- Allowing species to move across the landscape in every type of habitat
- Working with nature
- Green roof policies for urban areas – all flat roofs should be a green roof
- Make semi-natural habitats more robust by allowing more links between them, more buffering, allow species and habitats to move geographically
- 'linking' and retaining wetness in SW uplands
- Migration highways
- River valley links
- Marine connectivity – extending protected areas northwards
- Adapting management practices to make areas more robust to climate change e.g. allow multiple species to develop rather than single species
- Identify barriers preventing species migration, develop measures to remove barriers
- Define scale of intervention needed to enable species to survive and evaluate long term feasibility of intervention measures
- Allow natural processes to happen and manage in a less prescriptive way
- BAP process will need to be flexible and allow change

Successful adaptation?

- Save 'level' of biodiversity but with changing species; welcoming natural arrivals and ensuring the species lost are catered for elsewhere

- Increased use of SUDs in developments to cope with higher intensity rainfall
- Robust networks of habitat are present requiring minimal input (energy and resources) to maintain them. Support diverse but changing biodiversity
- Already past point of no return at 1° warming
- Improved grazing on grasslands due to more people being forced to produce their own food – subsistence farming
- Providing conditions for diverse habitats and species even if that means change
- Large and connected areas of semi-natural habitat
- More water retentive areas upstream of where flooding is likely
- Routes for wildlife to move through the landscape
- Well linked and buffered habitats that are large enough to accommodate change
- Allowing change in a way that habitats remain species rich, with many ecological niches so that new species can colonise and co-exist without harming the ecosystem and existing species can move to different niches if they need to
- Integrated landscape with a lot more trees, less agriculture of a different sort
- Semi-natural habitats are half the answer – acceptance of new species/habitats
- Flood plain management that works
- Understanding impacts through learning
- Opportunities for some species to thrive e.g. chalkhill blue butterfly
- Retention of habitat
- Linking habitats via corridors
- Retention of Beech and Ash on high ground
- Not losing any more species than we have already
- Habitats being allowed to migrate in areas where they can to offset areas where they cannot
- People engaged and understanding the process rather than just professionals – community engagement
- Severn Vale – Functional connectivity of fragmented wildlife sites to create habitat heterogeneity and to allow for species movement in response to climate change
- More protected sites really protected

Protected sites

- Maintaining and enhancing protected sites against effects of climate change
- Creating new sites
- Providing/improving links between sites
- Habitats less fragmented and more connected through 'green corridors' to enhance key species and habitats to move 'north'
- Cornwall – Loss of area due to sea level rise
 - Key sites – estuaries and valleys (Tamar/Camel)
 - manage coastal sites or focus on important sites inland?
 - Include/improve connectivity to important habitats
- Reflect important ecological sites
- Cover areas that are not important now but projected to become important
- Networked and regularly assessed – not on community that is present – formation of novel communities expected

- A good starting point to build connected habitat networks around, even if eventually they lose their worth due to climate change

Managed realignment

- Managed realignment in coastal areas
- Peat areas of Exmoor and Dartmoor restored
- Agricultural practices changing i.e. different crop varieties to take account of climate change
- Working with nature rather than against it, allowing nature back into a new area
- Big enough areas in floodplains for wildlife to move about
- No idea what it would look like, but space needs to be made for it to happen

- Allowing woodland and scrub colonisation of heath and moorland where it is acceptable to do so
- Climate change to advantage – RSPB - Freiston, influence, flood relief. Better to work with nature. Show financial/cultural/environmental benefits
- Managed retreat should allow natural coastal processes to work
- Targets should be process driven not habitat
- Multi-functional i.e. benefiting people and wildlife
- Big change in thinking for location of infrastructure and existing towns/villages
- Allowing space and time for habitat migration where possible, proactively creating/allowing new habitats for species to relocate