Ecosystem Services
Background Paper
South Downs Local Plan

September 2017
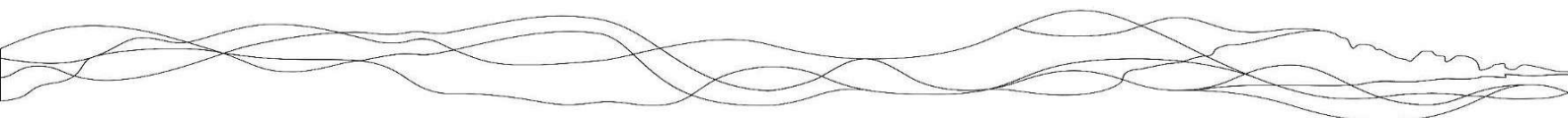
1. INTRODUCTION

1.1   Ecosystem services are the benefits people and society get from the natural environment. The National Park Authority (NPA) has sought to embed an ecosystems approach into the emerging South Downs Local Plan. The purpose of this background paper is to explain how this approach has influenced the formulation of the plan, summarise the relevant national policies and explain key evidence based studies.   The ecosystem services delivered in the National Park are illustrated in figure 1.

FIGURE 1: ECOSYSTEM SERVICES IN THE SOUTH DOWNS NATIONAL PARK
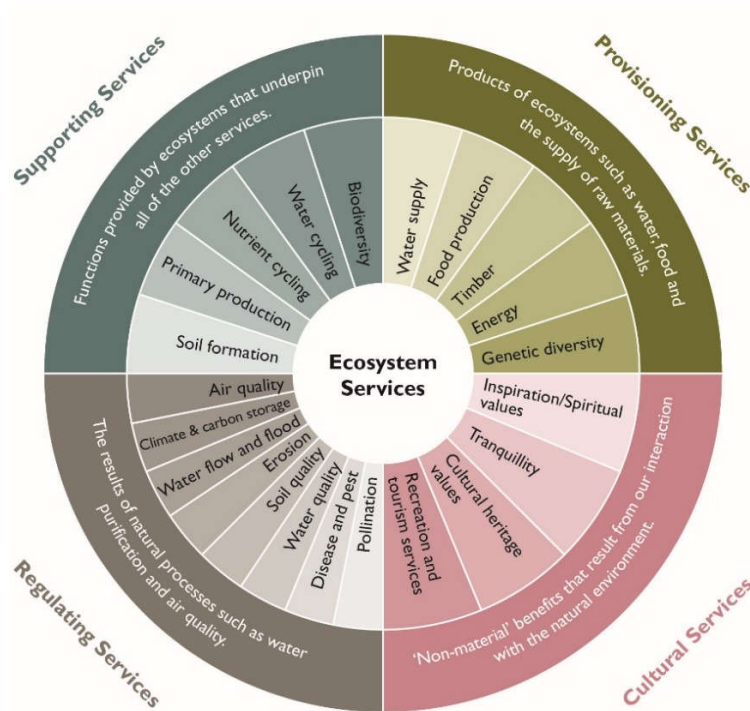
2. NATIONAL PARK PURPOSES AND SPECIAL QUALITIES

2.1   Ecosystem Services contribute to both the purposes and duty of the National Park. For example, 'cultural heritage values' provide 'cultural services' that relate to both our purposes, whilst the production of food and timber relates to our socio-economic duty. Ecosystem services form part of our special qualities, for example, tranquillity is a 'cultural service' that has helped to create 'tranquil and unspoilt places' as a special quality of the National Park.

3. NATIONAL POLICY AND GUIDANCE

3.1   Paragraph 109 of the *National Planning Policy Framework* (NPPF)[1] states that the planning system should contribute to and enhance the natural and local environment by recognising the wider benefits of ecosystem services.

3.2   *The National Ecosystem Assessment*[2] (2011) was the first UK wide attempt to assess the full range of benefits that nature provides. Key messages relevant to the South Downs Local Plan are that the natural world and its ecosystems are critically important to our wellbeing and economic prosperity, but are consistently undervalued in conventional economic analyses and decision making.

3.3   *Biodiversity 2020: A strategy for England's Wildlife and Ecosystem Services*[3] (2011) sets out some priority actions that seek to increase ecosystem resilience and suggests that these actions are actively reviewed over time.

4. LOCAL CONTEXT AND EVIDENCE

4.1   The South Downs Local Plan follows on from the *Partnership Management Plan*[4] (PMP), which is the first overarching strategy for the management of the National Park. This took an ecosystem approach, for example, suggesting that new incentive schemes for farmers could include payments for ecosystem services.

4.2   The spatial portrait of the South Downs set out in chapter 3 of the Local Plan introduces a new way of looking at the National Park as a single entity and identifies five broad areas and four river corridors. Most ecosystem services are provided park-wide, but the stock of natural capital from which these services flow varies spatially between the different areas. The different ecosystem services for each of the broad areas and river corridors are explained in chapter 3, for example, the heavily wooded Western Weald provide a number of 'provisioning services' particularly timber from commercial plantations on the larger estates. The evidence for this work was provided by the GIS based tool Ecoserv GIS with maps produced for the whole National Park and its different areas. All the Ecoserv maps have been compiled and explained in an evidence based document *Mapping of Ecosystem Services within the South Downs National Park using the Ecoserv GIS Tool*[5].

4.3   The National Park Authority has worked with a number of academics, including Professor Alister Scott of Northumbria University, in order to mainstream an ecosystems approach into the South Downs Local Plan. Professor Scott is a leading expert in this field, and has worked on

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[1] National Planning Policy Framework (2012)

[2] National Ecosystem Assessment[2] (2011)

[3] Biodiversity 2020: A strategy for England's Wildlife and Ecosystem Services (DEFRA, 2011)

[4] Partnership Management Plan: Shaping the Future of your South Downs National Park 2014-19 (South Downs National Park Authority, 2013)

[5] Mapping of Ecosystem Services within the South Downs National Park using the Ecoserv GIS Tool (South Downs National Park Authority, 2016)

a number of projects including the UK National Ecosystem Assessment follow on programme looking at new tools to improve policy and decision making. A Knowledge Exchange and Learning Workshop on Natural Capital and Ecosystem Services was hosted by the NPA in July 2016, which was attended by academics, officers and members of neighbouring authorities and statutory bodies.

4.4   A number of comments were made on draft policy SD2: Ecosystem Services in response to consultation on the Preferred Options version of the Local Plan. Most of these comments were in support of the policy including representations from the Environment Agency, Historic England and Natural England. Some changes have been made to the plan in response to the feedback, including more reference made to ecosystem services throughout the plan and the links between SD2 and other policies.

5. ROUTE MAP FOR POLICY FORMULATION

5.1   Core Policy SD2 requires all development proposals to have an overall positive impact on the ability of the natural environment to contribute goods and services. This will be achieved firstly through high quality design. The policy sets out eleven sets of opportunities to impact positively on the natural environment such as conserving and enhancing soils and reducing levels of pollution. The benefits are expected to be delivered on-site. The core policy is applicable to all planning applications in a proportionate manner. All planning applications will need to be accompanied by a statement that sets out how the development proposal impacts, both positively and negatively, on ecosystem services. The preparation of the statement should be proportionate to the impact. A technical advice note will be produced by the National Park Authority to provide further guidance to applicants on this policy.

Ecosystem services link to other Local Plan policies

5.2   Core Policy SD2 should not be read in isolation as it is linked to other Local Plan policies. Figure 2 links the eleven criteria of Policy SD2 with other relevant policies, for example, criterion (g) on conserving and enhancing soils is linked to Policies SD4: Landscape Character, SD39: Agriculture and Forestry.

FIGURE 2: LINKS BETWEEN THE CRITERIA OF CORE POLICY SD2, RELEVANT ECOSYSTEM SERVICES AND OTHER LOCAL PLAN POLICIES

Policy criterion of SD2	**a)** Sustainably manage land and water environments
Relevant Ecosystem services	All
Relevant Local Plan policies	**SD4:** Landscape character, **SD11:** Trees, Woodland and Hedgerows, **SD18:** The Open Coast, **SD17:** Protection of the Water Environment

Policy criterion of SD2	**b)** Protect and provide more, better and joined up natural habitats
Relevant Ecosystem services	Biodiversity, Nutrient cycling, Soil quality, Pollination
Relevant Local Plan policies	**SD18:** The Open Coast, **SD9:** Biodiversity and Geodiversity, **SD10:** International Sites, **SD11:** Trees, Woodland and Hedgerows, **SD45:** Green Infrastructure, **SD17:** Protection of the Water Environment

Policy criterion of SD2	**c)** Conserve water resources and improve water quality;
Relevant Ecosystem services	Water supply, Water cycling, Water flow and flood, Water quality
Relevant Local Plan policies	**SD17:** Protection of the Water Environment, **SD49:** Flood Risk Management, **SD48:** Climate Change and Sustainable Use of Resources

Policy criterion of SD2	**d)** Manage and mitigate the risk of flooding;
Relevant Ecosystem services	Water flow and flood
Relevant Local Plan policies	SD45: Green Infrastructure, SD17: Protection of the Water Environment, SD48: Climate Change and Sustainable Use of Resources

Policy criterion of SD2	**e)** Improve the National Park's resilience to, and mitigation of, climate change;
Relevant Ecosystem services	Climate and carbon storage, Energy
Relevant Local Plan policies	**SD9:** Biodiversity and Geodiversity, **SD14:** Climate Change Mitigation and Adaptation of Historic Buildings, **SD45:** Green Infrastructure, **SD48:** Climate Change and Sustainable Use of Resources

Policy criterion of SD2	**f)** Increase the ability to store carbon through new planting or other means;
Relevant Ecosystem services	Climate and carbon storage, Timber, Food production
Relevant Local Plan policies	**SD4:** Landscape character, **SD5:** Design, **SD9:** Biodiversity and Geodiversity, **SD11:** Trees, Woodland and Hedgerows

Policy criterion of SD2	**g)** Conserve and enhance soils;
Relevant Ecosystem services	Soil formation, Nutrient cycling, Soil quality
Relevant Local Plan policies	**SD4:** Landscape Character, **SD39:** Agriculture and Forestry

Policy criterion of SD2	**h)** Support the sustainable production and use of food, forestry and raw materials
Relevant Ecosystem services	Primary production, Soil formation, Food production, Timber, Energy
Relevant Local Plan policies	**SD4:** Landscape Character, **SD34:** Sustaining the Local Economy, **SD39:** Agriculture and Forestry

Policy criterion of SD2	**i)** Reduce levels of pollution
Relevant Ecosystem services	Air quality, Soil quality, Water quality
Relevant Local Plan policies	**SD11:** Trees, Woodland and Hedgerows, **SD45:** Green Infrastructure, **SD20:** Walking, Cycling and Equestrian Routes, **SD54:** Pollution and Air Quality

Policy criterion of SD2	j) Improve opportunities for peoples' health and wellbeing
Relevant Ecosystem services	Inspiration/spiritual values, Tranquillity, Cultural heritage values, Recreation and tourism services
Relevant Local Plan policies	**SD4:** Landscape Character, **SD5:** Design, **SD6:** Safeguarding Views, **SD7:** Relative Tranquillity, **SD8:** Dark Night Skies, **SD9:** Biodiversity and Geodiversity, **SD10:** International Sites, **SD12:** Historic Environment, **SD18:** The Coast, **SD20:** Walking, Cycling and Equestrian Routes**, SD23:** Sustainable Tourism, **SD24:** Equestrian Uses, **SD45:** Green Infrastructure

Policy criterion of SD2	k) Provide opportunities for access to the natural and cultural resources which contribute to the special qualities
Relevant Ecosystem services	Inspiration/spiritual values, Tranquillity, Cultural heritage values, Recreation and tourism services
Relevant Local Plan policies	**SD4:** Landscape Character, **SD5:** Design, **SD6:** Safeguarding Views, **SD7:** Relative Tranquillity, **SD8:** Dark Night Skies, **SD20:** Walking, Cycling and Equestrian Routes, SD23: Sustainable Tourism, Policy SD24: Equestrian Uses, **SD45:** Green Infrastructure

5.3   An assessment was made of all the strategic and development management policies of the Local Plan to identify those policies that make a positive contribution to a significant number of ecosystem services. The results of this assessment are set out in appendix 1 of this paper, and the most important policies in regard to ecosystem services are identified in the plan with the icon ☆.

Site allocations

5.4   The Pre-Submission Local Plan allocates sites for development in areas where neighbourhood development plans have not been prepared. Consideration was given to Local Plan allocations, the settlements where they are located and their ability to deliver ecosystem services. The evidence for this work was again provided by Ecoserv GIS. First of all, it was necessary to identify which allocations are located in areas that provide multiple ecosystem services and are therefore particularly important. Site allocations within these key areas were then analysed further to develop policy criteria in order to conserve and enhance these ecosystem services. Symbols are found at the start of each allocation policy to identify individual ecosystem services, for example, the allocation at West Ashling (SD95) is linked to ecosystem services on water quality and purification, pollination, carbon storage and noise regulation. The actual policy requirements relating to ecosystem services are set out at the end of the policy. It should also be noted that many of the other site-specific development requirements also provide multiple ecosystem services, for example, there are policy requirements for the West Ashling site on the Solent Special Protection Area (SPA) and the retention of mature boundary trees.

6. CONCLUSIONS

6.1 The emerging South Downs Local Plan is a landscape-led local plan that seeks to deliver multiple ecosystem service benefits. This is in line with the purposes and duty of national parks specified in the 1995 Environment Act and paragraph 109 of the NPPF. The main source of evidence for this work has been provided by Ecoserv GIS. The spatial portrait explains the ecosystem services that are delivered in different part of the National Park. Core Policy SD2 is the overarching Local Plan policy on ecosystem services and its individual criteria are linked to policies throughout the plan. Finally, the allocation policies in the Sites and Settlements chapter set out how ecosystem services will be delivered on the ground.

KEY

■ (green)	This policy makes a positive contribution to this ecosystem service
☆	This policy makes a positive contribution to a significant majority of ecosystem services

	Local Plan Policy	Supporting Services					Provisioning Services					Regulating Services								Cultural Services			
		Soil Formation	Primary Production	Nutrient Cycling	Water Cycling	Biodiversity	Water Supply	Food Production	Timber	Energy	Genetic Diversity	Air Quality Regulation	Climate Regulation and Carbon Storage	Water Flow and Flood Regulation	Erosion Regulation	Soil Quality	Water Quality	Disease and Pest Regulation	Pollination	Inspiration/ Spiritual Values	Tranquillity	Cultural Heritage Values	Recreation and tourism Services
	Chapter 4: Core Policies																						
	SD1: Sustainable Development																						
	SD2: Ecosystem Services	No specific ecosystem services for these – all apply.																					
	SD3: Major Development																						
	Chapter 5: Living Landscape																						
	5a. Landscape																						
☆	**SD4:** Landscape Character	■	■		■	■	■	■	■			■	■	■	■					■	■	■	■
	SD5: Design			■	■					■		■	■	■			■			■	■	■	■
	SD6: Safeguarding Views																			■	■	■	■
	SD7: Tranquillity					■														■	■	■	■
	SD8: Dark Night Skies					■				■			■							■	■	■	■
	5b. Biodiversity																						
☆	**SD9:** Biodiversity and Geodiversity	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	SD10: International Sites		■	■	■	■					■	■	■	■			■			■		■	■

	Local Plan Policy	Supporting Services					Provisioning Services					Regulating Services								Cultural Services			
		Soil Formation	Primary Production	Nutrient Cycling	Water Cycling	Biodiversity	Water Supply	Food Production	Timber	Energy	Genetic Diversity	Air Quality Regulation	Climate Regulation and Carbon Storage	Water Flow and Flood Regulation	Erosion Regulation	Soil Quality	Water Quality	Disease and Pest Regulation	Pollination	Inspiration/ Spiritual Values	Tranquillity	Cultural Heritage Values	Recreation and tourism Services
☆	**SD11:** Trees, Hedgerows, and Woodland	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	5c. Historic Environment																						
	SD12: Historic Environment																			✓	✓	✓	✓
	SD13: Listed Buildings																			✓		✓	✓
	SD14: Climate Change Mitigation and Adaptation of Historic Buildings								✓				✓									✓	
	SD15: Conservation Areas																			✓		✓	✓
	SD16: Archaeology																			✓		✓	
	5d. Water																						
☆	**SD17:** Protection of the Water Environment	✓	✓	✓	✓	✓	✓	✓			✓		✓	✓	✓	✓	✓			✓	✓	✓	✓
☆	**SD18:** The Open Coast		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
	Chapter 6: People Connected to Places																						
	6a. Sustainable Transport																						
	SD19: Transport and Accessibility									✓		✓	✓				✓					✓	✓
	SD20: Walking, Cycling and Pedestrian Routes					✓				✓		✓	✓							✓		✓	✓
	SD21: Public Realm and Highway Design													✓	✓		✓			✓		✓	
	SD44: Parking Provision											✓	✓	✓			✓						✓

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	Soil Formation	Primary Production	Nutrient Cycling	Water Cycling	Biodiversity	Water Supply	Food Production	Timber	Energy	Genetic Diversity	Air Quality Regulation	Climate Regulation and Carbon Storage	Water Flow and Flood Regulation	Erosion Regulation	Soil Quality	Water Quality	Disease and Pest Regulation	Pollination	Inspiration/ Spiritual Values	Tranquillity	Cultural Heritage Values	Recreation and tourism Services
											■	■	■			■						■
6b. Understanding and enjoyment of the National Park																						
SD23: Sustainable Tourism					■						■	■							■	■	■	
SD24: Equestrian Uses			■	■						■				■	■	■				■	■	
Chapter 7: Towards a Sustainable Future																						
7a. Development																						
SD25: Development Strategy	No specific ecosystem services for this – as for the core policies, all may apply. Opportunities for ecosystem services can only be identified by allocations to deliver the strategy by consideration of the proposed development and its relevant constraints and opportunities.																					
7b., c., d. & e. Homes																						
SD26: Supply of Homes	No specific ecosystem services for this – as for the core policies, all may apply. Opportunities for ecosystem services can only be identified by allocations to deliver the strategy by consideration of the proposed development and its relevant constraints and opportunities.																					
SD28: Affordable Homes																			■			
SD29: Rural Exception Sites																			■		■	
SD30: Replacement Dwellings									■													
SD31: Extension and Annexes																						
SD32: Rural Workers' Dwellings						■	■	■	■		■	■							■		■	
SD26: Gypsies, Travellers and Travelling Showpeople						■			■		■	■	■						■		■	
7f. & g. Employment & Retail																						
SD34: Sustaining the Rural Economy		■				■	■	■	■		■	■		■	■	■			■		■	■
SD35: Employment Land									■		■	■	■		■	■					■	

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		Soil Formation	Primary Production	Nutrient Cycling	Water Cycling	Biodiversity	Water Supply	Food Production	Timber	Energy	Genetic Diversity	Air Quality Regulation	Climate Regulation and Carbon Storage	Water Flow and Flood Regulation	Erosion Regulation	Soil Quality	Water Quality	Disease and Pest Regulation	Pollination	Inspiration/ Spiritual Values	Tranquillity	Cultural Heritage Values	Recreation and tourism Services
	SD36: Town and Village Centres									X		X	X							X		X	X
	SD37: Development in Town and Village Centres									X		X	X							X		X	X
	SD38: Shops Outside of Centres							X		X		X								X		X	X
8h. Agriculture and Forestry																							
☆	**SD39:** Agriculture and Forestry	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X
	SD40: Farm and Forestry Diversification			X		X	X	X				X	X	X	X	X					X	X	X
	SD41: Conversion of Redundant Agricultural or Forestry Buildings									X			X							X		X	X
7i. Infrastructure																							
	SD42: Infrastructure	No specific ecosystem services for this – as for the core policies, all may apply. Opportunities for ecosystem services can only usefully be identified in connection with development proposals and consideration of the relevant constraints and opportunities.																					
	SD43: New and Existing Community Infrastructure									X		X	X							X			
	SD44: Telecommunications, Services and Utilities						X			X										X		X	X
7j. Green Infrastructure																							
☆	**SD45:** Green Infrastructure		X		X	X	X	X				X	X	X	X	X	X			X	X	X	X
	SD46: Provision and Protection of Open Space, Sports and Recreational Facilities					X						X		X					X				X

Local Plan Policy	Supporting Services					Provisioning Services					Regulating Services								Cultural Services			
	Soil Formation	Primary Production	Nutrient Cycling	Water Cycling	Biodiversity	Water Supply	Food Production	Timber	Energy	Genetic Diversity	Air Quality Regulation	Climate Regulation and Carbon Storage	Water Flow and Flood Regulation	Erosion Regulation	Soil Quality	Water Quality	Disease and Pest Regulation	Pollination	Inspiration/ Spiritual Values	Tranquillity	Cultural Heritage Values	Recreation and tourism Services
SD47: Local Green Spaces				X	X		X				X		X	X	X	X		X	X		X	X
7k. Climate Change																						
SD48: Climate Change and Sustainable Construction			X						X		X	X	X	X	X	X						
SD49: Flood Risk Management	X		X	X	X	X	X					X	X	X	X	X						
SD50: Sustainable Drainage	X		X	X	X	X							X	X	X	X						
SD51: Renewable Energy		X						X	X		X	X										
7l. Advertisements and Signage																						
SD52: Shop Fronts																					X	X
SD53: Adverts																					X	X
7m. Pollution an Contamination																						
SD54: Pollution and Air Quality					X						X	X			X	X	X					
SD55: Contaminated Land	X		X	X	X	X	X				X	X			X	X	X					