Surrey Nature Partnership
Healthy Environment | Healthy People | Healthy Economy

Biodiversity Opportunity Areas:
the basis for realising Surrey's ecological network

Surrey Nature Partnership

December 2015

Contents:

Written by:

Mike Waite
Chair, Biodiversity Working Group

1. Background

1.1 Why Biodiversity Opportunity Areas?

The concept of Biodiversity Opportunity Areas (BOAs) has been in development in Surrey for some six years. Several iterations of the spatial mapping have emerged, and an earlier format for individual BOA descriptive statements was left in an unfinished state until now. The Surrey Nature Partnership has prioritised completion of this work as an essential evidence base for use by various agencies, but especially the county's planning authorities.

BOAs originate from early thinking on strategic planning for landscape-scale nature conservation, primarily to assist the planning sector respond to national policy guidance in *Planning Policy Statement 9: Biodiversity and Geological Conservation*. ***PPS9*** required regional spatial strategies to "*include targets for the restoration and re-creation of priority habitats and the recovery of priority species populations*." Local planning authorities were required to "...*maintain* [ecological] *networks by avoiding or repairing the fragmentation and isolation of natural habitats through policies in plans*". Local plans should "...*identify any areas or sites for the restoration or creation of new priority habitats which contribute to regional targets, and support this restoration or creation through appropriate policies*."

The replacement National Planning Policy Framework is even more prescriptive on the role of planning in identifying and achieving coherent and resilient local ecological networks. In the context of its central tenet seeking to achieve sustainability throughout the development process, Chapter 11 of the NPPF (Conserving & enhancing the natural environment) begins; "*The planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing* ***coherent ecological networks*** *that are more resilient to current and future pressures*" (para. 109). And later; "*Local planning authorities should set out a strategic approach in their Local Plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure*" (para. 114); and "..*plan for biodiversity at a landscape scale.. identify and map components of the* ***local ecological networks****, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them and areas identified by local* [ie. Nature] *partnerships for habitat restoration or creation*" (para. 117). Also implied here is the vital role of ecological networks as climate change adaptation strategy for biodiversity conservation.

The Government's commitment to halting the overall decline in biodiversity was expressed in its White Paper *The Natural Choice: securing the value of nature*, where planning reform is regarded as a key delivery driver. This was followed up by an implementation plan in the reviewed national biodiversity strategy *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*. The

latter presents a new set of targets (its 'Outcomes 1-4' - see box below) to meet our commitments to the 2010 International Convention on Biological Diversity.

Biodiversity 2020 Outcomes

Outcome 1 - **Habitats & ecosystems on land**:

1A. *Better wildlife habitats with 90% of* ***Priority habitats*** *in favourable or recovering condition and at least 50% of* ***SSSIs*** *in favourable condition, while maintaining at least 95% in favourable or recovering condition*

1B. *More, bigger and less fragmented areas for wildlife, with no net loss of* ***Priority habitat*** *and an increase in the overall extent of* ***Priority habitats*** *by at least 200,000 ha*

1C. *By 2020, at least 17% of land and inland water, especially areas of particular importance for biodiversity and ecosystem services, conserved through effective, integrated and joined up approaches to safeguard biodiversity and ecosystem services including through management of our existing systems of protected areas and the establishment of nature improvement areas*[1]

1D. *Restoring at least 15% of degraded ecosystems as a contribution to climate change mitigation and adaptation*

Outcome 2 - **Marine habitats, ecosystems and fisheries** (NON-APPLICABLE IN SURREY)

Outcome 3 - **Species**: *By 2020, we will see an overall improvement in the status of our wildlife and will have prevented further human-induced extinctions of known threatened species* [ie. Priority species]

Outcome 4 - **People**: *By 2020, significantly more people will be engaged in biodiversity issues, aware of its value and taking positive action*

1.2 What exactly is a Biodiversity Opportunity Area?

Under the co-ordination of Natural England, specialist biological records centres were tasked with analysing spatial habitat distribution databases, and in consultation with relevant local biodiversity forums to then identify their respective potential ecological networks through a common and robust protocol[2]. In the former South-East Region the network would be composed of 'Biodiversity Opportunity Areas', that feature at their core high concentrations of important wildlife habitats formally selected as significant sites for nature conservation. This work was undertaken for Surrey by the Surrey Biodiversity Information Centre (SBIC - see **Figure 1**).

To be clear, an individual BOA consists of a spatial concentration of already recognised and protected sites for wildlife conservation (its 'Foundation' sites), inside a boundary that also includes further but as yet un-designated 'Priority habitat' types (plus some other essentially undeveloped land-uses); all of which have common and contiguous geological, soil, hydrological and topographic characteristics to those of the Foundation sites. As such, BOAs represent those areas where improved habitat management, as well as efforts to restore and re-create Priority

[1] Nature Improvement Areas are a series of nationally-supported pilot meta-BOAs, chosen to observe the effectiveness of the landscape scale approach over an initial start-up period. Although a potential 'North Downs NIA' was put forward in Surrey it was not chosen as a pilot. Nature Partnerships can establish further NIAs however, and this could happen in the future.

[2] See; http://www3.hants.gov.uk/hbic_opportunity_area_mapping_methodology.doc (SEEBF, August 2008)

habitats[3a] will be most effective in enhancing connectivity to benefit recovery of Priority species[3b] in a fragmented landscape. They are therefore the basis for achieving a coherent and resilient ecological network in Surrey.

There are presently 50 BOAs, covering 39% of Surrey. It is important to understand however that land within the other 61% can also have significant biodiversity interest as BOAs do not include the entire Priority habitat audit within the county. Indeed even a small number of the statutory protected sites fall outside of the network. Where appropriate our BOAs link with those identified in neighbouring counties, but currently end at the outer edge of strongly urbanised land-uses. Ecological connectivity cannot be achieved if urban areas are permanently exempted from the network, so this is where Green Infrastructure strategies (see next) will play an especially significant role in establishing and defending urban wildlife corridors.

1.3 Biodiversity Opportunity Areas in the planning system

The policy approach to BOAs emerging through a growing number of Local Plans is to avoid, on principle, development that would compromise achieving the overarching purpose and specific objectives of a BOA. This clearly involves protecting the designated and Priority habitats and species in the BOA, but consideration should also be given to whether development will affect existing or potentially improved habitat connectivity, both across and beyond it. It is important to note however, that this does not preclude all development within a BOA; these are primarily spatial planning tools to focus and realise opportunities, not offer further superfluous constraint.

As with any eligible development, proposals within or adjacent to a BOA would be required to deliver biodiversity enhancements, but within a BOA such enhancements will be most effective when they are tailored to meet the stated objectives of that BOA. As ever, the scale of enhancements should be guided by the size and impact of the development; their achievability must be assured and they may also draw on the multiplier metrics currently being piloted to guide Biodiversity Offsetting[4]. Examples of measures that might be involved include:

- Restoration or maintenance of Priority habitats through suitable management secured by planning obligations;
- Priority habitat creation projects linking fragmented habitats;
- Funding towards conservation initiatives ongoing within the BOA, secured by planning conditions and obligations; and
- Provision of capital items needed to secure biodiversity enhancements (such as fencing to allow grazing).

[3a-b] Listed under Section 41 of the *Natural Environment & Rural Communities Act* 2006 as 'Habitats & Species of principal importance for the conservation of biological diversity in England', for which all public bodies must have regard in the proper exercise of their functions under Section 40.

[4] See; *Biodiversity Offsetting Pilots Technical Paper: the metric for the biodiversity offsetting pilot in England* (Defra, March 2012)

When a development could potentially impact, either positively or negatively, on the known biodiversity interest of a BOA, a biodiversity survey and report should always be required from applicants, to identify both constraints and opportunities. In some circumstances an Environmental Impact Assessment may be needed.

There is obvious commonality around the aspiration for enhancing habitat connectivity within and between BOAs with that for the successful function of **Green Infrastructure** as a network of inter-connected green spaces. Indeed one of the stated outcomes of well-planned, multi-functional Green Infrastructure is to improve habitat connectivity for biodiversity. Depending on decisions appropriate to their individual character, local authorities may decide to incorporate this aspect of biodiversity conservation policy within their strategy for planning Green Infrastructure. If so, it will remain important to reference the methodology and justification underlying BOAs and to cross-refer their existence in a clear and consistent manner. In depth guidance on the synergies of planning for Green Infrastructure and biodiversity is published by the TCPA/Wildlife Trusts[5].

2. The BOA Policy Statements

Each BOA Policy Statement follows a common format. Since origination BOAs have been grouped by their predominant geographic location into respective National Character Areas[6] (NCAs), plus six River BOAs which cut variously across the NCAs. The relevant NCAs include; **Thames Valley**, **Thames Basin Heaths**, **Thames Basin Lowlands**, **North Downs**, **Wealden Greensands** and **Low Weald**.

Each Policy Statement starts with a generic section titled 'Aim & Justification', spelling out the "*overarching purpose*" of BOAs referred to in 1.3 above. This is repeated on all to support stand-alone uses of individual BOA statements. The Policy Statement then presents an individual profile of the BOA, and ends with a set of unique objectives and targets (the "*specific objectives*" of 1.3 above) derived from and contributing to the *Biodiversity 2020* Outcomes. Importantly, the profile section includes a list of 'Key Ecosystem Services' supplied by the BOA, to link with Surrey Nature Partnership's ongoing *Valuing Surrey* project and the analyses appearing in their NCA profiles. Each Policy Statement includes a map of the BOA, showing its location and features of biodiversity importance.

The Policy Statements are intentionally brief, presenting the minimum relevant information to justify their identity and usefulness as an evidence base. Clearly more is now required to help inform and prioritise the action necessary to achieve their individual objectives, as well as to monitor their real effectiveness in serving collectively as a coherent ecological network across

[5] See; *Planning for a healthy environment - good practice guidance for green infrastructure and biodiversity* (TCPA/Wildlife Trusts 2012)
[6] See; http://publications.naturalengland.org.uk/category/587130

and beyond Surrey. This should form a next stage of their development, involving the key stakeholders within particular BOAs (see 3.2 below). Further detail on the structure and content of the Policy Statement format is in **Appendix 1**. The Policy Statements are grouped by NCA and presented as **Appendices 3-9**.

3. Delivering *Biodiversity 2020* - where & how will it happen?

3.1 Some current examples

In actuality, any appropriate biodiversity conservation action delivered successfully after April 2010 is likely to have contributed already to the national *Biodiversity 2020* Outcomes. Some selected examples follow below.

3.1.1 Floodplain grazing-marsh restoration in the River Wey catchment

Following the success of the Stoke Meadows project from 2002-2006, further floodplain restoration work in the Wey Valley (BOA: **R04**) has taken place at adjacent Parsonage Meadows, and also at Shalford Meadows upstream from Guildford. These projects were completed under collaboration between Guildford Borough Council and the Environment Agency; both partners in the Wey Landscape Partnership. Much of the enhancement work on rivers and their associated wetland habitats is currently driven by the requirements of the EU Water Framework Directive and its 'Catchment-based Approach' (CaBA) toward implementation. Obvious associated benefits include improved water quality & quantity (ie. water 'security'), natural flooding alleviation and additional recreation opportunities. There is aspiration for significant escalation of this type of project at Burpham Court Farm, Woking Palace and at Bishop's Meadow at Farnham on the upper Wey, as well as at various reaches on the River Mole. Priority species benefiting from such projects include **Lapwing**, **Yellow wagtail**, **Harvest mouse**, **Otter**, **Water vole** and **Brown trout**.

3.1.2 Calcareous grassland restoration & creation at Priest Hill, Epsom

Significant calcareous grassland restoration and creation is ongoing at Priest Hill near Epsom (BOA: **ND04**), managed by Surrey Wildlife Trust in partnership with Epsom & Ewell Borough Council. The developer Combined Counties Properties Ltd has funded much of this work alongside provision of a site manager's accommodation and maintenance base, as 'planning gain' in advance of a modest development of 15 houses. The site consisted originally of previously-developed land and ex-playing fields and was beginning to suffer fly-tipping, arson and other urban fringe problems. Restoration will eventually see the site become a fully-functioning nature reserve where species-rich chalk grassland, hedgelines and further habitat features are re-established to strengthen an important Green Infrastructure linkage penetrating outer London. Conservation grazing has further enhanced the site for wildlife. Habitat re-creation on

previously-developed land has already attracted the **Small blue** butterfly to the reserve, while the reintroduction of Priority wildflowers **Broad-leaved cudweed** and **Basil thyme** is ongoing. Chalk grassland restoration will benefit breeding **Skylark** and **Linnet**.

3.1.3 Surrey's heathlands

Following a massive programme of heathland and acid grassland restoration in Surrey between the late 1990's and 2007, partly funded under the HLF/Natural England 'Tomorrow's Heathland Heritage' programme, work has continued apace on many of Surrey's heathland sites. With 13% of the national resource, Surrey has an international responsibility for Lowland heathland and the majority is protected under the EU Birds & Habitats Directives. Post-war afforestation converted many heathlands to coniferous woodland and the consensus now is for appropriately-paced clearance to facilitate biodiversity conservation. At the Royal Society for the Protection of Birds (RSPB) Farnham Heath reserve (BOA: **WG02**), this is ongoing in parallel with the reintroduction of specialist Priority species, such as the endangered **Field cricket**. At Blackheath (BOA: **WG06**) Waverley Borough Council continues to reclaim extensive open heathland, with success reflected by increases in both **Nightjar** and **Woodlark** numbers. On Pirbright Common south and west of Brookwood Cemetery (BOA: **TBH04**), the Surrey Heathland Project plans to continue extending open heathland in partnership with Guildford and Woking Borough Councils. New or expanded recreational capacity often results from heathland restoration and creation projects, which can facilitate EU Birds Directive Special Protection Area impact avoidance strategies.

3.1.4 Priority habitat restoration & creation in the Holmesdale Valley

Changing land-uses have provided serious opportunities for habitat gains in the Holmesdale Valley east of Redhill (BOA: **WG11**). With historic and continuing extraction of sand and aggregates, various waste management uses and recent urban expansion, constructive landscape restoration has taken centre stage here for some time. A partnership of industry operators co-ordinated by Surrey County Council is responsible for exacting an extensive programme of habitat creation, resulting in significant areas of open water, reedbed and grazing-marsh as well as native woodland and hedgerow planting, plus some drier grassland. Appropriate recreational use of some restored sites is an important additional benefit from many of these projects, while increased storage capacity on the Redhill Brook floodplain provides enhanced flood alleviation downstream. Priority species responding well here include **Brown hairstreak** butterfly, **Bullfinch**, **Lapwing** and **Reed bunting**, and there are plans to re-introduce **Water voles**.

3.1.5 Wetland creation at Molesey Reservoirs

Molesey Reservoirs (BOA: **TV05**) were formerly three storage tanks adjacent to the River Thames, owned by Thames Water. Following de-commissioning they were identified for

aggregates extraction and eventual restoration, funded by Cemex UK. This is now complete and the site will open as a new 60 hectare wetland nature reserve. Restoration has created a matrix of open water, seasonally flooded grassland and reedbeds. Surrey Wildlife Trust will be the long-term managing partner, and provision of access and recreational infrastructure is still under discussion. **Lapwing**, **Reed bunting** and various **bat** species are already beneficiaries of the restoration work.

3.2 Summary of possible delivery mechanisms

The examples above (3.1.1-5) illustrate some of the mechanisms by which future projects achieving Biodiversity Opportunity Area objectives and targets may arise. Developer contributions, either as required through specific planning obligations and agreements or even via the Community Infrastructure Levy, could fund significant net gains in the area of Priority habitats. Landscape restoration following minerals extraction permissions is a further obvious route to successful gains. A brief summary of some other potential mechanisms follows.

- Major infrastructure projects (including motorway and trunk road widening schemes, tunnelling for pipelines or cables, airport expansion). Compensatory habitat restoration and creation projects could offer potential opportunities here.
- Local and sub-regional flood alleviation projects (including as part of Climate Change adaptation strategies) should be designed to present opportunities for floodplain and other wetland habitat restoration.
- Provision of Suitable Alternative Natural Greenspace (SANG) as required by the Thames Basin Heaths Special Protection Area (and possibly other Natura 2000 sites) Avoidance Strategies, should provide restoration opportunities especially for heathland and acid grassland habitats.
- The new Agri-environment scheme(s) - "Countryside Stewardship", will continue to incentivise land-owners and managers to adjust their estate management positively for biodiversity after the short hiatus of 2014-15. This and ongoing previous schemes can especially serve to drive native woodland restoration, including at plantation Ancient woodland sites (PAWS).
- Corporate Social Responsibility-funded action by private sector sponsors in recognition of a clear business model dependency on key ecosystem services from which they fundamentally benefit.

Ideally, the key stakeholder land managers would unite to form a project delivery partnership active in every BOA, which could then pool its resources and expertise to offer advice on addressing the common issues affecting or constraining achievement of targets. It could keep

abreast of fresh opportunities and direct any new funds according to its agreed priorities. A lead partner may emerge as the most significant in terms of either extent or influence within the respective land-owning community.

A specialist workshop held in November 2014 began population of a definitive live register for potential Priority habitat restoration and creation projects across Surrey. The workshop targeted the Biodiversity Opportunity Areas but interestingly a proportion of these projects fell beyond or adjacent to BOAs. One intended application of the register would be for early identification of potential Biodiversity Offsetting projects in Surrey. An edited version of the register is appended (see **Appendix 2**).

4. References

(Extra to footnotes.)

National Planning Policy Framework (DCLG 2012)

The Natural Choice: Securing the value of nature (HM Government 2011)

Biodiversity 2020: A strategy for England's wildlife and ecosystem services (Defra 2011)

UKNEA: Synthesis of the Key Findings (UK National Ecosystem Assessment 2011)

Planning for biodiversity - opportunity mapping and habitat networks in practice: a technical guide - (English Nature Research Report No. 687, May 2006)

Naturally Richer: A Natural Capital Investment Strategy for Surrey (Surrey Nature Partnership 2015)

Surrey Wildlife Trust Living Landscapes Strategy (SWT 2014)

Catchment Based Approach: Improving the quality of the water environment (Defra 2013)

Surrey Wildlife Atlas Project, Surrey Biodiversity Information Centre (1995-present)

Wheatley, J L (2007). *Birds of Surrey* (Surrey Bird Club)

Surrey Rare Plants Register (emerging Draft; Surrey Botanical Society)

Spelthorne Biodiversity Action Plan 2008-2012 (2008)

Epsom & Ewell Biodiversity Action Plan (Epsom & Ewell Biodiversity Working Group 2012)

Surrey Biodiversity Action Plan (Surrey Biodiversity Partnership 1999)

The Biodiversity of South East England: An Audit & Assessment (TWT/RSPB 1998)

Summary of Evidence: Biodiversity [EIN004] (Natural England 2015)

Surrey Nature Partnership website; http://surreynaturepartnership.org.uk/our-work

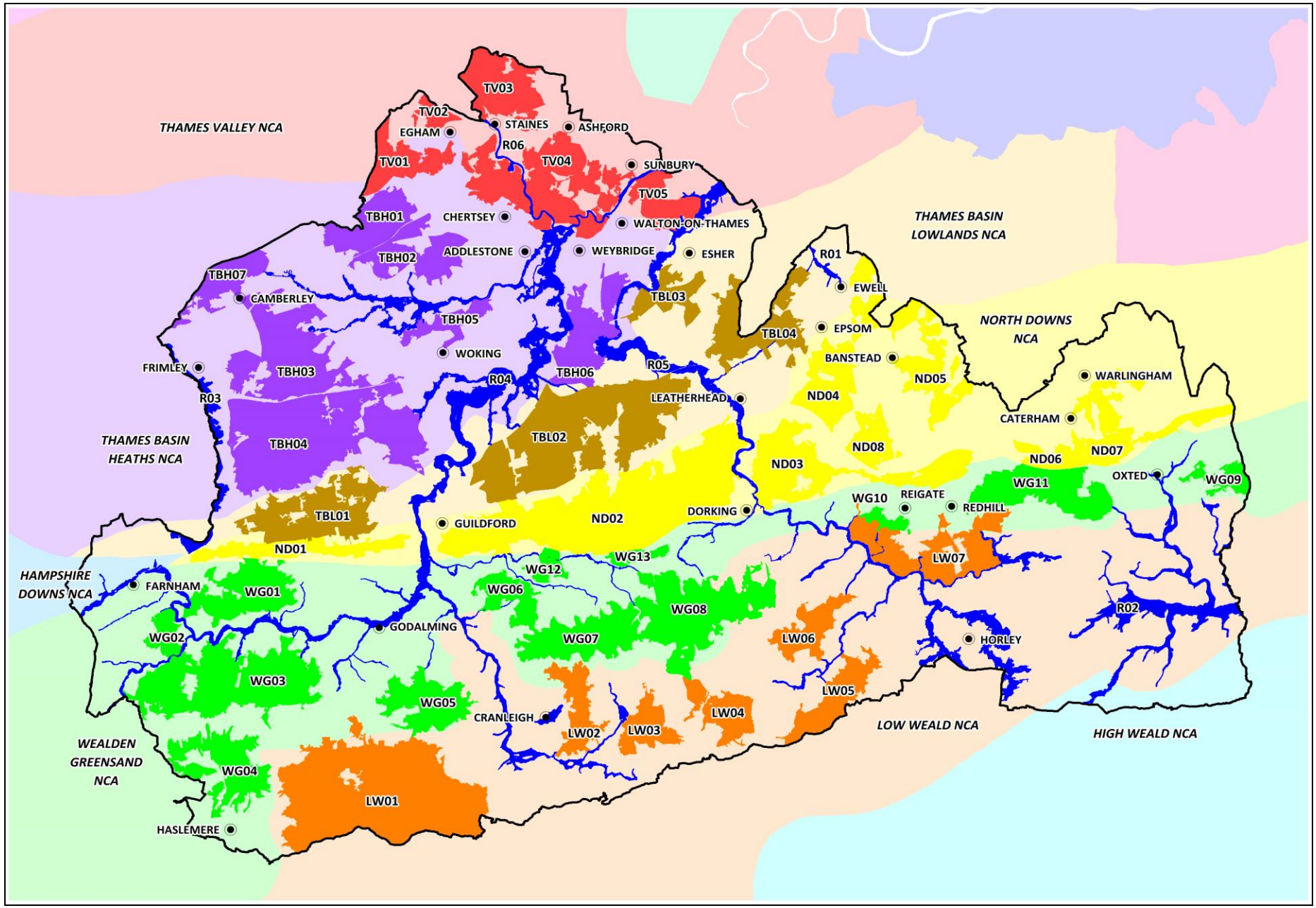
MAGIC website; http://magic.defra.gov.uk/home.htm

Joint Nature Conservation Committee website; http://jncc.defra.gov.uk/page-5705

National Biodiversity Network Gateway; https://data.nbn.org.uk

Biodiversity Action Reporting System website; https://ukbars.defra.gov.uk

Figure 1: Surrey Biodiversity Opportunity Areas



Appendix 1: Biodiversity Opportunity Area Policy Statement format

1-2. Overview and relevant NCA(s): A short summary of the geographic location of the BOA and the presence of important designations; its total area is also included here. The NCA section includes live hyperlinks to relevant NCA Profile documents on Natural England's website. This will help to cross-reference BOA objectives with the 'Statements of Environmental Opportunity' listed for their respective NCAs. Contiguity with neighbouring and cross-border BOAs in adjacent counties is also noted.

3. Profile

3.1 Geology: a brief summary of the geology and topography of the BOA.

3.2 Biodiversity:

3.2.1-2: Any statutory-designated sites, including Special Protection Areas (SPA) & Special Areas of Conservation (SAC), RAMSAR sites, Sites of Special Scientific Interest (SSSI), National & Local Nature Reserves (NNR, LNR); and Areas of Outstanding Natural Beauty (AONB) are listed, even if only part is represented within the BOA. The number of non-statutory biological Local Sites, ie. Sites of Nature Conservation Importance (SNCI) is provided here; their names are included on the map.

3.2.3: Natural Environment & Rural Communities (NERC) Act, Habitats and Species of Principal Importance for the conservation of biodiversity in England (HPI and SPI, or Priority habitats and Priority species) known to occur[7], or to have occurred until recently in the BOA, are listed here. The full title of several HPI includes the forename 'Lowland', but this has been omitted for brevity. In the case of species only common names are used (more detail on these species' status and habitat associations, etc. can be found in Appendix 2 of *Biodiversity & Planning in Surrey* on the Surrey Nature Partnership website). These habitats and species are important as they have been identified (sometimes representatively) as the most threatened nationally, and are therefore the accountable units for measuring progress against *Biodiversity 2020* Outcomes (see 4. below).

3.2.4: This is a list of non-SPI species, of demonstrable rarity, for which site(s) within the BOA are well-known localities. It is not necessarily definitive, in the interests of brevity, but does include SSSI-qualifying species mentioned on SSSI citations. This list will hopefully provide explanation for any apparent omissions or anomalies (for example the SPA-qualifying Dartford warbler, but not a SPI). Again, only common names are used.

3.2.5: This draws attention to the presence of Ancient woodland in the BOA, and of Plantation Ancient Woodland Sites (PAWS, see 4. below).

3.2.6: Includes any existing or recent, funded or voluntary landscape-scale conservation activity within the BOA to date. General abbreviata: SCC-Surrey County Council, SyWT-Surrey Wildlife Trust, BC-Borough Council, DC-District Council, PC-Parish Council.

3.3 Archeology: Summarised from Ordnance Survey maps and the National Heritage List for England.

3.4 Access: Self-explanatory. This list is also a useful pointer to the scale of the Recreational ecosystem service in 3.5.

3.5 Key Ecosystem Services: This uses the widely adopted division and order of the Millennium Ecosystem Assessment, into *Provisioning* (such as the production of food, uses of water and winning of raw materials); *Regulating* (such as the control of climate and disease); *Supporting* (such as nutrient cycles and crop pollination); and *Cultural* (such as recreational and spiritual benefits).

3.6 Socio-Economic: Included primarily to flag potential links with Local Enterprise Partnerships initiatives, as well as the business of the new Surrey Countryside & Rural Enterprise Forum (SCREF).

4. Objectives & Targets: The objectives and targets for Surrey BOAs are derived from *Biodiversity 2020* Outcomes, in order for our local progress to contribute directly towards the national aspiration implied therein.

- Where relevant (ie. where Sites of Special Scientific Interest are present in BOAs), Objective 1 will be "*SSSI units to achieve favourable condition*" with an appropriately aspirational percentage area Target "*..by 2020*). For the few SSSI that are in 100% favourable condition already, Objective 1 is "*SSSI units to maintain favourable condition*". This objective contributes directly to Outcome 1A. Across Surrey's 54 biological Sites of Special Scientific Interest, condition in May 2010 stood at 36.5% Favourable, 57.5% Unfavourable-but-recovering. Many intractable causes underlying

[7] Not necessarily exhaustive for HPI; only the most important for targeted action are listed.

unfavourable condition are likely to constrain achievement of these targets, but they must nevertheless remain significantly aspirational to challenge complacency.

- Also where relevant (ie. Sites of Nature Conservation Importance are present in BOAs) the next/first Objective will be "*SNCI protected by planning policy & in positive management.* (Target: *All by 2020*). This objective relates directly to Outcomes 1A & 1C, and also echoes the aspiration of Single Data List 160-00 (former National Indicator 197). In 2010 41% of 748 SNCI were in positive management.

- The next/first Objective relates primarily to Outcome 1B, but also 1D, as it is concerned with *increasing the net area* of HPI/Priority habitats; "*Priority habitat restoration & creation.* [habitat type]/Target: [x] *ha by 2020*". The area targets here are derived from a national apportioning of the Outcome 1B 200,000 ha target, by Priority habitat type, to relevant National Character Areas[8]. From this analysis, a *minimum* contribution expected from Surrey has been identified, the significant part of which has then been apportioned across BOAs in relation to their comparative size[9]. Targets are rounded to the nearest 0.25 ha. Some minor adjustments to this basic model have resulted from local consultation. Creation targets for Priority native woodland habitats are derived from the total national target, but adjusted downwards to reflect Surrey's comparative wealth in wooded habitats[10]. The targets (in kilometres) for in-channel & bankside enhancement of Rivers are locally derived in consultation with the Environment Agency.

- The last Objective relates to Outcome 3, but is the least robustly identified; "*Priority species recovery*/Target: *By 2020, evidence of at least stabilisation & preferably recovery in the local populations of listed Priority species*". Although all SPI/Priority species listed under 3.2.3 are theoretically implicated here, the majority probably cannot be monitored effectively within realistic budgets if at all (beyond attempts to ascertain their continued presence) and are largely unaccountable for this purpose. A selected short-list across the range of groups present has nonetheless been attempted of species that either could be or are already counted regularly on key sites within the BOA; some may also be indicative of optimal habitat condition, while a few represent ideal re-introduction projects. Consultation on drafts of the Policy Statements has received little input to confidently refine these selections, however. There is developing national guidance summarising collective expert opinion on the action necessary for recovery of all SPI/Priority species[11].

BOA Targets are individually coded using the BOA number; then the Objective number (O1, O2, etc); and then its corresponding Target number (T1, T2, etc). The range of Priority habitats with restoration/creation targets are labelled alphabetically. As an example, the Heathland restoration and/or creation target for TBL03 (Esher & Oxshott Commons), is **TBL03/O3/T3a**. Targets here are necessarily time-bound to the termination of the current national Biodiversity Strategy, ie. 2020. Although we cannot know currently how this will be continued beyond that date, it is sensible to assume that any deficits or indeed over-achievements would be rolled forward in a revised target for the further accounting period, most likely to 2030. BOA Objectives & Targets are compiled in a summary table as **Appendix 10**.

It is acknowledged that a typical biodiversity conservation project may be accountable against more than one objective. For example, the achievement of positive management on an SNCI could well involve the restoration of a Priority habitat, effecting stabilisation or recovery of several Priority species, thus progressing three or more different objectives. Provided this is clearly cross-referenced it should not cause confusion in accounting, and indeed would be applauded for its objective vision! A revised central reporting system for Surrey has yet to be agreed by the Surrey Biodiversity Partnership but will clearly involve SBIC and must interface with the current national version of BARS (Biodiversity Action Reporting System v.2).

[8] See; http://publications.naturalengland.org.uk/publication/4787624740913152?category=5856835374415872

[9] For Heathland; (Dry) Acid grassland; Meadows; Calcareous grassland; Native woodland (in part); Wood pasture & parkland; Floodplain grazing-marsh; Fen; Reedbed; Standing open water/Ponds; Hedgerows (in part). For Arable field margins and Traditional orchards there is no clear rationale to focus action within BOAs.

[10] It is often claimed that Surrey is the most wooded county in England. Whether or not this is strictly accurate, woodland creation *per se.* is of relatively low priority for us. Our priority is the restoration of native woodland, by reinstating sustainable timber extraction sensitive to the habitat requirements of Priority species, as well as the appropriately phased reversion of exotic plantations to native stand-types (especially on Ancient woodland sites).

[11] See; http://publications.naturalengland.org.uk/publication/4958719460769792

Appendix 2: Potential Priority habitat restoration and creation projects across Surrey

BOA no.	BOA name	Borough/District	Location/manager	Project summary
Thames Valley				
TV03	Staines Moor & Shortwood Common	Spelthorne/ Runnymede	Heathrow Airport margins/Stanwell Moor/Colne Valley	Proposed expansion - mitigation/compensation strategy; huge opportunities for Priority habitat restoration & creation
			Hythe End; EA	River Thames Flood Alleviation Scheme (Datchet-Teddington); Floodplain grazing marsh, Standing water/pond creation etc.
TV04	Thorpe & Shepperton		Egham Hythe-Shepperton; EA	
TV05	Molesey & Hersham	Elmbridge	Hersham Golf Club	Adjacent/extension of BOA; opportunity for acid/meadow grassland restoration, pond creation etc.
Thames Basin Heaths				
TBH01-02	Chobham Common North & Wentworth Heaths	Runnymede	DERA/Longcross Estate	Enormous potential for Heathland & Acid grassland creation; Green bridge retrofit over M3
TBH02	Chobham South Heaths	Runnymede	Trumps Farm SANG	Priority habitat creation adjacent to BOA
			Homewood Park, Addlestone	Opportunity to enhance parkland habitats adjacent to BOA
		Surrey Heath/Runnymede	Queenwood Golf Course & Stanners Hill	Priority habitat restoration/creation via SyWT consultancy advice
		Surrey Heath	Chobham Place	Priority grassland creation/restoration
TBH03	Colony Bog, Bagshot Heath & Deepcut Heaths	Surrey Heath/Guildford	Deepcut Barracks; MoD/private	Priority habitat restoration (Heathland & Acid grassland), through SANG provision
		Surrey Heath	Bullhousen Farm/private	Priority grassland creation/restoration opportunities
			Windlesham Golf Course	Beyond BOA; Priority habitat restoration opportunities
			Pirbright Ranges at Donkey Town; MoD/private	SNCI; Acid grassland/Heathland restoration opportunities
TBH04	Ash, Brookwood and Whitmoor Heaths	Guildford	Normandy Common-Henley Park Estate	Priority habitat restoration opportunities
			Merrist Wood College	Various Priority habitat enhancement & species reintroduction opportunities; important herptile interest
			Brittens Pond; SyWT	De-siltation/restoration project
TBH06	Wisley, Ockham & Walton Heaths	Elmbridge	Burwood Park; SCC Highways/private	Adjacent/extension of BOA; potential for Acid grassland/Heathland restoration
		Elmbridge	Whiteley Village/Burhill Golf Club	Potential heathland restoration area
		Guildford	Wisley Airfield	Acid grassland/Heathland restoration & creation opportunities
			RHS Wisley Estate	Priority grassland, woodland & Heathland restoration opportunities
			M25/A3(M); Highways Agency	Green bridges retrofitting opportunities
Thames Basin Lowlands				
TBL01	Wanborough & Normandy	Guildford	Adjacent to Wyke Churchyard SNCI	Various Priority habitat restoration opportunities

	Woods & Meadows		Tongham-Ash Green disused railway	Green corridor & SNCI Priority habitat enhancements/connectivity opportunities
TBL02	Clandon to Bookham Parkland	Guildford/Mole Valley	Effingham Common SANG/land north of Howard of Effingham School	Proposed school relocation & redevelopment; opportunities for Priority habitat restoration & creation, inc. Ancient woodland
TBL03	Esher & Oxshott Commons	Elmbridge	Claremont Park	Currently adjacent to BOA; some parkland potentially restorable to priority grassland habitats
			Little Heath Common	Currently adjacent to BOA; woodland & wetland opportunities with GCN interest
TBL04	Ashtead & Epsom Woodland, Prince's Coverts & Horton Country Park	Epsom & Ewell	Horton Farm, Hook Road Arena & Manor Open Space	Support for maintenance & restoration of Priority habitats on Horton Country Park LNR, Epsom Common & Ashtead Common.
TBL04		Mole Valley	Teazle Wood	Restoration of Ancient woodland; creation/restoration of Ponds
TBL03-TBL04, R05	Ashtead & Epsom Woodland, Prince's Coverts & Horton Country Park/Esher & Oxshott Commons/River Mole	Elmbridge: The Rythe Corridor, Littleworth Common, Ditton Common at Esher/Hinchley Wood	Elmbridge BC/private	Opportunites to extend and connect separate BOAs, plus several isolated SNCI through adjacent farmland. Much of this land is in public authority ownership. Restoration/creation of Priority habitats for restoration/creation include Meadows, Acid grassland, Hedgerows & Ponds
TBL04 (& ND04)	Ashtead & Epsom Woodland, Prince's Coverts & Horton Country Park; Epsom Downs to Nonsuch Park	Epsom & Ewell	Woodcote Stud Farm	Priority habitat restoration to link TBL04 to ND04 (Calcareous grassland, Hedgerows)
		Mole Valley	Farmland centred on Chace Stud. Variety of ownerships - MVDC/Merton College etc.	Corridor linking separate BOAs, includes proposed development sites. Potential for Priority habitat creation
		M25 corridor	Highways Agency	Green bridge over M25 at Teazle Wood
North Downs				
ND01	North Downs Scarp; The Hog's Back	Guildford	Compton Common & surrounds	Beyond BOA: Priority habitat enhancements to link to Loseley Estate
			Puttenham Heath Golf Course	Priority habitat restoration opportunities adjacent to BOA
			Seale Lodge Pit; SITA	Restoration of sand-pit, esp. northern section
		Waverley	Runfold Quarry restoration site; SITA	Opportunity to steer restoration obligations to complement adjacent BOA
ND02	North Downs Scarp and Dip; Guildford to the Mole Gap	Guildford/Mole Valley	Albury Downs-Denbies Hillside (SyWT/NT)	Maintenance & restoration opportunities to strengthen Priority habitat connectivity along scarp
			Effingham Forest (FC/private)	Extensive Native woodland restoration opportunities, with linking function to Sheepleas & beyond
			Denbies Vineyard	Priority habitat restoration opportunities within non-vine areas.
		Guildford	A246 Burpham-Sheepleas; SCC Highways	Calcareous grassland creation opportunities alongside A246
			Albury Sand-pit/tip	Priority habitat restoration/creation opportunities; Calcareous & Acid grassland, Native woodland

			Tyting Farm	Calcareous grassland restoration opportunities; proposed SANG
			Warren Farm/Rosamund Trust land (corridor Pewley-Merrow Downs)	Priority habitat restoration/creation opportunities; Calcareous grassland, Native woodland; Small blue butterfly project target area
ND03	North Downs Scarp; Mole Gap to Reigate	Mole Valley	Brockham/Betchworth limeworks/SyWT	Calcareous grassland restoration opportunities
			Maybury Farm/private	Priority habitat restoration opportunities (Calcareous grassland); part SSSI
ND04	North Downs; Epsom Downs & Nonsuch Park	Epsom & Ewell	Eastern Green corridor Cheam-Epsom Downs	Opportunities to enhance corridor linking Nonsuch Park, Howell & Priest Hill to Epsom Downs & wider countryside.
			Epsom Downs	Priority habitat restoration on racecourse & Juniper Hill (Small blue recovery project relevant)
			Langley Vale Farm (Woodland Trust)	Calcareous grassland/Native woodland/Arable margin creation opportunities.
ND05	North Downs; Banstead Wood & Downs & Chipstead Downs	Reigate & Banstead	A23(T) corridor Coulsdon-Reigate	Priority habitat connectivity opportunities throughout area; especially Hedgerows, headlands etc.
Wealden Greensands				
WG01	Puttenham & Crooksbury	Waverley	Binton Farm, Hampton Estate	Priority habitat enhancement & creation opportunities adjacent to BOA
			Farnham Golf Course	
WG02	Farnham Heaths		Bourne Wood; Forestry Commission	Priority habitat restoration potential; Heathland, Acid grassland, Native woodland. Important Sand lizard populations requiring connectivity management
			RSPB Farnham Heath	
			Sable Wood; private	Native woodland & Heathland restoration opportunities realised by private owner
WG03-WG04	Thursley, Hankley & Frensham Heaths/Devil's Punch Bowl & Hindhead Heaths		Pitch Place/Truxford Brook corridor (Thursley-Beacon Hill)	Priority habitat restoration & creation to enhance key corridor opportunities between BOAs
WG04-LW01	Devil's Punch Bowl & Hindhead Heaths/Chiddingfold & West Weald Woodlands		Holmen's Grove & Boundless Copse; Forestry Commission	
WG05	Hascombe, Winkworth & Hydon's Heath & Woodlands		Winkworth Arboretum	Wetland habitat creation opportunities, inc. Reedbeds
WG07	Winterfold & Hurtwood Greensand Ridge	Guildford	Upper Tillingbourne headwaters	Wet woodland restoration opportunities (Rhododendron control)
WG08	Leith Hill, Wotton, Abinger & Holmwood Greensand Ridge	Mole Valley	Coldharbour (Forestry Commission/NT/Wotton Estate)	Priority habitat restoration opportunities (Heathland, Wet woodland) east to A24
WG09	Limpsfield Heaths	Tandridge	Limpsfield (High) Chart	Potential for Heathland & Acid grassland restoration from mixed woodland plantation
			Moorhouse Sand-pits, Limpsfield	Beyond BOA; sand-pit restoration ongoing, connection with SNCI

WG10-LW07	Reigate Heaths/Earlswood & Redhill Commons	Reigate & Banstead	Buckland Sand-pit	Beyond BOA; sand-pit restoration pending - Priority habitat creation opportunity
WG11	Holmethorpe & Bay Pond	Tandridge/Reigate & Banstead	Nutfield Marshes Living Landscape	Further Priority habitat restoration & creation opportunities west of M23; south to Nutfield Ridge; Tilburstowhill/Graham Hendrey NR
Low Weald				
LW01	Chiddingfold & West Weald Woodlands	Waverley	Dunsfold Aerodrome; private	SNCI enhancements, Native woodland, Meadows, Ponds restoration & creation opportunities under any proposed development scheme
LW04-LW07	Vann Lake/Glovers Wood & Edolph's Copse/ Newdigate/Earlswood & Redhill Commons	Mole Valley/Reigate & Banstead	multiple	Opportunities for significant uplift in SNCI/Ancient Native woodland & Hedgerow restoration across this area delivered through Gatwick Greenspace Project/Woodland Trust initiative
LW06	Newdigate Woodland	Mole Valley	former Schermuly site, Parkgate	potential SNCI; opportunities for enhancement & Priority habitat restoration (part-developed)
			Beare Green Brickworks/clay-pit	Adjacent to BOA; active clay-pit with eventual Priority habitat restoration potential
LW07 (& WG11)	Earlswood & Redhill Commons-River Mole	Reigate & Banstead/Tandridge	Redhill Brook/The Moors; SCC & SyWT	Potential flood alleviation/Priority habitat restoration in partnership with minerals sector
LW07			Earlswood Lakes, Reigate	Poor water quality; potential enhancement via strategic project
Rivers				
R01	Hogsmill River	Epsom & Ewell	Epsom & Ewell High School/private & public authority	Opportunities for wetland creation/riparian enhancements throughout river corridor & cross-border into GL
R02	Eden & tributaries	Tandridge	Blindley Heath, British Wildlife Centre	Wetland habitat creation opportunities, inc. for Water vole reintroduction
			Hedgecourt SSSI; SyWT	Adjacent to BOA; Native woodland restoration opportunities
R03	Blackwater River	Waverley/Guildford/Surrey Heath	multiple	Priority habitat creation opportunities throughout Blackwater Valley, including via SANG provision
R04	River Wey & tributaries; Lower	Elmbridge	Mercedes Benz World; private	Opportunity for Priority grassland habitat restoration/creation
			Brooklands Estate	Restoration/creation opportunities through CSR/corporate sponsorship
		Woking/Elmbridge	Manor Farm, Byfleet (SyWT)	Support for further restoration of Floodplain grazing marsh
		Woking	Woking Palace-Burhills Estate	Floodplain grazing marsh creation/restoration delivered through development proposals/SANG provision
			Hoe Stream, Mayford-Old Woking	Hoe Stream Flood Defence scheme; Priority habitat restoration opportunities
		Guildford	Send Hill-Cricket's Hill	Former tip - Priority habitat creation opportunities

			Burpham Court Farm/Slyfield Area Regeneration Programme (public authority)	Floodplain grazing marsh creation/restoration plus in-channel enhancements on the River Wey
			Sutton Place; private	Potential wetland habitat creation
	River Wey & tributaries; Upper	Waverley	Lammas Lands, Godalming (public authority)	Opportunity for Floodplain grazing marsh creation/ restoration & reconnecting meanders.
			Eashing-Peper Harow Park	Floodplain grazing marsh enhancement opportunities plus in-channel enhancements
	River Wey & tributaries; North Wey		Bishops Meadow, Farnham (private trust)	Floodplain grazing marsh creation/restoration plus in-channel enhancements on the River Wey
			Snails Lynch, Farnham (private)	
			Bourne Stream, Farnham	Connectivity opportunities delivered through development proposals/SANG provision, eg. Compton Fields
			Wrecclesham Sand-pit	BOA adjacent; restoration opportunities
	River Wey; Cranleigh Waters		Knowle Park Estate; private	Priority habitat creation/restoration under proposed development scheme
		Waverley/Guildford	Wey & Arun Canal (former course)	Priority habitat creation/restoration opportunities alongside canal restoration project
	River Wey & tributaries; Addlestone Bourne	Surrey Heath	Windlesham Arboretum	Wet woodland restoration opportunities
			Rambridge Farm	Conservation grazing opportunities on floodplain grassland
			MacLaren Park	Wetland habitat creation opportunities
	throughout		multiple	In-channel fish migration barrier removal/by-pass projects
				Relict oxbow reconnection projects
R05-TBL03	River Mole & tributaries/Esher Commons	Elmbridge	Polyapes Scouts Camp, Little Heath Common; Elmbridge BC, Knowle Hill Park; private	Key corridor opportunity Oxshott-Cobham; Native woodland, Priority grassland enhancements
R05	River Mole & tributaries; Lower		Garson Farm-Southwood Manor Farm, West End; private	Floodplain grazing marsh enhancement opportunities
			Painshill Park-Cobham Free School; private	
			Cobham Park	Parkland, Wet woodland & riverside habitat enhancement opportunites; sympathetic landowner
		Mole Valley	Bookham-Fetcham	Potential to extend woodland to M25; Fetcham Splash enhancement opportunities via development in Leatherhead
			River Lane, Fetcham; Mole Valley DC	Part SNCI; Rye Brook-Mole confluence - Floodplain restoration potential, with grazing
			Common Meadows, Thorncroft; Merton College	Floodplain & common land; work by Lower Mole Project & occasional grazing. Further enhancement potential

			River Mole Island, Fetcham Grove; MVDC & private	Enhancement opportunities; Wet woodland & Floodplain grassland/Reedbed
(& TBL04)			Ashtead Rye Meadows; private	Ashtead Rye Living Landscape; work ongoing. Opportunity to reconnect Rye Brook to floodplain, in-channel enhancements
R05	River Mole & tributaries; Middle		Brockham-Betchworth floodplain margins; private	Wet woodland enhancement opportunities
			Pipp Brook; various ownerships	In-channel fish migration barrier removal/by-pass projects
			Pipp Brook-Milton Heath; MVDC	Opportunities for further Heathland restoration
			The Deepdene; various ownerships/leases inc. MVDC & Kuoni plc	Beyond BOA; Parkland & Meadow restoration
	River Mole & tributaries; Burstow Stream	Reigate & Banstead/Tandridge	Burstow Stream, Horley-Copthorne inc. Langshott Wood	Various opportunities for floodplain restoration, Reedbed creation & other in-channel enhancements along tributary
	throughout		multiple	Opportunities for heritage/biodiversity co-restoration; old water mills, pill-box & bridge conversions for eg. bats
				In-channel fish migration barrier removal/by-pass projects
R05-LW05		Reigate & Banstead/Tandridge/Mole Valley	Gatwick Airport	Proposed expansion - mitigation/compensation strategy; huge opportunities for Priority habitat restoration & creation