

London Geodiversity Action Plan 2014-2018



A framework for understanding, conserving and using the unique wealth of geodiversity resources found within our capital, so that social, economic and environmental benefits are provided to London's urban communities and many visitors.



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What is geodiversity and why is it important?

The diversity of geological and geomorphological heritage across London provides an invaluable natural resource that underpins many aspects not only of London's natural environment, but also of society, economy and where and how people live. 'Geodiversity' is found beneath our feet and within the built environment, shapes the landscape around us, contributed to our industrial past, underpins biodiversity and influences art, architecture and design.

Geodiversity has been defined as: *'The natural range (diversity) of geological (rocks, minerals, fossils), geomorphological (landform and processes), soil and hydrological features. It includes their assemblages, structures, systems and contributions to landscapes'*¹.

Amongst the wider services that geodiversity provides are: training, education and lifelong learning; a contribution to 'sense of place'; recreation and geo-tourism; aesthetic qualities and well-being.

Developing a good understanding of London's geodiversity and the services it provides also contributes to the sustainable management of natural resources (such as groundwater, brick clay, chalk for cement and gravel for aggregates) and the earth's changing natural systems (such as mitigating against natural subsidence, unstable ground and responding to climate change).

It is for all these reasons that the geodiversity of London should be understood, managed and used for the benefit of the present generation and conserved for future generations.

What is special about London's geodiversity?

London has a large population, receives many visitors and is linked together by a dense transport network. In this way it is very unlike a rural regional area. The 'rocks' may be less evident, but there is nevertheless a unique wealth of geodiversity resources. These resources are also available and accessible to a large number of people, including local communities, tourists and those travelling for business purposes.

The continual evolution of the city means that there are ongoing opportunities to view and understand the geology beneath our feet and identify the influence of natural processes. Where appropriate a geodiversity focus may also be included within the final design of a new development.

London's geodiversity:

- is available and accessible to a large number of people;
- comprises a unique wealth of resources; and,
- has shaped the development of a major world city.

Museum and art collections in London are vast and internationally outstanding and contain artefacts and images of relevance to geodiversity that can be promoted and used for life-long learning.

Greenspace is exceedingly important within an urban area and the underlying geology has shaped many of the open places of London (such as Hampstead Heath). In addition, Geodiversity activities (such as geo-walks, building stone trails and 'hands-on' experiences for children) provide one way of experiencing the 'outdoors' and contributing to health and well-being.

Just some of the many other contributions geodiversity has made to London are described on the following page.

¹ Gray, M. (2013) *Geodiversity: Valuing and conserving abiotic nature*, 2nd edition, Wiley Blackwell, Chichester.

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How has geodiversity influenced the development of London?

The geodiversity of London has greatly contributed to its development, providing both opportunities and constraints that need to be understood and managed. The list below identifies just some of these. More detailed descriptions of London's geodiversity heritage is found within the *London's Foundations Supplementary planning guidance*² and the publication: '*Geology of London*'³.

- The River Thames and its tributaries and the associated gravels provided the initial focus for Palaeolithic and later habitation including the developing City of London, supplying water and forming a major route-way;
- The Chalk aquifer at depth beneath London, controlled by the structural geology of the region, now provides much of the population's water supply and has allowed for the greater expansion of the city;
- Mineral springs formerly existed in London, derived in gravels but absorbing salts when passing through the underlying London Clay. Similar springs outside London at Epsom gave rise to the term 'Epsom Salts';
- The structure and wide presence at depth of the London Clay Formation has contributed to the development of the London Underground tube network;
- The presence of the River Thames and the low-lying basin of London, again controlled by the structural geology contributes to the need to protect London from sea level rise;
- Characteristic landscapes are shaped by the underlying geology and subsequent geomorphological processes. These include dry valleys

within chalk downlands (particularly in south London) and river terraces, forming long flat areas, separated by steeper slopes (particularly in North London);

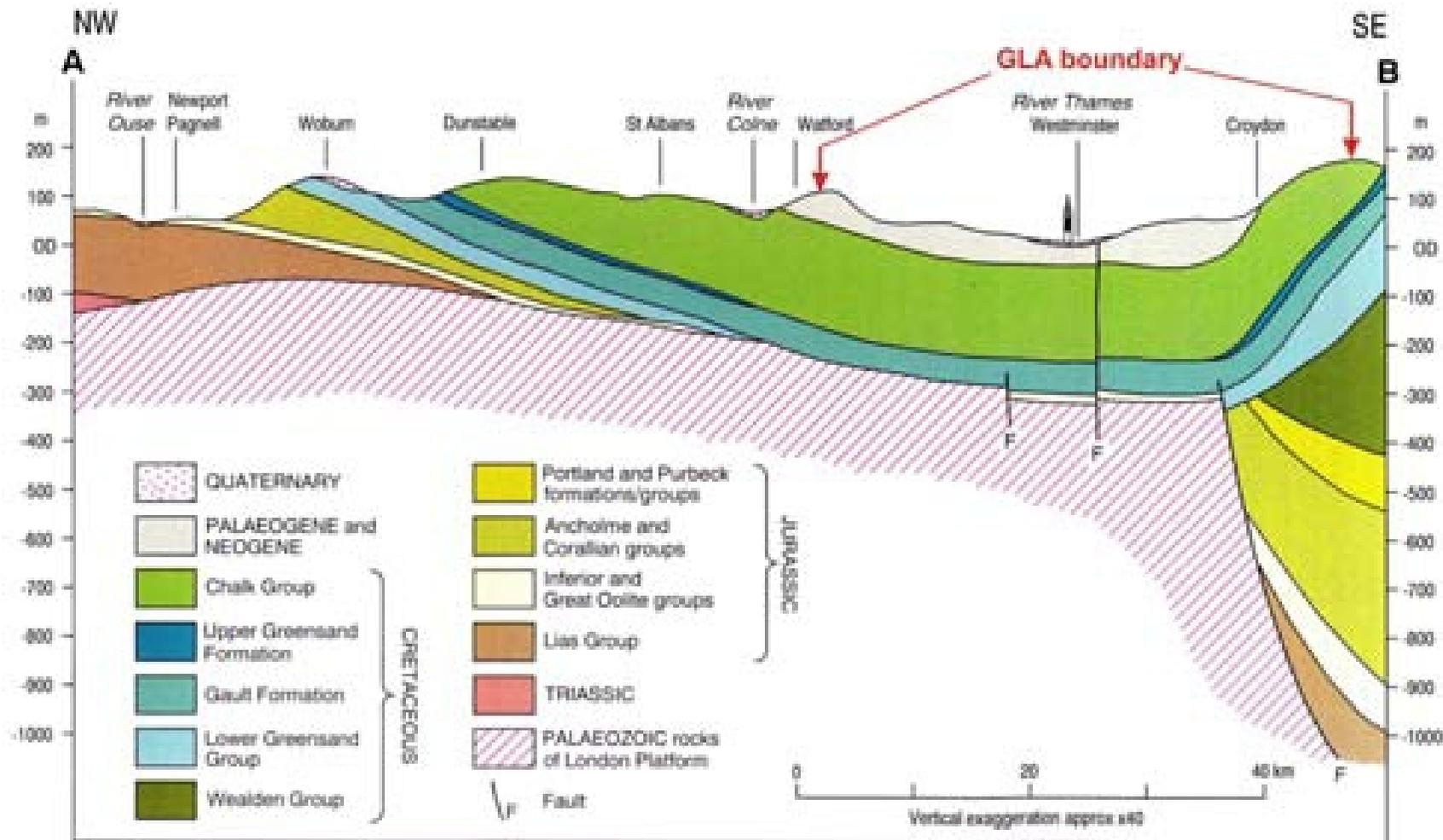
- Chalk for cement, clay for bricks, glass sand and flint for building have all been extracted in London and evidence of past and current industry remains today;
- Most aggregate and building stone resources have been supplied from elsewhere, meaning London now contains a wider geodiversity than that simply found *in situ*. The building stone resource in London is vast – Kentish Ragstone and Reigate Stone have been used since Roman times and London as redesigned by Wren shipped in Portland Stone from Dorset. The Victorians used granite from Scotland and south-west England. Today cladding techniques have greatly increased the range of rock types utilised with sources now from across the world. Leicestershire and the Mendips provide two major sources of aggregates, which have greatly contributed to the development of London.

² Greater London Authority (March 2012) *Green infrastructure and open environments: London's foundations: protecting the geodiversity of the capital*, Supplementary planning guidance London Plan 2011 implementation framework, Greater London Authority, ISBN: 978 1 84781 503 3.

³ Ellison, R. A. *etc. al.* (2004) *Geology of London*, Special Memoir for 1:50 000 Geological sheets 256 (North London), 257 (Romford), 270 (South London) and 271 (Dartford) (England and Wales), British Geological Survey, ISBN: 0 85272 478 0.

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Geological section showing the London Basin syncline⁴



⁴ After Sumbler, M. G. (1996) *British regional geology: London and the Thames Valley*, 4th Edition, British Geological Survey (Reproduced as Figure 8 in the 'London's Foundations' Report)

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What recognition is given to geodiversity?

Geodiversity is recognised as an important aspect of nature conservation in its own right and it is a material consideration within planning decisions. This is reflected in national planning policy (*National planning policy framework*⁵ - *NPPF*) and related legislation (*Wildlife & Countryside Act 1981*, *Countryside & Rights of Way Act 2000*). In particular, the planning system should protect and enhance valued landscapes, geological conservation interests and soils;

Recognition for sites of importance for geodiversity

In Great Britain, key sites of national geological importance were identified through the Geological Conservation Review (GCR), an audit mainly completed between 1977 and 1990 to provide a representation of the great diversity of British geology. GCR sites were selected on the basis of their scientific value and the majority of these sites have since been designated SSSIs by the relevant country statutory nature conservation agency and receive legal protection. The *Countryside & Rights of Way Act (2000)* strengthened existing protection for SSSIs with a stronger emphasis on management as well as conservation and with third party damage to such sites now being a prosecutable offence. Natural England is responsible for the network of SSSIs in England. The 'best' SSSIs for public enjoyment may also be designated National Natures Reserves (NNRs). 7 SSSIs are found within London:

- Lesnes Abbey Wood (Bexley)
- Gilbert's Pit (Greenwich)
- Harrow Weald (Harrow)
- Hornchurch Cutting (Havering)
- Elmstead Pit (Bromley)
- Harefield Pit (Hillingdon)
- Wansunt Pit (Bexley)

Non-statutory designations currently include Local geological sites, formerly known as Regionally important geological or geomorphological sites (RIGS). This term has been generally adopted to follow the recommendations within Defra guidance⁶). Significantly, the guidance produced by Defra on local sites gives the same weighting to geological and geomorphological sites as it does to wildlife (species and habitats) sites. In contrast to GCR sites, a wider range of criteria is taken into consideration in selecting local sites, including the value of the site for education, life-long learning, history and aesthetics; with consideration also given to access and safety issues. Defra guidance indicates that: '*local site systems should select all areas of substantive value including both the most important and the most distinctive*'. Local sites with a high degree of natural interest and/or of a high value for education may also be declared and managed as Local Nature Reserves (LNRs) by local authorities and are then afforded legal protection (as amended by the *Natural Environment and Rural Communities Act 2006*).

In London, a unique two tier system distinguishes wildlife sites of importance for the London Region from wildlife sites of local borough importance. The designation of geological sites in London mirrors this approach. RIGS have importance at the London region level and Locally Important Geological and Geomorphological Sites (LIGS) have importance at the borough level.

Local site systems are managed by local partnerships and the London Geodiversity Partnership has responsibility for the identification, designation and promotion of management of London's RIGS and LIGS. *London's foundations*⁷ reported on an initial geodiversity audit for London, with 14 candidate RIGS and 15 candidate LIGS identified. Further potential sites were also identified. *London's foundations* was updated as supplementary planning guidance by the GLA with the assistance of the London Geodiversity Partnership and 14 further RIGS were proposed, with 9LIGS being deleted after

⁶ Defra (2006) *Local Sites Guidance on their Identification, Selection and Management*.

⁷ Greater London Authority (March 2009) *London's Foundations: Protecting the Geodiversity of the Capital*, The London Plan (Spatial Development Strategy for Greater London) London Plan Implementation Report, Greater London Authority, ISBN: 978 1 84781 250 6.

⁵ CLG (2012) *National planning policy framework*, HMSO.

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re-evaluation and a further 9 being proposed. The full list of Proposed RIGS and LIGS is contained in Annex 1.

This London GAP suggests a process for designating these sites, enabling them to be formally recognised by the local boroughs and become a material consideration in planning decisions.

The set of *National Indicators for Local Authorities*⁸ includes NI 197 (*Improved local biodiversity – proportion of local sites where positive conservation management has been or is being implemented*). Whilst not explicitly included in the title, this indicator does include the identification of positive management at geological sites. Therefore, once RIGS and LIGS are designated in London, there is a mechanism in place for assessing the performance of the local boroughs in managing these sites.

Recognition for geodiversity within the wider environment

Whilst identifying key sites is important, the concept of geodiversity is much broader in its application. The NPPF indicates that planning policies should aim to prevent harm to geological conservation interests; recognising the hierarchy of international, national and locally designated sites so that protection is commensurate with their status and gives appropriate weight to their importance and the contribution that they make to wider ecological networks.

Recognition for geodiversity within London

In London, PPS9⁹, which has now been replaced by the NPPF, informed the development of Policy 7.20 in the *London Plan*¹⁰ which underlines the need to protect and promote London's geodiversity and sets the strategic context for the local boroughs.

Policy 7.20 states that:

A. Development proposals should:

- a. Wherever possible, make a positive contribution to the protection and enhancement of geodiversity;
 - b. Be resisted where they have significant adverse impact on sites with existing or proposed European or national designations in accordance with Government guidance;
 - c. Protect regionally important geological sites (RIGS); and
 - d. Give locally important geological sites (LIGS) the level of protection commensurate with their importance.
- B. In their Local development frameworks, boroughs should:
- a. establish clear goals for the management of identified sites to promote public access, appreciation and interpretation of geodiversity;
 - b. ensure sites of European, national or regional conservation importance are clearly identified; and
 - c. use the guidance set out in *London's foundations* (2009) and work with appropriate organisations to investigate additional sites that may be of value in the local area and afford them the appropriate level of protection in LDFs.

It emphasises that new development should have regard to the conservation of geological features and should take opportunities to achieve gains for conservation through the form and design of development. The Mayor published *London's foundations* as implementation guidance in 2009 and updated it as supplementary planning guidance in 2012.

⁸ CLG (2009) *National Indicators for Local Authorities Local Authority Partnerships: Updated National Indicator Definitions*.

⁹ ODPM (2005) *Planning Policy Statement 9 (PPS9): Biodiversity and Geological Conservation*, HMSO.

¹⁰ Greater London Authority (2011) *The London Plan*.

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What is a Local Geodiversity Action Plan (LGAP)?

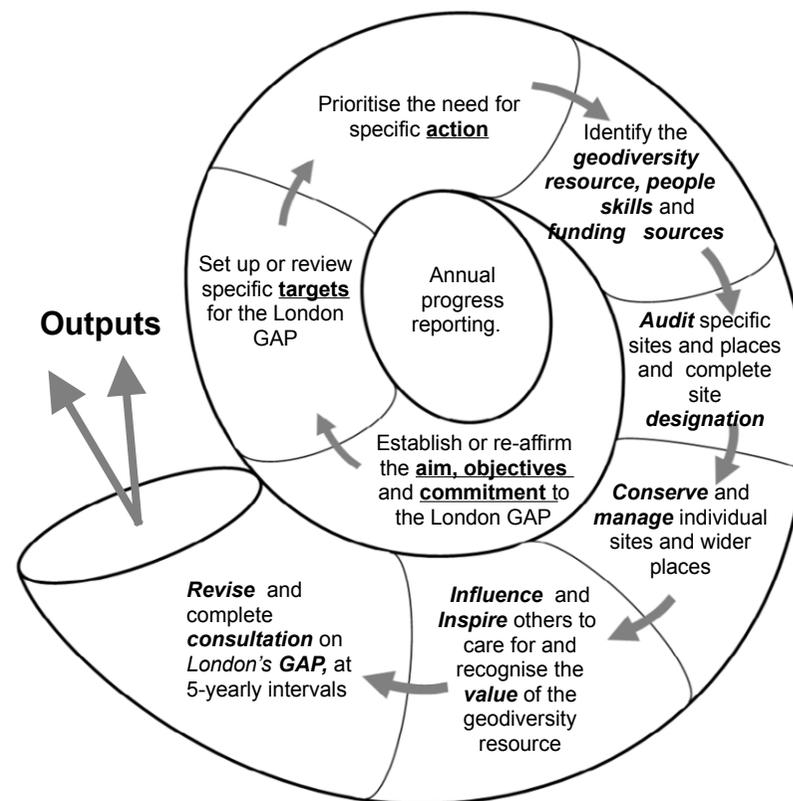
An action plan breaks down large complex initiatives into an aim, objectives, targets and achievable actions. It assists in focussing on tasks that matter; in the case of an LGAP, on activities that are going to assist with understanding, conserving and sustainably using the geodiversity resource. Partnership working, including a lead organisation, is critical to the success of an LGAP. An English Nature research report¹¹ provides the rationale for LGAPs, drawing on the experience of Local Biodiversity Action Plans and suggesting models for LGAPs. A guidance note has subsequently been produced, drawing on this earlier work¹².

Whilst it is important to set targets and actions within a timeframe, many actions form part of ongoing activities, such as: auditing geodiversity sites and places; designating sites; contributing to management plans; undertaking management and conservation activity; and influencing and inspiring others to value, care for and make use of the geodiversity resource. The diagram opposite illustrates this cyclical nature of an LGAP and the need to monitor progress, report on activity and revise the LGAP at suitable intervals. An annual report on progress is suggested with a complete review of the London GAP taking place at 5-yearly intervals.

Why develop a London GAP?

The LondonGAP 2009-2013 was developed by the London Geodiversity Partnership to raise the value placed on the geodiversity resource in London and ensure its sustainable use in keeping with policy. This Partnership has reported annually on progress with its implementation and this revision takes the London Gap forward over the years 2014-2018. A summary of the progress achieved during 2009-2013 is contained in Annex 2. In addition, a national ‘driver’ has been developed – the UK Geodiversity Action Plan (the UKGAP)¹³ provides a

shared context and direction for geodiversity action and a means of celebrating success. The London GAP contributes towards the aims and objectives of the UK geodiversity action plan



The boundary of the London GAP (the City of London and the London Boroughs) within the context of the surrounding areas.

¹¹ Burek, C. and Potter, J. (2004) *Local Geodiversity Action Plans: Setting the Context for Geological Conservation*, English Nature Research Report 560, ISSN 0967-876X.

¹² English Nature (2004) *LGAPs: Sharing Good Practice*, ISSN 1 85716 839 9. Available to download at: www.mineralsandnature.org.uk/downloads/localgeodiversity.pdf

¹³ The latest draft of the UKGAP is available to view at: www.geoconservation.com/GCCdocs/UKGAP/UKGAP1Oct08.doc

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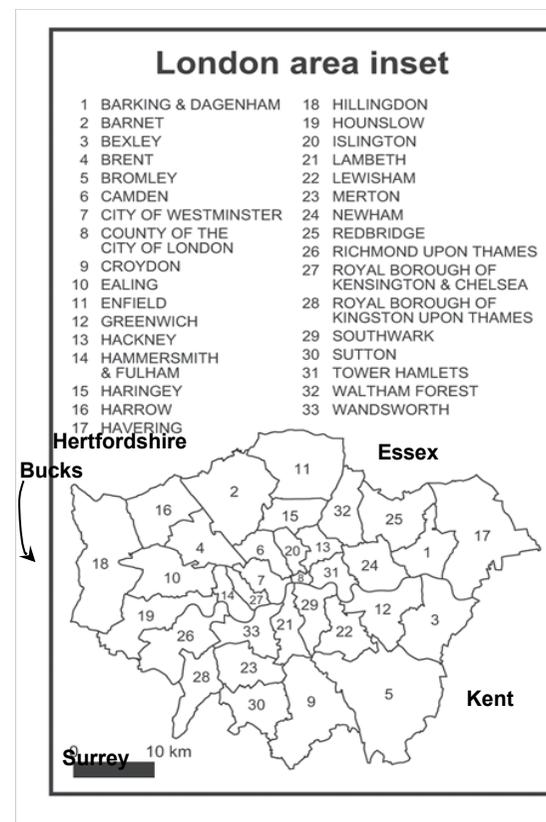
What is the role of the London Geodiversity Partnership?

The London Geodiversity Partnership has taken the lead in developing and co-ordinating the London GAP. However, delivering the London GAP across a broad spatial scale cannot be achieved without the collaborative work of stakeholder organisations. Geodiversity partnerships seek to share good geodiversity practice, influence regional policy and establish cross-regional working for geodiversity. Whilst the geodiversity partnerships are all developing their own ways of working, they do have a number of common functions which are:

- To provide a regional network for organisations, groups and individuals involved in geodiversity;
- To provide a regional voice and profile for geodiversity;
- To influence regional planning, policy development and practice;
- To share good practice; and,
- To work to find opportunities for cross-regional activities.

Who can we contact to find out more?

For further information, please contact: info@londongeopartnership.org.uk.



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The aim of the London GAP:

To provide a framework for understanding, conserving and using the unique wealth of geodiversity resources found within our capital, so that social, economic and environmental benefits are provided to London's urban communities and many visitors.

The draft UKGAP provides 6 objectives, which, between them, set the focus for all the actions generally undertaken as part of an LGAP. These UKGAP objectives can be tailored to the requirements of the London Region. In this way, the contribution the London GAP makes to the national understanding and sustainable use of geodiversity can be directly measured and successes easily identified. Targets and actions within this 2nd edition of the London GAP (shown on pages 11- 17) are grouped under these 6 objectives.

The objectives of the London GAP

Objective 1: Increase our understanding of the geodiversity of London

To encourage a better understanding of geodiversity and the wider role that geodiversity plays in our environment, through research, audit and review.

Objective 2: Manage and conserve the geodiversity of London

To support the identification and designation of geodiversity places and to support the management and conservation of geodiversity within the context of the wider environment.

Objective 3: Deliver sustainable social, economic and environmental benefits for London

To encourage better utilisation and understanding of geodiversity benefits, widening the value and relevance people place on geodiversity. To encourage the better use of geodiversity in understanding natural processes and helping make decisions on future environmental management.

Objective 4: Promote and care for London's geodiversity

To support the wider involvement of people in geodiversity through accessible life-long learning, geo-tourism and conservation activities.

Objective 5: Sustain geodiversity activities in London

To increase the resources available to support geodiversity-related activities and encourage the development of the London GAP.

Objective 6: Influence London-wide and London Borough planning and environmental policies

To encourage the development, implementation and sharing of geodiversity policies at all levels and to achieve much greater integration of geodiversity into existing policies.

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How to read this action plan

The plan is presented as tables showing the targets that have been set under each of the six objectives and the corresponding actions.

OBJECTIVE	TARGETS	ACTIONS
<p>The objectives of the London GAP are generic and would generally remain consistent from one revision of the plan to the next, providing the means to realising the London GAP aim. They provide the framework for the rest of the plan; the core principles behind the work that is proposed</p>	<p>Targets relate directly to the objectives under which they are placed (although there are often links to other objectives). They describe the end result; what is wanted to be achieved. They provide a means of monitoring progress.</p>	<p>Actions identify the work that needs to be completed to meet each target.</p> <p>An action may contribute to more than one target and where that is the case, cross references are provided.</p> <p>Some actions may need to be completed before others can commence. Again, where that is the case, cross references are provided.</p> <p>Actions are colour coded according to priority, those of highest priority (largely ongoing actions) are in red type, those of medium priority (which should be underway by 2016) are in brown type and those of lowest priority are in green type</p>

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OBJECTIVE 1: Increase our understanding of the geodiversity of London

TARGETS	ACTIONS
<p>1.1. Extend the audit of London's geodiversity places to identify sites of local, national and international importance in addition to those identified in <i>London's foundations</i>.</p>	<p>1.1a. Continue desk study research and fieldwork to extend the selection of geodiversity sites in London, particularly in those parts currently lacking in them (eg Central and South-west London).</p> <p>1.1b. Update and disseminate the report on the audit of London's geodiversity (<i>London's foundations</i>).</p>
<p>1.2. Complete an audit of geodiversity archives and resources, including: Government institutions, national and borough collections In museums, libraries, record centres, galleries and educational institutions; relevant bibliography; ongoing projects; and a network of people with key skills</p>	<p>1.2a. Continue contacting relevant departments and organisations to establish national and local borough geodiversity archives and resources.</p> <p>1.2b. Include historical and geological publications, websites, photographic imagery, paintings and artefacts, specimens, bibliography, ongoing projects and their available use; and people with key skills.</p> <p>1.2c. Establish and maintain a 'geodiversity archives and resources register'.</p>
<p>1.3. Complete research to understand better the building stones resource within London's buildings.</p>	<p>1.3a. Update and disseminate the report <i>Building London on the Partnership's</i> website as the need arises.</p>
<p>1.4. Complete research that explores the links between geodiversity, archaeology and other aspects of the natural and built environment.</p>	<p>1.4a. Publish as a Natural England research report and disseminate the scoping study on the links between park and garden design and geodiversity</p>

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OBJECTIVE 2. Manage and conserve the geodiversity of London

TARGETS	ACTIONS
<p>2.1. Formally designate the sites recommended in <i>London's foundations</i> (2012) along with any further sites identified and assist in increasing their protection from the adverse effects of development</p>	<p>2.1a. Publish any necessary updates to proposed sites through the GLA website..</p> <p>2.1b. Attend London biodiversity forum and local nature partnership meetings as required to promote designation of RIGS and LIGS and give advice on sites. – See also objective 6 on borough planning policies.</p> <p>2.1c. Update the information on geodiversity sites to Greenspace Information for Greater London (GiGL), the capital's local environmental records centre.</p> <p>2.1d. Encourage the Boroughs to use the designated RIGS and LIGS to contribute to NI 197 (provided active management is occurring), especially making a difference where Boroughs have NI 197 set as a stretch target.</p>
<p>2.2. Establish a set of geodiversity places that are accessible and suitable for use by local communities and visitors for leisure, education and research; and that are integrated with other places of interest.</p>	<p>2.2a. Inspect and report on all recommended sites at least once during the period of the action plan to identify any cause for concern with regard to the accessibility or visibility of the features of geodiversity interest.</p> <p>2.2b Promote the undertaking by appropriate bodies of site condition improvement at 2 of London's SSSIs currently in unfavourable condition (Gilbert's Pit and Harefield Pit).</p> <p>2.2c. In partnership with the owners and boroughs concerned produce a management plan for each of the geodiversity places where action is needed (eg the HLF project at Abbey Wood). This should include a risk assessment, appropriate information boards and displays and a code of conduct for visitors.</p> <p>2.2d. Promote and contribute to necessary management activities (shrub clearance, access arrangements and provision of information) at geodiversity sites found to be in poor condition.</p> <p>2.2e. Involve local groups in conservation and educational activities</p> <p>2.2f. Identify suitable views from or of geodiversity sites that might be linked as a chain across London, including those from iconic buildings.</p> <p>2.2g. Identify suitable links between geodiversity sites such as bus and tube routes and the River Thames.</p>

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OBJECTIVE 3. Deliver sustainable social, economic and environmental benefits for London

TARGETS	ACTIONS
<p>3.1. Utilise and promote the social health and well-being benefits of geodiversity through developing geotrails in partnership with other organisations</p>	<p>3.1a. Identify other organisations, together with specific key staff willing to be involved in developing geotrails, eg the U3A “Bus-pass geology” project.</p> <p>3.1b. Develop further walks, making use of geodiversity sites, the available building stone resource and links to history, geomorphology, landscape and archaeology.</p> <p>3.1c. Consider the potential of adding geodiversity to the attractions of existing walking routes, such as the Capital Ring, the London LOOP, the Thames Path and the Green Chain Walks.</p>
<p>3.2. Encourage ‘geotourism’ by promoting London’s geodiversity, including its national collections, art galleries and building stone architecture, as a visitor attraction.</p>	<p>3.2a. Using the <i>Building London</i> report and the report on park and garden design, promote and develop greater awareness of Building stone trails, geotrails and geological exhibitions.</p> <p>3.2b. Lead geotrails and building stone walks where appropriate.</p> <p>3.2c. Advertise geological events via the LGP website.</p>
<p>3.3. Encourage the consideration of ‘geodiversity gain’ within the development planning process, particularly for large-scale projects. ‘Geodiversity gain’ could include recording of temporary exposures and/or geodiversity end-uses within the completed development or quarry restoration.</p>	<p>3.3a. Identify opportunities to work with local communities, major developers and mineral operators to promote the consideration of geodiversity. Specifically, continue contacts with developers of the Olympic Park, Crossrail, the Thames Tideway Tunnel and London Underground Ltd and review opportunities within the Business improvement districts (BIDs) and the All-London Green Grid (ALGG) projects.</p> <p>3.3b. Ensure the London Geodiversity Partnership provides a consultation response to proposed major development projects and mineral extraction sites in London.</p>

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OBJECTIVE 4. Promote and care for London's geodiversity

TARGETS	ACTIONS
<p>4.1. Promote London's geodiversity and its importance to London boroughs and the ALGG local nature partnership by making geodiversity data available; by suggesting a 'geodiversity focus' for each borough and ALGG Area partnership; and, by explaining how key geodiversity assets might be utilised.</p>	<p>4.1a. For each London Borough/ALGG Area, identify an appropriate geodiversity focus and key geodiversity assets.</p> <p>4.1b. Identify a geodiversity "champion" for each London Borough</p> <p>4.1c. Make use of the register of geodiversity archives and resources to compile a gazetteer including site-specific information on the SSSIs, RIGS, LIGS and Sites of geological interest (SGIs) and make it available on the website.</p>
<p>4.2. Manage the London Geodiversity Partnership website</p>	<p>4.2a. Update the website as additional resources and information become available. In particular, populate the gazetteer of geodiversity sites in London and the overview of London geology.</p> <p>4.2b. Identify websites with which links can be made to promote the site, including tourist pages. Link to other geoconservation websites and members of the partnership.</p>
<p>4.3. Encourage the sharing of good practice and engage a wide audience in the conservation of geodiversity features in London.</p>	<p>4.3 Contribute to forums such as the London Parks & Green Spaces Forum, the London Biodiversity Forum and the All-London Green Grid to share and promote geoconservation good practice with those involved in biodiversity and parks management.</p>
<p>4.4. Encourage greater use of existing geodiversity places for life-long learning.</p>	<p>4.4a. Identify key people within education including London's outdoor learning contact, Earth Science Teachers' Association and Rockwatch. Using assets already identified, make use of these people and materials to create and promote events for all ages.</p> <p>4.4b. Identify key geomorphological sites, such as river restoration projects where the local community (including schools) can observe and monitor change in their local environment.</p> <p>4.4c. Maintain contact with the Geological Society of America's "earth-cache" outreach programme to develop further sites in London</p>

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<p>4.5. Develop and utilise links between geodiversity, landscape, history, art, architecture and archaeology</p>	<p>4.5a. Include geodiversity-themed photos, paintings or exhibits within trails and link these to other places of interest.</p> <p>4.5b. Identify supportive local artists/photographers/art galleries to engage in developing geodiversity-themed exhibitions and activities.</p> <p>4.5c. Using the Parks and garden design report, promote and make use of the examples of good practice of design linked to geodiversity.</p>
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OBJECTIVE 5. Sustain geodiversity activities in London

TARGETS	ACTIONS
<p>5.1. Maintain and continue to grow the London Geodiversity Partnership to ensure links to the building stone resource and geodiversity recording activities are represented</p>	<p>5.1a. Identify appropriate organisations that could contribute usefully and invite them to join the Partnership.</p>
<p>5.2. Continue to develop links with other partners</p>	<p>5.2a. Identify organisations with which the Partnership can work and establish appropriate working relationships.</p>
<p>5.3. Gain funding so that other actions in this GAP can be progressed.</p>	<p>5.3a. Maintain contacts with Natural England and the Heritage Lottery Fund to identify funding opportunities.</p> <p>5.3b. Maintain a list of funders and potential resources for geodiversity activities and prepare applications for funding.</p> <p>5.3c. Approach the corporate sector to fund specific events and activities.</p>
<p>5.4. Monitor and report on progress, sustainability and success of the London GAP</p>	<p>5.4a. Continue to develop the annual reporting procedure and the mechanism for a 5-yearly review.</p>

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OBJECTIVE 6. Influence London-wide and London Borough planning and environmental policies

TARGETS	ACTIONS
6.1. Support the geodiversity policy within the London Plan	6.1a. Continue to engage with planning consultations on the London Plan and associated supplementary planning guidance.
6.2. Influence geodiversity policy within other London Borough plans.	6.2a. Scrutinise London Borough planning documents to identify the existence or lack of geodiversity policies and designated local geological sites. 6.2b. Provide a consultation response to relevant regional and local plans and policies and planning applications.
6.3 Influence geodiversity policy within other plans and strategies affecting London.	6.3a. Identify other plan-making organisations such as the regional health and economic bodies as well as the ALGG local nature partnership areas.

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ANNEX 1 - Regionally and locally important geological sites proposed in *London's foundations*

Proposed RIGS¹⁴

Beckenham Place Park, Lewisham
Chelsfield Gravel, Bromley
Croham Hurst, Croydon
Crystal Palace geological illustrations, Bromley
Dog Rocks, Greenwich
Happy Valley, Croydon
Horsenden Hill, Ealing
Keston Common, Bromley
Riddlesdown Quarry (formerly Rose & Crown Pit), Croydon
The Gravel Pits, Northwood, Hillingdon
Cray Valley golf course sand pit, Bromley
North End Pit, Bexley,
High Elms dene hole, Bromley
Pinner chalk mines, Harrow
Mark's Warren Farm quarry complex, Barking & Dagenham
Chalky Dell, Bexley
Erith submerged forest, Bexley
Chislehurst Caves, Bromley
Klinger Pit, Foots Cray, Bromley
Kenwood House Quarry, Hampstead Heath, Camden
Springfield Park, Hackney
Highgate Woods & Queens Wood, Haringey
Bedfords Park, Havering Ridge, Havering

Rainham submerged forest, Havering
Southall Farm/Spring Farm quarry complex, Havering
Thames foreshore, Isleworth, Hounslow
Fairlop quarry complex (Hainault Quarry), Redbridge
Knighton Wood, Redbridge

Proposed LIGS¹⁵

Avenue House, Finchley, Barnet
Chingford Hatch, Waltham Forest
Finsbury Gravel, Sadler's Wells, Islington
Hainault Forest Country Park, Redbridge
Old gravel pit, Blackheath, Lewisham
Putney Heath, Wandsworth
Parish's Pit, Erith, Bexley
Bromley Palace Park – pulhamite & St Blaise's Well, Bromley
Charmwood Farm, Bromley
Sundridge Manor Park pulhamite grotto, Bromley
Trent Park, Enfield
Bleak Hill sandpit, Greenwich
Wickham Valley brickworks complex, Greenwich
Coldfall Wood, Haringey
Pole Hill, Waltham Forest

¹⁴ Recommended and potential RIGS as shown in *London's foundations* (2012) Figures 25, 26 & 26b.

¹⁵ Potential LIGS as shown in *London's foundations* (2012) Figures 27 & 28.

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ANNEX 2 – Progress in implementing the London GAP 2009-2013

London's foundations, the London Plan Implementation Report, was published in March 2009 and officially launched in October 2009 by the London Geodiversity Partnership at an event at Charlton House and Gilbert's Pit. Following this, London's Geodiversity Action Plan was developed during 2009/10 by Capita Symonds on behalf of the Partnership. Consultation on a draft with over 100 organisations was undertaken in early 2010 and the Action Plan for 2009-13 was launched by the Partnership at Kenwood House in October 2010. The Action Plan was reviewed by the Partnership and revised versions produced in 2011 and 2012.

The Partnership held a workshop "*Overground – Underground: London's geodiversity for London's people*" in February 2013 at the Horniman Museum. It attracted a large number of people from many groups in the first stage of consultation to discuss the way forward for London's Geodiversity Action Plan. This appendix to the Action Plan 2014-18 summarises what has been achieved by the Partnership to meet the objectives on the first Action Plan since 2009.

Objective 1: Increase our understanding of the geodiversity of London

- ≡ Around 50 potential geodiversity sites have been visited to prioritise for audit with recommendations for further action.
- ≡ Visited and reported on all the GLA sites listed in *London's foundations*, (2012), including making recommendations for further action to conserve and/or interpret the sites. At least 15 of them have been visited more than once.
- ≡ Commissioned *Building London*, a report on building stone resources, published in 2010. It includes an audit of geodiversity resources by borough.
- ≡ Commented on Natural England/English Heritage research scoping study on the links between park and garden design and geodiversity, which is awaiting publication.
- ≡ Contributed to update of *London's foundations* as supplementary planning guidance published by the GLA in March 2012: <http://www.london.gov.uk/priorities/planning/publications/londons-foundations-spg>

Objective 2: Manage and conserve the geodiversity of London

- ≡ Hornchurch Cutting SSSI has been conserved through a joint project by Network Rail and Natural England.
- ≡ Developing a conservation plan for Gilbert's Pit SSSI. The first stage of work to clear vegetation was undertaken in April 2013. Discussions held with Natural England on the most appropriate method of conserving the exposure and creating improved access.
- ≡ Commented on geodiversity aspects of Bexley's draft Conservation Management Plan for their bid to HLF for Lesnes Abbey Woods.
- ≡ Recommended, proposed and designated RIGS & LIGS information and boundaries are managed by Greenspace Information for Greater London (GiGL) (<http://www.gigl.org.uk/>). These data are then provided to GIGL partners and included in reports to enquiries from developers, consultants and planning authorities.
- ≡ Identified and arranged removal of "Whin Sill" boulder from Mark's Warren Quarry to be displayed at Bedford Park Visitors' Centre in conjunction with GeoEssex, Essex Wildlife Trust and Brett Lafarge.

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Objective 3: Deliver sustainable social, economic and environmental benefits for London

- ≡ Two members undertook training for Walking for Health and 2 Health Walks were planned.
- ≡ Negotiated with developer and local planners to conserve and interpret a RIGS adjacent to the redevelopment of a housing estate at Erith, Bexley.
- ≡ Developed a Geotrail on part of the South-east London Green Chain Walk with Green Chain officers, which is on their website (www.greenchain.com/pdfs/geologytrail.pdf) and produced a leaflet to describe the walk. The Geotrail was launched in March 2012.
- ≡ Contributed geodiversity aspects to development of the Ruskin Walks.

Objective 4: Promote and care for London's Geodiversity

- ≡ Established a partnership website www.londongeopartnership.org.uk, which is being developed.
- ≡ Working with the Environment Agency to publicise the geology found in ground investigations for the Olympic Park.. Presented a poster at the Geological Society Engineering Group conference at Eton Dorney on *Engineering Geology and the Olympics*.
- ≡ Exhibited at the annual Geologists' Association Festival of Geology at University College London, and the GA conference on *Geoconservation for Science and Society* in Worcester (2011).
- ≡ Supported the RSPB's *Wild about Hampstead Heath* and Groundwork Thames Valley's *London's Foundation's Brick by Brick* HLF bids.
- ≡ Produced interpretation panels for Hampstead Heath.
- ≡ Developing interpretation board for the Finsbury Gravel in conjunction with Islington Museum.
- ≡ Developing a geological display in Highgate Woods in conjunction with City of London Corporation.
- ≡ Contributed to a new plaque for the Ilford mammoth in conjunction with GeoEssex.
- ≡ Attended meetings of Earth Science Education Forum.

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Objective 5: Sustain geodiversity activities in London

- ≡ Widened the partnership to include English Heritage, Museum of London Archaeology, the Horniman Museum, the Earth Science Education Unit, Greenspace Information for Greater London, the Environment Agency and the London Wildlife Trust.
- ≡ Set up a Sites Working Group to audit sites, recommend the designation of further sites, comment on geodiversity within borough development plans and for the adoption of designated sites
- ≡ Set up a working group on Funding, Archives, Museums and Education (FAME), which has developed into developing specific projects led by appropriate personnel.
- ≡ Developed a gazetteer of sites of geodiversity importance, which will be accessed via an interactive map when it is put on the website.
- ≡ Joined GeoconservationUK and contributed a number of articles to its quarterly Newsletter.
- ≡ Commented on draft *Geodiversity charter for England*.

Objective 6: Influence London-wide and London borough planning and environmental policies

- ≡ In 2010 commented on the replacement London Plan, which led to the Mayor revising the section on geodiversity. After appearing at the Public Examination, the revisions were accepted by the Inspector and adopted in July 2011.
- ≡ Researched geodiversity policies in London borough local development frameworks (LDFs) and responded to consultation on the Core Strategies for Greenwich, Hillingdon and Bexley.
- ≡ Made a presentation on geodiversity in local development plans to the Association of London Borough Planning Officers.
- ≡ Met with officers from London Boroughs of Bromley, Croydon and Greenwich to discuss geodiversity policies and RIGS in LDFs.
- ≡ Participated in LB Hillingdon landscape strategy workshop.
- ≡ Recommended 14 Regionally Important Geological/Geomorphological Sites (RIGS), 9 Locally Important Geological/Geomorphological Sites (LIGS) and 17 Sites of Geological Interest (SGIs). All of these are in the revised *London's foundations* and in the dataset managed by GiGL.
- ≡ Commented on geodiversity aspects of Natural England's *London's Regional Landscape Framework*, which formed the basis of the All-London Green Grid area partnerships
- ≡ Supported the bid by the GLA for the All-London Green Grid Local Nature Partnership
- ≡ Supported the Lee Valley Nature Improvement Area bid.
- ≡ Attended meetings of London Wildlife Sites Board.

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Consultation on the London Geodiversity Action Plan

Consultation on this plan is being carried out between December 2013 and February 2014.

The London Geodiversity Partnership

The London Geodiversity Partnership includes representatives of the Greater London Authority, Natural England, British Geological Survey, Environment Agency London Biodiversity Partnership, London Boroughs of Lambeth and Hillingdon, Geologists' Association, Harrow and Hillingdon Geological Society, South London RIGS Group, London Open University Geological Society, GeoEssex, The Amateur Geological Society, London Wildlife Trust, Greenspace Information for Greater London, Queen Mary College and University College, University of London, English Heritage and Museum of London Archaeology.

Images used in the plan

The iconic image of London on the Front Cover and range of images within the Banner have been used to illustrate the wealth of London's geodiversity (including the range of underlying rocks and deposits, recent 'finds' *in situ* and within museum collections, London-based geological resources, together with imported aggregates and building stones, geomorphological features, significant publications and engagement with people). Descriptions of these images and credits are given below.

Front Cover Image: City of London Skyline, including St Pauls, the newer buildings of London's City and the River Thames, the focus for London's initial development (Alan Thompson)

Banner Images: Cemented pebbles at Dog Rocks (Diana Clements); Front cover of the 'London's Foundations' Report, a geodiversity audit of London (British Geological Survey); Erith Fossil Forest (Diana Clements); Aggregates Wharf alongside the River Thames (Alan Thompson); Big Ben (Alan Thompson); Ilford Mammoth (Natural History Museum); Pupils of Thorntree Primary School enjoying 'hands-on' activities at Gilbert's Pit (Sheppy Shepherd); Aerial view of the River Thames (Alan Thompson); Riddlesdown Chalk Quarry (Barry Gutteridge); Front Cover of the Geological Memoir for London (British Geological Survey); London Stock brick and a road sign indicating the presence of a former spring (Diana Clements)