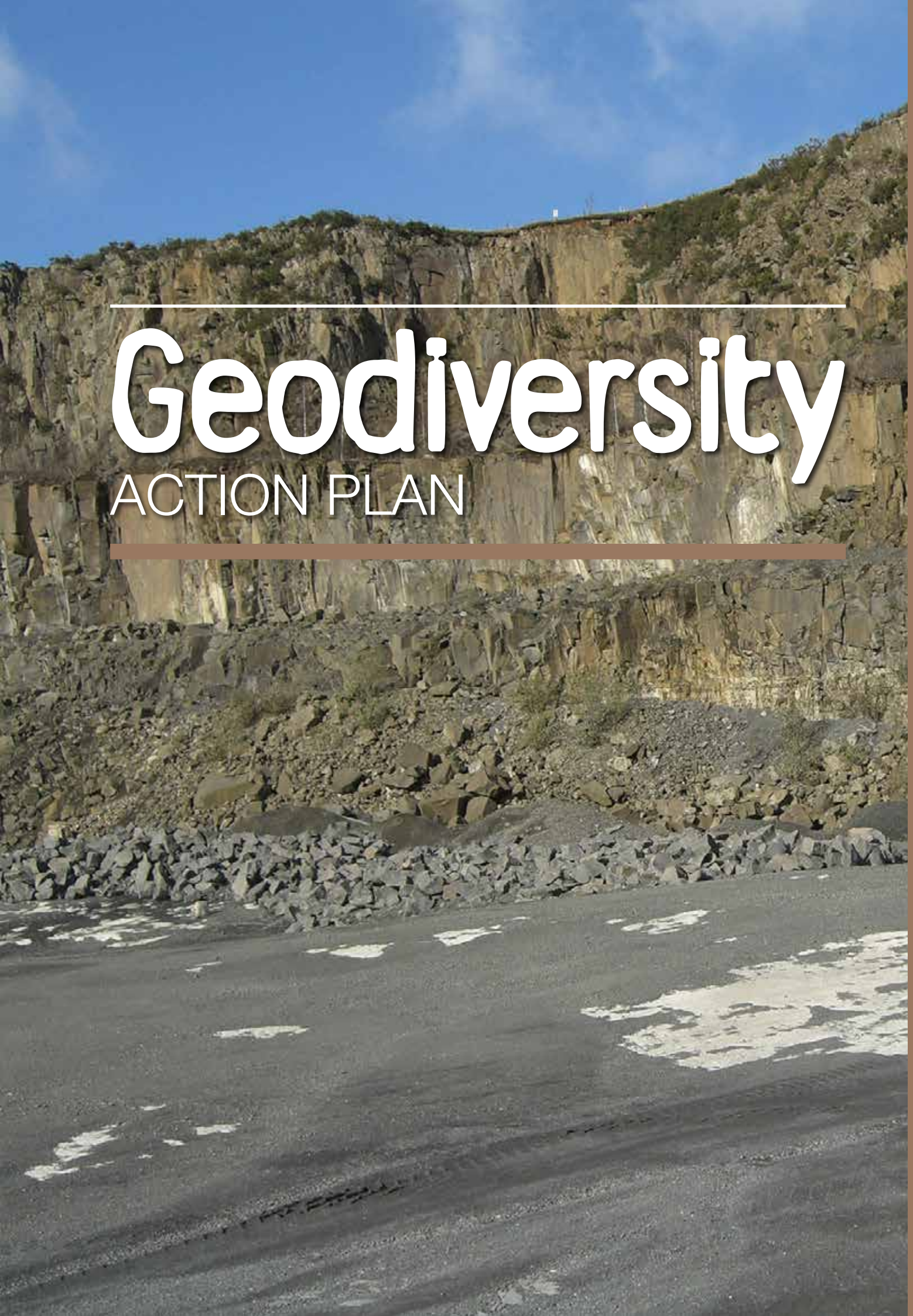

Geodiversity
ACTION PLAN

Geodiversity

ACTION PLAN

Summary

Biodiversity is fundamentally linked to underlying geological features. The term 'geodiversity', or geological diversity, encompasses rocks, minerals, soils, sediments, landforms and processes; all of which are the foundation for habitats, niches, and ultimately biodiversity.

Great advances have been made in recognising how geodiversity (rocks, soils, landforms and related processes) supports biodiversity and underpins ecosystem services. In order to make progress with biodiversity, our understanding of geodiversity must increase in order to improve the management and care of nature.

Geodiversity is internationally recognised by the Recommendation of the Committee of Ministers of the Council of Europe (2004) that: "geological heritage constitutes a natural heritage of scientific, cultural, aesthetic, landscape, economic and intrinsic values, which needs to be preserved and handed down to future generations". There are key gaps in our knowledge of geodiversity, including the functional links between geodiversity and biodiversity and research is required to improve our understanding of the role of geodiversity in providing benefits to ecosystems.

Habitat Profile

305-355 million years old Carboniferous rocks underlie North Lanarkshire with the oldest in the north in the Kilsyth Hills and eastern Campsie Fells. These hilly parts lie to the north of the large Campsie Fault and are mainly formed by lava flows and associated volcanic ashes of air fall and water lain origins. Locally beneath the volcanic rocks, mainly fluvial rocks are seen that were deposited when the climate was of monsoonal character with wet and dry seasons reflecting Scotland's nearness to the Equator. Above the volcanic rocks and flooring most of North Lanarkshire south of the Campsie Fault is undulating land with key river valleys that are underlain by sedimentary rocks. These were laid in wet equatorial conditions, the tropical nature of the climate gave rise to peat swamps and raised bogs that provided the extensive deposits of coal (with associated ironstones) that were minded and dug to fuel the Industrial Revolution and 19th century urban growth. Opencast coal has been a major feedstock to power generation. The rocks also include mudstones and limestones laid down in tropical seas and lakes, deltaic and river sandstones, and wetland soils ('fireclays'). These provided lime for agriculture and building, mudstone/ fireclay for brick making, and sandstone as both a building stone and for glass and moulding sands. Intruded into the sedimentary rocks are thick igneous sheets (sills) and narrow vertical dykes that are the youngest rock in the area. These have provided materials used as aggregates in construction, with their extraction still an important element of the local economy.

During the last 2 million years, ice sheets have covered the area. The debris in the moving ice has both moulded the landscape by erosion (acting like sand paper), and then been laid down as 'ground moraine' or till (a mix of clay, sand, stones and boulders). The ice has also sculpted the till into hills known as drumlins. Till has been dug for brick making, fill for construction and as lining for modern landfill operations. Along the main valleys melt waters from the ice have laid down fluvial sand and gravel that have been worked for aggregates. Extensive deposits of peat on higher moorland have been dug or cut for a variety of uses from fuel to horticulture.

Considered management of Scotland's geodiversity aligns with, and supports, the Scottish Government's purpose of increasing sustainable economic growth and its five Strategic Objectives. It also supports the delivery of the Scottish Biodiversity Strategy, Scottish Soil Framework, Land Use Strategy and Scotland's Landscape Charter.

Current Status

Sites of geodiversity importance can be protected through Sites of Special Scientific Interest (SSSI) protection. There is also the potential to designate a site at a local level as a Local Geodiversity Site (LGS). These sites may be proposed by voluntary geoconservation bodies, such as local Geodiversity groups. Existing Sites of Importance for Nature Conservation (SINC) may also be designated as Local Geodiversity Sites where appropriate.

Scotland's Geodiversity Charter addresses the benefits of recognising the value of geodiversity, outlining its wide relevance, and the benefits it delivers to biodiversity through support of habitats and ecosystems. The Charter aims to promote integration of geodiversity within the ecosystem approach, and for the importance of geodiversity to be acknowledged through policy and guidance documents at a national and local level, including Local Plans and guidance for biodiversity.

The Charter also recognises the value of partnership formation between local authorities and local geodiversity groups, to audit sites, develop geodiversity action plans and involve local communities in collating information about sites of geological interest. North Lanarkshire Council, through the Local Biodiversity Partnership, are aiming to respond to 'Scotland's Geodiversity Charter' in collaboration with Strathclyde GeoConservation by starting the process of identifying Local Geodiversity Sites and continuing further work as it develops until 2020.

Two Sites of Special Scientific Interest have been designated in North Lanarkshire for their geological features - Mollinsburn Road Cutting: Carboniferous-Permian Igneous (Igneous Petrology) and Corrie Burn: Lower Carbonifeous (Stratigraphy).

Current Factors Affecting This Habitat

- Unsustainable or misguided development
- Changing land use
- Climate change
- Natural erosion and deterioration

Current Actions

- Local volunteers in the Kelvin Valley and Cumbernauld have undertaken surveying of thirty six sites over the last three years and are now surveying more sites in the remaining North Lanarkshire area.
- Leaflets have been produced highlighting the geodiversity of the Kelvin Valley and Cumbernauld.

Proposed Objectives, Targets and Actions

Objectives

1. Protect important geological and geomorphological sites and landforms.
2. Raise awareness of geodiversity in North Lanarkshire, including its importance to biodiversity.

Action	Meets Objective Number	Action by	Target
Policy and Legislation			
1.1 Designate new sites identified during surveys	1, 2	NLC, Strathclyde GeoConservation	By 2020
1.2 Ensure sites are included in Local Plans and that there is specific mention of the need to protect Local Geodiversity sitesin Local Plans and other policies	1, 2	NLC, Strathclyde GeoConservation	Ongoing
Site Safeguard and Management			
2.1 NLC to monitor sites as appropriate, liaising with landowners when necessary	1	NLC, Strathclyde GeoConservation, Friends of Kelvin Valley	Ongoing from 2015
2.2 Voluntary groups to submit site survey records to NLC	1	Volunteers, Strathclyde GeoConservation,	Ongoing
Monitoring and Research			
3.1 Establish a survey programme to identify Local Geodiversity Sites	1, 2	Strathclyde GeoConservation	Survey 5 sites per year from 2015
Communications and Publicity			
4.1 Develop list and map of all designated sites with information available on access, value and site condition	2	NLC, Strathclyde GeoConservation	By end of 2017
4.2 Publish and maintain a range of posters and leaflets for the general public detailing all sites	2	NLC, Strathclyde GeoConservation, Friends of Kelvin Valley	Initial publication by end of 2016, with material advertised as appropriate and available on NLC webpages
4.3 Publicise sites to partners, within NLC, nature conservation groups, local groups with an interest in geology, local communities eg. Friends of Kelvin Valley	2	NLC, Strathclyde GeoConservation	Annually from 2015

References

Scottish Geodiversity Forum, 2013. Taking Scotland's Geodiversity forward: potential contributions from Local Authorities

Scottish Geodiversity Forum, 2013. Scotland's Geodiversity Charter 2012-2017

Scottish Government, 2013. 2020 Challenge for Scotland's Biodiversity.

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Photography Credits

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Notes