

8

Tayside Geodiversity Action Plan



Schiehallion © Carol Pudsey

Background

The 1st Edition of the Tayside Biodiversity Action Plan was the first BAP to dedicate a detailed section to celebrating the area's geodiversity. Since its publication, the Tayside Geodiversity Group has reformed. Despite its small membership, it is taking forward a number of actions, especially the checking and recording of Local Geodiversity Sites and the preparation of a series of trail leaflets to raise awareness of geodiversity to a wider audience.

Geodiversity is the baseline to the ecosystem approach and biodiversity conservation – it supports our diverse habitats and species. It is a vital aspect of flood management and coastal/shoreline management. Use of groundwater and the winning of mineral resources heavily contribute to our economy, as does the land itself which provides many raw materials. The landscape provides for much of our recreational and tourism industry.

Over the past decade biodiversity has become more integrated into environmental and planning policy, but this has yet to fully happen to geodiversity. The

Scottish Soil Framework (2009) has helped in integrating soil issues into policy. The setting up of the Scottish Geodiversity Forum in 2011 has enabled a national body to raise awareness of the subject and prepare the Scottish Geodiversity Charter. This was launched in 2012 and by 2015 there were 59 signatories, including the Tayside Biodiversity Partnership, Angus Council and Perth & Kinross Council.

The Scottish Geodiversity Charter addresses four key actions which are also relevant to Tayside, i.e.

- 1 Raise awareness of the importance of geodiversity and its wider links with landscape, culture and sense of place, and encourage a sense of pride through education (at all levels including schools, universities and life-long learning), promotion and interpretation;
- 2 Integrate geodiversity into relevant policies to ensure sustainable management of the natural heritage, land and water at a landscape/ ecosystem scale for the wider benefit of



Scotland's people, environment and economy;
3 Conserve and enhance our geo-heritage and its special character within existing designated sites and areas, further designation of local sites, and in the wider rural, urban and marine environment;

4 Research to improve our understanding of the role of geodiversity in providing benefits to ecosystems and people, and address key knowledge gaps such as the functional links between geodiversity and biodiversity in terrestrial, freshwater and marine environments.

The Geologists' Association is now hosting the UK Geodiversity Action Plan (UKGAP) website. The UKGAP provides a suite of UK Indicators and highlights national good practice by way of case studies published on the website. Of the 17 indicators listed, the Tayside Geodiversity Action Plan will contribute towards no. 9: "designation and protection of Local Geological Sites", no. 12: "visits to sites of geodiversity interest", and no. 14 "voluntary involvement and number of people involved".

Objectives

The objectives of the Tayside Geodiversity Action Plan are to:

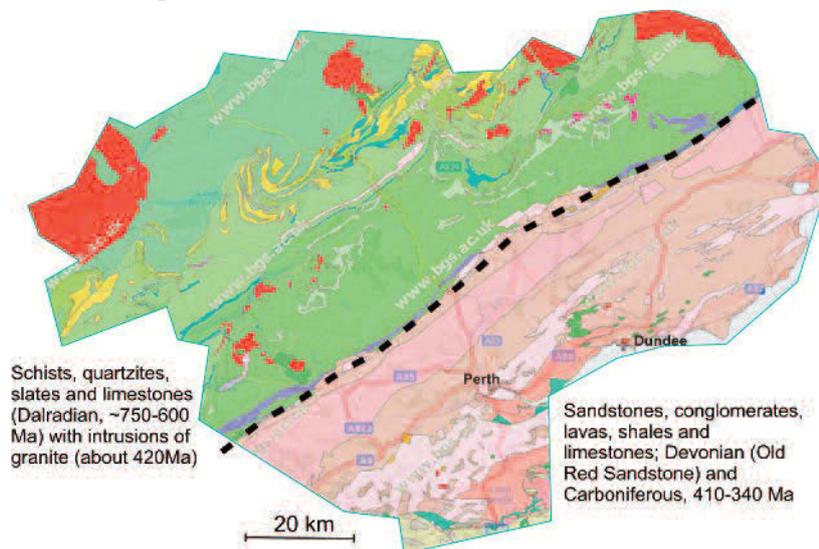
- 1 Identify, designate, protect and monitor important geological and geomorphological sites and landforms;
- 2 Raise awareness of geodiversity throughout Tayside, including its importance to biodiversity.

Key Sites

- Arbroath to Auchmithie coast (Old Red Sandstone and coastal geomorphology)
- A9 road cuttings, Glen Garry (Dalradian folding and dykes)
- Schiehallion/Strath Fionan (Dalradian stratigraphy, Maskelyne experiment)
- Rannoch Moor (granite, hummocky moraines)
- Scurdie Ness, Montrose (Devonian volcanics)
- Gannochy Gorge (Highland Boundary)
- Corrie Fee, Glen Clova (glacial landforms)
- Cortachy Bridge (best outcrop of HBF serpentinite)
- Campsie Linn (dolerite dyke)
- Bishop Hill, Lomonds (Carboniferous sandstones and Midland Valley Sill)
- Glen Tilt (granite intrusion, Hutton locality)

- Ben Gulabin (landslide deposit)
- Friarton Quarry (Devonian sediments and lavas, dolerite dyke, peperite intrusion)
- Montrose Basin (Holocene tsunami deposit)
- Garry Drums (meltwater channels)
- Comrie pluton

- Barry Buddon (Holocene dunes)
- Glenquey (late-glacial delta)
- Kinnoull Hill/Moncreiffe Hill (Devonian lavas)
- Wester Bleaton quarry (Dalradian limestone, dolerite dyke, mineralisation)



Schiehallion: 'Weight of the World'



Schiehallion can be found rooted in the Scottish Highlands, markedly apart from other peaks in the vicinity. With its iconic conical profile it is regarded as one of Scotland's well known Munros among locals, visitors and hill walkers. It provides ample opportunity for spectacular highland vistas, refreshing hill-walks along its main broad ridge and for those more hardened, hiking to a

summit standing proud at 3,547 feet (1,083 metres).

The name Schiehallion translates to 'Fairyhill of the Caledonians' giving a tantalising glimpse of its diverse nature with its abundance of species from birds of prey, rare plants and the elusive wandering Red Deer. The John Muir Trust owns 935 hectares of the mountain

and surrounding environment, and continues conservation and restoration across the summit, path and the southern-facing Gleann Mor.

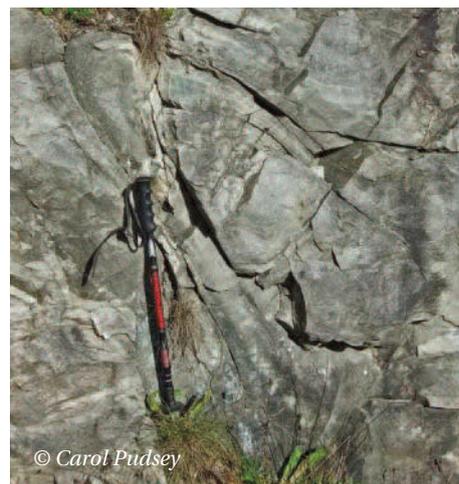
The mountain was used during scientific research by the 18th century Astronomer Royal, the Rev. Neville Maskelyne, to test the measurement of the Earth's mass. In 1772 he proposed to the Royal Society the Schiehallion experiment for the determination of the Earth's density using a plumb line. His observations were carried out in 1774, assisted by Reuben Burrow, William Roy, William Menzies and a team of labourers. The experiment demonstrated that Newton's law of gravitational attraction was correct. The sites of the northern and southern observatories, as well as the two cairns on the summit ridge, are still visible.

Working with Other Organisations

In 2012 Tayside Geodiversity was tasked with undertaking a baseline Geodiversity Survey of the upper Firth of Tay - Lower Strathearn area. A 63-page report was subsequently presented to the Tay Landscape Partnership as part of its development phase. It included a brief technical account of the

geology of the area, field and historical descriptions of 27 sites and a full bibliography.

Ahead of the A9 dualling, Tayside Geodiversity assisted Scottish Natural Heritage staff with field surveys of road cuttings along sections of the route to be dualled.



Sharing Geology with Visitors and Local Residents

A key output of Tayside Geodiversity has been in a series of geological leaflets. They can all be downloaded from the Tayside Biodiversity and Geodiversity websites. The most recent include:

The Arbroath to Auchmithie Trail – one of the first leaflets to be prepared and one of the most widely used. The trail includes the Whiting Ness to Ethie Haven Site of Special Scientific Interest (SSSI). It was selected as a SSSI for its geological interest, but also for the important areas of coastal grassland and cliff vegetation, and a variety of bird, plant and insect species. Look out for the Small Blue butterfly and its food plant Kidney Vetch whilst on the trail.

Strathardle – at the request of Kindrogan Field Studies Centre, a leaflet on the Quaternary landforms of the Straloch area

was prepared. It describes three short walks where interesting moraines and meltwater channels can be seen.

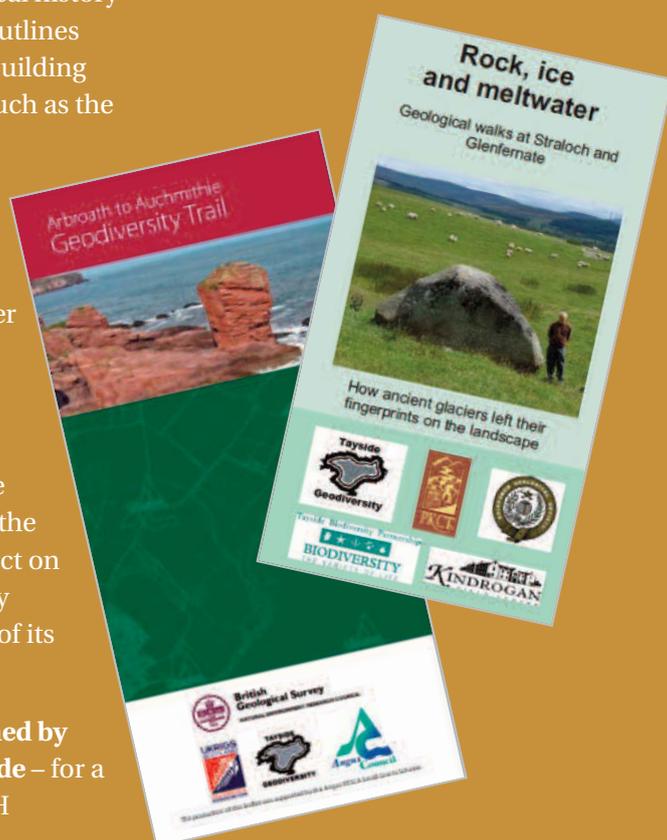
Dundee Law – this leaflet describes the geological history of Dundee Law and outlines the uses of different building stones and features such as the old railway tunnel.

Schiehallion – a leaflet on the geology of Schiehallion, aimed at the hillwalker rather than the geologist, is in preparation.

Dighty Burn – Tayside Geodiversity advised the Dighty Connect project on the area's geodiversity ahead of publication of its leaflet.

A Landscape Fashioned by Geology: Fife & Tayside – for a wider picture the SNH

publication can be downloaded via http://www.snh.org.uk/publications/on-line/geology/Fife_Tayside/



Tayside Geodiversity Actions Schedule

Key for timescale Short: 1-3 yrs **Medium:** 4-6 yrs **Long:** 7-10 yrs

Actions will be input into the UK Biodiversity Action System (UKBARS) where Lead Partners will be outlined

Maintaining & Improving Habitats

Action	Action breakdown	Who needs to take the action	Timescale
1 Promote the importance and value of Local Geodiversity Sites within Local Development Plans, all relevant local authority departments, and networks.	<p>Join or continue as signatories to the Scottish Geodiversity Charter.</p> <p>Incorporate geodiversity and geo-heritage into Open Space Strategies, existing nature conservation practices and policies.</p> <p>Ensure repairs and renovations maintain and enhance the unique local character of our built heritage.</p> <p>Enhance geodiversity and access to sites during construction of new or upgrading of road routes, or as part of development and landscaping.</p> <p>Take into account geodiversity sites when commenting on Forestry planting plans.</p> <p>Encourage developers and planners to consider the ecosystem services geodiversity sites provide.</p> <p>Link geodiversity sites with development of core footpath network, cycleways and complementary signage strategy.</p> <p>Include enhancement of natural fluvial and coastal processes to reduce flood risk when undertaking statutory flood risk assessments.</p> <p>Encourage landowners and managers to restore/enhance natural river channels.</p> <p>Capture better GIS information on geodiversity sites and zones through an informed network-based planning approach and integration, where appropriate, into the North East Green Network.</p>	<p>Angus Council</p> <p>Perth & Kinross Council</p> <p>TayPlan</p> <p>Historic Environment Scotland</p> <p>Perth & Kinross Heritage Trust</p> <p>North East Green Network</p> <p>Scottish Land & Estates</p> <p>Forestry Commission Scotland</p> <p>Tayside Biodiversity Partnership</p> <p>Sustrans</p> <p>Tayside Geodiversity Landowners and land managers</p>	Long

Surveying & Monitoring

Action	Action breakdown	Who needs to take the action	Timescale
2 Identify and designate Local Geodiversity Sites	<p>Review existing list of potential Local Geodiversity Sites, draw up Priority Sites to check and prepare Site Designations to pass to the local authorities in Tayside.</p> <p>Local Authorities to add all Site Designations to their GIS to flag up in planning applications.</p> <p>Via citizen science surveys, identify and record new or temporary exposures, landslips, road cuts, development sites and add to geodiversity audit where applicable.</p>	<p>Tayside Geodiversity</p> <p>Angus Council</p> <p>Dundee City Council</p> <p>Perth & Kinross Council</p>	Long
3 Monitor condition of Local Geodiversity Sites.	<p>Report via Local Geodiversity Site listing as to site condition.</p>	<p>Tayside Geodiversity</p>	Long

Education & Awareness Raising

Action	Action breakdown	Who needs to take the action	Timescale
4 Raise public awareness of geodiversity in the region.	<p>Continue preparation and promotion of a series of trails, walks, etc. by way of leaflets, events and interpretation, etc.</p> <p>Provide and regularly maintain/update the Tayside Geodiversity website.</p> <p>Encourage the tourism sector to promote the region's geodiversity heritage, i.e. woodland, farmland and coastal trails, accommodation, guiding, Science Festivals input and interpretation.</p> <p>Work with local mineral extraction operations to ensure geodiversity information is collected and used.</p> <p>Education - encourage practical coastal and glacial fieldwork studies within the Curriculum for Excellence (Higher and National 5).</p>	<p>Tayside Geodiversity</p> <p>Tayside Biodiversity Partnership</p> <p>Broughty Ferry Environmental Project</p> <p>National Trust for Scotland</p> <p>Dundee Science Centre</p> <p>Angus Council</p> <p>Perth & Kinross Council</p>	Medium
5 Develop the use of Tayside's geodiversity as a learning tool to promote outdoor teaching (for schools and adult education).	<p>Provide maps and support materials that highlight local geodiversity sites, fossils, etc.</p> <p>Promote the importance of building stones, gravestones and local quarry sites as readily accessible examples of local geodiversity.</p> <p>Encourage local appreciation of geodiversity through art projects, awareness-raising of soil conservation in allotments, community gardens, etc.</p>	<p>Tayside Geodiversity</p> <p>Historic Environment Scotland</p> <p>Perth & Kinross Heritage Trust</p> <p>Angus Heritage</p> <p>National Trust for Scotland</p> <p>Local communities</p> <p>Tayside Biodiversity Partnership</p>	Long