

Fossil Grove to be an undercover RIGS



A group of tree stumps and the eastern viewing gallery with the present interpretative displays.

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Fossil Grove in Glasgow's Victoria Park is one of the world's oldest examples of conservation of a geological site and the first to be preserved within a building. After resolving uncertainties about its future, plans are afoot for it to become the focus of the first RIGS in greater Glasgow.

The sandstone casts of stumps of Lower Carboniferous lycopod trees, preserved where they grew, were discovered in 1887 when a path was being cut across part of an abandoned dolerite quarry which was being incorporated in the park. The stumps were carefully excavated in an area of some 230 square metres and a brick building constructed to protect the site and to enable it to be viewed by the general public as part of the park's attractions. The building currently has viewing galleries at each end (only the east one is open to the public) but old photographs also show a raised

walkway curving around the stumps amongst which a living palm and other plants had been placed to add botanical interest. Fossil Grove has been visited by generations of Glaswegians, visitors to the city and the international scientific community.

The *in situ* remnants of stands of trees from the early Carboniferous are extremely rare and Fossil Grove was notified as an SSSI in 1954 for the insight that it gives into the equatorial lowland swamp forests of this age. Its SSSI status was confirmed when it was re-notified in 1986. There are 10 stumps on view, ranging in height from 15-68 cm and their spacing suggests an original forest density of about 4,500 trees per square kilometre. Each has branching stigmarian roots anchoring the tree in a silty mudstone palaeosol. It is thought that sediment buried the lowest parts of the trunks and caused the death of the trees. The later influx of sediment-laden waters

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distorted their partly decayed, largely hollow, stumps giving each of them an oval cross-section (originally thought to represent tectonic compression) and depositing the sand that filled, entombed and ultimately overwhelmed them.

130 years of conservation

The remarkable foresight of the local authorities 130 years ago in both excavating and conserving this unique palaeobotanical site in a building, has preserved it both for the scientific messages it contains and the geological education that it provides, to students and the interested public alike.

The site has not been without its problems. One of the trees was damaged in World War Two and a concrete spacer was inserted to replace its badly disintegrated middle section which had a very thin sill of dolerite cutting through it. The present building is essentially the same shell surviving from the initial build but the roof has undergone

some changes over the years. Old images seem to show that the original was a wooden structure with glazed sections along the apex. This was replaced by a more elaborate glasshouse type roof with metal framework presumably sometime in the early 20th Century. The glazed panels were replaced, probably in the 1980s, by insulated panels to help control atmospheric conditions within the building and protect the site. Heat loss and gain through the glazed roof was difficult to control and led to changes in temperature and relative humidity. Heating had also been installed. Initially this was by hot-water pipes later replaced by the current gas-fired hot-air system.

Improvements to the building to help with the visitors' experience were made in 1993. The east viewing area was enlarged and new lighting installed while small displays allowed some interpretation of the site. Importantly, with a new reception and facilities such as a toilet provided, it was possible to have a member of staff available on site to help visitors and ensure safety of the site during opening.

Until recently Fossil Grove was run by Glasgow Museums and the building opened to the general public from Easter to the end of September each year. Strathclyde RIGS Group (a sub-committee of the Geological Society of Glasgow) had gathered data on the fantastically diverse geology of its area – from Ballantrae to Ballachulish. Starting closer to home around the River Clyde,

they concluded that Fossil Grove scored by far the highest for scientific, geological, historical and educational importance but did not need attention because of its situation within one of Glasgow's main parks.

However, in the summer of 2006 concerns were raised in the Geological Society of Glasgow about the more restricted opening. Now no longer under the aegis of the Glasgow Museums and with rumours of closure, Fossil Grove's future looked uncertain. It already had a low profile but with no plans to open to the public in 2007 the low demand could only be bolstered. Concerns about the site were raised with representatives of the City Council in the early summer of 2007 by Strathclyde RIGS Group, the Geological Society of Glasgow and SNH who recognised that RIGS represents a community of interest, both geological and general, and supported their approach.

The response was extremely positive. The difficulties had been the result of a reorganisation within the City Council and are being resolved. Fossil Grove opened for the rest of the summer with the hope of funding for 2008. The proposed RIGS designation of the site, including the surrounding dolerite quarry, was warmly welcomed. ■

Further information see:
www.geologyglasgow.org.uk
www.glasgowmuseums.com

Why Fossil Grove is special



Exterior of the building and part of the attractively landscaped dolerite quarry that will also form part of the RIGS designation.

So why is a RIGS proposed? The excavation housed within the building forms one of Scotland's tiniest SSSI but the building is in turn cradled within another 'grove' - the remodelled and attractively landscaped quarry. The quarry, accessible even when the building is closed, provides context to the SSSI on many different levels.

The well-exposed dolerite sills were likely a factor in preservation of the horizon of tree stumps. Their contacts and changes in thickness can be easily observed. Sedimentary structures seen in the sandstone country rock record the behaviour of the lowland swamp environments in which the trees grew. These features, and the very presence of the igneous layers intruded into the



Above: Fossil Grove after excavation of the tree stumps prior to the construction of the building around them (late 1880s).

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Below: Interior of the building with a close up of one of the lycopod stumps with its stigmarian roots.

Photo © Culture and Sport Glasgow (Museums)



sedimentary succession, have considerable educational value. Coupled with the location within a popular, well-managed city park, all this makes the fossil trees and surrounding quarry a fine choice for Glasgow's first RIGS.

The RIGS group is preparing a leaflet to encourage visitors into the park and support investment bids for future development to complement the capital available for conservation of the fossils themselves. The Council, Museums (now part of 'Culture and Sport Glasgow') and RIGS group and their supporters are working hand-in-hand to ensure the future of the site as a modern geoconservation interpretative centre, an educational resource and major visitor attraction for the City.