



Palaeozoic Palaeobotany (PAZ-PALBOT)

Block Description

Visit <https://jncc.gov.uk/gcr-site-list>, for more information on GCR blocks and sites
For Palaeontology GCR block descriptions and GCR site lists,
visit <https://jncc.gov.uk/gcr-blocks-palaeontology>

Introduction

In contrast to the manner in which most invertebrate fossils are represented in the GCR, fossils of vertebrates, arthropods (except trilobites) and terrestrial plants do have their own dedicated GCR Blocks, because of the relative rarity of the fossil material. The GCR sites selected for the Palaeozoic Palaeobotany GCR Block represent the British fossil record of vascular land plants during the Palaeozoic Era (which spanned from 540 to 230 million years ago (Ma)). This, the first 200 million years of land-plant history, was a time of major evolution and diversification of plants, as they adapted to, and radiated into, terrestrial habitats. At the end of the Permian Period (= end of Palaeozoic Era) a significant, global, mass extinction took place, enabling this 'unit' of the fossil record to have a characteristic floral distinctiveness.

Later fossil plants are afforded their own GCR Blocks, 'Mesozoic Palaeobotany' and 'Tertiary Palaeobotany'. **See Mesozoic Palaeobotany (MES-PALBOT) and Tertiary Palaeobotany (TER-PALBOT).**

Palaeontological characteristics

The Palaeozoic Era was a time of major evolution and diversification of plants, since most of the major morphological and anatomical strategies that allowed plants to take advantage of the terrestrial habitats appeared at this time as they adapted from aquatic to terrestrial habitats. The new habitats were not yet populated by animals, and were harsh and inhospitable. Nevertheless, from the earliest inter-tidal vegetation of the Silurian Period (425 million years ago), plants progressively became established on land, and eventually developed into the lush tropical wetland forests of the Late Carboniferous Period (300 million years ago). Towards the end of the Palaeozoic Era (250 million years ago), a traumatic episode beset land plants and many of the previously dominant forms became extinct. The emptying of the many ecological niches provided an opportunity for more advanced groups such as cycads and conifers to radiate in the Mesozoic Era, and marked the start of the development of a modern-style of vegetation.

Palaeogeography

The fossil plant material has been useful in palaeoclimatic and palaeoenvironmental reconstructions as an indicator of the geological past. The palaeogeography of each relevant geological period since the earliest terrestrial vegetation of the Silurian Period can be found elsewhere on the pages of this website. **See Dinantian of Devon & Cornwall (DIN-DV-CW); Dinantian of Northern England & North Wales (DIN-N-E-WL); Dinantian of Southern England & South Wales (DIN-S-E-WL); Dinantian of Scotland (DIN-SC); Marine Devonian (MAR-DEV), Non-Marine Devonian (NMAR-DEV); Marine Permian (MAR-PER); Namurian of England & Wales (NAM-E-WL); Permian - Triassic (PER-TRI)**

GCR site selection

Owing to the rarity of fossil plant material, this GCR Block represents something of a special case with regard to including all of the sites yielding, or that have yielded, significant types and quantities of scientifically important material that help elucidate the evolution of the main plant groups.

The sites can be allocated to 5 GCR networks based on distinct plant assemblages associated with different time intervals as follows:

- British Silurian palaeobotany
- British Devonian palaeobotany
- British Lower Carboniferous palaeobotany
- British Upper Carboniferous palaeobotany

- British Permian palaeobotany.