
Spireslack Locality 9: Johnstone Shell Bed

NGR: [274950 630648] [NS 74950 30648]

Key categories of interest Rarity Quality

Key category of interest	Rarity	Quality
1. Palaeontology	5	4
2. Stratigraphy	4	3
3. Mineralisation	4	4

Access: Good access from lower void.

Current safety: Uneven underfoot and steep but firm in places.

Measures to enhance site: Create a dedicated path to site, clean up loose scree around site.

Key categories in order of interest (1 = primary interest); Rarity, 5 = only example in Spireslack, 1 = many examples in Spireslack; Quality 5 = exceptional preservation in Spireslack, easy access/viewing potential 1 = average preservation in Spireslack, difficult access/viewing potential

Photograph overview with polygon boundary

(Overview of Locality 9). Site boundary includes key rock exposures, immediate access to site and viewpoints to the site. Photo looking toward the west-south-west in lower part of void.

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Site description

Geology

The Johnstone Shell Bed, a marine band and important regional stratigraphic marker across the Midland Valley, is exposed at this locality in a small water-washed gully. Marine bands such as these represent a time when Carboniferous Scotland was under the sea, a change from the dominant estuarine and deltaic conditions that typically form the Limestone Coal Formation. As such, these flooding events, where marine life flourished across wide geographical areas, can be recorded and correlated across Scotland. The Johnstone Shell Bed is therefore an important regional stratigraphic horizon across the Midland Valley, containing fossil evidence for the fauna which flourished during marine incursions in Scotland. At the locality, a 50 cm wide exposure of the fossiliferous shell bed is revealed by surface water cutting shaley scree. In the neighbouring seatearth, adjacent to the shell bed, are remnants of the McDonald Coal. Fractures within the coal have been mineralised by ankerite, an orangey brown earthy mineral not found preserved in situ elsewhere in Spireslack. Ankerite is a mineral often associated with coals.

Access and enhancement suggestions

The shell bed is very fragile and friable, although the current cover of shaley scree is protecting it. Measures to prevent erosion of the bed, and cover by scree, should be put in place as this is an important regional stratigraphic marker.

Site photographs

(Spireslack_9 P1): Ankerite mineralisation within coal cleats (fractures within coal) and fault zones cutting coal. Ankerite is a carbonate mineral containing ferrous iron, which turns the mineral brown as a result of weathering. It is thought to be

a product of late-stage diagenesis (Younger, 2004). © BGS, NERC

(Spireslack_9 P2): Johnstone Shell Bed exposed in a water-washed gully. Note fissile nature of beds which make it an easily erodible unit. © BGS, NERC.

(Spireslack_9 P3): Detail of the Johnstone Shell Bed, a marine band containing abundant calcareous brachiopods. © BGS, NERC.

References



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(Spireslack_9 P1) Ankerite mineralisation within coal cleats (fractures within coal) and fault zones cutting coal. Ankerite is a carbonate mineral containing ferrous iron, which turns the mineral brown as a result of weathering. It is thought to be a product of late-stage diagenesis (Younger, 2004). © BGS, NERC



(Spireslack_9 P2) Johnstone Shell Bed exposed in a water-washed gully. Note fissile nature of beds which make it an easily erodible unit. © BGS, NERC.



(Spireslack_9 P3) Detail of the Johnstone Shell Bed, a marine band containing abundant calcareous brachiopods. © BGS, NERC.