
Spireslack Locality 8: Seatearth with stigmaria and tree casts

NGR: [274933 630610] [NS 74933 30610]

Key category of interest	Rarity	Quality
1. Palaeontology	5	5
2. Sedimentary rocks	4	4

Access: Good access to exposure following emplacement of new roadway (September 2015).

Current safety: The floor of the pit near the base of the seatearth is liable to flooding when the groundwater table is high, and there are voids opening up, possibly related to shallow coal workings.

Measures to enhance site: Provide stable ground and flood prevention methods to ensure continued access to base of seatearth exposure; ideally 2–3 m zone.

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 8). Site boundary includes key rock exposures, immediate access to site and suggested viewpoints to the site. Tree casts are highlighted by arrows.

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Site description

Geology

The seatearth horizon is the lithified equivalent of the soils that the McDonald Coal organic material rested on before turning into rock (i.e. the remains of a swampy forest). The seatearth is full of fossilised stigmaria (tree roots), tree trunk casts (possibly *Lepidodendron* sp.) and other plant material, some in situ. It is rare to see these in original position and across such a wide area, as seatearth is typically a fast eroding unit due to a higher content of clay minerals. At the locality there are numerous, excellently preserved examples of in situ tree fossils, including one c. 5 m long tree trunk cast. The seatearth and fossilised trees indicate deposition in estuarine conditions with sea level receding and fresh water marshes developing periodically.

Access and enhancement suggestions

The seatearth surface is eroding rapidly — this in turn is exposing tree fossils from their in situ positions. Parts of the seatearth surface should be treated and protected to ensure tree fossils remain in situ (i.e. remain in the place as they were deposited during the Carboniferous). This would also be an ideal teaching locality.

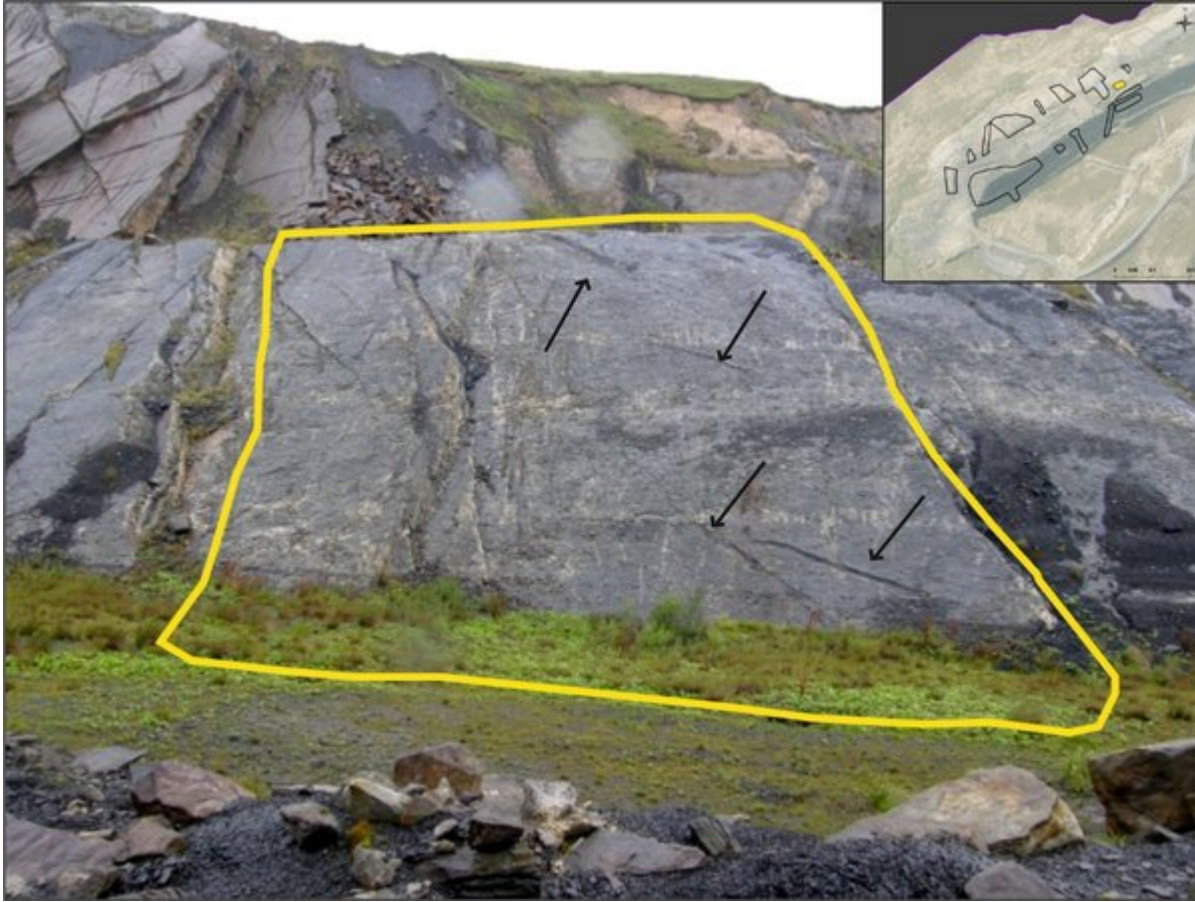
Site photographs

(Spireslack_8 P1): Fossilised roots (stigmaria) of *Lepidodendron* sp., a tree-sized fern, are abundant within the McDonald seatearth. © BGS, NERC.

(Spireslack_8 P2): *Lepidodendron* sp. tree cast within McDonald seatearth. Note erosive nature of seatearth in lower left — this is comprised mostly of stigmaria root fossils. © BGS, NERC.

(Spireslack_8 P3): Detail of stigmara root within McDonald seatearth. The circular scars on the root surface are the preserved remains of smaller rootlets (stigmata) which were once attached and arranged radially around the stigmara. © BGS, NERC.

[References](#)



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(Spireslack_8 P1) Fossilised roots (*stigmata*) of *Lepidodendron* sp., a tree-sized fern, are abundant within the McDonald seatearth. © BGS, NERC.



(Spireslack_8 P2) *Lepidodendron* sp. tree cast within McDonald seatearth. Note erosive nature of seatearth in lower left — this is comprised mostly of *stigmara* root fossils. © BGS, NERC.



(Spireslack_8 P3) Detail of stigmaria root within McDonald seatearth. The circular scars on the root surface are the preserved remains of smaller rootlets (stigmata) which were once attached and arranged radially around the stigmaria. © BGS, NERC.