
Maw Wyke (Hawsker Bottoms)

[NZ 942 082]

Introduction

Maw Wyke is an outstanding locality for the study of Middle Jurassic fossil ferns, having yielded particularly fine examples of *Coniopteris*, *Cladophlebis* and *Phlebopteris*, including fertile specimens essential to systematic studies. Most of the genera recorded have extant relatives.

This important palaeobotanical site has received relatively little attention in the literature. There are hardly any references to plant fossils from it other than the records in Harris (1961a, 1964, 1969, 1979a; Harris *et al.*, 1974) of specimens coming from Hawsker (fallen blocks at Widdyfield), Hawsker Cliff or Hawsker *Otozamites gramineus* Bed. Morgans (1999) described conifer wood from 'between Hawsker Bottoms and Castle Chamber', but this is outside the GCR boundary. It is nevertheless clear that the site has considerable potential importance, especially for the study of Jurassic ferns.

Description

Stratigraphy

The plant bed at Maw Wyke is a lenticular body of shale within the Saltwick Formation, and is thus of Aalenian age. Further details of the geology can be found in Cox and Sumbler (in press, in the site report for 'Hawsker Bottoms').

Palaeobotany

Only about 20 species have been recorded from Maw Wyke (Table 3.1), among which are the common cycad leaf *Nilssonia tenuinervis*, the rare *Stenopteris nana*, four bennettite leaf species and the 'flower' *Williamsonia gigas*, two species of the ginkgoalean leaf *Sphenobaiera*, two czekanowskialean leaf species and two species of conifer shoot. However, the main significant elements are six species of fern, many specimens of which are well preserved and often fertile. Diligent, responsible, collecting should yield more records.

Interpretation

The assemblage is an unusual one for the Yorkshire Jurassic strata. None of the ferns is rare, but there is a much higher percentage of them than at any other site. This suggests that the local flora included an extensive fern sward around the area of deposition, which was most probably a closed shallow lagoon. *Williamsonia gigas* and *Zamites gigas* are both present, confirming their biological relationship (van Konijnenburg-van Cittert and Morgans, 1999) and suggesting that the parent plants grew amongst the fern sward. The common czekanowskialean leaf *Solonites vimineus* is present, implying that it also grew in the vicinity. The other plants are a mixture of common and rare species. The rarest are the cycad *Stenopteris nana* and the ginkgophyte *Sphenobaiera ophioglossum*, which are only recorded from here and Whitby–Saltwick. There are none of the commoner conifer species, suggesting that there was no input from the rivers that would have been carrying such fragments from further inland.

Conclusion

This is a nationally important site for the study of Middle Jurassic ferns. The plant assemblage contains a much higher proportion of ferns than is usual for Yorkshire Jurassic floras. In addition, the preservation is unusually good, with well-preserved reproductive structures (sporangia) being common. There is considerable potential for further work here, especially pertaining to the palaeoecology of this unusual assemblage.

