

Review

Mass extinction events and the plant fossil record

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Five mass extinction events have punctuated the geological record of marine invertebrate life. They are characterized by faunal extinction rates and magnitudes that far exceed those observed elsewhere in the geological record. Despite compelling evidence that these extinction events were probably driven by dramatic global environmental change, they were originally thought to have little macroecological or evolutionary consequence for terrestrial plants. New high-resolution regional palaeoecological studies are beginning to challenge this orthodoxy, providing evidence for extensive ecological upheaval, high species-level turnover and recovery intervals lasting millions of years. The challenge ahead is to establish the geographical extent of the ecological upheaval, because reconstructing the vegetation dynamics associated with these events will elucidate the role of floral change in faunal mass extinction and provide a better understanding of how plants have historically responded to global environmental change similar to that anticipated for our future.