

Managing geological specimen collecting: Wren's Nest case study

This case study has been written to help explain the guidance provided in TIN111. It illustrates the management of fossil collecting from disused quarries. The Wren's Nest is located in an urban area in Dudley in the West Midlands. The 34 ha site comprises many former limestone quarries (the last of which ceased operating in 1924) with significant rock exposures of the Silurian Much Wenlock Limestone Formation containing an extremely diverse marine fossil fauna and associated sedimentological and structural features.

Background

The Wren's Nest is a geological National Nature Reserve (NNR) and Site of Special Scientific Interest (SSSI). It is also a Scheduled Ancient Monument (SAM) encompassing the industrial archaeology of the site and there are adjacent Local Nature Reserves (LNRs).

Understanding the fossil resource

Nature of the site

This is an exposure site with finite elements such as the reef knolls and ripple bed.

The process of exposure

There is gradual natural exposure of fossils by weathering and artificial exposure through managed fossil collecting. Fossil finds were at their most abundant during the working life of the limestone quarries and mines, when active extraction continually provided new exposures.

The nature of the interest

The site is internationally recognised for its diversity of well preserved Silurian limestone fossils. Over 600 fossil species are known, including various corals, crinoids and trilobites

(most notably *Calymene blumenbachii* also known as 'The Dudley Bug'), 86 of these species are unique to Wren's Nest.



Fossil collecting from the reef knolls at Wren's Nest.
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The nature of collecting

There is high collecting pressure on this long-established internationally renowned site for scientific study. Estimated visitor numbers are 12,000 annually and include a wide range of parties, from school groups to universities; and amateur and professional researchers.

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Specimens found in the scree can be easily recovered and studied off site. The site also attracts local recreational users.

Ownership

Straightforward: single ownership by Dudley Metropolitan Borough Council which also has management responsibilities.

The nature of the access

Access to unstable areas is controlled by fencing, otherwise the NNR is open access and wardens are present within 'working hours'.

The skills of collecting

Low level skills required and the cost of collecting is low. Specimens are easily recovered from the loose scree and wardens can provide supervision on request.

Research and museum collections

Dudley Museum and Art Gallery has one of the most important collections of local Much Wenlock Limestone fossils in England.

Management options and issues

Whilst fossils are abundant, the vulnerability of the resource to collecting pressure is high. Fossils are found in scree slopes and *in situ* in the reef sediments and associated strata.

As fossils are only exposed by weathering and with the high collecting pressure, unmanaged and irresponsible collecting could seriously deplete the resource. The 'mixed classification' of the site as both exposure and finite presents an interesting challenge where different geological elements demonstrate different levels of vulnerability and need to be managed in different ways.

Selecting the management approach

The site is managed solely by Dudley Metropolitan Borough Council by agreement with Natural England. An open-managed collecting approach is used.

A team of full-time wardens are responsible for the management and conservation of the geological, archaeological and wildlife features. Regular patrolling enables the wardens to share and encourage good practice with visitors and to prevent, as far as possible, any misconduct and damage to features of interest.

Wren's Nest is open to the public, but leaders of organised parties wishing to collect fossils are encouraged to consult the Site Warden prior to their visit. Within the site, safety fencing prevents access to unstable areas associated with former mining. Particularly sensitive and unsafe features are also fenced off, but access is permitted to other exposures where fossils can be collected from areas of loose scree. Designated footpaths and geological trails allow visitors to safely experience the geology of Wren's Nest without causing significant degradation of the features that provide the attraction of the site in the first place.

All visitors and groups must adhere to a Fossil Collecting Code. Under its geological and biological objectives, the Wren's Nest NNR and LNR Management Plan describes how the Code should be managed through regular patrolling, which should also include the checking of the safety fences. The Code aims to convey good collecting practice and comprises a number of key points:

- For safety, climbing on rock exposures is strictly prohibited. Visitors must remain outside of safety fenced areas and keep to the designated footpaths.
- The use of geological hammers and other tools is strictly prohibited on site.
- A small representative sample of fossils may be collected from loose scree material; the collection of fossils from rock faces is strictly prohibited. Help with identification of specimens is offered by the warden service and Dudley Museum and Art Gallery.
- Students of palaeontology should attempt to record as accurately as possible, the location of their finds and the range of fossil species encountered. Any unwanted finds should be

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donated to Dudley Museum and Art Gallery or the warden service for others to enjoy.

Under exceptional circumstances, for PhD research for example, larger quantities of samples may be collected if the collector/researcher applies for prior permission.

The sheer size of the Wren's Nest site alone presents a challenge in terms of management. The fact that Wren's Nest is publicly accessible 24 hours a day means that it is impractical to patrol around the clock. Much of the success of the management approach is based on the good relationship between the wardens, the local community and visitors to the NNR. There is a good understanding of what collecting is allowed (clear advice is given in associated literature and by the wardens) and this, in part, helps to self police the reserve.

Managing and maintaining the geological features on site also benefits biodiversity by providing and supporting a diverse range of habitats. Areas of open ground benefit locally rare flora, while disused underground mine workings are used as bat hibernacula. In June, bee orchids can be found flowering in the Wren's Nest in one of the better locations for fossil collecting. As a result, seasonal zoning is used by encouraging fossil collectors to explore alternative collecting spots away from biologically sensitive areas.

Monitoring and progress

A five-yearly programme of fixed-point photography is used to monitor the condition of the geological features, as described in the Wren's Nest NNR and LNR Management Plan. These features are also required to be monitored as part of Natural England's standard SSSI condition assessment.

Patrolling of the site by the wardens, is a management approach in itself, and also offers the opportunity to visually inspect geological features and ensure that visitors are adhering to the principles of the Fossil Collecting Code. Incidents of irresponsible collecting are very low.

The site continues to yield new and important fossils and visitors continue to enjoy collecting within the parameters of the Fossil Collecting Code. These are all measures of the continued viability of the reserve and the success of the management approaches that have been adopted.

Further information

Map of Wren's Nest Nature Reserves (including the fossil collecting code). URL: www.dudley.gov.uk/leisure-and-culture/museums-galleries/dudley-museum-art-gallery/dudleys-heritage/wrens-nest-national-nature-reserve/ [Accessed March 2012].

Natural England Technical Information Notes are available to download from the Natural England website: www.naturalengland.org.uk. In particular see:

- TIN111: *Managing geological specimen collecting*
- TIN112: *Managing geological specimen collecting: responsible collecting*
- TIN113: *Managing geological specimen collecting: caves*
- TIN114: *Managing geological specimen collecting: Charmouth case study*
- TIN115: *Managing geological specimen collecting: Fowlmead Country Park case study*
- TIN116: *Managing geological specimen collecting: rock coring*
- TIN117: *Managing geological specimen collecting: Whittlesey Brick Pits and King's Dyke Nature Reserve case study*
- TIN119: *Managing geological specimen collecting: Writhlington case study*
- TIN127: *Managing geological specimen collecting: Caldbeck Fells case study*

For further information contact the Natural England Enquiry Service on 0300 060 0863 or e-mail enquiries@naturalengland.org.uk.

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Authors and acknowledgements

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Table 1 Summary of the management approach taken at Wren’s Nest

Management approach taken	Open-Managed approach
Benefits of chosen management approaches	<ul style="list-style-type: none"> • On site wardens delivering geological conservation, management and monitoring collecting; • Geological features protected through prohibited use of hammers and other tools; • Some sensitive features are out of bounds, lessening pressure on the geological resource; • Controlled fossil collecting prevents risk of geological resource depletion and damage; and • Encourages ongoing learning and collection.
Drawbacks of chosen management approaches	<ul style="list-style-type: none"> • Site cannot be patrolled 24-hours a day and is relatively large with remote areas so there is potential for unobserved damaging collecting; and • Assumes visitors will comply with the Fossil Collecting Code.
Current monitoring situation	<ul style="list-style-type: none"> • Condition of geological features monitored every 5 years using fixed-point photography; and • Wardens patrol the site and have observed incidents of irresponsible collecting to be very low.