

Managing geological specimen collecting: Caldbeck Fells case study

This case study has been written to help explain the guidance provided in TIN111. It illustrates the management of geological specimen collecting of minerals from mine dumps and underground mines. The Caldbeck Fells in Cumbria comprise a former mining area that produced a diverse range of mineral ores. The collecting pressure on the resource is high and the threat of that pressure is also high because of the finite nature of the material and the slow process of natural exposure. In addition the excavation of minerals by collectors and researchers could damage the landscape and important archaeological features. Therefore, a comprehensive and integrated management approach to collecting has been developed.

Background

The Caldbeck Fells comprise an area of former mining activity located within the Lake District National Park. The diverse mineral veins were an important economic resource and ores of copper, lead, zinc, iron and tungsten were mined. Around 175 different minerals have been identified from the area and many can still be found in the mine spoil tips and vein outcrops.

Six mineralogical Geological Conservation Review (GCR) sites lie within the Caldbeck Fells area of the Skiddaw Group Site of Special Scientific Interest (SSSI). Parts of the area are also important for industrial archaeology.

Understanding the mineralogical resource

The nature of the site

Finite, with limited fragile mineral resource. Removal of mineral veins or spoil tips would destroy the features of interest.



A diverted stream has caused erosion of the mine spoil dump. © Hannah Townley

The process of exposure

Gradual natural exposure by weathering and erosion; and artificial exposure by mineral collecting.

The nature of the interest

Mix of common and rare minerals.

Managing geological specimen collecting: Caldbeck Fells

The nature of collecting

High collecting pressure: this is an internationally renowned site for the quality and diversity of mineral specimens.

Ownership

Straightforward: The Lake District National Park Authority and the Dalemain Estate own adjoining areas of land and manage the site.

The nature of the access

Open access, but the site is zoned and policed by rangers and volunteers (see management section below). Some old mines and airshafts are fenced off or capped.

The skills of collecting

Moderate level collecting skills are required and collecting is of low cost where minerals are found within spoil. Specialist skills are required to identify rare minerals (in some cases requiring laboratory analysis).

Research and museum collections

Although there are no formal agreements, some specimens have been donated and are displayed in:

- Natural History Museum;
- Manchester Museum;
- Keswick Museum & Art Gallery; and
- Tullie House Museum & Art Gallery.

Management approaches

Most of the Caldbeck Commons are owned and managed by the Lake District National Park Authority (LDNPA). The Dalemain Estate owns the remainder and also has management responsibilities.

The joint ownership and management arrangement does not present difficulties as both bodies appreciate the need to conserve and protect the varied interests of the Fells whilst allowing visitors to experience and enjoy the area (LDNPA, 2007). The summary of the management approach can be seen in the table below.

To prevent damage to the geological and mineral resource, the landscape and the

archaeological heritage, the LDNPA has adopted a mineral collecting policy that applies to their property on the Caldbeck and Uldale Commons and the part of Caldbeck Common owned by the Dalemain Estate.

The policy is supported by a number of stakeholders including Natural England, the British Geological Survey and the Cumbria RIGS Group.

It was developed following ongoing occurrences of irresponsible collecting and serious damage to the varied heritage of the area, including deliberate diversion of streams through spoil heaps and excessive *in situ* collecting.

Information boards at key entrance points explain the policy, which promotes a combination of open managed collecting and controlled collecting through 'traffic light zoning' of areas according to their sensitivity.

- Amateur collecting and educational visits are only permitted in green zones.
- Collecting in amber zones is restricted to those with scientific justification.
- Collecting in red zones is generally prohibited aside from exceptional circumstances where substantial scientific justification can be demonstrated.

A collecting permit must be obtained from the LDNPA by anyone wishing to collect specimens, regardless of the collecting zone. All applicants for permits must agree to comply with *The Code of Conduct for Mineral Collecting on the Caldbeck and Uldale Commons*.

The code of conduct summary

Access

Collectors must apply for a permit (to be carried at all times while on the Fells) and respect the restricted areas, particularly the sensitive areas of geological, archaeological and mineralogical interest around mines and airshafts.

Collecting

Only a few representative samples may be collected from fallen or loose material at the surface of mine dumps. Only small hand tools are permitted. Collecting from vein/rock outcrops

Managing geological specimen collecting: Caldbeck Fells

and excavating large areas of mine dumps is prohibited, as is collecting for commercial gain.

Recording

Collectors must record precisely where minerals are found, using an eight-figure grid reference where possible, and any additional information. Significant finds should be reported to the LDNPA. Specialist advice on sample identification should be sought where necessary. A report on the collecting activity (including information on the identification and storage of collected material) must be submitted to the LDNPA.

Collectors must also avoid disturbing wildlife and leave the site in a tidy and safe condition for those who follow.

Park rangers and volunteers patrol the Caldbeck Fells to ensure visitors and collectors:

- have obtained an appropriate collecting permit;
- are adhering to the mineral collecting policy; and
- are not causing damage to the heritage of the area.

Patrols focus on mineral sites known to have suffered from irresponsible collecting in the past.

Monitoring and progress

Monitoring the condition of the Caldbeck Fells is undertaken in association with Natural England as a requirement of the SSSI designation.

No other formal monitoring is undertaken to assess the success of the management approaches in place, but regular patrolling by park rangers and volunteers allows informal observations to be made.

The extent of damage to the resource and the incidents of irresponsible collecting are significantly less since the introduction of the mineral collecting policy, and in general collectors are now quite supportive of the permit system.

Further information

Lake District National Park Authority (2007): *Caldbeck and Uldale Commons Mineral Collecting Policy*. URL:

www.lakedistrict.gov.uk/learning/geology/caldbeckminerals [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*
- TIN118: *Managing geological specimen collecting: Wren's Nest case study*
- TIN119: *Managing geological specimen collecting: Writhlington case study*

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

Authors and acknowledgements

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Managing geological specimen collecting: Caldbeck Fells

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Table 1 Summary of the management approaches taken within the Caldbeck Fells

Management approach taken	A combination of Open-Managed and Controlled Collecting approaches
Benefits of chosen management approaches	<ul style="list-style-type: none"> • Site zoning allows flexibility in conserving sensitive areas whilst allowing less vulnerable areas to be explored. • Educational opportunities remain but in a manner to prevent damage to the resource. • Compulsory reporting of finds attempts to ensure the continued contribution to scientific understanding. • On-site presence of rangers and volunteers acts as a deterrent to visitors who may not be complying with the Code of Conduct.
Drawbacks of chosen management approaches	<ul style="list-style-type: none"> • Site cannot be patrolled 24-hours a day. • Relies on visitors complying with the mineral collecting policy. • Collecting restrictions met with resistance from some collectors.