

**SCOTTISH
NATURAL
HERITAGE**



**DUALCHAS
NADAIR
na h-ALBA**

**SPITTAL QUARRY
Site of Special Scientific Interest**

SITE MANAGEMENT STATEMENT

Site code: 1463

**Main Street
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Purpose



This is a public statement prepared by SNH for owners and occupiers of the SSSI. It outlines the reasons it is designated as an SSSI and provides guidance on how its special natural features should be conserved or enhanced. This Statement does not affect or form part of the statutory notification or remove the need to apply for consent for operations requiring consent.

We welcome your views on this Statement.

This Statement is available in Gaelic on request.

Natural features of Spittal Quarry SSSI	Condition of feature (date monitored)
Silurian-Devonian Chordata (fossil fish)	Favourable, maintained (August 2002)

Description of the site

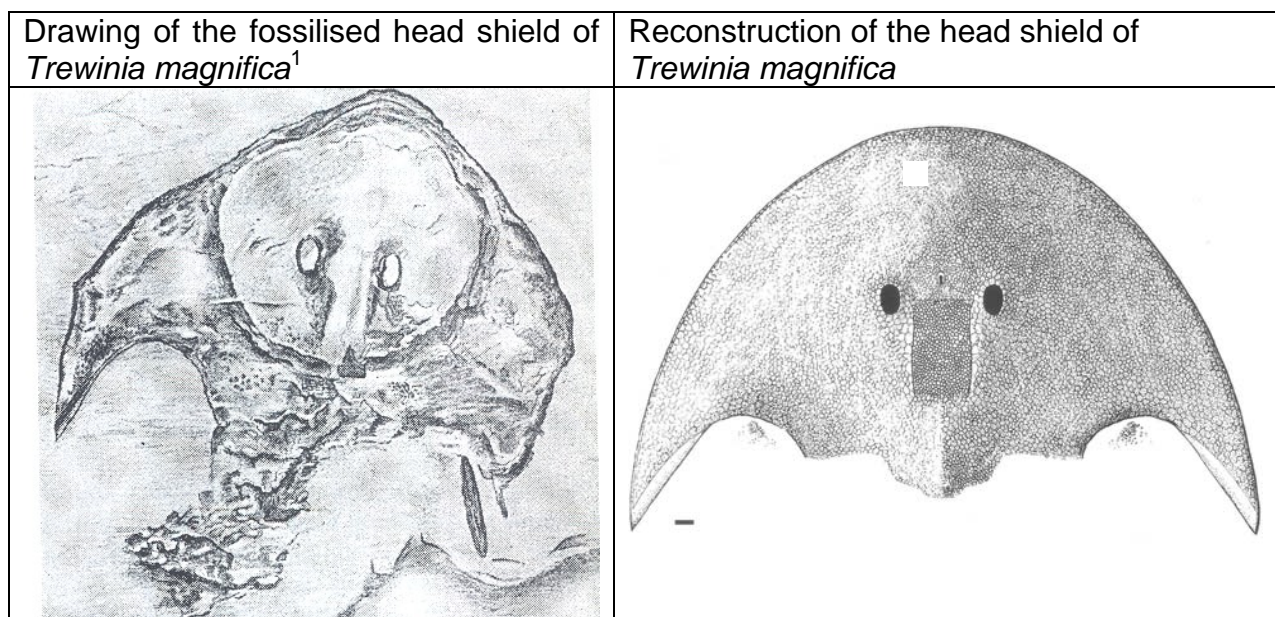
Spittal Quarry is an active quarry 15km south of Thurso, Caithness. The site is designated for its fossil fish that date to the Middle Devonian period of geological time, approximately 380 million years ago.

The rocks at Spittal represent layers of silty sediment that were deposited in the Devonian geological time period, about 380 million years ago. Rocks formed during this time are sometimes referred to as the 'Old Red Sandstone'. The sediments were deposited in a warm semi-arid climate at a time when Britain lay between 20° and 30° south of the equator. The area corresponding to the present day Moray coast, Orkney, Shetland and eastern Caithness all lay within a low-lying basin, which received sediment washed in from surrounding high ground. The lowest point in the basin was occupied by a freshwater lake known as 'Lake Orcadie' in which silts and fine sands were deposited. The lake contained an abundant fish fauna, that lived predominantly in the shallow water margins of the lake. When they died the remains of some fish drifted into the deeper areas of the lake and sank to the bottom, where they were incorporated into the accumulating sediment and became fossilised. Quarry sites throughout Caithness have yielded important fossil fish specimens that have advanced our knowledge of fish evolution and the ecology of Lake Orcadie. The fossils found at Spittal are younger than those found at Achanarras Quarry. Although fossil fish are scarce at Spittal Quarry, being scattered throughout the rock sequence, those present are often extremely well preserved and tend to be large, which makes them important for studies of fish anatomy.

Spittal Quarry SSSI is of international scientific importance because it is the type locality (site where a species was first found and described) for two fossilised fish species: the plate-skinned fish *Dickosteus threiplandi* and the jawless fish *Trewinia magnifica*. *Dickosteus threiplandi* was named after Robert Dick, a Thurso baker (1811-1866), who was amongst the first people to study fossil fish in Caithness and Major PW Murray-Threipland who discovered the type specimen (the first specimen to be described) here in 1956. *Dickosteus* was over 50cm long.

Trewinia magnifica has been found nowhere else and so is unique to this site. It was reclassified in 2005 (from *Cephalaspis magnifica*) when its name was changed in recognition of the continuing research done on Devonian fossil fish by Nigel Trewin (University of Aberdeen). The two specimens of *T. magnifica* discovered at Spittal are the only known examples of this group of fish to have been found in the UK and are similar to fossils that have been found in Canada. They have a head shield width of 35cm.

Monitoring carried out in 2002 found the extent of the fossil-bearing rocks within the site had been maintained. Quarrying operations have modified the site, but the loss of old rock faces had been compensated for by the exposure of new ones. The visibility of the rock exposures is good and access is safe for responsible visitors. There appeared to be no unconsented dumping or storage at the site and no irresponsible fossil collecting. Overall the site was found to be in favourable condition.



Past and present management

Caithness flagstones have been quarried from this site since the middle of the nineteenth century. The stones are removed a layer at a time by experienced quarrymen using mechanised cutting, polishing and lifting equipment and hand tools such as steel wedges and hammers. Conditions of the planning consent for the quarry ensure that selected vertical quarry faces and adjacent floor areas are retained for reference and that spoil heaps will remain uncovered. They also stipulate that all

¹ From Dineley and Metcalfe (1999) Fossil Fishes of Great Britain. JNCC.

fossils found during quarrying are reported to SNH and the National Museum of Scotland, and that SNH is informed of any excavation below the present working level.

There are no facilities for visitors and few people visit this site at present. As this SSSI contains a working quarry, for their own safety, any visitors to the site should obtain permission from the quarry operators.

Objectives for Management (and key factors influencing the condition of natural features)

We wish to work with the owner to protect the site and to maintain and where necessary enhance its features of special interest. SNH aims to carry out site survey, monitoring and research as appropriate to increase our knowledge and understanding of the site and its natural features. A list of Operations Requiring Consent forms part of the formal notification documents of the SSSI. These, and the discussions on land management involved in the issuing of formal consents, are intended to minimise the threat of any damage to the natural features.

1. Quarrying operations should continue to preserve the geological interest of the site. Selected vertical rock faces and adjacent floor areas should remain exposed and accessible with flagstone spoil left uncovered on the site. The reporting of fossils found during excavation will further the ongoing research into fish evolution and the fauna of Lake Orcadie.

2. The quarry should be protected from inappropriate vegetation regeneration and unauthorised dumping, in order to maintain visibility and access to the fossil-bearing rocks.

3. Promotion of the 'Scottish Fossil Code' will encourage the sustainable study and enjoyment of the fossils found on the site and discourage irresponsible or large scale commercial fossil collecting. The Fossil Code will be available from the SNH web site (www.snh.org.uk) from summer 2008.

Date last reviewed: 28 January 2008