

Geological map of the Moor House National Nature Reserve

Dataset Documentation

Geological map of the Moor House National Nature Reserve (1963)

Document Version: 1: 6/12/2013

Prepared by C.M. Wood, CEH Lancaster

MH_Geology.shp file details:

- Format: *Shapefile*
- Contains polygons representing areas of rock types mapped in the 1950s /1960s and originally published as: 'Geological Map of the Moor House National Nature Reserve (1963) Westmorland. Survey for the Nature Conservancy' in **The Geology of Moor House, a National Nature Reserve in north-east Westmorland** (1963) Johnson G.A.L., Dunham K.C., Monographs of the Nature Conservancy (No.2) 1963, HMSO. The map was digitized in the 1990s by the Institute of Terrestrial Ecology (now the Centre for Ecology & Hydrology).

Columns:

GEOLOGY_ID (numeric) Arbitrary unique code per polygon

GEOLOGY (text) Description of rock type (see table below)

ERA (text) Geological era

Spatial reference:

Resolution	Original map - 3" to a mile
Coordinate system	British National Grid
Projection	Transverse Mercator
Extent	Great Britain
Projection	British National Grid OSGB1936

Further reading:

- **The Geology of Moor House, a National Nature Reserve in north-east Westmorland (1963)** Johnson G.A.L., Dunham K.C., Monographs of the Nature Conservancy (No.2) 1963, HMSO.
- **Environmental Change Network.** <http://data.ecn.ac.uk/sites/ecnsites.asp?site=T04>

List of Mapped Rock Types with Accompanying Codes

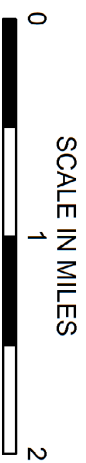
Geology	Description
ALLUVIAL FAN	Sediment built up by streams
FRESHWATER ALLUVIUM	Loose sediment, reshaped by water
LIMESTONE UPPER	Sandstones, grits and shales with coal seams and limestone bands
LIMESTONE MIDDLE	A rhythmic sequence of limestones, shales, sandstones and coal seams
LIMESTONE LOWER	Massive limestones overlain by thin bands of shale, sandstone and limestone
LIMESTONE	Limestone
BASEMENT GROUP	Series of conglomerates and sandstones, with subordinate shale and limestone bands at the top
SKIDDAW SLATE SERIES	Slates, flags, tuffs and lavas
SANDSTONE	Sandstone
QUARTZ DOLERITE	Intrusive Great Whin Sill suite of quartz-dolerite sills
WATER	Water

Background to Dataset

Following the acquisition of Moor House as a National Nature Reserve in 1951, detailed ecological work was begun. The imperfect knowledge of the geological setting and soils of the region was a severe handicap. Following recommendation from the University Department of Geology in Durham, a geological re-survey of the Moor House region was started in 1954 (Johnson and Dunham, 1963). The survey was undertaken by G.A.L. Johnson under a grant by The Nature Conservancy.

Geological Overview

Within the confines of the Reserve, there is exposed the almost complete stratigraphical succession of the Carboniferous rocks of the northern Pennines. Furthermore, the only continuous sequence of the upper part of the Carboniferous beds in this region is exposed on Great Dun Fell. The Carboniferous succession outcrops on the western escarpments and dips eastwards forming level benches and dip-slopes to the east of the summit ridge. The ancient foundation rocks, below the Carboniferous sequence, outcrop at the foot of the western escarpment and small areas of these rocks lie within the Reserve. These rocks are part of the Lower Palaeozoic successions of the famous Cross Fell Inlier. The intrusive Great Whin Sill of quartz-dolerite rock is exposed on the Reserve within the Carboniferous succession on the western escarpment and in the Tees valley. In this region, the sill displays its transgressive nature particularly well. Several mineral veins of lead, zinc, fluorite and barytes are exposed on the Reserve and owing to the inaccessibility of the region, some of these deposits have never been mined. The Force Burn Vein, carrying barytes with galena (lead ore), is exposed for 500ft in the bed of Force Burn near the south-eastern boundary of the Reserve. Glacial deposits of boulder clay and morainic gravel are well developed in the region about the Reserve including moraines left by the last small corrie glaciations of the Pennines which only ended some 10,000 years ago. Peat deposits are developed throughout the region and reach over 12ft in thickness in some areas of level or gently sloping ground (Johnson and Dunham, 1963).



GEOLOGICAL SURVEY BETWEEN 1954-60 BY G.A.L. JOHNSON, B.Sc, Ph.D., F.G.S. FOR THE NATURE CONSERVANCY