



Scotland's  
National Nature  
Reserves

## The Story of Knockan Crag National Nature Reserve



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## **The Story of Knockan Crag National Nature Reserve**

### **Foreword**

Knockan Crag National Nature Reserve (NNR) lies in the North West Highlands of Scotland, 21km (13 miles) north of Ullapool. Knockan Crag is renowned internationally due to an important geological feature called the 'Moine Thrust' that was first identified here. The rocks at and around Knockan Crag also record the last 3,000 million years of history for the landmass that we now know as Scotland. It is one of the most important sites for understanding how the landscape of Northern Britain was formed. Its Gaelic name is Creag a' Chnocain, meaning 'crag of the small hill'.

Knockan Crag is one of more than forty NNRs in Scotland. NNRs are special places where some of the best examples of Scotland's natural heritage are protected. They also offer opportunities for people to enjoy and find out about the richness of our natural heritage.

Knockan Crag is one of Scotland's newest NNRs. It was originally part of a much larger former NNR, Inverpolly NNR. In the late 1990s SNH reviewed all of the NNRs in Scotland. Some NNRs were de-declared, because they no longer met the requirements of the NNR policy. But in 2004 the new NNR was declared at Knockan Crag, and considerable effort made to reveal its interests to the people of Scotland.

This Reserve Story is one of a suite of documents used to manage the NNR. It provides the background information on the Reserve and its history. It briefly describes the geology, the history of land use, and the management of wildlife, people and property on the Reserve.

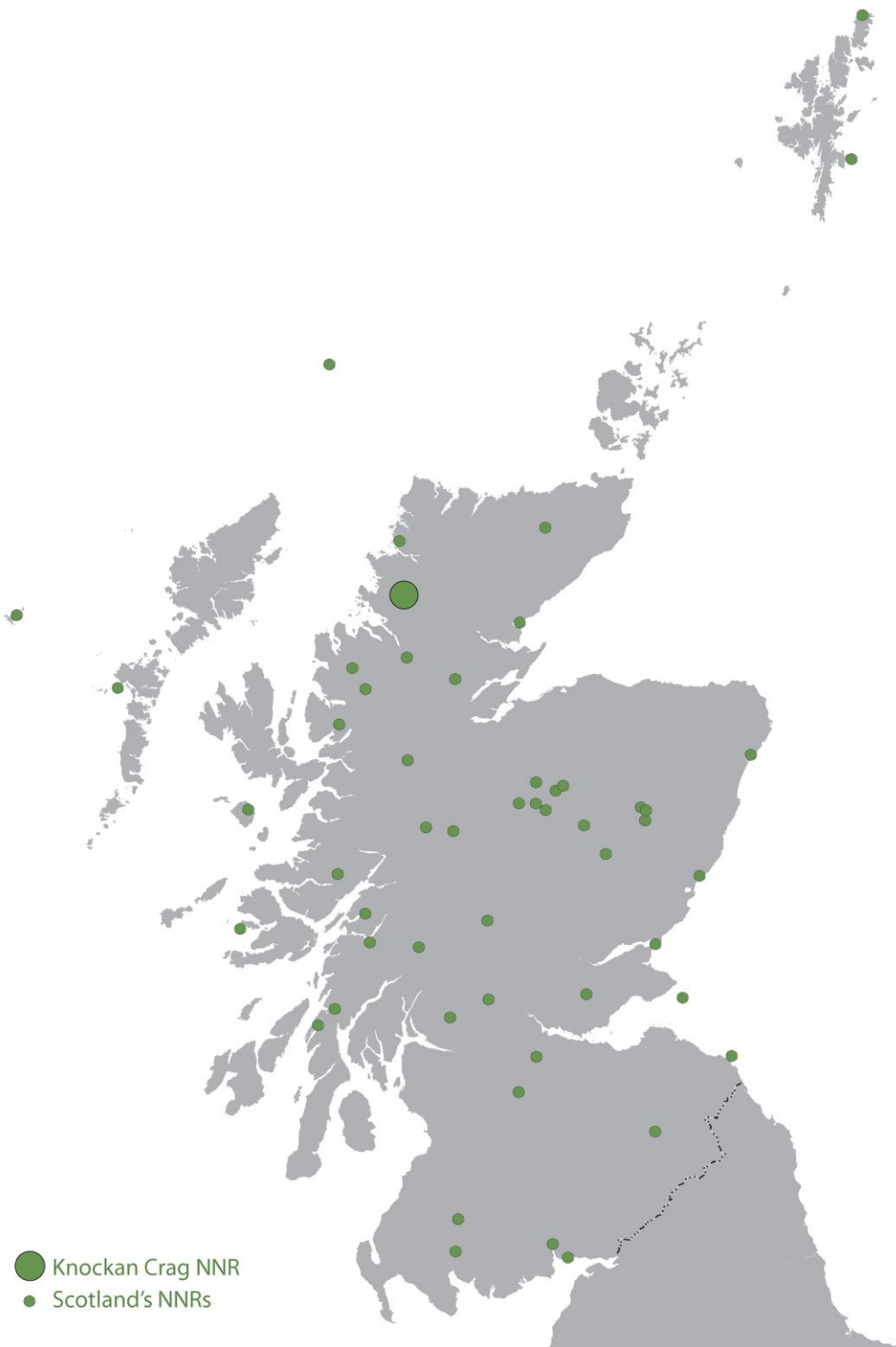
The Reserve Management Plan outlines how we propose to manage the Reserve in future years. During a consultation exercise comments are invited on a draft plan and are then used to inform the final Reserve Management Plan. This is the blueprint for management of the Reserve for a ten-year period. At the end of the Plan period, a Reserve Review is used to report how well our plans have worked. These documents can be downloaded from the Scotland's NNRs website ([www.nnr-scotland.org.uk](http://www.nnr-scotland.org.uk)) or obtained from the address below.

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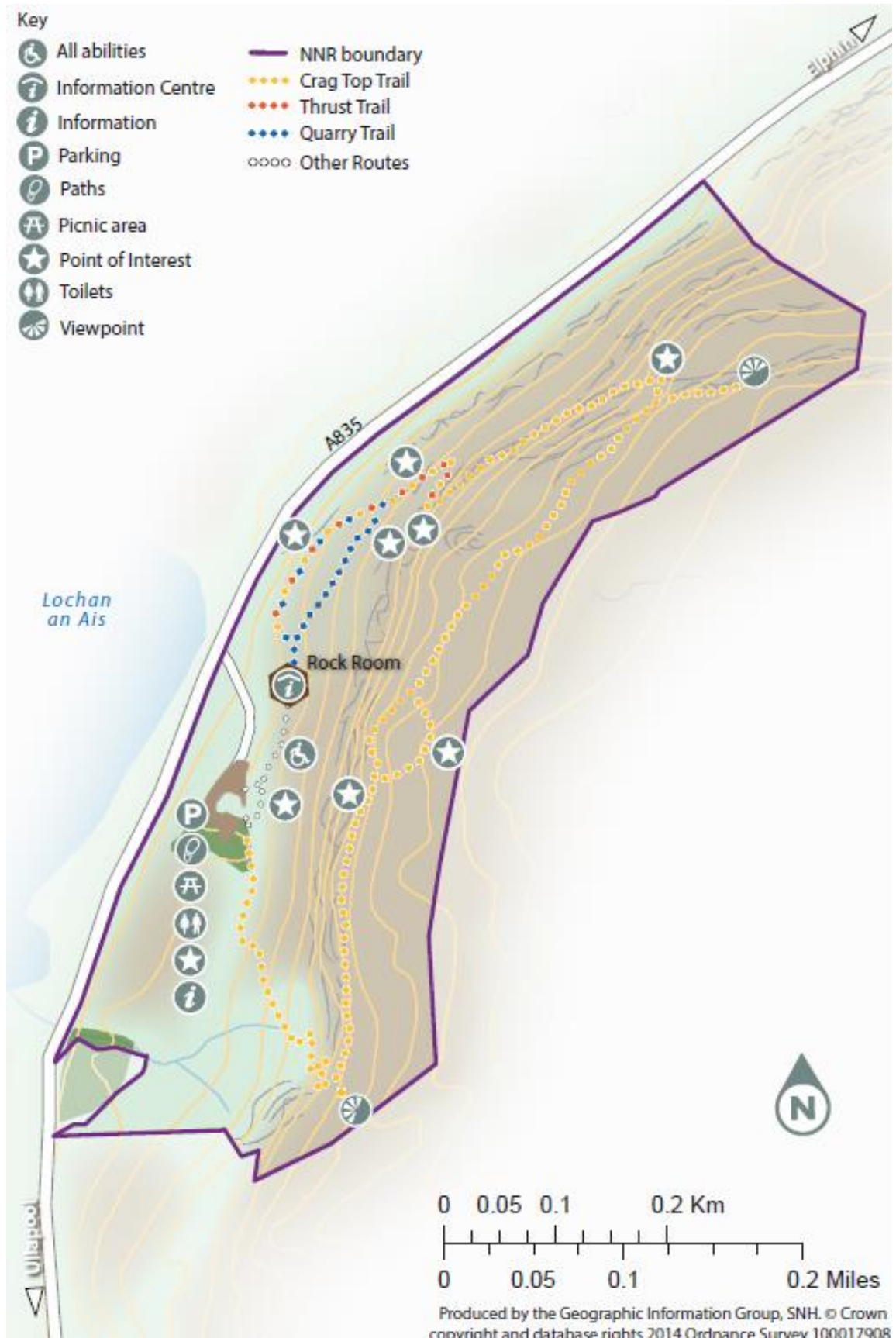
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## Maps of Knockan Crag NNR

### Location map



## Boundary of Knockan Crag NNR



## 1 Introduction to Knockan Crag NNR

Knockan Crag is in the North West Highlands of Scotland, 13 miles (21km) north of Ullapool on the A835, near the crofting townships of Knockan and Elphin. The site is owned by Scottish Natural Heritage (SNH) and was declared an NNR in 2004. The site lies on the south-eastern side of a strath shaped by glaciers that finally retreated about 11,500 years ago. As its name suggests, Knockan Crag is a cliff that rises to a height of 300m above sea level, directly above the road. From the NNR you can see some of Scotland's most rugged and wonderful scenery, such as the hills of Cul Mor, Cul Beag and Stac Pollaidh.

Knockan Crag NNR has provided a visitor facility since 1967 and is part of the larger Knockan Cliff Site of Special Scientific Interest (SSSI). The main interest of the Crag is geological, and a series of trails on the site take the visitor to the main rock exposures. It is also part of a Geological Conservation Review site, which underpins the SSSI designation. Vegetation is also an important feature of the wider SSSI, and these plants thrive on the base-rich soils.

The NNR lies within the North West Highlands Geopark, part of the European Geopark Network. A Geopark is an accolade endorsed by UNESCO for an area with a geological heritage of particular importance for scientific quality, rarity, aesthetic appeal and educational value. The key functions of a Geopark are to protect geological heritage, promote geology to the public, and to use geology and other aspects of its natural and cultural heritage to promote sustainable economic development, normally through tourism.

**Table 1: Protected areas and features of Knockan Crag NNR**

Designation	Site of Special Scientific Interest (SSSI)	Geological Conservation Review Site
Moine	✓	
Upland mosaic (vegetation)	✓	
Knockan Cliff <sup>1</sup>		✓

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<sup>1</sup> Under the Geological Conservation Review Sites – this is listed as *Sites of Special Scientific Interest in the Assynt Region – 3. Knockan Cliff*

## 2 The Natural Heritage of Knockan Crag NNR

### Introduction

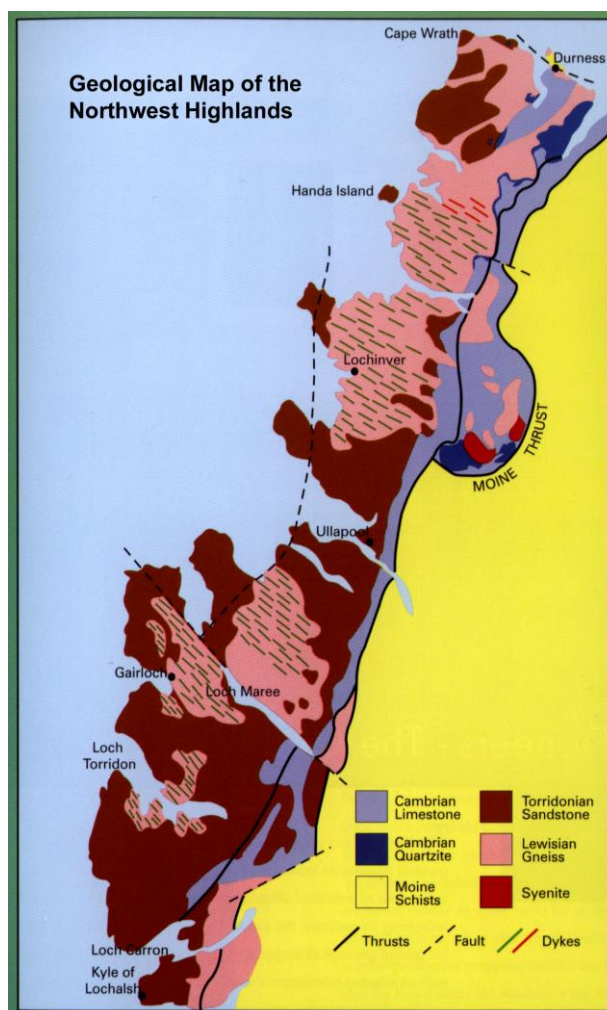
The North West Highlands contains some of the most important and diverse geological and geomorphological features in Britain. Historically, some of the scientific discoveries made in this area have been very important in the development of our understanding of Earth sciences. Many of the earliest advances were made here during the last century by pioneering scientists of the British Geological Survey. Knockan Crag is internationally renowned due to the presence of a geological feature called the 'Moine Thrust' first identified here in the 1860s. The Moine Thrust is a major near horizontal geological fault affecting the rocks, whereby the older rocks have been pushed towards, up and over younger rocks. The identification of this feature was an important advance in understanding geological sequences, and has had an impact around the world.

### The Landscape of the North West Highlands

Geologically, the North West Highlands is divided by the Moine Thrust Zone, which runs from north to south. The route of the thrust runs from Loch Eriboll, through Assynt, down to the Slea peninsula in Skye and separates the North West from the northern Highlands. At Knockan Crag the Moine Thrust is exposed and most of the main rock types of the North West Highlands are represented, providing an excellent opportunity to compare and contrast the different rock types.

### Discovering the Moine Thrust Zone

The Moine Thrust Zone puzzled geologists in the 19th century when they found that older metamorphic rocks were seen to be lying on top of younger sedimentary rocks, a situation they could not easily explain. This juxtaposition caused much controversy in the 1800s and resulted in a discovery that changed geologists' understanding of some fundamental aspects of geology. The debate was considered as important as that stirred up by Charles Darwin's theory of evolution

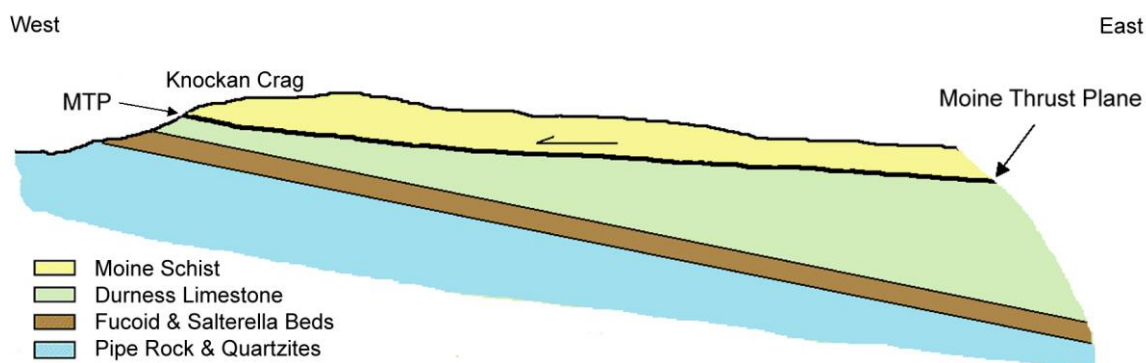


*Geological map of the Northwest Highlands*

in the biological world. Many Victorian geologists had assumed that the rocks at Knockan Crag represented a 'normal' sequence, where younger rocks form on top of older rocks. The process is rather like the pile of newspapers that forms beside a favourite chair, with the most recent one on top.

However, a Professor from Aberdeen, James Nicol, questioned this thinking. How could it be, he asked, that the rocks at the very top of the sequence could be affected by metamorphic processes such as heat and pressure while the rocks below remained unaffected? It fell to a teacher from the Borders, Charles Lapworth, to resolve the problem. He proposed that the older, metamorphic Moine schists had moved towards, up and over younger, unaffected sedimentary rocks, along a low angle fault, to lie on top of them. This idea horrified most other geologists, especially Archibald Geikie, the Director-General of the Geological Survey. He could not believe that rocks could be stacked up in that manner. In 1882 Geikie sent two geologists, Benjamin Peach and John Horne, to map the rocks and finally resolve the argument, presumably expecting it to be in his favour. However, they proved that Nicol and Lapworth were right: the Moine schists had indeed been moved up and over other rocks by faulting.

### Vertical Cross-section Through Rock Strata At Knockan Crag



### Knockan Crag – The Geological Sequence

Ascending Knockan Crag, various rock layers dating from the Cambrian period are found. At the bottom there is a layer known as Pipe Rock, above which there are Fucoid Beds, Salterella Grit and Durness Limestone. Overlying the Durness Limestone are Precambrian-age dark-coloured metamorphic schists of the Moine.

### Pipe Rock

The lowest rock of the sequence found at Knockan Crag is a sandstone called Pipe Rock. It is one of the rock types in the Cambrian-Ordovician sequence of the Northwest Highlands - formed between about 540 million and 445 million years ago. Pipe Rock was deposited about 517 million years ago, when Scotland was still about 30° south of the equator. At this time a shallow sea covered the area that is now the northwest of Scotland.



The Pipe Rock at Knockan Crag is mostly bright white in colour, although in other areas it can be quite pink, and forms a layer about 100 metres thick. It is made up of quartz grains that were deposited as a beach – imagine a pure white sandy beach stretching from Durness to Skye! It is called Pipe Rock because of the tube-like structures in it. These ‘pipes’ are the first indication of life in the rocks in this area. Worm-like creatures that lived in the sand and filtered food out of the sea formed the pipes. Because the worms were soft bodied their remains were not fossilised, but their burrow-like homes were. The diameter of the pipes ranges from a few millimetres to several centimetres. Some of the pipes are straight, for up to 25 centimetres, and others bend round so that both ends would have been open at the surface of the sand, rather like lugworm burrows today.



*Pipe rock*

## **Fucoid Beds**

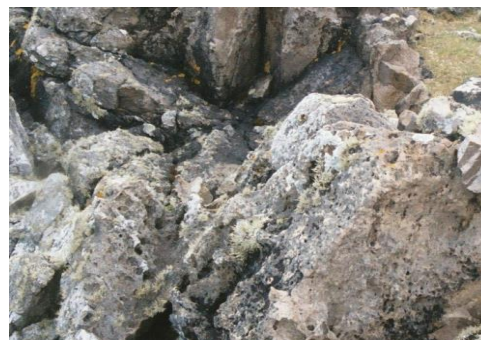
The next rock in the sequence, the Fucoid Beds, ('u' pronounced as 'oo') is a type of mudstone, laid down in deeper water than the pipe rock. Victorian geologists, who thought that it was made from compressed seaweeds, named it after *Fucus* - the scientific name for some types of seaweed. But, seaweeds were not around 500 million years ago - they did not evolve until much more recently. The marks that the Victorians mistook for seaweeds were actually the tracks of animals such as trilobites, which are a bit like modern-day woodlouse. They left marks behind as they crawled across the surface of the mud, giving the rocks a texture that could be confused with plant fossils.



*Fucoid beds*

## **Salterella Grit**

A 10 metre thick layer of Salterella Grit was deposited on top of the Fucoid Beds. It contains the fossils of a small-shelled creature, salterella. These salterella shells are usually less than 1centimetres long and are very much like the spiral tower shells that can be found along the west coast today. It was probably deposited in the intertidal zone where the movement of the tides rolled the grains about and rounded them off. It is likely that the salterella shells, having been broken up by the movement of the tides,



*Salterella grit*

were then washed into the sediment. *Salterella* fossils have also been found in rocks of the same age in Spitsbergen, Greenland and Newfoundland. As the shells are too small to have travelled across the Atlantic, we can infer that Scotland was once part of the same continent as these countries. The *Salterella* Grit is sometimes also known as Serpulite Grit.

## **Durness Limestone**

The youngest rock preserved at Knockan Crag is also the top of the Cambrian-Ordovician part of the rock sequence in this area. The limestone is named after the village of Durness on the north coast, where the most extensive outcrop of the rock is found. Limestones are made from calcium carbonate, either in the form of the shells of dead animals or deposited directly on to the seabed as thick ooze. However for limestone to form the water needs to be a certain temperature. Today, limestones only form in the tropics; and then only where the water is shallow, clear and the sun has warmed it to the required temperature. We can infer that Durness Limestone also formed under these conditions, so at that time the land that we now call Scotland must have been in the Tropics, with conditions similar to those found in the Bahamas today.



*Durness limestone*

## **Moine Schist**

The rock at the very top of the Knockan Crag pile is the Moine schist, the older, metamorphic rock that caused so much controversy. The sediments which became the Moine schists were laid down about 1,000 million years ago. They were originally layers of mudstone and sandstone rocks that were then metamorphosed by heat and pressure into schists, a type of metamorphic rock characterised by a parallel arrangement of most of its minerals. The original sedimentary rocks were deposited at the bottom of a huge ocean, known as the



*Moine schist*

Iapetus Ocean. This ocean separated the landmass that included Scotland, Greenland and North America, from the landmass that England and southern Ireland were on, for over 100 million years. The closing of the Iapetus Ocean, and the subsequent collision that joined these two landmasses, forming Britain, resulted in the Moine schists being moved up and over the sedimentary rocks at Knockan.

## Plate Tectonics

To understand how this collision might have occurred we have to look at the internal structure of the Earth. It is generally accepted that the Earth is made of three main layers. If we were able to look inside the Earth we would find at its centre a very hot molten metal core, surrounded by a thick layer of semi-molten rock, called the mantle, above which there is a relatively thin skin of solid rock. This thin skin or surface of the Earth, often referred to as the crust, is comprised of a collection large and small, 'tectonic' plates. Varying in thickness and composition, these plates of crust are separated by fractures that extend down into the semi molten upper layer of the mantle.

Heat from the core is constantly warming the mantle above it. As the semi-molten rocks of the mantle warm up they start to rise towards the surface, where they cool down and sink back down towards the core. These movements are known as convection currents and are similar to those that form when a pan of water is heated up. These convection currents in the mantle drag the plates of crust around the surface of the Earth, causing them to bump into and grind past each other. This process is called plate tectonics and happens very slowly, at about the rate that fingernails grow.

Some 500 million years ago, Scotland and the north of Ireland were part of a continent called Laurentia. Much of the rest of Britain and the south of Ireland were part of another continent, called Avalonia that lay to the south, across the Iapetus Ocean, which no longer exists. At the same time a third continent – Baltica, including the land that would later become Scandinavia and northern Europe - approached Laurentia from the east. Over tens of millions of years, movements in the mantle brought the plates carrying Avalonia and Laurentia ever closer and made the Iapetus Ocean narrower. When the Iapetus Ocean finally closed around 425 million years ago, the continental collision forced rocks upwards into a huge mountain chain.

The collision between the landmasses buckled, squeezed, and then baked at high temperatures the sediments that had formed on the bottom of the Iapetus Ocean. This process resulted in the sediments becoming the metamorphic rocks of the Highlands. The collision of the landmasses also resulted in the partial melting of portions of the crust and the deformed sediments, to produce molten rock. This molten rock moved upwards in the crust in the form of large masses of granite and other igneous rock types. The granites of the Cairngorm Mountains were formed in this way. One of the last



500 million years ago



430 million years ago



300 million years ago



Today

events associated with the closure of the Iapetus Ocean was the Thrust faulting that pushed the Moine schist up and over the rocks at Knockan Crag.

The collision is not the end of the story however. For the 410 million years since the continents collided and formed Britain, the rocks have been eroded by wind, water and ice. The other obvious change has been the separation of North America and Greenland from Britain's west coast by plate tectonics around 60 million years ago. This episode in plate tectonics also resulted in the formation of Iceland.

## **Glaciation**

The characteristic landscape we see today has been shaped by the passage of huge glaciers that have removed many tonnes of rock from the surrounding area, and sculpted the land. During the last 2.5 million years as many as 18 glaciations have affected the mainland of Scotland. Some glaciations resulted in extensive ice cover, with northwest Scotland resembling modern Antarctica and only the highest mountain summits appearing above the ice sheet. Other glaciations were not so extensive, forming smaller corrie and valley glaciers. Where there was no ice cover intense cold conditions shattered rock on cliff faces and exposed mountain summits. The last glaciers in northwest Scotland melted some 10,000 years ago. Since then snow, frost, wind and rain have continued to weather the exposed rocks of Knockan Crag, and the surrounding landscape. Peaty soils typical of wet conditions have also formed. Erosion is an ongoing process and the recent rock falls at Knockan Crag are merely the latest process to shape our evolving landscape.

## **Habitats**

The habitats at Knockan Crag vary depending on the rock types that formed the soils. Soils formed on the Moine schists are very poor in nutrients, so the habitats at the top of the cliff are dominated by peat-forming vegetation such as wet heath and blanket bog. However, the soils that formed on the limestones, furoid beds and salterella grits are much richer in nutrients and the vegetation reflects this. Here the habitats contain more grasses and herbs than the wet heath and blanket bogs, so they generally look greener and lush.

Screes largely cover the foot of the cliffs. These are better drained than the peatlands on top of the cliff, so the vegetation contains less moss and more ferns. On the more gentle slopes, a herb-rich grassland vegetation has developed. There are also pockets where trees have survived along the cliff, because grazing animals have difficulty reaching them. There are damp seepages down the face of the cliff that have a specialist vegetation of their own.

## **Species**

### **Plants**

While the main botanical interest of the Knockan Cliff SSSI is in the area to the north of Knockan Crag NNR, there are some plant species of note within the NNR. Plants that thrive on the lime-enriched soils include mountain avens and rock sedge. On

the more stable screes below the cliffs, lady's mantle is common where conditions are dry and on wetter ground yellow saxifrage. Areas of block scree provide shelter for several species of fern, notably holly fern and maidenhair spleenwort.



*Holly fern*

Uncommon vascular plants such as hoary whitlowgrass, moss campion and purple saxifrage occur locally. Scrub woodland along the cliff face is predominantly birch with the occasional rowan and hazel. There is also some juniper scrub and a group of well-established whortle-leaved willow.

Above the cliffs there is a gently undulating peaty plateau broken up in places by distinctive limestone knolls with peat-filled hollows between. These knolls support fine examples of mountain avens and rock sedge heath and there is a marked transition to the surrounding acidic peatland vegetation.

## **Birds**

The cliff is home to several interesting bird species, including breeding kestrel, raven and ring ouzel. Peregrine, tawny owls and even snow bunting are occasionally seen, but the main species that accompany walkers with their songs are dunnock, wren, stonechat, and meadow pipit. Red and black throated divers, and whooper swans are sometimes seen on Lochan an Ais, across the road from the Reserve during the winter and spring, and eagles can be seen circling Cul Mor during the summer.

## **Mammals**

The land around the NNR is managed as deer forest and the deer occasionally pass through the site. There are also occasional sightings of fox, pine marten, wood mice, common and pygmy shrews, and short tailed voles.

## **Reptiles and amphibians**

Common frogs and toads are often seen at the edges of the paths, especially during the spring and early summer. Common lizards can often be seen during the summer sun bathing on the paths.

## **Summary**

The earth science interest at Knockan Crag is the most important element of the Reserve and has contributed significantly to our understanding of the earth sciences. The diverse geology leads to a rich flora and fauna, with a number of rare species found on the NNR.

### **3 Knockan Crag before it became an NNR**

The area of Knockan Cliff was originally designated a SSSI in June 1956, under the National Parks and Access to the Countryside Act 1949. The site was renotified a SSSI under the Wildlife and Countryside Act (1981) in May 1987.

Prior to the declaration of the NNR, the Knockan Crag area was managed as part of a larger deer forest and farm. The then Nature Conservancy Council (now SNH) purchased Knockan Cottage and some 36 acres (14.5ha) of the cliff (up to the Sutherland and Ross-shire county boundary) in 1962.

There is very little information on land use other than deer forest prior to NNR declaration in 1962, but there is evidence of small scale quarrying of the Pipe Rock just north of the current entrance to the visitor area. Local stories suggest that this rock was used to build the nearby Knockan Cottage and possibly to maintain the road before it was adopted, upgraded and metalled.

There was major road widening in 1961 along the stretch of the A835 in Sutherland just to the north of the NNR. This road widening actually improved the interest of the site by exposing more rock!

## 4 Management of Knockan Crag NNR

### Key events

1962	Knockan Crag declared as an extension to Inverpolly NNR
1967	First visitor facilities opened
1990	Facilities upgraded
2001	The opening of the 'Rock Room' and improved trails.
2004	Knockan Crag National Nature Reserve declared
2012	Visitor facilities refreshed

### Introduction

Knockan Crag was originally declared as an extension to the Inverpolly NNR on the 28th September 1962. For 40 years Knockan Crag was managed as part of the Inverpolly NNR. The focus of management was on the visitor facilities at the site as the geological and biological interest required little active management. In 2004 at the end of a review SNH undertook of all National Nature Reserves, Inverpolly NNR was dedeclared, as the wildlife/natural heritage features of the site could not be given priority for the near future. It was at this time Knockan Crag was declared an NNR in its own right.

### Natural Heritage Management

The main concern for the habitats on the Reserve is the impact from both sheep and deer grazing. Prior to 2001, only the area immediately around the original visitor centre was fenced, so the majority of the site was open to grazing. This meant much of the heather was over grazed.

When we redeveloped the site in 2001, we removed the fence from just around the visitor centre and stock fenced the whole site. The decision taken to use stock rather than deer fencing was to ensure that the views from the site were not interrupted. The removal of sheep grazing allowed the heather to grow back nice and tall. However, deer still have access to the site and need to be monitored to ensure they do not affect the biological interest of the designated SSSI, such as the heather.

### Management for People

The value of the site for education was recognised early in the Nature Conservancy Council's ownership and they developed the first facilities for visitors in the mid-1960s.

In 1963 there were initial proposals to develop low-key interpretation on the roadside, but these increased to aspirations for a full visitor facility and trails on site.

In 1967 we opened the first visitor facilities at Knockan Crag. They consisted of a visitor centre and car park with a short trail to a viewpoint, with a viewfinder donated

by the AA. The visitor centre was only open during the summer months, usually between May and September, and for a few hours a day.

The paths around the site developed over a number of years. Initially the short trail was extended along the front of the cliff to the Moine Thrust exposure. Later, we constructed a path continuing this up to the top of the crag. It was then continued along the top of the crag and a section of boardwalk added to the south end of the site, where the path cut down to the car park.

The paths provided two interpretative trails - the Nature Trail and the Geological Trail. Features of interest were marked with stone slabs which were interpreted in the separate trail leaflets. We developed a seating area, known as the Shelter, near the Moine Thrust exposure to allow walkers the opportunity to sit and admire the view. This was removed in 1991 as it was in a dangerous condition.

The next re-development of the visitor facilities occurred in 1990. We revamped the visitor centre with new panels that described the various habitats within the Inverpolly NNR, and there was a display of replicas of some of the bones found in the nearby Bone Caves on Inchnadamph NNR.

A full re-development of the whole site started in the late 1990s. A community liaison group was formed to contribute to the project, with membership including local councillors, representatives of the Community Councils and local tourism groups, as well as the local Highland Council Countryside Rangers.

The new facilities were opened in August 2001 and were a major change in direction for the interpretation on the site. The project concept was to develop an 'outdoor museum', and the interpretation became focused on learning about the geology through the landscape. The re-development included:

- building a new "open all hours" interpretative centre, the "Rock Room", with interactive displays such as the Moine Machine and a touch screen computer;
- improvement to the existing trails, development of a new short trail, and the provision of all-ability access to the Rock Room;
- installation of interpretative materials on the trails to create a 'learning through discovery' experience;
- installation of sculptures around the trail, designed to highlight the inspiration that the landscape has had on, for instance, poets and visual artists;
- expansion of the car park, including provision of dedicated coach parking space;
- improvements to the toilet facilities; and
- native tree and shrub planting around the car park and Rock Room by the children from Lochinver Wildlife Watch Group.

While Knockan Crag NNR provides an excellent site for the interpretation of the geology and landscape of the area, we recognised the importance of linking the NNR to the wider area. Therefore, other elements of the re-development included:



- interpretation at 10 'satellite' sites around the wider area, the "Rock Route";
- an education pack in English and Gaelic which is linked to the 5-14 curriculum guidelines;
- a web site (<http://www.knockan-crag.org.uk>);
- production of promotional material for distribution to Tourist Information Centres and other visitor outlets.

The development of the NNR as an interpretative facility is reviewed regularly, and between 2001 and 2009, some further projects were undertaken including:

- an NNR visitor survey that was conducted in 2002/03. This revealed that a high proportion of visitors to Knockan Crag were from overseas (17%) and from parts of the UK outwith Scotland (42%). This compares with figures for other NNRs of 10% and 36% respectively;
- the re-development of the web site to provide further information about the NNR and the surrounding area;
- the production of two new interpretative panels; one for orientating visitors to the site which has been placed in the car park, and another to interpret the recent geological past (glaciation) using the views from the top of the crag;
- the development of an NNR leaflet as part of SNH's suite of NNR leaflets; and
- a regular on-site visitor guide offering walks and further information started during Summer 2007.
- A new seating area at the northern viewpoint
- A new path leading up to the Crag Top Sculpture

In 2009 a plan was put into place to fully refresh the interpretation. Whilst the installations of rock art and trails were still in good order, the interpretation on site had become dated, weather ravaged and in some cases, broken. To build on the interpretation strategy already established, interpretive designers were employed to undertake a full re-evaluation of the site. This led on to a project part funded by LEADER culminating in fully replacing all the interpretative panels on site. In addition the following new installations were put into the site:

- all interpretation in dual English-Gaelic
- new models of Peach & Horne including audio dialogue in 6 languages
- two new computer touch-screens with updated information in 6 languages
- new panoramic view and interpretation of the mountain view from the rock room in Gaelic and English
- a new welcome area including leaflet dispenser
- the first geo-cache site on the NNR

The satellite sites on the rock route were further expanded to include two new stops at Kyle of Durness and Loch Eriboll, thereby extending the tour throughout the whole of the Northwest Highlands Geopark area.



Entrance to the Rock Room

## **Property Management**

In 1963, a wayleave along the side of the road was given to the then County Council of Ross and Cromarty to allow for improvements including widening to double track. In the same year, another wayleave was also granted to the then North of Scotland Hydro-electric Board to allow electricity poles to be erected on the site.

There are three buildings on the NNR: the Rock Room, the toilets and a workshop. Most of the interpretation is in the Rock Room but there are also panels and sculptures on the trails. Other infrastructure on the Reserve includes the access road, car park, several kilometres of paths and fences, and the equipment associated with the supply of water and the functioning of the toilets. All of these require routine checks and maintenance.

'People counters' are installed on the paths to allow monitoring of the use of the paths. There is also a 'car counter' at the entrance to the site to provide a measure of the number of vehicles and, by inference, the total number of people visiting the site. We estimate that there are in excess of 10,000 people visiting the site each year.

Recent rock falls onto the path have resulted in major remedial works on the cliff face including identifying and removing loose and unstable rock. As a result some additional work was required to resurface the paths. There was also a protective

fence put in place in 2009 to stop any rock falls reaching the rock room and path leading to it. As part of the health and safety management of the site there will be ongoing regular monitoring of the cliff face and remedial action taken as necessary. In addition, the SNH Site Management Officer based at Ullapool checks the paths on a weekly basis for any damage.

An accessibility audit was undertaken in 2004 to assess compliance with the Disability Discrimination Act and to suggest future improvements. Many of these have now been implemented and include an additional picnic table suitable for wheel chair use, a seat outside the rock room and improved signage. An all-abilities entrance has been created at the side of the cattle grid at the entrance, to allow access for any people arriving at the site by public transport.

## 5 Document properties

**Images:** Scottish Natural Heritage.

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*Sculpture at Knockan Crag*