

## THE TOPOGRAPHY AND CLIMATE OF NORTHUMBERLAND NATIONAL PARK

### Topography

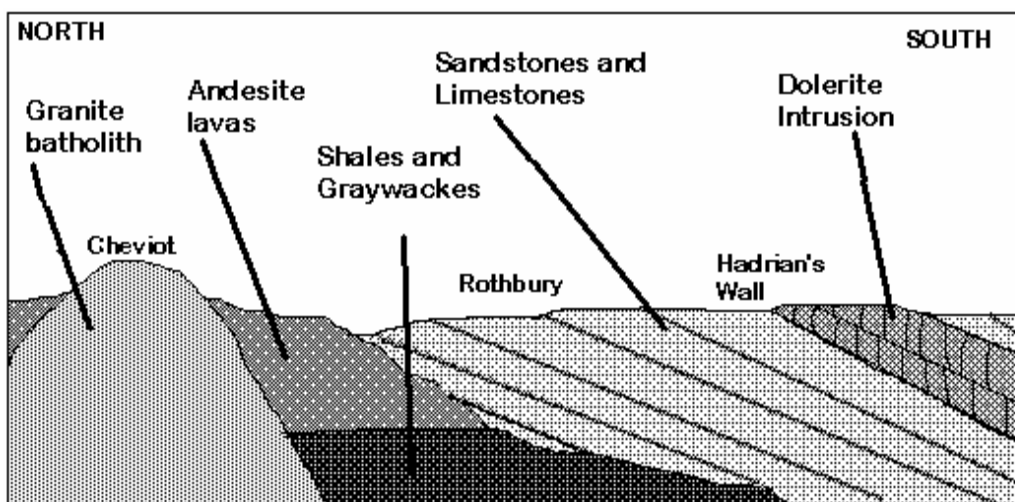
Except for the river valleys, all of Northumberland National Park is over 244m (800 ft) above mean sea level (a.s.l.). Along the Border Ridge and in the Cheviots it exceeds 488m (1600 ft), with the highest point being Cheviot itself at 815m (2674 ft).

### Geology

It is the aim of the National Park to identify and protect important geological sites and features and to ensure that geology is interlinked with the understanding of the environmental, cultural, industrial and visual history and celebrated as a unique resource.

A fascinating variety of rocks and formations lie below and above the surface of the Northumberland National Park. The hard geology of the Park dates mainly from the Palaeozoic era between approximately 440 million and 225 million years ago. Characteristic features include the igneous andesites and granite of the Cheviot Hills, the Fell Sandstones around Rothbury and Simonside and (probably most famously) The Great Whin Sill intrusion (quartz dolerite) along which Hadrian's Wall was built. This hard geology and the landscape were shaped further during the Quaternary era when glaciers moved over Northumberland and the North of England between 25000 and 12000 years ago.

Period	Age (M a.b.p.)	Rock	Location
Silurian	420	Slates and Greywackes	underlying all of Northumberland
Devonian	395	Andesite lava (pink)	Cheviot foothills (Wooler)
Devonian	360	Granite Intrusion	Cheviot (Border ridge)
Carboniferous	330	Sandstone	Simonside hills (Rothbury)
Carboniferous	310	Limestones	Northumberland Trough
Carboniferous	295	Dolerite	Whin Sill (Hadrian's Wall)



The rock types and formations may not be seen or considered on their own by many, but these are the very rocks that create the unique landscape of the Park and give local distinctiveness to walls, buildings and structures. The locations of past and current industry, both small and large scale, are also dependent on the underlying geology. Humans have therefore interacted with, and exploited the geology of the area for millennia and recognition should be given to this relationship with the land. In the past, geological conservation has received little attention within the National Park. This has been recognised, and it is now the aim to ensure that a mechanism is in place to enable this element of the natural environment to be celebrated, protected and enhanced. Local Biodiversity Action Plans have identified important habitats and species and provide a mechanism for their protection. A Geodiversity Action Plan has been developed for the National Park to address issues associated with geologically important sites.

The **boundary** of the National Park is drawn close in to the upland areas, with the result it roughly coincides with the boundary between extensively farmed moorland and the improved intensively farmed land, in other words, the moorland edge.

All the **rivers**, with the exception of the Irthing on the Cumbrian border, drain into the North Sea, giving a generally eastern aspect to the land. Those rising in the Cheviots drain radially into either the Till then the Tweed or into the Coquet. The Rivers Rede and North Tyne flow south east to form the Tyne and then east to the sea.

### **Climate**

Northumberland lies in the Atlantic sector of the northern hemisphere temperate climate zone.

### **Temperature**

Northumberland National Park is the northernmost National Park in England and Wales, being entirely above 55° latitude. It is in the coldest county in England with mean summer **temperatures** in the northern lowlands of Northumberland 0.5°C below those found 100km to the south. Mean summer temperatures decline northwards across the country, and mean winter temperatures decline eastwards. The Environment Agency indicated that the July mean temperatures should be 11°C at 600m a.s.l. and 10°C at 750m a.s.l.. Mean accumulated temperature above 0°C (day-degrees), January to June, for the Park vary inversely with altitude, ranging between 850 and 1150 degrees.

**Precipitation** is greatest over the higher ground, but due to the easterly position of the Park and the position of the high land, there is a significant rain shadow effect. This results in the Cheviot receiving a little over 1145mm per annum, whereas the lower hills within the Park may have only 890mm.

The prevailing winds are from the south west, but there are cold winds from the east during winter. The **growing season** in the Park (av. Temp greater than 6°C) is between April and November, though this could be affected by climate change.

The low mean temperature and high rainfall associated with the altitude and latitude of the Park result in water-logging of fine textured soils and leaching of nutrients in those with a coarser texture. These factors, coupled with the often shallow soils and steep gradients allow limited agriculture, and favour the extensive hill farming and afforestation