

# Geological and environmental learning centres in the Burren

At the Burren learning centres take the opportunity to meet the people who live and work in the Burren – guides, outdoor activity instructors, cavers, park rangers, farmers, environmental enthusiasts and educators. There are a variety of learning activities and programmes available at each of the Burren learning centres – for all ages and all levels of interest.

Learn from the farmer about the traditional farming methods of the Burren on a guided Farm Heritage Tour. Explore with a local ranger how the Cliffs of Moher were formed and identify the numerous birds that call these cliffs home. Go on a guided walk, attend an illustrated talk or partake in any of the numerous educational activities offered by the Burrenbeo Trust. Interpret the unique habitats of the Burren National Park in fun and novel ways with the Park Ranger. Get out there and be active with an expert from the Burren Outdoor Education Centre, learning through activities such as caving, kayaking or rock climbing. Challenge yourself with an educational quest in the captivating exhibition at the Burren Centre Kilfenora.

## Project & Partner Websites

The following are the local partner organisations who helped develop the NEED project:

- |   |   |
|---|---|
| NEED Project:<br><a href="http://www.geoneed.org">www.geoneed.org</a>                                       | Burrenbeo Trust Ltd:<br><a href="http://www.burrenbeo.ie">www.burrenbeo.ie</a>                                      |
| Burren Connect Project:<br><a href="http://www.burrenconnect.ie">www.burrenconnect.ie</a>                   | Cliffs of Moher Visitor Experience:<br><a href="http://www.cliffsofmoher.ie">www.cliffsofmoher.ie</a>               |
| Burren & Cliffs of Moher Geopark Project:<br><a href="http://www.burrengeopark.ie">www.burrengeopark.ie</a> | County Clare Farm Heritage Tours Co-op:<br><a href="http://www.farmheritagetours.com">www.farmheritagetours.com</a> |
| Burren National Park:<br><a href="http://www.burrennationalpark.ie">www.burrennationalpark.ie</a>           | Geological Survey of Ireland:<br><a href="http://www.gsi.ie">www.gsi.ie</a>   |
| Burren Outdoor Education Centre:<br><a href="http://www.burrenoec.com">www.burrenoec.com</a>                | The Burren Centre:<br><a href="http://www.theburrencentre.ie">www.theburrencentre.ie</a>                            |



**A Burren National Park**  
Burren National Park  
National Parks and Wildlife Service  
Francis Street, Ennis  
Co. Clare  
Tel: + 00 353 (0) 65 682 2694  
[www.burrennationalpark.ie](http://www.burrennationalpark.ie)



**C Cliffs of Moher Visitor Experience**  
Cliffs of Moher  
Co. Clare  
Tel: +353 (0)65 7086141  
[info@cliffsofmoher.ie](mailto:info@cliffsofmoher.ie)  
[www.cliffsofmoher.ie](http://www.cliffsofmoher.ie)



**E Burren Outdoor Education Centre**  
Turlough, Bell Harbour  
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Tel: +00 353 (0) 65 707 8066  
[burroec@eircom.net](mailto:burroec@eircom.net)  
[www.burrenoec.com](http://www.burrenoec.com)



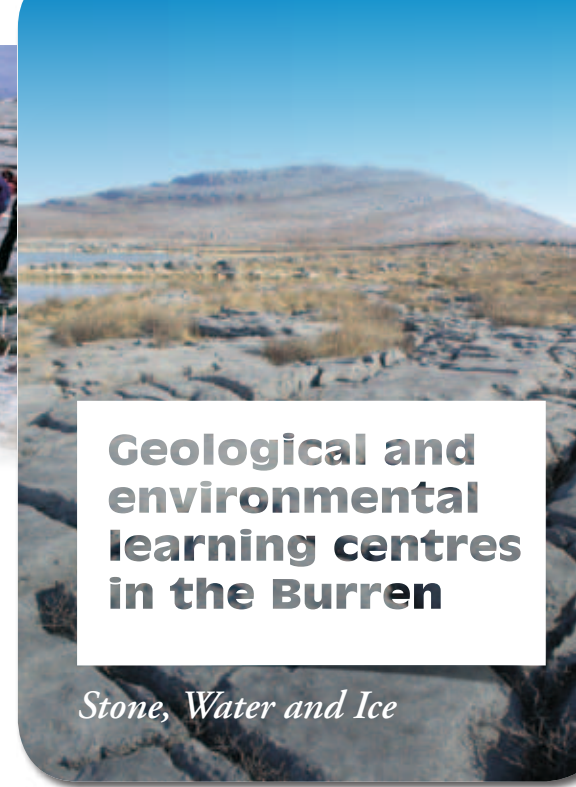
**B Clare Farm Heritage Tours Co-op**  
c/o Michael Cusack Centre,  
Carron, Co. Clare  
Tel: + 353 (0)65 7089944  
[www.farmheritagetours.com](http://www.farmheritagetours.com)



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# Geological and environmental learning centres in the Burren

*Stone, Water and Ice*

Second Edition

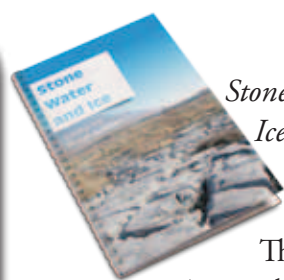
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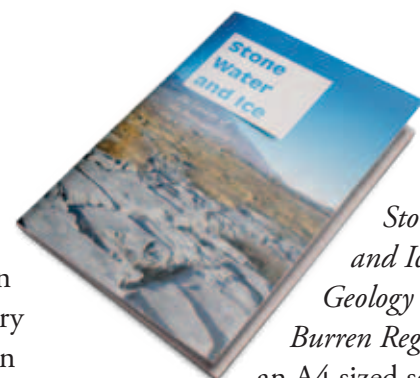
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*Stone, Water and Ice – A Geology Trip through the Burren*  
This handy

A5 size book gives an introduction to the fascinating story of the Burren landscape. The origin and unique geology of the Burren is presented using a variety of maps, illustrations and photographs. It introduces nine locations (geosites) in the Burren, where characteristic features of the landscape may be observed, and how the Burren is a landscape moulded and shaped by stone, water and ice.



*Stone, Water and Ice – The Geology of the Burren Region*  
is an A4 sized scientific review of the widely researched and fascinating geology of the Burren region. This review provides detailed information on topics such as palaeogeography, lithology, palaeontology, geomorphology, and the occurrence of mineral resources in the region.



*Stone, Water and Ice – Teachers' Information Booklet* provides a variety of educational tasks and activities that focus on understanding many interesting aspects of the landscape and geology of the Burren. The booklet includes illustrated information sheets, colourful maps, and student work sheets for a variety of learning activities.

Keep an eye out for the *Stone, Water and Ice Information Panels* located at visitor centres and learning environments throughout the Burren.



The Northern Environmental Education Development (NEED) project is a transnational cooperation project between Ireland, Finland, Norway and Iceland and is a part of the Northern Periphery Programme 2007-2013.

For more information visit the NEED website: [www.GeoNeed.org](http://www.GeoNeed.org)

For information on the Burren & Cliffs of Moher Geopark Project – visit: [www.burrengeopark.ie](http://www.burrengeopark.ie)

The NEED Project Ireland is coordinated by: Burren Connect Project, Clare County Council, Ennistymon Area Offices, Ennistymon, Co. Clare, Ireland

[www.burrenconnect.ie](http://www.burrenconnect.ie)





NORTHERN ENVIRONMENTAL  
EDUCATION DEVELOPMENT

## KEY

- 1 Geosites
- A Learning Centres
- ◆ Burren Information Point
- ◆ Visitor Centre / Attraction
- ✦ Viewing Point
- ★ Monument
- - - The Burren Way
- - - The Mid-Clare Way

## Rock Types

- Siltstone & Sandstone
- Shale
- Limestone



### 2 Fanore Beach

Golden sand dunes, storm beaches of boulders stacked together by powerful waves, rocks rich in ancient marine fossils and smooth lime encrusted stones in the river bed of the Caher river – the only surface river in the northern Burren, are all to be discovered at Fanore Beach. Together with its diversity of flora, birdlife, butterflies and moths – and evidence of prehistoric hunters-gatherers living amongst the dunes, it is easy to understand why this beach is a Special Area of Conservation.



### 3 Doolin Pier

Experience the full force of the power of the Atlantic Ocean, as it crashes into the land, and see the massive limestone blocks that have been thrown up onto the shoreline.

Imagine the great ice sheets that moved across this land between 25,000 and 12,000 years ago, plucking rocks and boulders from the landscape, carrying them along and then dropping them as the weather warmed and the ice melted. Spot these huge glacial erratics scattered around the fields of the Burren.

### 1 Flaggy Shore

Strewn with rocks from far away places, this shoreline provides several clues to the movement of ancient ice sheets across the Burren landscape. Pink coloured granite rocks from Connemara to the north and purple sandstone rocks from the Slieve Aughty Mountains to the east; share the shoreline with the native grey limestone rocks of the Burren.

The smooth limestone pavement of the upper shore is embedded with the fossils of creatures that lived here 330 million years ago, while the brown coloured, pitted, deep creviced limestone (biokarst) of the lower shore is being carved by living marine organisms.



### 4 The Cliffs of Moher

Imagine the time taken to create the mighty and formidable Cliffs of Moher. The sand, silt and mud layers of the cliff face tell us about the local environment that existed over 300 million years ago when they were laid down in an ancient river delta. Stand on the cliff top and experience the powerful energy of the Atlantic Ocean's wind and weather which has carved those layers of sand, silt and mud into cliffs. Examine the fossil trails in the flagstones and picture the unidentified, wormlike creature that made them as it moved across the soft sediments over 300 million years ago before they were hardened into rock.



### 5 Lisdoonvarna Spa Wells

Lisdoonvarna (Lios Dúin Bhearna, meaning the Fort of the Gap) is set within a landscape of steep shale hills, interspersed with the deep gorges of the Aille, Gowlaun and Kilmoon rivers. Where the upper shale layer meets the underlying limestone a number of mineral springs rich in sulphur, iron, magnesium and calcium emerge, providing Lisdoonvarna with the health-giving water that has attracted visitors to the town for over 150 years.



### 6 Burren National Park

Follow the Green Arrow Nature Trail and the longer Green, Red and Blue Walking Routes to view limestone pavement, calcareous grassland, hazel scrub, woodland, turloughs, lakes, petrifying springs, cliffs and fen. Your journey of discovery will lead you towards the folded limestone layers of Mullaghmore - a mountain buckled and warped by ancient movements of the Earth's crust.



### 7 Lough Bunny

Explore the shoreline of this mysterious lake – where no streams flow in or out. Seek out the unique karst limestone features of freshwater lakes such as the peculiar egg-box shaped solution hollows. Here you stand between the ancient limestone pavements of the Gort lowlands which extend eastwards towards the Slieve Aughty mountains and the younger limestone hills which rise up to the west.

# GEOSITES OF THE BURREN



### 9 Poul nabrone

Pause for a while at Ireland's most ancient and iconic archaeological monument. For almost 6,000 years, Poul nabrone portal tomb, built by the local Burren community of that time, has stood proud within this rocky landscape. Look closely at the rocks that surround you and discover the fossils of the marine creatures that lived in the warm, shallow, tropical sea that covered this area approximately 345-326 million years ago - before dinosaurs, flowering plants or man had even evolved.



### 8 Carran Turlough

Walk the quiet roads of the Carran Polje - the largest karst depression in northwest Europe. This large hollow can be filled, very quickly, with a seasonal lake (Carran Turlough) when rainfall is high and groundwater wells up through underground springs. As the season dries it can empty just as quickly, as the water drains underground through subterranean channels and swallow holes.

Explore the Carran Loop Walking trail over Termon Mountain, with its fantastic views across the Carran Turlough, and visit the historical monuments of Termon Cross, Temple Cronin Medieval Church and St Fachtnan's Holy Well.

If you would like to learn more about the landscape and geology of the Burren, visit one of the many Burren Learning Centres located in the Burren. See reverse side for more information.