



Scottish Natural Heritage is a government body that works to conserve and enhance Scotland's wildlife, habitats and landscapes.

We aim to help people better understand and enjoy Scotland's natural heritage so that it can be sustained for future generations.



Forestry Commission
Scotland

Forestry Commission Scotland is the forestry department of the Scottish Executive, advising on and implementing forestry policy.

Our mission is to protect and expand Scotland's forests and woodlands and to increase their value to society and the environment.

CAIRNGORMS
NATIONAL PARK

Set up in September 2003, the Cairngorms National Park is the largest in Britain.

The park is a refuge for a host of rare plants and creatures, including 25% of the U.K.'s threatened species.

FARLEITTER CRAG TRAIL 3.5kms/1.5hrs

ALLT MOR TRAIL 5.5kms/2.5hrs

RYVOAN TRAIL 7kms/3hrs

3
TRAILS INSIDE

Barcode

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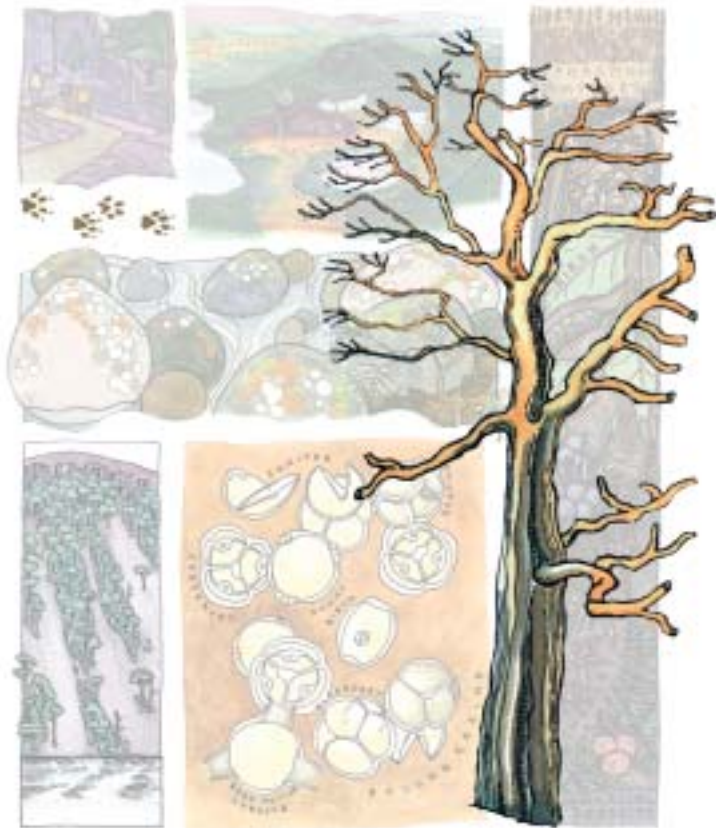
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Scottish Natural Heritage. www.snh.org.uk

TRAILS THROUGH TIME IN THE CAIRNGORMS NATIONAL PARK



**Discover the dramatic story of the Cairngorms
with these pictorial guides to 3 family walks**

TRAILS THROUGH TIME

ANCIENT PEAKS AND MOLTEN ROCK, TROPICAL MOUNTAINS, ICE AGE GLACIERS...the Cairngorms have dramatic stories to tell.



Ancient peaks and molten rock...

These mountains have not always looked as they do today...400 million years ago, long before the dinosaurs, they were part of a huge mountain chain, higher than the Alps, that stretched from North America to Norway. Beneath those mountains molten rock solidified into granite.



Tropical mountains...

Millions of years of erosion wore down those craggy mountains and periods of warm, wet climate left rounded granite summits and shallow valleys. Today, that ancient rolling landscape can still be seen on the high Cairngorm plateau but elsewhere, the Ice Age glaciers changed things completely.



Ice Age glaciers...

Over the last 2 million years, global climate fluctuated regularly and Scotland had up to 18 distinct Ice Ages. In the Cairngorms you can see signs of ice action everywhere. Steep glens and corries, ice scoured rocks and vast heaps of sand, gravel and other rock debris are just a few of the features left behind by the glaciers.



Cairngorms today...

Today the Cairngorms are still changing, and frost, floods, landslides, peat formation, and human activity all continue to leave their marks on the landscape.



TRAILS THROUGH TIME

explores the landscape and geology of 3 Cairngorms walks. Let the pictorial guides help you find clues to reveal the exciting stories.

ALLT MÒR

creeping BOULDERS SURFING stones

It may not look like it, but in places soil and rocks on the higher slopes are slowly creeping downhill.

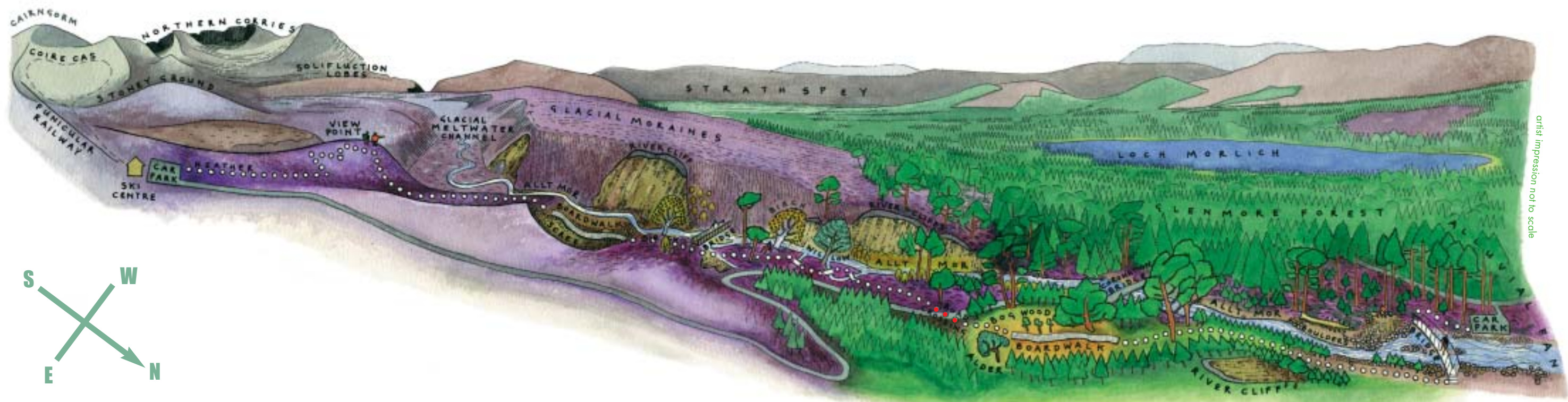
In spring, as deeply frozen ground thaws, water is trapped in the soil and the soggy mix carries rocks and plants down the slope. This is solifluction; it's typical of arctic climates. Over the thousands of years since the glaciers melted, solifluction has formed crescent shaped lobes on many mountains. Can you spot any on the slopes above?

BULLDOZERS at work

Look at the middle part of a scar. What you see is not just stony soil... it's a mixture of rocks and mud left behind by a glacier 15,000 years ago.

This glacier came from the huge icefields that covered most of the Scottish Highlands at that time. Acting like a monster bulldozer, the ice pushed rocks and mud before it, plastering the mountainsides and leaving mounds and ridges known as moraines. The moraines here could have come from up to 50kms away, perhaps from the Loch Laggan area.

Use our artist's impression to uncover evidence of the Allt Mòr's icy past.



ICY KNIFE cuts gorge

How was this huge gorge formed? To find the answer, we must go back to the Ice Age.

15,000 years ago, a glacier filled Glenmore and every spring and summer a deluge of icy meltwater would have poured from the ice. This water thundered east along the edge of the glacier, eroding a deep glacial meltwater channel. **But notice the bend in the channel.** The edge of the glacier extended east-west so why does the channel suddenly turn north?

At this point the meltwater river, finding a weak point, plunged under the ice, cutting a new channel at an angle to its original course.

Look for rounded boulders at the tops of the scars... that's the bed of the ancient meltwater river, still visible today



DEEP heat

Over 400 million years ago, Scotland was part of a massive mountain chain, higher than the Alps. Deep within those mountains bubbled the molten rock that was to solidify into the granite heart of the Cairngorms. **Feel the roughness of a granite boulder and look for crystals of its three minerals;**

- quartz (clear)
- feldspar (pink or white)
- mica (black)

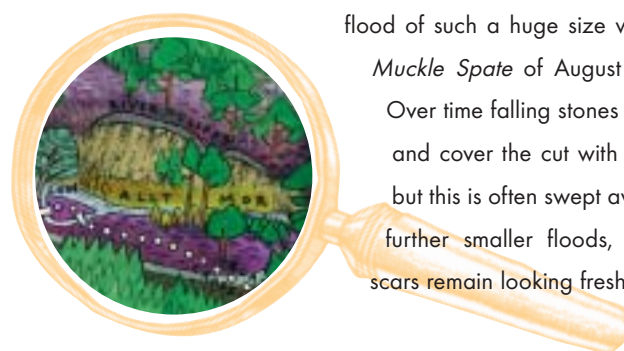
Cairngorm granite contains a lot of feldspar and often appears pink; the Gaelic name for these hills is Am Monadh Ruadh, the red hill-range.

SCAR tissue

How old are these scars? Most of them are over 100 years old! They are landslips, caused when massive, but very infrequent floods, cut into the gorge sides. The last recorded

flood of such a huge size was the *Muckle Spate* of August 1829.

Over time falling stones pile up and cover the cut with 'scree', but this is often swept away by further smaller floods, so the scars remain looking fresh.



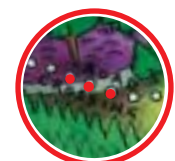
Main path is shown by ○○○○

trickle to TORRENT

Don't be deceived, the Allt Mòr, is a truly wild river and after summer thunderstorms or rapid snowmelts it can quickly become a raging torrent. Boulder-moving floods are rare, say 50 years apart, but every day small stones and sand are flushed downstream. Over thousands of years, all this material has settled to form a broad alluvial fan, now hidden by forest.



TAKE CARE!



MAIN ROAD.



from below the information centre.
Alternatively, park in the main Ski Car Park and start the walk
and turning right.

Start the walk by crossing the footbridge over the Allt Mòr
Coylumbridge and just over 1km after Glenmore Visitor Centre.
Centre. The Allt Mòr Car Park is on the left about 7.5kms from
From Aviemore take the road to Coylumbridge and the Ski



HOW TO FIND THE ALLT MÒR TRAIL

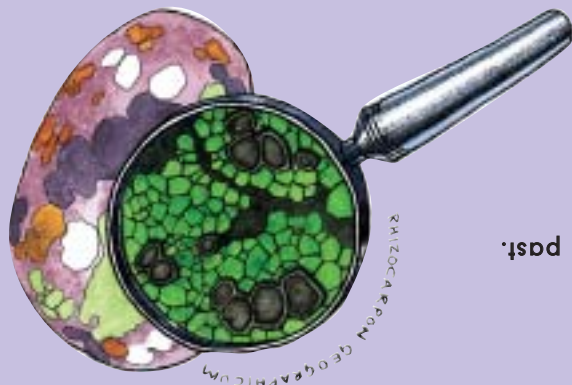
The Allt Mòr is an unpredictable river. A flash flood in June
1956 destroyed bridges and trees and washed away the road
below Coronation Bridge. You can still find bits of the old road
downstream.
Four years later, on the night of 5 August, it happened again -
stranding people upstream and delaying the opening of the first
Cairngorm Chairlift. After that, in an effort to protect the road,
the riverbed was bulldozed to widen and deepen the channel.

WILD MOUNTAIN TORRENT

LAND BULLDOZERS

Imagine the power needed to move these boulders. The Allt
Mòr in flood is a force to be reckoned with... rainfall intensifies
of over 40mm per hour have been recorded here, resulting in
some of the highest flood run-off rates ever seen in Britain.

HOW MUCH WATER POWER BROUGHT YOUR BOULDERS HERE?



Allt Mòr flood 1960. Photo: Alastair McCook

New arrivals: the cleanest ones. They've arrived within the last
five years and are still clean from being tumbled and scraped
along the riverbed.
Old timers: the ones with tiny plants growing on them. They've
probably been in place 20 years or more. Look for coloured
patches on the boulders. These are lichens. They grow very
slowly and steadily and geologists use some species, for
example *Rhizocarpon geographicum*, as living clocks, to
estimate how long the rocks have been exposed.

BEEN HERE?

HOW LONG HAVE THESE BOULDERS

The boulders scattered around the Allt Mòr hold clues about the past.
As you walk pick out some interesting boulders
and do a little detective work...

BOULDERS

Let someone know where you are going and always be
prepared for bad weather, with warm, waterproof clothing,
strong footwear and something to eat.

This is one of the wildest environments in Britain!

Take Care!

- **BEWARE** steps and boulders make the path unsuitable for prams, wheelchairs and bicycles.
- **WATCH CHILDREN** after the bog wood, the path crosses a main road.
- Don't feel like walking uphill? Catch the bus to the top and walk down. (Phone 01479 811 211 for bus times, or visit www.rapsons.co.uk)
- Allow 2.5 hours for a family to walk the 5.5kms up and back, at an easy pace. Our artist's illustration is not to scale.
- This trail follows the Allt Mòr river. Allt Mòr is Gaelic for 'Big Burn'. There are no Trails Through Time signs on the ground but the gravel path is easy to follow.
- You can join the trail at several points but most people start at the Allt Mòr Car Park, follow the path up to the Ski Car Park and return by the same route. See 'HOW TO FIND THE ALLT MÒR TRAIL'.
- See Ordnance Survey Landranger map 36 for more detail.

Before you start

If you enjoyed this trail why not explore other river walks in the area?

- Walk by the River Nethy at Abernethy; call the Explore Abernethy centre on 01479 821565, or visit www.nethybridge.com
- Walk the River Feshie from Feshiebridge to the Insh Marshes Nature Reserve; call 01540 661518 for details of summer guided walks.
- Follow the Speyside Way at Aviemore or Grantown-on-Spey; contact the Ranger Service on 01340 881266, or visit www.speysideway.org

For a more strenuous summer walk, call at the Information Centre and collect a Coire Cas Walk leaflet from the Ranger

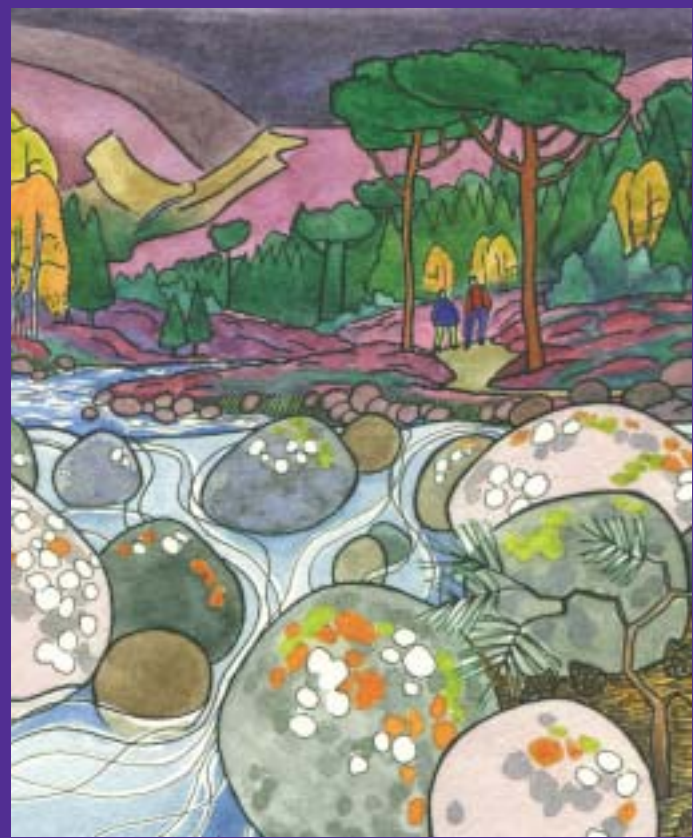
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ALLT MÒR TRAILS THROUGH TIME

TAKE THE FAMILY on a trail through



Ice and water shaped this wild landscape

time along the dramatic Allt Mòr gorge

and discover how the raw power of



FARLEITTER CRAG

Use our artist's impression to unravel the story locked away under Farleitter's surface

Artist impression not to scale



STRANDED

What made the paw print shape of Uath Lochans? It may look as though a giant wolf stepped here but the lochans were really formed by something almost as strange; a massive chunk of ice. At the end of the last Ice Age the climate warmed quickly and within a few decades the huge Strath Spey glacier began to melt and break up, releasing torrents of sediment-laden meltwater every summer.



15,000 years ago

This area would have looked like a watery moonscape, littered with huge chunks of decaying ice, half buried in sand and gravel.



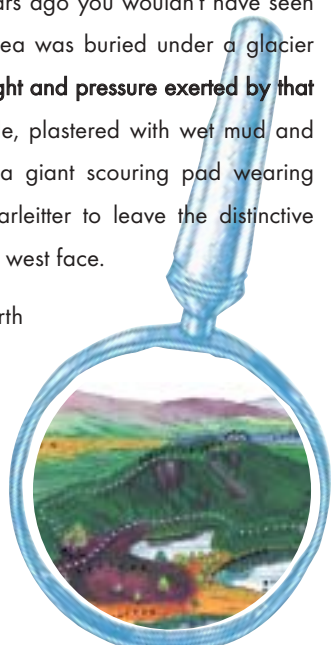
10,000 years ago

One of these ice chunks ended up where the lochans now lie and its steep sided imprint, known as a kettlehole, became a lake of milky coloured meltwater.

ICY birth

Farleitter Crag is known as a roche moutonnée, or 'rock sheep'. Had you been here 20,000 years ago you wouldn't have seen the Crag because this whole area was buried under a glacier over 1km thick. **Imagine the weight and pressure exerted by that much ice.** The glacier's underside, plastered with wet mud and studded with rocks, acted like a giant scouring pad wearing away the softer rock around Farleitter to leave the distinctive smooth slope of the Crag's south west face.

As the ice moved over the north east side of the hill it froze onto the rock and then tore chunks off as the glacier moved onwards. Over time this plucking action steepened the side of the hill forming the steep craggy cliff we see today.



ROCKS bounce back

20,000 years ago this area was filled by the Strath Spey glacier, one of Scotland's biggest and fastest moving at over 30 metres a year. When it melted, it left polished bedrock, littered with the rocks that had been frozen to its base. Today the once smooth bedrock lies cracked in untidy slabs. **Look for it on the gentle slope behind the erratic - why is it all cracked up?**

Lift a weight off a sponge and see it regain its original shape. That's what happens to rock once the heavy ice melts; the rock moves back up and cracks open. The weight of the ice sheets depressed all of Scotland and even now some parts of the country are still rising.



HITCH hiker

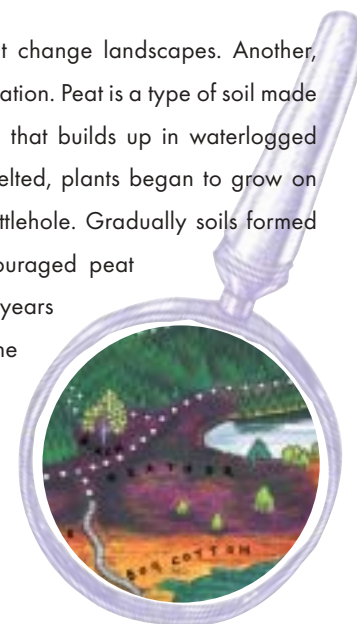
Imagine the power needed to move this huge boulder. Glaciers can carry rocks like this for thousands of kilometers and when the ice melts they often get left in dramatic positions, far from their origins. These rocks are called erratics.

See how the surface of this erratic is criss-crossed by white quartz veins and feel how the hard quartz stands out from the rock. The quartz under the erratic doesn't protrude as much, because the rock underneath is sheltered from the elements.



POWERFUL plants

Its not just huge ice sheets that change landscapes. Another, more subtle process is peat formation. Peat is a type of soil made of partially decomposed plants that builds up in waterlogged conditions. After the glaciers melted, plants began to grow on the bare rocky shores of the kettlehole. Gradually soils formed and the mild wet climate encouraged peat formation. Over thousands of years the peat built up, dividing the original lake into several smaller ones. Perhaps in a few more thousands of years the Uath Lochans will fill in completely.





Let someone know where you are going and always be prepared for bad weather, with warm, waterproof clothing, strong footwear and something to eat.

This is one of the wildest environments in Britain!

Take Care!

more detail.

- See Ordnance Survey Landranger map 35 for steep unfenced drops.
- **Beware! Watch children and animals**, the upper section of the path follows the cliff edge and has easy pace. Our artist's illustration is not to scale.
- Allow 1.5 hours for a family to walk the 3.5km at an Car Park. See 'HOW TO FIND FARLEITTER CRAG'.
- Most people start and finish this walk at Uath Lochans the route up the crag is marked by green waymarkers. signs on the ground but the path is easy to follow and Farleitter Crag. There are no 'Trails Through Time'
- This trail loop takes you round Uath Lochans and up **Before you start**



Imagine being able to take snapshots of ancient landscapes, now long gone. The deep peat around Uath Lochans lets us do just that. This peat is over 4 metres thick and has slowly built up over the last 13,000 years. Plants don't decompose completely in peat and pollen grains are often perfectly preserved. Drilling out a core of peat is like taking a slice back through time and by examining pollen grains buried at different depths we can tell what vegetation grew here in the past.



POLLEN - key to lost landscapes

If you only associate pollen with hay fever, think again. Each plant species produces distinctly shaped pollen to fertilize its seeds and it's only under a microscope that the unique and beautiful shapes are revealed. It's under the microscope too, that pollen helps us unlock the secrets of past landscapes.



the Lochans.

about 2kms.

From Aviemore, take the B9152 south. After about 5kms turn left at Kincaig and follow the road to the junction after Loch Insh Watersports Centre. Turn right at the junction and then turn left after 1km. Uath Lochans Car Park is on the right after



HOW TO FIND FARLEITTER CRAG

If you enjoyed this trail why not visit other roche moutonnée at....

- Torr Alvie, above Loch Alvie (map ref: NH877088)
- Dulnain Bridge near Grantown on Spey (map ref: NJ003253)

Visit other kettleholes at ...

- Loch Morlich (map ref: NH965095)
- Loch Insh (map ref: NH830045)

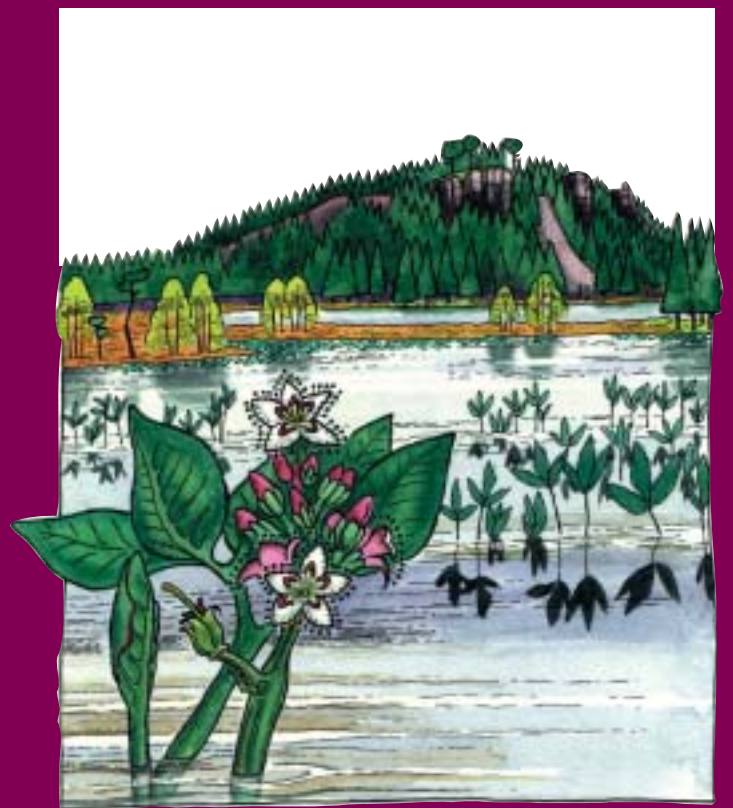
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FARLEITTER CRAG

TRAILS THROUGH TIME

CLAMBER up Farleitter Crag



treasure trove of landscape secrets

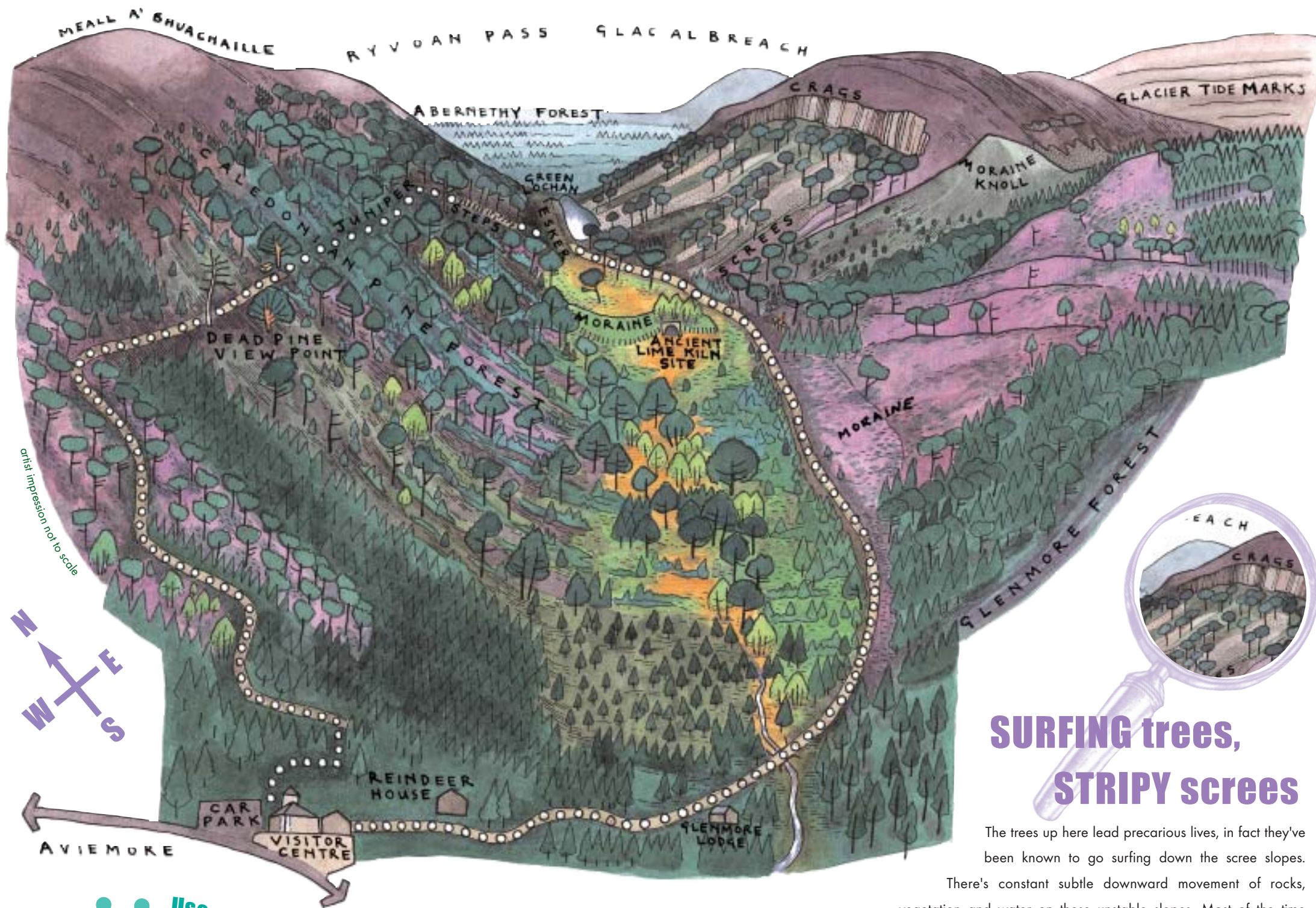
or stroll round mysterious Uath

Lochans and you walk over a



RYVOAN

The main path is shown by 0000



ICY conveyor belt

Ice melts without trace but glaciers leave marks and here in Ryvoan we can unravel the story of the last Glenmore glacier by looking at what it left behind. Like a massive conveyor belt, the glacier scraped up and carried a mix of rocks and mud along with it. When the ice melted, this debris was left behind as mounds and ridges we call moraines. Scotland has a vast legacy of this type of glacial material; it's used to make tracks and roads all over the country. **Take a closer look at some moraine...** rounded rocks have been smoothed by ice and meltwater and are from inside the glacier. More angular rocks escaped grinding and were probably carried on top of the ice.



glacial ESCAPE ROUTE

The glaciers that carved the narrow funnel of Ryvoan were being pushed from behind by the huge Spey Glacier pressing northwards. Moving at over 300 metres a year, this glacier was fast and powerful and little could stand in its way.

Imagine the Pass filled with powerful, moving ice, relentlessly forcing a way through and shattering the rock sides by sheer pressure. Each successive glacier widened and deepened the channel carved out by its predecessor and Ryvoan's distinctive U-shaped cross section is the sure sign of a valley cut by ice, not by a river.

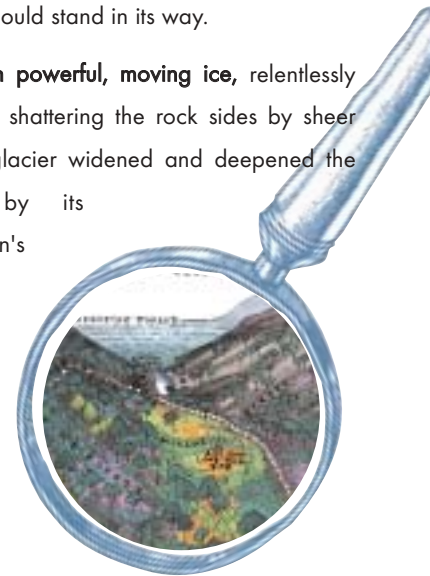


SURFING trees, STRIPY screes

The trees up here lead precarious lives, in fact they've been known to go surfing down the scree slopes.

There's constant subtle downward movement of rocks, vegetation and water on these unstable slopes. Most of the time there's little visible movement but heavy rain or disturbance can suddenly sweep chunks of slope downhill, giving the stripy, part forested appearance you see here in Ryvoan.

Water trickling through these screes contains very few plant remains; that's one reason for the Green Lochan's unusual colour. Not everyone agrees though; old tradition says the colour is due to fairies washing their clothes in the water. **Which explanation do you prefer?**



Use our artist's impression to uncover evidence of Ryvoan's dramatic past and some of its early inhabitants

hidden SUBWAYS

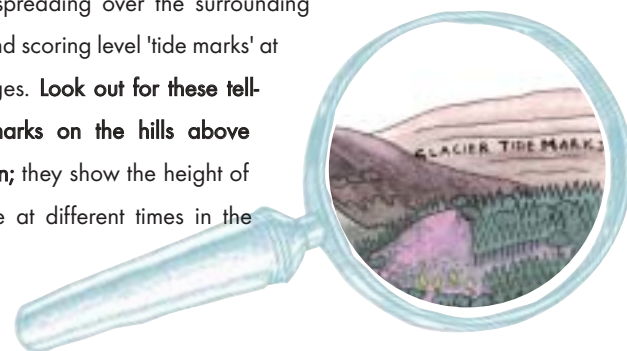
Glaciers aren't just solid ice, they contain hidden tunnels running with huge quantities of water, sand and gravel. Sometimes all this material can even block the tunnel completely. Eventually, when the ice melts, a narrow winding ridge of sand and gravel called an esker, is left stranded. The steps down to the Green Lochan are cut through an esker.

Imagine standing in the darkness of that icy subway with thousands of tons of moving ice creaking and groaning all around.



TELL-TALE 'tide marks'

Scotland's Ice Age lasted two and a half million years. During that time the temperature fluctuated and glaciers melted and reformed as many as 18 times. We know that ice, from the huge Spey glacier to the SW, filled Ryvoan several times and flowed towards Abernethy Forest. Sometimes the ice covered the top of the Pass, spreading over the surrounding hills and scoring level 'tide marks' at its edges. **Look out for these tell-tale marks on the hills above Ryvoan;** they show the height of the ice at different times in the past.



ELEPHANTS above

Have you noticed the 'elephants'?

Although there are no records of real elephants in the Pass, these ones are known and loved by local people.



glacier's LAST GASP



15,000 years ago

Today Ryvoan is peaceful, but 15,000 years ago, as the glaciers melted at the end of the Ice Age, this was a dangerous and noisy place. Torrents of meltwater thundered through the Pass, blocks of ice toppled from the edge of the glacier and razor sharp rocks clattered down from the cliffs above. At that time the glacier completely blocked the Glenmore end of the Pass and so all the meltwater was forced east towards Abernethy. Only when the ice finally lost its grip on Ryvoan could water flow naturally **Which way does the water flow today?**



Let someone know where you are going and always be prepared for bad weather, with warm, waterproof clothing, strong footwear and something to eat.

This is one of the wildest environments in Britain!

Take Care!

- See Ordnance Survey Landranger map 36 for more details.
- **BEWARE...** the upper section is unsuitable for prams, wheelchairs and bicycles.
- The upper part of the trail, with lovely views through ancient pine forest, is narrow and rocky in places. The lower path is broad and easier.
- People followed... the earliest people left few traces and we can only guess at who they were, but a flint arrowhead, found high on the Cairngorm plateau, tells us that they hunted here over 5000 years ago. The remains of an old limekiln also tell us that people discovered limestone here and probably used it to fertilise local fields.
- Until recent times, Ryvoan Pass was the main route to Glenmore; hunters, traders, woodcutters, soldiers and countless unknown others have travelled this way. At one time, for reasons we can only guess Ryvoan Pass even earned the fearsome reputation of being 'The Robbers' Road'!

Before you start

- This trail loop takes you into Ryvoan Pass. There are no 'Trails Through Time' signs on the ground but the path follows the blue waymarkers.
- You can join the trail from several places, but most people start and finish at Glenmore Visitor Centre. See 'HOW TO FIND RYVOAN PASS'.
- Allow three hours for a family to walk the 7km at an easy pace. Our artist's illustration is not to scale.
- The upper part of the trail, with lovely views through ancient pine forest, is narrow and rocky in places. The lower path is broad and easier.

If you enjoyed this trail why not find out more about the early inhabitants of the area by visiting....

- The Highland Wildlife Park near Kingussie. phone 01540 651270 or visit www.highlandwildlifepark.org
- The Highland Folk Museum near Newtonmore. phone 01540 661307 or visit www.highlandfolk.com
- Glenmore Forest Park Visitor Centre in Glenmore. phone 01540 861220 or visit www.forestry.gov.uk
- For another Ryvoan walk, pick up a Ryvoan Pass self guided tour leaflet at the Explore Abernethy Room in Nethy Bridge (tel 01479 821 565 for opening times).

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CAIRNGORMS NATIONAL PARK



RYVOAN

TRAILS THROUGH TIME

From OCEAN DEPTHS

Believe it or not, Ryvoan's dramatic scree slopes were once the floor of an ancient ocean. That ocean closed up 400 million years ago and its muddy floor was buried several kilometres deep in the earth's crust. Down here, intense pressure and heat cooked and squeezed the ocean sediments into pinky grey schist rock. For millions of years the schist lay buried, but when the glaciers chiselled out Ryvoan's sheer cliffs, it was at last exposed to daylight.

Long after the ice melted, rocks continued to shatter and crash down, building these dramatic scree slopes. But the journey hasn't stopped for the schist... little by little it erodes back into sand and mud. Today the cliffs have worn back to safer, more gentle angles and rockfalls are very rare... stop and enjoy the silence.

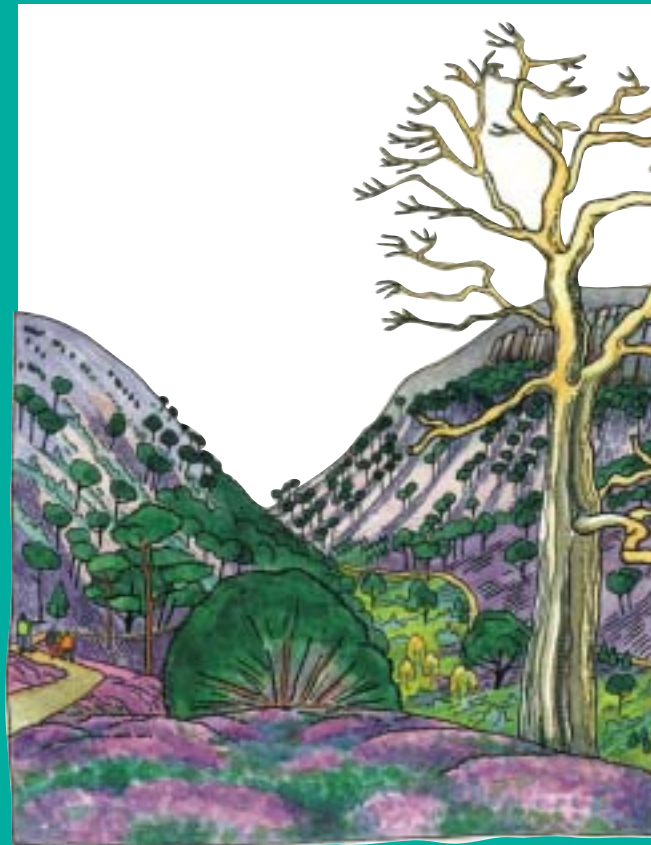
Slowly, in the wake of the ice, vegetation gained a foothold. Then came wild Caledonian woods and forest animals.

People followed... the earliest people left few traces and we can only guess at who they were, but a flint arrowhead, found high on the Cairngorm plateau, tells us that they hunted here over 5000 years ago. The remains of an old limekiln also tell us that people discovered limestone here and probably used it to fertilise local fields.

To walk Ryvoan really is to follow ancient footsteps.



FOLLOW ancient footsteps on a



TRAIL THROUGH TIME into Ryvoan Pass

and discover a landscape

HOW TO FIND RYVOAN PASS



From Aviemore, take the road to Coylumbridge and the Ski Centre. About 6kms after Coylumbridge you'll find Glenmore Visitor Centre Car Park on the left.

Start the trail from a narrow path that climbs into the forest behind the Visitor Centre. Turn right at the first junction and walk downhill to take the second track on the left. After about 1km, this wide forest road becomes narrow and rocky and enters the old Caledonian forest. After another 1km, the trail drops steeply down to the Green Lochan and picks up the broad track back towards the Visitor Centre.

