

## Day Excursion

# Rock Slope Failures of the Arrochar Hills

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Participants 18

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At the AGM in January 2012 David Jarman gave a short talk on *Collapsing Munros – shaping the Highlands*. The time allotted was all too short and David could only introduce the topic of Rock Slope Failures. However he readily agreed to lead a future excursion to our own back-yard, the Luss Hills, Arrochar Alps and Cowal.

On a beautiful sunny April morning 16 of us met up at the foot of Glen Douglas and were taken on a road tour, with associated short hikes, via Loch Long, Glen Croe, Loch Goil, Hell's Glen and Loch Fyne. Our trusty friend Raymond negotiated the coach over some of these tricky single track roads.

David's full notes for a self-guided tour, including photographs, render this report rather superfluous. His Guide is on the website ([www.geologyglasgow.org.uk](http://www.geologyglasgow.org.uk)). However it is worth giving a flavour of this excellent excursion to encourage you to take to the High Road!

Rock Slope Failures (RSFs) comprise large landslips, rockslides and slope deformations affecting square kilometres of hillsides and penetrating 100s of metres deep. They occurred around or soon *after* deglaciation periods and were first recognised and mapped by C T Clough in the 1890s. However following David's recent research 1000 or so have been identified in the Highlands, the greatest concentration being in our area of the Arrochar Hills. RSFs help to explain the shaping, enlargement or destruction of these mountain ridges, corries and glens.

I found the language of RSF to be helpfully evocative. Here are a few examples:

1. Glacial breaching. At the Rest and Be Thankful this cuts deeply into the pre-glacial watershed thus concentrating erosion and provoking RSF clusters. From Hell's Glen the fretted ridge down the west side of Loch Goil is a series of breaches in the making.

2. "The Great Landslip" (on early geological maps). This marks an RSF *rock* slide, *not* glacial debris. The sliding zone is a combination of jointing and foliation surface (in schist), aided by gravity. The huge creeping failure at Morelaggan, Loch Long continues to cause problems for the West Highland Railway - and the A814.

Morelaggan debris



NB don't blame the Rest and Be Thankful road closures on RSFs! They are the result of small debris flows in the *glacial till* plastered onto the steep side of U-shaped Glen Croe.

3. Source cavities (or 'cracking great holes'!). These are the source of the rock debris. In other words, the mountains are coming apart! By walking the Carrick Glen track you can view many RSFs and imagine the huge caves and yawning chasms above as a slice of the valley headwall is collapsing. We were told that Creag na Saobhaidhe looks like a mini Whangie!

4. Anti-scarp array (uphill facing scarplets). These dip into the hillside. Some are 'cocked hat' breakouts, well seen in Glen Douglas. Other RSFs can form hazardous tension fissures. At The Steeple on East Loch Goil the fissures are 35 m deep.



5. Fanged peaks. The Cobbler's distinctive two-fanged peak is formed by a huge landslip off the back into Glen Croe. Ben Lomond's peak has been similarly sharpened with its distinctive north end 'cocking a snook' at travelers up the Loch.

Cobbler from Morelaggan

6. Shrinking summits. As well as changing the shape of our mountains, RSFs are depriving some of their Munro status! Such as Beinn an Lochain.

7. Deranged drainage! Stream patterns which descend the mountains at odd angles, or dried out slopes with powerful springs at the foot. In some cases RSFs pre-date the Loch Lomond Readvance.

The illustrated Guide is designed to be self-guided. A set of binoculars – and some good weather – will help you interpret these features of RSF in the Arrochar Hills. I have only picked out a few of the aspects that fascinated me. Enjoy!