On landslides and their impact – lessons from Loch Quoich for the A83 and SSE's green credentials

Description

Spidean Mialach from the south with landslide above head of Loch Quoich dam.Â October 2021

On 10th November 2018 a large landslide took place above the eastern end of Loch Quoich.Â It was triggered by the collapse of a crag halfway up the steep hillside, demolished an electricity pylon and resulted in the road to Kinloch Hourn being closed for 6 months while the slope was stabilised at an estimated cost of Â£1m.

An informative commentary on the causes of the landslide and links to photos/drone footage of original damage can be found on Dave Petley's Landslide Blog which covers major landslides round the world (see here). I didn't visit the site until last month but believe what happened and the subsequent restoration has direct implications for both our National Parks.

High risk slopes

Slope just to the right of the landslide with boulder debris from the recent (and past) rockfall bottom left

Falling rocks/collapsing crags clearly have a significant impact on the slopes that lie below them and in this case triggered a wider landslide (estimated 9,000 tonnes).Â That is not always the case, as is illustrated by the rockfalls above the Radical Road in Edinburgh (see here).Â The risk of landslides is determined by topography, climate and climate change but also how we use the land.

The state of the ground to the right of the landslide at Loch Quoich, a skin of glacial debris and earth

lying on top of glacial slabs without a tree or shrub in sight, suggests that this whole slope was/is waiting to go.Â You can see how water has scoured away the slopes to leave areas of bare rock. Whatever the stability of the crag which partially collapsed, it's not difficult to see how major rainfall might trigger further landslides here.Â And the western end of Loch Quoich is one of the wettest places in Scotland…….

The parallels with the land above the A83 below the Rest and Be Thankful in the Loch Lomond and Trossachs National Park should be obvious.

Photo taken 2019, credit Louise Brimelow

The skin of glacial debris and soils at the Rest and Be Thankful appears to be thicker than at Loch Quoich.Â Â Potentially that might have made it easier for trees to establish themselves on this slope and help stabilise it.

But despite the known risks, sheep were still being allowed to graze these slopes two and a half years ago, just like deer at Loch Quoich where the Deer Management Group reports an average density of 15 deer per square kilometre (see here for figures in Deer Management Plan)

Beinn Luibhean 2016

The greater depth of debris and soil at the Rest and Be Thankful has meant that once the slope reached tipping point, it has become even more difficult to stabilise through engineering works. Loch Quoich shows that the problems at the Rest and Be Thankful are far from unique.

Centre part of slope in 2019. Photo credit Louise Brimelow

With the increase in extreme rain events due to climate change, closure of roads and disruption of utilities is likely to become more common.Â While sometimes it seems the Scottish Government has a policy and strategy for almost everything, it doesn't have one for landslips.Â It should do but that

would mean tackling the predominant forms of land-use in the uplands (industrial forestry, sheep farming and sporting estates) and the environmental degradation they have caused.

It would also mean the Scottish Government would have to stop palming off responsibility for fixing the problems caused by climate change and land-mismanagement, including landslips, onto others:Â Highland councillors were apparently forced to meet the costs of stabilising the slopes above Loch Quoich "f*rom other capital budgets"* even though the council could have done nothing to prevent this landslip.

Highland Council have not been helped by the Loch Lomond and Trossachs National Park Authority (LLTNPA) failing to show a lead.Â The LLTNPA has failed to consider the landslide problem in the National Park and has been almost totally silent about the problems at the Rest and Be Thankful.Â They are therefore in my view in part responsible for the road closures at the Rest and Be Thankful which are becoming more frequent (see here) as Transport Scotland rightly has to close the main A83 whenever heavy rain is forecast.

The catch pits at the Rest and Be Thankful – a lesson from Loch Quoich

Catch “fences” and catch pits under construction 2019. Photo credit Louise Brimelow

Rather than address the issues created by the construction of A83 across a steep slope that was always high risk and has been allowed to become even more unstable through decades of land mis-management, the Scottish Government’s answer has been to put up fences and dig holes above the road in the hope of catching debris.Â It hasn’t worked but despite that in September the Scottish Government committed another Â£3.5m to constructing yet more catchpits.Â That the Rest and Be Thankful Campaign were right to be criticise the decision (see here) is demonstrated by what happened at Loch Quoich.

Landslide debris below the Loch Quoich spillway viewed from the dam and easternmost of the 3 new pylons . Note the landscape impact and damage caused by the construction.

A significant part of the landslide jumped the spillway – have you ever seen a larger catchpit?.

The landslip jumped the spillway by the waterfall. The rocks are a geological Site of Special Scientifi Interest designated because of an igneous intrusion which shows the surrounding Moine rocks must at least 870m years old.

An impressive leap!Â I haven't been able to find out how much material dropped into the spillway but apparently the hydro electricity operation at the dam was closed until it was cleared – so some did.Â Clearly, to cross his gap the landslide must have been moving at a significant velocity and the change in angle when it hit the road above may have helped it become airborne. .Â While the catch pits at the Rest and Be Thankful are 6m deep, at least one of the crags above (visible in the photos)Â appears well placed to serve as a landslide spring board, so it is not just their capacity which is the issue.

There are similar unstable slopes on both sides of the Rest and Be Thankful, which will take decades to address with any nature-based solutions.Â Given the landscape importance of Glen Croe and the importance of the A83, the LLTNPA should have been advocating for work to start on a tunnel as soon as possible. Instead, so far, they have chosen to remain silent.

Scottish and Southern Electricity's environment credentials

The westernmost of the three new pylons above the Loch Quoich dam

Yesterday, my copy of the Herald was wrapped in a cover paid for by SSE, which described itself as "Principal Partner for COP 26".Â There are actually eleven (see here).

Inside there is a piece from Nicola Sturgeon, which says *"it is important to keep on investing in sustainable projects that deliver both environmental and economic benefits for Scotland".* Alongside that there is a piece from Alistair Phillips-Davies, Chief Executive of SSE, which talks about *"constructing smarter greener electricity highways in our transmission and distribution businesses". Â Â*

The three electricity pylons that SSE have replaced at Loch Quoich give a glimpse of what this "greener transmission system" means on the ground.

The middle pylon

Large quantities of imported aggregate – at what carbon cost – more hardstanding to drain water off the hill and no attempt at landscape restoration.

The hyprocrisy at the top of SSE is remarkable.Â On the one hand they take money from government to underground pylons and restore the landscape in places like Glen Falloch (see here), while elsewhere they show no compunction in trashing the natural environment.Â This is not the fault of people who are doing the work on the ground, they do what they are told, but it is the consequence of capitalist companies like SSE that put money before people and the natural environment.

Unrestored ground at Drumochter with destructive muirburn behind, snapped from the passenger window July 2021

After seeing what SSE's subsidiary, Scottish and Southern Electricity Network, have done at Loch Quoich, my appreciation of the actions and challenges that the Cairngorms National Park Authority (CNPA) have faced at Drumochter (see here) has increased. It took courage for their Board to oppose SSE's plans for the Beauly Denny.Â And, after they were overruled and the powerline went ahead, it's scarcely surprising that a company that took no care at Quoich, took such little care at the Drumochter. To companies like SSE protected sites like the Drumochter are just an annoying distraction and our National Park Authorities, even where they have the will, do not have the power to challenge this.

Alistair Philips-Davies talks in his piece about "*putting our money where our mouth is".Â * Those claims, like those of many of the big companies attending COP 26, are best described as "green mouth wash".

Category

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2. Loch Lomond and Trossachs

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