

Climate change disasters and the legacy of land mis-use in the Trossachs â?? a public inquiry is needed

Description



Landslip above Loch Arklet on slopes of Maol Mor on land owned by the Scottish Government through Forest and Land Scotland. The debris and water has decapitated the bracken which in the surrounding areas has subsequently died back and turned brown.

My initial focus on the damage caused by the torrential rainfall at the start of August was on Glen Falloch, where I was surprised by the extent of the landslips ([see here](#)) and the damage to the hydro schemes ([see here](#)). A reader who lives in the Trossachs gently reminded me a few weeks ago that the Stronachlachar Road was still closed. I have visited Strathard twice since but the first time got caught up in looking at camping and access issues ([see here](#)).



Landslip above Loch Dhu Cottage and House, southeast of Loch Chon

I did see evidence of several recent landslips, however, including this one above houses. Scary for the people living there and enough to make me want to return. Yesterday I did so, after observing the Loch Lomond and Trossachs National Park Authority Board Meeting which took place in Kinlochard Village Hall in the morning. The main item on their agenda, which is highly relevant to what follows, was approval of their "Trees and Woodland Strategy".

I had intended to take a closer look at the landslips in Glen Gyle, which had received press coverage ([see here for example](#)), but the road from Stronachlachar to Glen Gyle along the shore of Loch Katrine was closed to pedestrians. The civil engineering works required to repair the damage are still ongoing 3 months later. I saw enough though to realise that the damage done by the storm was even more extensive than that in Glen Falloch just over the watershed. So why the political and media silence?

This post takes a look at the issues and argues that the LLTNPA, Forestry Scotland and the Environment Minister, Roseanna Cunningham, should set up a public inquiry to investigate what happened and recommend appropriate actions.

What caused the landslips?



Landslips triggered high up on Maol Mor above Loch Arklet in the Greater Trossachs National Natural Area. Trees are visible below, some of which has developed by natural regeneration and some by planting.

While there are isolated individual landslips, there are also areas where large section of hillside have been affected (as in photo above). In places all the soil that has accumulated since the glaciers melted has been swept away. That should provide pause for thought.



Glaciated slabs exposed once more by landslip in Lochard Forest West of Meall Meadhonach

Many of the landslips, including that in the very first photo, started ABOVE the current tree line and, just like avalanches, appear to have been triggered by a relatively small area of slope "failing":



View up the landslip featured as a close up in top photo.

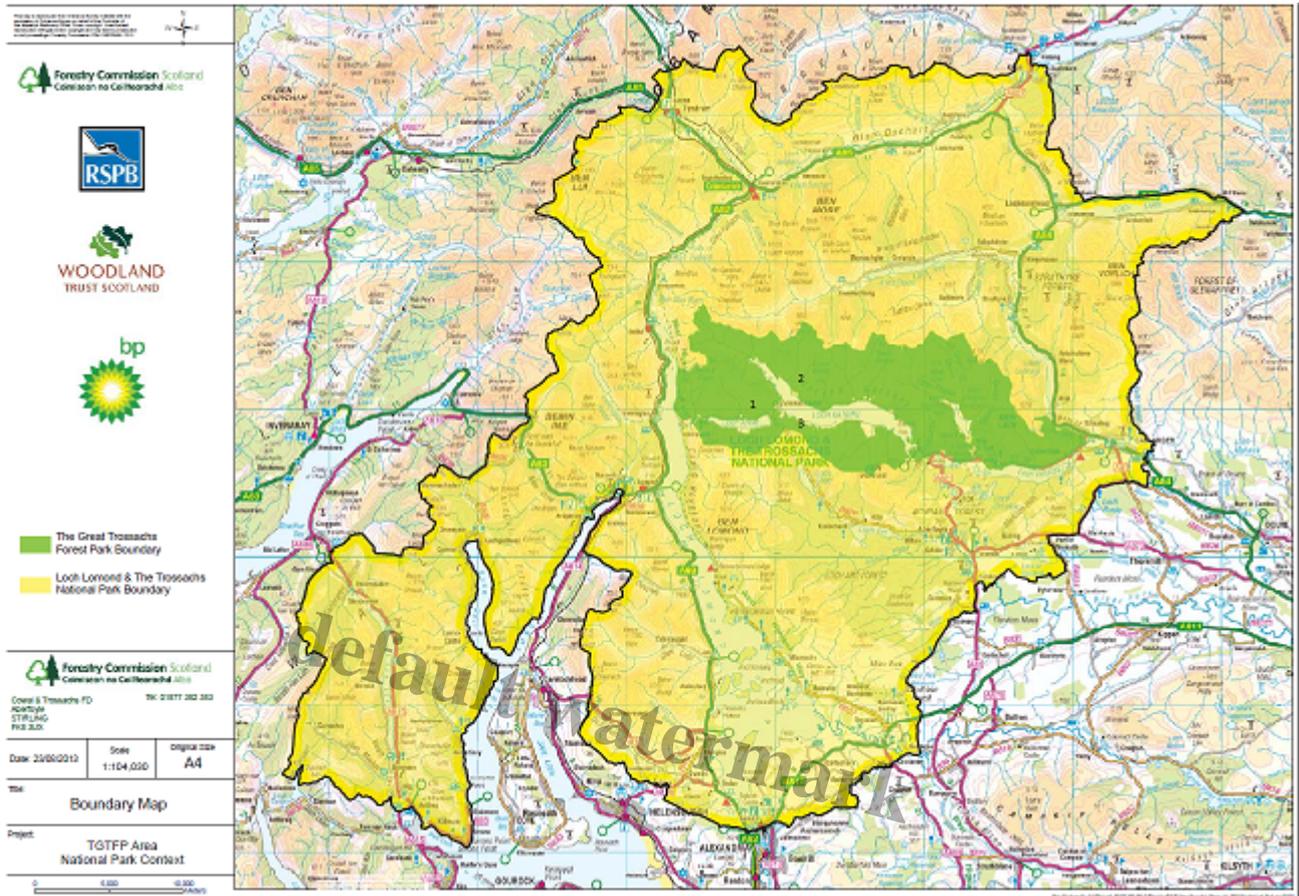
In these cases it appears that overgrazing by deer and sheep is likely to have been a contributory factor to the slope failure:



View across to Meall na Boineide on north side of Loch Katrine. Note the deer fence, just below mid- appears to have partially halted the flow of the landslip before being overwhelmed as evidence by the corridor below

ALL this land is owned by Forest and Land Scotland. That they have had to erect deer fences on land they own is an indication of the problem. It suggests they are not managing deer numbers and without the fences all the new trees they are planting (2.5m trees in the first ten years of the project) would get eaten.

This land is not only publicly owned, its also within the Greater Trossachs Forest. The Scottish Government declared this a new National Nature Reserve, the largest in Scotland, in 2015, despite the limited nature of the nature conservation interest.



The Greater Trossachs Forest NNR. The numbers demarcate the locations of the main landslips featured in this post. 1 = Maol Mor 2 = Meall na Boineide 3 = Meall Mheadhonach

The Great Trossachs Forest has been portrayed as the jewel in the crown of the Scottish Forestry Alliance which claimed that *“this landscape will be transformed, returning heavily grazed land and plantation forestry to a more natural mix of habitats, including areas of moorland, montane, wetland and pasture.”* As a partner in this alliance Forest and Land Scotland should know that deer fencing creates unnatural landscapes, grazed on the one side and not on the other.

Continued high levels of deer grazing is preventing trees from growing further up the hill and a montane scrub zone from developing. The long history of overgrazing has helped create the thin depleted soils some of which were washed away in the storm event. Trees help soils develop. Both help retain water. Forest and Land should also know this. Its ironic therefore that some of trees which they have planted have been destroyed by landslips originating from above, caused in part by their failure to bring deer numbers down. Quite a contrast to Wild Land Ltd in Glen Feshie which has radically reduced deer numbers, where trees are regenerating naturally without any need for fencing and where other wildlife is now starting to flourish. A contract too to how FLS are trying to manage their own land at Invereshie which, like Wildland Ltd, is part of the Cairngorms Connect Project.

This failure to bring deer numbers down would also appear to have contributed to the extensive damage that has been done to human infrastructure, buildings and roads, at the head of Glen Gyle. One wonders how many £millions this has cost so far to repair? Has Scottish Water and the insurance companies picked up the tab or has Forest and Land Scotland agreed partial liability for what has happened?

One wonders too what the impact has been on Glasgow's water supply? Part of the original justification for the Great Trossachs Forest was it would help improve water quality in Loch Katrine, which provides drinking water to a significant proportion of the population in Scotland. What has been the response of the Scottish Environment Protection Agency and Scottish Water to all the soil and debris swept down by the storm event at the head of Glen Gyle into the public water supply?



Close up of landslide in top photo. Note how some of the trees have withstood the landslide and may have helped stem its flow

Deer fencing is a sign of failure. There is a strong argument that it should be abandoned completely as that would force all landowners to address overgrazing issues as Wildland Ltd have done in Glen Feshie. At the very least, however, fencing should never be allowed on a National Nature Reserve. It is lamentable that Scottish Ministers and SNH decided to designate the Great Trossachs Forest as an NNR without any proper plans to address deer numbers or allow a montane scrub zone to develop.



Entry to the fenced enclosure where the Meall Mheadhonach landslip (see below) is located

Why haven't the trees done more to prevent the landslips?



The corridor created through the trees by the landslip

While the woodland on Meall Mheadhonach did not prevent the landslip, it did eventually help bring it to a halt:



Note how the trees have formed a dam stemming the flow of the boulder debris. Photo taken from same point as previous one but looking down not up the slope.

The tree blockage was formed by trees swept down in the landslip coming up against trees lower down which were bowled over but not uprooted. The public footpath is just below this.



Young birch on boulder toboggan at top of landslide

Trees clearly don't in themselves prevent landslips from being triggered. The issue is partly one of very shallow soils - I'm amazed on how little soil this birch is growing - but also linked to the age and type of trees. Only some trees put down deep tap roots which might have helped hold this slope together and they need time to do so. If we want to reduce the incidence of landslips in the uplands through tree regeneration we should not expect it to work immediately. That's why we need to address the overgrazing issue as part of the Climate Emergency NOW. Even if the Scottish Government and our public agencies started to act immediately, it will take years for trees to grow sufficiently to have maximum impact and even longer (100s of years) for soils to develop from their present thin coverings.



Tree roots were clearly visible on an area of soil which had remained attached to the rock slabs

That doesn't mean to say young trees are useless for preventing landslips, only that that root systems have limited effect.



The top of the landslip – the large block of turf below appears to indicate that rocks and soils were from under it causing it to collapse.

The slope above the landslip was quite limited in extent, probably less than 100m to the watershed. That is an indication – as in the landslips that started near the top of the open hillsides – of the intensity of the rainfall. As such extreme events become more common in Scotland, as has been happening with climate change, landslips are likely to increase whatever we do.

We urgently need to commission work/research on the relationship between extreme flood events and different types of land cover from overgrazed hillsides to forested slopes and what causes slopes to give way. At Meall Mheadonach, for example, there was a –headwall– like in an avalanche and plenty of evidence to help experts determine why the landslip happened here. That work then needs to be used to inform future land management. The LLTNPA has a key role here – they were supposed to be the lead Public Authority for natural flood management in the Lomond Catchment but have not commissioned any research as yet because of lack of money.

What's going wrong and what needs to happen

It appears obvious that it would be in the public interest if geomorphologists, soil scientists and others with ecological expertise were commissioned to investigate and report on the impact of the storm event in Glen Falloch and the Trossachs and set out options for the future. Lessons learned could then be applied not just to the National Park but the whole of Scotland. The obvious lead for this would be the LLTNPA supported by Scottish Forestry and the Scottish Government.

Unfortunately, for several reasons, this appears unlikely to happen without public and political pressure.

Firstly, because a public inquiry would be an acknowledgement of failure by the Scottish Government and a host of public agencies in respect of the way land has been managed and how developments (run of river hydro schemes) have been promoted without any proper consideration of their sustainability. All of the land affected by the extreme rainfall in the Trossachs is PUBLICLY owned and most of it is in a National Nature Reserve. This would be a cause of considerable embarrassment to the Scottish Government departments responsible for the environment, protected areas, rural affairs and planning as well as Forestry Scotland (which regulates the forestry sector), Forest and Land Scotland (which owns the land), SNH, SEPA, Scottish Water and the LLTNPA. The culture of all these agencies is to muddle through behind the scenes rather than admit mistakes and tackle the sources of problems.

Secondly, because while all these public agencies have a multitude of references to natural flood management at a policy level, action on the ground is limited and tends to be concentrated on the lower ground where they are re-creating marshes and trying to protect flood plains. An example this week was Scottish Natural Heritage's announcement that:

We were delighted to host 18 colleagues from across Europe on a recent study tour by the Eurosite Wetlands and Climate Change working group, visiting sites across central Scotland to find out how we are using wetlands to help buffer the impacts of ongoing climate change (see here)

This is all very worthy and worthwhile but avoids the fundamental issue which is how we slow down the flow of water, most of which falls in the uplands, BEFORE it reaches the wetlands. That, however, would mean tackling land use in the uplands and more particularly landowners, overgrazing by Red Deer and the destruction associated with grouse moors. A good illustration of how feart SNH is to tackle the real issues was their announcement 10 days ago that they were planning to plant the Beinn Eighe National Nature Reserve as their contribution to tackling climate change. Parkswatch contributor, Dave Morris, provided an excellent critique of this in a letter to the Herald (see here). Too weak to take on landowners and other agencies, all SNH can do is plant its own land thereby wrecking it. All it needed to do was to tackle the deer issue and there would be no need to plant.

Thirdly, both the Scottish Government and the LLTNPA have locked themselves into Forest Strategies which are full of great words but rely on the market to deliver and are based on tree planting rather than natural regeneration. While the LLTNPA's Trees and Woodland strategy approved yesterday refers to natural regeneration as a preferred method of forest expansion for native woodland (such as is being developed in the Great Trossachs NNR) and also refers to overgrazing, it

contains NO measures to reduce deer numbers. A missed opportunity.

However, there is some hope. Jo Oâ??Hara, Chief Executive of Forestry Scotland, was invited to speak at the meeting about the Strategy â?? an indication that the forest industry rather than the National Park is in the driving seat â?? but she indicated that the Declaration of a Climate Emergency by the Scottish Government means that Scotlandâ??s Forest Strategy 2019-29 is already out of date.



Ms Oâ??Hara and Board Member Clare Chapman, who comes from SEPA, were the two people at the meeting to raise and discuss the issue of the role of woodland in preventing flood damage. Ms Oâ??Hara gave a short explanation of how far behind Europe we are in terms of â??protection forestryâ?• and how we need to learn. (Such forest is generally managed in Europe through natural regeneration and by keeping numbers of grazing animals down). The impact of the August storm on the Great Trossachs Forest would provide the perfect case study to inform what needs to change. Time for Forestry Scotland and the LLTNPA to be brave, admit to mistakes and commission a quick investigation by experts to come up with plans to tackle the issues.

Category

1. Loch Lomond and Trossachs

Tags

1. Deer
2. FLS
3. forestry
4. FS
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Author

nickkempe

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