

In the line of fire

In a year that has seen Scotland's largest wildfire event on record, **Lindsay Quayle** explores the causes of these blazes and the steps needed to protect precious ecosystems from their devastating effects

A wildfire on the slopes of Stac Pollaidh in April
© Tim Hamlet, Assynt Mountain Rescue

In the summer of 2021, the world watched on as uncontrollable wildfires raged through the pine forests of North America, vast swathes of Siberia and the Mediterranean Basin – destroying livelihoods and leaving chaos in their wake.

Four years on and Scotland now faces its own battle to keep the flames at bay. By mid-September, a total of 76 individual fires of more than a hectare in size had been recorded in Scotland, with 11 wildfire warnings still in place by the Scottish Fire and Rescue Service (SFRS) at time of writing. It's a stark signal that a country with a traditionally wet and cool spring season is far from impervious to the wider climate changes at play.

Conditions not typically associated with northern regions of the UK – long, dry spells in late winter and early spring – have now become the norm. In fact, all four nations

experienced their warmest summer on record this year. On the one hand, it's a welcome antidote to winter blues and an early boost to Scotland's outdoor activity sector, but the unseasonal trends have undoubtedly exposed the land to the growing threat of wildfire.

The desperate lack of rainfall in the springtime, compounded by higher-than-average temperatures, leaves dead vegetation from the previous year lying dry and combustible on the land. These tinderbox conditions are volatile to say the least – and much more so when people are added into the equation.

Human factor

According to SFRS Group Commander Niall MacLennan, most wildfires in Scotland, as in the rest of northern Europe, are the result of human activity. "Fortunately, the number of deliberate wildfires in Scotland is relatively

low," notes Niall. "But accidental fires caused by loss of control and carelessness account for some of the bigger ones we've seen this year – with campfires, disposable BBQs and camping stoves major culprits."

A rogue ember from a small fire or a discarded cigarette butt can quickly ignite dry vegetation, with catastrophic consequences.

Although the exact cause has yet to be confirmed, it is believed that human behaviour was behind the gorse fire that spread so rapidly across Arthur's Seat in the heart of Edinburgh in August and which took a week to fully extinguish.

Niall explains that it's not just that the conditions now pose a high initial ignition risk but the fire 'spread risk' is high too. This results in fires spreading and moving quickly as high intensity fires and displaying extreme wildfire behaviour as the converging infernos on Dava Moor and at Carrbridge – Scotland's



The Tanera Mòr team's Haggglunds BV206 vehicle bussed fire crews over the bog to access fire sites
© Tim Hamlet, Assynt Mountain Rescue

largest recorded wildfire event on record – demonstrated so dramatically this summer.

"The wildfires here covered a multitude of landscapes – commercial forest, rural and grouse moorland, rewilding areas and areas of sensitive habitat, fortunately avoiding the well-known ones around Nethy Bridge," he adds. "But where you get an intense fire burning into peat, which is what happened at Dava and Carrbridge, that has a more lasting impact."

Given the extent of the damage and the intense pressure put on SFRS resources to bring large blazes under control, the frustration directed towards outdoor users who choose to ignore important wildfire messaging – and their responsibilities under the Scottish Outdoor Access Code – is understandable.

Devastating destruction

Unplanned and uncontrolled, wildfires can obliterate vast areas of precious habitat, ▶



Wildfires leave devastated landscapes behind © Lizzie Wilder Williams

▶ from flower-rich grassland to native woodland and peatland.

In April, a fire on the slopes of Stac Pollaidh – a landmark within the Inverpolly Site of Special Scientific Interest and Special Area of Conservation – destroyed close to 450 hectares of valuable habitat.

Sarah Proctor, the Trust's Head of Major Projects, recognises it may have been a near miss for Ben Mor Coigach, the Trust's second largest wildlife reserve located nearby, but it was far from a lucky escape.

"The fire is likely to have had a significant impact on wildlife at Inverpolly," says Sarah. "For example, there were sightings of numerous adders escaping the fire by crossing nearby roads and resting in car parks. But of course, not all of them will have managed to escape as the fire spread over such a large area and species are only able to move so far, so fast."

For many of Stac Pollaidh's precious ground-nesting birds, the timing of the blaze was especially damaging. "We're seeing a high instance of impactful fires when these birds are nesting," explains Sarah. "As a result, many adults may abandon their nest sites,

“Rewetting dry, damaged moorlands, restoring the water table to support naturally fire-resistant healthy peatland, is also a priority.”

leaving eggs or young birds that are not mobile and have yet to fledge.

"Fires also affect local invertebrate populations, so if birds do go on to successfully produce a second clutch after losing their first, there's already less for them to eat."

The immediate loss of life and breeding opportunities resulting from one wildfire event is harmful enough. Multiply this across numerous wildfires, in several regions of the country, and the cumulative impact on Scotland's wildlife in one season can be very significant.

And, of course, the environmental impact of these events resonates way beyond Scottish soil. Wildfires impact massively on the global carbon cycle, with fires that take hold in precious carbon stores such as peatland

releasing long-accumulated carbon into the atmosphere.

Positive planning

Fortunately, it was not all bad news at Stac Pollaidh. Much of the rare oak and birch woodlands on the Inverpolly estate emerged unscathed following the blaze, in large part thanks to what Sarah refers to as the "boots on the ground" response.

The collaborative action of multiple SFRS teams, neighbouring estates, Coigach & Assynt Living Landscape partners and the wider community helped to bring the fire under control and minimise the ecological impact.

Tactical planning by trained, experienced volunteers, co-ordinated by SFRS, pre-empted issues including fire access points and

the availability of fire-fighting equipment, which enabled the rapid implementation of a response plan when the flames took hold. A partnership model, which involved estate teams and partners from the land management sector from across Scotland, was also used effectively at Dava Moor and Carrbridge later in the year.

"Harnessing that experience is really important," says Sarah. "An effective response should the worst happen, alongside experience of conservation land managers to build a resilient landscape in the first instance, can work hand-in-hand really well."

Landscape changes

So, what does a resilient landscape look like and how do land managers mitigate the risks associated with what we now must accept is an extended wildfire season in Scotland? The answer is far from simple. Some argue for the continuation of muirburn as a tool to reduce the natural fuel load and create firebreaks in the land that can help minimise the risk and spread of wildfires.

However, it is becoming increasingly difficult to reconcile the benefits of controlled burning with the environmental impact it has on biodiversity and protected habitats.

The introduction of tighter controls on moorland burning came into force this autumn under the Wildlife Management and Muirburn (Scotland) Act 2024 – a clear signal that such a land management tool is no longer considered sustainable in its current state.

Reptiles, invertebrates and nesting birds are all directly affected by fire, controlled or otherwise, and the degradation of peatlands – sensitive ecosystems that should be protected by muirburn guidelines – has been partly attributed to the practice.

The approach also risks setting in motion what Sarah refers to as a "negative feedback loop". After all, muirburn encourages the growth of plants such as molinia grass which has a lower water content and "drier feet" – in other words, species that are more susceptible to future ignition.

To break free of this cycle, attention is turning to plants which burn less well in grass-dominated areas. At the Trust's Cumbernauld reserves, the Nurturing Natural Connections project delivered through the Cumbernauld Living Landscape initiative is trialling the introduction of yellow rattle – a hemi-parasitic plant with a lower fuel load and greater fire resilience. The Trust is hopeful that the species can play a role

in the transition from grass-dominated habitats to species-rich wildflower habitats in the future.

Rewetting dry, damaged moorland – restoring the water table to support naturally fire-resistant healthy peatland – is also a priority. In the aftermath of a wildfire at the Trust's Forest Wood reserve in Cumbernauld in April, it was evident that healthy, lowland peatbogs had fared better than other habitats in the battle against the blaze.

"Where the fire came up to, went around and passed over [the bogs] we had these pools of water and sphagnum moss," explains Sarah. "They were not looking as happy as they might otherwise have been, but they were alive and functioning. You couldn't say the same for the vegetation all around."

As cautionary tales go, this year feels like a pivotal moment. Scotland is not a nation with a history of wildfire regimes, but it is now apparent just how crucial it is to come together, educating each other about the prevention and risk of wildfire and the role that healthy habitats play in reducing that risk. ■

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A section of the wildfire that took hold near Carrbridge over the summer © Carrbridge Community Fire Station