

The causes and prevention of wildfire on heathlands and peatlands in England (NEER014)

Appendix 8: Saddleworth/Stalybridge wildfire 2018 media commentary

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Introduction

On 24 June 2018, a fire started above Higher Swineshaw Reservoir near Millbrook (grid reference SE002005) in the South Pennines north-east of Manchester, on the Stalybridge Estate which is managed for driven grouse shooting. Over the course of five days, the fire spread eastwards across the Estate and onto the Dove Stone nature reserve owned by United Utilities and managed by RSPB.

The fire was fought by multiple teams made up of the Fire Rescue Service, gamekeepers, National Park rangers, RSPB, United Utilities and volunteers. By the time the fire was contained on Arnfield Moor and the Chew Valley edge of the Stalybridge Estate, approximately 1,000 ha had been burned, 200 ha of which was on the Dove Stone reserve. RSPB subsequently reported that the area of the fire on their reserve contained approximately 160 ha of blanket bog and approximately 40 ha of dry heath. They found that the wetter areas of restored bog were undamaged and that the wetter re-vegetated gullies acted as firebreaks. The most severe damage was on the heather-dominated areas.

Following the fire, a consortium of researchers from a range of universities (Durham, Manchester, Liverpool, Leeds, Birmingham, Swansea and Exeter) and the Moors for the Future Partnership went on site to establish monitoring points to investigate the damage that was caused by the fire and to begin to assess the requirements for restoration. The landowners also took action to reduce the volume of material lost from the site through erosion. The results of this activity will take some time to analyse but it is anticipated that this information will become available in due course.

Wildfires of this size are not unprecedented (a similar sized fire occurred on Salisbury Plain in the same summer, for example) but the proximity to houses nearby and a large population in Manchester that was subsequently affected by smoke from the fire helped ensure that there was a great deal of media interest in the event, with many statements being made on a variety of media platforms. These comments provide a snapshot of perceptions around the cause and occurrence of wildfires in the uplands. The Uplands Evidence Programme and the Wildfire Evidence Review provide an evidence base against which the comments can be considered. Published comments were captured and are presented below in an anonymised form. Next to each comment made by a commentator is a statement on what our understanding is based on the available evidence from this review and other sources.

Table A8.1. Comparison of media statements about the Saddleworth/Stalybridge wildfire 2018 and related evidence.

Media Statement	What is the Evidence in relation to the media statement?
1. <i>"The facts, however, are simple: our managed grouse moors represent some of the most important areas for wildlife in Britain. I do not shoot — only rabbits in our vegetable garden — but a properly managed grouse/heather moor creates a mosaic of habitats with young heather, longer heather, patches of upland flora and areas deliberately dampened to create wet flushes for insects."</i>	Many areas managed for grouse are notified as Sites of Special Scientific Interest for their special bird and plant interest. Many of these sites are also of international importance for their associated habitats and species. Source NE data.
2. <i>"Breaks are created too, which seem to have been missing on the thousands of acres of Saddleworth Moor managed by the Royal Society for the Protection of Birds (RSPB). Altogether the RSPB manages about</i>	The majority of the fire (c.800 ha) took place on the Stalybridge Estate which is managed by rotational burning for driven grouse shooting. Around 200 ha of the UU/RSPB estate was subject to the wildfire. No rotational burning occurs on the Dove Stone estate

<p><i>150,000 acres of moorland and blanket bog, much in partnership with United Utilities, and its methods mean we're likely to see many more fires this summer."</i></p>	<p>which is subject to restoration management. NE/RSPB data.</p> <p>No evidence was identified in this review specifically on the effectiveness of firebreaks for reducing the occurrence and spread of wildfires in the UK.</p> <p>Away from the UK (though mostly not on heathland or peatlands), firebreaks are more widely used and there is moderate evidence that they can be effective in certain situations and conditions, with vegetation type and structure/height, weather conditions, especially wind speed, and seasons being important factors, though effectiveness also depends on firebreak characteristics, especially width, and they tend to become less effective or ineffective in more extreme conditions.</p> <p>See section 7.13.</p>
<p>3. <i>"With climate change becoming an increasing worry, it is crucial that we are able to use our expertise to manage our moors in a way that creates proper firebreaks. These are essential to prevent these catastrophic wildfires in the future."</i></p>	<p>No evidence was identified specifically on the effectiveness of firebreaks for reducing the occurrence and spread of wildfires in the UK. Away from the UK (though mostly not on heathland or peatlands), firebreaks are more widely used and there is moderate evidence that they can be effective in certain situations and conditions, with vegetation type and structure/height, weather conditions, especially wind speed, and seasons being important factors, though effectiveness also depends on firebreak characteristics, especially width, and they tend to become less effective or ineffective in more extreme conditions.</p> <p>See section 7.13.</p>
<p>4. <i>"Clearing moors for grouse shooting creates a tinderbox."</i></p>	<p>A large part of the management of grouse moors is aimed at optimising the feeding and breeding conditions for red grouse through burning of heather.</p> <p>Wildfires in the UK are associated with particular weather conditions, certain types of vegetation and human activity. The flammability of heather is dependent upon the proportion of dead plant material accumulated within the vegetation and the moisture content of both the living and dead material. Older stands of heather have a higher mass of woody material and therefore represent a greater wildfire hazard than young heather. Fires tend to be hotter and more severe on heath compared to a bog.</p> <p>The largest wildfires tend to occur on open semi-natural habitats, especially on 'moorland' habitats, including upland heathland and peatlands, and lowland heath, and to a lesser extent on semi-natural grasslands. The frequency of incidents (but not area) is greater in woodland, agricultural land and urban areas.</p>

	See Sections: 4 and 5.
5. “What caused the Saddleworth Moor fires? The immediate reason, of course, is the peculiarly hot and dry conditions of the past few weeks. But that may not be the end of the story. Some types of vegetation are much more susceptible to fire than others, and the kind that prevails on Saddleworth Moor was an accident waiting to happen, a human-made tinderbox.”	<p>The wildfire on the Stalybridge Estate was the result of an ignition by persons unknown.</p> <p>Wildfires in the UK are associated with particular weather conditions, certain types of vegetation and human activity. The flammability of heather is dependent upon the proportion of dead plant material accumulated within the vegetation and the moisture content of both the living and dead material. Older stands of heather have a higher mass of woody material and therefore represent a wildfire hazard due to this fuel load. Fires tend to be hotter and more severe on heath compared to a bog.</p>
	See Section: 4.
6. “Our heather moors were created thousands of years ago by settlers, who are known to have used fire and grazing to clear woodland. These ancient skills have since been adopted by gamekeepers and conservationists alike - because they maintain this globally-rare habitat.”	“Heather moors” are made up of a variety of habitats that may look superficially similar but have different ecological and management requirements. A large area of the English uplands subject to management burning is on deep peat. On peatland, there is evidence that burning (compared to no burning) reduces peat accumulation and reduces above and below ground carbon storage. There is strong evidence that burning vegetation upon peat results in an increase in water colouration and/or Dissolved Organic Carbon at the catchment scale. Heather is a causative factor in the development of peat (drainage) pipes on blanket peat (Glaves et al. 2013). There has been a five-fold increase in management burning since World War 2 on deep peat. There is around 881 km ² of deep peat in England that is dominated by dwarf-shrubs (largely heather) that is subject to routine management burning. (Thacker et al. 2014).
7. “Wet peatlands with a stable high water table, dominated by peat forming plants such as Sphagnum mosses naturally have little dry material for fires to consume and low chances of the peat igniting.”	Peatlands which are wet or have a high water table are naturally resilient to burning. Where a fire takes place on a wet peatland, the effects of the fire are less severe than compared to a fire that occurs on dry heath.
	See Section: 6.
8. “Damaged peatlands with drier peat soils have more combustible woody vegetation such as heather and grasses that increase the chances of fires becoming severe. Deliberate fire management to burn the heather on these degraded peatlands introduces additional risks of fires getting out of control and compromising the recovery of the peatland.”	Wildfires in the UK are associated with particular weather conditions, certain types of vegetation and human activity. The flammability of heather is dependent upon the proportion of dead plant material accumulated within the vegetation and the moisture content of both the living and dead material. Older stands of heather have a higher mass of woody material and therefore represent a greater wildfire hazard than younger heather. Fires tend to be hotter and more severe on heath compared to a bog. There is evidence that some wildfires are the result of management burning, especially in the uplands. See Sections: 4. 5.29 – 5.31.
9. “The most effective long term sustainable solution for addressing wildfire risk on	Peatlands which are wet or have a high water table are naturally protected from burning. Where a fire

<p><i>peatlands is to return the sites to fully functioning bog habitat by removing those factors that can cause degradation, such as drainage, intensive grazing and burning.”</i></p>	<p>takes place on a wet peatland, the effects of the fire are less severe than compared to a fire that occurs on dry heath.</p> <p>See Sections: 7 and 8.</p>
<p>10. “Controlled burning is a vital part of any management – it reduces the fuel load and encourages healthy heather which benefits wildlife without damaging the underlying peat. Also welcome is the Government’s restatement of its commitment to the restoration of our blanket bogs, which is also vital to ensuring greater resilience of moorland to uncontrolled wildfires.”</p>	<p>Management of grouse moors is aimed at optimising the feeding and breeding conditions for red grouse.</p> <p>On peatland, there is evidence that burning (compared to no burning) reduces peat accumulation and reduces above and below ground carbon storage. There is strong evidence that burning vegetation upon peat results in an increase in water colouration and/or Dissolved Organic Carbon at the catchment scale. Heather is a causative factor in the development of peat (drainage) pipes on blanket peat (Glaves et al. 2013.).</p>
<p>11. “Restored, functioning blanket bog will be more resilient to wildfire, while saturated peat is less likely to burn, and waterlogged conditions will reduce the growth of vegetation on the peat surface so there is less flammable material. In the longer term, there is a need for balance between peatland restoration and wildfire mitigation which in practice means the use of controlled burning to introduce strategic wildfire breaks and reduce fuel loads.”</p>	<p>Peatlands which are wet or have a high water table are naturally protected from burning. Where a fire takes place on a wet peatland, the effects of the fire are less severe than compared to a fire that occurs on dry heath.</p> <p>See Sections: 7 and 8.</p>
<p>12. “Gamekeepers have a great deal of knowledge on managing fires and using targeted and controlled burns to reduce the fuel load on the lands they manage. Not only does this reduce the opportunities for fire to spread, but it also provides the mosaic of habitats so valuable for upland birds. Large expanses of invasive bracken and rank heather are typical of unmanaged uplands and provide the perfect opportunities for wildfires to spread. Fires in these areas can burn so hot they ignite the peat, destroying valuable habitat and releasing huge volumes of greenhouse gas.”</p>	<p>Monitoring and managing fuel load is often recommended in the UK, especially for upland heathland and peatland habitats but there appears to be little or no evidence of its direct effect on wildfire ignition, severity and extent, or in reducing wider negative impacts.</p> <p>See Sections: 5 and 7.</p>
<p>13. “Properly maintained firebreaks provide valuable time to bring wildfires in these areas under control and prevent the devastating growth of fires such as the one we have seen on Saddleworth Moor.”</p>	<p>No evidence was identified specifically on the effectiveness of firebreaks for reducing the occurrence and spread of wildfires in the UK.</p> <p>See Section 7.</p>
<p>14. “Raising water tables and increasing the coverage of Sphagnum moss allows the processes of recovery that store carbon and reduce the risk of ignition of these habitats by wildfire. The risk of severe damage by wildfire on a wet, well functioning blanket bog is relatively low. In accordance with the Heather and Grass Burning Code, managed one-off burning or cutting firebreaks may help to reduce the risk of fires starting on other habitats such as dry heath, and reduce</p>	<p>No evidence was identified specifically on the effectiveness of firebreaks for reducing the occurrence and spread of wildfires in the UK.</p> <p>See Section 7.</p>

<i>the spread of fire around likely ignition points.”</i>	
15. “With devastating scenes of wildfires raging over Saddleworth Moor across the news this week the XXXXX is warning of the increased risk of similar disasters if proposals to rewild many of the UK’s upland areas are pursued.”	The Review did not specifically investigate the role of re-wilding in wildfire but no evidence of a relationship between ‘re-wilding’ and wildfire was found.
16. “Combined risk factors of predicted climate change and weather patterns with removal of grazing animals that have in the past protected uplands from out of control fires by creating natural firebreaks could mean the fires causing distress amongst people living and working in the area could become more widespread.”	The Review did not specifically investigate the role of grazing animals in preventing or reducing the number or severity of wildfire but no evidence was found to indicate that grazing by animals reduced wildfires or created firebreaks.
17. “Wildfires are becoming more common across the UK, in part due to a loss of grazing animals and an increase in high volumes of dry vegetation. The result is causing immense environmental damage including the loss of peat and release of carbon into the atmosphere, the destruction of mammals and young birds, the potential loss of domesticated livestock and of course, a risk to human health.”	<p>On a global scale, wildfire occurrence has increased in recent decades with associated costs to the environment and society (International Union of Forest Research Organisations 2018) although some authors maintain that the area burned through wildfire is decreasing (Doerr and Santin, 2016)</p> <p>Wildfires in England are episodic and are related to weather conditions. The review found no link between the presence/absence of grazing animals and the occurrence of wildfire.</p> <p>National wildfire statistics report in the period 2009/10 to 2016/17 for the land cover class Mountain, Heath and Bog, 382 wildfires were recorded.</p> <p>See Section 4.</p>
18. “The grazed nature of most of our uplands has, in the past, protected us from out of control fires, meaning that when fires occur as they inevitably will, they are short lived and relatively easy to get under control. This is a practical example of how sheep farming has an integral relationship with our planet and connects our landscape, our people and our wildlife and environment through natural and traditional land management whilst also producing food and fibre from plants and regions that would not otherwise feed and clothe us.”	There is no evidence to support this statement.
19. “Grouse moors are mostly wetland that have been dried out to encourage heather to grow. This dries the peat, which becomes very flammable.	There has been a five-fold increase in management burning since World War 2 on deep peat. There is around 33.18 km ² of deep peat in England that is dominated by dwarf-shrub heath (largely heather) that is subject to routine management burning each year with a further 50.69 km ² of vegetation on non-deep peat also subject to burning annually (Thacker et al. 2014).
20. As embers continue to smoulder on moorland above Manchester, academics	The fire started on an area that was subject to managed burning and the majority of the total area of the fire was on an area subject to managed burning.

<i>said the land had been left vulnerable to fire by the lack of a controlled burning regime."</i>	
21. "Controlled burning of heather is practised in other parts of the country to remove what is typically the primary fuel for moorland fires."	Managed burning is used to create a mosaic of habitat for feeding and nesting grouse and to provide fresh growth for grazing animals. The review found no evidence for where managed burning occurred on heather for the sole purpose of fuel-load management.
22. "The fire would not have spread as easily - and would have been less likely to have penetrated the peat beneath - if the dry scrub and heather had been managed by occasional burning."	Around 800 ha of the total of 1000 ha burned occurred on land subject to management burning.
23. "We don't think of the UK as having a flammable ecosystem, but actually heather and gorse have a lot of oils in them that mean they burn very hot and radiate that heat into the peat below."	Wildfires in the UK are associated with weather, vegetation characteristics and human activity. Peatlands which are wet or have a high water table are naturally protected from burning. Where a fire takes place on a wet peatland, the effects of the fire are less severe than compared to a fire that occurs on dry heath. See Sections: 4. and 7.
24. "Controlled burning does far less damage to habitats to (sic) fires on this scale."	Though occurring less frequently, wildfires tend to be larger and more severe than managed fires in the UK, though like managed fires, they vary in severity (Glaves <i>et al.</i> 2013) and some may have no greater impact than prescribed or managed burns (Clay <i>et al.</i> 2010a, 2010b and Blundell <i>et al.</i> 2013).
25. "This was a primary reason why it did not carry out controlled burning, as it believed doing so would reduce the moorland's ability to store carbon."	On peatland, there is evidence that burning (compared to no burning) reduces peat accumulation and reduces above and below ground carbon storage. There is strong evidence that burning vegetation upon peat results in an increase in water colouration and/or Dissolved Organic Carbon at the catchment scale. Heather is a causative factor in the development of peat (drainage) pipes on blanket peat (Glaves <i>et al.</i> 2013).
26. "The unprecedented dry spell means there was potential for a major fire, no matter how that land is managed."	Wildfire information is recorded by the fire and Rescue Service and held by the Home Office. Forestry Commission analysis of this data show that wildfires occur in a range of habitats from woodland (conifer and broadleaved) through to arable farmland, mountain, heath and bog and built-up areas and gardens. There is a relationship between dry warm weather in spring and drought in the summer and wildfires (Forestry Commission 2019).
27. "If we just stopped doing any vegetation management on somewhere like Saddleworth, where it is very dry, stuff would grow like chuff. You've got a massive fire risk, and you've also got a massive argument when it does burn – people would say wetting the moor and not managing vegetation hasn't worked, and we have to go back to burning."	The majority of the area burned in the Stalybridge wildfire was under grouse moor management. There is some evidence from the UU/RSPB land effected by the burn that the wetter areas played a role in reducing the severity and distribution of the fire. This is consistent with what has been reported from peatlands in Scandinavia and Canada.

	See Section 7.
28. "The current moorland fires are relatively unusual, but they could become more frequent because of climate change."	Wildfires in England are episodic and are related to weather conditions and human activity. Whilst weather conditions that are associated with wildfire are projected to increase under climate warming the Review found no evidence that the number of ignitions will necessarily increase. There is evidence that community engagement/education initiatives can reduce the numbers of wildfire occurrences. See Sections: 7.
29. "A population increase and the growth of development on the fringe of urban areas has also contributed."	Overseas, there is good evidence that increases in the number of fires in some areas is linked to the increase in the (built) development of the wildland – urban interface, i.e. expansion of urban areas into previously undeveloped areas. See Section 5.
30. "The link between fires and climate change is even stronger in northern Europe. While small fires can be beneficial to moorlands, large and intense fires damage ecosystems."	On a global scale, wildfire occurrence has increased in recent decades with associated costs to the environment and society (International Union of Forest Research Organisations 2018). On peatland, there is evidence that burning (compared to no burning) reduces peat accumulation and reduces above and below ground carbon storage. There is strong evidence that burning vegetation upon peat results in an increase in water colouration and/or Dissolved Organic Carbon at the catchment scale. Heather is a causative factor in the development of peat (drainage) pipes on blanket peat (Glaves <i>et al.</i> 2013).
31. "Nearly all moorland fires in the UK are started by people - such as from campfires or discarded cigarettes and glass - whereas lightning strikes are frequently the cause in other parts of the world."	The evidence review authors are aware of 3 moorland fires in England that resulted from lightning strikes. Every other fire has an anthropogenic origin in that it was caused deliberately or accidentally.
32. "The UK's peaty moorlands are massive carbon reservoirs, which become tinder-boxes during prolonged dry spells".	There are approximately 2.9 M ha of peat soils in the UK. A peatland in a good, waterlogged condition can grow at around 0.5-1 mm per year. If all of the UK's peatlands were in good condition, they would set down approximately 1,800 kt CO ₂ yr ⁻¹ . Presently, only 22% (640,000 ha) is in near natural or re-wetted condition. This means that overall, UK peatlands are a large net source of carbon emission, estimated to be in the region of 23,100 kt CO ₂ e Yr ⁻¹ (Trenbirth & Dutton 2019).
33. "The problem with peat fires, as we discovered on Saddleworth Moor last week, is they can often burn underground for quite some time and then pop up in different areas."	This is more likely to happen in degraded peatlands where the water table is much deeper (i.e. further from the surface) than would be the case in an undamaged or restored peatland. Rewetting and restoration of peatlands can effectively lower the risk of burns, especially if a new <i>Sphagnum</i> bog-moss layer is established which raises peat moisture content, though without the recovery of a <i>Sphagnum</i> layer, rewetting alone is insufficient to reduce the risk

	of deep burning unless the water table remains at the peat surface. See Section 7.
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