

THE RESPONSE TO THE CARRBRIDGE AND DAVA WILDFIRES BY LAND-BASED AND RURAL BUSINESSES

A REPORT FOR THE SCOTTISH GOVERNMENT

16 JULY 2025

About Scottish Land & Estates

At Scottish Land & Estates (SLE) our work helps to ensure that rural Scotland thrives. We are a membership organisation for landowners, rural businesses and rural professionals. We promote the wide range of benefits land-based businesses provide: tourist attractions, leisure facilities and landscapes enjoyed by the public, as well as housing, employment, tourism & enterprise, sporting and farming opportunities. We represent the interests of our members and wider rural Scotland to the UK and Scottish Governments to help ensure that policy and legislation reflects the unique requirements of rural Scotland and its communities. SLE is a member of the Scottish Wildfire Forum and the Muirburn Code Working Group.

EXECUTIVE SUMMARY

- I. **The Carrbridge and Dava wildfires collectively constituted Scotland's largest wildfire event**, covering approximately **11,827ha** of moorland and woodland.
- II. **At least 33 rural and land-based businesses responded**, including 27 estates, 2 farms, 2 nature reserves, a groundworks business and a garden services business.
- III. Businesses contributed **34 ATVs (excluding pick-ups), 27 fogging units, 9 tractors, 5 diggers, 5 water bowzers and 50 leafblowers** to the containment and suppression effort. The conservative estimate of the total value of this equipment is nearly **£3.1 million**. **18 businesses** recorded a wide range of damages and breakages ranging from **£50 to £5,000**.
- IV. At least **101 employees** from the businesses surveyed were engaged in the containment effort. At least **80 employees** had experience of using fire (muirburn) in the course of managing land.
- V. Land managers discharged several suppression and containment tactics, including: **tactical back burning; suppression by fogging unit; suppression by leafblower; suppression by fire beaters; excavating firebreaks; swiping firebreaks; suppression by rain gun on a mounted slurry tanker; and excavating burning peat.**
- VI. **On-the-ground co-operation was co-ordinated through five key stakeholders**, including the Scottish Fire and Rescue Service, the Cairngorms National Park Authority, Paul Wilson (Headkeeper, Cawdor Estate), Kevin Begg (Headkeeper, Lochindorb Estate) and Bright Spark Burning Techniques.
- VII. **17 businesses observed accidents or near-misses** during the course of the containment, mostly when the wind suddenly changed direction causing unpredictable fire behaviour.
- VIII. **Businesses said the SFRS response could have been improved by ensuring access to appropriate equipment to tackle wildfires in difficult terrain.** Other suggested improvements included: greater helicopter availability; enhanced training in wildfire containment techniques; relaxing restrictions which prohibit firefighters from leaving the roadside; improved communication at the fire itself; and enhanced authority for SFRS commanders to mobilise helicopters.
- IX. **Businesses said the response from the land management community could be improved by underscoring the importance of fuel load management and fire breaks**, both in terms of preventing wildfires and enabling more effective containment / suppression. Other suggestions included: helping the SFRS to build better situational awareness about available resources; strategic placement of water and equipment; strengthening of the Scottish Outdoor Access Code; establishing local response networks; and the creation of a targeted grant to enable businesses to invest in counter-wildfire capabilities.

CONTEXT

1. On 30 June 2025, Scottish Land & Estates (SLE) promulgated a 'call for volunteers' from Firebreak Services Ltd to provide resources to help contain two major wildfires in the vicinity of Carrbridge and Dava. The call was issued at the request of the Scottish Fire and Rescue Service (SFRS).
2. Many land-based and rural businesses from across Scotland responded to the call, contributing specialist firefighting equipment, as well as people and skills, to the containment and suppression effort over approximately 4 days¹. It is widely acknowledged that this contribution was integral in bringing the fires under control.
3. It has since been established that the Carrbridge and Dava wildfires collectively constituted Scotland's largest wildfire event. The Carrbridge fire covered 5,234ha, of which 4,728ha was moorland and 506ha was woodland. The Dava wildfire covered 6,593ha, of which 5,846ha was moorland and 747ha was woodland. Collectively, the fires covered 11,827ha (figure 1 refers).

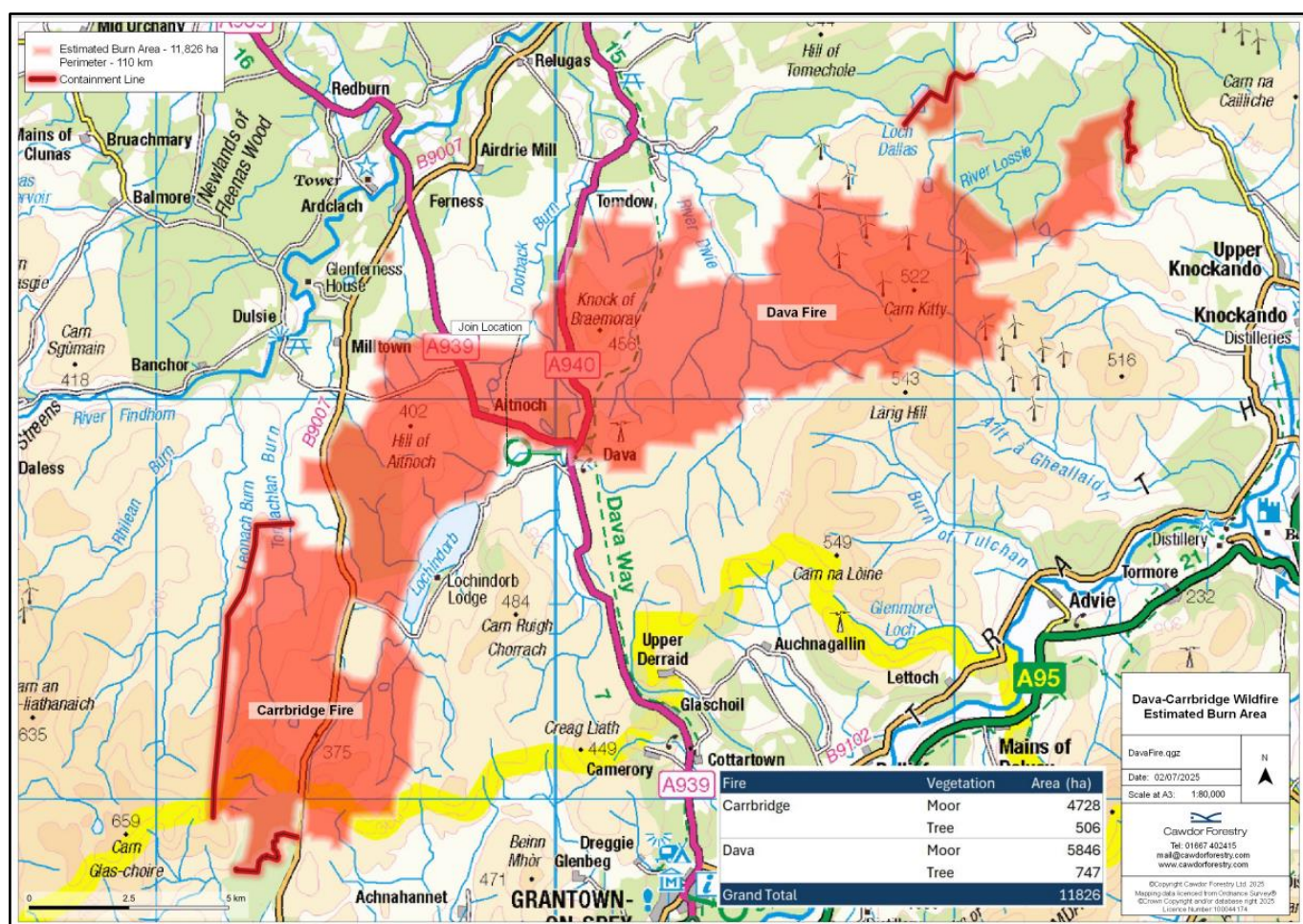


Figure 1 – Carrbridge-Dava Wildfires estimated burn area (credit: Cawdor Forestry).

¹ At the time of writing, impacted landholdings remain engaged in efforts to dampen down hotspots and flareups. The substantive contribution of land-based and rural businesses beyond those impacted by the fires took place between 28 June and 01 July.

4. There is a clear appetite across both public and private sectors to identify lessons – and learn from them. At the request of government officials and members, SLE commissioned a targeted survey of the land-based and rural businesses who responded to the call for volunteers on (and before) 30 June 2025. The aims of the survey were:
 - to understand which land-based and rural businesses responded;
 - to quantify the amount of resources and number of people provided by land-based and rural businesses;
 - to quantify any damages and breakages which were incurred by land-based and rural businesses;
 - to quantify any injuries, accidents or near misses which occurred in relation to land-based and rural businesses;
 - to understand the direct lines of communication and co-operation in place during the containment effort;
 - to understand what strategies, tactics and techniques were employed during the containment effort;
 - to understand what land-based and rural businesses think could improve the overall response.
5. The survey attracted 34 responses, and this report presents the general findings. In the discussion section, SLE has signposted recommendations for the Scottish Government and its agencies to consider. These recommendations are being made to improve the overall effectiveness of wildfire suppression and containment, while also seeking to reduce the likelihood of fires starting in the first place.

GENERAL FINDINGS

6. **Responders.** At least 27 estates and 1 National Nature Reserve contributed resources to the containment effort, alongside at least 2 farms, a nature reserve owned by an e-NGO, a groundworks business and a garden services business. Of the responding estates, the majority were situated in the Strathdearn and Speyside region. However, notable support was also provided by estates in Deeside, Donside and as far away as Perthshire.
7. **Resources.** Respondents to the survey detailed a diverse range of private resources which were ostensibly gifted towards the containment effort. For the purposes of this report, only firefighting equipment is listed, but it should be recognised that a considerable range of other assets (pickup trucks, fuel, radios, quadbikes, trailers, gas torches, drip torches, shovels, wire cutters and more) were similarly employed. The total number of assets provided by survey respondents is listed in table 1 below.

Asset	Number	Approximate cost per unit (£)	Estimated value (£) of equipment used
Argocat ATV	29	30,000	870,000
Polaris ATV	2	20,000	40,000

Can-am ATV	3	20,000	60,000
Leafblowers	50	700	35,000
Fogging Units	27	7,000	189,000
Tractors (including flail/swpie)	9	100,000	900,000
Diggers	5	100,000	500,000
Water Bowsers	5	100,000	500,000
Total Estimated Value of Equipment Used			£3,094,000

Table 1 – Summary of assets provided by land-based and rural businesses.

8. **Damage.** 18 respondents detailed an array of different types of damage and breakages which were incurred during the course of the containment. Some respondents were able to specify with a high degree of precision the expected costs for repairs, which ranged from replacing a suction pipe and strainer (estimated £50) to repairing the axle of a tractor (estimated £5,000). The most commonly referenced item reported to have broken was Argocat chains. Some respondents also noted that while no damage had been observed, ATVs would be sent for servicing as a consequence of the high intensity and prolonged workload endured over the course of the suppression and containment effort.
9. **People.** At least 101 employees from the businesses surveyed were engaged in the containment effort. Of those who attended, 67 had completed an approved muirburn training course, while a further 13 employees had experience of making muirburn but had not been trained. 80 of the 101 employees (79%) thus had experience of using fire (muirburn) in the course of managing land.
10. **Co-operation.** Respondents noted that there was on-the-ground co-operation with several individuals and agencies, including:
 - the SFRS – referenced by 14 respondents;
 - the Cairngorms National Park Authority (CNPA) – referenced by 3 respondents;
 - Paul Wilson (Headkeeper, Cawdor Estate) – referenced by 9 respondents;
 - Kevin Begg (Headkeeper, Lochindorb Estate) – referenced by 4 respondents;
 - and Bright Spark Burning Techniques – referenced by 3 respondents.

Most respondents (28) expressed positivity about the co-operation overall. All respondents were favourable about the co-operation with gamekeepers and land managers. A small number of respondents (6) were critical of the SFRS, citing a general lack of effectiveness, presence and organisation.

11. **Tactics and Techniques.** Several tactics were employed during the containment and suppression effort, including: tactical back burning (10 references); suppression by fogging unit (19 references); suppression by leafblower (14 references); suppression by fire beaters (4 references); excavating firebreaks (5 references); swiping firebreaks (8 references); suppression by rain gun on a mounted slurry tanker (2 references); and excavating burning peat (2 references). Of note is the multiple respondents who referenced the co-ordinated employment of multiple ATVs

with fogging units as well as the strategic creation of firebreaks. One respondent described in detail the tactics employed on Knockando Hill.

“We assessed the fire and noted the real damage could be done to the East end and with help from Knockando agent, Alastair Davidson, found access to the Knockando Hill. With a tractor (driven by ex Knockando keeper) and swipe leading on the southern fire edge we used the swipe to cut the heather and raise the moss, the argo fogging unit with hose operator and driver to put out the fire. Jake from Altyre (fantastic shift from him) operating the leafblower behind, over a significant distance of about 2.5 miles. We contained the southern flank of the fire and forced it into Loch of the Cowlatt. It was clear by then that the Northern edge had gone into forestry of Dallas woods and would need helicopter assistance burning in the brash. We arrived on site at 2pm and left at 8pm leaving our argo on site for Willie Smith (Knockando keeper) to use to make sure the fire did not restart on his ground.”

- 12. Accidents and Near Misses.** Half of the respondents (17) reported no accidents or near misses. Of those who did report one or more accidents or near misses, 6 referenced circumstances where the wind had suddenly changed direction. The recollection of two respondents who encountered such circumstances are detailed below.

“When extinguishing part of the fire, the wind changed so for safety reasons I pulled out from the fire. Unfortunately the Argo broke down with no drive to one side. This made driving the Argo extremely difficult, all the time, fire getting closer and smoke making visibility very limited. I knew roughly where to head. On reaching a locked gate on the plantation boundary, I feared I would have to leave the Argo to be burned. I was after a while able to contact someone and got the padlock code. Fire and smoke getting closer all the time. Not an ideal situation. I was lucky. By using my mobile phone and a satellite map app I could see where I needed to get to. It was not an easy journey driving a broken Argo. On reaching a safe place, I called another person to collect my 4x4 vehicle to pick me up.”

“Myself and 2 colleagues, alongside the Aberlour fire crew, were almost trapped on the main Carrbridge to Ferness road. We were burning along the roadside to create a break and the wind changed direction and we were minutes from being caught out.”

Other reported incidents included: machinery getting stuck; driving through fire to rescue livestock; narrowly avoided road traffic collisions due to smoke obscuring visibility; missing persons; drivers ignoring road closures and lack of road closure enforcement; a tractor dropping through a bridge; a refuge centre in Edinkillie not being open as advertised; effects of smoke inhalation; and cut hands from fixing machinery.

- 13. SFRS Response.** When asked what would improve the overarching SFRS response, the most prominent theme expressed was ensuring access to appropriate equipment to tackle wildfires in difficult terrain (22 references). In particular, respondents pointed to the provision of ATVs with fogging units as being integral to

an effective response. Other common themes expressed by respondents included: improved helicopter availability (6 references); enhanced training in wildfire containment techniques (3 references); relaxing restrictions which prohibit firefighters from leaving the roadside (2 references); improved communication at the fire itself (7 references); and enhanced authority for SFRS commanders to mobilise helicopters (3 references). One respondent detailed several key themes in their response.

“Clear lines of communication need to be understood. In addition to protecting people and property, the SFRS need to be able to fight the fire on open ground and need to be provided with more funding to have more equipment. Access to the hill needs to be understood to get SFRS equipment to the front line. Local estates need assistance with more breathing and firefighting equipment. SFRS ought to meet with estates on an annual basis to understand access, contacts and equipment needs.”

14. **Land Manager Response.** When asked what would improve the response from the land management community, respondents cited a range of themes. One of the more prominent themes was the importance of fuel load management and fire breaks (9 references), both in terms of preventing wildfires and enabling more effective containment / suppression. Figure 2 below illustrates this point well. Other themes that emerged were: helping the SFRS to build better situational awareness about available resources (4 references); strategic placement of water and equipment (5 references); strengthening of the Scottish Outdoor Access Code (2 references); establishing local response networks (3 references); and the creation of a targeted grant to enable businesses to invest in counter-wildfire capabilities (2 reference). The sentiments of two respondents who touch on several of the above themes are detailed below.

“Equipment (tractors, ATVs, swipes, breathing apparatus, fire beaters, etc) need to be provided to private estates in order that rapid deployment can take place to tackle fires in a timely manner. Strategically placed machinery, in addition to the machinery provided by private estates would allow more effective firefighting. CNPA and Scottish Forestry need to accept the needs for more fire breaks in moorland and woodland schemes. Landowners need more freedom to carry out muirburn and create access routes. Fighting a fire of this nature on foot is almost impossible and it is imperative that ATVs can take people and equipment to the face of the fire quickly to stop the spread. The evidence on the ground shows how valuable controlled muirburn is at stopping fires. With more muirburn and bigger fire breaks, the fire could have been contained before the rain stopped it.”

“A very specific and targeted grant system to fund the purchase of specialist moorland firefighting equipment and training for staff. As landowners, keepers, foresters and managers, we can respond so much more quickly than the fire brigade but we need everyone to have access to the equipment required. We suggest that moorland firefighting specialists (keepers, rangers etc) should be identified and encouraged to train the fire brigade - knowledge sharing is invaluable. Both wildfires which have affected this estate have passed through the wind farm development - we suggest the wind farm developers take some responsibility in the reduction of fuel load on the hill, perhaps an obligation on them to include fire risk reduction in their

Habitat Management Plan. A change in mindset is required from a reactive approach to more preventative measures.”



Figure 2 – An illustration of the effect of fuel load management and firebreaks during the Carrbridge wildfire (Credit: Scott Innes).

15. Preliminary Damage Assessment. Eight respondents had land or business interests directly impacted by the fires. The preliminary reported losses across five of these businesses are detailed below.

- Landholding A: 1,750ha of burnt ground – including march fencing, deer fencing, a forestry scheme and small areas of woodland. Biggest impact likely to be on planned peatland restoration project (>300ha) directly impacted by the fire. The wildfires have forced a rethink of risks associated with restoration activity.
- Landholding B: 1,000ha of hill ground burnt – in areas where extensive peatland restoration has been carried out. Intends to conduct bird survey and compare to baseline survey data.
- Landholding C: losses include 12.1km of fencing, a bridge, 2 culverts, a rowing boat, 800 grit trays, 8 wooden grouse butts, 3 stone grouse butts, 1 trail camera, extensive damage to tracks due to intensity of machinery access, loss of wildlife. Expecting a six-figure sum worth of damage.

- Landholding D: losses include c. 120ha of commercial forestry and some hill ground. Black grouse, red grouse, wading birds and mountain hares all adversely affected. C. £750,000 worth of damage to trees and fences.
- Business specialising in peatland restoration: lost earnings across 3 landholdings between now and financial year 2026-27 estimated to be £33,000 (+VAT) plus a six-figure sum loss in relation to work scoped on one impacted landholding over several years.

DISCUSSION, ANALYSIS AND RECOMMENDATIONS

Resources, People, Tactics and Techniques.

16. It is clear from the responses to the survey that land-based and rural businesses mobilised *en masse* to support the containment and suppression effort. The provision of resources seems to have been particularly consequential – with ATVs and fogging units ensuring both access to and extinguishment of the fire’s flanks and tail, as well as any emergent spot fires. The tactical employment of multiple ATVs and fogging units in what one respondent described as a ‘chain’ seems to have also proven effective, as was the use of tactical backburning to reduce fuel loads beyond the fire’s head.
17. ATVs and fogging units are generally – although not exclusively – purchased and utilised by estates for the purposes of supporting muirburn operations. Thus it is important to acknowledge that the future availability of these resources is in-part dependent on the scale and extent of muirburn activity in the future. Landholdings unwilling or unable to make muirburn are less likely to invest in the kind of resources which were readily employed over the course of the Carrbridge and Dava wildfires.
18. It is similarly striking that, of the 101 employees who responded, c. 79% had direct experience of making muirburn, while 66% had completed an approved training course. Again, it is important to acknowledge the correlation between those who responded on the ground and those who routinely make muirburn. Put simply, a majority of those who did respond had a familiarity with fire in controlled contexts which gave them the requisite skills, experience and knowledge to engage meaningfully in the suppression and containment effort.
19. These observations are important because Part 2 of the Wildlife Management and Muirburn Act 2024 is due to be commenced on 01 January 2026. The commencement will introduce a licensing scheme, statutory code and compulsory training for muirburn. The cumulative impact of these provisions is that it will be more restrictive to make muirburn in the future, which will carry implications for the response to future wildfire events by many land-based and rural businesses.
20. The licensing scheme, in particular, is likely to significantly constrain the ability of land managers to make muirburn. There are two reasons for this.
 - To apply for a licence, you need to first understand where the land constitutes peatland (peat > 40cm depth) and non-peatland. NatureScot has developed

[an interactive map](#) to support this process, but there will still be a requirement to survey land with a peat probe. This is not helped by the fact that the interactive map has a significant amount of land designated as ‘uncertain’, for which there is no information about peat depth relative to the 40cm threshold.

- If applying for a licence on peatland, NatureScot has to be satisfied that “muirburn is *necessary* for the specified purpose, and [that] *no other method of vegetation control is available*”² [emphasis added]. These provisions present a high evidential bar for land managers to satisfy.

21. Using figure 3 below, it is possible to infer how the licensing scheme would be applied in the area impacted by the Carrbridge and Dava wildfire. Most of the impacted land is peatland (purple), which means land managers intending to make muirburn in this area would need to satisfy NatureScot: i) that it is necessary for a specified purpose³; and ii) that no other method of vegetation control is practicable. For the uncertain areas (green), a survey using peat probes will need to be carried out to ascertain whether the land is peatland or non-peatland before applying for a licence. For areas shaded in blue (non-peatland), licences will be more easily obtainable and subject to an ‘appropriateness’ test, which has a lower legal standing.

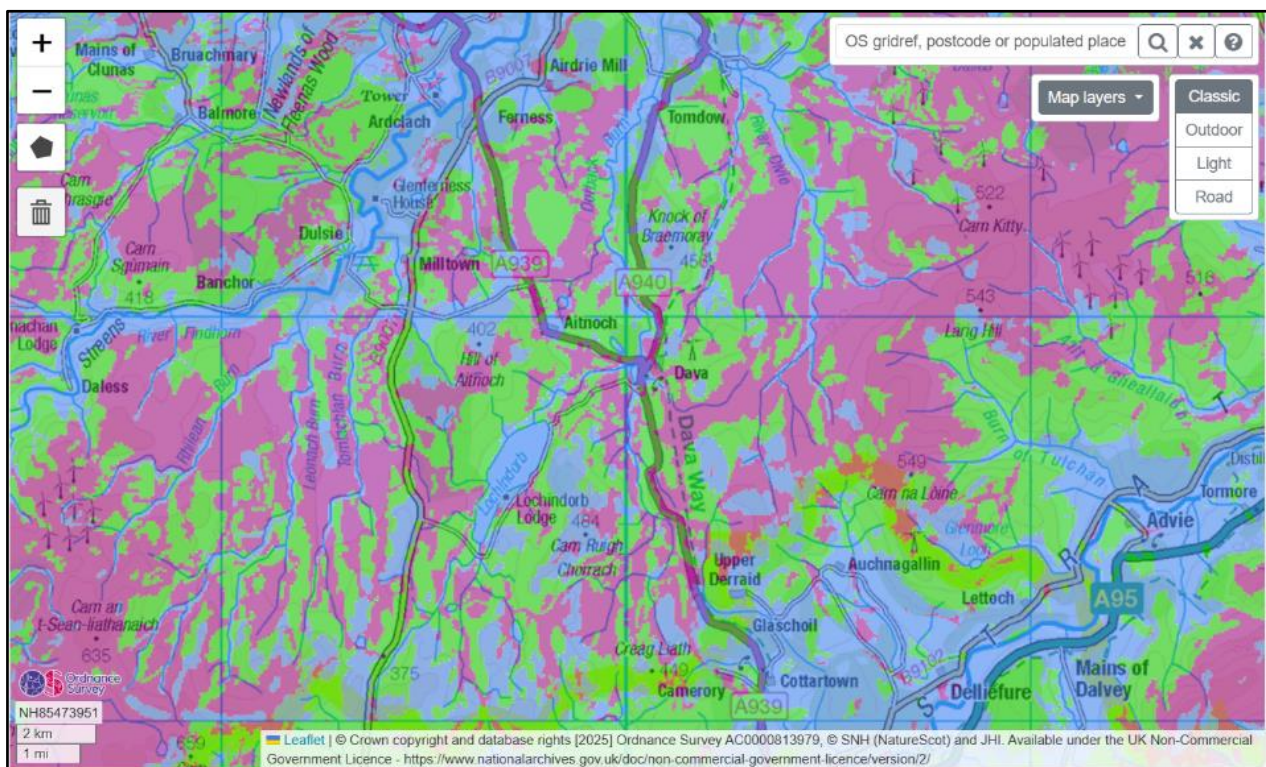


Figure 3 – NatureScot’s Muirburn-Peatland Map data overlaid on the area impacted by the Dava-Carrbridge wildfires. Purple = peatland (>40cm); blue = non-peatland; green = uncertain.

² Sub-Section 1, Section 14, Part 2 of the Wildlife Management and Muirburn (Scotland) Act 2024. Available [here](#).

³ There are four specified purposes on peatland: i) restoring the natural environment; ii) preventing, or reducing the risk of, wildfires causing damage to habitats; iii) preventing, or reducing the risk of, wildfires causing harm to people or damage to property; and iv) research.

22. It is not unreasonable to infer that the licensing scheme will result in a reduction in muirburn activity across the impacted area. This will carry implications for fuel load management – which several respondents to the survey credited for making the containment easier – but also investment in resources and the retention of skills which were so critical in confronting the recent wildfires.
23. If the Scottish Government wants the support of land-based and rural businesses in combatting wildfire events to endure, urgent consideration will need to be given to the impact of the muirburn licensing scheme on fuel load management, investment in resources and the retention of skills. **As a minimum, SLE recommends that section 14(b)(i) and (ii) of the Wildlife Management and Muirburn Act 2024 be repealed via the Natural Environment (Scotland) Bill.** This would retain a licensing scheme for muirburn but replace the ‘necessity’ test with the ‘appropriateness’ test, and remove the presumption in favour of other vegetation control methods. It is envisaged that such a change would enable muirburn to be carried out more freely while simultaneously retaining regulatory oversight.

Damages and Expenses

24. It is clear that the containment and suppression effort exerted a considerable toll on private resources. While some may be able to claim back the costs for such expenses on insurance, we know that for many the cost will be borne privately. **SLE recommends that the feasibility of compensating land-based and rural businesses for any damages, breakages and servicing be explored by the Scottish Government and relevant public bodies.** SLE has a detailed list of breakages, with some associated costings, and has permission to feed this information directly to relevant agencies along with business contact details.
25. It is understood that the Fire (Scotland) Act 2005 contains provision for the remuneration or reimbursement of expenses. This may be an appropriate vehicle to affect such a recommendation.

SFRS Response

26. The Carrbridge and Dava wildfires exposed a number of critical gaps in SFRS capabilities. While their contribution was undoubtedly important, land-based and rural businesses were clearly bearing the brunt of containment and suppression efforts. That said, the SFRS did play an important role, as one respondent observed:

“I have to say that my overall experience with the SFRS was a positive one. Nick Nethercott, area commander from Speyside, could not have been more helpful. He made it clear that he was there to support us and not the other way round. The SFRS has clear limitations when it comes to fighting wildfires. In a supporting role, they were fine.”

27. The Scottish Government will ultimately need to decide who it wants to own capabilities when it comes to the suppression and containment of wildfires. In the case of the Carrbridge and Dava wildfires, it was land managers – and their privately funded resources – who constituted the bulk of that capability. **For that equation to rebalance, SLE recommends the following:**

- **Investment in bespoke SFRS ATVs with suppression and containment capabilities.** A fleet of 50 (minimum) geographically dispersed ATVs with fogging units is probably required given the scale of response to the Carrbridge and Dava wildfires. These could be bought centrally, or it might be more efficient to keep the equipment of third parties on retainer.
- **Investment in a bespoke SFRS aerial capability and enhanced authority for SFRS commanders to mobilise private helicopter assets.** The mobilisation of helicopters during the Carrbridge and Dava wildfires was reportedly frustrated by weather conditions, pilot availability and uncertainty over accountable parties. This could be streamlined with an SFRS-owned capability and enhanced authority for commanders to mobilise (and finance) private assets.
- **Investment in enhanced wildfire training for firefighters.** Firefighters need to be taught wildfire-specific containment and suppression techniques using tactical back-burns, fogging units, leafblowers, fire beaters, swiping and excavation. Beyond that, SFRS commanders responsible for containment at the landscape scale require enhanced training on tactics and strategy. Such training should enable firefighters to meaningfully engage in active containment and suppression, as well as the supportive functions they exercised during this incident.
- **Investment in fire behaviour analysts, wildfire research and wildfire danger rating assessments.** These capabilities are critical for mounting an effective, considered response and driving continuous improvement. Wildfire danger rating assessments are also integral for providing advanced warning about conditions which could precipitate a wildfire event.
- **Raising situational awareness among land managers with regards to command, control, co-ordination and communication (C4).** Some land managers struggled with C4 operating procedures and would benefit from being sighted on these before a substantive response is required.
- **Creation of a Scotland-wide Integrated Fire Management Strategy (IFMS) as an urgent priority, with leadership and input from the Scottish Government.** The strategy should focus on review and analysis, risk reduction, readiness, response and recovery (R5). This will ensure everything possible is done to prevent wildfires, while simultaneously bolstering preparedness.

Land Manager Response

28. Notwithstanding the recommendations in respect of muirburn (paragraphs 19-22), **SLE would recommend the following in relation to improving the response from the land management community.**

- **Embarking on a campaign to encourage the registration of resources on the community asset register.** It is not known how many of the resources utilised were activated via the register. However, the responses to this survey suggest that many of the assets were cohered in response to calls from land managers on the ground or SLE's call for volunteers. If the register is to play a meaningful role in responding to wildfire events, its importance must be elevated among the land management community.
- **Establishing formal 'fire groups' (some of which already exist) with the SFRS, land managers and stakeholder representatives to prepare for and cohere a meaningful response to wildfire events.**

Damage Assessment

29. Work to assess the full scale of damage is ongoing. However, if lessons are to be learned, it will be vitally important to interrogate factors which may have exacerbated and mitigated the fire's effects. **To that end, SLE recommends that funding is made available to conduct this research and inform future mitigation strategies.**

CONCLUSION

30. The Carrbridge and Dava wildfires ought to be a watershed moment for the Scottish Government. Wildfires are an increasingly prevalent threat and swift action must now be taken to bolster public and private sector preparedness for such incidents. Simultaneously, it must be recognised that prevention is better than cure, and this will require matters that are beyond the scope of this report to be considered – including options to prohibit the setting of recreational fires and strengthening the Scottish Outdoor Access Code.

31. Land-based and rural businesses mounted an incredible response, alongside government agencies. For this they deserve total admiration. Beyond this, it is vital that the Scottish Government takes steps to ensure that it does not inadvertently compromise hundreds of years of collective skill and experience that enabled land managers to respond decisively and effectively to this emergency. Without this invaluable knowledge, it is clear that a far greater swathe of the landscape would have succumbed to the flames.

Ross Ewing
Director of Moorland

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