

Indicator name			Version
NB42; NF17/18 Number and area of reported wildfires in forests and key habitats			27/03/16
Indicator type:	Risk/opportunity	Impact	Action
		X	
SCCAP Theme	SCCAP Objective	CCRA risk/opportunity	
Natural Environment	N2: Support a healthy and diverse natural environment with capacity to adapt.	BD12 Wildfires due to warmer and drier conditions	

At a glance
<ul style="list-style-type: none"> Scotland has large and, in some cases, globally significant areas of forests, moorland and peatlands; these provide a range of important ecosystem services, such as timber production and carbon storage. Consequences of wildfire in key habitats include loss of carbon (particularly from peatlands and from forests), loss of biodiversity, loss of timber production, and increased rates of soil erosion and associated reductions in water quality. It is anticipated that the changing climate, particularly warmer drier springs and summers, will lead to an increased wildfire risk. These (proxy) indicators monitor the potential impact of wildfire on the delivery of ecosystem services from forests and key habitats

Latest Figure	Trend															
<table border="1"> <tr> <th colspan="3">Financial year 2012/13</th> </tr> <tr> <th>Key Habitat</th> <th>Area of wildfire (ha)</th> <th>Number of wildfires</th> </tr> <tr> <td>Forest/Woodland</td> <td>267.6</td> <td>479</td> </tr> <tr> <td>Semi-natural Grassland</td> <td>684.5</td> <td>203</td> </tr> <tr> <td>Mountain, Heath and Bog</td> <td>383.9</td> <td>153</td> </tr> </table>	Financial year 2012/13			Key Habitat	Area of wildfire (ha)	Number of wildfires	Forest/Woodland	267.6	479	Semi-natural Grassland	684.5	203	Mountain, Heath and Bog	383.9	153	
Financial year 2012/13																
Key Habitat	Area of wildfire (ha)	Number of wildfires														
Forest/Woodland	267.6	479														
Semi-natural Grassland	684.5	203														
Mountain, Heath and Bog	383.9	153														

Why is this indicator important?
Key habitats sensitive to fire include forests, grassland, peatlands (including blanket bog) and heathlands (HR Wallingford, 2012). In Scotland there are large and in some cases globally significant areas of woodland, moorland and peatlands. These provide a range of important ecosystem services.

Consequences of wildfire can include loss of carbon (particularly from peatlands and forests), loss of biodiversity, loss of timber production, and increased rates of soil erosion and associated reductions in water quality. There will also be potential impacts on communities who could be affected directly or indirectly for example through closure or blockage of transport or access routes (ibid).

Moffat and Pearce (2013) state 'Intense forest fires may pose a risk to standing trees and the timber resource, but recent fires in Britain tend to be located in the understorey where most damage is caused to wildlife habitat, recreational opportunity and if on organic-rich soils, to carbon storage. In addition, reduction in air quality can cause nuisance and pose a risk to human health, especially if fires are located close to urban communities (Finlay *et al.*, 2012). Fire can also increase the susceptibility of surviving trees to insect attack, for example secondary bark and ambrosia beetles in conifer forests (Lowell *et al.*, 2010).' They go on to say '[wild]fires can have serious effects on a wide range of services – even if a fire remains within the understorey and does not cause tree mortality per se.'

Habitats and species have differing levels of susceptibility to fire events. Indeed, some grassland and heathland habitats can benefit from controlled burning that can help prevent woody species colonising the area (such controlled burning used as a legitimate land management practice is not included in the wildfire data presented here). When in a dry condition, peatland can be particularly vulnerable to fire and can 'smoulder' or burn for prolonged periods, being difficult to extinguish. Peatland habitats store a significant amount of carbon, which can be released back into the atmosphere as a result of fire damage. Furthermore, the future ability of the habitat to store carbon, and to re-establish its original vegetation, is likely to be severely impaired or destroyed (Brown *et al.*, 2012).

Extreme weather conditions, especially spring and summer droughts, in recent years have had an impact with Fire and Rescue Services (FRS) responding to a number of large wildfire incidents. For example, between 29 April and 5 May 2011 over 1,800 firefighters were deployed by Highlands and Islands FRS to 70 significant wildfire incidents. These wildfires destroyed around 9,200 hectares of moorland and forestry, costing Highlands and Islands FRS over £125,000 with restoration costs estimated at £7.2m to £26.4m (Scottish Government, 2013).

Climate projections for Scotland indicate warmer, drier summers on average, increasing the risk of summer drought which in turn increases the risk of wildfire (Scottish Government, 2013). Most wildfires occur in spring and summer when there is a lot of ground vegetation. During spells of hot or dry weather, much of this vegetation is dry enhancing the fire risk. Wildfires occurring in periods of drought can be especially destructive as twigs and branches on trees tend to dry out and provide additional fuel for the fire (Forestry Commission, 2014).

This indicator provides a proxy measure to help monitor the impact of wildfire on forests and other key habitats. Woodland data is based on wildfires occurring within areas classified as woodland by the National Forest Inventory (NFI). Other key habitats are identified using the Centre for Ecology and Hydrology's Land Cover Map 2007¹ (LCM2007). The data was produced by Forestry Commission England on behalf of Forestry Commission Scotland from Fire and Rescue Service Incident Reporting System (IRS) data (see Methodology for further details).

Definitions:

Forest fire is defined as 'uncontrolled vegetation fires spreading wholly or in part on forest and/or other wooded land' (Camia *et al.* 2014).

¹ <http://www.ceh.ac.uk/landcovermap2007.html>

Wildfire is defined by the Food and Agriculture Organisation of the United Nations (FAO) as: ‘Any unplanned and uncontrolled wildland fire that, regardless of ignition source, may require suppression response or other action according to agency policy.’ (Scottish Government, 2013)

What is happening now?

2012/13

In 2012/13 the area of forest affected by wildfire was 267.6 hectares and in total 479 forest wildfires were recorded. The Fire and Rescue Service (FRS) spent 333.5 hours fighting wildfires over this period. In the same period, other key habitats affected by forest wildfire include 383.9 hectares of mountain, heath and bog (affected by 153 wildfires lasting for 277.3 hours); and 684.5 hectares of semi-natural grassland (affected by 203 wildfires lasting for 274.7 hours).

2009/10 – 2012/13

During the four years for which data exists, there is a high degree of variability.

Table 1 Area of wildfire in forests and key habitats, 2009/10 – 2012/13

Key Habitat	Area of wildfire (hectares)			
	2009/10	2010/11	2011/12	2012/13
Woodland	60.0	127.3	7,965.7	267.6
Semi-natural Grassland	893.3	916.6	2,022.4	684.5
Mountain, Heath & Bog	1,879.2	3,122.8	6,805.2	383.9
Scotland Total	3,473.6	4,298.1	18,991.6	1,519.8

Source: Incident Reporting System/Forestry Commission Scotland

Table 1 shows that the total area of wildfires recorded varies hugely year-on-year, not just at a national level but by habitat type. The financial year 2011/12 saw an exceptionally large area impacted by wildfires, with an especially marked increase in forest fires, although semi-natural grassland and mountain heath and bog were also heavily impacted. In 2011/12 some 42% of all wildfires were in woodland while in 2009/10 woodland accounted for less than 2% of the total. The financial year 2011/12 saw the highest wildfire impact in all key habitats included.

Table 2 Number of wildfires in forests and key habitats 2009/10 – 2012/13

Key Habitat	Number of wildfires			
	2009/10	2010/11	2011/12	2012/13
Woodland	850	1,166	1,050	479
Semi-natural Grassland	354	465	368	203
Mountain, Heath & Bog	154	211	199	153
Scotland Total	8,959	10,468	6,486	4,199

Source: Incident Reporting System/Forestry Commission Scotland

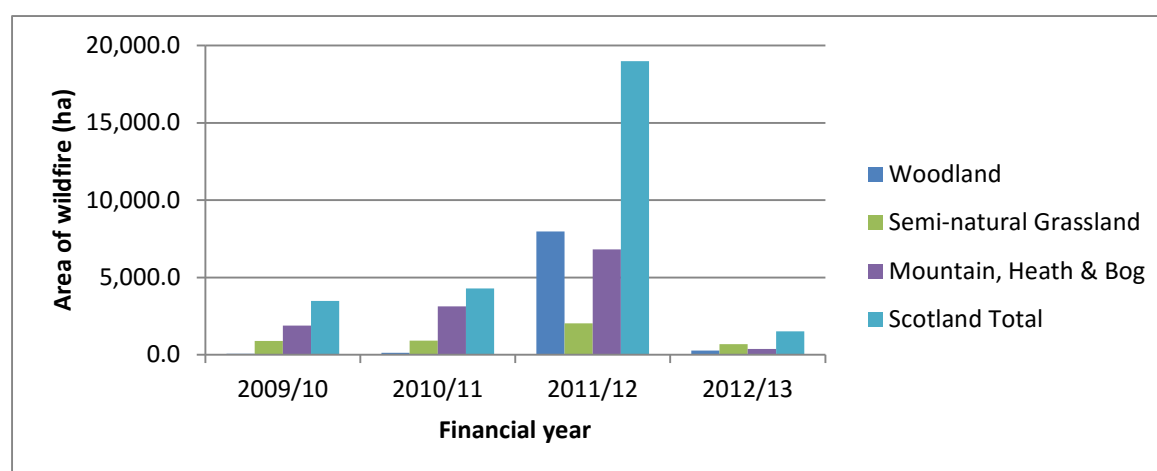
The pattern of number of wildfires recorded, shown in Table 2, differs from the area impacted (in Table 1), suggesting that the size of wildfires varies markedly, with 2011/12 in particular seeing some very large wildfires. The highest number of wildfires was recorded in 2010/11, followed by 2009/10.

Table 3 Time spent by FRS fighting wildfires (hours)

Key Habitat	Time spent by FRS fighting wildfires			
	2009/10	2010/11	2011/12	2012/13
Woodland	405.6	729.3	908.1	333.5
Semi-natural Grassland	277.0	407.3	362.9	274.7
Mountain, Heath & Bog	187.2	370.1	409.2	277.3
Scotland Total	3,622.7	5,657.6	3,858.9	2,415.1

Source: Incident Reporting System/Forestry Commission Scotland

The time spent by FRS fighting wildfires, shown in Table 3, is probably a function of a number of factors such as the location of the fire, the perceived threat, e.g. to people and properties, and availability of resources at the time. The time spent fighting wildfires, shown in Table 3, appears to correlate more closely to the number of wildfires (Table 2) than to the area affected (Table 1).

**Figure 1** Area of wildfires by habitat type 2009/10 – 2012/13

Adaptation

Guidance is provided on adaptation and resilience building including the Scottish Government sponsored "Wildfire Operational Guidance" (Scottish Government, 2013). This is designed to build additional understanding and awareness of wildfire for the Fire and Rescue Services and provides information on how to tackle the behaviour, prevention and management of wildfire and wildfire incidents for those planning responses to wildfire events. Similarly, the Forestry Commission published 'Building wildfire resilience into forest management planning' in 2014 (Forestry Commission, 2014).

What has happened in the past?

Prior to 2009 recording of wildfires in Scotland (and the rest of the UK) was limited in nature and lacked standardisation. Since 2009, wildfire reporting in the UK has used the Incident Reporting System (IRS).

It is not possible to draw any significant trends in relation to wildfire in forests and associated land uses during the period 2009/10 – 2012/13. Four years is too short a period of time. The figures for the area affected, number and duration of fires vary considerably from year to year; however they are particularly high for the period 2011/12 – see Table 1 and Table 2.

At a UK level, in recent years 2003 and 2011 stand out, each experiencing a 'marked upsurge' in wildfires (Scottish Government, 2013). Most of these fires affected grassland and heathland. During January 2003 there were an average of 40 grass and heath fires per day, rising to 762 per day in

March and 1,010 in April.

In Scotland, there was a particularly high incidence of wildfire in 2011/2012. Between 29th April and 5th May 2011, 70 significant wildfires required the deployment of more than 1,800 firefighters by Highlands and Islands Fire and Rescue Service. The fires 'destroyed approximately 9,200 hectares of moorland and forestry, and resulted in direct costs of over £125,000 to Highland and Islands Fire and Rescue Service and wider restoration costs estimated at between £7.2m and £26.4m' (Scottish Government, 2013).

What is projected to happen in the future?

It is estimated that by the 2080s the risk of wildfires in Scotland could increase by 30-40% due to projected climate change, compared to a 1980s baseline (HR Wallingford, 2012). Impacts will reflect this changing level of risk and the management responses to that risk. The CCRA 2012 (Brown et al., 2012) notes 'Increased frequency of wildfires could result in large changes in habitat extent and species populations in vulnerable locations. These impacts have occurred in extreme dry conditions during recent years.'

Typically, wildfires are not spread evenly in geographic terms. Together with the high degree of variability in their incidence year-on-year (seen in Figure 1), with a large number of outbreaks tending to occur over a relatively short timescale (a few weeks), they can severely impact the ability of the Fire and Rescue Service to respond while maintaining operational capacity to deal with other incidents and to manage their budgets (Scottish Government, 2013). Given the increased risk due to projected climate change, this pressure on the resilience of the Fire and Rescue Service is likely to increase.

Patterns of change

Generally, over the period 2009 to 2012 broadleaved forests were affected by wildfire to a greater extent than coniferous forests, as shown in Table 4 and Figure 2. The area of broadleaved forest affected by wildfire, the number of wildfires and their duration all tended to be higher than corresponding figures for coniferous forests. (A full breakdown of wildfire figures for each National Forest Inventory category is available in Appendix Two).

The figures do not correspond to the perceived inherent wildfire risk associated with different habitat types; coniferous woodland, particularly young pine, spruce and fir, is considered a high risk habitat, while broadleaved, mixed and yew woodlands are considered low risk (Forestry Commission, 2014).

There are a number of possible explanations for this result:

- Broadleaved forest is considered to be more susceptible to wildfire when young, and broadleaved planting has increased rapidly in recent years driven by biodiversity strategy and other social drivers (increased planting of broadleaved trees was recorded between 1995 and 2014, see indicator NF5 'Planted forest tree species diversity index').
- Much new planting is closer to humans, for example that supported through Woods in and around Towns (WIAT)². Location may be a factor, as the vast majority of wildfires are caused by arson (although there is no Scottish evidence to support this).
- For the first time, we are now gathering good quality evidence, which may in turn challenge

² <http://scotland.forestry.gov.uk/supporting/strategy-policy-guidance/communities/woods-in-and-around-towns-wiat>

the traditional thinking regarding relative inherent wildfire risk in broadleaved and coniferous forest (A.J. Moffat, personal communication, 2015).

Table 4 Area and number of wildfires in broadleaved and conifer forests 2009/10 – 2012/13

Year	Area of wildfire (hectares)		Number of wildfires		Time spent fighting wildfires (hours)	
	Broadleaved	Conifer	Broadleaved	Conifer	Broadleaved	Conifer
2009/10	26.2	15.1	485	182	199	114.6
2010/11	25	81.5	605	283	296.7	244.1
2011/12	5877.6	26	536	218	276.4	168.9
2012/13	237	1.9	259	110	149.9	81

Source: Incident Reporting System/Forestry Commission Scotland.

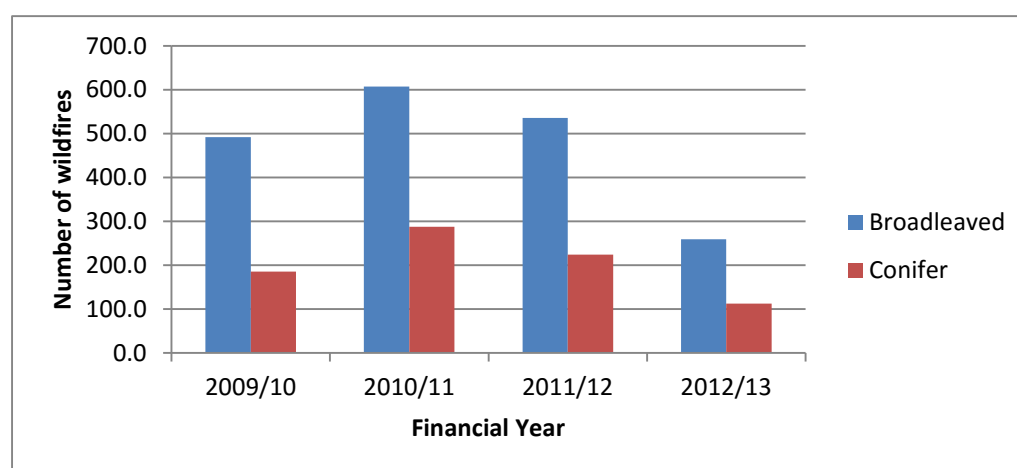


Figure 2 Number of wildfires on broadleaved and conifer forests 2009/10 to 2012/13

Table 5 shows the area of designated sites (including RAMSAR, SAC, SPA, SSSI sites and National Parks) affected by forest wildfires over the period 2009/10 to 2012/13. This is significant because of the damage wildfires may inflict on the asset for which the site was designated, such as biodiversity or cultural value.

Table 5: Designated sites affected by forest wildfire 2009/10 – 2012/13

Year	Area of designated sites affected (hectares)
2009/10	133.2
2010/11	588.2
2011/12	1876.4
2012/13	1075.6

Source: Incident Reporting System/Forestry Commission Scotland.

Interpretation of indicator trends

A general upward increase in wildfires is expected, however with only four years of data it is not possible to detect trends at present. The high figures for wildfire in 2011/12 coincide with a warm, sunny spring with below average rainfall in 2011. Most wildfires are started as a result of human activity (accidental and deliberate) although some are started naturally, for example by lightning (Cabinet Office, 2013). Wildfires tend to result from a combination of multiple factors: a near random arson event; availability of adequate and contiguous fuel, itself the product of seasonal weather; and

the particular weather (hot, dry, windy) immediately preceding the event. Also the extent of wildfires is affected by the ability to detect and extinguish them. (A.J. Moffat, personal communication, 2015). This combination of attributing factors makes it difficult to determine causality and to identify trends due to an individual factor such as changing climate.

Limitations

The IRS figures only represent wildfires responded to by the Scottish Fire and Rescue Service. They do not include wildfires extinguished by landowners alone. Due to the reasons discussed in the previous section, it is unlikely that this indicator will reveal interpretable trend data for many years.

Woodland data is based on the NFI classification of woodland and may therefore exclude some woodland areas that do not meet these criteria. See Methodology for further information.

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Further information

Knowledge for Wildfire www.kfwf.org.uk

Acknowledgements

Forestry Commission Scotland

Andy Moffat, Forest Research

Appendix One: Indicator metadata and methodology

Table 1: Indicator metadata

	Metadata
Title of the indicator	Number and area of reported wildfires in forests and key habitats
Indicator contact: Organisation or individual/s responsible for the indicator	Ruth Monfries, RBGE/CXC
Indicator data source	Forestry Commission Scotland
Data link: URL for retrieving the indicator primary indicator data.	N/A

Table 2: Indicator data

	Indicator data
Temporal coverage: Start and end dates, identifying any significant data gaps.	2009/10 – 2012/13
Frequency of updates: Planned or potential updates	IRS data: Annual Additional analysis of IRS data in conjunction with habitat data: Forestry Commission England and Forestry Commission Scotland aim to update annually (subject to resource and other constraints) (Cross, 2015)
Spatial coverage: Maximum area for which data is available	Scotland
Uncertainties: Uncertainty issues arising from e.g. data collection, aggregation of data, data gaps	IRS only records reported wildfires that have been responded to by the FRS. Information reported dependent upon knowledge of FRS recorders.
Spatial resolution: Scale/unit for which data is collected	Per reported wildfire.
Categorical resolution: Potential for disaggregation of data into categories	Various, including forest type and other land uses.
Data accessibility: Restrictions on usage, relevant terms & conditions	Available free of charge from Forestry Commission Scotland

Table 3 Contributing data sources

Contributing data sources

Data sets used to create the indicator data, the organisation responsible for them and any URLs which provide access to the data.

Data used herein was compiled by Forestry Commission England on behalf of Forestry Commission Scotland, using wildfire data provided by the Fire and Rescue Service Incident Reporting System (IRS).

Table 4 Indicator methodology

Indicator methodology

The methodology used to create the indicator data

The data was created using IRS data by Forestry Commission England (FCE) on behalf of Forestry Commission Scotland (FCS).

FCE Method

The IRS data is in point format and denotes the location that the responding fire unit reported the fire occurring at. The dataset includes land cover information however this was disregarded and FCE completed their own analysis. The methodology first determined whether the fire occurred in woodland using the National Forest Inventory (NFI) as the principle definition of woodland (see woodland classes below).

The remaining data was then intersected with the LCM2007 data to determine the other land cover types. The OS MasterMap data was used to clarify the land cover of the small proportion of fires that the LCM2007 data identified as occurring in woodland but had not been identified by the NFI. The IRS data did include information on the size of the fire but the methodology focused on the point locations and did not include any analysis of the spread or impact on neighbouring habitats.

NFI Woodland Categories

Broadleaved

Conifer

Mixed mainly broadleaved

Mixed mainly conifer

Coppice

Young trees

Low density

Assumed woodland

Ground prep

Felled

The NFI defines woodland as ‘an area of tree-covered land greater than 0.5ha (about 1.25 acres) and at least 20 metres wide whose “canopy cover” or “canopy closure” extends to 20 per cent or more of the land area (or the potential to achieve this). In other words, if the site were viewed from the air, 20 per cent or more of the ground would be obscured by the trees’ foliage when the trees are mature. This definition of woodland is in keeping with other internationally accepted definitions of woodland.’³

³ <http://www.forestry.gov.uk/forestry/infd-89q9n7#10>

It should be noted that the NFI records land use, not land cover. The LCM2007 data records data at a point in time. For example; at a given point in time, an area of forest might have been recently harvested. The NFI would still record this as forest; however a land cover survey would not. Also, differences in purpose and approach will result in slightly different results.

The full NFI methodology can be accessed at <http://www.forestry.gov.uk/inventory>

CXC Method

Wildfire data for forests included in this indicator includes IRS recorded wildfire incidents identified by FCE as occurring within woodland as defined by the NFI. It does not include LCM2007 data identified as woodland. This method has been chosen as it is considered more likely that consistent future data will be available to enable monitoring of trends. The other key habitat data is identified from the intersection of IRS data and LCM2007 land cover data.

Appendix Two:

Wildfire Incident by National Forest Inventory (NFI), OS MasterMap Aggregate Class and Land Cover Map (LCM) 2007 Aggregate Class

1st Data Filter - The Wildfire data was intersected with the NFI to identified the Interpreted Forest Type that the fire occurred in.

Scotland	Financial Year 2009 - 10			Financial Year 2010 - 11			Financial Year 2011 - 12			Financial Year 2012 - 13		
NFI Category	Area of Wildfire (hectares)	Number of Wildfires	Duration of Wildfires (hours)	Area of Wildfire (hectares)	Number of Wildfires	Duration of Wildfires (hours)	Area of Wildfire (hectares)	Number of Wildfires	Duration of Wildfires (hours)	Area of Wildfire (hectares)	Number of Wildfires	Duration of Wildfires (hours)
Broadleaved	26.2	485	199.0	25.0	605	296.7	5,877.6	536	276.4	237.0	259	149.9
Conifer	15.1	182	114.6	81.5	283	244.1	26.0	218	168.9	1.9	110	81.0
Mixed mainly broadleaved	10.1	43	16.0	0.1	63	21.7	0.1	88	34.6	0.0	19	6.3
Mixed mainly conifer	0.4	31	11.6	0.2	50	23.5	0.1	58	27.7	0.0	20	7.3
Coppice	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0
Young trees	3.5	47	17.0	15.4	103	80.3	0.8	65	66.5	1.0	26	12.4
Low density	0.8	3	3.5	0.0	2	0.8	220.0	11	15.3	0.0	4	1.3
Assumed woodland	3.5	46	34.1	0.9	51	50.9	1,840.6	50	136.6	0.5	25	14.9
Ground prep	0.0	6	3.3	4.1	5	4.3	0.1	14	13.1	15.2	12	32.9
Felled	0.4	7	6.6	0.1	4	6.9	0.4	10	169.1	12.0	4	27.5
Agriculture land	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0
Grass	0.4	9	3.2	0.0	15	6.9	0.5	9	9.2	0.0	10	6.7
Shrub	0.8	5	5.0	2.1	18	7.6	16.0	4	3.7	0.4	4	7.6
Other vegetation	0.0	0	0.0	0.0	0	0.0	0.0	1	2.3	0.0	0	0.0
Bare area	0.0	2	2.3	0.2	1	2.6	0.0	1	0.7	0.0	1	12.2
Urban	0.0	1	1.2	0.0	4	1.5	0.0	1	0.9	0.0	3	2.2
Quarry	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0
Open water	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0
Uncertain	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0
Total wildfires (NFI)	61.2	867	417.2	129.6	1,204	747.8	7,982.2	1,066	925.0	268.0	497	362.2

Scotland

Financial Year 2009 - 10

NFI Category	Area of Wildfire (hectares)	Number of Wildfires	Duration of Wildfires (hours)
Broadleaved	26.2	485	199.0
Conifer	15.1	182	114.6
Mixed mainly broadleaved	10.1	43	16.0
Mixed mainly conifer	0.4	31	11.6
Coppice	0.0	0	0.0
Young trees	3.5	47	17.0
Low density	0.8	3	3.5
Assumed woodland	3.5	46	34.1
Ground prep	0.0	6	3.3
Felled	0.4	7	6.6
Agriculture land	0.0	0	0.0
Grass	0.4	9	3.2
Shrub	0.8	5	5.0
Other vegetation	0.0	0	0.0
Bare area	0.0	2	2.3
Urban	0.0	1	1.2
Quarry	0.0	0	0.0
Open water	0.0	0	0.0
Uncertain	0.0	0	0.0
Total wildfires (NFI)	61.2	867	417.2

Wildfire Incident by National Forest Inventory (NFI), OS MasterMap Aggregate Class and Land Cover Map (LCM) 2007 Aggregate Class

2nd Filter - Wildfires identified as occurring within woodland by the LCM2007 dataset but not the NFI were intersected with the OS MasterMap dataset.

Scotland				Financial Year 2009 - 10			Financial Year 2010 - 11			Financial Year 2011 - 12			Financial Year 2012 - 13		
OS Mastermap Category	Area of Wildfire (hectares)	Number of Wildfires	Duration of Wildfires (hours)	Area of Wildfire (hectares)	Number of Wildfires	Duration of Wildfires (hours)	Area of Wildfire (hectares)	Number of Wildfires	Duration of Wildfires (hours)	Area of Wildfire (hectares)	Number of Wildfires	Duration of Wildfires (hours)			
Nonconiferous Trees	0.0	7	1.8	0.0	2	0.4	0.0	0	0.0	0.0	0	0.0			
Coniferous Trees	0.0	4	1.1	0.0	5	1.6	0.2	6	9.1	0.2	3	2.7			
Primarily Nonconiferous Trees	16.1	35	28.9	0.1	36	15.0	0.0	28	11.5	6.0	22	9.0			
Primarily Coniferous Trees	0.2	12	5.3	8.0	15	13.8	0.1	18	7.8	0.0	6	2.3			
Coppice	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0			
Orchard	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0			
Scrub	0.9	27	15.0	0.5	41	18.8	0.6	34	18.4	0.0	13	16.6			
Rough Grassland	0.1	19	12.1	0.4	31	26.9	5.1	41	24.0	0.8	30	19.0			
Heath	3.5	4	3.5	0.4	2	1.0	0.8	6	3.7	30.0	3	15.7			
Marsh	0.0	1	0.7	0.0	1	0.3	0.0	1	1.5	0.0	2	1.5			
Coastal	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	1	0.4			
Rock	0.0	1	0.8	0.1	3	2.3	0.0	2	3.3	0.0	1	0.4			
Slope	0.0	4	1.0	0.0	5	2.9	0.0	6	2.4	0.0	2	0.7			
Step	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0			
General Surface	0.3	77	51.1	1.2	128	52.2	115.3	93	65.9	0.0	78	136.0			
Multi Surface	1.7	14	6.7	0.0	13	6.2	7.0	16	8.4	0.0	18	7.2			
Built Environment	2.4	274	106.1	0.5	409	188.0	806.4	160	85.6	9.4	118	50.7			
Land - Unclassified	0.0	1	0.2	0.0	4	0.8	0.0	0	0.0	0.0	0	0.0			
Water	0.0	4	2.5	0.0	3	1.2	0.0	0	0.0	0.0	0	0.0			
Total wildfires (OS MasterMap)	25.1	484	236.7	11.3	698	331.2	935.6	411	241.8	46.5	297	262.3			

Wildfire Incident by National Forest Inventory (NFI), OS MasterMap Aggregate Class and Land Cover Map (LCM) 2007 Aggregate Class

3rd Filter - The remaining wildfire data was intersected with the LCM2007 dataset.

Scotland				Financial Year 2009 - 10			Financial Year 2010 - 11			Financial Year 2011 - 12			Financial Year 2012 - 13		
LCM2007 Category	Area of Wildfire (hectares)	Number of Wildfires	Duration of Wildfires (hours)	Area of Wildfire (hectares)	Number of Wildfires	Duration of Wildfires (hours)	Area of Wildfire (hectares)	Number of Wildfires	Duration of Wildfires (hours)	Area of Wildfire (hectares)	Number of Wildfires	Duration of Wildfires (hours)			
Arable	12.0	526	272.8	24.4	547	343.3	73.2	385	270.7	18.0	205	199.5			
Improved grassland	595.8	1,351	566.3	45.6	1,549	750.9	1,151.9	1,055	718.5	83.6	722	395.1			
Semi-natural Grassland	893.3	354	277.0	916.6	465	407.3	2,022.4	368	362.9	684.5	203	274.7			
Mountain, Heath & Bog	1,879.2	154	187.2	3,122.8	211	370.1	6,805.2	199	409.2	383.9	153	277.3			
Built up areas and gardens	5.9	5,152	1,628.9	37.5	5,709	2,589.3	9.3	2,940	893.3	1.9	2,079	615.4			
Coastal	1.1	40	21.4	10.3	41	99.7	5.7	36	21.4	0.1	26	10.7			
Freshwater	0.0	18	6.6	0.0	29	11.5	6.1	21	8.0	33.4	11	14.5			
Salt water	0.0	5	1.4	0.1	5	3.6	0.0	4	3.4	0.0	5	3.2			
No Classification	0.0	8	7.2	0.0	10	2.9	0.0	1	4.6	0.0	1	0.3			
Total wildfires (LCM2007)	3,387.3	7,608	2,968.8	4,157.2	8,566	4,578.5	10,073.9	5,009	2,692.1	1,205.3	3,405	1,790.6			

Scotland				Financial Year 2009 - 10			Financial Year 2010 - 11			Financial Year 2011 - 12			Financial Year 2012 - 13		
NFI, OS MasterMap and LCM2007 filters	Area of Wildfire (hectares)	Number of Wildfires	Duration of Wildfires (hours)	Area of Wildfire (hectares)	Number of Wildfires	Duration of Wildfires (hours)	Area of Wildfire (hectares)	Number of Wildfires	Duration of Wildfires (hours)	Area of Wildfire (hectares)	Number of Wildfires	Duration of Wildfires (hours)			
Scotland Total	3,473.6	8,959	3,622.7	4,298.1	10,468	5,657.6	18,991.6	6,486	3,858.9	1,519.8	4,199	2,415.1			