ystadegau ar gyfer cymru statistics for wales

Statistical Bulletin

Llywodraeth Cymru Welsh Government

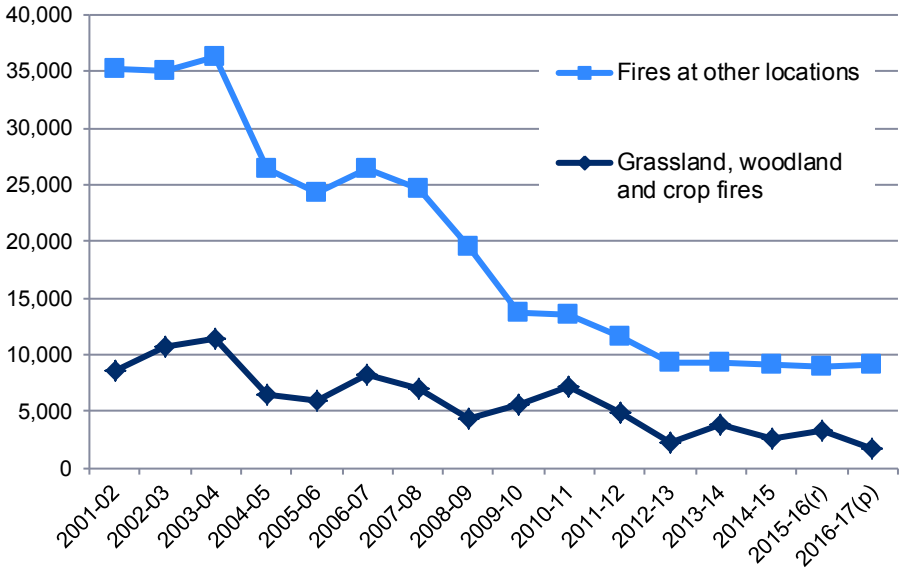
Grassland fires, 2016-17

18 Oct 2017
SB 54/2017

Around one in ten attendances by a Fire and Rescue Authority (FRA) at fires or false alarms in 2016-17 were due to grassland, woodland or crop fires.

The Welsh FRAs attended 1,716 grassland, woodland and crop fires in 2016-17, down 47 per cent on the 2015-16 figure. The number of these fires is prone to fluctuation and the 2016-17 figure follows a period of instability in these numbers. The 2016-17 figure is the lowest in the time series (from 2001-02).

Chart 1 Numbers of fires on grassland, woodland and crops and other locations



- In 2016-17, over three quarters of fires on grassland, woodland and crops were started deliberately. (Table 4)
- In 2016-17, 23 per cent of grassland, woodland and crop fires occurred in April 2016, half the proportion and number in the equivalent month of the previous financial year. Met Office weather data shows this month also saw around 20 per cent fewer hours of sunshine compared with April 2015, and more than double the amount of rainfall. (Table 5)

About this bulletin

This bulletin is complementary to data published in August 2017. It examines the impact and patterns in grassland, woodland and crop fires in the financial years 2001-02 to 2016-17, where data for 2016-17 are currently provisional. The Welsh Government compiles these statistics from reports submitted by all three Fire and Rescue Authorities (FRAs) in Wales to the Home Office.

In this bulletin

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Section 1: Fires

Fires are classed as primary, secondary or chimney fires.

Primary fires include all fires in non-derelict buildings and vehicles or in outdoor structures, or any fire involving casualties or rescues, or fires attended by five or more appliances.

Secondary fires are mainly outdoor fires including grassland and refuse fires unless they involve casualties or rescues, or are attended by five or more appliances. They include fires in single derelict buildings, derelict road vehicles and derelict outdoor structures.

For the definition of chimney fires please see the Glossary.

Grassland, woodland and crop locations include primary fires in allotments, gardens, crops, woods and other agricultural locations and secondary fires on heathland and as a result of intentional straw and stubble burning, as well as fires on grassland.

This section looks at the total number of grassland, woodland and crop fires that occurred as well as the total number of fires attended which includes fire-related false alarms.

Welsh FRAs attended 25,542 fires and fire false alarms in 2016-17. Of these, 10 per cent or 2,588 (including 872 false alarms) related to grassland, woodland and crop locations. In 2016-17 attendances at grassland, woodland and crop fires and fire false alarms fell by 40 per cent compared with 2015-16 and by 63 per cent compared with 2009-10.

Table 1 Number of grassland, woodland and crop fires and false alarms, by type of fire

	2012-13	2013-14	2014-15	2015-16(r)	2016-17(p)
Primary fires	4,745	4,790	4,561	4,678	4,756
of which were grassland, woodland and crops	*63*	*128*	*84*	*118*	*71*
Secondary fires	5,922	7,801	6,541	6,998	5,578
of which were grassland, woodland and crops	*2,082*	*3,748*	*2,529*	*3,097*	*1,645*
All fires (a)	**11,438**	**13,169**	**11,651**	**12,108**	**10,751**
of which were grassland, woodland and crop fires	***2,145***	***3,876***	***2,613***	***3,215***	***1,716***
False alarms	15,088	15,312	15,485	14,493	14,791
False alarms with location recorded as grassland, woodland or crops	*823*	*1,156*	*1,028*	*1,113*	*872*
All fires and false alarms	**26,526**	**28,481**	**27,136**	**26,601**	**25,542**
of which grassland, woodland and crop fires and false alarms	***2,968***	***5,032***	***3,641***	***4,328***	***2,588***

(a) Includes chimney fires.
(r) Revised data.
(p) Provisional data.

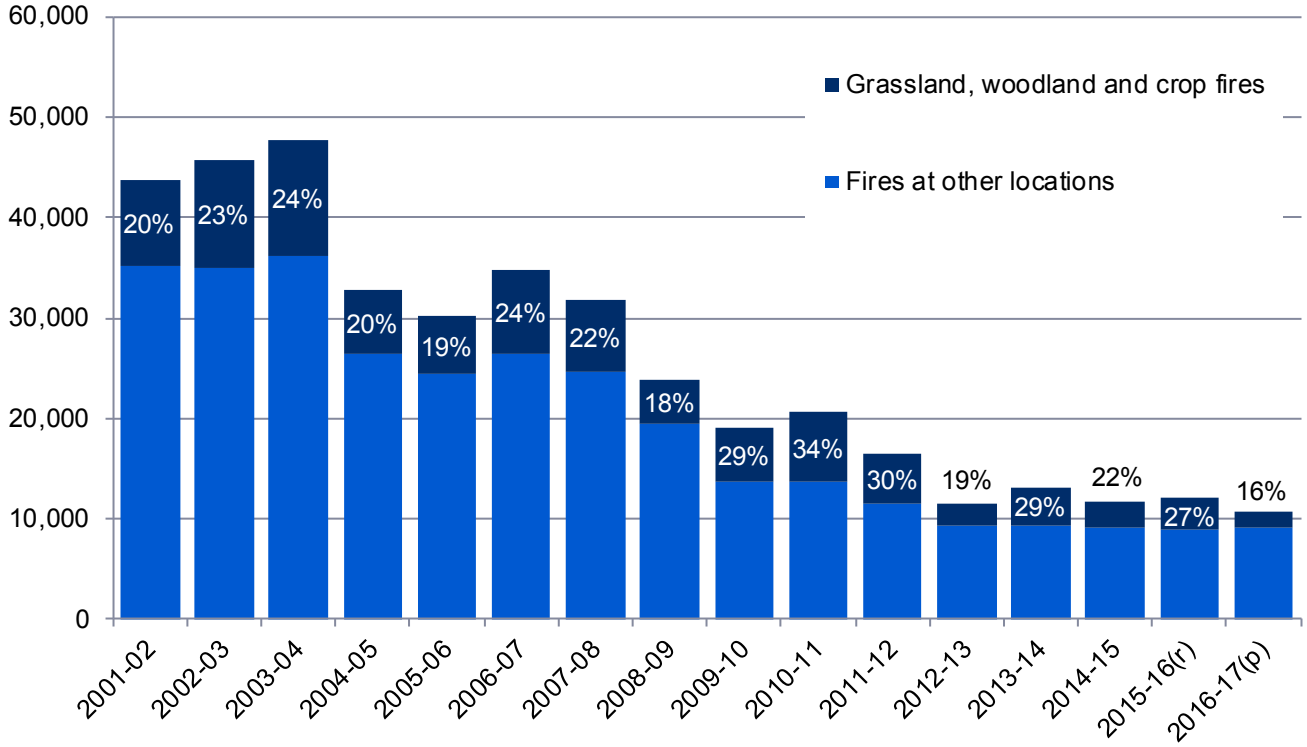
The majority (98 per cent) of the fire false alarms attended in 2016-17 by the FRAs on grassland, woodland and crops were due to calls made with good intent; only 2 per cent were due to malicious calls. In 2016-17 FRAs in Wales attended 22 per cent fewer fire false alarms on grassland, woodland and crops than in the previous year. Numbers of grassland, woodland and crop fire related false alarms are not available prior to 2009-10.

In 2016-17, the number of grassland, woodland and crop fires (excluding false alarms) attended by the Welsh FRAs fell by 47 per cent compared with 2015-16 and is 80 per cent lower than in 2001-02. Fires in locations other than grassland, woodland and crops rose by 2 per cent (compared with 2015-16) but have fallen by 74 per cent compared with 2001-02. Charts 1 and 2 show how the number of fires (and of those, grassland, woodland and crop fires) varies each year. The number of grassland, woodland and crop fires for 2016-17 is the lowest for the time series (since 2001-02).

Of the 10,751 fires attended in Wales, 1,716 (16 per cent) occurred on grassland, woodland and crops.

Chart 2 shows the proportion of fires attended which occurred on grassland, woodland or crops. The proportion of fires occurring on grassland, woodland and crops range from a low of 16 per cent (in 2016-17) up to 34 per cent (in 2010-11).

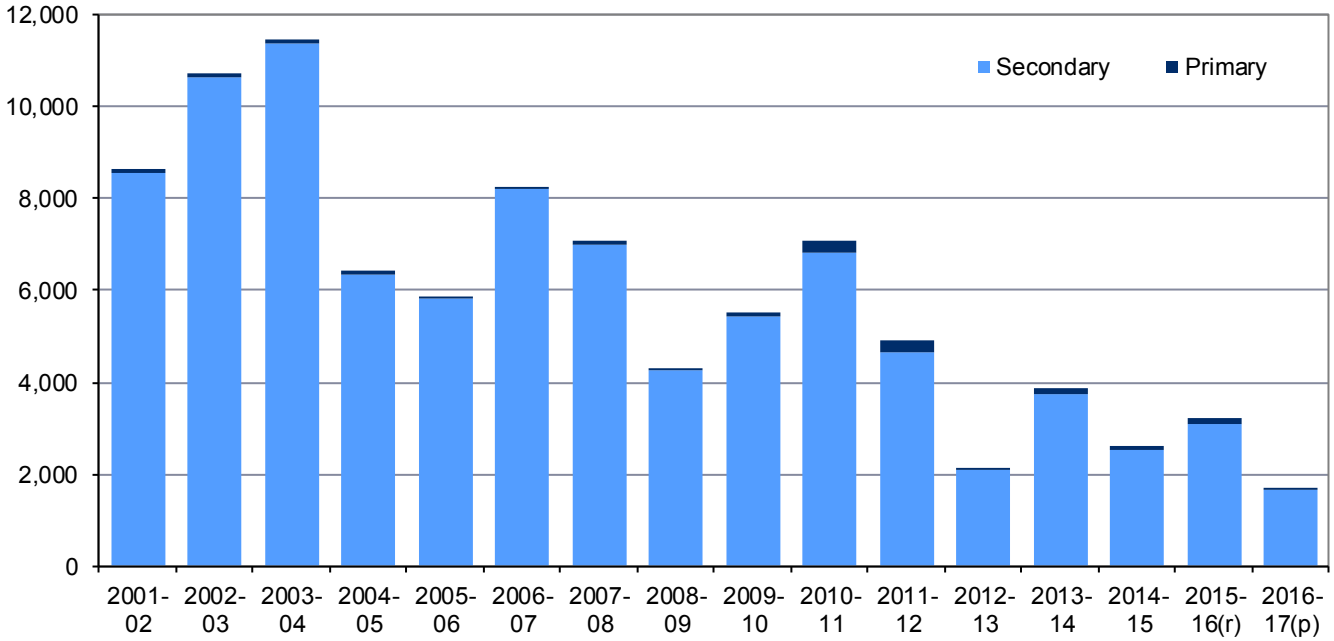
Chart 2 Number of fires attended by Fire and Rescue Authorities in Wales, by location



(r) Revised data
(p) Provisional data

Chart 3 shows the vast majority of grassland, woodland and crop fires attended are secondary fires (between 95 and 99 per cent each year since 2001-02), and further shows the fluctuations in numbers. Numbers of these fires are likely to be influenced by weather conditions; for instance, 2012-13, which saw the second lowest number of grassland, woodland and crop fires in the time series, was one of the wettest financial years since records began. Conversely 2003-04, the peak in the chart below, was a relatively dry year, seeing 11 per cent less rain than the average over 2001-02 to 2016-17. The relationship between these fires and the weather is considered further in charts 7 and 8. In 2016-17, 1 per cent of all primary fires took place on grassland, woodland or crops. The proportions for secondary fires and fire false alarms were higher at 29 per cent and 6 per cent respectively.

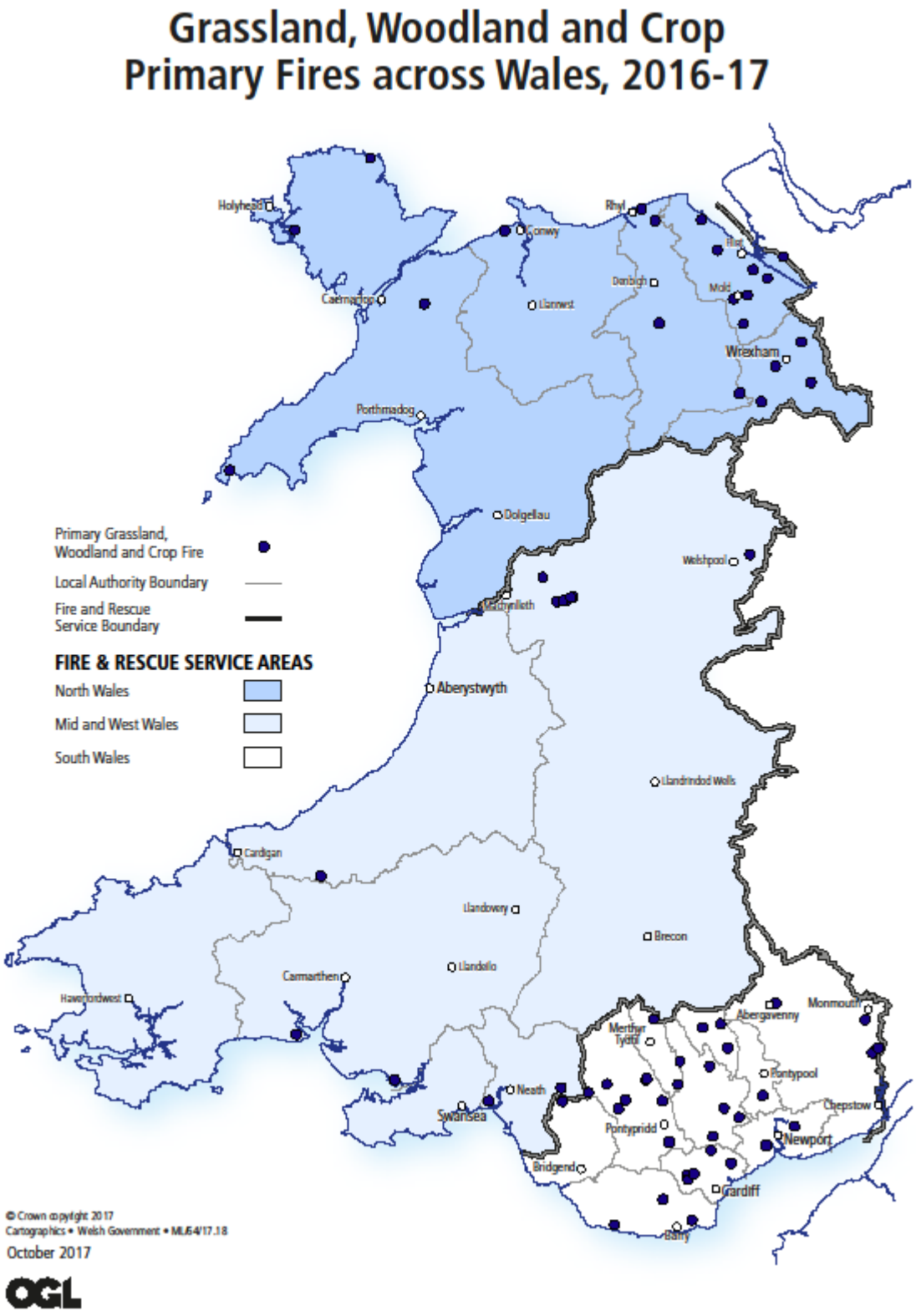
Chart 3 Number of grassland, woodland and crop fires, by type



(r) Revised data.
(p) Provisional data.

Primary grassland, woodland and crop fires

In 2016-17, 71 primary grassland, woodland and crop fires were attended in Wales, and their locations are shown on the map below.



Data mapped above are based on grid references; see the Key Quality Information for further details.

Only 1 per cent of all primary fires occurred on grassland, woodland or crops, a relatively low in comparison with previous years (between 5 and 1 per cent). Numbers of primary fires on grassland in 2016-17 fell by 40 per cent compared with the previous year and it is the lowest number since 2012-13.

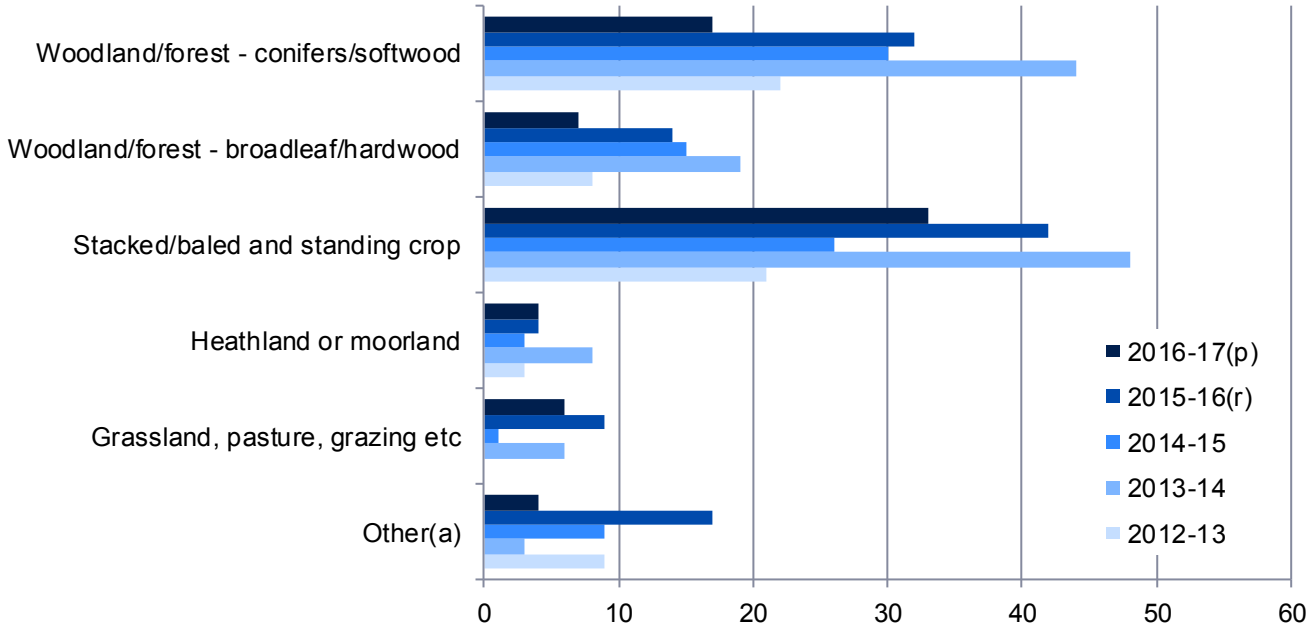
All grassland locations saw a decrease or no change in the number of primary fires in 2016-17 (compared with 2015-16). Around two fifths of primary grassland fires in 2016-17 occurred on stacked or baled crops and just over one third in woodland. Table 2 and chart 4 show that these two categories have consistently been the largest categories for primary grassland, woodland and crop fires. Since 2009-10 over two fifths the number of fires occurring on stacked or baled crops occurred in the months July to September.

Table 2 Number of primary grassland, woodland and crop fires by location

	2012-13	2013-14	2014-15	2015-16(r)	2016-17(p)
Grassland, pasture, grazing etc	0	6	1	9	6
Heathland or moorland	3	8	3	4	4
Stacked/baled and standing crop	21	48	26	42	33
Woodland/forest - broadleaf/hardwood	8	19	15	14	7
Woodland/forest - conifers/softwood	22	44	30	32	17
Other (a)	9	3	9	17	4
All primary grassland, woodland and crop fires	**63**	**128**	**84**	**118**	**71**

(a) Domestic gardens, hedge, nurseries and market gardens, roadside vegetation, scrub land and tree scrub.
(p) Provisional data.
(r) Revised data

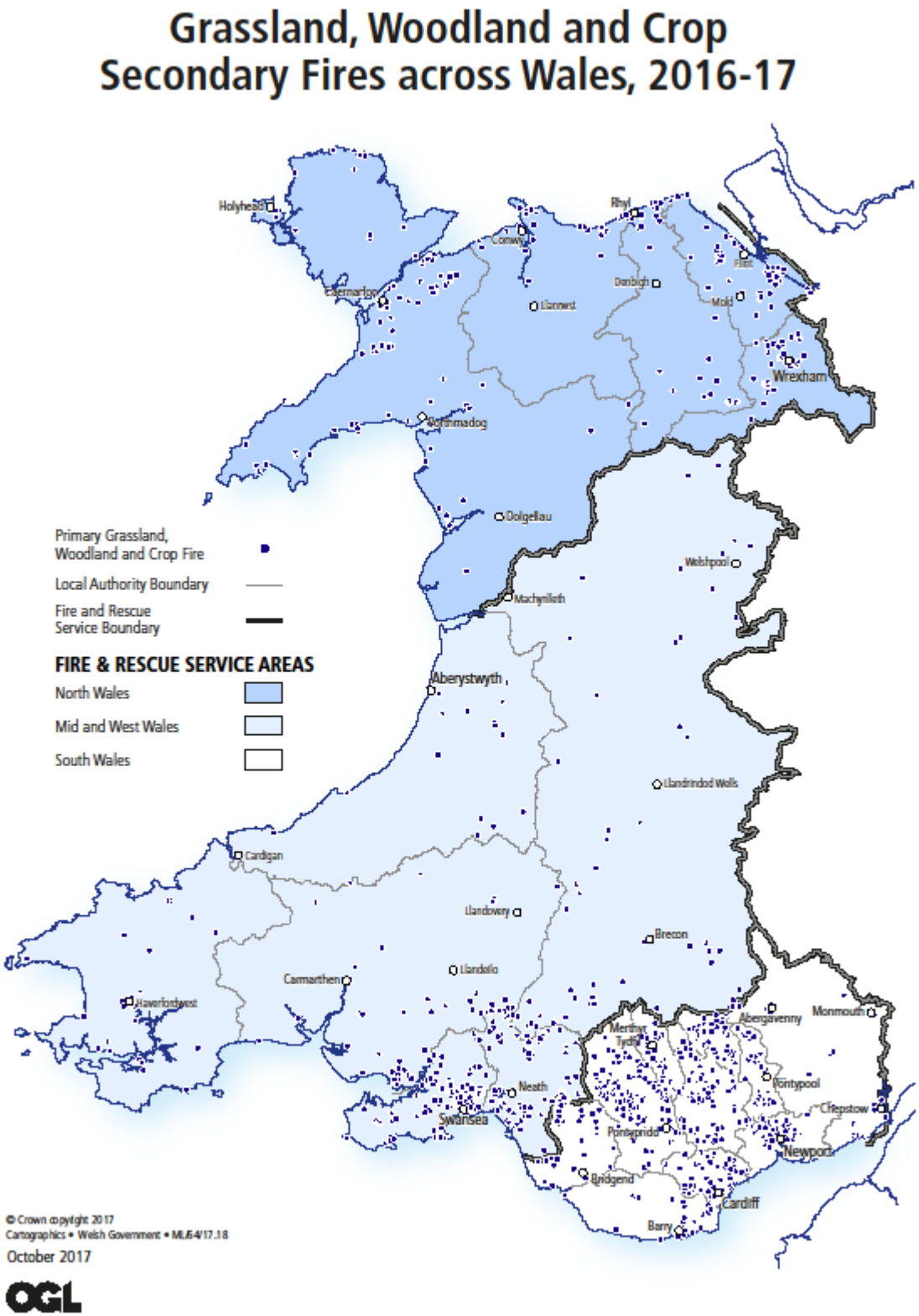
Chart 4 Number of primary grassland, woodland and crop fires, by location



(a) 'Other' shown in the above chart includes domestic gardens, hedge, nurseries and market gardens, roadside vegetation, scrub land and tree scrub.
(p) Provisional data.
(r) Revised data

Secondary grassland, woodland and crop fires

In 2016-17 there were 1,645 secondary grassland, woodland and crop fires in Wales, the map below shows their locations.



Data mapped above are based on grid references; see the Key Quality Information for further details.

Of all secondary fires that were reported in Wales in 2016-17, grassland, woodland and crop fires accounted for 29 per cent, a decrease of 15 percentage points from the previous year. Overall, in 2016-17, secondary fires on grassland fell by 47 per cent compared with the previous year.

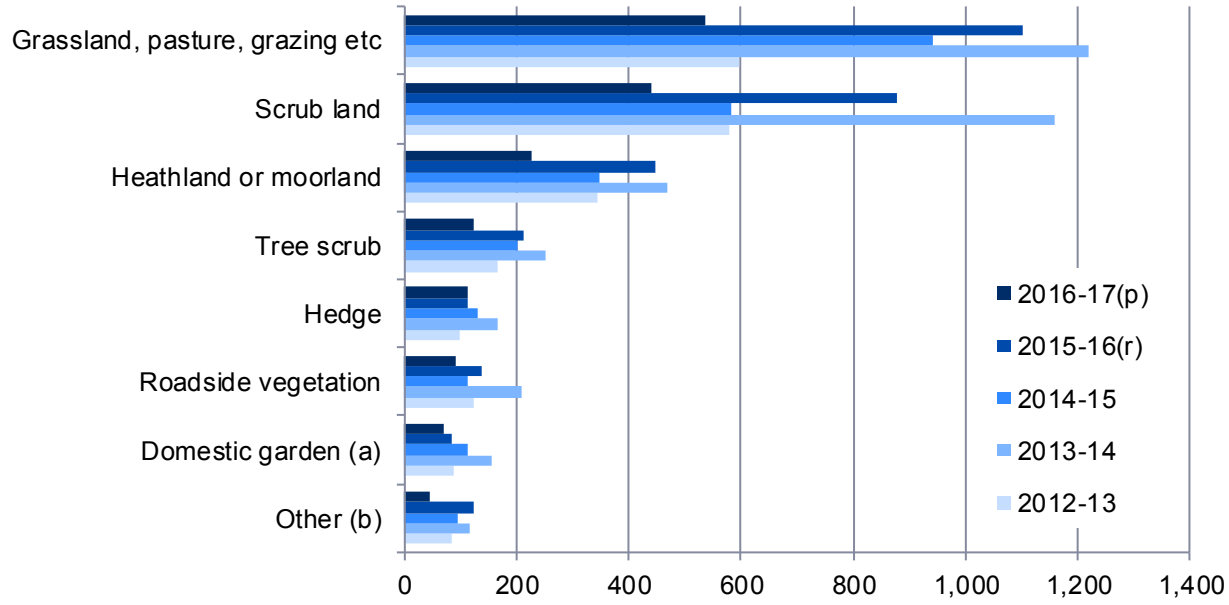
All but one location type in the table below saw a fall in the number of these fires; the only increase occurred in fires in hedges. In 2016-17, 59 per cent of secondary grassland, woodland and crop fires occurred on either 'grassland, pasture, grazing etc.' or scrub land; these are consistently the two largest categories across the time series, accounting for between 56 and 64 per cent since 2009-10.

Table 3 Number of secondary grassland, woodland and crop fires by location

	2012-13	2013-14	2014-15	2015-16(r)	2016-17(p)
Canal/riverbank vegetation	29	70	40	40	17
Domestic garden (vegetation not equipment)	89	157	114	83	70
Grassland, pasture, grazing etc	595	1,220	942	1,103	535
Heathland or moorland	343	470	349	446	225
Hedge	100	165	132	112	113
Railway trackside vegetation	32	22	32	53	11
Roadside vegetation	125	210	113	138	91
Scrub land	580	1,158	581	879	441
Straw/stubble burning	20	23	22	25	18
Tree scrub	167	253	202	213	124
Other (a)	2	0	2	5	0
All secondary grassland, woodland and crop fires	**2,082**	**3,748**	**2,529**	**3,097**	**1,645**

(a) Nurseries, market gardens, stacked/baled crop, woodland/forest - broadleaf/hardwood and woodland/forest - conifers/softwood.
(p) Provisional data.
(r) Revised data

Chart 5 Number of secondary grassland, woodland and crop fires, by location



(a) Vegetation not equipment.
(b) 'Other' as shown in the above chart includes 'woodland/forest - broadleaf/hardwood' and 'woodland/forest - conifers/softwood', 'nurseries and market garden', 'stacked and baled crop''.
(p) Provisional data.
(r) Revised data.

Grassland, woodland and crop fires by motive

In 2016-17 the number of deliberate grassland, woodland and crop fires in Wales nearly halved compared with the previous year; the number of corresponding accidental fires fell by over a third.

More than two thirds of primary grassland, woodland and crop fires were deliberate in 2016-17. Both deliberate and accidental primary grassland fires saw decreases in 2016-17 of 44 and 30 per cent respectively.

Since the introduction of the Incident Recording System (IRS) in April 2009 for collecting FRA incident data, greater detail relating to secondary fires has become available. There were 1,270 deliberate secondary grassland, woodland and crop fires in 2016-17, roughly half the number in the previous year and the lowest number in the available time series (from 2009-10). The number of accidental secondary fires also fell, by 35 per cent. Over three quarters of secondary grassland, woodland and crop fires were deliberate.

Of the 398 accidental grassland, woodland and crop fires in 2016-17, 24 per cent occurred on heathland and moorland, 23 per cent on grassland, pasture, grazing etc. and a further 14 per cent in hedges. Of the 1,318 deliberate grassland, woodland and crop fires in 2016-17, 34 per cent occurred on grassland, pasture, grazing etc. and 30 per cent on scrub land.

Table 4 Number and percentage of grassland, woodland and crop fires by motive

	Number			Percentage		
	Deliberate	Accidental	All	Deliberate	Accidental	All
Primary fires						
2012-13	39	24	63	62	38	100
2013-14	86	42	128	67	33	100
2014-15	58	26	84	69	31	100
2015-16	85	33	118	72	28	100
2016-17(p)	48	23	71	68	32	100
Secondary fires						
2012-13	1,731	351	2,082	83	17	100
2013-14	2,912	836	3,748	78	22	100
2014-15	1,910	619	2,529	76	24	100
2015-16(r)	2,518	579	3,097	81	19	100
2016-17(p)	1,270	375	1,645	77	23	100
All fires						
2012-13	1,770	375	2,145	83	17	100
2013-14	2,998	878	3,876	77	23	100
2014-15	1,968	645	2,613	75	25	100
2015-16(r)	2,603	612	3,215	81	19	100
2016-17(p)	1,318	398	1,716	77	23	100

(p) Provisional data.
(r) Revised data

Grassland, woodland and crop fires by month

The majority of grassland, woodland and crop fires take place in the spring and summer months. April 2016, May 2016 and March 2017 recorded the highest proportions (23 per cent, 18 per cent and 16 per cent respectively) of grassland fires for the financial year 2016-17.

The occurrence of outdoor fires is likely to be influenced by the weather. Data from the Met Office shows that in 2016-17, April and May saw the most hours of sunshine and had less than average (monthly average for the year) rainfall for the year. Weather data cannot explain all the fluctuations however; for example March 2017 had the most amount of rainfall in the year and a less than average amount of sunshine whilst having 16 per cent of the grassland fires in 2016-17.

The months December and January saw the fewest fires (only 2 per cent of all grassland, woodland and crop fires in 2016-17), low levels of sunshine and an average number of rain days (days where more than 1.0 mm of rain fell). Other weather conditions such as snow and ice may also affect the number of fires in the winter.

Met Office data are available.

Table 5 Number and percentage of grassland, woodland and crop fires, by month

	Number					Percentage				
	2012-13	2013-14	2014-15	2015-16(r)	2016-17(p)	2012-13	2013-14	2014-15	2015-16	2016-17
April	496	1,196	561	1,486	400	23	31	21	46	23
May	376	592	185	275	302	18	15	7	9	18
June	74	433	278	284	159	3	11	11	9	9
July	114	732	437	163	109	5	19	17	5	6
August	53	176	139	116	148	2	5	5	4	9
September	77	107	286	130	52	4	3	11	4	3
October	36	40	56	105	84	2	1	2	3	5
November	51	57	43	13	81	2	1	2	0	5
December	16	33	30	12	33	1	1	1	0	2
January	12	13	22	13	32	1	0	1	0	2
February	216	18	134	112	45	10	0	5	3	3
March	624	479	442	506	271	29	12	17	16	16
Total fires	**2,145**	**3,876**	**2,613**	**3,215**	**1,716**	**100**	**100**	**100**	**100**	**100**

(p) Provisional data.
(r) Revised data

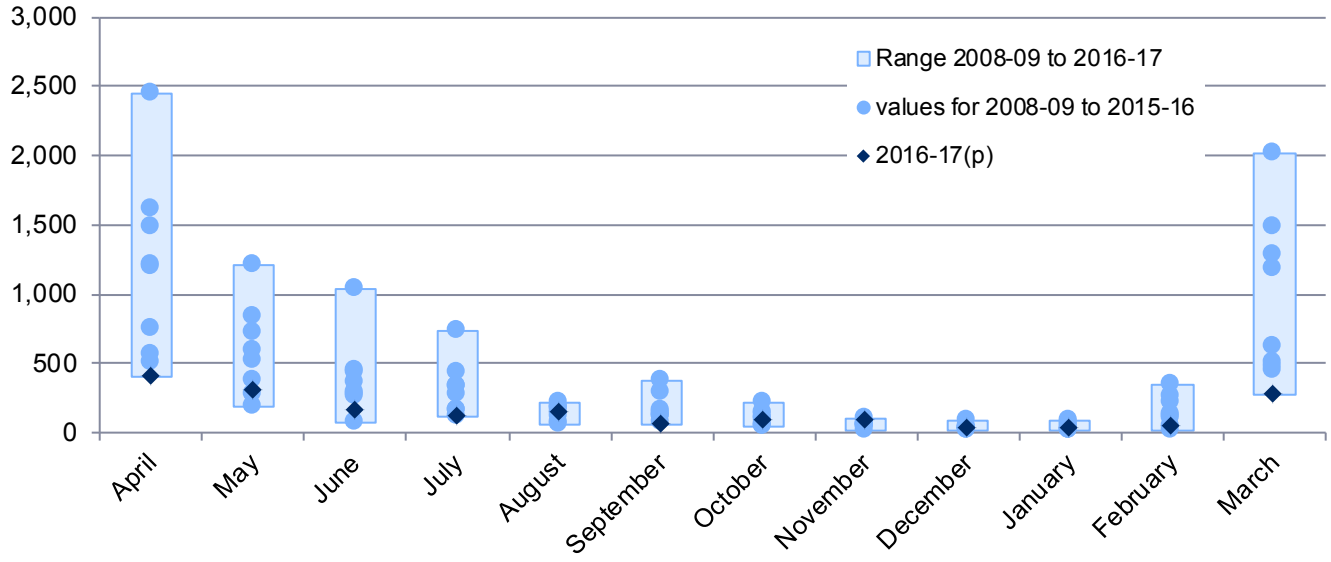
Five months of 2016-17 saw increases compared with the previous year. The largest increases in numbers of grassland, woodland and crop fires were seen November 2016 (more than 6 times the number in November 2015), December 2016 (almost 3 times the number in December 2015) and January 2017 (over double the number in January 2016); the largest decreases were in April 2016 (down 73 per cent on April 2015), September 2016 and February 2017 (both down 60 per cent compared with the respective months in 2015-16).

On average there were 13 grassland fires each day in April 2016, down from 50 in the previous year.

Chart 6 shows the number of grassland, woodland and crop fires in 2016-17, along with data for the years 2008-09 to 2015-16 and highlights which months are most volatile in their numbers. From the chart

we can see little variation in the numbers in the months October to January, but there is a wider spread during the spring to summer months March through to July.

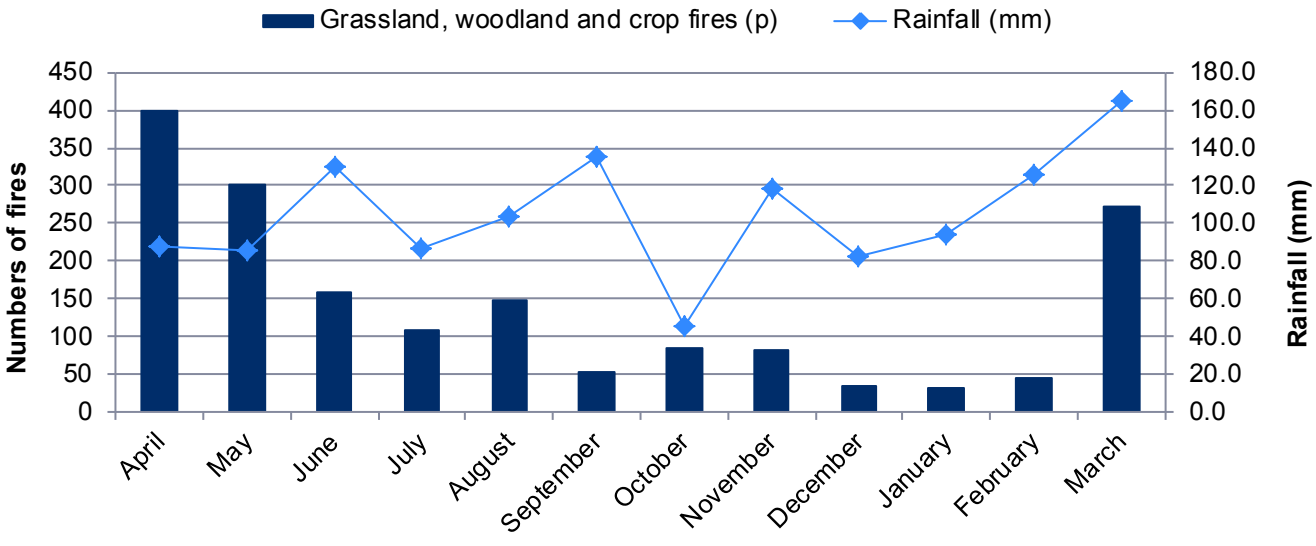
Chart 6 Number of grassland, woodland and crop fires, by month



(p) Provisional data.

Chart 7 shows the relationship between the number of grassland, woodland and crop fires and the levels of rainfall each month in 2016-17. Weather patterns can be erratic and in 2016-17 we did not see the lower levels of rainfall in the earlier part of the financial year we might normally expect. However, broadly speaking, when the levels of rainfall are high (as in September, November and February) the number of fires are low, although this pattern does not hold for all months in 2016-17; October had the lowest rainfall of the year but only 5 per cent of fires, whilst March had high rainfall and also a relatively high number fires.

Chart 7 Number of grassland, woodland and crop fires and rainfall levels by month, 2016-17

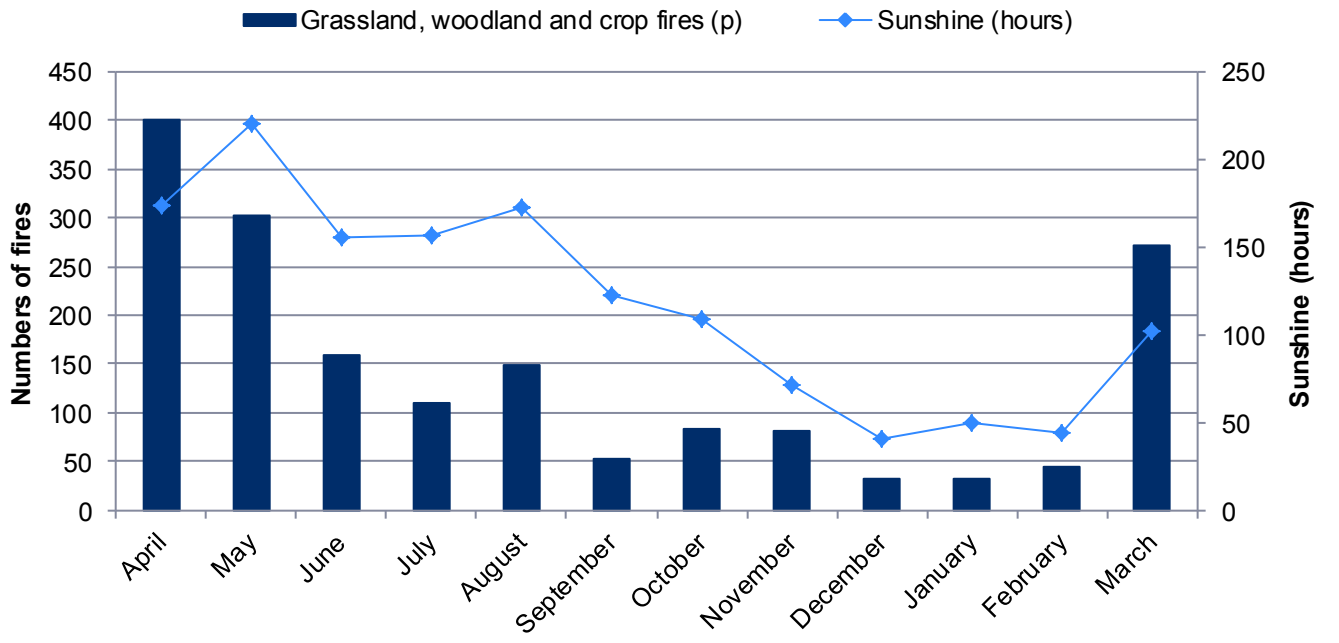


Source: Incident Recording System, Met Office

(p) Provisional data

The correlation with sunshine is clearer as seen below, more hours of sunshine in the months April to August coincide with higher numbers of fires, whilst the months September to February have fewer hours of sunshine and fewer fires.

Chart 8 Numbers of grassland, woodland and crop fires and hours of sunshine by month, 2016-17



Source: Incident Recording System, Met Office

(p) Provisional data

Fires and false alarms by Fire and Rescue Authority and Local Authority

Throughout the time series shown in table 6, South Wales FRA attended more than half of the grassland, woodland and crop fires occurring in Wales each year. Of the 1,716 grassland fires in 2016-17, 54 per cent were in South Wales, 28 per cent were in Mid and West Wales and 17 per cent were in North Wales.

Table 6 Number and percentage of grassland, woodland and crop fires, by Fire and Rescue Authority

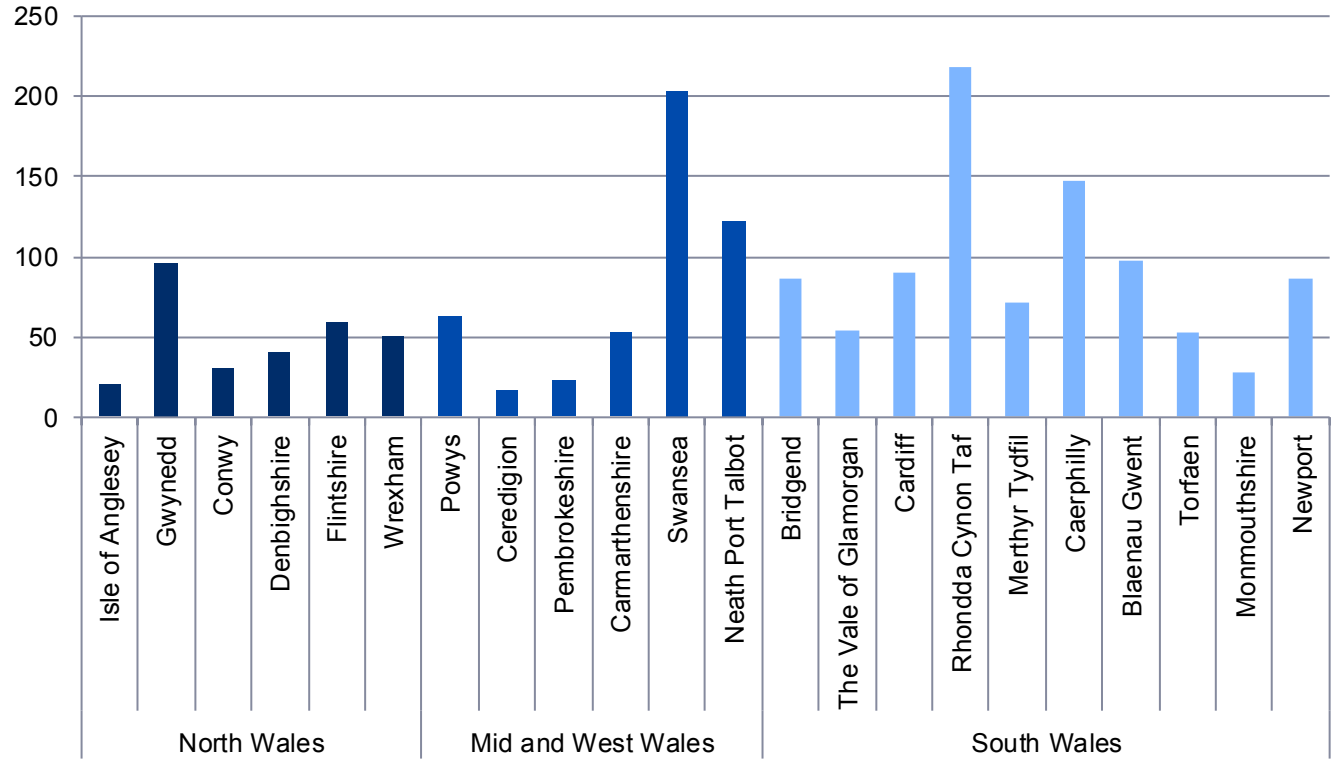
	Number			Percentage		
	North Wales	Mid and West Wales	South Wales	North Wales	Mid and West Wales	South Wales
2007-08	825	2,185	4,054	12	31	57
2008-09	505	1,285	2,515	12	30	58
2009-10	675	1,471	3,370	12	27	61
2010-11	829	1,934	4,332	12	27	61
2011-12	837	1,441	2,620	17	29	53
2012-13	282	724	1,139	13	34	53
2013-14	480	1,224	2,172	12	32	56
2014-15	411	850	1,352	16	33	52
2015-16(r)	446	936	1,833	14	29	57
2016-17(p)	299	486	931	17	28	54

(r) Revised data
(p) Provisional data.

The number of grassland, woodland and crop fires fell in all three FRAs in 2016-17; in South Wales the number decreased by 49 per cent, in Mid and West Wales there was a 48 per cent decrease whilst in North Wales numbers fell by a third. Since 2001-02 the number of grassland, woodland and crop fires has fallen by 82 per cent in South Wales, 79 per cent in Mid and West Wales and 71 per cent in North Wales.

Rhondda Cynon Taff and Swansea local authorities had the highest number of grassland, woodland and crop fires in Wales in 2016-17 with over 200 in each authority (equating to 13 and 12 per cent respectively, of those in Wales); Ceredigion had the smallest number with less than 20 (1 per cent of those in Wales). Similar proportions were seen in earlier years.

Chart 9 Number of grassland, woodland and crop fires by Fire and Rescue Authority and Local Authority 2016-17(p)(a)



(a) Local authorities have been assigned to incidents based on grid references; see the Key Quality Information for further details.
(p) Provisional data.

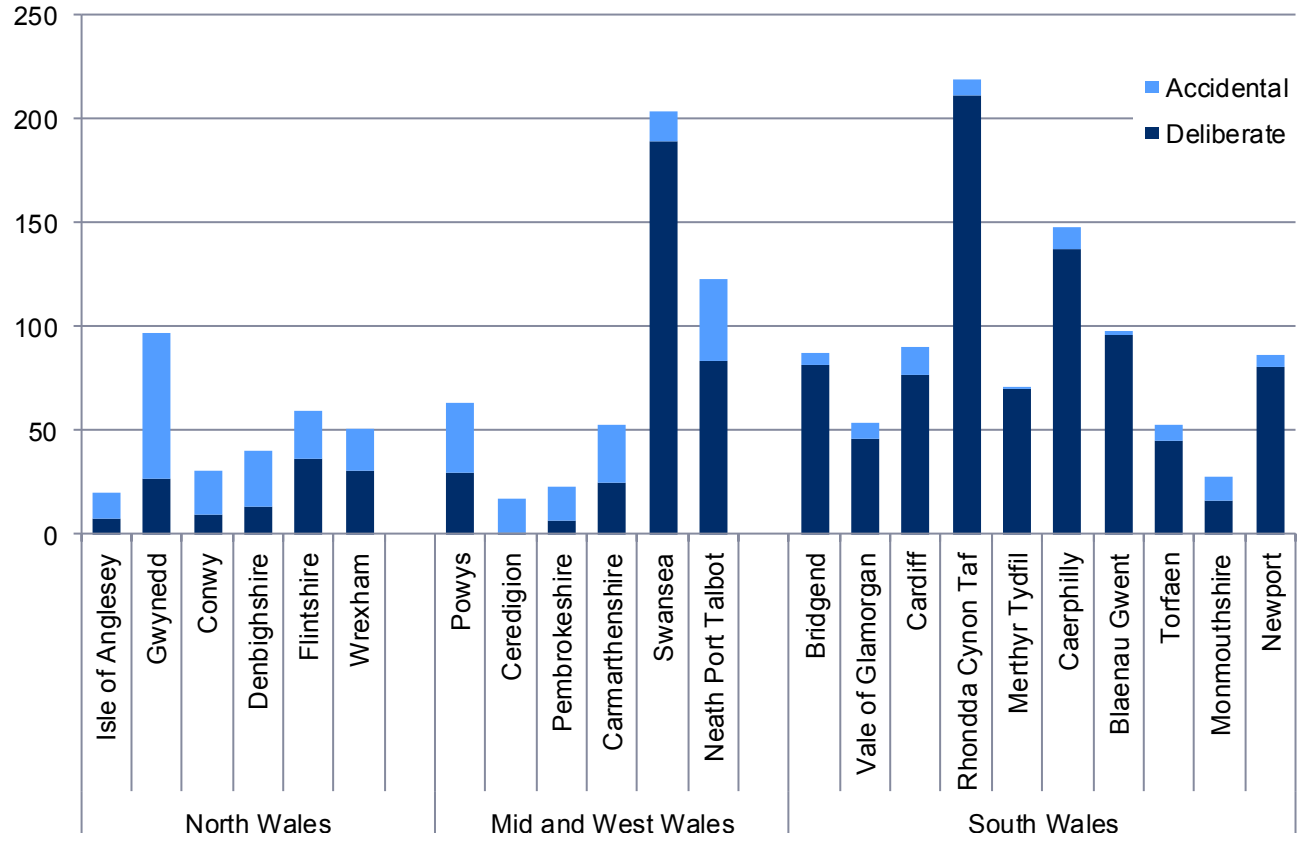
Almost all local authorities saw a decrease in the number of grassland, woodland and crop fires in 2016-17, compared with 2015-16; the Vale of Glamorgan was the exception, which saw an increase of 6 per cent (equating to 3 more fires). The largest decreases were in Ceredigion (66 per cent) and Rhondda Cynon Taf (60 per cent). Since 2009-10 all local authorities have seen decreases of at least 23 per cent (Denbighshire) and up to 78 per cent (Isle of Anglesey). 18 of the 22 local authorities have seen numbers at least halved since 2009-10.

Fires on scrub land and grassland, pasture etc. make up at least 50 per cent of grassland, woodland and crop fires in 10 local authorities in 2016-17, notably Bridgend (84 per cent), Neath Port Talbot and Rhondda Cynon Taf (77 per cent each).

Almost all grassland, woodland and crop fires in Merthyr Tydfil, Blaenau Gwent and Rhondda Cynon Taf were started deliberately, most of these fires (between 66 and 78 per cent) occurring on grassland, pasture etc. and on scrub land. Gwynedd had the highest number of accidental grassland, woodland and crop fires (70), almost three fifths of which occurred on heathland or moorland.

All local authorities except Denbighshire saw decreases in the number of deliberate grassland, woodland and crop fires in 2016-17 (compared with 2015-16). Denbighshire saw an increase of 30 per cent, but numbers are low so this equates to an extra 3 fires. Ceredigion saw the largest decrease (80 per cent), but again the numbers are low. In 2015-16, 9 local authorities had more than 100 deliberate grassland, woodland and crop fires, this fell to 3 in 2016-17. These three local authorities (Swansea, Rhondda Cynon Taf, and Caerphilly) all saw sizeable decreases (37 per cent, 61 per cent and 55 per cent respectively).

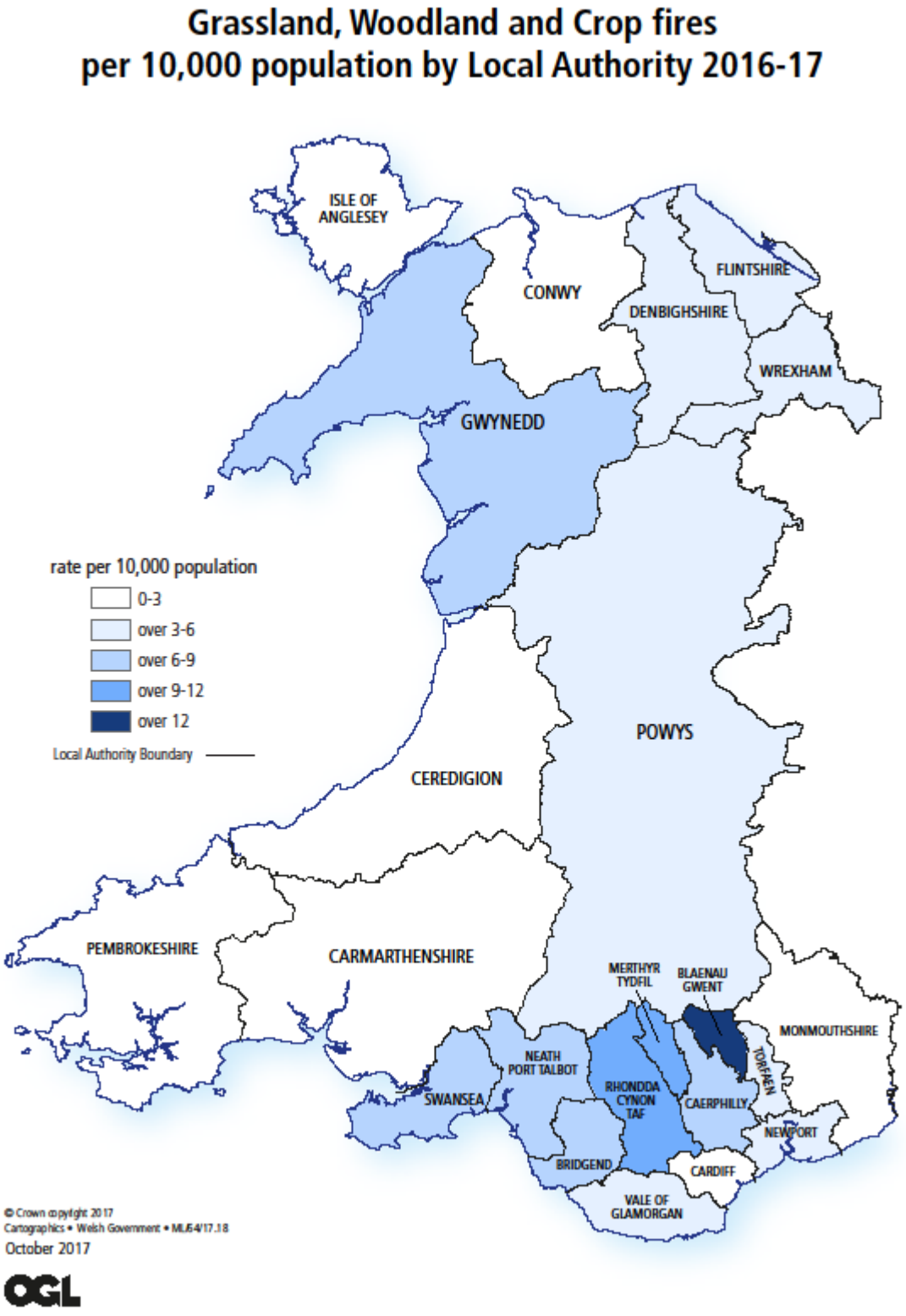
Chart 10: Numbers of grassland, woodland and crop fires by local authority and motive, 2016-17(a)(p)



(a) Local authorities have been assigned to incidents based on grid references; see the Key Quality Information for further details.
(p) Provisional data.

The map below shows rates of grassland fires per 10,000 population for each local authority in Wales in 2016-17.

Blaenau Gwent has the highest rate in 2016-17 with 14 fires occurring for every 10,000 people (down from 26 in 2015-16); Pembrokeshire has the lowest rate at 1.9 down from 4 in 2015-16.



Data on false alarms on grassland woodland and crops has only become available with the introduction of IRS in April 2009.

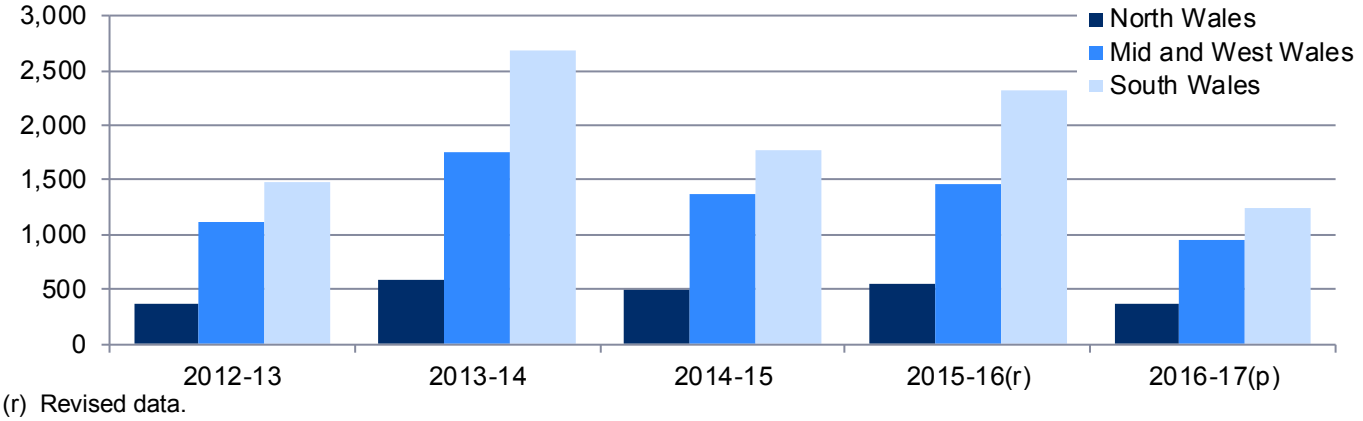
Overall there was a fall of 22 per cent in the number of grassland, woodland and crop fire related false alarms attended by a FRA in 2016-17 (compared with 2015-16). 475 false alarms (54 per cent of those attended in 2016-17) occurred in Mid and West Wales; 321 (37 per cent) occurred in South Wales and 76 (9 per cent) were in North Wales. Only 2 per cent of these false alarms in 2016-17 were due to malicious calls, with the remaining 98 per cent due to good intent. South Wales had the highest number of malicious calls relating to grassland, woodland and crop false alarms, which in turn equated to 5 per cent of the grassland, woodland and crop false alarms attended in the region.

Table 7 Number of grassland, woodland and crop fires and false alarms fires by type and Fire and Rescue Authority

	2012-13	2013-14	2014-15	2015-16(r)	2016-17(p)
North Wales					
Primary fires	18	20	18	20	23
Secondary fires	264	460	393	426	276
False Alarms	81	105	81	112	76
All incidents	363	585	492	558	375
Mid and West Wales					
Primary fires	11	25	15	28	12
Secondary fires	713	1,199	835	908	474
False Alarms	394	528	531	521	475
All incidents	1,118	1,752	1,381	1,457	961
South Wales					
Primary fires	34	83	51	70	36
Secondary fires	1,105	2,089	1,301	1,763	895
False Alarms	348	523	416	480	321
All incidents	1,487	2,695	1,768	2,313	1,252
Wales					
Primary fires	63	128	84	118	71
Secondary fires	2,082	3,748	2,529	3,097	1,645
False Alarms	823	1,156	1,028	1,113	872
All incidents	2,968	5,032	3,641	4,328	2,588

(r) Revised data
(p) Provisional data

Chart 11 Number of fires and false alarms on grassland, woodland and crops by Fire and Rescue Authority



(r) Revised data.
(p) Provisional data.

Section 2: Casualties from grassland, woodland and crop fires

In each of the last five years there have been fewer than 10 casualties resulting from grassland, woodland and crop fires.

There has been one fatal casualty in grassland, woodland and crop fires since 2001-02, occurring in 2007-08. Since 2001-02 there have been 90 non-fatal casualties in these fires; almost half of the injuries incurred were burns and 30 per cent were sent for precautionary checks.

Data on rescues from fires has only become available with the introduction of IRS in April 2009. Since 2009-10 there have been 2 rescues of an uninjured person from a grassland, woodland or crop fire, 1 in 2010-11 and 1 in 2015-16.

There were 2 non-fatal casualties in 2016-17, 4 fewer than in 2015-16 and equating to less than 1 per cent of all non-fatal fire casualties in Wales in 2016-17. Of these 2 casualties, 1 was overcome by gas, and 1 was sent for precautionary checks or given first aid.

1 casualty in 2016-17 was the result of an accidental fire. Fires started deliberately have accounted for a third of non-fatal casualties from grassland, woodland and crop fires since 2009-10.

Since 2009-10, 46 per cent of grassland, woodland and crop related casualties occurred in North Wales, 38 per cent in Mid and West Wales and 17 per cent in South Wales.

Table 8 Number of casualties and rescues from grassland, woodland and crop fires

	Fatalities	Non-fatal casualties	Rescues (no injury) (a)
2007-08	1	0	..
2008-09	0	6	..
2009-10	0	8	0
2010-11	0	10	1
2011-12	0	10	0
2012-13	0	5	0
2013-14	0	1	0
2014-15	0	6	0
2015-16	0	6	1
2016-17(p)	0	2	0

(a) Data not collected prior to 2009-10.
(p) Provisional data.
.. Data not available.

Section 3: Area of damage caused by grassland, woodland and crop fires

Fires are classified according to the size of area damaged in the course of a fire. In 2016-17, 56 per cent of primary grassland, woodland and crop fires in Wales damaged 20 square metres or less. A further 31 per cent were over 200 square metres, equating to 22 fires, fewer than half the number in 2015-16.

Over three fifths of secondary fires saw damage of 20 square metres or less. The proportion of secondary fires which damaged an area over 200 square metres returned to the pre 2015-16 proportion around 15 per cent.

The number of grassland, woodland and crop fires in 2016-17 which damaged an area of over 200 square metres fell by almost two thirds compared with 2015-16.

Table 9 Number and percentage of grassland woodland and crop fires by area damaged

	Number					Percentage				
	2012-13	2013-14	2014-15	2015-16(r)	2016-17(p)	2012-13	2013-14	2014-15	2015-16	2016-17
Primary fires										
0-20 sq m	37	58	51	53	40	59	45	61	45	56
21-200 sq m	10	31	12	18	9	16	24	14	15	13
201+ sq m	16	39	21	47	22	25	30	25	40	31
Total (a)	**63**	**128**	**84**	**118**	**71**	**100**	**100**	**100**	**100**	**100**
Secondary fires										
0-20 sq m	1,169	2,092	1,518	1,557	1,026	56	56	60	50	62
21-200 sq m	564	1,076	635	834	374	27	29	25	27	23
201+ sq m	349	580	376	706	245	17	15	15	23	15
Total (a)	**2,082**	**3,748**	**2,529**	**3,097**	**1,645**	**100**	**100**	**100**	**100**	**100**
All fires										
0-20 sq m	1,206	2,150	1,569	1,610	1,066	56	55	60	50	62
21-200 sq m	574	1,107	647	852	383	27	29	25	27	22
201+ sq m	365	619	397	753	267	17	16	15	23	16
Total (a)	**2,145**	**3,876**	**2,613**	**3,215**	**1,716**	**100**	**100**	**100**	**100**	**100**

(r) Revised data.
(p) Provisional data

In 2016-17, 39 grassland, woodland and crop fires took place on National Park land; of these 95 per cent were secondary fires. Since 2009-10 there have been 789 grassland, woodland and crop fires on National park land, equating to 3 per cent of all grassland, woodland and crop fires. 95 per cent of these fires (since 2009-10) were secondary fires.

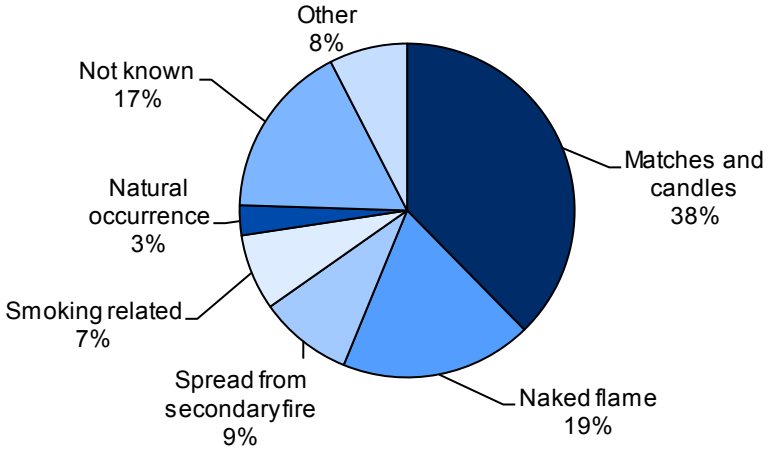
In 15 per cent of primary grassland, woodland and crop fires in 2016-17, strong winds were a rapid growth factor. Comparative data for secondary fires is not available. Since 2009-10 almost two fifths of primary fires where strong winds were a factor damaged over 10,000m^2, and almost three quarters damaged over 200m^2.

Section 4: Source of ignition and cause of grassland, woodland and crop fires

Information is available on the source of primary fires, but not secondary fires. Chart 12 looks at the source of the flame, spark or heat that first ignited the fire. This differs from the cause of the fire, which refers to why the fire started, for instance deliberate (not shown in chart 13), careless handling, overheating or natural causes (which are accidental).

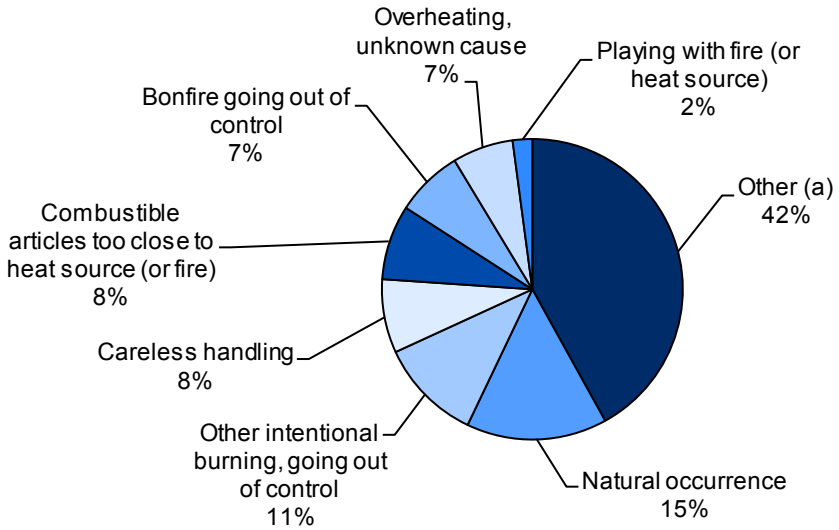
In 38 per cent of the primary grassland fires between 2001-02 and 2016-17 the source of ignition were matches or candles. The next largest category was 'naked flame' with 19 per cent.

Chart 12 Percentage of primary grassland, woodland and crop fires, 2001-02 to 2016-17 by source of ignition



The causes of accidental primary grassland, woodland and crop fires are varied. In chart 13, 42 per cent of these fires are shown as having 'other' causes. They include negligent use of equipment, fault in equipment or appliance, faulty fuel supply and person too close to heat source (or fire) as well as unspecified causes (a quarter of these fires have not got a specified cause). 15 per cent of accidental primary grassland, woodland and crop fires were determined to have been caused naturally.

Chart 13 Percentage of accidental primary grassland, woodland and crop fires, 2001-02 to 2016-17 by main cause



(a) Other in the above chart includes 'Not applicable', 'Fault in equipment or appliance', 'Faulty fuel supply', 'Person too close to heat source (or fire)', 'Negligent use of equipment or appliance (heat source)', and 'Accumulation of flammable material'

Section 5: Additional analysis - Calendar year data

This analysis has been included for the first time as we aware that users often refer to data on the situation in the calendar year rather than the financial year, and also question the impact of the Easter break on the patterns seen.

As has been noted earlier in the bulletin there is regularly a peak in grassland, woodland and crop fires seen in April (beginning of the financial year) and March (end of the financial year), which *may* be linked to the timing of Easter. Analysis of calendar year data can be useful, as this limits periods of Easter in a year to one and also to show the peak period for fires as a continuous time.

Attendance at grassland, woodland and crop fires and false alarms fell by 32 per cent in 2016 (compared with 2015); numbers fires fell by 37 per cent, and false alarms fell by 17 per cent.

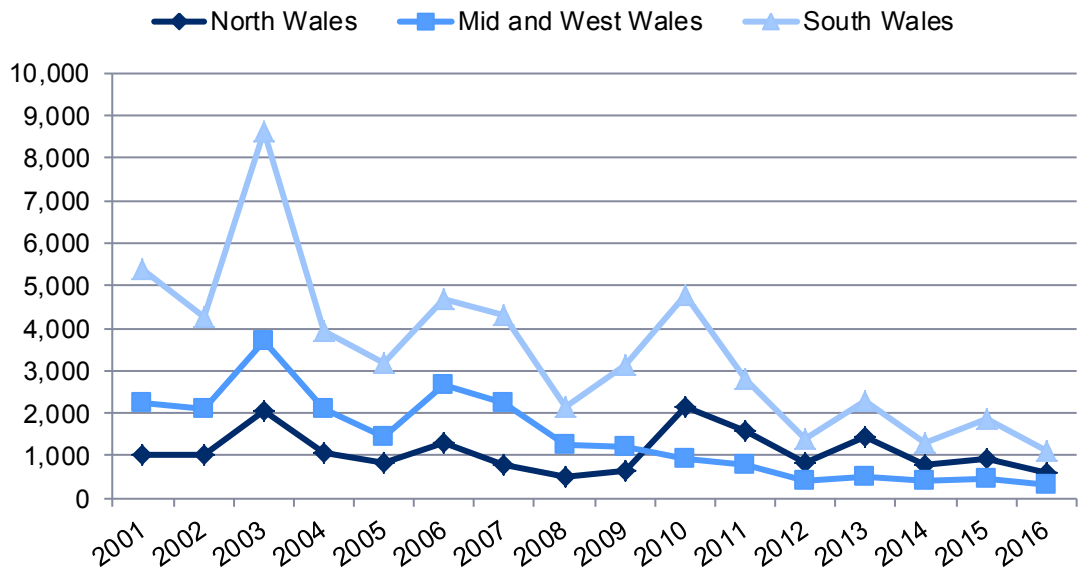
Table 10: Numbers of fires and false alarms and numbers which are grassland, woodland and crop related – calendar year basis

	2010	2011	2012	2013	2014	2015	2016
Primary	6,632	5,756	4,932	4,896	4,538	4,591	4,884
of which Grassland(a)	276	243	94	137	76	115	76
Secondary	14,160	10,549	6,769	8,276	6,344	6,958	5,907
of which Grassland(a)	7,557	4,927	2,515	4,081	2,449	3,067	1,923
Total fires(b)	21,604	16,941	12,394	13,919	11,408	12,036	11,200
of which Grassland(a)	**7,833**	**5,170**	**2,609**	**4,218**	**2,525**	**3,182**	**1,999**
False Alarms	17,344	15,435	15,805	15,433	15,392	14,351	15,162
of which Grassland(a)	1,784	1,427	1,066	1,152	1,030	1,090	900
All fires and false alarms	38,948	32,376	28,199	26,841	29,311	26,387	26,362
of which Grassland(a)	**9,617**	**6,597**	**3,675**	**5,370**	**3,555**	**4,272**	**2,899**

(a) Grassland, woodland and crops
(b) Includes chimney fires

All 3 FRAs have seen a general downward trend since 2001, with numbers of grassland woodland and crop fires falling by 87 per cent in Mid and West Wales, 80 per cent in South Wales and 40 per cent in North Wales.

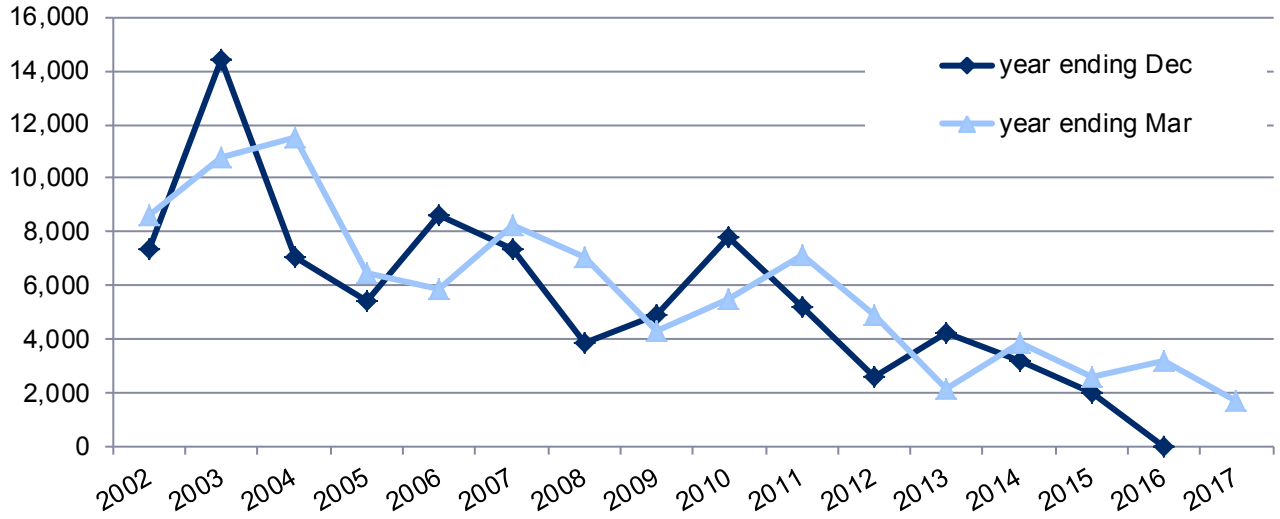
Chart 14: Numbers of grassland, woodland and crop fires by fire and rescue authority



Comparisons between calendar year and financial year

A comparison between calendar years and financial years as shown in chart 15 shows similar patterns with peaks and troughs displaced by 3 months (i.e. a peak seen in calendar year 2003 will be seen in financial year 2003-04). This is intuitively true since calendar years and financial years have 9 months in common (e.g. calendar year 2003 shares 9 months with financial year 2003-04).

Chart 15: Grassland, woodland and crop fires - comparing calendar year data with financial year



Easter holidays

Table 11 below shows the numbers, percentages and daily rates of grassland, woodland and crop fires occurring around Easter each year. Numbers of fires (and the associated rates and percentages) are quite volatile across the time series in both calendar and financial years. The highest daily rate at Easter in a calendar year occurred in 2011, when there were 79 fires per day, however the highest daily rate in a financial year occurred in 2013-14 (96 fires per day), this is due to 2013-14 only having 7 days of Easter.

Table 11: Analysis of grassland, woodland and crop fires at Easter(a)

	Year ending December				Year Ending March			
	Days of Easter	Fires	% of fires occuring at Easter	Daily rate of fires at Easter	Days of Easter	Fires	% of fires occuring at Easter	Daily rate of fires at Easter
2010	16	490	6	31	21	644	12	31
2011	16	1,264	24	79	11	467	7	42
2012	16	498	19	31	17	1,341	27	79
2013	16	906	21	57	24	658	31	27
2014	16	467	18	29	7	669	17	96
2015	16	551	17	34	20	482	18	24
2016(b)	17	94	5	6	19	565	18	30
2017	~	~	~	~	10	65	4	7

(a) For the purposes of this table, Easter is defined as the 16 day period starting on the Saturday before Good Friday and ending on the Sunday after Easter Monday. For most years this period matches the Easter school holidays. See Key Quality Information for dates.

(b) The period used in 2016 starts on Friday 25th March to Sunday 10th April, mirroring the school holidays in this year.

Glossary

Accidental fires include those where the fire was ignited by accident or the cause was not known or unspecified.

The **cause of fire** is the defect, act or omission leading to ignition of the fire.

Chimney fires are reportable fires in occupied buildings where the fire was confined within the chimney structure and did not involve casualties or rescues or are attended by 5 or more appliances. Data on chimney fires do not fall within the scope of this bulletin.

Deliberate fires include those where deliberate ignition is merely suspected.

False Alarms are events in which the Fire and Rescue Authority was called to a reported fire which turned out not to exist. False alarms are categorised as follows:

> **Malicious False Alarms** are calls made with the intention of getting the fire and rescue service to attend a non-existent fire-related event, including deliberate and suspected malicious intentions.
>
> **Good Intent False Alarms** are calls made in good faith in the belief that the fire and rescue service really would attend a fire.
>
> **False Alarms Due to Apparatus** are calls initiated by fire alarm and fire-fighting equipment operating (including accidental initiation of alarm apparatus by persons)**.**

Fatal casualty (fire related) is a person whose death is attributed to a fire even if the death occurred weeks or months later. There are also occasional cases where it becomes apparent subsequently that fire was not the cause of death. The figures for fatalities are thus subject to revision.

Fire Data Reports (FDR1 and FDR3) were the method of data collection via paper forms prior to the Incident Recording System (introduced in April 2009). FDR1 was used to record primary fires, FDR3 for secondary fires, chimney fires and false alarms.

Fire and Rescue Authorities (FRAs) are the statutory bodies which oversee the policy and service delivery of a fire and rescue service. The three authorities in Wales are North Wales, Mid and West Wales and South Wales.

Grassland fires, from 2009-10, include fires in gardens, crops, woods, nurseries/market gardens, heathland/moorland, grassland/pasture/grazing etc., scrub land, railway trackside vegetation, roadside vegetation and roadside vegetation. Prior to this date grassland fires referred to primary fires in allotments, gardens, crops, woods and other agricultural locations and secondary fires on grassland, heathland and as a result of intentional straw and stubble burning. This is a broader definition than the land use definition in agricultural publications.

Incident Recording System (IRS) is the electronic based system for recording fires, false alarms and Special Service Incidents. IRS replaced the FDR1 and FDR3 paper forms in April 2009.

Location is the type of premises, property or countryside in which the fire started. This is not necessarily the type of premises in which most casualties or damage occurred as a result of the fire.

Non-fatal casualties are recorded as being in one of four classes of severity as follows:

(i) Victim went to hospital, injuries appear to be serious

(ii) Victim went to hospital, injuries appear to be slight

(iii) First aid given at scene

(iv) Precautionary check recommended – this is when an individual is sent to hospital or advised to see a doctor as a precaution, having no obvious injury or distress.

Non-fatal casualties marked as 'not fire-related' have not been excluded due to widespread inappropriate use of this field.

Primary fires include all reportable fires in non-derelict buildings, vehicles and outdoor structures or any fire involving casualties, rescues, or fires attended by five or more appliances.

Reportable fire is an event of uncontrolled burning involving flames, heat or smoke and which the fire and rescue authority attended.

Secondary fires are the majority of outdoor fires including grassland and refuse fires unless they involve casualties or rescues, property loss or five or more appliances attend. They include fires in single derelict buildings. They are reported in less detail than other fires and consequently less information concerning them is available.

The **source of ignition** is the source of the flame, spark or heat that started the fire.

Key quality information

On 10 November 2004 the Fire and Rescue Services Act 2004, which devolved fire and rescue services to the National Assembly for Wales (now the responsibility of the Welsh Government), was brought into effect. In Wales, these services are provided by three Fire and Rescue Authorities (FRAs). The three FRAs cover varied geographical areas with a wide variety of risks including: fires in homes; outdoor fires; fires in business premises; road traffic collisions; rail or air crashes; chemical spills; building collapses; and trapped people or animals.

North Wales Fire and Rescue Authority provides cover for a population of almost 700,000 across a geographical area of 2,400 square miles. It employs over 800 operational and non-operational support staff from its headquarters and its 44 fire stations.

Mid and West Wales Fire and Rescue Authority covers over half the area of Wales and a population of over 900,000. There are 58 fire stations and over 1,300 employees.

South Wales Fire and Rescue Authority serves a population of over 1.5 million people covering 1,085 square miles. It employs over 1,700 staff including nearly 1,400 fire-fighters who operate from 47 fire stations throughout South Wales.

Prevention

Following the exceptional forest fires in Easter 2003 caused by weather conditions, Forest Research used geospatial mapping and qualitative techniques (interviews, observation, and surveys) to characterise and understand the problem of wildfires, focusing on the social factors behind the issue. Their information paper includes details of measures put in place to avoid similar occurrences.

The Welsh Government has issued guidance on heather and grass burning. Currently, burning is only allowed during the following periods:

- 1 October - 31 March in Uplands
- 1 November - 15 March elsewhere

A license is required at all other times and can only be obtained in very specific circumstances. Application for burning during restricted periods can be made through the Welsh Government Website at the above link. It is also illegal to burn between sunset and sunrise. In addition a Burning Management Plan has to be completed for all proposed burnings.

Burning in Wales is controlled by The Heather and Grass etc. (Burning) Regulations 2008 and The Heather and Grass Burning Code, which gives advice on burning best practice.

Relevance

The Welsh Government uses the information in this bulletin to monitor the trends in grassland fires occurring in Wales. This helps to monitor the effectiveness of current policy, and for future policy development. The data are also used as evidence for national fire safety initiatives and campaigns.

The data are used by the fire and rescue services for comparisons and benchmarking. The data aids the allocation of resources and the provision of community safety projects.

Accuracy

Since April 2009 incident data (relating to fires, false alarms and Special Service Incidents) have been submitted by the Fire and Rescue Authorities via the Incident Recording System (IRS). On 5 January 2016 responsibility for fire and rescue policy in England transferred from the Department for Communities and Local Government (CLG) to the Home Office, this resulted in IRS also being held by the Home Office. IRS does not currently collect data from FRAs in Northern Ireland.

Prior to IRS data were collected via the paper based forms FDR1 and FDR3. The change in collection method has allowed a greater volume of data to be captured:

- Data on Special Service Incidents are now recorded
- All fires are recorded; pre-IRS statistics were based on a sampled dataset.
- Some detail on secondary fires and chimney fires are now recorded; pre-IRS, only aggregates were previously available.

For more details of the information collected and held on IRS please see 'Further details' on page 29.

The incident data are extracted from IRS annually (around June/July) and marked provisional at first publication. All bulletins and StatsWales tables excluding the quarterly data published in January/February are based on this dataset. Due to the nature of the live system, whilst accurate at the time of extraction, totals may change and therefore be revised due to updated information. 2016-17 data are currently marked as provisional and may be revised in future publications.

The table below compares the provisional 2015-16 data (extracted from IRS in June 2016) which was published in July 2016 (and in Grassland, woodland and crop fires 2015-16 in February 2017) with the revised data (extracted in July 2017) as published in this bulletin. No revision was necessary to the total number of primary fires; there was a slight revision to secondary fires data, as seen below.

Comparison of provisional data with revised data (2015-16)

	Provisional 2015-16 Published in July 2016	Revised 2015-16 Published in August 2017	Percentage change
Primary grassland, woodland and crop fires	118	118	0.0
Secondary grassland, woodland and crop fires	3,098	3,097	0.0

Percentage changes for revised data

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Primary grassland, woodland and crop fires	1.8	0.4	3.3	0.0	0.0	0.0
Secondary grassland, woodland and crop fires	-1.8	0.1	0.0	0.0	0.0	0.0

A key piece of information that the IRS collects for all incidents is the accurate incident location. For all incidents it is mandatory to have the grid location (easting and northing co-ordinates), in addition for addressable locations the address details can be recorded.

Within the IRS forms system, for addressable locations the user locates the address using a gazetteer and this determines the co-ordinates. For non-addressable locations the user will either select the location on a map or use a mobile data terminal to determine the location. These grid references submitted by the FRAs are used to determine the local authority in which the incident occurred.

Rounding and symbols

Data collected via the FDR1 and FDR3 paper forms (i.e. data prior to 2009-10) are based on sampled datasets. Items and totals have been rounded separately to the nearest final digit, and therefore totals shown may differ slightly from the sum of the items. No rounding has been applied to data from 2009-10 onwards.

The following symbols may have been used in this release:

- negligible (less than half the final digit shown)

. not applicable

.. not available

~ not available yet

* disclosive or not sufficiently robust for publication

p provisional

r revised

Timeliness and punctuality

This Statistical Bulletin is pre-announced and then published on the Statistics & Research website. Furthermore, should the need arise to postpone an output this would follow the Welsh Government's Revisions, Errors and Postponements arrangements.

Data for this bulletin are taken from the same dataset as the annual Fire Statistics (and the Deliberate fires bulletin if published) which is extracted in June/July each year. This bulletin has been routinely published in February around 11 months after the year end, but this year in order to make the bulletin more timely publication has been brought forward to 7 months after year end.

Accessibility and clarity

Welsh fire statistics are published in an accessible, orderly, pre-announced manner on the Welsh Government website at 9:30am on the day of publication.

In our outputs, we aim to provide a balance of commentary, summary tables, charts and maps. The aim is to 'tell the story' in the output, without the output becoming overly long and complicated. We provide additional, detailed data on StatsWales.

Comparability and coherence

Since 2009-10 the three Fire and Rescue Authorities have recorded all their fire incidents using the IRS. This may affect some of the incident categories especially when data are compared with years prior to 2009-10. Following a quality assurance exercise carried out by CLG on the 2009-10 and 2010-11 two possible discontinuities (due to the change in data collection method) were discovered. One relates to types of incident, notably outdoor primary fires and the second to non-fatal casualties. More information is given on this subject in the Comparability section of Fire Statistics publication.

Numbers of non-fatal casualties presented in this bulletin include those recorded as 'not fire related'. This is the result of an exercise CLG undertook which found that the 'not fire related' casualty marker had been widely misused. Data published by the Home Office for England and the Scottish Fire and Rescue Service for Scotland also include these casualties. However the second performance indicator (FRS/RRC/S/002) listed in Fire and Rescue Authority performance 2015-16 exclude those casualties and so the data are not directly comparable.

The Fire Statistics Quality Report covers the general principles and processes leading up to the production of our fire statistics. The report covers various topics including definitions, coverage, timeliness, relevance and comparability.

Easter holidays

Numbers of fires in March and April may be affected by Easter holidays (bank holidays and school holidays). As the timing of Easter can change this can impact on the financial year in which the school holidays may fall.

Main school Easter holidays for the last few years are listed below:

- 2017 - Monday 10th April to Friday 21st April. The whole Easter period falls outside of the scope of this bulletin. Good Friday 14th April, Easter Monday 17th April.
- 2016 - Friday 25th March to Friday 8th April. The first week of the school holidays falls within 2015-16; the remainder of the holiday falls within 2016-17. Good Friday 25th March, Easter Monday 28th March.
- 2015 - Monday 30th March to Friday 10th April. Only the 30th and 31st March fall in the financial year 2014-15, the remainder of the holiday falls within 2015-16. Good Friday 3rd April, Easter Monday 6th April.
- In academic years prior to 2014/15 Easter holidays may have varied slightly between local authorities but would have occurred around the time of Good Friday and Easter Monday

- 2014 - Good Friday 18th April, Easter Monday 21st April. School holidays would have fallen wholly in financial year 2014-15.
- 2013 – Good Friday 29th March, Easter Monday 1st April. School holidays would have partially fallen in financial year 2012-13 and partially in 2013-14.

UK Comparisons

Whilst England and Scotland do not publish specific grassland fires bulletins, data by location are available in their annual publications.

Data for England (published by the Home Office since April 2016):

Fire statistics England

Fire statistics monitor

Data for Scotland (published by Scottish Fire and Rescue Service since 2015)

Data for 2014-15 onwards

Pre 2014-15 data (published by the Scottish Government)

Limited Northern Ireland data is published by Northern Ireland Fire and Rescue Service.

National Statistics status

The United Kingdom Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

National Statistics status means that official statistics meet the highest standards of trustworthiness, quality and public value.

All official statistics should comply with all aspects of the Code of Practice for Official Statistics. They are awarded National Statistics status following an assessment by the UK Statistics Authority's regulatory arm. The Authority considers whether the statistics meet the highest standards of Code compliance, including the value they add to public decisions and debate.

It is Welsh Government's responsibility to maintain compliance with the standards expected of National Statistics. If we become concerned about whether these statistics are still meeting the appropriate standards, we will discuss any concerns with the Authority promptly. National Statistics status can be removed at any point when the highest standards are not maintained, and reinstated when standards are restored.

Well-being of Future Generations Act (WFG)

The Well-being of Future Generations Act 2015 is about improving the social, economic, environmental and cultural well-being of Wales. The Act puts in place seven well-being goals for Wales. These are for a more equal, prosperous, resilient, healthier and globally responsible Wales, with cohesive communities and a vibrant culture and thriving Welsh language. Under section (10)(1) of the Act, the Welsh Ministers must (a) publish indicators ("national indicators") that must be applied for the purpose of measuring progress towards the achievement of the Well-being goals, and (b) lay a copy of the national indicators before the National Assembly. The 46 national indicators were laid in March.

Information on indicators and associated technical information - How do you measure a nation's progress? - National Indicators

Further information on the Well-being of Future Generations (Wales) Act 2015.

The statistics included in this release could also provide supporting narrative to the national indicators and be used by public services boards in relation to their local well-being assessments and local well-being plans.

Further details

The document is available here: http://gov.wales/statistics-and-research/grassland-fires/?lang=en

Fire Statistics Data Quality Report

Incident Recording System Questions and Lists

More information is available in the form of StatsWales tables that accompany this release.

Analysis of annual Welsh fire incident data can be found in the bulletin 'Fire and Rescue Incident Statistics, 2016-17':

The bulletin includes charts and information on fires, false alarms and Special Service Incidents, on all location types (dwellings, road vehicles etc.), causes of fires and the presence of smoke alarms.

The Evaluation of the Arson Prevention Programme focuses on three of the main initiatives; Arson Reduction Teams (ARTs); the Arson Small Grants Programme; and the Grassland Fire Initiative.

Operation Phoenix: a partnership initiative aimed at reducing the number of grass fires in the Rhondda Valleys over Easter involving South Wales Fire and Rescue Service, South Wales Police, the Forestry Commission and Rhondda Cynon Taf (RCT) County Borough Council.

Next update

Grassland fires 2017-18 to be published in October 2018

We want your feedback

We welcome any feedback on any aspect of these statistics which can be provided by email to stats.inclusion@gov.wales

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