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Urban Heaths Partnership Annual Monitoring Report 2019/20

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Summary

This report presents a summary of the data collated by the Urban Heaths Partnership (UHP) over the 2019-2020 financial year. These data provide long-term monitoring of the urban heaths and the levels of use by the public on both the heaths and alternative greenspaces. The purpose of these data is to provide the monitoring element of the long-term strategic mitigation and monitoring strategy for urban pressures on the Dorset Urban Heaths.

This 2019-2020 report largely follows the format of the previous year, with figures and tables updated. This aims to provide consistent graphs and tables which can be viewed year on year. Detailed analysis of long term trends is beyond the scope of this report, but reference to previous years is made for context. However, caution is necessary when attempting to make direct comparison. There are numerous factors which would need to be considered carefully in a more detailed analysis of trends (e.g. survey approach, survey effort, weather, missing data, varying numbers of sensors etc.). As well as consistent graphs and tables from the previous years reports, we include occasional novel results to show new ways of examining the data, especially as more data becomes available.

The period examined covers from the start of April 2019 to the end of March 2020. March 2020 was the start of restrictions on access due to the coronavirus pandemic in the UK. From mid March large gatherings were to be avoided, vulnerable groups to self-isolate and non-essential travel avoided (15/03/2020). Quickly this message become more severe, and a nationwide lockdown was announced on the 20th March, meaning individuals were only allows to leave home for essentials and daily exercise. This impacted the Urban Heaths Partnership ability to engage and also collect monitoring data. This report is written up following the collection of all required data. The pandemic will have impacted on access to the heaths and mitigation sites, however this makes up a relatively small part of the data collected for the 2019-20 financial year and it will be in the 2020-21 report when this will be apparent.

Key points from this year's data are:

SPA bird monitoring:

- Bird surveys were conducted in spring 2019 at 31 sites, recording a total of 409 Dartford Warbler (territories), 49 Woodlark (territories) and 411 Nightjar (males).
- Across all three species these counts were greater than in the previous year, increasing by 4% for Woodlark, 7% for Nightjar and 11% for Dartford Warbler.
- This increase in Dartford Warblers were recovering from the cold winter in 2018 (Feb '18 'Beast from the East').

Coordinated vehicle counts:

- 162 parking locations were surveyed (Canford Park SANG new this year) on each of the standard 14 surveys dates throughout 2019-20 financial year.

- Some gaps in the count were observed. The coronavirus lockdown meant that the count in March 2020 was cancelled. Arne was only counted on one date out of the 14 and 9 locations in the Bournemouth area were missed on one or two dates.
- 11,422 vehicles were counted in total (across the 13 survey dates),
- The highest count was recorded on August bank holiday (26/08/2019) with 2,085 vehicles recorded. This provided an average of 878.6 vehicles per count in 2019-2020, compared to an average of 827.8 per count in 2018-2019.
- The lowest count was 218 cars on the late June weekday, as it was in the previous financial year's data. Prior to this, most low counts have been typically recorded in winter.
- Parking locations were categorised by the type of site they cover e.g. Heath, Heath and visitor facilities, SANG, visitor attractions etc.
- Accurate long-term analysis was not conducted, but the levels of access on heath types appeared slightly lower than the previous year, while access on the HIPs remained relatively high (based on percentage fullness of car parks) and showed the largest increase of all types on the previous year (based on the number of cars per car park averaged across transects).
- Previous analysis examining SANG sites only showed all sites with a year-on-year increase in vehicles.

Incident data:

- In the 2019-20 financial year, 77 incidents of fire were recorded and the total area burnt amounted to approximately. 20 ha of heathland – both figures lower than the previous year.
- Overall the total number of fires was lower than both the mean and median recorded in all previous years. The total area burnt was very similar to the median area recorded from previous years, but lower than the mean area.
- The highest number of recorded fires was in July and April, 17 and 15 fires in total respectively. The largest area burnt in a single event was in July 2019 at Bindon Ranges, (16 ha from live firing).
- Ham Common had the highest number of fires, with 17 separate fires, mostly small campfires or barbecues (which are not always robustly recorded), although a large fire (2000m^2) resulted in the evacuation of several caravans at Rockley Park.
- A total of 80 non-fire incidents were recorded; with motorbiking the most commonly recorded issue.

Sensor data:

- Over the 2019-20 financial year, 52 sensors have been collecting data.
- 1 new sensor was installed this year and 4 removed – resulting in a net reduction on the previous year, in line with the monitoring strategy.
- Sensors were working for a total of around 370,000 hours of 'initial cleaned' data – slightly less than the previous years due to fewer sensors, but also possibly some more errors.
- Across all sensors there were notable high levels in April 2019 – especially in comparison to visitor numbers in March 2020. However, this may be simply due to very low levels in March 2020 - the start of the coronavirus lockdown.
- Initial results suggest all sites were busier on weekdays than weekends at all sites, except for the 'Heathland & Other/Visitor attractions' sites.
- Sites with visitor facilities showed some of the largest differences compared to heath, SANG and HIP sites.

Other data collected:

- UHP staff conducted 80 hrs of visitor surveys at the following SANG sites; Canford Park SANG (16 hrs), Iford Meadows & Playing Field HIP (32 hrs) and Riversmeet SANG (32 hrs).
- The UHP staff also conducted joint surveys with Footprint Ecology on Dorset Heathland sites in summer 2019. Surveying by the UHP team amounted to 366 hours.

Ongoing actions for the next financial year are:

- Continued SPA bird surveys;
- Continued coordinated vehicle counts;
- Auditing and mapping of the of parking locations;
- Continued recording of fires and other incidents;
- Continued collation and maintenance of sensor locations;
- Finalise calibration counts for sensors;
- Visitor surveys at SANG sites.

Contents

Acknowledgements

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Most of the work collecting the data is down to Rachel Pearce, Chloe Lewis (UHP) and Amy Gallagher (Purbeck and West Dorset Warden), but also wider UHP staff and individual local authority wardens, and our thanks go to all for the data collection.

Bird data are collected by the RSPB for UHP and their own monitoring, and our thanks to Chris Dieck for supplying the bird data to us. Thanks also to Jon Corkill (Dorset Environmental Records Centre) for supplying the incident data.

1. Introduction

1.1 This report is produced for the Urban Heaths Partnership (UHP) and presents a summary of monitoring data gathered over the 2019/20 financial year (01/04/2019-31/03/2020). This report serves as a summary of the data for the year, following previous annual reports. Most recently this included the annual reports for 2018-19 (Panter & Caals, 2020b), 2017-18 (Panter, 2018) and 2016-17 (Panter, 2017). Three years prior to this, a more significant report detailed methodological revisions and more detailed data analysis (Panter & Liley, 2015). Furthermore, an update on the whole monitoring framework was conducted in 2017, see Panter & Liley (2017).

Dorset heaths

1.2 Dorset holds some 7,500 ha of heathland (see Rose et al., 2000), and much of this is designated as being of European importance (see Map 1). The designated sites are the Dorset Heathlands Special Protection Area (SPA), the Dorset Heaths Special Area of Conservation (SAC) and the Dorset Heaths (Purbeck & Wareham) and Studland Dunes SAC. The sites are also underpinned by national level wildlife designations, as Sites of Special Scientific Interest (SSSI). The designations at the international and national levels reflect the conservation importance of the sites, which hold internationally important bird species (breeding Nightjar, Woodlark and Dartford Warbler, and wintering raptors such as Merlin and Hen Harrier), all six species of native British reptiles and the Southern Damselfly. The various rare plants include the Dorset Heath, for which the heaths around Poole Harbour are the British stronghold. Furthermore, there are notable rare and regionally distinct invertebrates such as the Purbeck Mason Wasp, Ladybird Spider, Heath Tiger Beetle and Heath Bee-fly.

1.3 The heaths are fragmented (Webb, 1989, 1990) and many fragments lie within or adjacent to the conurbations of Poole and Bournemouth. Within south-east Dorset there is continual, increasing pressure for more growth and new housing. Increased development can have a range of impacts on heathland and these are well documented (for reviews see Haskins 2000; Underhill-Day 2005; Liley *et al.* 2006). Such impacts include:

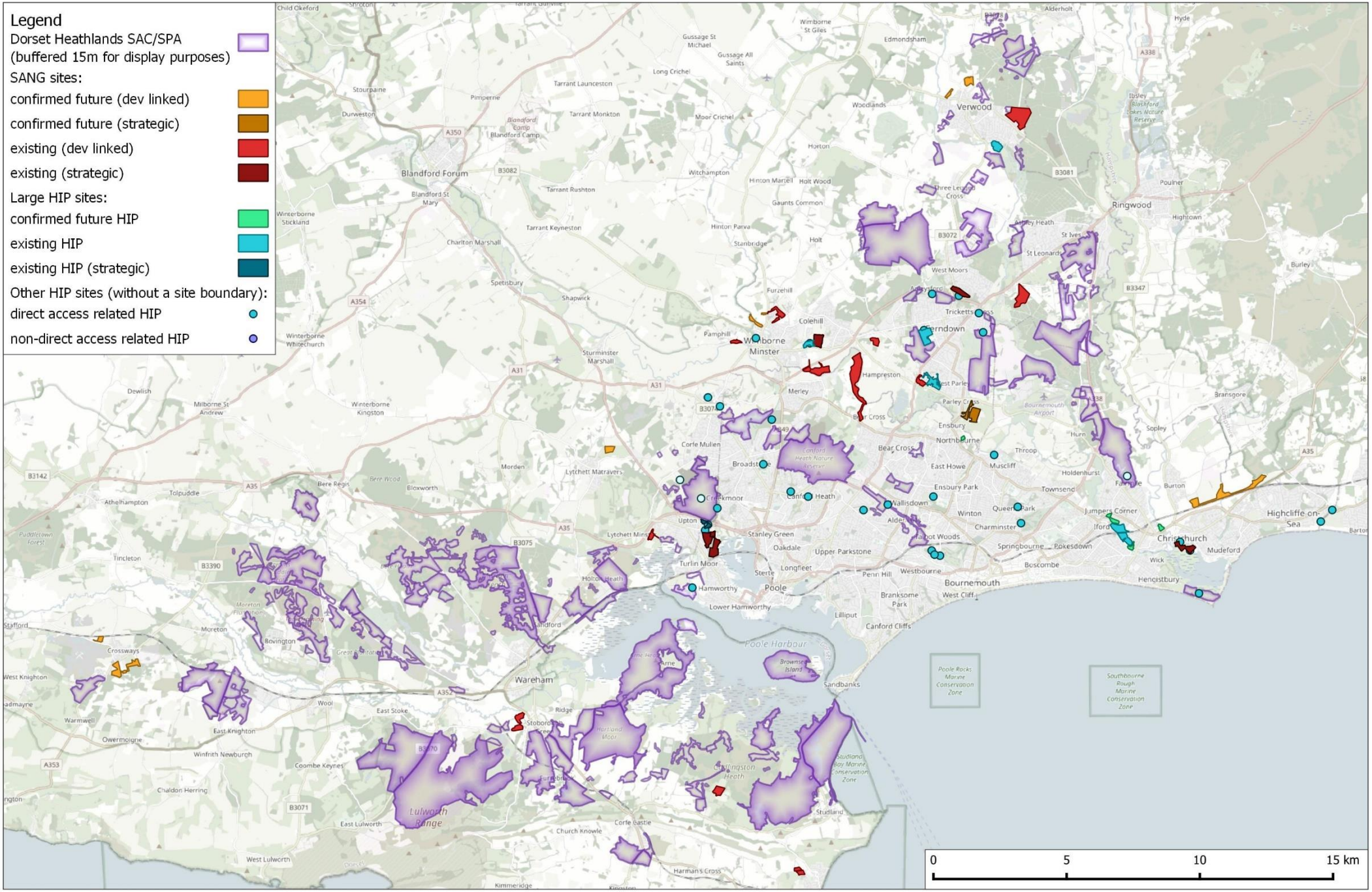
- Increased numbers of pet cats and increased predation of ground-nesting birds and other wildlife
- Increased fire risk
- Increased levels of recreation, with the potential for disturbance impacts to ground-nesting birds; trampling and damage to the SAC interest; increased numbers of dogs on sites resulting in eutrophication from dog fouling
- Anti-social behaviour and contamination through vandalism, fly tipping, littering and the introduction of alien plants and animals.

1.4 Within south-east Dorset, such impacts mean that relevant local authorities, as competent authorities, are unable to rule out adverse effects on integrity for the relevant European heathland sites as a result of the in-combination effects of new development. However, avoidance or mitigation measures are possible, and these have been established strategically across the relevant local authorities since 2006 and enshrined in relevant strategic planning policy. Measures include additional infrastructure, both off-site and on-site, and a range of mitigation focused projects. One of the key physical mechanisms is the provision of new greenspaces (Suitable Alternative Natural Greenspaces, SANGs) or more general improvements of existing recreational areas, or supporting land (Heathland Infrastructure Projects, HIPs) – see Map 1.

1.5 The ongoing updates to the monitoring strategy (see Liley 2007; and revisions by Fearnley & Liley 2014; Panter & Liley 2015, 2017) set out the monitoring elements necessary to coincide with the mitigation. The strategy recognised that both the species present and recreational use of the heathlands must be monitored to evaluate the levels of recreational use and distribution of the vulnerable species. With a baseline established, it should be possible to check the effectiveness of measures to mitigate for or avoid additional urban pressures on European Sites. Monitoring acts as an early warning and allows mitigation measures to be adjusted as necessary to reflect changes in access patterns, types of use and changes in the distribution and abundance of key species. It is important to note that strategies include monitoring of mitigation sites (e.g. non-heathland), as well as heathland.

1.6 This report provides a summary of the data gathered in the period 2019/20 in accordance with the monitoring areas identified in the monitoring strategy (Liley, 2007) and follows on from last year's monitoring report (Panter & Caals, 2020b), and all other previous reports (Fearnley, 2012, 2014; Fearnley & Liley, 2010; Panter, 2017, 2018; Panter & Liley, 2015, 2016; see Sharp & Liley, 2008, 2009).

Map 1: Distribution of SANG and selected HIP sites.



2. Bird monitoring

Introduction

2.1 Three breeding bird species are interest features of the Dorset Heathlands SPA: Nightjar *Caprimulgus europaeus*, Woodlark *Lullula arborea* and Dartford Warbler *Sylvia undata*. Changes in the distribution and relative abundance of these species are good indicators of the biological status of the heaths and the three species are vulnerable to impacts from recreation and fire.

2.2 The ongoing recording of the numbers and distribution of these three species across sites is an important part of monitoring. Surveying has been undertaken by the RSPB, commissioned through the UHP and focussed primarily on the urban heaths. A summary and review of trends in the three species in Dorset since the early 1990s is provided in Liley & Fearnley (2014). It is important to note the counts indicate territories, but that these are determined with different survey methodologies as appropriate for the different species (e.g. night-time surveys of churring males for Nightjar).

2019 data

2.3 Since 2015, the surveys have been conducted using a new approach based on 1km OS grid squares, as detailed within the previous UHP annual report (Panter & Liley 2015). This methodology means the data is very similar to that collected previously on the basis of sites, but allows a sampling protocol, e.g. for large areas such as Wareham Forest and ensures results are comparable. A select number of core squares are surveyed by professional surveyors, while additional squares which have been highlighted as important, can be undertaken if extra capacity arises or volunteers are available.

2.4 Results for this 2019-20 financial year report cover just the surveys conducted in the spring of 2019. Results for 2019 from the core squares focuses on 31 sites surveyed for the species (Table 2).

2019 results

2.5 In summary, these data show that a total of 409 Dartford Warbler (territories), 49 Woodlark (territories) and 411 Nightjar (males) were recorded (see Table 1). The mapped distribution of the territory centres for the three species is shown in Map 2.

Table 1: Summary of numbers of Dartford Warbler, Nightjar and Woodlark recorded in 2019 from sites (or the 1km squares which represent a subset of sites). List of sites sorted from high rank of sites (averaged across each of the three species).

Site	Dartford Warbler	Nightjar	Woodlark
Arne Heaths	67	46	3
Holt Heath/ Whitesheet	46	48	3
Barnsfield Heath	22	26	9
Canford Heath	64	48	1
Town Common/SCH	24	25	2
Upton Heath	30	19	2
Grange Heath	9	11	3
Parley Common	17	16	1
Stoborough RSPB	8	10	3
Avon Heath North	6	10	4
Slepe Heath/ Hartland moor squares	21	16	0
Winfrith & Tadnoll Heath	12	25	0
Wareham Forest/ Morden Bog squares	7	13	1
Avon Heath South	5	6	3
Hyde's Heath	5	6	3
Great Ovens	10	13	0
Hurn	4	8	5
Studland/ Godlingston Heath squares	15	10	0
Hurn Forest	5	9	1
Verwood Forest/ Cranborne Common square	3	15	1
Ferndown Common	8	9	0
Sandford Heath	4	4	2
Holton Lee	2	6	1
Talbot Heath	5	2	0
Dunyeats Hill	4	2	0
Lions Hill	2	3	0
Blacknoll	1	0	1
Bourne Bottom (Valley)	2	1	0
Stephens Castle	0	2	0
Ham Common	1	1	0
Turbary Common	0	1	0

2.6 In comparison to the previous year's totals, as shown in Table 2, the overall total number of each species was greater. The largest increase in the total number of birds recorded in the 2019 survey for Dartford Warbler, with a 11% increase, followed closely by an 7% increase in the total number of Nightjar and a 4% increase for Woodlark. The notable increase for all species were perhaps in part due to low

numbers recorded in 2018, due to variability in the surveying from weather conditions. Examination of the longer-term trends provide more appropriate data to look for patterns.

Table 2: Number of birds recorded by species in 2019, with a value of the mean birds per site for 2018 shown for comparison.

Bird	Number of counts 2019	Total number of birds 2019	Mean birds per site 2019	Number of counts 2018	Total number of birds 2018	Mean birds per site 2018
Dartford	31	409	13.2	31	369	11.9
Nightjar	31	411	13.3	31	384	12.4
Woodlark	31	49	1.6	31	47	1.5

Longer term trends

2.7 Detailed analysis of trends and differences between sites is beyond the scope of this annual report and has also been discussed in greater detail in Liley & Fearnley (2014). However, as with last year's annual report, we have presented simple graphs to show the raw numbers of birds from the recent monitoring data in Figure 1 to Figure 4.

2.8 The data presented in all figures here is only the raw data, and would require more detailed examination for conclusions with confidence to be reported (e.g. exact surveying effort). Key points for this year are:

2.9 Dartford Warbler:

- Some sites counts are still low from recent cold winters and unseasonal harsh winter snaps (e.g. 2017/18), but appear to be recovering. Although the total number of territories in 2019 was down 3% on the average for the three years prior.
- One of the largest increases recorded in 2019 from the average for the three years prior was at Upton Heath with a 25% increase with 24 bird territories in 2019. However, the largest decrease was at Stoborough RSPB, down 51% to 8 territories in 2019.
- Overall, the average number of birds per site recorded in 2019 was up 19% on the long-term average recorded back in the first 5 years of data (2006-2011).

2.10 Nightjar:

- Numbers were up on recent years, as part of general upward trend. The number of churring males in 2019 across all sites was up 11% on the three years prior.
- The largest increases in 2019 (compared to an average of the three years prior) were at Holt Heath/Whitesheet, with 48 churring males in 2019 (a 31% increase), followed by a 39 at Canford Heath in 2019 (a 23% increase). The largest decrease was again at Stoborough RSPB, down 38% to 10 territories in 2019 (the three-year average for 2016-2018 was 16).
- Overall, the average number of birds per site recorded in 2019 was up 18% on the long-term average recorded back in the first 5 years of data (2009 and 2011-2014).

2.11 Woodlark:

- Woodlark are the most variable of the three Annex I breeding bird species, due to the low numbers of the species on the site. The total number of territories in 2019, 49, was up 11% on the average for the three years prior.
- Overall, the average number of birds per site recorded in 2019 was down 1% on the long-term average recorded back in the first 5 years of data (2006 and 2019-2012).

2.12 The 2020 data were unfortunately not collected due to the coronavirus pandemic and therefore are not able to be presented in this report.

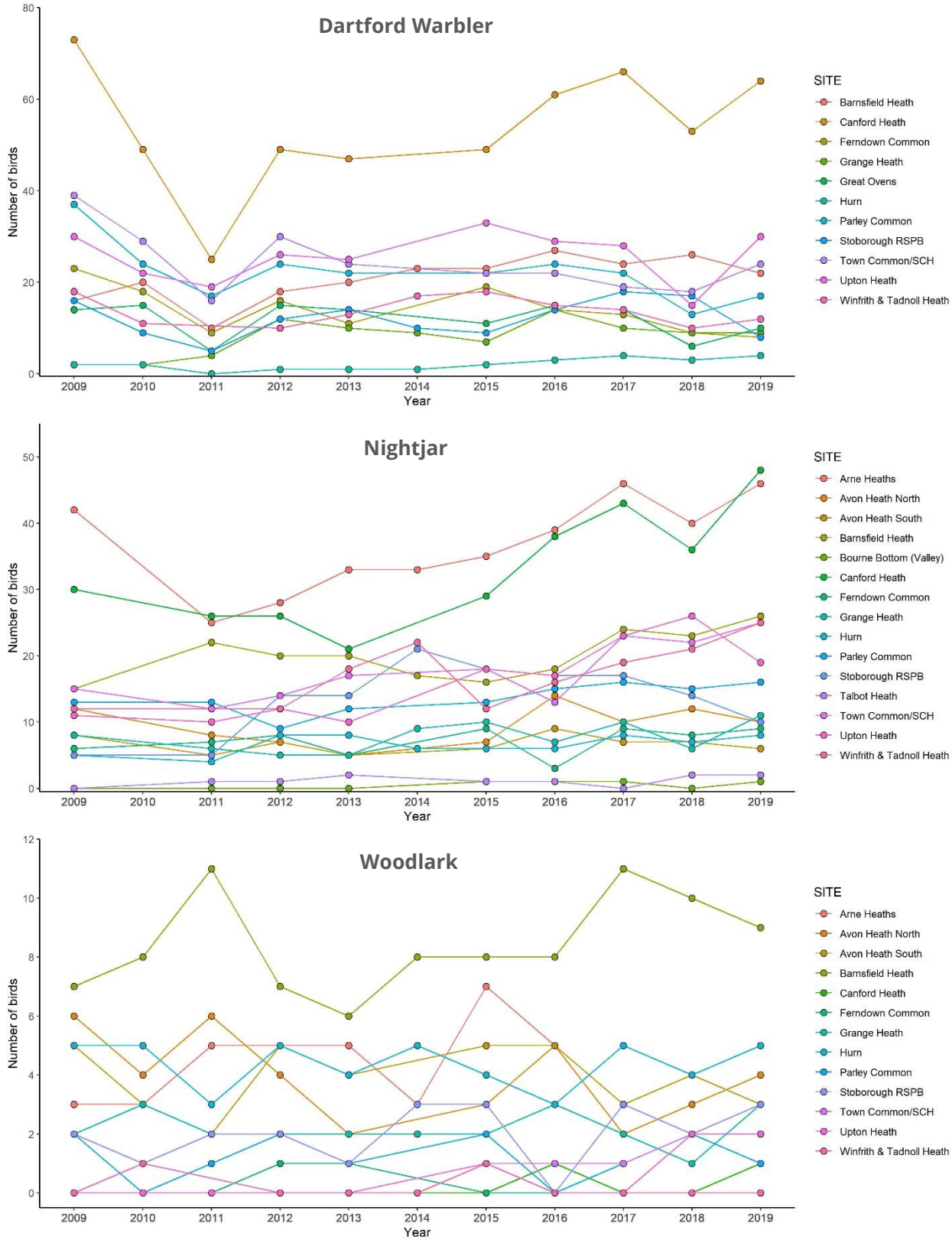


Figure 1: Number of birds recorded (by the differing standard survey methodologies) at each site (or 1km squares which represent a subset of sites). Note that the number of sites presented differs for each species due to different filters applied in order to select sites with the most data (Dartford>=10 years, Nightjar>=7, Woodlark>=9). Data gaps between years are present for all species.

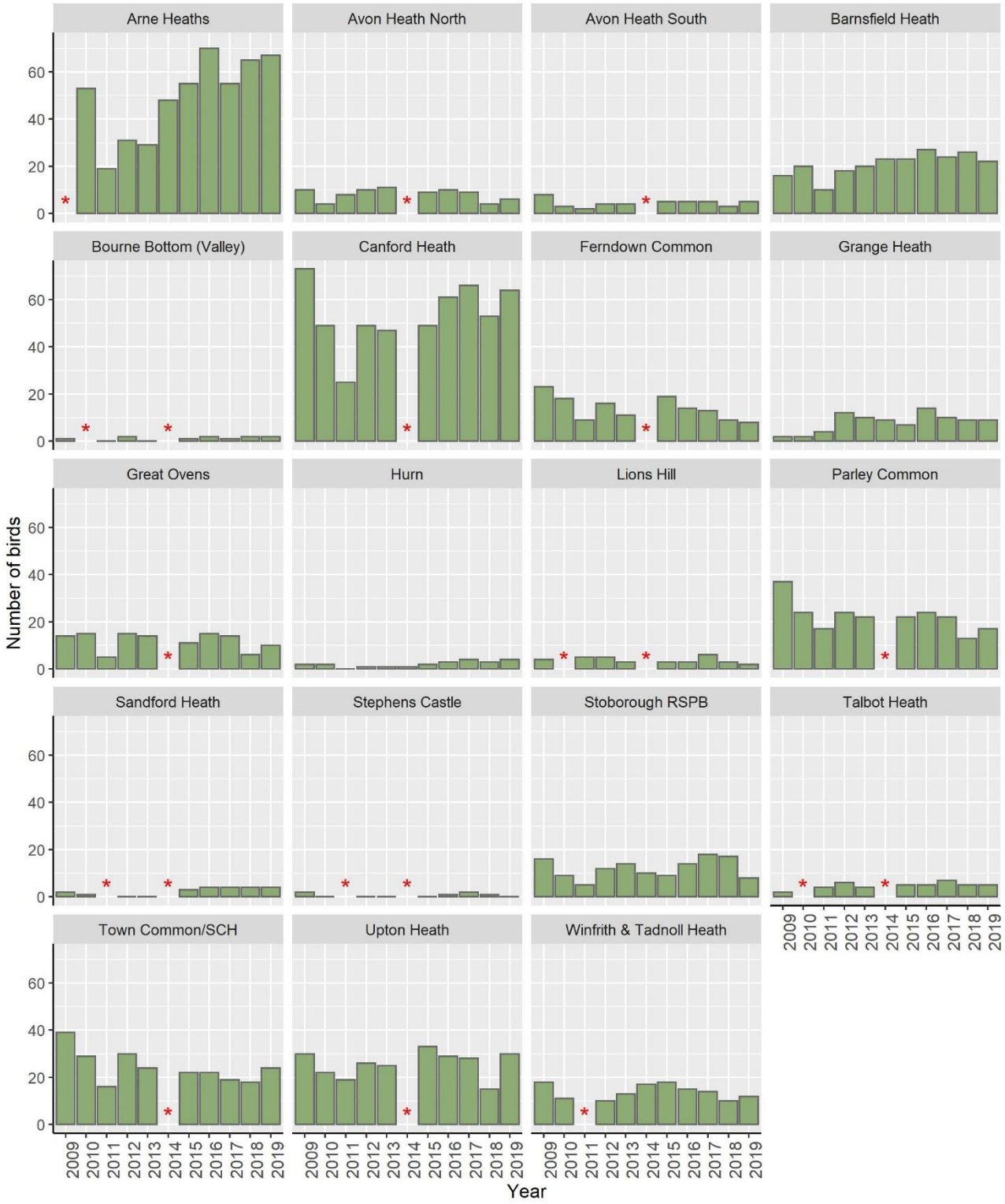


Figure 2: The number of Dartford Warbler recorded at each site (or the 1km squares which represent a subset of sites) from the annual monitoring data. Sites shown are those with =>10 years of count data.

Figure 3: The number of Nightjar recorded at each site (or the 1km squares which represent a subset of sites) from the annual monitoring data. Sites shown are those with =>6 years of count data. Note missing values for 2010 across all sites.

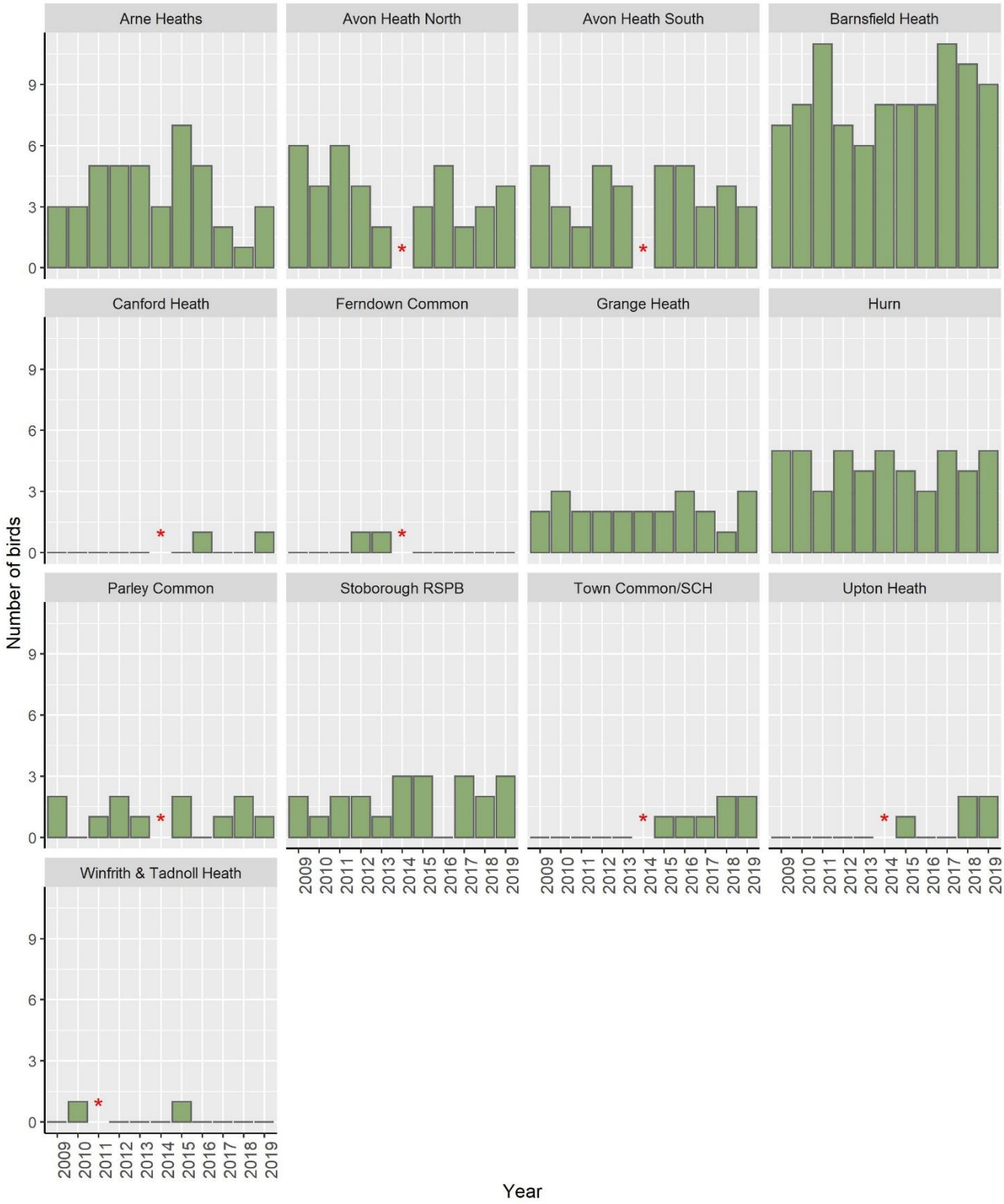
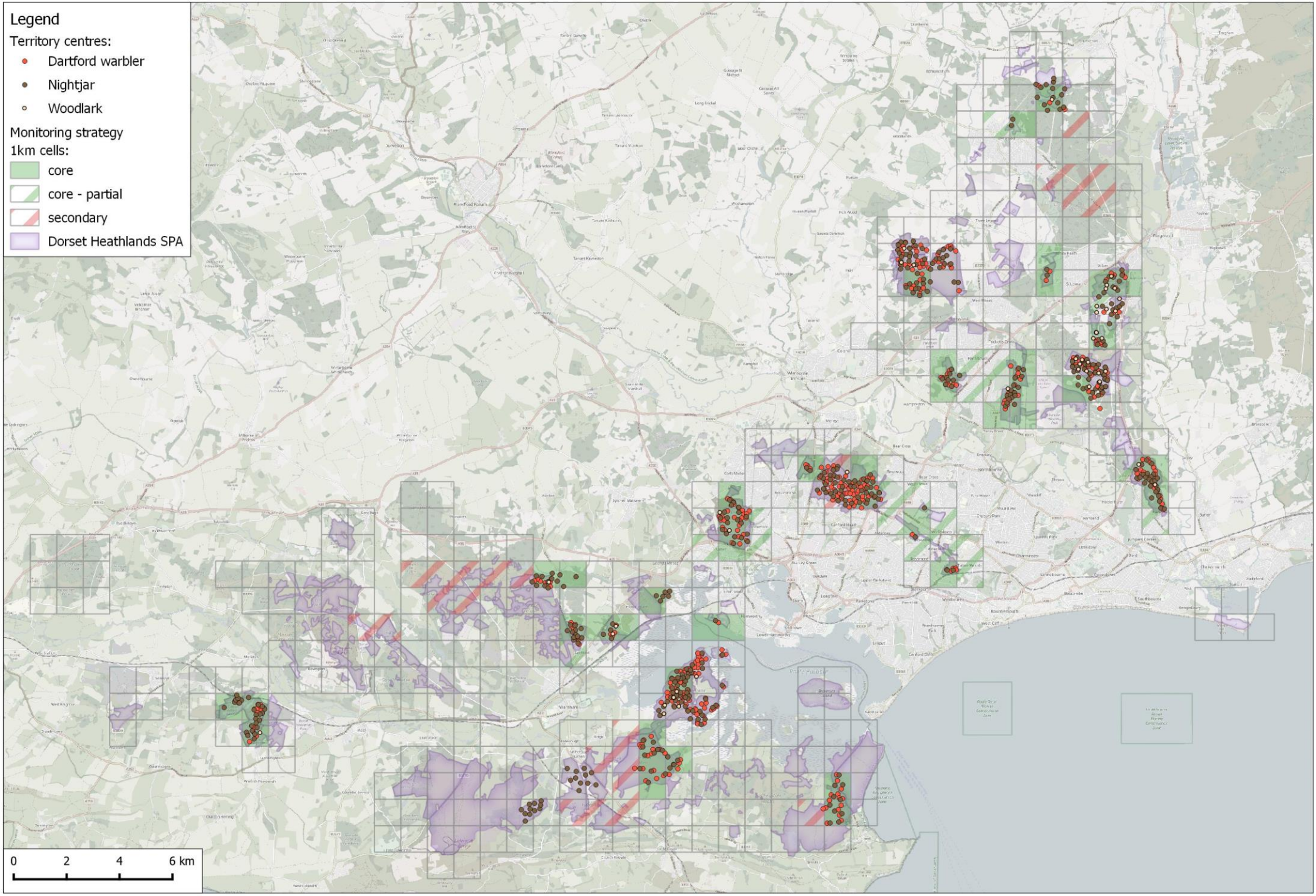


Figure 4: The number of Woodlark recorded at each site (or the 1km squares which represent a subset of sites) from the annual monitoring data. Sites shown are those with =>10 years of count data.

Map 2: Individual territory centres from 2019 monitoring.



3. Coordinated vehicle counts

Introduction

3.1 The provision of parking spaces at, or adjacent to, the heaths is an important factor determining the number of visitors interacting with sites. In the 2019 Dorset Heaths visitor survey, over half of the interviewees had arrived by car (Panter & Caals, 2020a).

3.2 Counts of the number of vehicles parked at access points to the heath can be conducted quickly to provide a good indication of the number of visitors at a site. Meaningful counts require a co-ordinated approach, using a set methodology and surveying period.

Categorisation of data

3.3 Monitoring increasingly encompasses a wide range of types of sites, such as Suitable Alternative Natural Greenspaces (SANGs), Heathland Infrastructure Projects (HIPs), key visitor centres and visitor attractions. As such the parking locations are categorised to reflect this wide variety.

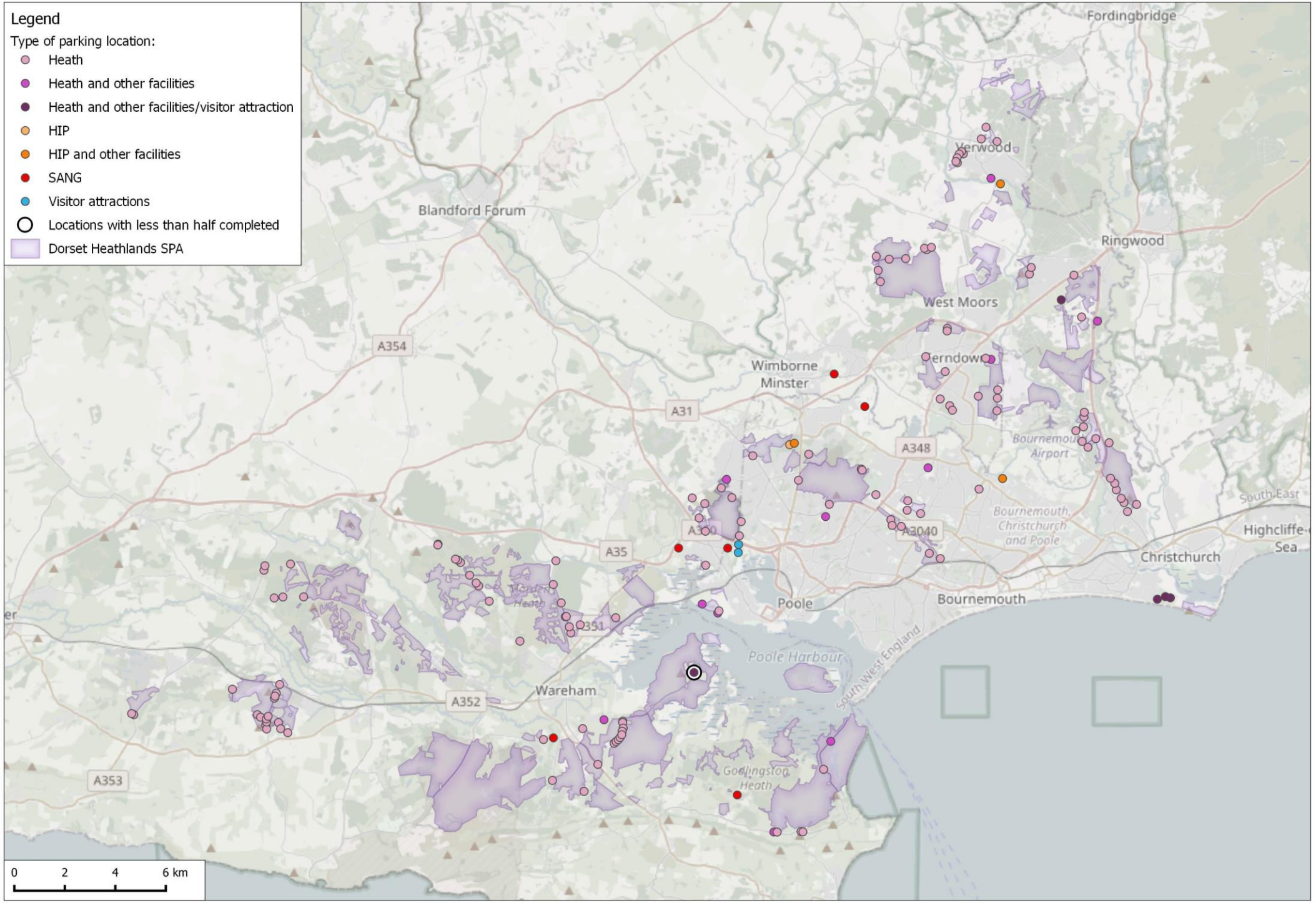
3.4 This categorisation is on the basis of how these locations may change over time, the type of site and the degree to which these values are likely to vary. For example, at the simplest level by categorising sites as heaths or SANG we can determine whether changes are different on the two types of site. Sites where the car park includes access to other facilities (e.g. football pitches, cafés or habitats), rather than just a heath or SANG, are likely to be more variable (e.g. due to events) and changes in access can relate to changes in these facilities and are therefore less of a concern. Table 3 details a summary of the different types of categories used.

3.5 In this 2019-20 report there are 162 locations included - the distribution of these parking locations surveyed is shown by location type in Map 2. This differs from the previous list of 161 as it now includes Canford Park SANG from early June 2019 (the third transect of this financial year).

Table 3: Summary of the different types of parking locations. Note numbers of car parks surveyed in this 2019/20 report have changed from the 2018/19 report.

Type of parking location	Number of parking locations	Example locations
Heath (parking is only used by those visiting heaths)	134	All car parks around Canford Heath, Dewlands Common, Great Ovens
Heath & other facilities (parking provides access to heaths, but also facilities, e.g. visitor centres/cafes, football pitches, or habitats e.g. coast, support land, viewpoints)	11	Stoborough Heath car park at Sunnyside (providing access onto the grassland as well as the heath), Ham Common car park which is also used by those accessing Poole Harbour, Avon Heath viewpoint car park, Studland Ferry Road
Heath & other facilities/Visitor attractions (locations which provide a clear visitor, particularly summer, tourist attraction)	5	RSPB Arne car park, Avon Heath visitor centre, Hengistbury Head
HIP (parking is only used by those visiting HIP)	1	Delph Woods 1
HIP & other facilities (parking provides access to HIP, but also facilities, e.g. cricket pitches, support land)	3	Delph Woods 2, Granby Road Barn, Potterne Park
SANG (parking is only used by those visiting SANG)	6	Upton Country Park SANG, Stoborough SANG (Bog Lane), Burnbake, BytheWay Field, Frenches Farm, Canford Park SANG
Visitor attractions	2	Upton Country Park (main car park and small car park)
Total	**162**	

Map 3: Distribution of all parking locations counted in 2019/20.



2019-20 data

3.6 The dates for surveying in the 2019-20 financial year were determined by examining 'target dates' from the previous years. Target dates are determined annually based on an average date from the previous surveys. This attempts to ensure dates continue to fall roughly within the same named transect window (e.g. early-mid April), while also remaining on the set type of day (i.e. weekday/weekday) and do not subtly shift year on year. The dates selected for transects are shown in Table 4.

Table 4: The list of surveying dates for the 2019-20 financial year. Dates for each of the 14 transects are calculated to be around a similar date, based on the average of previous surveys; except for bank holidays which are fixed. Note rows are coloured by three types of date: weekday, weekend and bank holiday. Note organised in date order rather than transect number.

Annual transect number	Transect name (approximate time of year, and set type of day to survey)	Target date (Average of previous surveys, to be aimed for)	Actual date selected (choosing nearest Monday/Sunday to target date)
4	early-mid April weekend	15/04/2019	14/04/2019
5	early May bank holiday*	-	06/05/2019
6	late May/early June weekend	03/06/2019	02/06/2019
7	late June weekday	22/06/2019	24/06/2019
8	mid-late Aug weekend	20/08/2019	18/08/2019
10	late Aug bank holiday*	-	26/08/2019
9	early Sep/late Aug weekday	02/09/2019	02/09/2019
11	late Sept weekend	23/09/2019	22/09/2019
12	early-mid Nov weekday	12/11/2019	11/11/2019
13	late Nov weekend	23/11/2019	24/11/2019
14	mid Dec weekend	16/12/2019	15/12/2019
1	early Feb weekday	05/02/2020	03/02/2020
2	late Feb/early March weekday	04/03/2020	02/03/2020
3	late March weekend	24/03/2020	22/03/2020

* Bank holidays are fixed surveying dates and therefore no target date calculated based on the previous years.

Surveying

3.7 The 2019-20 parking count coverage was variable as shown in in Table 5. A total of 2,064 parking location counts out of 2,268 were counted – equating to 9.0% missed.

3.8 The coronavirus (COVID-19) national lockdown restrictions meant that the vehicle count scheduled for 29 March 2020 could not take place. This accounted for 7.1% of the missing counts.

3.9 Of the other missing counts, 13 of them were at RSPB Arne, which was only counted once this year. All 9 of the Bournemouth parking locations were not counted on 22 September 2019, and 2 of them were also not counted on 1 December 2019.

3.10 A small number of parking locations could not be counted due to being closed or inaccessible. On 15 December 2019, 8 of the Purbeck parking locations were inaccessible due to flooding. On other dates, a small number of locations were closed for maintenance or safety reasons, or because the access road was blocked or impassable.

3.11 The only parking location missing a significant number of counts this year was RSPB Arne, which only had 1 count this year. All other parking locations had at least 11 of the 14 counts completed.

3.12 The dates for tranche numbers 13 and 3 were postponed by a week.

Table 5: Details of the transect dates, surveying windows, the number of car parks missed and the actual number counted on each date (accounting for road/car park closures). Note organised in date order rather than transect number.

Set tranche (Tranche sequence)	Date	Survey time window	Locations not recorded (inc. missed/not found)	Locations closed/ inaccessable (inc. road closed)	Actual number counted
4	14/04/2019	10-12	1	1	159
5	06/05/2019	2-4	1	1	160
6	02/06/2019	10-12	0	0	162
7	24/06/2019	7-9	1	1	160
8	18/08/2019	2-4	1	0	161
10	26/08/2019	2-4	1	0	161
9	02/09/2019	2-4	1	0	161
11	22/09/2019	10-12	10	1	151
12	11/11/2019	10-12	1	4	157
13	01/12/2019	10-12	3	1	158
14	15/12/2019	10-12	1	8	153
1	03/02/2020	10-12	1	1	160
2	02/03/2020	2-4	1	0	161
3	29/03/2020	-	162	0	0
			185	**18**	**2,064**

2019-20 results

3.13 In total 11,422 parked vehicles were counted across the 2019-20 financial year, as shown in Table 6. This shows that the number of vehicles recorded varies greatly across the year, between the different times of year and between types of day.

3.14 In Table 6 the number of 'vehicles per total spaces' and the 'mean percentage fullness' both seek to quantify the relationship between the number of vehicles counted and the capacity of the parking locations. The capacity used in these calculations is the current estimated capacity of each parking location or the maximum vehicle count (in any year), whichever is greater. 'Vehicles per total spaces' is the total number of vehicles divided by the total number of spaces across the whole area and the 'Mean percentage fullness' is the mean of the percentage fullness of each individual parking location.

3.15 The highest count of vehicles this financial year was on the afternoon of the summer bank holiday (Monday 26 August 2019) when 2,085 vehicles were counted across 161 parking locations. Two parking locations, Hengistbury Head 1 and Potterne Park, were both at full capacity during this count. Overall, 44% of the spaces across the area were occupied, however the average fullness of parking locations (giving each location equal weighting) was 15.4%.

3.16 The next highest counts were at a weekend in mid-August (1,426 vehicles) and on the early May bank holiday (1,209 vehicles). The late morning count on a weekend at the beginning of June had the highest mean percentage fullness, with parking locations on average 20.3% full.

3.17 The count with the fewest vehicles was early morning on a weekday in late June, when only 218 vehicles were counted, equivalent to 5% of the total capacity, with parking locations on average 8.2% full.

Table 6: Summary of the number of vehicles counted, the mean number of vehicles per parking location, number of vehicles per total spaces and mean percentage fullness of parking locations on the 14 survey dates. Parking locations that were not recorded are not included in these figures. The highest three values in each column are highlighted in red, and the lowest three values in blue.

Set tranche	Transect name	Actual number counted	Total number of vehicles	Vehicles per parking location	Vehicles per total spaces	Mean percentage fullness
4	early-mid April weekend	159	978	6.2	0.21	**20.2**
5	early May bank holiday	160	**1,209**	**7.6**	**0.25**	**19.9**
6	late May/early June weekend	162	929	5.7	0.19	**20.3**
7	late June weekday	160	**218**	**1.4**	**0.05**	**8.2**
8	mid-late Aug weekend	161	**1,426**	**8.9**	**0.30**	17.7
10	late Aug bank holiday	161	**2,085**	**13.0**	**0.44**	15.4
9	late Aug/early Sep weekday	161	843	5.2	0.18	14.2
11	late Sep weekend	151	**346**	**2.3**	**0.10**	**9.8**
12	early-mid Nov weekday	157	552	3.5	0.12	14.7
13	late Nov weekend	158	997	6.3	0.21	18.3
14	mid Dec weekend	153	775	5.1	0.16	18.1
1	early Feb weekday	160	600	3.8	0.13	13.7
2	late Feb/early March weekday	161	**464**	**2.9**	**0.10**	**10.6**
3	late March weekend	-	-	-	-	-

3.18 The combination of the type of day and season are two of the key factors in determining the number of visitors. Therefore, the total number of cars in car parks across the year is visualised in Figure 5, labelled by type of day and seasons highlighted in the background (note that the variability in the number of car parks counted influences these values). Bank holidays and school holidays generally had higher counts that those done during term time, although an exception was the count on Sunday 1st December 2019 (the tenth bar in Figure 5), when almost 1,000 cars were counted. The highest count was the summer (late August) bank holiday, and the lowest count was a term-time weekday in late June (fourth data bar).

3.19 The variability between years is highlighted by comparison with Figure 6, showing the data from the previous financial year (from the report for 2018-19). It also serves to highlight that types of day (e.g. term time, half term) shift between years and would have to be accounted in trend analysis.

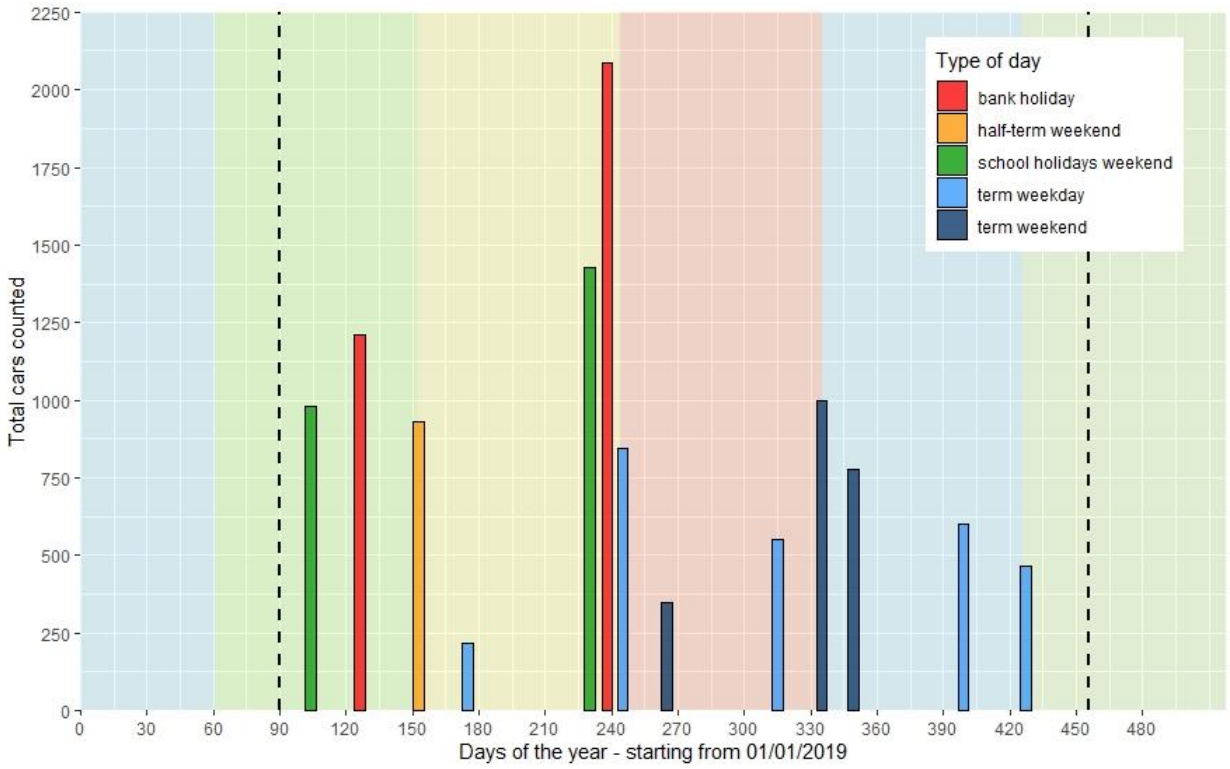


Figure 5: The number of total cars recorded in each car park count transect over the 2019-20 financial year. Bars showing total cars are coloured by the type of day, and background plot area is shaded by season. Dashed lines indicate the start and end of the financial year. (Note: the number of car parks counted varies between dates; x axis shows days from 01/01/19 but only data from the 2019-20 financial year are included)

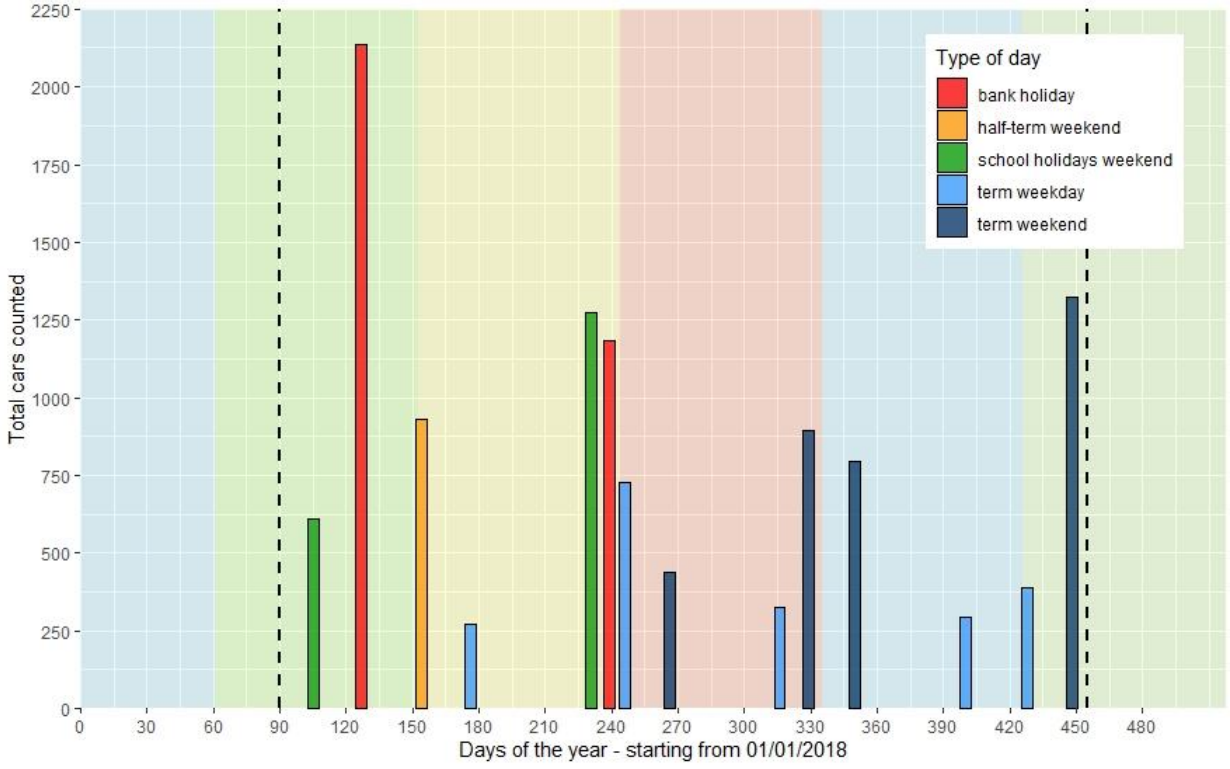


Figure 6: Repeat of Figure 5, but for the 2018-19 financial year (as included in the 2018-19 report).

3.20 Table 7 shows the totals counted for comparison against the typical number recorded in previous years. This comparison does not account for differences in the number and arguably, more importantly, the capacity of different car parks. Furthermore, this also includes all the different types of car parks, such as heaths, visitor centres and SANGs and covers different types of days (e.g. term time and half term).

3.21 This financial year includes the third highest count ever recorded; 2,085 on the late August bank holiday. The highest count ever recorded is still 2,582 on the 2017 August bank holiday, and the second highest count was 2,135 on the early May bank holiday in 2018. Data in Table 7 show the typical peak date from all previous years is usually the late Aug bank holiday and the mid-late August weekend, as seen this year. Overall, the ranking of the types of day were largely similar, but show the inherent annual variations.

Table 7: Comparison of 2019-20 car park count data to average (mean) values from all previous years' data from car parks on the 14 survey dates. Top three values are highlighted in red, bottom three in blue.

Set Tranche	Transect Name	2019-20 actual number counted	2019-20 total number of cars	All previous years counts		
				Average total number of cars	number of previous counts	average number of car parks included
4	early-mid April weekend	159	978	717	8	**157**
5	early May bank holiday	160	**1,209**	**1,046**	8	163
6	late May/early June weekend	**162**	929	727	8	163
7	late June weekday	160	**218**	**182**	9	164
8	mid-late Aug weekend	**161**	**1,426**	**1,124**	10	**170**
9	early Sep/late Aug weekday	**161**	843	605	10	166
10	late Aug bank holiday	**161**	**2,085**	**1,243**	9	168
11	late Sep weekend	**151**	**346**	565	10	**169**
12	early-mid Nov weekday	**157**	552	**319**	10	168
13	late Nov weekend	158	997	563	10	**169**
14	mid Dec weekend	**153**	775	550	9	164
1	early Feb weekday	160	600	**326**	9	**161**
2	late Feb/early March weekday	**161**	**464**	381	9	162
3	late March weekend	-	-	882	9	**160**

Differences between parking location types

3.22 In recent years, the car park counts have encompassed more parking locations away from traditional heathland sites. The nature of these car parking locations is becoming more diverse as more SANG or HIP sites are created. These separate categories of car park should be considered separately, as the nature of these locations are very different and while increases at some site locations are a cause for concern (e.g. heathlands), increases at other sites would be viewed positively (e.g. SANG sites).

3.23 For detailed analysis of trends these should always be examined separately. As yet, we have little data for the different car park types to warrant a separation of all results (see Table 3) and detailed analysis is largely beyond the scope of this annual reporting, but should be a consideration for the future.

3.24 The average percent fullness of car parks across the whole year for each type of location is shown in Figure 7 to illustrate the typical level of use expected at different location types. As discussed previously, due to the different nature of locations, there is clearly a differing baseline to be expected on sites. Heath parking locations are usually the least full, around 15% full, and there is generally a steady increase in the typical fullness of parking locations for the different types.

3.25 Interestingly, the largest values might be expected at the “visitor attraction” type locations (Upton Country Park locations), and this has been the case in previous years. However the average fullness in this financial year and the previous year - see the same graph repeated for 18-19 (Figure 8) – was highest at HIP sites which also have other facilities i.e Delph Woods 2, Granby Road Barn 1 and Potterne Park (which, respectively have a cricket pitch, a visitor centre and a recreation ground).

3.26 The heaths also appear to show the least variation in fullness across the year, compared to all other location types – a result in line with the previous year. This is explored in more detail in Figure 9 which shows the average percent fullness for these parking types for each date across the financial year. This shows the variation across the year, but also how this changes for location type. However, it should again be noted that these values are the raw data, and these have not been adjusted to account for variation in survey effort. For comparison, Figure 10 shows the graph for the previous financial year, with a largely similar pattern, only with different timings for the peaks.

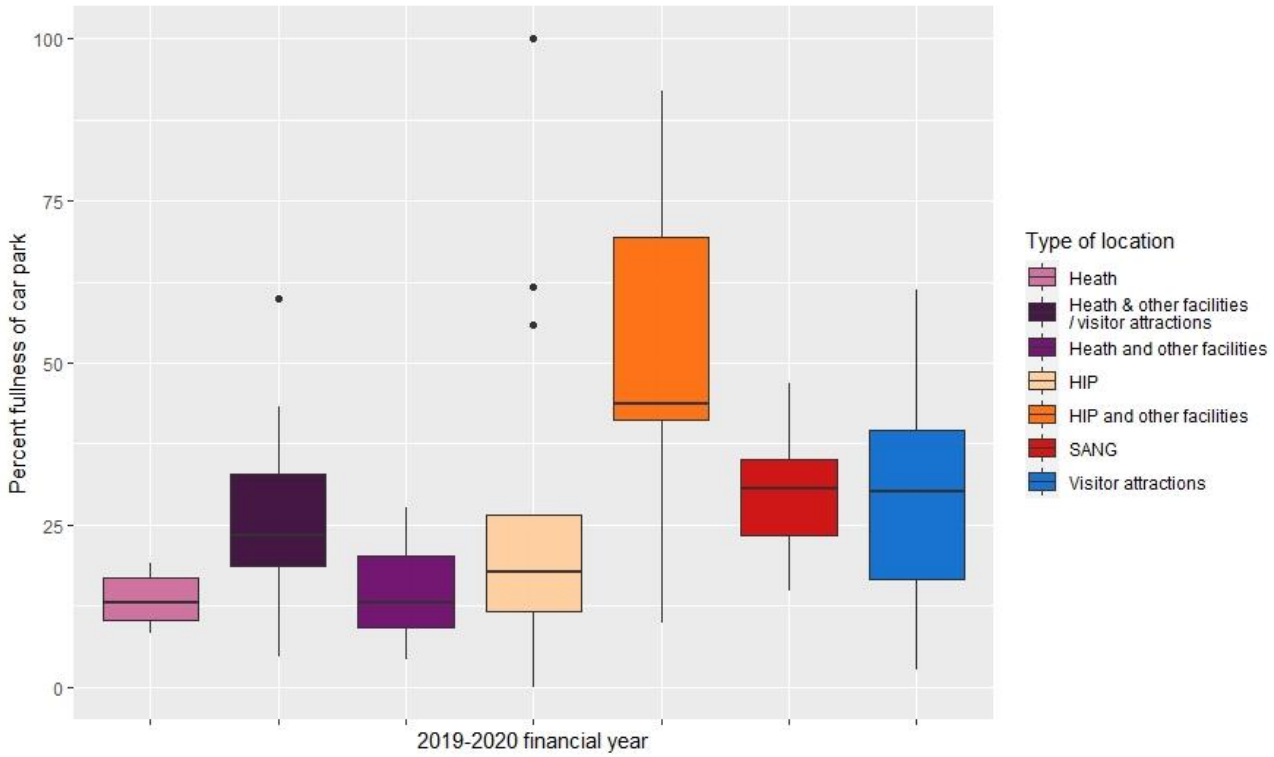


Figure 7: Summary of the individual car park percent fullness for all transects, across the whole 2019-20 financial year for the different types of car parking locations. (Heathland sites [n=134], heathland & other facilities/visitor attractions [n=5], heathland & other facilities [n=11], HIP [n=1], HIP & other facilities [n=3], SANG [n=6], and visitor attractions [n=2]).

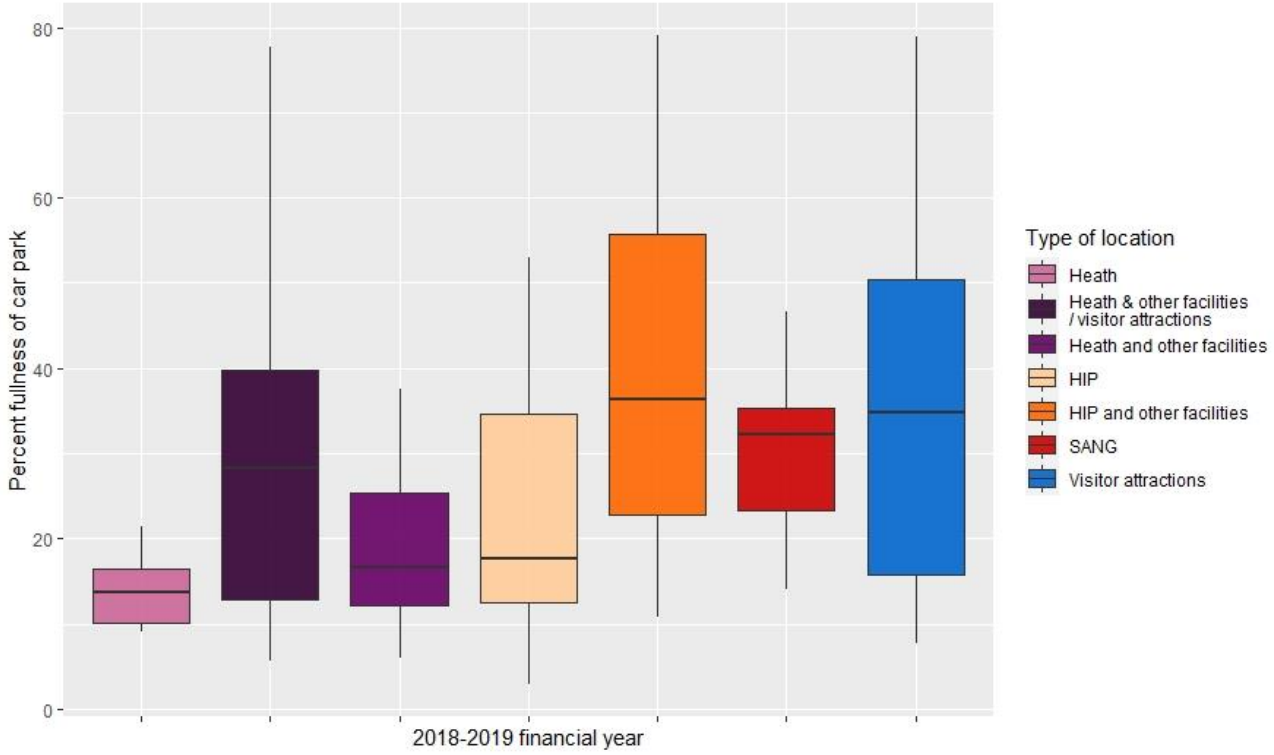


Figure 8: Repeat of Figure 7 but shown for the 2018-19 financial year.

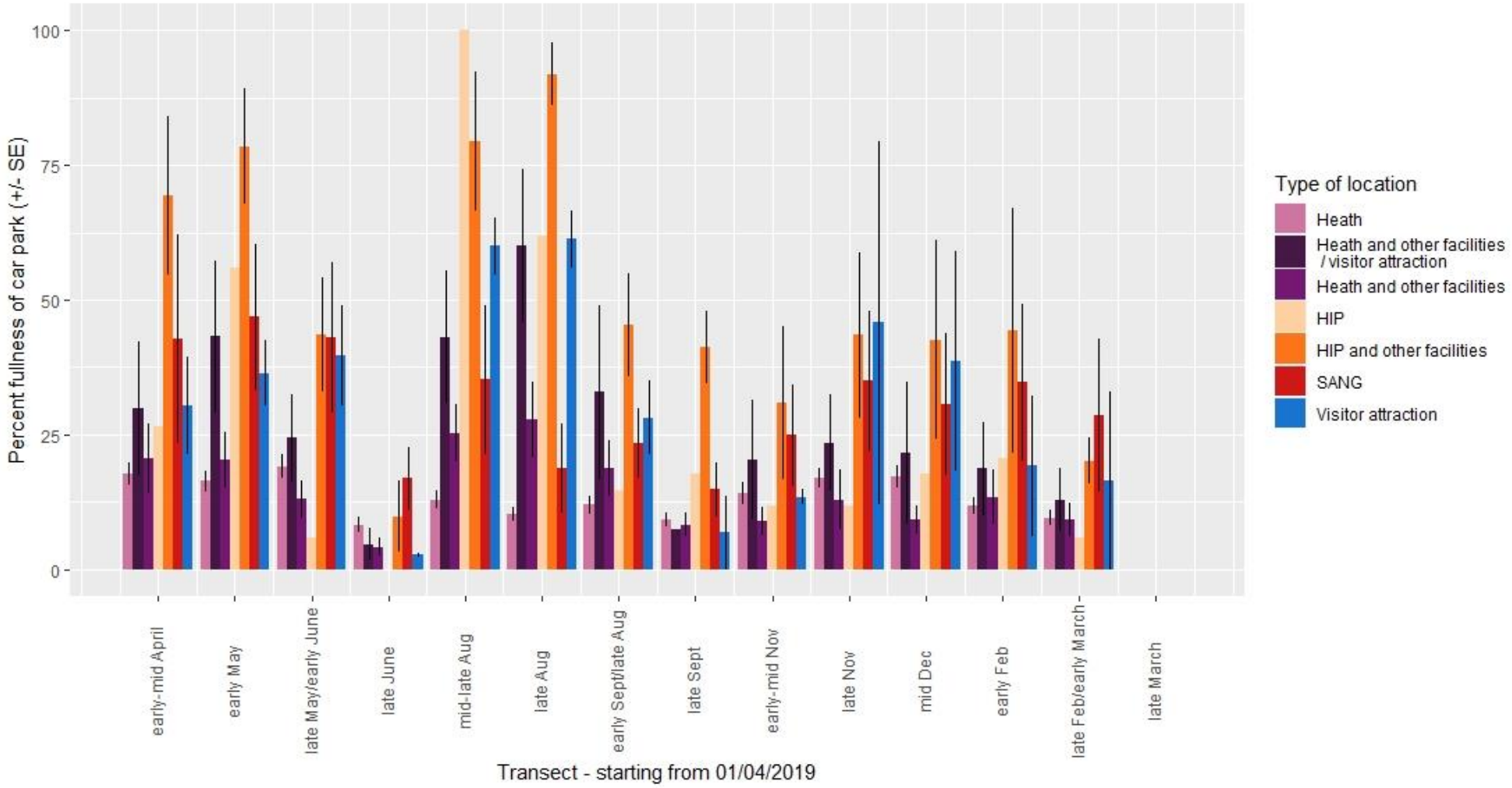


Figure 9: The mean percent fullness of car parks (and SE) during each transect, shown separately for the different types of locations. (Heathland sites [n=134], heathland & other facilities/visitor attractions [n=5], heathland & other facilities [n=11], HIP [n=1], HIP & other facilities [n=3], SANG [n=6], and visitor attractions [n=2]).

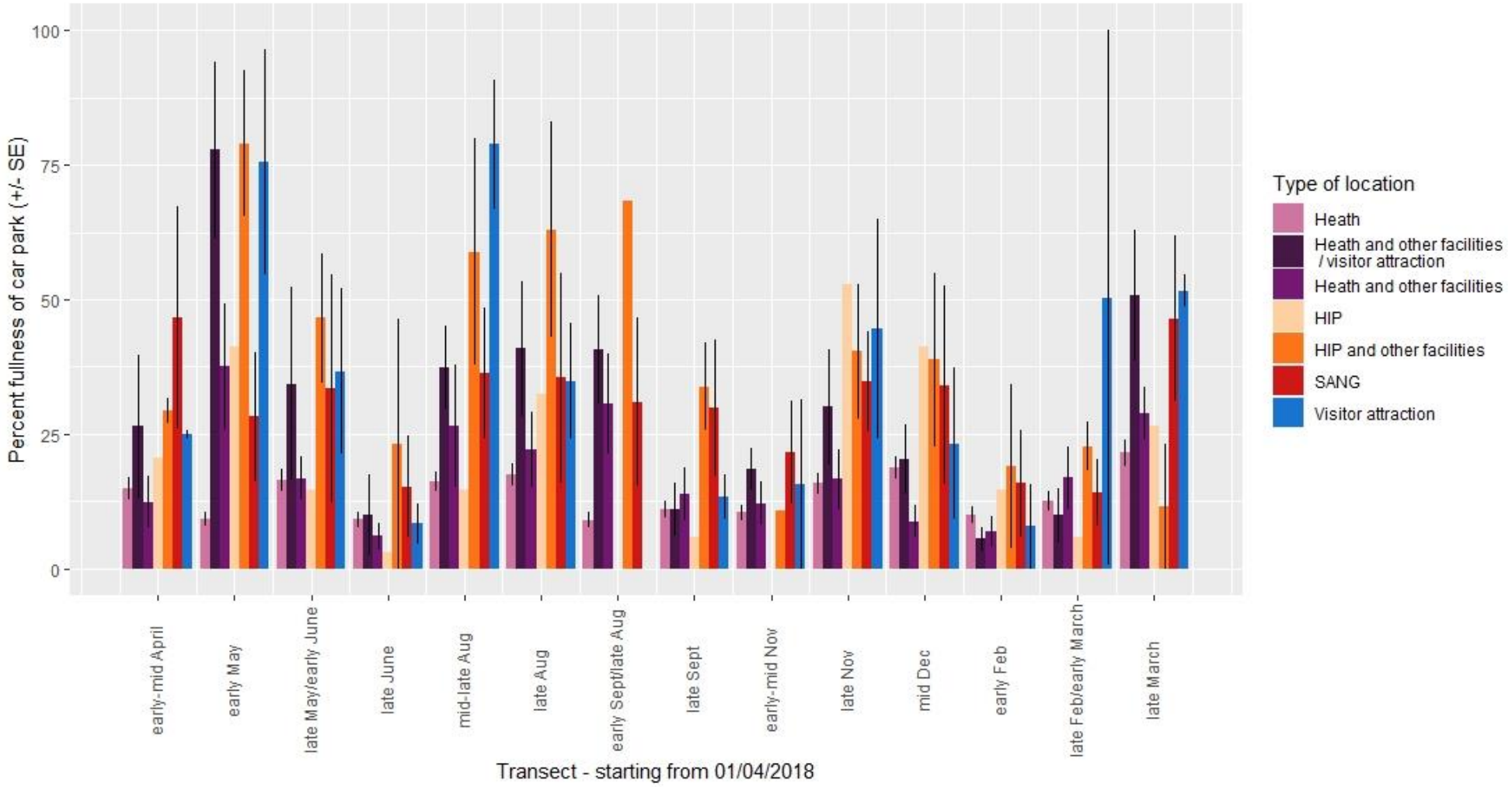


Figure 10: Repeat of Figure 9 shown for the 2018-19 financial year.

3.27 In an attempt to account for car parks which were missed on some transects, the number of vehicles was divided by the number of transects for which the car park was surveyed to provide the average number of vehicles per car park. These have been summarised by the different types of car parking locations in Table 8 and shown for each parking location in Map 3.

3.28 Overall values at heath sites were quite small, an average of 1.6 vehicles per car park in an average transect – but numbers of spaces are often limited. At heath locations which include other facilities (e.g. sports grounds, viewpoints, beaches or other habitats), the number of vehicles was slightly higher with on average 10.7 vehicles. For those locations which were categorised as "heath with other facilities and visitor attractions" the average was much greater (75.1 per car park) and had the greatest maximum average (181.8 vehicles on average at Hengistbury Head 1).

Table 8: The average number of vehicles per transect for each car park was calculated to account for car parks missed during some transects. The values recorded are summarised by the type of location which the car park provided access to. Bold values indicate the year with the highest value.

Type of location	Number of car parks surveyed	Number of vehicles per car park averaged across transects, and averaged for type		Range in vehicles per car park averaged across transects	
	2019-20	2018-19	2019-20	2018-19	2019-20
Heath	134	1.5	**1.6**	0 - 17.6	0.0 – 20.8
Heath & other facilities	11	**11.7**	10.7	1.6 - 62.4	0.2 – 51.1
Heath & other facilities/ visitor attractions	5	71.8	**75.1**	35.3 - 195.8	31.0 – 181.8
HIP*	1	7.8	**9.2**	7.8	9.2
HIP & other facilities	3	19.6	**35.5**	7.8 - 29.8	10.2 – 71.2
SANG	6	5.6	**6.9**	0.1 - 17.8	0.3 – 18.4
Visitor attractions	2	**55.6**	55.1	10.8 - 100.4	7.0 – 103.2
Total	162	**5.5**	**5.5**	0 - 195.8	0.0 – 181.8

* Only one HIP car park was surveyed (Delph Woods 1).

3.29 HIP parking locations had a wide range of average counts, with the highest being Potterne Park with 71.2, possibly influenced by some counts coinciding with events taking place there. The average number of vehicles at SANG sites was varied, with the highest being 18.4 at Upton Country Park SANG. At visitor attraction locations, i.e. the two other Upton Country Park car parks, the main car park had an average of 103 vehicles per transect, whilst the smaller car park had an average of 7 vehicles per transect.

3.30 As already noted, long term trends are beyond the scope of this report. Based on the previous year (as shown in Table 8) changes were; Heaths showed a similar level to the previous year, although heaths with other facilities or visitor attractions had a slight increase. HIPs had a large increase and SANGs had a slight increase. Figures for the visitor attraction locations were similar to last year.

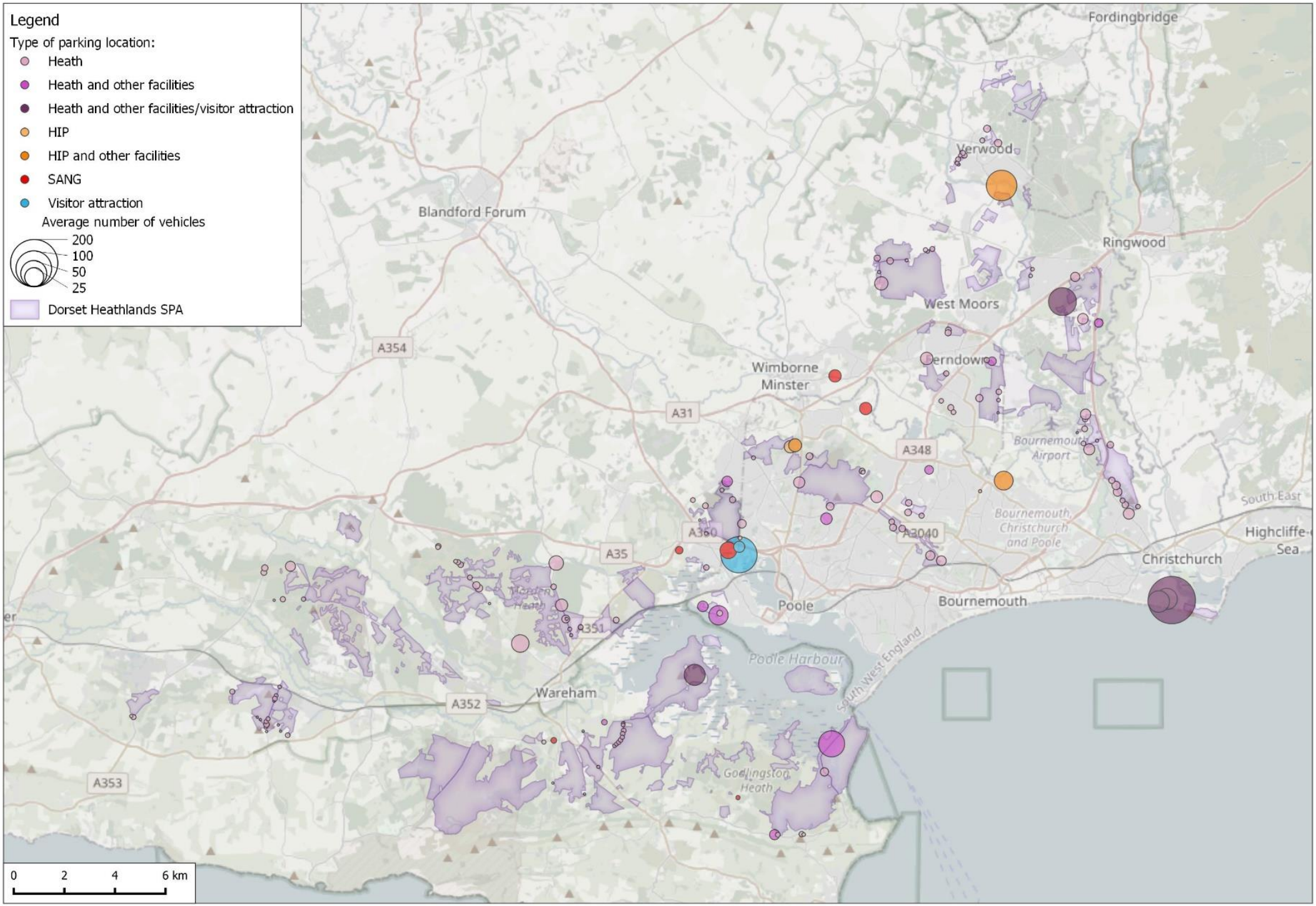
3.31 An indication of longer-term trends is hinted at from this data for interest in Table 9 which shows the change in SANG use over time at the six locations surveyed. This shows most sites appear to be holding steady in the average number of vehicles at each SANG. Canford Park SANG opened during this financial year, so has only had 11 counts so far.

Table 9: Average number of vehicles recorded on a transect in each financial year for the six SANG sites. Number of spaces at each SANG parking location are shown in brackets.

Financial Year	Burnbake SANG 1 [4]	Bytheway Field 1 [24]	Canford Park SANG* [50]	Frenches Farm SANG [7]	Stoborough SANG 1 [8]	Upton Country Park SANG 1 [28]
14-15	-	7.0			0.5	-
15-16	0.3	6.2			0.4	8.8
16-17	0.6	8.9			0.4	12.2
17-18	0.1	9.3			0.9	17.6
18-19	0.1	8.4		1.9	0.4	17.8
19-20	0.3	9.0	10.6	2.4	1.0	18.4

* included from early June 2019

Map 4: Distribution of all parking locations counted in 2019/20 by average number of vehicles recorded on a typical transect.



Future counts

3.32 A recommendation from previous monitoring reviews is for more accurate information on the parking locations surveyed in the coordinated counts to be collated. This is still ongoing by UHP staff, and will record points such as size, infrastructure, quality of parking and presence of charging but also the extent of parking area for consistent counts. This will allow potential future analysis to examine how access differs at different types of parking locations in more detail.

3.33 It should be stressed that data from these car park surveys is increasing in its value over time. But it is important to therefore maintain the accuracy and continued effort from all partners in their participation.

4. Incident data

Introduction

4.1 The Urban Heaths Partnership coordinates the reporting and recording of any illegal, antisocial or potentially destructive activities which will impact on the heaths. These 'incidents' are recorded by the individual local authority mitigation officers (formerly UHP wardens) or other individuals from the partnership organisations on the Dorset / BCP (Bournemouth Christchurch and Poole) Council's 'Dorset Explorer' mapping system. Incidents cover a range of activities including: fires, motorcycles / off-roading, fly tipping (including green waste), cyclists (off designated paths), horse-riders (off bridleways etc.), vandalism, abandoned vehicles, antisocial behaviours and a wide range of other incidents (e.g. harassment, wildlife crime, firearms, catapults, dens/camping).

4.2 Incidents relating to fires on the heath are considered the most robust of all the incident data. The importance of such events means these are much more reliably recorded. The recording of fires is based upon the logged call outs by Dorset and Wiltshire Fire and Rescue, with additional reporting by wardens, which covers any other burnt areas, or small campfires, which are otherwise missed in formal Fire and Rescue call out data. As such it is important to state continued efforts by partners are needed to record these robustly.

2019-20 results

Fires

4.3 In total, 77 incidents of fire were recorded in 2019-20 and the total area burnt amounted to approximately 22.0 ha of heathland. The number of recorded fires was fewer than average, both in terms of median and mean (Table 10) whereas the total area burnt was similar to the median of previous years and less compared to the mean area of previous years. Mean values in Table 10 are greater than the medians as these are more heavily influenced by infrequent, extremely large fires, that results in overall high monthly and yearly averages.

4.4 In 2019-20, the months with the highest number of recorded fires were April, July, August and September. July 2019 included the largest fire this year, when live firing at Bindon Ranges caused a fire covering approximately 16.3 ha. The next largest fire was at Woolsbarrow Fort in Wareham Forest, in March 2020, when 3.9 ha was burnt following re-ignition of a bonfire from a controlled burn the previous day[1].

[1] This is not be confused with the large Wareham Forest fire which burnt around 200 ha in May 2020.

4.5 All other fires were less than 1 ha, so with the exception of July, the monthly totals of area burnt are below, or very close to the average of previous years (see Table 10).

Table 10: Summary of the total number and area of fires recorded in 2019-20 financial year, compared with averages (mean and median) for previous years (2002-03 to 2018-19).

Year	Month	Total number of fires 2019-20	Median number of fires in previous years	Mean number of fires in previous years	Area burnt (ha) 2019-20	Median area burnt (ha) in previous years	Mean area burnt (ha) in previous years
2019	Apr	15	18	22	0.01	5.47	8.79
	May	7	17	19	0.07	1.32	3.30
	Jun	5	18	18	0.61	0.23	4.03
	Jul	17	14	16	17.08	0.40	2.00
	Aug	12	11	16	0.29	0.44	0.69
	Sep	13	10	14	0.09	0.12	0.35
	Oct	0	4	7	0.00	0.01	0.42
	Nov	2	3	5	0.00	0.00	2.26
	Dec	1	2	3	0.00	0.00	0.01
2020	Jan	2	2	3	0.00	0.00	0.02
	Feb	0	4	7	0.00	0.06	0.54
	Mar	3	15	16	3.87	4.05	12.20
Total		**77**	**116**	**137**	**22.01**	**21.80**	**31.06**

4.6 Overall, the number of individual fires was lower than typically recorded in previous years, but this can be an artefact of recording effort. One limitation with the number of fires is that this includes both fires formally logged by the fire service and warden observations of small campsite fires. Therefore, these numbers can be slightly influenced by the level of wardening effort, which can be variable between years. As such, the area of burn is considered a more reliable measure. In 2019-20, fires less than 10m² accounted for 49 (64%) of the fire incidents, and only 2 (3%), were more than 1ha.

4.7 The distribution of fires is shown in Map 5 and presented for individual sites in Table 11. The site with the largest number of fires recorded was Ham Common, with 17 separate fires. Most of these were fairly small campfires or barbecues although there was one larger fire on 29th August 2019 covering an area of approximately 100m x 20m which resulted in the evacuation of several caravans at Rockley Park. Following investigation, the cause was found to be discarded smoking materials.

Other incidents

4.8 With regards to the other non-fire incidents a total of 80 were recorded, and therefore a total of 157 recorded incidents of all types recorded across the whole financial year (as shown in Map 6).

4.9 Non-fire incidents included motorcyclists, fly tipping, drones/UAVs, den building, cyclists (track/jump building) and barbecues. Drones/UAVs is a fairly new category which had 6 incidents recorded in 2019-20. In most cases, the warden was able to engage with the drone operator and ask them to land the drone. Incidents categorised as "other" included camping, metal detecting, drug paraphernalia and balloon/sky lantern releases.

4.10 Aside from incidents of fire, motorbiking (including quad bikes) and fly-tipping were the most common categories recorded (40 and 11 incidents respectively). Over half of the motorbiking incidents (27) were at Canford Heath and 10 were at Bourne Valley. Map 7 shows the distribution of each of the categories of incidents.

4.11 The months with the highest number of recorded incidents were April 2019 and July 2019 (see Figure 11), mainly due to large numbers of fire incidents, but a number of other incidents were also recorded such as motorcyclists and fly tipping. In the winter months, there were fewer incidents of fire, but a variety of other incidents. However, caution should be taken when examining Figure 11, as the reporting of non-fire incidents is heavily dependent on the time wardens spend on sites, which is variable across years, seasons and areas, and this is not accounted for in the reporting.

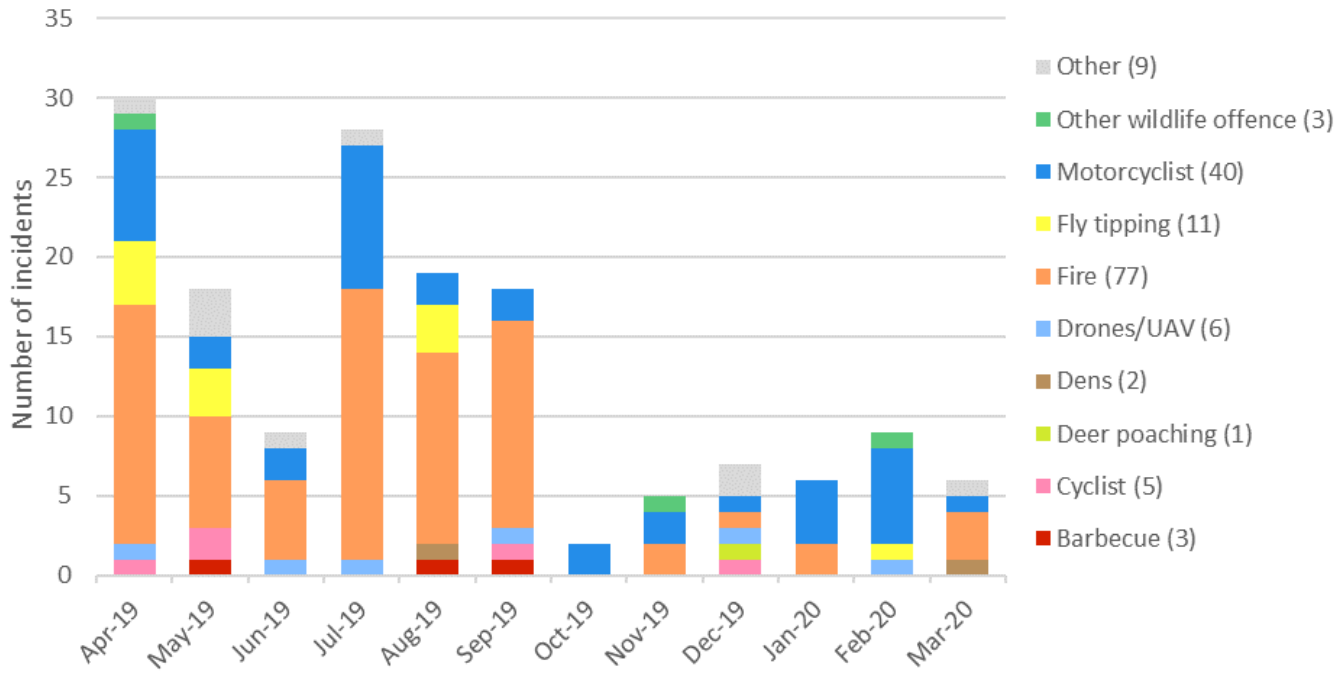


Figure 11: The monthly total number of incidents recorded, separated by the different types of incidents.

4.12 The number of incidents at individual sites is shown in Table 11. This shows that by far the greatest number of incidents were recorded at Canford Heath (8 fire incidents and 36 non-fire incidents).

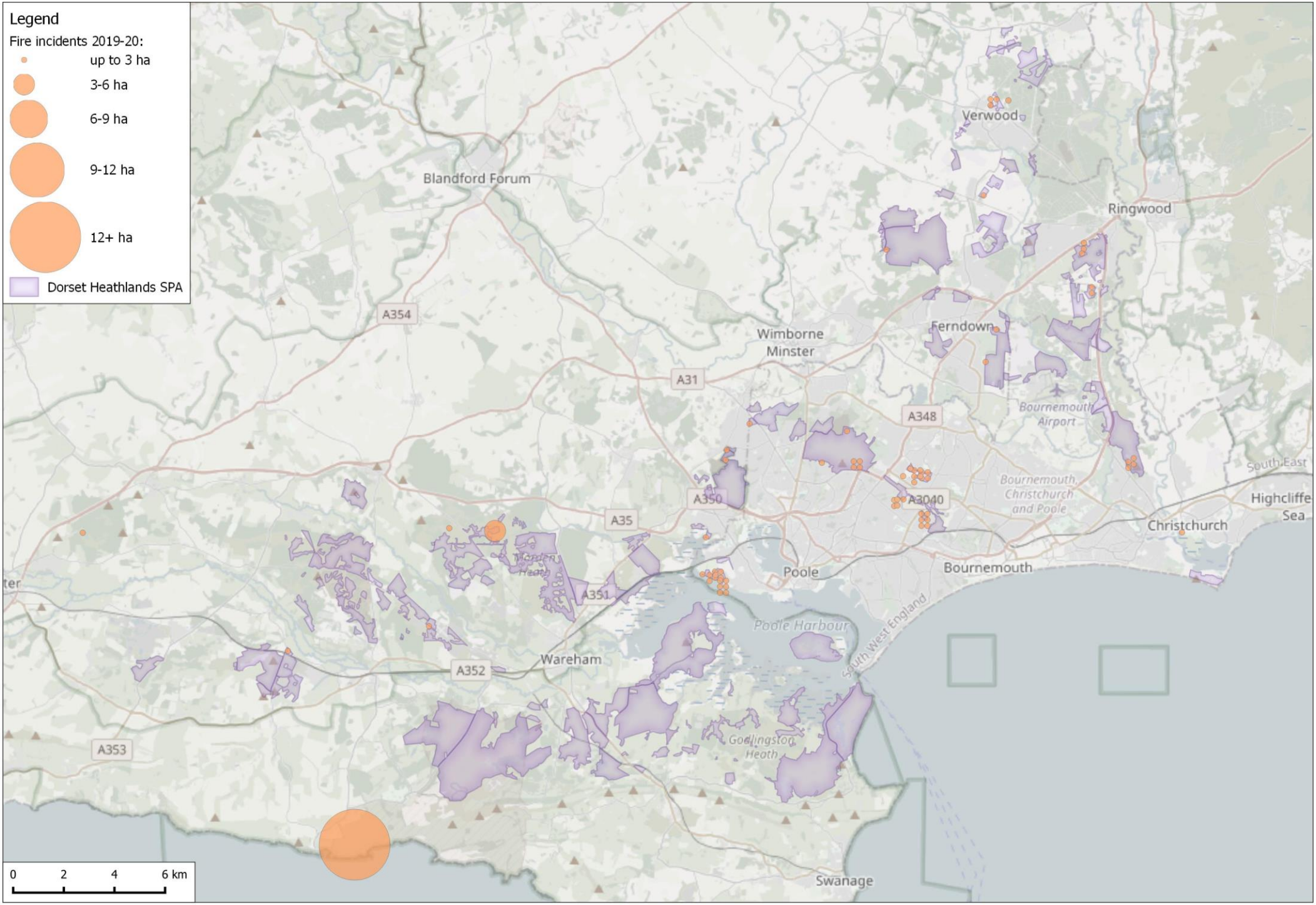
4.13 Non-fire incidents were greatest at Canford Heath (36), Bourne Valley (15), Ham Common (8) and Town Common (6). As previously mentioned, these reporting figures will be influenced by the time spent by wardens on site, partner recording and also how much is reported by members of the public. Therefore, an absence of reported incidents does not imply that there were no incidents occurring on site.

Table 11: Summary of the number of fires and other incidents recorded on each named site in 2019-20 financial year. The final column gives the total number of incidents which have been recorded since 2002 with a rank in brackets. Sites with the top five highest values for each column are in red.

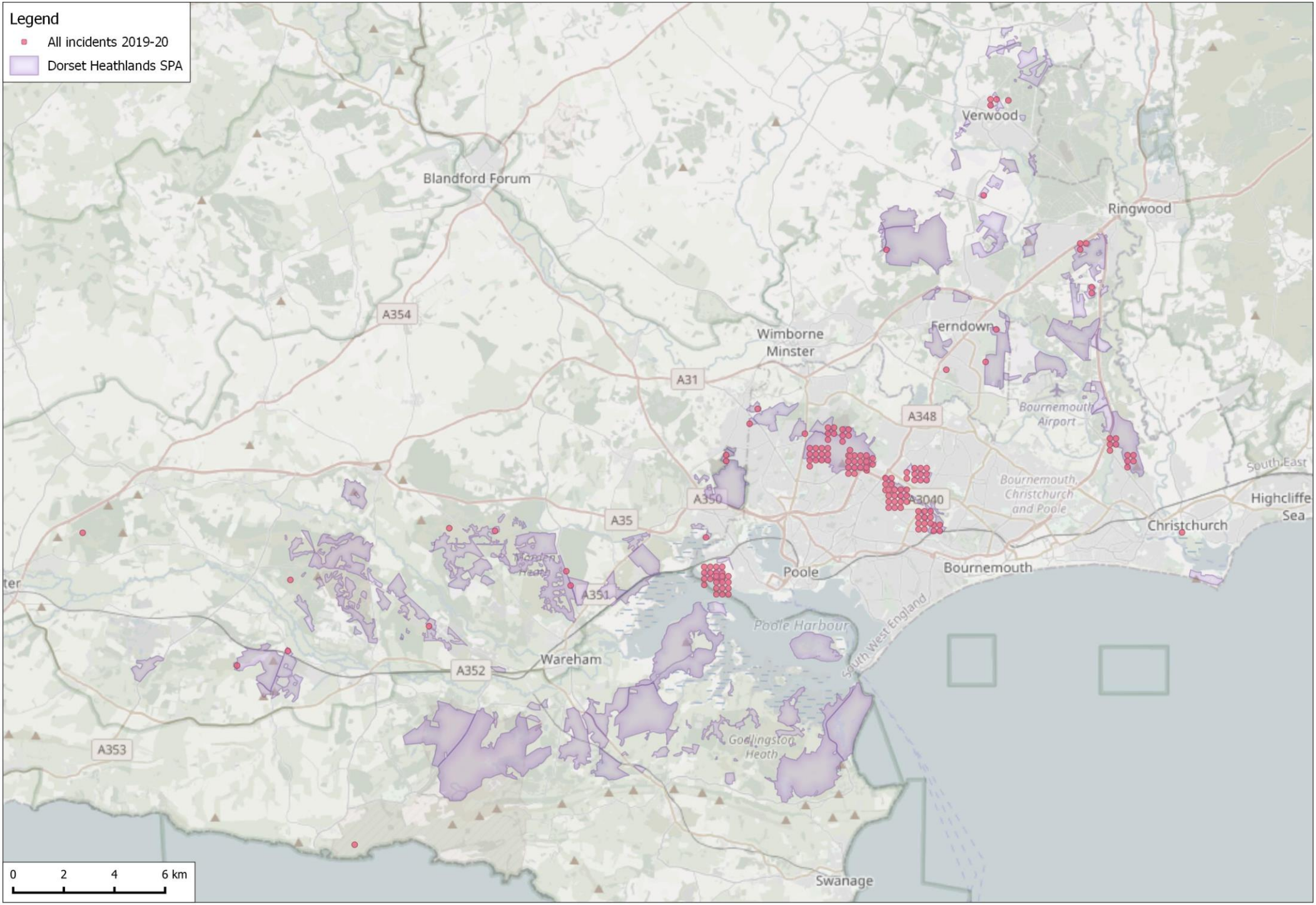
Named site	Number of fires in 2019-20	Number of other incidents in 2019-20	Total number of incidents in 2019-20	Total incidents since 2002 (rank)
Alder Hills	**7**	**4**	**11**	76 (13)
Avon Heath	5	0	5	15 (25)
Barrow Hill (Rushcombe Bottom)	0	1	1	29 (19)
Bindon Ranges	1	0	1	1 (52)
Bourne Bottom / Bourne Valley	**6**	**15**	**21**	**483 (3)**
Canford Heath	**8**	**36**	**44**	**659 (2)**
Corfe Hill	1	0	1	45 (15)
Dunyeats Hill	0	1	1	38 (17)
Gore Heath	0	1	1	3 (44)
Great Ovens	0	1	1	25 (22)
Ham Common	**17**	**8**	**25**	321 (6)
Lytchett Bay	1	0	1	37 (18)
Moreton Forest	0	1	1	1 (52)
Parley Common	2	0	2	203 (9)
Poor Common	0	1	1	1 (52)
Puddletown	1	0	1	3 (44)
Ringwood Forest	1	0	1	4 (40)
Riversmeet and Stanpit SANG	1	0	1	1 (52)
Stephens Castle	3	0	3	88 (12)
Stokeford Heaths	1	0	1	1 (52)
Talbot Heath	0	**4**	4	131 (10)
Town Common	4	**6**	10	**379 (5)**
Turbary Common	**11**	0	**11**	295 (7)
Uddens Plantation	1	0	1	5 (38)
Upton Heath	2	0	2	**415 (4)**
Wareham Forest	2	0	2	4 (40)
West Moors	1	0	1	2 (48)
Winfrith and Tadnoll Heath	1	1	2	16 (24)
Other/unnamed sites	0	0	0	**1,525 (1)**
Total	**77**	**80**	**157**	**4,806***

* This figure includes other named sites where there were no incidents recorded in 2019-20.

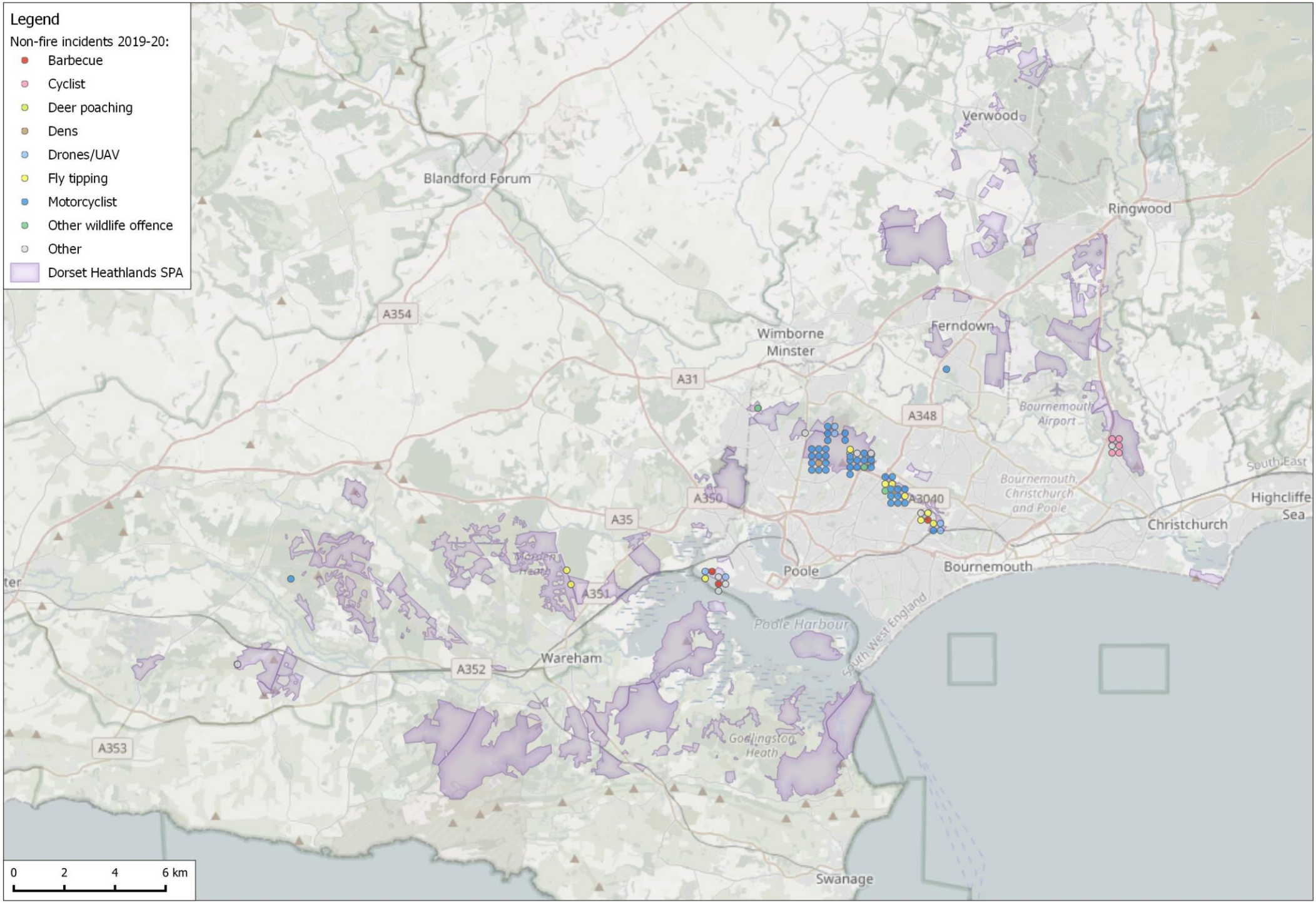
Map 5: Distribution of fire incidents recorded in the 2019-20 financial year. Size of point indicates size of area burnt.



Map 6: Distribution of all incidents recorded in the 2019-20 financial year. Some points have been shifted to avoid overlaps.



Map 7: Distribution of non-fire incidents recorded in the 2019-20 financial year. Some points have been shifted to avoid overlaps.



5. Sensor data

Introduction

5.1 Automated counters represent an effective way to gather large, long-term datasets. They can be used to remotely monitor subtle access patterns at a range of sites, including increasing use at SANG or HIP sites. The counters are usually in the form of buried pressure slabs or invisible beams located on the access points to sites. The resulting count data provides a good approximation of the number of people passing and directly accessing sites.

5.2 Such long-term monitoring data collected by sensors is key to detecting gradual changes in visitor pressures. The monitoring strategy recommended that on heathland sites, sensors need to be in place for consistent long term data, while on mitigation project sites (e.g. SANGs, HIPs) sensors should be installed to establish a baseline in visitor counts prior to any site improvements. Over time these can be left in situ, or removed but reinstalled at a later date again, or removed and supplemented with infrequent on-site visitor counts to determine any changes in access patterns.

5.3 Sensors require a proportion of UHP time for regular upkeep. This includes regular checks, any repairs or replacement (due to vandalism and theft), and regular (approximately every four/five months) downloading of the data from the sensor.

5.4 Since 2007 sensors a total of 137 sensors have been placed on the SPA or at SANG/HIP sites (including replacements at slightly different locations). Sensors have been installed and some subsequently removed over this period, but total of the data amounts to 736 years of recording.

Categorisation of data

5.5 As already stated for the car parking data, the nature of the different locations will greatly affect visitor use and whether any changes in access are viewed as a cause for concern or not. The same categorisation of locations, as applied for car park count data, has been applied to the sensor data.

5.6 The number of sensors for each location type are given in Table 12 and shown in Map 9.

2019-20 data

5.7 Over the 2019-20 financial year, 52 sensors have been collecting data at some point, which is a reduction from 55 in the previous year. Furthermore, just 52 recorded data and therefore were used in analysis. These overall reductions are line with the

monitoring strategy for a reduced core focus. The locations of these 52 sensors are given in Map 8.

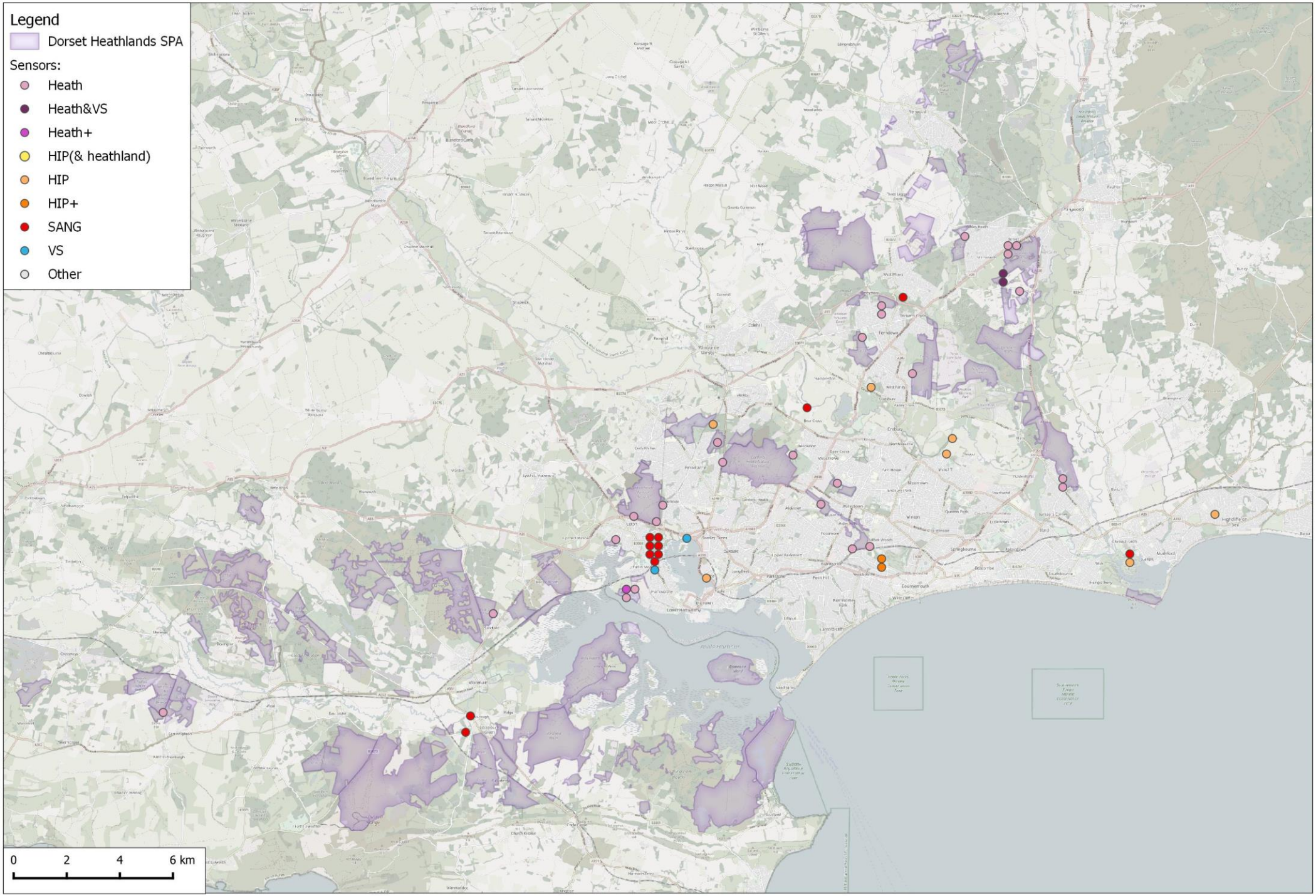
5.8 Just one sensors which were installed this financial year was PCS1, installed on the 17/04/2019.

Table 12: The number of sensors collecting data in the current 2019-20 financial year [52] and in the entire dataset to date [136].

Type of site	Number of sensors in 2019-20 financial year	Number of sensors to date
Heath (only used by those visiting heaths)	26	66
Heath & other locations (provides access to heaths, but also other habitats e.g. woodlands and some other facilities e.g. schools)	1	2
Heath & other / visitor attractions (provides access to heath habitats, but other habitats or visitor attraction facilities; e.g. Moors Valley Country Park)	2	6
HIP (only used by those visiting HIP – may be accessing other greenspaces e.g. Stour Valley. Includes sites that were not named as 'HIP')	7	17
HIP & other facilities (people not using the site or non-related activity) (could provide access to heath/SSSI, but also facilities; e.g. cricket pitches, support land)	2	3
HIP & heathland HIP projects which are adjacent to heathland sites (e.g. Stoborough Heath)	0*	6
Other access types (Castleman Trailway)	0*	17
SANG (only used by those visiting SANG)	12	13
Visitor Attractions (e.g. Upton Country Park, Avon Country Park main car park – may include commuters)	2	6

*no sensors currently in these categories, but these were present in previous years.

Map 8: Distribution of all sensors working at some point in the 2019-20 financial year. Some points have been shifted to avoid overlaps.



5.9 The sensor data is complex, and there are a large number of factors to be accounted for, primarily: the number of sensors in use as sensors are installed/removed, and the patchiness of data as sensors malfunction. In the data presented here, we have conducted preliminary cleaning to remove data which is clearly incorrect. This removes extremely large values, but is not a complete examination of values, as this would require significantly more time than is set aside for annual reporting. It is envisaged robust cleaning would examine the whole dataset to conduct automated checking to remove anomalies which are outside usual ranges or patterns.

5.10 Furthermore, values between sensor types are not directly compared. The raw averages shown depend on the number and composition of different types of locations, and types of sensor. All values would require stricter data cleaning and in addition calibration before values can be compared in this way with confidence.

5.11 This year, the separation of sensors into much smaller groups means the effect of the addition and removal of sensors is magnified. As such presenting certain results using solely cleaned data for the year is often not meaningful due to data gaps. This was particularly notable in the examination of monthly sensor values, which show large variations. Robust examination would require greater data cleaning, and averaging or interpolation based on using the previous year's data.

2018-19 results

5.12 In this year's data the simple cleaning process provides a total of 369,840 cleaned hours of data from 52 sensors. The sensor data, of all datasets presented in this report, are the most difficult to present simply and accurately. The data require more detailed processing (for example incorporating calibration results to give number of people rather than raw passes) before robust results are produced, but a simple overview of average daily number of raw passes is presented by each location Map 9.

5.13 Monthly variation is shown in Figure 12 and presents a different picture to last year and may reflect the issues of using the limited single year of data in this way. Especially with the removal and addition of sensors at varying times over the year. Most notable is the sudden jump from lower values typical in May (2019) to April (2020). This suggests spring 2019 (i.e April/May 2019) had typically lower levels of access than the spring 2020 (i.e. March 2020).

5.14 Overall, it is felt that the current monthly patterns while interesting can provide a misleading picture and should be viewed with some caution, due to the low sample sizes considered for the single year, patchiness of data, and addition/removal of sensors to the database (see n values in figure legends for sample sizes). A more detailed analysis to look at long term changes could certainly examine monthly variation and present a more accurate picture of how use varies across the year.

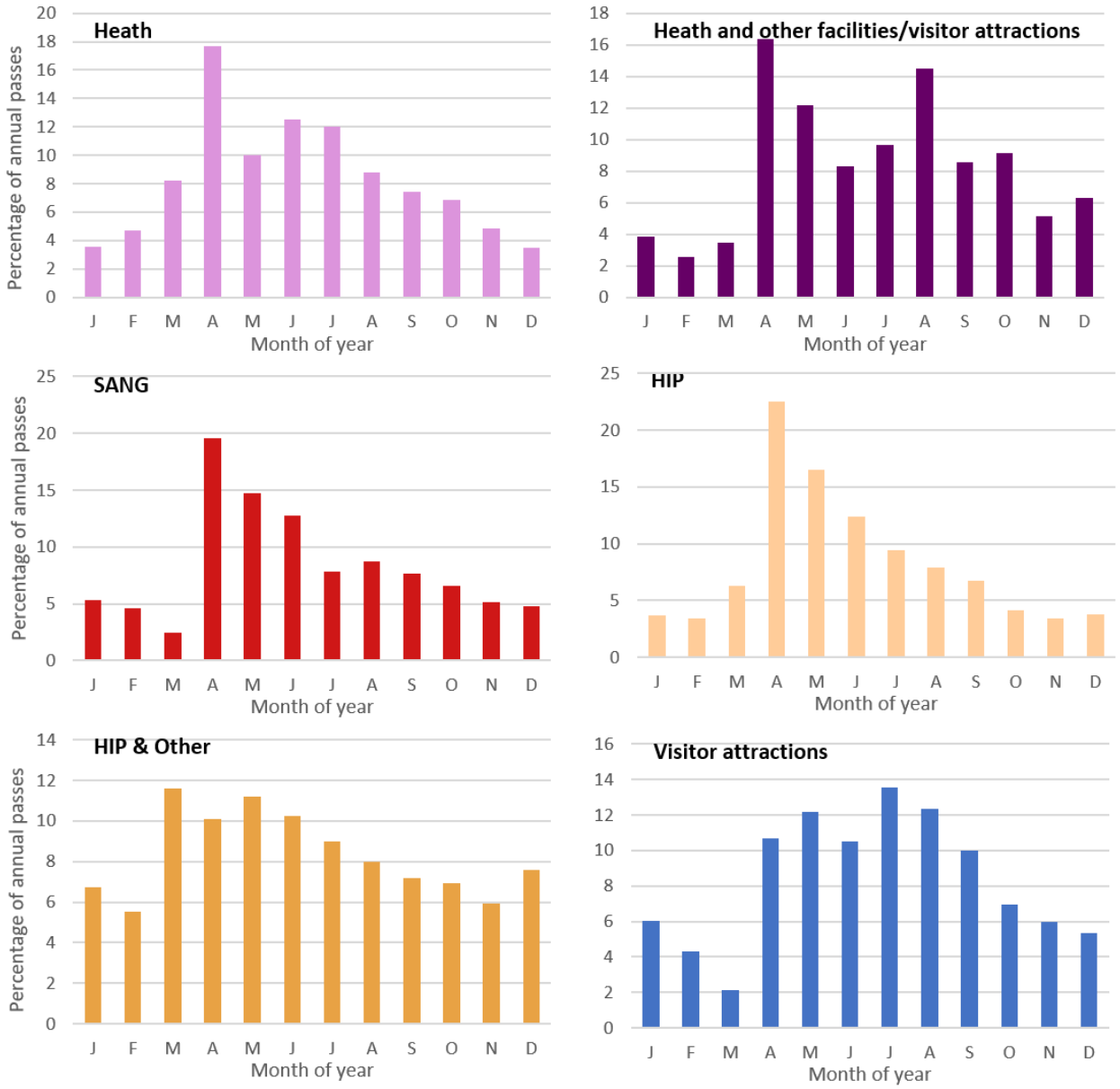


Figure 12: The monthly percentage of passes recorded on average at sensor types, shown heathland sites [n=24], heathland & other sites/visitor attractions [2], HIP sites [6], and HIP & other sites [2] SANG [12], and Visitor attractions [2] (heathland & other sites and HIP & heathland sites only one site for each therefore not shown). The large differences between March and April are due to the change in the year (April to December data from 2019 and January to March data from 2020) so these are not continuous as they appear.

5.15 The raw values have also been used to compare the ratio of weekday to weekend day values at each of the different sensor location types in Table 13. While sample sizes for some sensor types are still low, the examination of multiple weekday / weekend day types resolves much of these issues, providing us with greater confidence in the data. The weekday and weekend day ratio was normally at a similar level to each other

across the different types of locations, and generally to that calculated in the previous year (which can be based on different individual sensors and data gaps). The ratios were generally similar as previous years, although this financial year the visitors at Heathland & Other/Visitor attractions were greater in weekdays than weekends. Conversely, the ratio at HIP sites in the financial years 2019-20 was one of the most uneven ratios with a much higher proportion at weekends.

Table 13: Comparison of raw values of passes per day, calculated as an average for the two types of day; weekday and weekend day. These values are used to compare weekday to weekend day ratios. (HIP & other sites and HIP & heathland sites only one site for each therefore not shown).

	Heathland	HIP	Heathland & Other/Visitor attractions	SANG	Visitor attractions
Number of sensors in 19-20	31	5	2	10	3
Raw average daily values (passes per day)					
Weekday in 19-20	110	124	102	292	195
Weekend in 19-20	139	190	95	446	225
Weekday: Weekend Ratio					
Ratio 19-20	44:56	39:61	52:48	40:60	46:54
Ratio 18-19	45:55	45:55	44:56	43:57	44:56
Ratio 17-18	47:53	42:58	43:57	41:59	41:59
Ratio 16-17	52:48	41:59	44:56	42:58	39:61

5.16 Finally, we have also used the sensor data to examine differences in patterns of use over the day. The limitations with this will be accounting for differences when sensors which were added / removed, or malfunction in a particular season as used and the length of daylight hours differed across the seasons.

5.17 Nevertheless, the results in Figure 13 shows most sites have the same double bell-shaped curve of access patterns across the day (a bimodal distribution). Peaks are usually at 9:00-10:00 and again around 15:00-16:00, however this does differ slightly across the different types of locations. The pattern shown in 2019-20 is typical for sensors and the graphs appear similar to that observed in 2018-19.

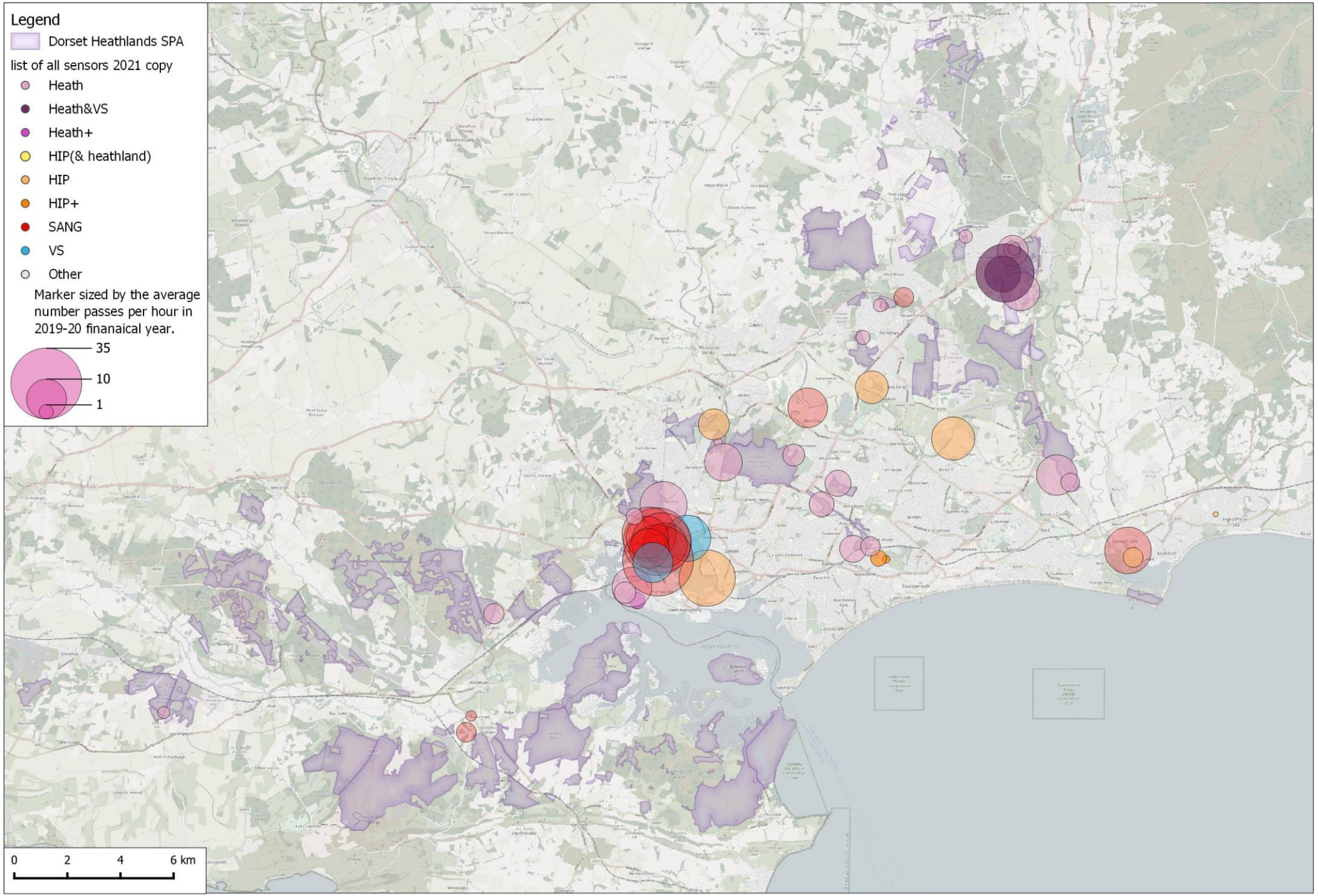
5.18 As in 2018-19 the data for 2019-2020 at heathland sites show some of the most distinct peaks. At heathland sites the peaks are also further apart than many of the other types of locations. Heath and other facilities/visitor attractions are the least

bimodal distribution and more a single peak distribution; this may be the result of different sites and which have different activities with different peaks masking any other distributions.

5.19 Based on these hourly patterns the graphs seen are largely the same as reported in the previous financial year. Although the pattern at visitor attractions site has been variable recently. The visitor attraction sites this year show more a bimodal distribution of access across the day. In 2018-19 the patterns showed a single peak, and the year prior, 2017-18 showed a bimodal distribution. Also, the overall picture for SANG sites this year appears to show less of strong bimodal distribution than has been noted and is more similar to what we sometimes see for visitor attraction (a single peak across the day). This may be due to the inclusion of more Upton Country Park SANG sensors.

Figure 13: Average number of passes recorded across the day for each sensor location shown heathland sites [n=24], heathland & other sites/visitor attractions [2], HIP sites [6], and HIP & other sites [2] SANG [12], and Visitor attractions [2] (heathland & other sites and HIP & heathland sites only one site for each therefore not shown).

Map 9: Distribution of all sensors working at some point in the 2019-20 financial year, with points sized by the average number of passes per hour.



6. Other data

Calendar data

6.1 A continuing record of relevant information which may be important for factors affecting visitor behaviour is recorded and maintained by Footprint Ecology. This data is maintained as a complete calendar, such that it can easily be related to daily information, such as sensors, or for a chosen date such as car park or visitor surveys.

6.2 The current information recorded is weather data and school term times. Weather data is obtained from a weather recording station at Bournemouth airport (EGHH[2]), with available data from 2008. For school term times, these are sourced from Dorset County Council website and are used to detail on every day of the year the term time, half term and school holidays. The calendar is also used to record weekend, weekday and bank holidays so these can be analysed separately.

Visitor data

6.3 Visitors surveys are conducted occasionally in UHP monitoring, as a way of recording both visitor numbers and visitor behaviours, attitudes and thoughts on sites. Current visitor surveys focus on SANGs, which are usually required to have visitor monitoring. The current timetable for surveying is set out in Table 14, although it should be noted these are not rigid dates and can shift depending on availability of resources, works at sites, or new sites/developments in the wider area.

6.4 In the 2019-20 financial year face-to-face interviews by UHP staff were conducted over 80 hrs at the following sites:

- Canford Park (SANG) - 16 hrs.
- Iford Meadows & Playing Field HIP- 32 hrs.
- RiversMeet SANG (report by Footprint Ecology as part of capacity estimates) - 32 hrs.

6.5 Visitor surveys in the 2019-20 financial year will aim to include a number of sites (as detailed in Table 14). However, the coronavirus pandemic may mean that few surveys are able to be conducted and will have to be detailed.

6.6 It is important to state that these are targets and will be depending on UHP staffing, and other priorities. There is no formally required visitor surveying at HIP sites, and

these are only conducted for interest, and timings are therefore considered more flexible.

Table 14: Details of completed and future planned surveys at existing or soon to be completed SANGs and HIPs which have visitor survey monitoring. The timing is a requirement of some SANGs, and is not fixed, but forms a useful suggested framework for other sites.

	Pre-works (if existing access)	On opening (post works)	Second Round	Third Round
Year from opening	-1	0	2-3	5
Potterne (HIP)	**2010**	**2011**	**2012**	2015
Woolslope (SANG)	**2012/13**	**2013/14**	**2015-17**	2018/19
BytheWay (SANG)		**2012/13**	**2015/16**	**2017/18**
Stanpit Recreation Ground (HIP)	**2015**	**2016**	**2018/19**	2021
Upton Country Park P1 (SANG)		**2015**	**2018**	2020
Upton Country Park P2 (SANG)		**2018**	2020/21	2023
Upton Country Park P3/4 (SANG)		2020	2022/23	2025
Bog Lane (SANG)		**2017**	2019/20	2022
Frenches Farm (SANG)		**2018**	2020/21	2023
Canford Park (SANG)		**2019**	2021/20	2024
Two Rivers Meet SANG		**2019**	2021/20	2024
Iford Meadows & Playing Field HIP		**2019**	2021/20	2024
Stourview (Leigh Road) SANG	**2018**	2020	2022/23	2025
Holmwood SANG		2020	2022/23	2025
Dogdean SANG		2020	2022/23	2025
Edmonsham Road SANG		2020	2022/23	2025
Cherry Tree SANG		2021	2023/24	2026

*completed surveys are shown in bold. Many forthcoming surveys have been delayed due to the coronavirus pandemic.

Dorset Heaths Visitor Surveys

6.7 During the 2019-2020 financial year, a visitor survey was conducted jointly by Urban Heaths Partnership Staff and Footprint Ecology on the designated heathland sites in summer 2019. These have been a significant undertaking for UHP staff – a total of the 366 hours of UHP time from the 552 hours of fieldwork conducted in summer 2019. The results of these visitor surveys were written up as a separate report (see Panter & Caals, 2020a).

7. Recommendations

7.1 There are several ongoing recommendations from the previous year's report (Panter & Caals, 2020b) and some outstanding long-term advice from the latest monitoring protocol (see Panter & Liley, 2017).

7.2 The following are ongoing action points, which have been highlighted again from the data presented in this report:

1. It is important to ensure all car parks are surveyed. The coverage of surveying can sometimes be very variable last year the data quality was good, the year previous (16-17) included some missing data and this year there appears to be some missing data. Any data gaps greatly reduce the usefulness of the data, not only for that day, but across the whole year, and all other car parks. Locations which are missed need to be explicated stated, so these are not taken as zero counts.
2. Car parking locations are currently being audited and boundaries explicitly mapped. This was started in the previous year and is still ongoing as it is not that quick an exercise, but can be conducted relatively infrequently to monitor long-term changes in spaces, facilities, charging etc. This would ideally be for a moment in time (e.g. completed in a single year), such that it is a snapshot in time, rather than an ongoing exercise. Collating this data for the first time is a longer exercise, but future audits should be simply updating the information and so should be completed in a short time frame (e.g. completed in a year) and become quicker. This should remain a priority as an understanding of charges and manipulating car parks and facilities is an important way to manage access.
3. A second round of the data calibrations has not yet been examined and should be conducted to ensure data quality (presently these have not been used in detailed analysis of sensor data, due to insufficient calibrations for some sensors and a lack of calibrations for new sensors).
4. Overall continued partnership working with regards to monitoring of fires and incidents, car park counts, maintaining and notifying UHP of sensor issues and new mitigation measures and SANG projects.

7.3 Throughout this report it has been stated that detailed analysis of trends is beyond the scope of the annual reporting (in particular with reference to car park counts and sensor data). Most data within this report are the raw data values and do not account for some limited annual variations in methodology (number of parking locations, types of sensors, calibration of sensors etc). At the time of writing, a detailed analysis of these different datasets, considering change over time and comparing between datasets is being undertaken. This report will have its own set of recommendations resulting from the more detailed analysis of the data which is presented annually here.

7.4 Finally, it is worth noting that the coronavirus pandemic will significantly alter access at heathland and SANG sites over the next coming financial year and likely beyond this. Some changes are short term (i.e lockdowns) and others may be longer term changes

in people's daily life (i.e. working from home, local people discovering new sites, more domestic holidays by visitors from outside Dorset to the area). Recording of the changes in coronavirus restrictions is recorded by Footprint Ecology. Changes in peoples behaviours is more difficult, but has been attempted by UHP, with support from Footprint Ecology, using an online questionnaire conducted in spring 2020 (UHP Open Space Covid-19 Survey). Such approaches could be considered in the longer term to consider the changing landscape of visitor attitudes.

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