



# **New Forest Wintering Hen Harrier Survey Report 2018/19**

Higher Level Stewardship Agreement

The Verderers of the New Forest

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## 1. EXECUTIVE SUMMARY

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- a. Hampshire Ornithological Society (HOS) was commissioned after tender in September 2018 by the then Forestry Commission but now Forestry England to undertake a survey of wintering Hen Harriers on land covered by the New Forest Higher Level Stewardship Scheme and New Forest Crown Lands on behalf of its partners within the New Forest (HLS) scheme.
- b. Volunteers with experience in the identification of Hen Harriers were sought from HOS's 2000+ members and around 30 individuals agreed to participate in the survey. An agreed set of 22 past roosting locations were surveyed on a regular basis throughout the period October 2018 to March 2019. Those sites used in the period 2012-2017 were checked on six dates spaced evenly, while those used prior to 2012 were checked on two (occasionally three) dates. Although it was not a requirement of the contract, HOS volunteers agreed to survey the most productive roost on a daily basis throughout the period.
- c. Survey methodology followed that used by the BTO Wintering Hen Harrier Survey. Once the programme of fieldwork had been completed, data were analysed to determine the number of wintering Hen Harriers in the New Forest.
- d. The analysis showed that only three Hen Harriers used the New Forest in the winter of 2018/19 and all of these were using one roost in the north of the Forest where volunteers had offered to undertake daily coverage.
- e. Comparisons with previous surveys would indicate that the wintering population of Hen Harriers within the New Forest has decreased in the last ten years but has remained reasonably stable in the last three years. This decline comes at a time when the UK breeding population of Hen Harriers has decreased, although wintering numbers at some sites in Wiltshire and Dorset have remained stable.

- f. The data compiled provides an accurate assessment of the current wintering population of Hen Harrier in the New Forest and provides the appropriate detail to inform future surveys of Hen Harrier within the New Forest.
- g. It also explores the basis upon which to analyse factors influencing the wintering population and distribution of Hen Harriers within the New Forest.

## 2. INTRODUCTION

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- a. A ten year Higher Level Stewardship Scheme (HLS) was awarded to the New Forest in February 2010. The scheme is granted by the Department for Environment, Food and Rural Affairs (Defra) through Natural England to the New Forest Verderers under a partnership with the Forestry Commission (now Forestry England) as landowners and the New Forest National Park Authority (NFNPA). In the case of the New Forest, whilst the Crown Lands are managed by the Forestry England (FE), the Verderers have statutory rights conferred under the New Forest Acts to administer the grazing and commoning rights and are legally and financially responsible for the delivery of the scheme. The delivery of works funded under HLS is overseen by a Board from the chief executives of the Partners and representatives from key stakeholders.
- b. As part of the HLS agreement there is a requirement to undertake surveys for bird species for which the New Forest Special Protection Area (SPA) is designated. The HLS Board agreed the requirement for delivery of a survey of wintering Hen Harriers (*Circus cyaneus*) in the 2018/19 winter in line with the methodology used for the BTO Wintering Hen Harrier Survey.
- c. Hampshire Ornithological Society (HOS) was commissioned by Forestry England following successful tender, on behalf of its partners within the New Forest HLS scheme, to undertake a survey of wintering Hen Harriers on land covered by the HLS scheme.
- d. This report describes the methods used to determine the range and density of wintering Hen Harriers within the New Forest and evaluates the findings of the survey. Accordingly, this report also provides an analysis of the survey information including the status of the population compared to previous local and national studies.

- e. It also explores the potential factors which may be affecting the distribution and density of Hen Harriers within the study area.

### **New Forest Designations**

- a. The New Forest is covered by both national and international wildlife site designations. It is classified as a Special Protection Area (SPA) for its breeding and overwintering bird species of European importance, in accordance with the European Birds Directive (Directive 2009/147/EC on the conservation of wild birds [codified version]).
- b. In 2005 it was also designated a Special Area of Conservation (SAC) for eleven Annex 1 habitats and three non-avian species of European importance, the Stag beetle (*Lucana cervus*), Great crested newt (*Triturus cristatus*) and Southern damselfly (*Coenagrion mercuriale*) in accordance with the European Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora). The European Directive requirements, ensuring the protecting of European wildlife sites, are transposed into UK law by the Conservation of Habitats and Species Regulations 2010.
- c. The New Forest Site of Special Scientific Interest (SSSI) designation covers nearly 29,000 hectares following a revision of boundaries in 1996 and is the national wildlife designation underpinning the European site designations and recognises the wider national scientific and biodiversity value of the New Forest.
- d. The New Forest is also listed as a Ramsar site, under the Ramsar Convention, for its importance as a wetland, supporting flora and fauna of international importance.



Male Hen Harrier (photograph by Martin Bennett)

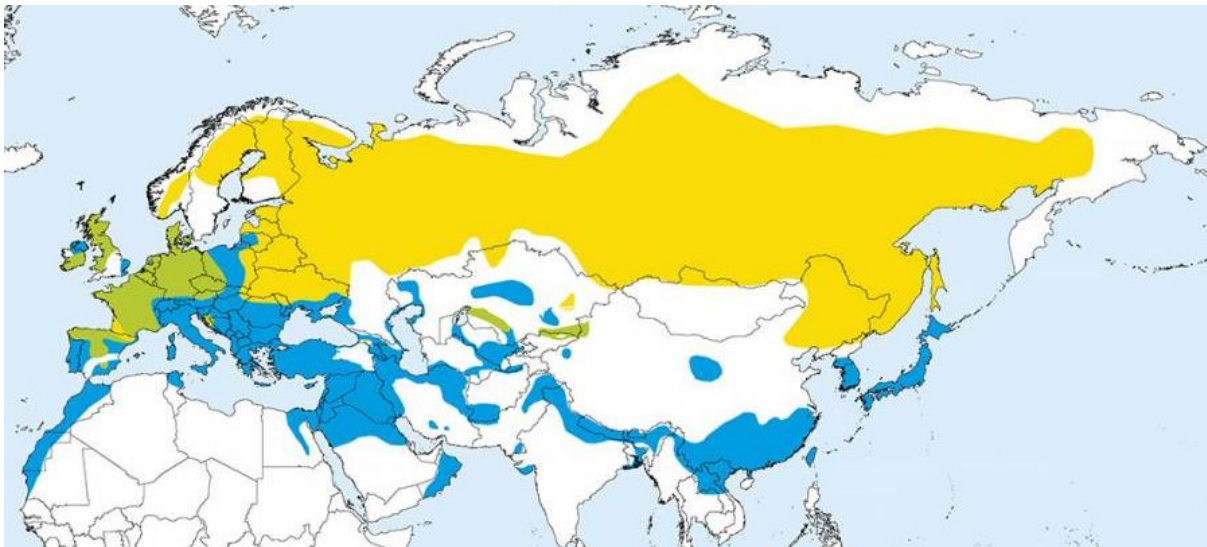


Female or immature Hen Harrier (photograph by Martin Bennett)

### 3. HEN HARRIER DISTRIBUTION AND ECOLOGY

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- a. The Hen Harrier has a global range that lies in Europe and northern Asia east to the Russian Far East. It winters from Europe and north-west Africa east through Turkey and the Middle East to south-east China, Korea and Japan (Cramp et al 1980). It is monotypic, although originally the form in North America was included within the species before being split as a new taxon, the Northern Harrier.

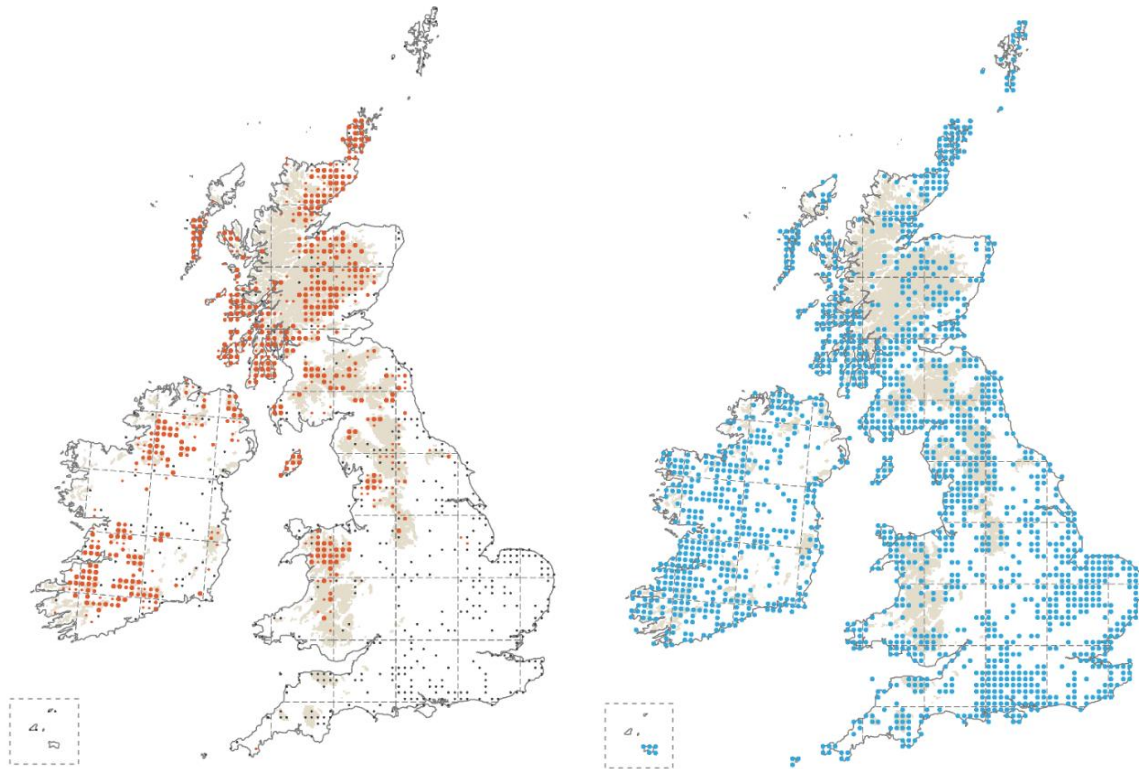


Hen Harrier world distribution (reproduced from *Handbook of the Birds of the World*, Lynx Edicions)

- b. Hen Harriers are widely distributed across Europe. Within Europe the largest proportion of breeding birds is in Russia. Despite recent increases in France, numbers in most European countries are said to be falling. (Hagemeijer & Blair 1997)
- c. Hen Harriers were once more widespread in the UK than they are now. The species became extinct in mainland Britain during the 19th century, due largely to persecution and land use change (Watson 1977). After the Second World War, they re-colonised much of their previous upland range, benefitting from new wildlife legislation, a reduction in game-keeping, and the development of new forest plantations in many upland areas (Bibby & Etheridge 1993). However, between 2004 and 2010 there



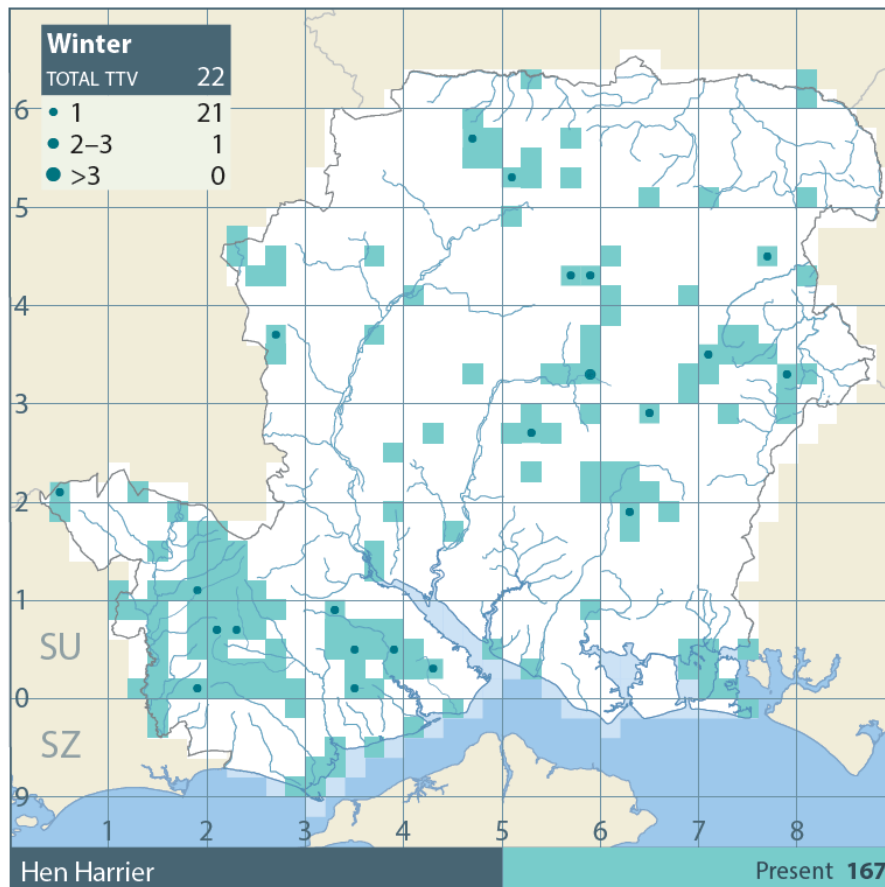
was a 20% decline to 617 pairs and this has now declined further to 575 pairs in 2016 (Holling 2018). In England the breeding population declined to just one pair in 2012, although work by conservation organisations has resulted in some increases and in 2019 a total of 15 pairs bred and fledged 47 chicks.



Hen Harrier UK and Ireland distribution (red = summer, blue = winter)  
(Reproduced from *Bird Atlas 2007-11*, BTO)

- d. The continuing conflict between Hen Harriers and grouse moor managers means that there is considerable discussion about the species and it has become an icon for those lobbying for the licencing of grouse moors. In 2019 Natural England initiated a brood management programme involving the removal of Hen Harrier eggs and/or chicks from nests to a dedicated hatching and rearing facility, where they are hand-reared in captivity. They are then transferred to specially-constructed pens in suitable breeding habitat, from which they are then re-introduced into the wild in the uplands of northern England.

- e. Hen Harriers move to more lowland areas in the winter including coastal marshes and heathland. In these areas they use communal roosts overnight. These roosts are different to those used by most raptors because they are situated on the ground, amongst rank vegetation. Work by the late Roger Clarke in East Anglia showed that Hen Harriers roost individually in gaps in the vegetation and on flattened patches or tussocks, often within a few metres of each other, but sometimes much further apart. Apparently they gain no warmth from each other, but the choice of terrain and vegetation at sites seems to be governed, at least partly, by considerations of shelter. Hen Harriers roost in a variety of open habitats. About half of the sites found in the UK are on fresh or salt marsh in reed, sedge, rush, grass or other rank vegetation. Other sites are on dry rough grassland, in heather on lowland heath or heather moor, and occasionally in dunes, young conifer plantations and crops. Roosts of up to thirty or more birds have been recorded, but they usually comprise just a few birds and even single birds persist in using the same sites. Approaching the site from about 45 minutes before sunset, the birds will often fly about near the roost. A fresh wind is often used for soaring about in the vicinity. At other times, especially in rain or when there is little wind to assist flight, birds may arrive and roost immediately. Hen Harriers leave their roost from about 30 minutes before sunrise, occasionally settling to preen before flying out of the area. In East Anglia they are known to travel quite a distance from the roost site during the day; the maximum published distance is 16 kilometres.
- f. In the 1950s and 1960s, the number of Hen Harriers recorded per winter in Hampshire only once exceeded ten. From 1973/74-77/78, the annual total was between ten and 15, but a large influx into England during the severe winter of 1978/79 produced around 40 in Hampshire (Davenport 1982). Subsequently, until the early part of the 21st century the wintering population was usually between 15 and 20 with more in severe winters. Since then there has been a dramatic reduction across all regularly used sites.



Hen Harrier distribution in Hampshire in winters 2007/08 to 2011/12 (reproduced from *The Hampshire Bird Atlas*, Hampshire Ornithological Society)

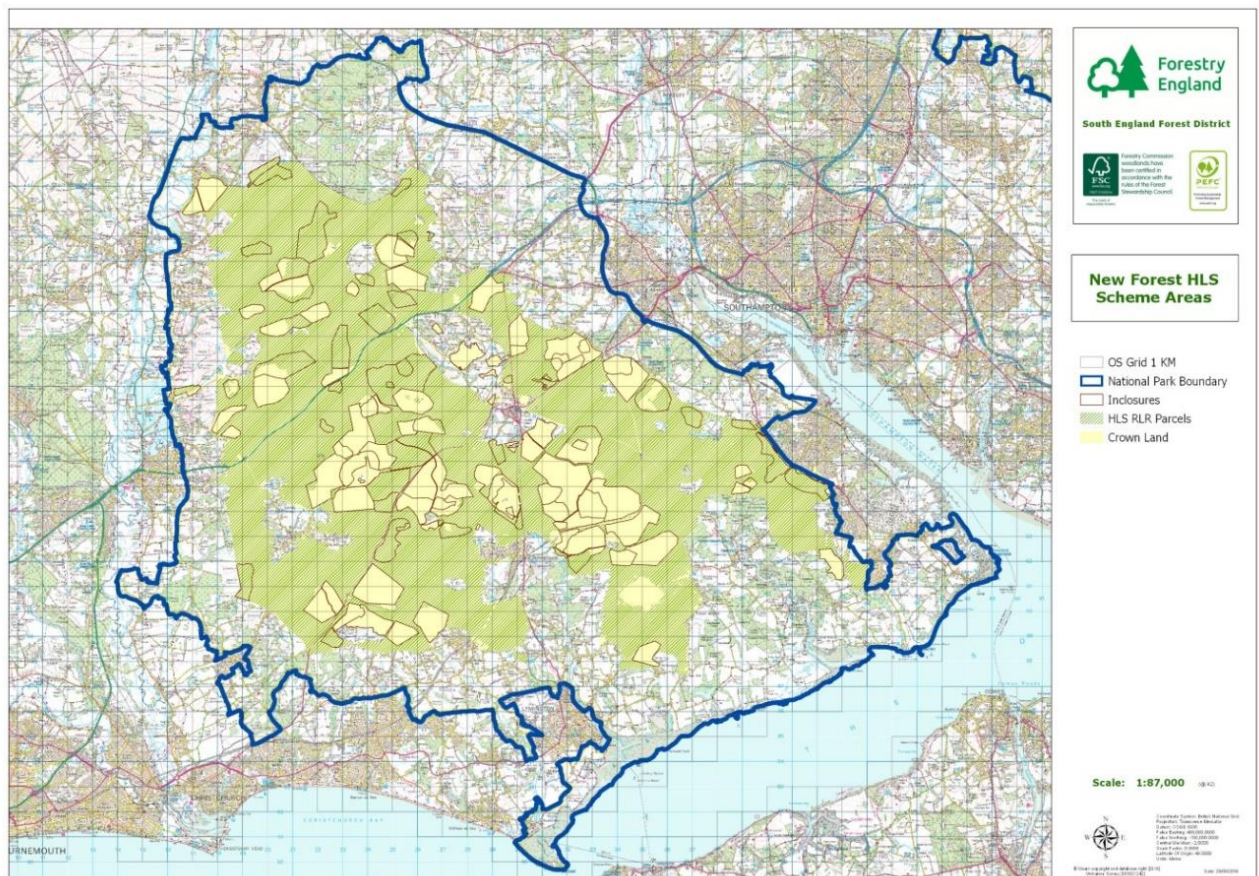
- g. From the late 1970s until the mid-1980s, the wintering population in the New Forest was in the range 12-20 birds, but subsequently it fell to 8-12. Several roosts usually held up to four birds, although a maximum of eight was recorded. Counts for the Hen Harrier Winter Roost Survey from 1983/84-90/91 found that 52% at roost were adult males, compared to 37% for England as a whole. As an unknown number of harriers in brown plumage are first-winter males, the percentage of males will be greater in each case. Poor mammal populations in the New Forest may be limiting the numbers of female harriers which, being heavier and less agile than males, are less well adapted to take small passerines, the prey most readily available. Large samples of pellets collected have revealed lizards, seven species of mammals and 32 species of birds. At the time of the analysis the number of bird species recorded in pellets was higher than for any other site studied in England (Clarke & Combridge, unpublished).

## 4. METHODS

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- a. Volunteer observers were allocated recent and former Hen Harrier wintering sites to survey. They were asked to arrive no later than two hours before sunset and take up a position that allowed the area to be observed easily. Survey dates were allocated between 1 October and 31 March.
- b. Recording sheets showing the roost location were provided and observers were asked to note the arrival or departure of any Hen Harriers as well as other raptors. The weather conditions were noted, along with possible disturbance factors such as walkers, cyclists, horse-riders and airborne activities such as helicopters and microlights.
- c. All sightings and returned survey forms were then collated.
- d. An assessment was then made by Keith Betton as to the probable number of wintering birds.

New Forest HLS area (green) within the larger New Forest National Park boundary (blue)



## 5. RESULTS

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- a. About 30 volunteer surveyors completed survey visits to each of the twenty-three recent and former roost sites. Surveys were undertaken on six dates at sites where birds had been known to roost at least once between 2007-2012, and on two or three dates at roost sites only used prior to 2007. At one recent roost site coverage was maintained daily from 1 October to 5 April at no extra financial cost to the survey.
- b. The wintering population of Hen Harriers recorded from the entire New Forest National Park area surveyed in 2018/19 was three birds – made up of two males and one female/immature. It is possible that different individuals were involved through the winter, but three was the maximum recorded at any one time. All of these birds roosted at the same site – Site 1.
- c. The location of all recent and former roosts visited during the survey of wintering Hen Harriers in 2018/19 is provided together with the number of birds seen. The only site found to support a Hen Harrier roost was Site 1. This was the site where HOS volunteers maintained a daily watch from October to early April. Only two other Hen Harrier sightings were made during the scheduled counts – one at Site 7 on 21 October 2018 when a male was seen hunting, but did not roost. Close ground-level examination of this area in detail did reveal Hen Harrier pellets (regurgitated material) in one small area of heather suggesting strongly that roosting had taken place at other times, but extra observation shifts allocated to this area over the next week did not reveal any Hen Harriers at all. The second on 18 November 2018 a ring-tail was seen at Site 8 but the bird did not roost there.





Hen Harrier pellets (photograph by Tara Dempsey)

- d. Observers were asked to note any disturbances during their scheduled watches, and these were few in number. Understandably the known past Hen Harrier roosts areas are all away from places where there is regular disturbance. However there were a number of instances where people out walking or exercising their dogs left the marked paths to make short-cuts across the roost areas.
- e. Similarly at Site 1 there were occasional visits by birdwatchers and photographers who stood too close to the roosting areas. It was noticed that such incursions occurred after news of recent sightings appeared on HOS's Goingbirding sightings noticeboard, and so action was taken to

block Hen Harrier sightings near to roosting areas and this problem was reduced.



## 6. DISCUSSION

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### **Sources of disturbance at Hen Harrier roosts in the New Forest**

The two main sources of disturbance noted were mainly the presence of walkers, runners or dog-walkers, and on a very small number of occasions low-flying helicopters or microlites.

As has been stated previously, the known historical Hen Harrier roost sites are all in relatively secluded areas, although most are within a 5-minute walk of marked footpaths. Of the historical sites just one (Wilverley) is in an area where people regularly walk in significant numbers.

We have witnessed very few cases where people or dogs have actually flushed Hen Harriers from a roost, but clearly the potential for this to happen exists when people walk off the marked paths. For that reason cyclists and horse-riders keeping to marked paths rarely causes problems. However the HOS survey team occasionally noted people walking on paths adjacent to roosts in the last 30 minutes before sunset which is usually the time when Hen Harriers would be likely to arrive. We have witnessed Hen Harriers arriving in an area being used by people and then moving on rather than roosting, and this may have been in response to the human presence.

At Site 1 there is a long history of Ministry of Defence helicopter training exercises. In the winter of 2010/11 there were numerous helicopter training exercises close to the Hen Harrier roosting area and after the intervention of the New Forest National Park Authority and Forestry Commission an “avoid” area of 0.25 nautical mile radius of a point was agreed for the winter of 2011/12. This remained in place annually from 1 October to 31 March and was increased in size to a radius of 0.5 nautical miles at a point further east with effect from 2017/18 following the intervention of Natural England. This new avoid zone provides excellent protection for the roosts from low-flying helicopters, although each winter there is at least one breach of this in error. Forestry England has been excellent at following up on any breaches.

## Origins of the New Forest wintering birds

It has been assumed by some studies that Hen Harriers wintering in the New Forest have originated from the breeding grounds in the UK (Dobson et al 2012). Only two ringed Hen Harriers have ever been detected in Hampshire – and both carried wing tags. These were a male ringed as a nestling in Perth and Kinross in 1990 which was seen at Farlington Marshes in the September of that year, and a female nestling ringed in Aberdeenshire in 2015, later seen at Titchfield Haven that October.

Over 12,500 Hen Harriers have been ringed in the UK since 1937 which is many more than in other European countries (Wenham et al 2002), so this may bias the recoveries data – not least as over 1000 UK Hen Harrier chicks have been fitted with highly visible wing tags. 1093 Hen Harriers have been ringed in the UK since 2015. Analysis of ringed Hen Harriers being seen in the counties of central/southern England up to 2019 shows 37 out of 48 being UK-ringed birds.

## Known source of Hen Harriers wintering in southern and central English counties up to 2019 based on ringing (BTO data)

	BEL	NL	NO	FI	SW	UK	ORIGIN IF UK
Berkshire (1)						1	Highland
Cornwall (1)						1	Perth & Kinross
Dorset (4)						4	NE Scotland (2), Cornwall, Argyll
Devon (2)						2	Highland, Powys
Essex (2)		1				1	Perth & Kinross
Hampshire (2)						2	NE Scotland , Perth & Kinross
Isle of Wight (1)						1	Lancashire
Hertfordshire (1)						1	Orkney
Kent (8)		1	1	1		5	Borders (2), Montgomeryshire, Moray & Nairn, Perth & Kinross
Lincolnshire (5)		1			1	3	Dumfries & Galloway, Lancashire, NE Scotland

Norfolk (15)	1	1				13	Denbighshire (2), Dumfries & Galloway, Lancashire (3), Northumberland, Orkney (4), Perth & Kinross
Northamptonshire (1)						1	Orkney
Suffolk (3)		3					
Sussex (3)	1					2	Clyde, Sutherland
	<b>2</b>	<b>6</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>37</b>	

It is important to note that in Wiltshire there have been several sightings of wing-tagged birds from Wales but these do not appear in the BTO data. Similarly a bird from Wales and seen in Dorset is not in the data either. The table does not include information from birds carrying satellite transmitters.

Since 2007 Natural England has fitted juvenile Hen Harriers in north-west England with satellite transmitters. Only one of their 54 satellite-tagged birds has visited the New Forest in that time. This was in November 2016 when a juvenile male (named Mick) spent a week in the area before moving north to Yorkshire - where transmissions ceased.

The RSPB has also attached satellite-tags to juvenile Hen Harriers in Scotland and one of these birds (named Vulcan) visited the New Forest in September 2018 before moving to Wiltshire – where again transmissions ceased.

### **The New Forest wintering Hen Harrier population in a national context**

Examining the UK wintering population data is fraught with difficulties. The BTO Wintering Hen Harrier Survey monitors a small selection of roosts across England and Wales on the middle Sunday of each month from October to March. As has been shown through daily roost monitoring, birds are often absent for several days at a time so this “snapshot” method can only really be used on a regional or national scale. The Hampshire and New Forest data within the BTO sample will inevitably tend to under-represent the true numbers of birds present. For example, in 2018-2019 the maximum number of Hen Harriers roosting in the New Forest on the BTO’s survey dates in December and January was one, when in fact there were up to three birds roosting at times. Similarly

there were three birds at various times in March 2019, but the BTO date coincided with a day when none were present.

Although the BTO results have not been published we have obtained summary information. The number of roosts surveyed has varied in different years and this survey only represents a percentage of the sites being used.

The chart below shows the BTO roost data for the winter of 2018-2019. However this is only a small percentage of the actual wintering population in England and Wales.

#### Season 2018-2019

	<b>O</b>	<b>N</b>	<b>D</b>	<b>J</b>	<b>F</b>	<b>M</b>
Central England	0	0	0	0	0	0
East England	4	3	5	5	3	6
North England	1	1	0	1	3	2
South & SW England	12	20	29	26	21	24
Wales	0	3	2	4	2	1
Grand Total	<b>17</b>	<b>27</b>	<b>36</b>	<b>36</b>	<b>29</b>	<b>33</b>

**New Forest (BTO)**      0      2      1      1      2      0

**New Forest (Actual)**    3      2      3      3      3      3

We have also obtained the BTO count data for South and South-West England for a period of 11 winters. Note that the number of count locations varied between years and data was only recorded on one pre-arranged date per month, so will under-represent the actual numbers using monitored roosts.

<b>South &amp; SW England</b>	<b>O</b>	<b>N</b>	<b>D</b>	<b>J</b>	<b>F</b>	<b>M</b>	<b>Av</b>
2008-2009	20	32	34	41	28	31	<b>31</b>
2009-2010	11	23	21	32	31	29	<b>25</b>
2010-2011	3	19	34	45	23	23	<b>25</b>
2011-2012	10	18	31	30	24	26	<b>23</b>
2012-2013	13	18	37	19	40	22	<b>25</b>
2013-2014	8	11	25	24	23	17	<b>18</b>
2014-2015	7	15	18	22	19	15	<b>16</b>
2015-2016	9	24	24	19	28	21	<b>21</b>
2016-2017	9	14	11	15	21	26	<b>16</b>
2017-2018	10	15	20	26	15	11	<b>16</b>
2018-2019	12	20	29	26	21	24	<b>22</b>

What this table shows is that in the last decade there has been a decline in the number of Hen Harriers wintering in South & South West England across the sites monitored by the BTO.

The benefit of daily monitoring is that it increases our chances of understanding how often roosts are used, and by how many birds. Hen Harriers do switch between roost sites and with such low numbers now, the chance of them not being present for weekly or monthly count dates. This results in under-reporting of the wintering population, particularly in the early and late months of the winter. Daily monitoring also gives a better idea of the actual number of birds using the area. For example, at Site 1 between 17-20 February 2019, the roost areas were used by 0, 1, 2 and 3 birds on four different nights.

Further daily monitoring is important if we are to understand how many birds are using the New Forest roosts. In 2019/20 HOS arranged daily monitoring of Site 1 from October to March. In addition monitoring also commenced in parallel at Site L when Hen Harriers were discovered roosting in December. This is being

repeated in the winter of 2020/21. Further details of this additional work will be shared with Forestry England in full at the end of the 2020/21 season.

#### **Maximum counts from the New Forest (Source: HOS records database)**

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
3	5	4	5	4	4	6	3	3	6

The above data should not be taken as absolute numbers roosting at any one time, but indicate the likely number of birds roosting in the area during each year. For example two males in November and two females in December will have been treated at four birds. This data shows that although numbers of birds at these roosts have fluctuated between years, the numbers have not declined overall over the last decade. They are the three main roost areas in southern England.

#### **Suitability of the New Forest for wintering Hen Harriers**

The condition of the New Forest heathlands must have an impact on the willingness of Hen Harriers to roost there. The birds need stands of tall heather to shelter in, and therefore care must be taken when planning to burn areas of heather in the winter months. Co-operation between HOS and FE staff has ensured that known roosts are not burned. Although some people have informally suggested that the past declines in New Forest Hen Harriers were directly related to habitat management we found no evidence of the habitat being unsuitable.

There are many factors at play. Firstly, increasingly mild winters have occurred in Europe over the last 30 years and it is likely that continental Hen Harriers now have less need to visit the UK to avoid very cold conditions and find food. The same may be true of British Hen Harriers that may be inclined to winter closer to their breeding grounds. Certainly the arrival dates of wintering birds has moved back – with the first sightings in 2019 and 2020 not occurring until November.

Although most of the 13 million day visits by people to the New Forest National Park are well away from the Hen Harrier roosts, it only takes a few people to be

visible near to the preferred roost sites to deter birds from landing. The closing of car parks nearest to regular roosts has had a beneficial effect on limiting disturbance and this should continue.

Negotiations with the MOD resulted in the banning of low-flying Army Air Corps helicopters at Site 1 between October and March. Although there are occasional incidents these are few and easily rectified.

The news blackout by HOS on Hen Harrier roost information has greatly reduced the number of birdwatchers who stray too close to the birds and the daily presence of HOS surveyors at Site 1 probably acts as a deterrent to those who might be inclined to disturb the birds in plain view.

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Male Hen Harrier (photograph by Martin Bennett)

## APPENDIX. INDIVIDUAL SITE RESULTS

**SITE VISITED DAILY (Grey = male, Brown = female or immature)**

### SITE 1

Zero counts are not shown in this table to make it easier to see when birds were present.

DATE	GREY	BROWN		DATE	GREY	BROWN
01/10/2018				01/01/2019	1	1
02/10/2018				02/01/2019	1	
03/10/2018				03/01/2019		1
04/10/2018				04/01/2019	1	
05/10/2018				05/01/2019	1	
06/10/2018				06/01/2019		1
07/10/2018				07/01/2019	2	
08/10/2018				08/01/2019		
09/10/2018				09/01/2019	2	
10/10/2018				10/01/2019	2	
11/10/2018	1			11/01/2019		
12/10/2018				12/01/2019	2	1
13/10/2018				13/01/2019	1	
14/10/2018				14/01/2019	1	
15/10/2018				15/01/2019		1
16/10/2018				16/01/2019		
17/10/2018				17/01/2019	1	1
18/10/2018	1			18/01/2019		
19/10/2018	1			19/01/2019	1	

20/10/2018			20/01/2019	1	
21/10/2018			21/01/2019	1	1
22/10/2018			22/01/2019		
23/10/2018			23/01/2019	1	1
24/10/2018			24/01/2019		1
25/10/2018			25/01/2019	1	1
26/10/2018	2		26/01/2019	1	
27/10/2018	2		27/01/2019	1	
28/10/2018	1		28/01/2019	1	1
29/10/2018	1	1	29/01/2019	1	
30/10/2018	2		30/01/2019		1
31/10/2018	1	1	31/01/2019	1	
01/11/2018	2		01/02/2019		
02/11/2018	2		02/02/2019	1	1
03/11/2018	1		03/02/2019	1	1
04/11/2018	2		04/02/2019	1	
05/11/2018	1		05/02/2019		
06/11/2018	1		06/02/2019	2	
07/11/2018			07/02/2019		
08/11/2018	1		08/02/2019		1
09/11/2018			09/02/2019	1	1
10/11/2018	2		10/02/2019	1	1
11/11/2018			11/02/2019		1
12/11/2018			12/02/2019	1	
13/11/2018			13/02/2019		

14/11/2018			14/02/2019	1	
15/11/2018	1		15/02/2019		1
16/11/2018			16/02/2019		
17/11/2018	1		17/02/2019	2	
18/11/2018	2		18/02/2019		1
19/11/2018			19/02/2019		1
20/11/2018	2		20/02/2019	2	1
21/11/2018	2		21/02/2019		
22/11/2018			22/02/2019		
23/11/2018			23/02/2019	1	1
24/11/2018			24/02/2019		
25/11/2018	2		25/02/2019		1
26/11/2018	1		26/02/2019	1	
27/11/2018			27/02/2019	1	
28/11/2018			28/02/2019		
29/11/2018			01/03/2019		
30/11/2018	1		02/03/2019		
01/12/2018			03/03/2019		
02/12/2018			04/03/2019	1	
03/12/2018	1		05/03/2019	1	1
04/12/2018			06/03/2019		
05/12/2018			07/03/2019	1	
06/12/2018			08/03/2019		
07/12/2018			09/03/2019		
08/12/2018			10/03/2019	1	1

09/12/2018			11/03/2019	1	1
10/12/2018	1		12/03/2019	1	
11/12/2018			13/03/2019		
12/12/2018	1		14/03/2019	1	1
13/12/2018	1		15/03/2019	1	1
14/12/2018	1		16/03/2019		
15/12/2018	2		17/03/2019		
16/12/2018	1		18/03/2019		
17/12/2018	2	1	19/03/2019	1	
18/12/2018			20/03/2019	2	1
19/12/2018			21/03/2019	2	1
20/12/2018	1		22/03/2019		
21/12/2018		1	23/03/2019	2	1
22/12/2018	2		24/03/2019		
23/12/2018	1		25/03/2019		1
24/12/2018	1		26/03/2019	1	
25/12/2018	1		27/03/2019	1	
26/12/2018			28/03/2019		
27/12/2018			29/03/2019	1	
28/12/2018	2	1	30/03/2019		
29/12/2018	2		31/03/2019	1	
30/12/2018	2		01/04/2019	1	
31/12/2018			02/04/2019	1	
			03/04/2019		
			04/04/2019		

				05/04/2019	1	
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Each evening any roosting birds would settle at either of two roosting areas. One of these was more frequently used. It is hard to gain a proper understanding of why birds chose particular roosts daily as they sometimes roosted together and sometimes apart. It is known that Hen Harriers sometimes change roost location after dark (according to Roy Dennis based on satellite tracking).

In addition to the afternoon counts there were a number of early morning visits made specifically to see in which general direction the birds departed. In each case the birds departed north, suggesting that their hunting areas are outside of the New Forest – possibly in the downland around the Hampshire / Wiltshire / Dorset borders. Small numbers of Hen Harriers are regularly reported from these areas during the day.

**SITES VISITED MONTHLY (Grey = male, Brown = female or immature)****SITE 2**

DATE	TIME	GREY	BROWN
21/10/2018	1615-1815	0	0
18/11/2018	1415-1615	0	0
16/12/2018	1400-1600	0	0
20/01/2019	1430-1630	0	0
17/02/2019	1530-1730	0	0
17/03/2019	1615-1815	0	0

**SITE 3**

DATE	TIME	GREY	BROWN
21/10/2018	1615-1815	0	0
18/11/2018	1415-1615	0	0
16/12/2018	1400-1600	0	0
20/01/2019	1430-1630	0	0
17/02/2019	1530-1730	0	0
17/03/2019	1615-1815	0	0

**SITE 4**

DATE	TIME	GREY	BROWN
21/10/2018	1615-1815	0	0
18/11/2018	1415-1615	0	0
16/12/2018	1400-1600	0	0
20/01/2019	1430-1630	0	0
17/02/2019	1530-1730	0	0
17/03/2019	1615-1815	0	0

**SITE 5**

DATE	TIME	GREY	BROWN
21/10/2018	1615-1815	0	0
18/11/2018	1415-1615	0	0
16/12/2018	1400-1600	0	0
20/01/2019	1430-1630	0	0
17/02/2019	1530-1730	0	0
17/03/2019	1615-1815	0	0



**SITE 6**

DATE	TIME	GREY	BROWN
21/10/2018	1615-1815	0	0
18/11/2018	1415-1615	0	0
16/12/2018	1400-1600	0	0
20/01/2019	1430-1630	0	0
17/02/2019	1530-1730	0	0
17/03/2019	1615-1815	0	0

**SITE 7**

DATE	TIME	GREY	BROWN
21/10/2018	1615-1815	1	0
18/11/2018	1415-1615	0	0
16/12/2018	1400-1600	0	0
20/01/2019	1430-1630	0	0
17/02/2019	1530-1730	0	0
17/03/2019	1615-1815	0	0

**SITE 8**

DATE	TIME	GREY	BROWN
21/10/2018	1615-1815	0	0
18/11/2018	1415-1615	0	1
16/12/2018	1400-1600	0	0
20/01/2019	1430-1630	0	0
17/02/2019	1530-1730	0	0
17/03/2019	1615-1815	0	0

**SITE 9**

DATE	TIME	GREY	BROWN
21/10/2018	1615-1815	0	0
18/11/2018	1415-1615	0	0
16/12/2018	1400-1600	0	0
20/01/2019	1430-1630	0	0
17/02/2019	1530-1730	0	0
17/03/2019	1615-1815	0	0

**SITE 10**

DATE	TIME	GREY	BROWN
21/10/2018	1615-1815	0	0
18/11/2018	1415-1615	0	0
16/12/2018	1400-1600	0	0
20/01/2019	1430-1630	0	0
17/02/2019	1530-1730	0	0
17/03/2019	1615-1815	0	0

**SITE 11**

21/10/2018	1615-1815	0	0
18/11/2018	1415-1615	0	0
16/12/2018	1400-1600	0	0
20/01/2019	1430-1630	0	0
17/02/2019	1530-1730	0	0
17/03/2019	1615-1815	0	0

**SITES VISITED BI-MONTHLY (Grey = male, Brown = female or immature)**

**SITE 12**

07/10/2018	1630-1830	0	0
23/12/2018	1400-1600	0	0
10/03/2019	1600-1800	0	0

**SITE 13**

DATE	TIME	GREY	BROWN
14/10/2018	1615-1815	0	0
30/12/2018	1415-1615	0	0
17/03/2019	1615-1815	0	0

**SITE 14**

DATE	TIME	GREY	BROWN
21/10/2018	1600-1800	0	0
06/01/2018	1415-1615	0	0
24/03/2019	1630-1830	0	0

**SITE 15**

DATE	TIME	GREY	BROWN
28/10/2018	1615-1815	0	0
13/01/2018	1400-1600	0	0
31/03/2019	1730-1930	0	0

**SITE 16**

DATE	TIME	GREY	BROWN
04/11/2018	1430-1630	0	0
20/01/2018	1430-1630	0	0

**SITE 17**

DATE	TIME	GREY	BROWN
11/11/2018	1430-1630	0	0
27/01/2018	1400-1600	0	0

**SITE 18**

DATE	TIME	GREY	BROWN
18/11/2018	1415-1615	0	0
03/02/2018	1500-1700	0	0

**SITE 19**

DATE	TIME	GREY	BROWN
25/11/2018	1415-1615	0	0
10/02/2018	1515-1715	0	0

**SITE 20**

DATE	TIME	GREY	BROWN
02/12/2018	1400-1600	0	0
17/02/2018	1530-1730	0	0

**SITE 21**

DATE	TIME	GREY	BROWN
09/12/2018	1400-1600	0	0
24/02/2018	1530-1730	0	0

**SITE 22**

DATE	TIME	GREY	BROWN
16/12/2018	1400-1600	0	0
03/03/2018	1545-1745	0	0