



New Forest Waders Survey 2025

Higher Level Stewardship Agreement
The Verderers of the New Forest
AG00300016

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Curlew, Snipe, Lapwing and Redshank © Rob Porter



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Contents

SUMMARY	4
1 INTRODUCTION	4
1.1 The New Forest's designations	4
1.2 The Higher Level Stewardship Scheme	5
1.3 Breeding wader ecology	5
1.4 Monitoring wader populations in the New Forest.....	6
2 METHODS.....	6
2.1 The area surveyed	6
2.2 Verification through additional observations	7
2.3 Survey methodology	7
2.4 Volunteer training and support	8
2.5 Determination of territories.....	8
3 RESULTS	9
3.1 Breeding population estimates.....	9
3.2 Breeding distribution and density	10
4 DISCUSSION	22
4.1 The international and national picture	22
4.2 Warm, dry weather.....	22
4.3 Survey effort	23
4.4 Curlew – declining.....	24
4.5 Lapwing – surviving at a low ebb	25
4.6 Snipe – doing well.....	25
4.7 Redshank – on the verge of extinction from the New Forest SAC	26
4.8 Habitat management.....	27
4.9 Reducing disturbance	28
4.10 Predator control	28
4.11 Further research	29
5 CONSIDERATIONS FOR FUTURE SURVEYS	29
6 CONCLUSIONS.....	30
7 REFERENCES	31
8 ACKNOWLEDGEMENTS	32
9 APPENDICES.....	33
Appendix A. Number of territories found in each 1km SAC square	33
Appendix B. Locations of wader territories found in 2025	37

List of Tables

Table 1 Total territories and the number of 1km squares occupied by breeding waders in the last three surveys of the New Forest. The 2014 Curlew population was subsequently considered to be a significant overestimate.....	9
Table 2 Rounded monthly Met Office weather data for the New Forest compared with the 1991-2020 average	23
Table 3 Rounded spring (March-May) Met Office weather data for the New Forest compared with the 1991-2020 average.....	23

List of Figures

Figure 1 Distribution of 195 1km squares surveyed in 2025	11
Figure 2 Locations of 29 Curlew territories identified in 2025. The strength of evidence was strong (confirmed), medium (probable) or weak (possible).....	12
Figure 3 Changes in the breeding distribution of all identified Curlew territories between 2019 and 2025.....	13
Figure 4 Locations of 74 Lapwing territories identified in 2025. The strength of evidence was strong (confirmed), medium (probable) or weak (possible).....	14
Figure 5 Changes in the breeding distribution of all identified Lapwing territories between 2019 and 2025.....	15
Figure 6 Locations of 255 Snipe territories identified in 2025	16
Figure 7 Number of Snipe territories found in each 1km square surveyed in 2020-21, with stronger colours indicating higher densities.....	17
Figure 8 Number of Snipe territories found in each 1km square surveyed in 2025, with stronger colours indicating higher densities.....	18
Figure 9 Changes in the breeding distribution of Snipe territories between 2019 and 2025.	19
Figure 10 Locations of two Redshank territories identified in 2025.....	20
Figure 11 Changes in the breeding distribution of Redshank territories between 2019 and 2025.....	21
Figure 12 Comparison of Snipe density between surveys carried out in 2020-21 and 2025	22

SUMMARY

Hampshire Ornithological Society (HOS) was commissioned by Forestry England on behalf of the New Forest Higher Level Stewardship (HLS) Scheme partners to survey breeding Curlew (*Numenius arquata*), Lapwing (*Vanellus vanellus*), Snipe (*Gallinago gallinago*) and Redshank (*Tringa totanus*) in the New Forest in 2025. The survey was organised for HOS by Nigel Matthews, with assistance from Andy Page and Keith Betton.

The area surveyed was primarily the New Forest Special Area of Conservation (SAC), including land managed by Forestry England, the National Trust, Wellow Parish Council and Hampshire County Council. Of the 195 one kilometre squares surveyed, only two were entirely outside the SAC.

The survey was completed over the period 10 April – 22 June 2025 using the same methodology as the last survey in 2019-21, including walking where possible to within 50m of all Snipe habitat. Squares surveyed included all those thought to have suitable breeding habitat and/or where waders had been recorded in the preceding six years. Additional records of waders reported by surveyors outside of their allocated 1km squares were also collated, and sightings by Forestry England Keepers and Game and Wildlife Conservation Trust (GWCT) staff working in the area were taken into account.

Analysis of survey data (compared with the last survey) indicated that, within the SAC, breeding territories totalled 25-29 (32-40) Curlew, 50-74 (68) Lapwing, 255 (181) Snipe and 2 (7) Redshank. No territories were found outside of the SAC.

Reasons for changes in the numbers of territories found, ways to protect and support the waders and considerations for future surveys are discussed.

1 INTRODUCTION

1.1 The New Forest's designations

The New Forest contains one of the largest tracts of semi-natural vegetation in the country, with three international wildlife site designations.

The area is designated as a Site of Special Scientific Interest (SSSI) and assemblages of breeding birds of both lowland heathland and lowland damp grasslands are special features of the site.

It is also classified as a Special Protection Area (SPA) under Article 4.1 of the European Birds Directive, recognising that it is an internationally important site for certain breeding and over-wintering bird species and a Special Area of Conservation (SAC) for its habitats and non-avian species of European importance, in accordance with the European Habitats Directive.

Although breeding waders are not a qualifying feature of the SPA and SAC, Natural England's supplementary advice relating to the New Forest SAC lists assemblages of reptiles, heathland plants, insects and breeding waders including Lapwing, Curlew and Snipe as key structural, influential and/or distinctive species – with a target of maintaining the abundance of these species (Natural England, 2019).

In addition it is listed as a Ramsar site for its importance as a wetland, with flora and fauna of international importance.

1.2 The Higher Level Stewardship Scheme

The New Forest HLS Scheme is awarded to The Verderers of the New Forest by the Department for Environment, Food and Rural Affairs through Natural England.

The Scheme is delivered in partnership with Forestry England and the New Forest National Park Authority. This includes commissioning surveys of bird species for which the New Forest SPA is designated, and breeding waders which rely on the SAC habitats. Waders are surveyed at about five year intervals; the last survey was interrupted by the Covid pandemic but was completed between 2019 and 2021.

On behalf of the HLS partners, Forestry England commissioned HOS to survey breeding waders across the whole New Forest common land, including land under the management of the National Trust, Hampshire County Council and Wellow Parish Council, as well as the Crown Land. For clarity and simplicity, this report describes the survey area as the New Forest SAC. The 2014 and 2019-21 survey reports mostly referenced areas covered by the HLS or the SPA; there are small differences in these areas but in practice all three surveys covered all areas thought, at the time, to have suitable habitat.

1.3 Breeding wader ecology

The ecology of Curlew, Lapwing, Snipe and Redshank is covered in detail in the 2019-21 survey report (HOS, 2021) and is therefore only summarised here. The only other wader species to breed in the New Forest is the Woodcock; this nests in woodland, would have required very different survey techniques and is not included in the five-yearly cycle of HLS-funded surveys.

The Migration Atlas (Wernham et al. 2002) shows movements of birds ringed or controlled in the UK. Curlew, Lapwing and Redshank spend autumn and winter months on coastal mudflats, saltmarsh and adjacent grazed grassland; they are easily found along the Solent coast and associated estuaries, though most of these wintering birds leave the south coast to breed elsewhere in the UK or abroad. Those breeding locally may spend the winter on the south coast or cross the Channel to western France and Iberia. Snipe winter both on the coast and inland, but their cryptic plumage and tendency to roost in marshy vegetation by day and feed at night makes them more difficult to see. They tend to migrate further than the other species; local breeders may winter in France, Iberia or even North Africa, and most that winter locally breed in Northern Europe.

All four species return to their breeding grounds each spring. In England, Curlew breed mostly inland, but their distribution is very fragmented (especially in the south) and the New Forest is often regarded as one of their last strongholds. Lapwing nest both inland and on the coast; they were traditionally known as farmland birds but modern farming methods have contributed to a major decline in the inland population. Snipe typically breed at inland, upland sites – but the New Forest mires and boggy streamsides provide ideal habitat for both wintering and breeding birds. Redshank breed on inland wet grassland and coastal saltmarsh and grazing marsh – around the New Forest this includes along the Avon Valley, Lymington-Keyhaven, Beaulieu River and Southampton Water and a handful of pairs in the core of the New Forest, especially where suitable habitats lie close to coastal populations.

In the New Forest SAC, all four species favour open heathland habitats, especially the wetter areas, streams, reed beds and mires – surveying them together makes good use of time. They often prefer a mosaic of short or grazed vegetation with taller clumps or broken disturbed ground.

Curlew, Lapwing and Redshank nest in exposed ground where the sitting bird can see approaching danger, and their territorial calls and displays are noisy and demonstrative. This means that they are relatively easy to see, although an incubating bird may sit tight (or leave very quietly) and therefore be missed.

Snipe are the most difficult to find because they often crouch in thick marshy vegetation, only flushing when approached within a few metres. They have distinctive territorial 'chipping' calls but it can be difficult to pinpoint the location, and their display flights (known as drumming) can be very high and rather soft to the human ear.

All four species start displaying from February or March onwards. Lapwing, Redshank and Snipe may be incubating by the time of the first survey visits in mid-April, and Curlew follow soon after in late April / early May. Incubation lasts about 3-4 weeks, so the first chicks are likely to be seen during the second survey period. If first nesting attempts fail early (e.g. through predation or poor weather), some pairs lay repeat clutches.

Population changes (of all bird species) are inevitably a result of differences in adult survival and breeding success. Waders are longer lived than many species with maximum recorded ages from BTO ringing recoveries of Curlew: 32 years, Lapwing: 21 years, Snipe: 16 years and Redshank: 20 years. Of course most die at much younger ages, but there is at least some potential for runs of poor breeding seasons to be offset by occasional very good years.

1.4 Monitoring wader populations in the New Forest

The New Forest valley mires and wetter heathlands have long been recognised for their importance to breeding waders. Monitoring and population estimates have been made at various times since the 1960s, and these are provided in Tubbs and Tubbs (1994).

The first survey of breeding waders funded by the HLS was completed in 2014 (Gates, 2014), and the second was carried out in 2019-21 (HOS, 2021). These followed a similar methodology to that used in previous surveys (Tubbs & Tubbs, 1994; Goater et al., 2004), and were in accordance with the methodology set out in O'Brien & Smith (1992) for monitoring breeding waders on lowland wet grassland. However, while the 1994 and 2004 surveys required extrapolation of data from sample areas, the 2014 and 2019-21 surveys covered all areas identified as having potential to support breeding waders, resulting in greater confidence in population estimates. The 2019-21 survey was split into two, with Curlew, Lapwing and Redshank surveyed in 2019 and Snipe surveyed in 2020 and 2021.

To ensure conclusions are as meaningful as possible, this report compares 2025 results with the most recent surveys (2014 and 2019-21) – see section 3.1.

2 METHODS

2.1 The area surveyed

The boundary of the area within the New Forest surveyed for breeding waders was primarily the SAC which is largely covered by the HLS Scheme. Most of the SAC is New Forest Crown Lands managed by Forestry England, with smaller areas managed by Hampshire County Council, the National Trust and Wellow Parish Council. With the permission of the National Trust, Foxbury, which is outside the SAC near West Wellow, was also surveyed.

1km squares to be surveyed in 2025 were identified using the 2014 and 2019-21 wader surveys, the HOS species database (2019-24), aerial views of heathland that might contain suitable habitat and 1:25,000 OS maps, and through fieldwork. HOS members were asked to survey suitable habitats within 195 1km squares; only two of these squares (both at

Foxbury near West Wellow) were entirely outside the SAC (Figure 1). Where survey squares overlapped the edge of the SAC, only the SAC was surveyed.

2.2 Verification through additional observations

Surveyors were also encouraged to provide details of waders found away from their own allocated survey squares, for example while on their way to do a survey or when out walking elsewhere. The majority of these reports duplicated (and helped to confirm) sightings by surveyors using the prescribed methodology.

Past surveys have shown that it is easy to over-estimate the number of nesting pairs of Curlew because they roam widely from their nest site and could then be double-counted. Lapwing can also be easily miscounted if they fail early and relocate for a second attempt. However, intensive studies over about ten years by Forestry England Keepers, Wild New Forest staff and, more recently, GWCT staff mean that the sites that are most likely to be used for both nesting and feeding are well known, enabling both Curlew and Lapwing nest sites to be verified.

2.3 Survey methodology

As with other recent HOS surveys, a dedicated website enabled volunteers to decide which of the 195 survey squares they wanted to survey. The website also provided survey instructions and enabled each volunteer to download a recording form for each of their 1km squares (each with a map of their square at 1:25,000 and a 150m border or overlap with adjacent squares). A total of 74 volunteers responded and subsequently surveyed between one and ten squares each – always looking for all four wader species.

To enable comparison with results of previous surveys, the survey followed the same standard survey methodology. Surveyors were asked to survey their allocated 1km squares as follows:

Timing

- *Pre-survey visit to identify the edges of your 1km square/s, paths, landmarks and best habitat*
- *Undertake three visits at least two weeks apart to each 1km square:*
 - *Visit 1: 10 April – 30 April*
 - *Visit 2: 1 May – 21 May*
 - *Visit 3: 22 May – 22 June*
- *Visits should ideally be undertaken on mild, clear, dry days with little wind*
- *You may wish to do additional visits if weather conditions are not ideal or if you feel you did not cover all areas effectively*
- *For Snipe, it is particularly important to undertake surveys:*
 - *at first light and at (or even after) dusk when they call and display most frequently*
 - *approach all suitable habitat to within 50m, if need be, walking through the margins of mires and other wet ground to reduce the chance of missing those that will otherwise sit tight*
 - *at dusk, you could also try waiting at a nearby vantage point; Snipe will often call and display as darkness falls*
- *For Lapwing, Curlew and Redshank, undertake surveys:*
 - *from shortly after sunrise, concluding within three hours, or*
 - *in the last two hours before sunset*
 - *approach all suitable habitat to within 100m*

Recording

- *Use the Recording Form provided for each square, one form per visit*
- *Clearly mark the locations of all waders found*
- *Give special attention to birds showing territorial behaviour, such as displaying or alarm calling, and to simultaneously displaying males*
- *Estimate the number of individuals and pairs present and add any notes you think may be helpful, continuing in the margins if space is limited*

Routes followed within the allocated squares were chosen individually by each volunteer to enable them to focus on areas with the best habitat and to home in on displaying birds.

Surveyors were encouraged to send in a photo or scan of each Recording Form without delay so that the survey organiser could track progress and identify any potential issues. Prompt feedback also made it easier to follow up on Curlew and Lapwing sightings where pairs might otherwise have been missed.

Encouragement of surveyors to check the 150m border around the edge of their squares maximised the chance of locating territories straddling different surveyors' squares and helped cover small areas of heathland which were not large enough to warrant inclusion as survey squares in their own right.

2.4 Volunteer training and support

Most volunteer surveyors knew the New Forest well and were experienced in doing bird surveys; some chose the same squares they had surveyed in the past. A pre-survey Zoom meeting was helpful for some new volunteers and 25 people attended one of two on-site training sessions aimed at those with less experience.

To build a positive team spirit and maximise useful reports, several emails were sent to all surveyors. As well as basic reminders about timings, use of recording forms and sending in results, topics included looking and listening for Snipe (and the need to walk along the edges of mires and streams to find them), making best use of early mornings and evenings, likely distances between territories of the different species, use of mapping apps and checking for Lapwing with replacement clutches.

Cover was arranged for 20 1km squares which became vacant or where assistance was needed for at least one of the three surveys.

2.5 Determination of territories

Annotated maps on completed Recording Forms were saved as images to enable Andy Page and Nigel Matthews to mark up a paper 1:25,000 OS map with likely territories. Andy Page did the same for the last survey, so a high level of consistency can be assumed.

Particular attention was given to records of breeding behaviour (e.g. birds heard or seen displaying or chasing predators, birds on a nest or nervous behaviour indicating the presence of eggs or chicks).

Likely breeding densities of each species were also taken into account. For example, previous intensive fieldwork in the New Forest has shown that Curlew nests are likely to be at least 400m apart, whereas adjacent Snipe nests could be only half this distance apart and Lapwing often nest colonially with multiple pairs nesting within 50m of each other. Curlew territories indicated by survey data were subsequently checked against observations by Forestry England Keepers and GWCT staff, enabling confirmation and refinement.

A centre point (ten-figure grid reference) for each territory was chosen based on the locations of observations. To avoid duplication, territories near the edge of survey squares were checked against territories near the edge of adjacent squares.

Because the strength of evidence for Curlew and Lapwing breeding attempts varied, territories were classed as strong/confirmed (e.g. repeated territorial defence against predators, nest or chick found), medium/probable (e.g. some doubt about exact location) or weak/possible (e.g. sightings on only one visit, possible confusion with other nearby pairs or relocation after early failure).

Determination of Snipe territories took account of the fact that some overwintering Snipe were still in the Forest during the first survey period (10-30 April). Second visits give a more accurate picture (though by then they are sitting on eggs and males are less active). No territories were therefore justified solely on observations before 20 April.

3 RESULTS

3.1 Breeding population estimates

Estimated breeding populations recorded in recent surveys are compared with this year in Table 1. In each case these are taken from the survey reports.

The range given for Curlew in 2019-21 takes account of eight territories where only a single male was thought to be present and five territories where no evidence of breeding was observed.

In 2025, 40 sites were initially considered as possible Curlew territories, but 11 of these were rejected due to very weak evidence, leaving four where the evidence was medium (meaning that the territory was probable) and 25 where the evidence was strong (and the territory was confirmed) – see Figure 2.

The 74 Lapwing territories identified included 50 where the evidence was strong (confirmed), 18 medium (probable) and 6 weak (possible) – see Figure 4.

	2014 territories ¹	2014 1km squares	2019-21 territories ²	2019-21 1km squares	2025 territories	2025 1km squares
Curlew	(122)	(74)	32-40	40 max	25-29	25
Lapwing	143	74	68	44	50-74	47
Snipe	102	62	181	90	255	117
Redshank	13	9	7	6	2	2

Table 1 Total territories and the number of 1km squares occupied by breeding waders in the last three surveys of the New Forest. The 2014 Curlew population was subsequently considered to be a significant overestimate.

Surveys carried out in 2014, 2019-21 and 2025 broadly followed the same methodology, with three visits between 10 April and 22 June. However, the 2014 survey was carried out by a small team of surveyors following pre-planned transects, and, due to limited understanding of Curlew ecology, suggested a much inflated estimate of 122 pairs in 74 1km squares

¹ Excluding territories in farmland near Fritham (one Curlew) and Thorney Hill (one Lapwing)

² 2019: Curlew, Lapwing and Redshank; 2020 & 2021: Snipe

(Wynn & Page, 2018). 2014 estimates for Lapwing, Snipe and Redshank were thought likely to be more realistic.

The 2019-21 and 2025 surveys both used multiple volunteer surveyors, covering 1km squares with the freedom to adjust their route according to ground conditions and observations on the day. Both these surveys also included approaching all Snipe habitat to within 50m where possible (rather than 100m as was done in 2014). Comparisons between these two surveys should therefore be more reliable than between 2014 and 2025.

3.2 Breeding distribution and density

Maps on the following pages show:

- Distribution of 1km squares surveyed
- Locations of wader territories found
- Changes in distribution between 2019-21 and 2025
- Density of Snipe territories in 2020-21 and 2025.

Grid references and the numbers of territories in each 1km square surveyed are listed in:

- Appendix A. Number of territories found in each 1km SAC square
- Appendix B. Locations of wader territories found in 2025

No wader territories were found outside of the New Forest SAC, so all of the results should be directly comparable with previous surveys.

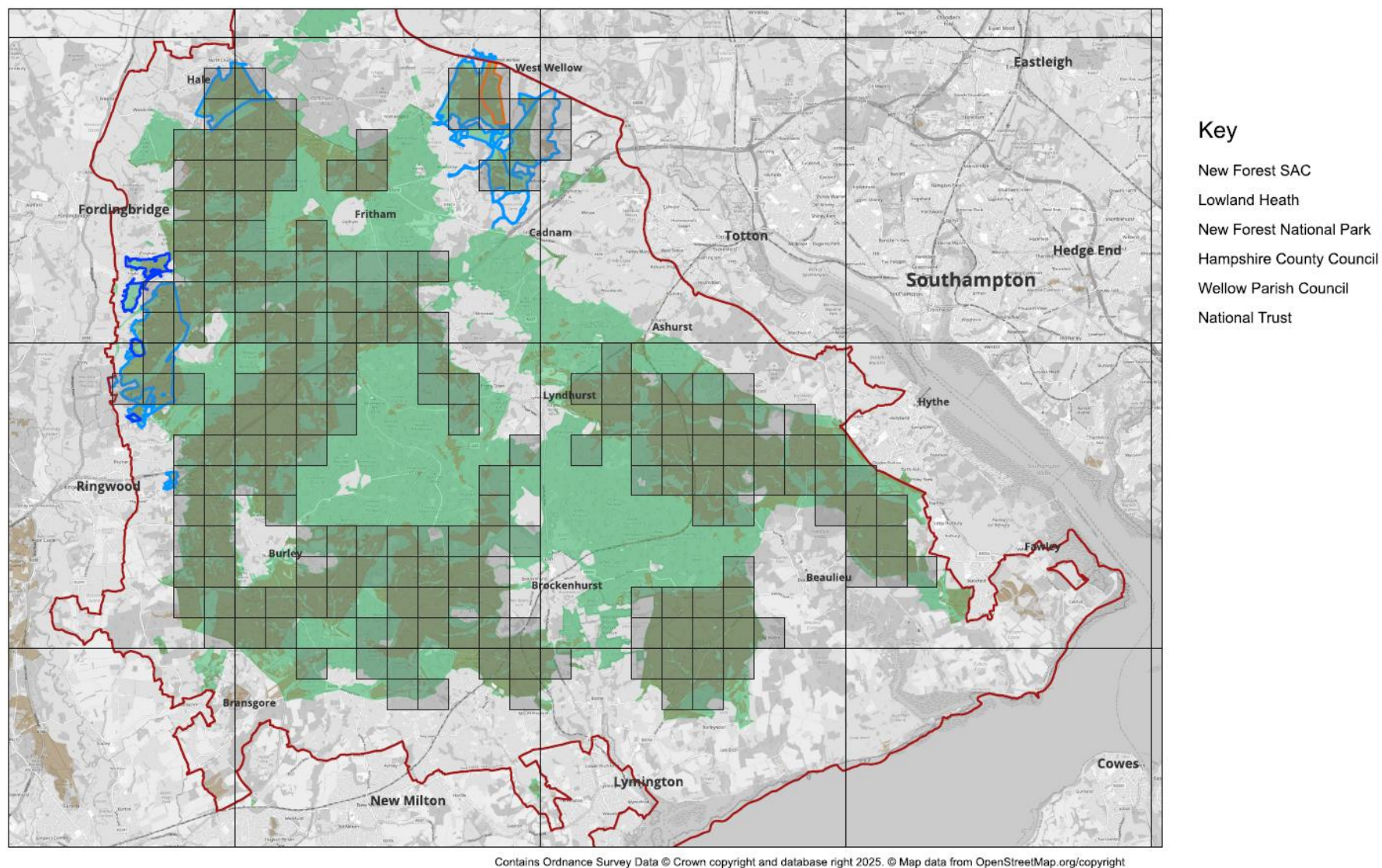


Figure 1 Distribution of 195 1km squares surveyed in 2025

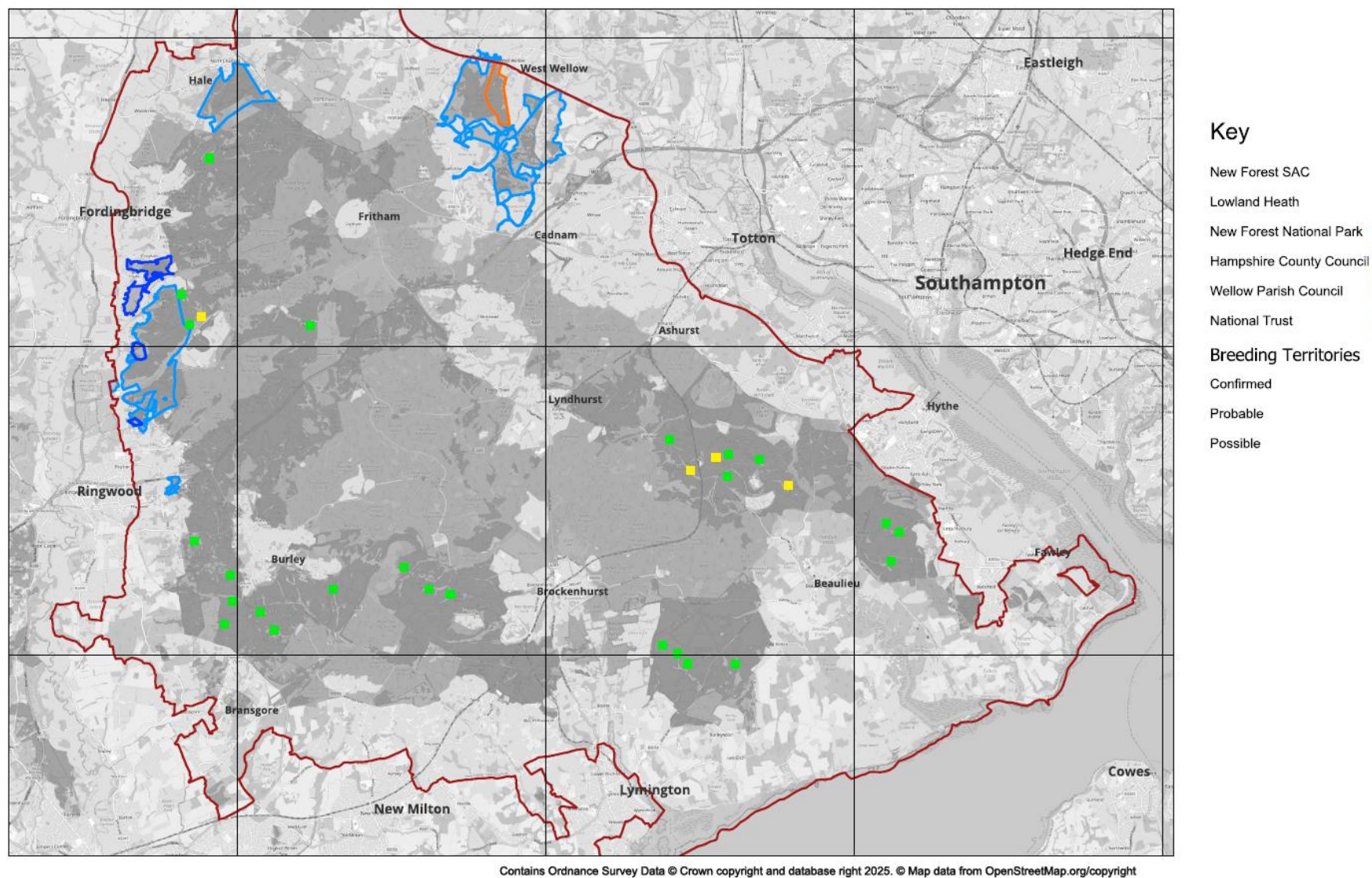


Figure 2 Locations of 29 Curlew territories identified in 2025. The strength of evidence was strong (confirmed), medium (probable) or weak (possible).

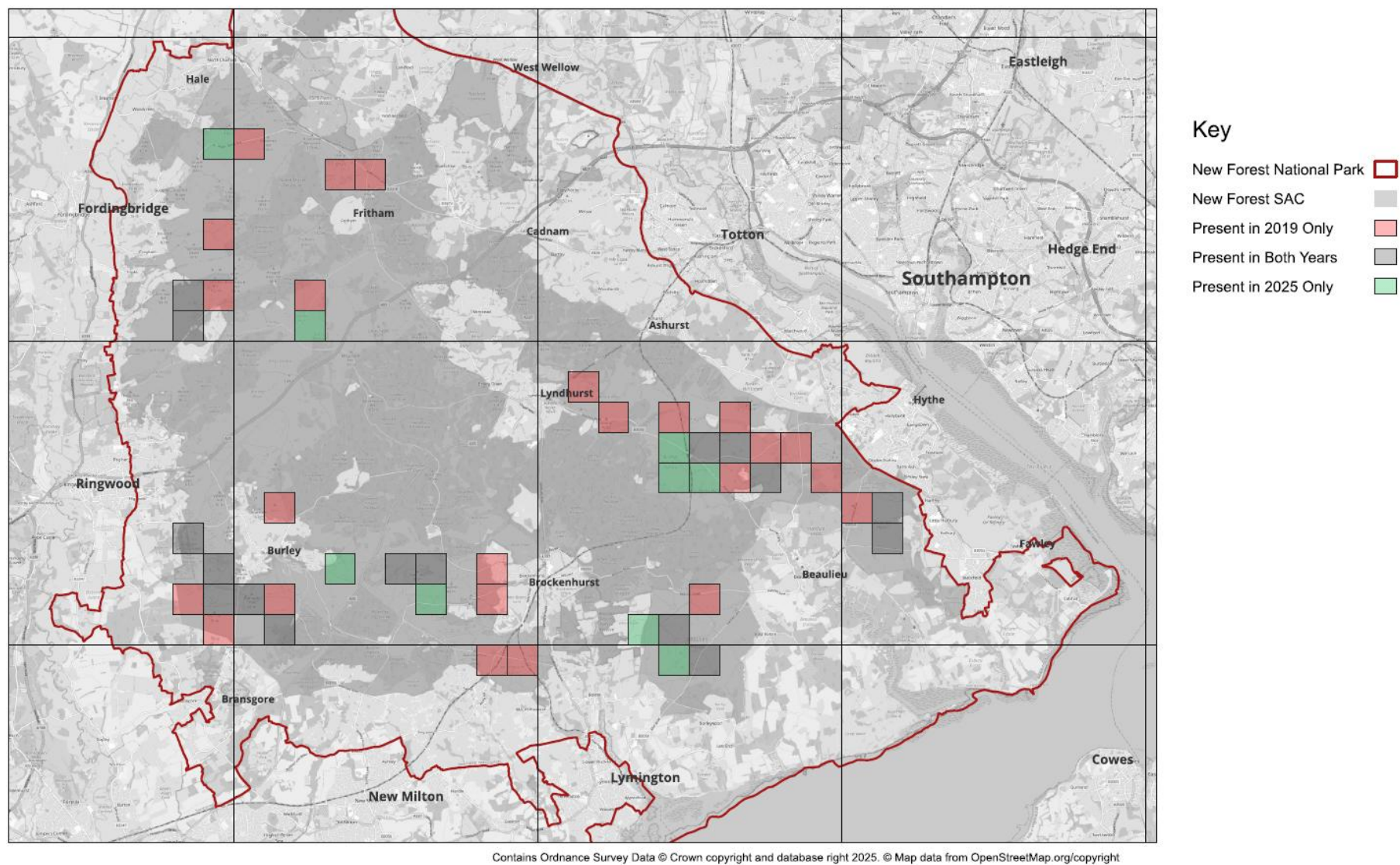


Figure 3 Changes in the breeding distribution of all identified Curlew territories between 2019 and 2025

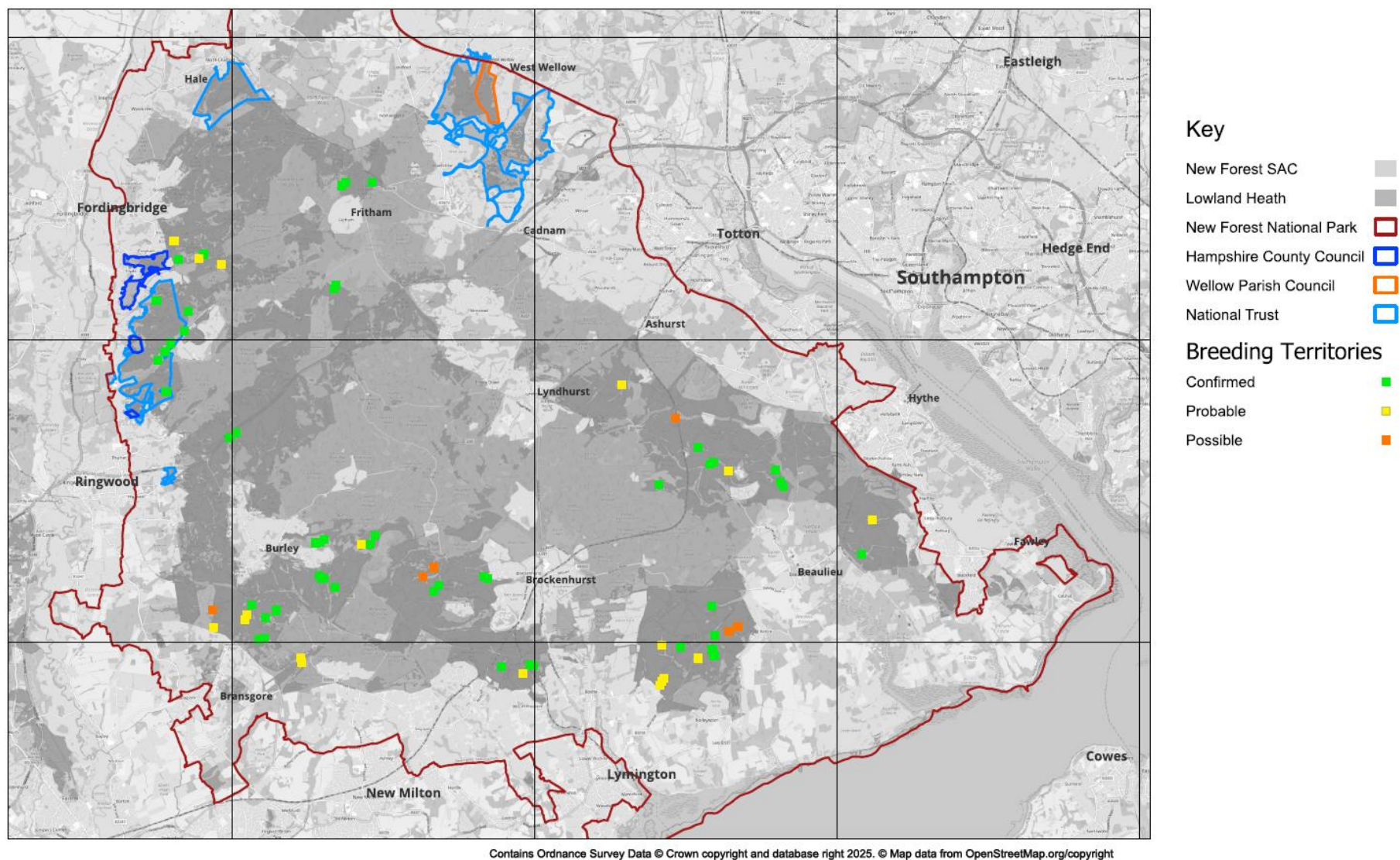


Figure 4 Locations of 74 Lapwing territories identified in 2025. The strength of evidence was strong (confirmed), medium (probable) or weak (possible).

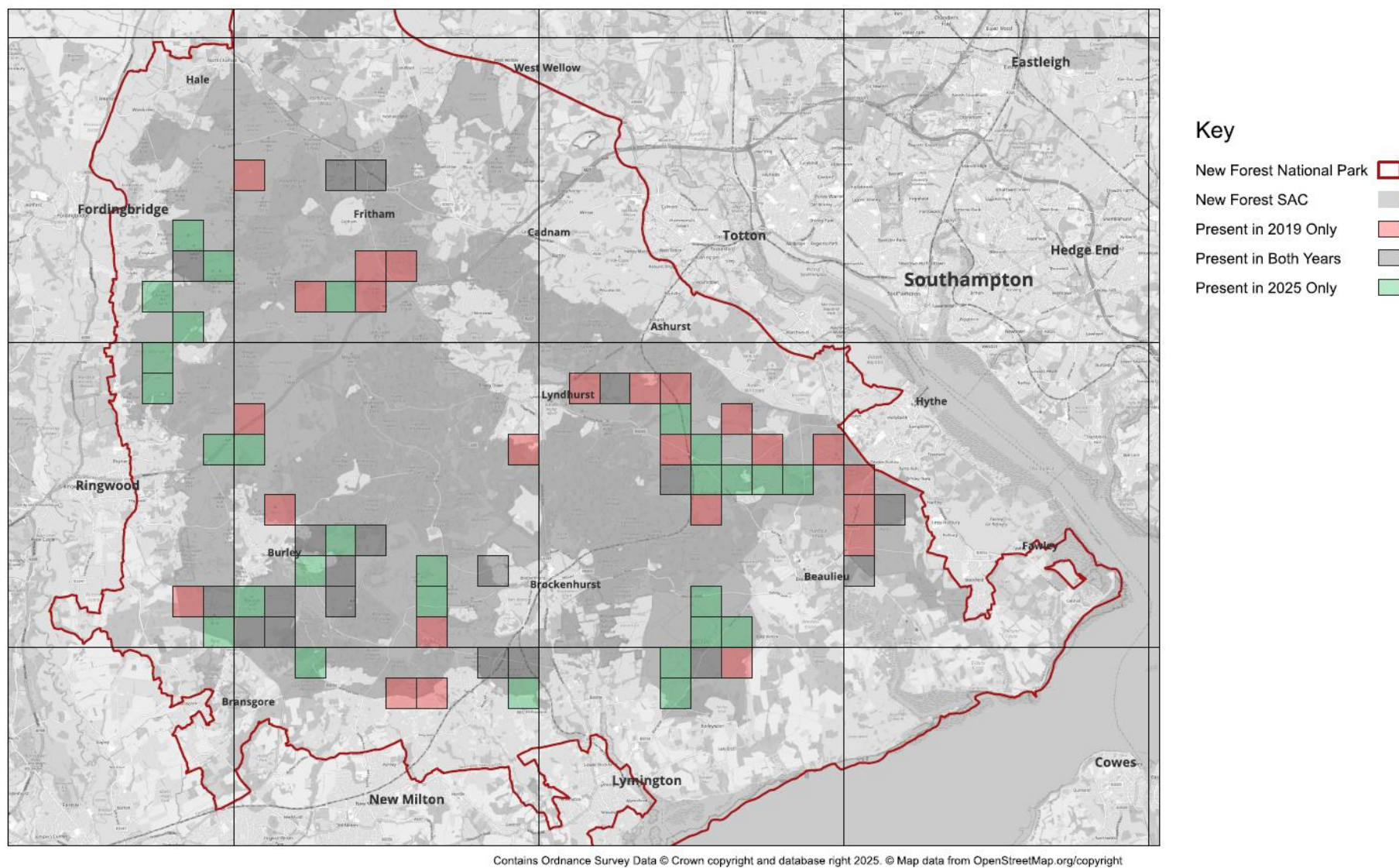


Figure 5 Changes in the breeding distribution of all identified Lapwing territories between 2019 and 2025

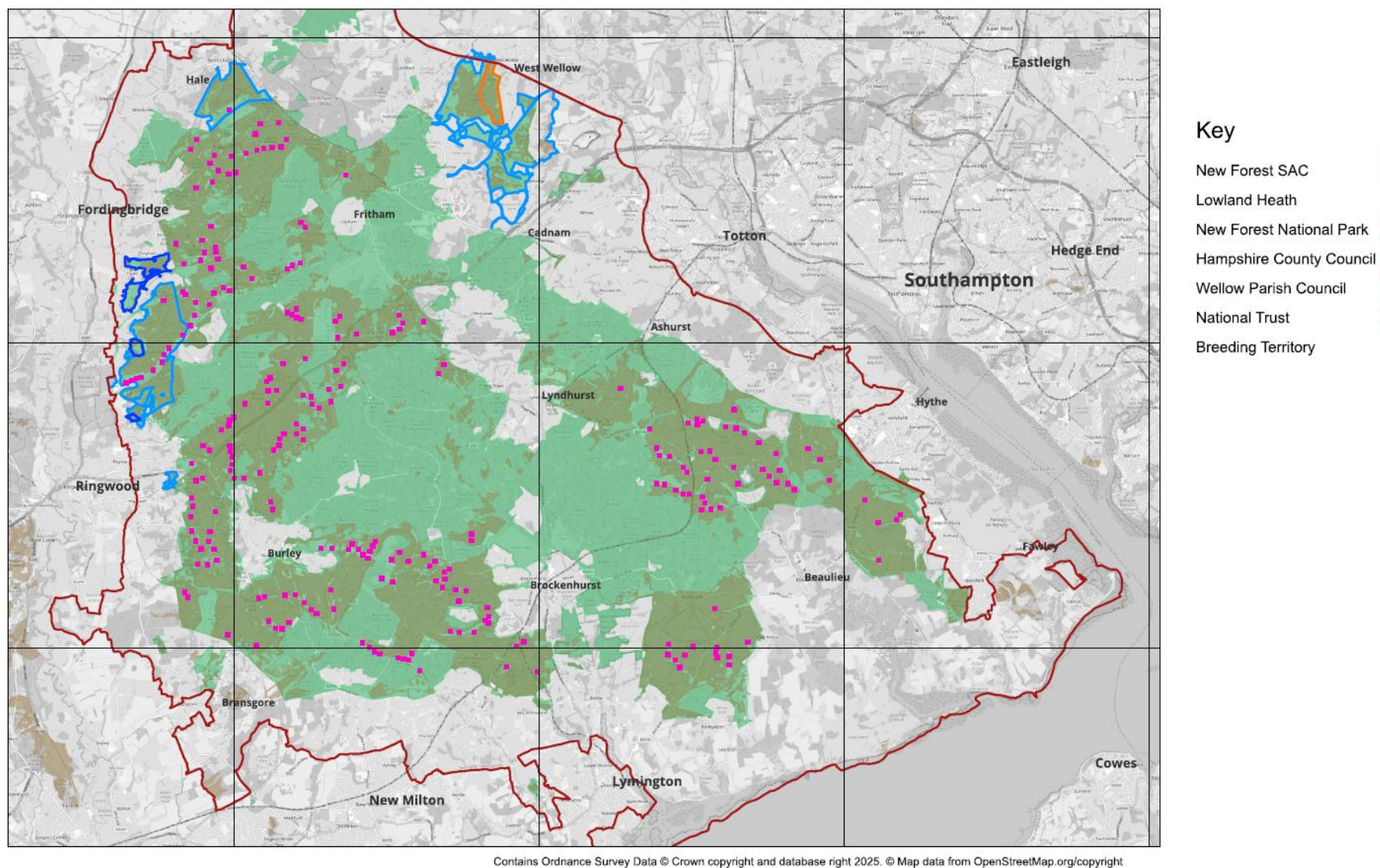


Figure 6 Locations of 255 Snipe territories identified in 2025

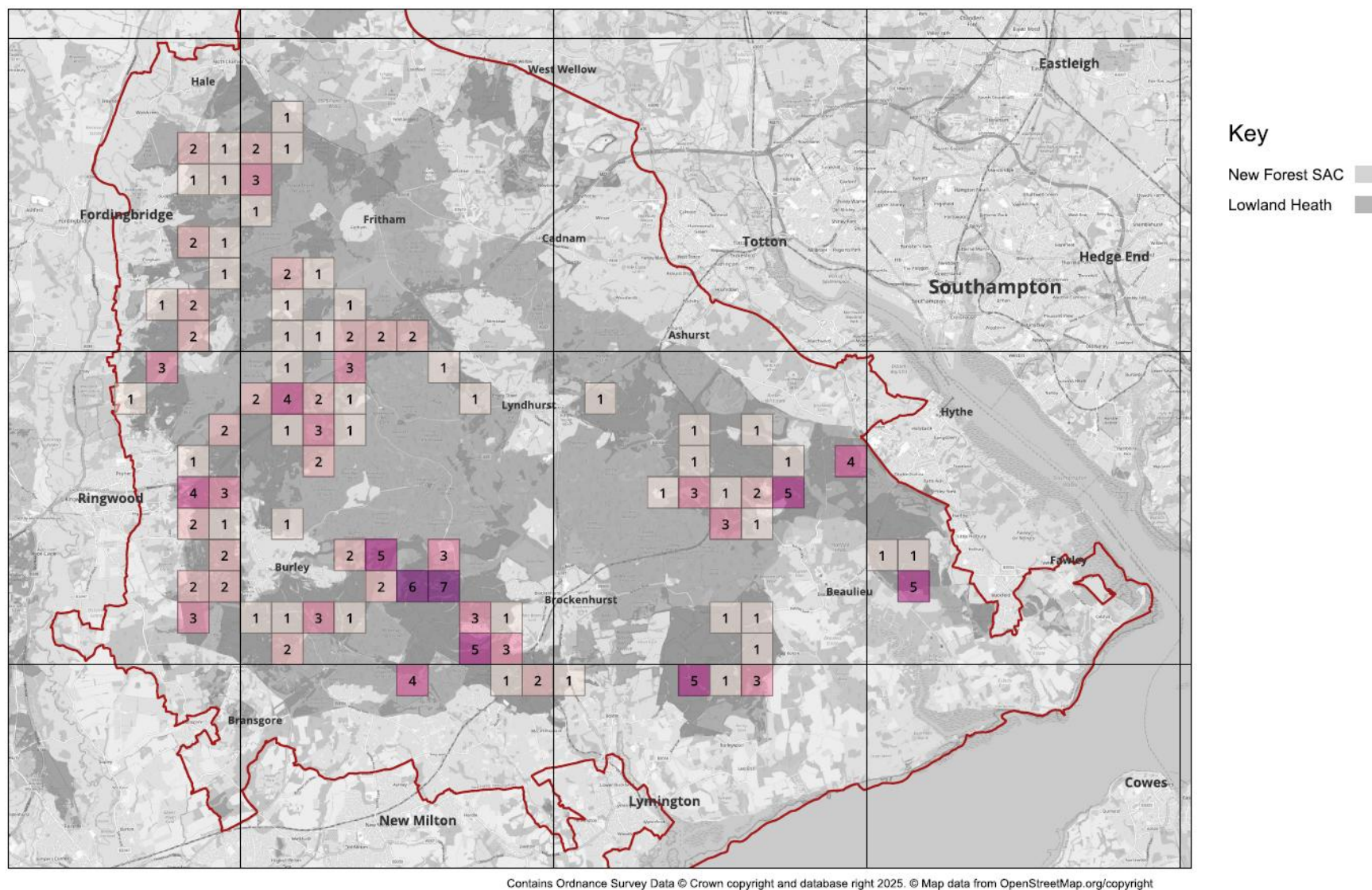


Figure 7 Number of Snipe territories found in each 1km square surveyed in 2020-21, with stronger colours indicating higher densities

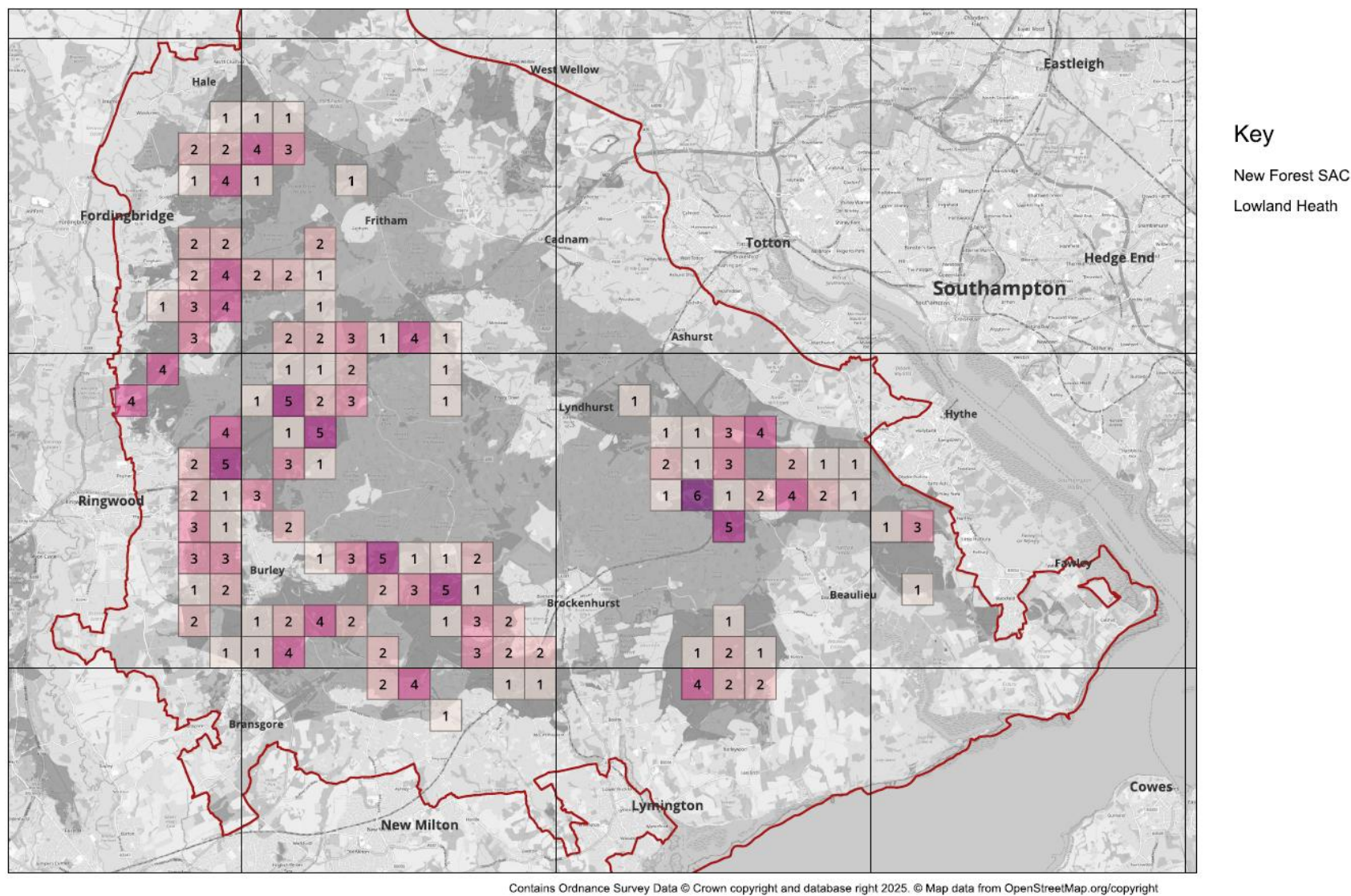


Figure 8 Number of Snipe territories found in each 1km square surveyed in 2025, with stronger colours indicating higher densities

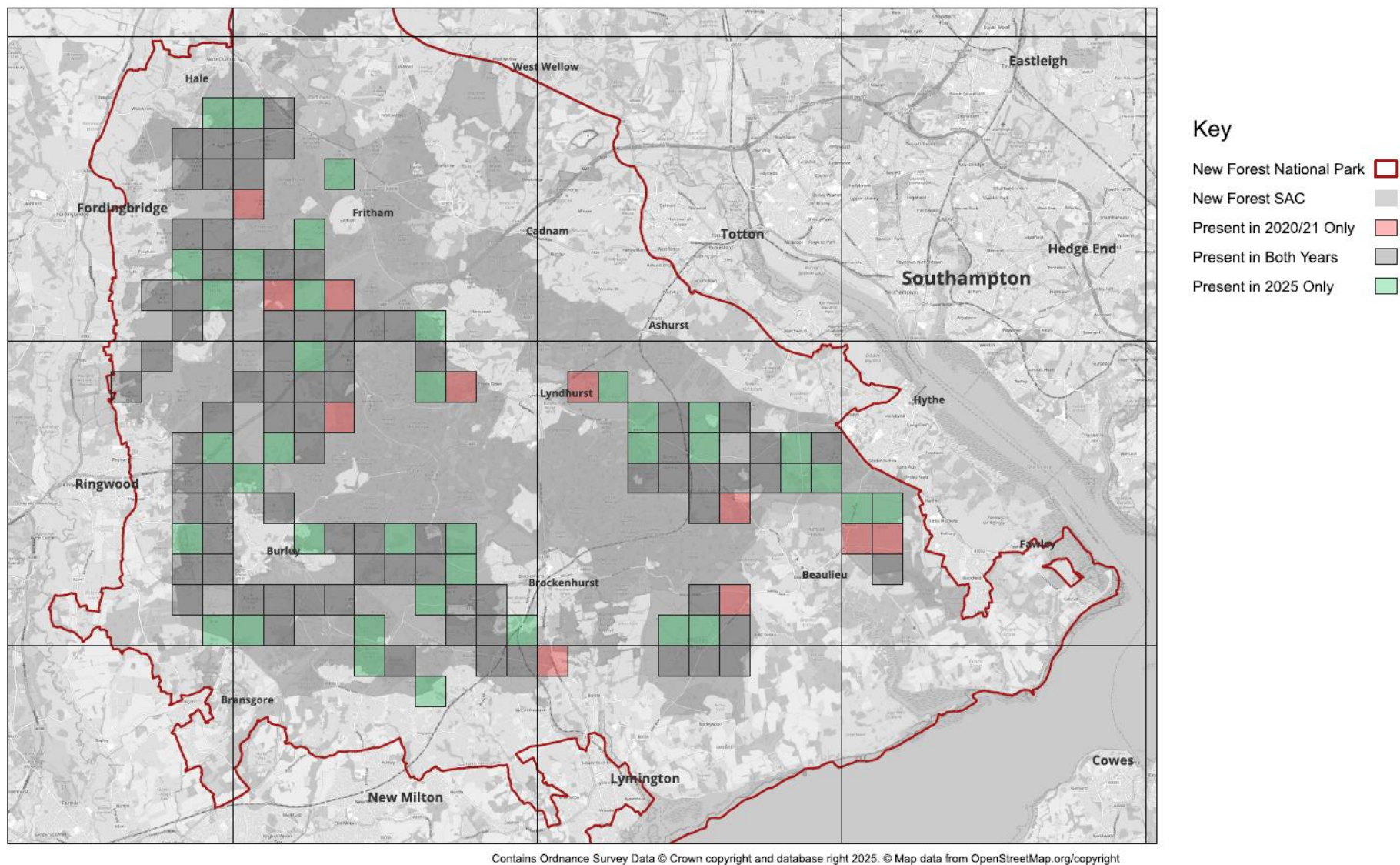


Figure 9 Changes in the breeding distribution of Snipe territories between 2019 and 2025

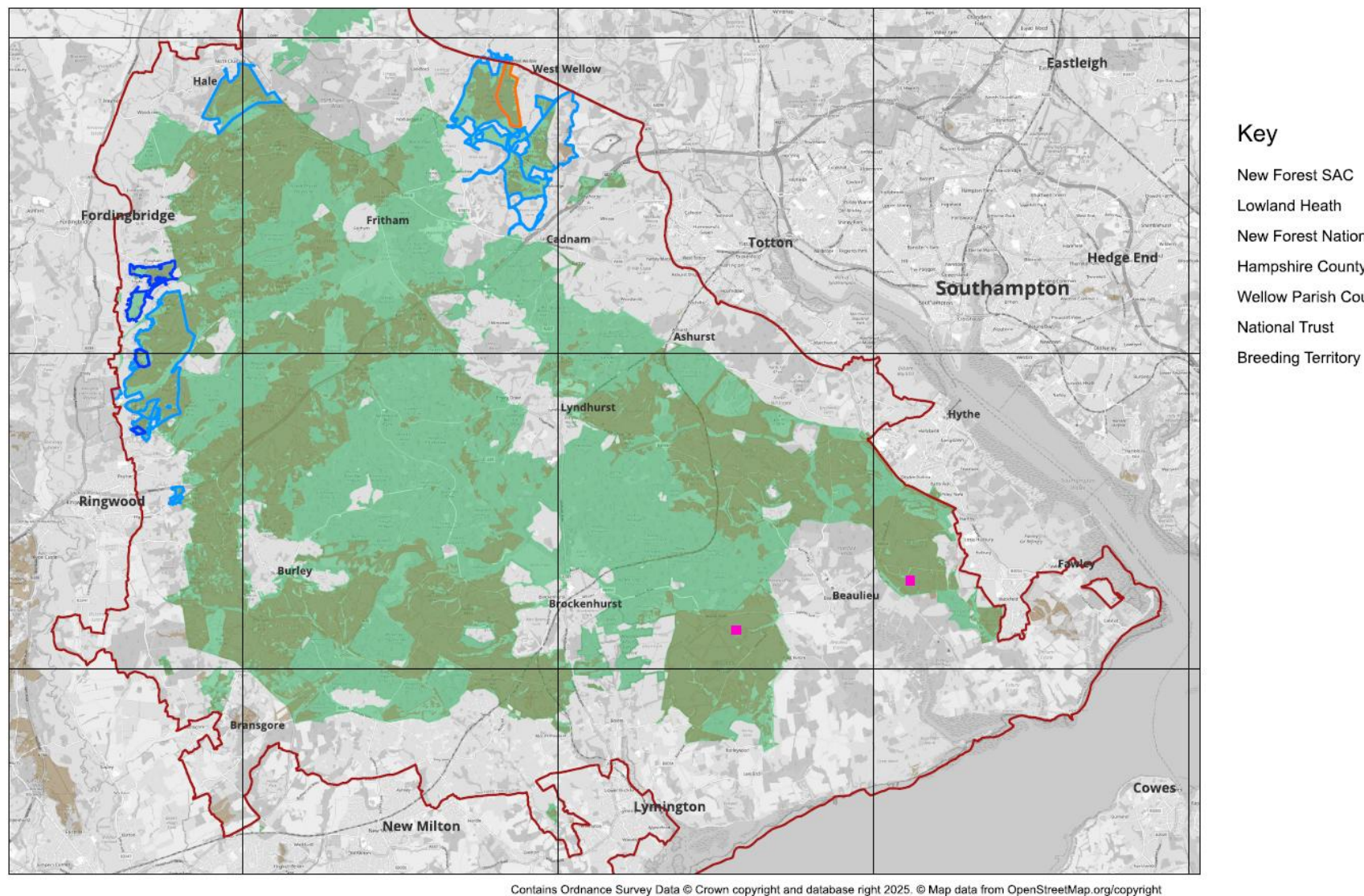


Figure 10 Locations of two Redshank territories identified in 2025

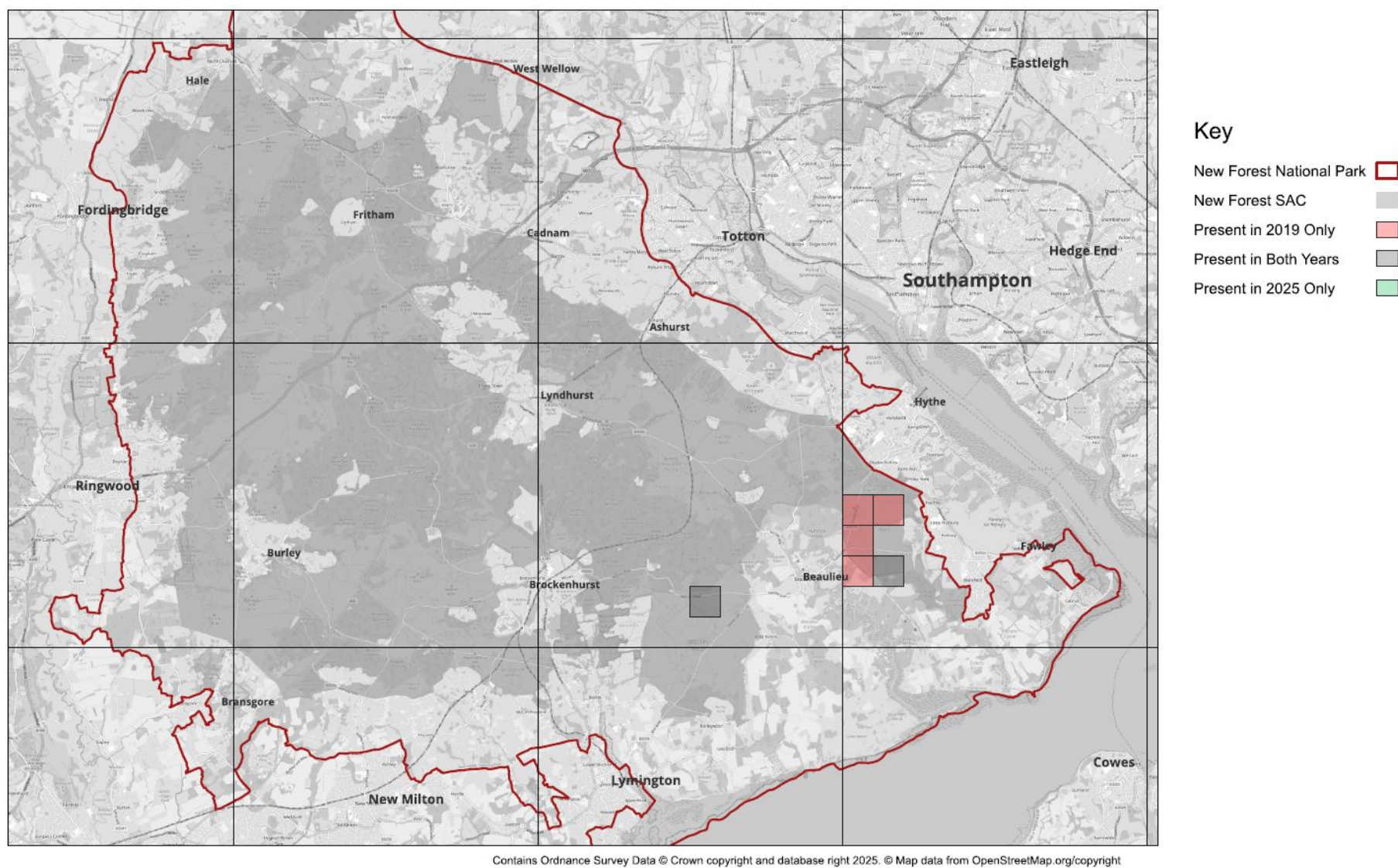


Figure 11 Changes in the breeding distribution of Redshank territories between 2019 and 2025

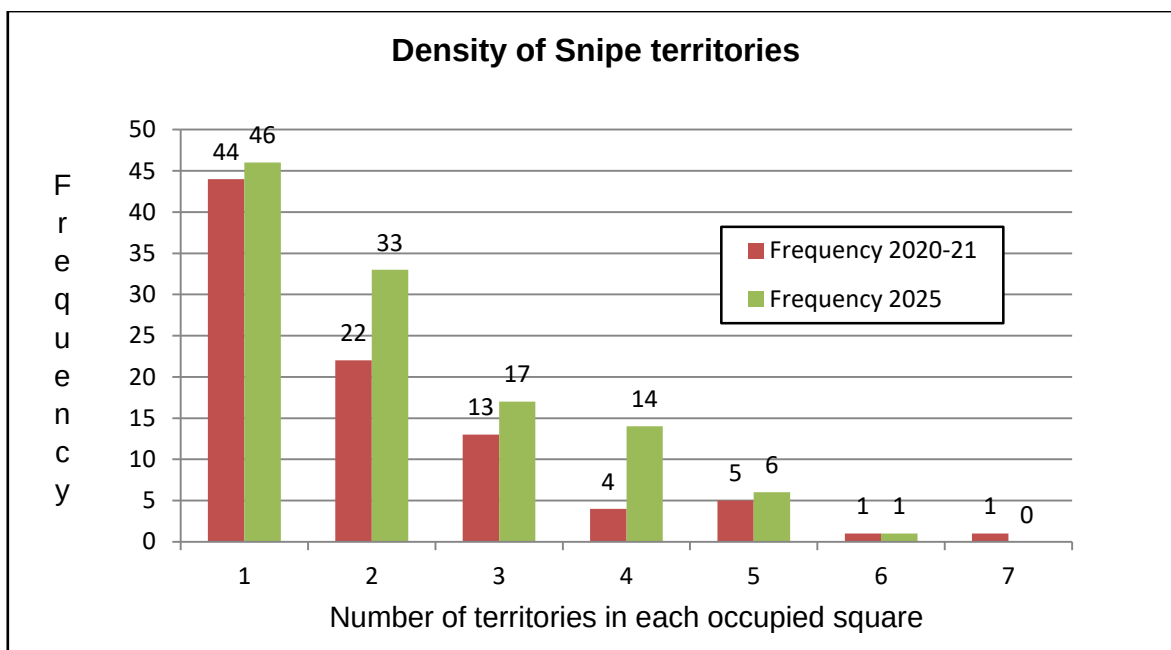


Figure 12 Comparison of Snipe density between surveys carried out in 2020-21 and 2025

4 DISCUSSION

4.1 The international and national picture

Internationally, both Curlew and Lapwing are listed as Near Threatened on the IUCN Red List because of widespread declines in their breeding populations due to factors like habitat loss and high levels of predation on nests and chicks. They are also both listed as Red in the UK's latest Birds of Conservation Concern (2021). Whilst Redshank and Snipe are of Least Concern internationally, they are both Amber on the UK list, due to at least regional population declines from habitat loss and predation.

BTO trends analyses of breeding birds show long-term (1995-2023) UK declines of Curlew (-51%), Lapwing (-53%) and Redshank (-45%). Although the same analyses show an increase in Snipe (+17%), a 31% contraction in range was recorded between 1972 and 2001.

Put simply, the breeding populations of all four species are at risk, highlighting the importance of efforts to maintain the right conditions for them wherever possible.

4.2 Warm, dry weather

The weather in any individual year is in part driven by long-term climate change, which is thought to be resulting in wetter winters, hotter, drier summers and more intensive extreme weather events.

Across the UK, spring 2025 was the warmest and sunniest on record and summer was the hottest on record.

Met Office data for the New Forest are shown in Table 2. These show that, prior to the breeding season (in January and February), mean temperatures, rainfall and sunshine were near average. However, March-May mean temperatures were higher than average, rainfall was less than average and sunshine was higher than average.

Although rainfall returned to normal in June and July, mean temperatures and sunshine remained high.

	Mean temp (°C)	Rainfall %	Sunshine %
Jan	-1.0	125	100
Feb	0	100	80
Mar	+0.5	20	140
Apr	+1.0	50	140
May	+1.5	40	140
June	+2.0	100	120
July	+2.0	100	120

Table 2 Rounded monthly Met Office weather data for the New Forest compared with the 1991-2020 average

This unusually warm, dry period meant that some areas dried out during the survey – indeed several surveyors commented about this, especially during their second and third survey visits. No attempt was made to measure the impact of this dry weather on breeding wader habitats. However, while the New Forest's larger mires are remarkably drought tolerant and some remained so wet that they were inaccessible to surveyors throughout, it seems likely that some areas became too dry for breeding waders.

Conversely, the dry weather made it easier for some surveyors to access their survey squares and approach all Snipe habitat to within 50m. The often calm conditions meant that calls were easy to hear and locate. Again, there are no data to prove it, but surveyors were probably able to find a greater proportion of Snipe territories than in previous surveys.

Table 3 shows weather conditions in March-May during the last surveys (2019-2021) and 2025. Snipe were surveyed in 2020 (described in the survey report as 'a dry spring and protracted dry period through early summer leading to significant drying out') and 2021 ('a very late cold spring with frequent wet weather through early summer').

	Mean temp (°C)	Rainfall %	Sunshine %
2019	0	80	110
2020	+1	75	140
2021	-2	80	100
2025	+1	60	140

Table 3 Rounded spring (March-May) Met Office weather data for the New Forest compared with the 1991-2020 average

Although the survey wasn't designed to record fledging success, it is likely that the dry conditions made it difficult for wader chicks (of all four species) to find food.

4.3 Survey effort

In the 2019 HOS New Forest survey of Woodlark, it was felt that the effort put in by volunteer surveyors may have contributed to the large number of Woodlark territories found. The 2025 survey was organised in a similar way, with multiple emails to share survey tips and maintain enthusiasm. However, Curlew, Lapwing and Redshank are much easier to find so it is unlikely that this approach affected observations of these species.

For both 2019-21 and 2025, the instructions were to approach all snipe habitat to within 50m, but in 2025 this was backed up by encouragement to walk through wet ground, up and down streamsides, along the edges of large mires and where possible across small mires. This emphasis on looking for hidden Snipe – which often ‘chipped’ or drummed when flushed – may have increased the effectiveness of some surveyors.

4.4 Curlew – declining

The survey results suggest that the New Forest Curlew population has declined from 32-40 territories in 2019 to 25-29 in 2025. This range is supported by GWCT studies, both in 2025 and in intervening years (see below) and Keeper records summarised annually in the Hampshire Bird Report. It is possible that the very dry weather affected the number of breeding attempts but, since curlew breed in very dry habitats (for example in arable fields in the east of the UK) it is not clear what the effects might be.

The 2019-2025 distribution change map (Figure 3) predictably shows more losses than gains, but these do not appear to be evenly spread across the SAC. The concentrations of red squares (where Curlew have been lost) suggest that some areas may have become less suitable, perhaps due to changes in habitat, drying out, localised predation or lack of recruitment where territories are vacated.

Elli Rivers (GWCT) is using colour-ringing, radio tracking, motion-triggered cameras and careful observation to study breeding Curlew in the New Forest, producing information about movement of adults, nesting preferences, predation and chick survival. Published data (Rivers et al. 2024) indicate greater success in mires than in wet heath, which in turn was better than dry heath. No nests were found in grassland which would give too little visual protection for the nest. Curlew avoid being close to woodland (with effects showing up to 2km away) but no impacts were noted for car parks, camp sites, ponds or roads such as the A35 (though the A31 dual carriageway was avoided). During incubation, off-duty birds often have favourite feeding sites – some fly over 2.5km from the nest (mean 500m). After eggs hatch, some adults move up to 1km from the nest site with their chicks. Predation (during the egg or chick stage) was the main cause of breeding failure; and it was noted that mires tend to lack tracks formed by walking people or ponies, and may therefore be less ‘inviting’ for Fox and Badger which tend to follow these tracks. Conversely, dry heath is relatively accessible to people and mammalian predators.

This year’s survey was not designed to track breeding success; however GWCT observations suggest that eggs hatched in at least 14 Curlew nests and that six young fledged.

As is described in section 4.8, New Forest habitats do change over time. However, it is likely that a range of factors caused the observed population reduction. The underlying issue may be that recruitment from chicks and immigration from elsewhere is insufficient to replace breeding adults that fail to return. The age profile of breeding birds is not known, but at least one is thought to be 33 years old, perhaps indicating an aging population. Most of the Forest’s breeding Curlew are believed to have fledged locally. For example, a colour-ringed bird which hatched at Holmhill in 2023 bred at Fir Pound in 2024 (E Rivers pers. comm). That this bird bred at only one year old (rather than the usually accepted two-three years) shows the potential for successful breeding to quickly boost the local population. A chick from Gloucestershire has been seen at Black Gutter Bottom, so there is also some recruitment from elsewhere.

4.5 Lapwing – surviving at a low ebb

The range of 50-74 Lapwing territories identified is very much in line with the 2019 total of 64 territories (with no indication of the strength of evidence). Previous estimates (using different methodologies including extrapolation from sample surveys) indicated higher populations (1994: 85; 2004: 117; 2014: 144), so it seems likely that a long-term decline has happened but that the current population is holding its own.

The 2019-2025 distribution change map (Figure 5) shows a considerable amount of movement, with more squares vacated and more squares newly occupied than might be expected. As with Curlew, this suggests changes in the suitability of habitats may be having an impact, at least on where they choose to nest.

The maximum of three territories recorded in a single 1km square is lower than might be expected for a species which tends to nest colonially and jointly chase predators away.

As with Curlew, fledging success is low, so home-grown recruitment to the local population must be minimal. However, a colour-ringed bird fledged from the Avon Valley has bred in the New Forest so perhaps there is sufficient movement from nearby nesting areas to maintain the population.

Formerly a common bird of farmland, marsh, water meadow and heath, the Lapwing has been declining for decades due to changes in agriculture and is now absent from much of this landscape. Successive Hampshire Bird Atlas data (1986-91 and 2007-12), with a near 50% reduction in tetrads holding breeding Lapwing, show that Hampshire is not immune from this national decline (Eyre, 2015). However, the open heathlands of the New Forest have not been 'modernised' in the same way as surrounding farmland, so other factors must be at play. In the 1970s, a significant number of pairs bred on Beaulieu airfield (Jackson & Jackson, 1975) where a large expanse of concrete and short vegetation would still have been present. Today, much of the concrete has been removed and gorse grows prolifically in between the remaining old runways, leaving a much smaller area of suitable habitat.

Like other waders, Lapwing are vulnerable to predation at both the egg and chick stages, and to the vagaries of the weather. Jackson & Jackson (1980) found that wet seasons were beneficial up to hatching (resulting in shorter than average laying date spreads, low predation, and the creation of the best feeding conditions for newly hatched chicks), but that below average rainfall was more beneficial to older chicks. The very dry weather in March and April 2025 therefore probably resulted in a poor start to the Lapwing breeding season. However, chicks were seen or suspected at 15 sites and there were indications that at least six young fledged.

4.6 Snipe – doing well

The total of 255 Snipe territories is significantly higher than all previous New Forest surveys (1994: 156; 2004: 111; 2014: 102; 2020-21: 181). They were spread throughout most of the lowland heath parts of the SAC (Figure 6), with lines of territories along streams and their associated mire systems.

Figure 7, Figure 8 and Figure 12 show that in 2025, proportionally more 1km squares had two, three and four Snipe territories than in 2020-21. In 2020 and 2021, snipe were surveyed alone (because the other three species had been covered in 2019) and a total of 141 1km squares were surveyed; 181 territories were found, spread between 90 of these squares (mean 2.0 territories/occupied square). In 2025, all four wader species were surveyed together, across 195 1km squares; 255 Snipe territories were found in 117 squares (mean 2.2 territories/occupied square) including 11 territories in eight of the squares surveyed in

2025 but not in 2020-21. Figure 9 confirms that Snipe were newly found in more squares than squares in which they were missing.

The higher number of Snipe territories found in 2025 can therefore be attributed to finding territories in more 1km squares (helped by the wider search) and a higher density within occupied squares. As discussed below, the extremely dry weather may have enabled surveyors to locate a greater proportion of the breeding pairs than in previous surveys.

Of all the waders surveyed, Snipe are the most secretive, usually spending much of the day crouched in marshy, often relatively inaccessible vegetation and only flushing when approached very closely. They can therefore breed in and around areas with high levels of human disturbance without being noticed. Changes to grazing intensity could have more impact; for example more stock could break up and reduce thick mire vegetation and make it more attractive to Snipe for feeding, though there would also be a greater risk of trampling or disturbance of nests.

Surveyors were unable to safely access some of the more extensive and boggy mires – and listening for calling birds from a distance is a less effective way of detecting breeding pairs than walking through their territories. Many birds sat tight until the observer was much less than 50m away, so even in areas that were walked to within 50m of all suitable habitat, some breeding pairs will have been missed. Without some very detailed studies it is hard to be sure, but it seems likely that the total New Forest breeding population is over 300 pairs.

4.7 Redshank – on the verge of extinction from the New Forest SAC

Just two Redshank territories is the lowest number recorded during a formal survey of the New Forest SAC (down from seven in 2019), and the contraction in distribution is stark (Figure 11). Redshank are very noisy when setting up territories in March and April but then become very quiet and secretive in May when sitting on eggs. If eggs hatch, the adults again become very obvious but the chicks are very well camouflaged and good at hiding. Even with this variation in ‘visibility’, given the number of people engaged in the HOS survey, it is unlikely that other pairs were missed – no evidence of any chicks was reported and it seems likely that they failed at the egg stage.

Across England, the Redshank is more usually associated with saltmarsh and lowland grassland than wet heathland, and it has probably never been common in the core of the New Forest. Historical estimates using extrapolated data include 18-19 pairs in 1994 and 14 pairs in 2004 (Tubbs and Tubbs, 1994; Goater et al., 2004). The 2014 survey estimate of 13 pairs therefore hinted at only a small decline but the reduction to seven in 2019-21 and now only two shows a worrying trend that, if continued, is very likely to end in extinction from the SAC before the next survey in five years’ time.

Records submitted to HOS and published in the annual Hampshire Bird Report, mostly of coastal populations, and GWCT studies of breeding Redshank in the Avon Valley just west of the New Forest (Grayshon, 2023 and pers comm) shed light on the species’ changing fortunes and factors affecting their breeding success. Habitat quality is clearly important: winter grazing pressure in the Avon Valley is controlled and the stock are then removed during the breeding season and newly created scrapes and ditches provide feeding sites for chicks. The other key ingredient is protection from predation, through targeted lethal control (of Fox, Mink and Carrion Crow) and/or electric fences. With quite intensive efforts, landowners in the Avon Valley have seen their Redshank population recover and strengthen (from 20 pairs in 2015 to 35 in 2025) and good numbers of young have fledged. Adults seem very site-faithful, returning each year, and some locally reared colour-ringed chicks have also returned to breed.

Between Lymington and Hurst Spit including off-shore saltmarshes, the recorded number of breeding pairs has also risen, from 14 in 2019 to 36 in 2025 (P. Durnell pers comm). A chick from the Avon Valley has subsequently bred at Lymington showing some dispersal between sites. Normandy Lagoon and meadows in Lymington is largely protected from Fox through an electric fence. Here the number of chicks fledged changes wildly in response to the amount of rainfall (e.g. 20+ chicks from 10+ pairs in the wet year of 2024, down to only two chicks from 12 pairs in 2025).

Rather than 'micro-management' through planned grazing regimes, electric fences and the creation of scrapes, the New Forest is typically managed through wider landscape-scale techniques, in particular through extensive grazing by livestock and periodic management by cutting or prescribed burning to prevent succession.

Over the last five to ten years, prescribed burning and gorse cutting have been effectively carried out at both areas with redshank territories. However, both mires have become prone to early drying out in recent years, and this was especially the case this year. At the eastern Beaulieu heath location the mire is thought to be affected by off forest drainage, which is out of Forestry England's control (L. Sargeant pers comm).

Given the known site fidelity of breeding adults, it seems likely that the demise of the New Forest SAC's Redshank population is due, in part, to poor breeding success and ageing adults. Contributing factors probably include habitat suitability (including drying out), predation and perhaps disturbance.

The 2019-21 survey report considered that the loss of breeding Redshank from the north of the Forest in recent decades was probably a reflection on the losses that had occurred in the Avon Valley. From time to time Redshank are recorded breeding at new sites, for example at Testwood Lakes, Vyne Lake and Ibsley Water. Even with larger numbers breeding in the Avon Valley, no recolonisation has so far occurred within the New Forest SAC, but if they are lost from their final breeding sites in the south east of the SAC, they could subsequently return.

4.8 Habitat management

Whilst much of England has changed fundamentally in recent decades, in particular as a result of modern agricultural practices, the New Forest survives relatively untouched.

Natural England's introduction to the New Forest SAC Management Plan (Natural England, 2025) captures this well when it describes the New Forest as "one of Europe's premier nature conservation sites, renowned for its vast scale, diversity and quality of habitats shaped by centuries of human interaction... it covers some 29,000ha (hectares), supporting a complex mosaic of habitats formerly common in lowland western Europe but now rare and fragmented – these include extensive wet and dry heaths; valley mires; wet and dry grasslands; ancient pasture and enclosed woodland; rivers and streams; and permanent and temporary ponds."

It goes on to say: "These precious habitats are dependent upon the management of the Forest's various owners and occupiers. Fundamentally important throughout the Crown Lands and Adjacent Commons is the pastoral economy, based on the Rights of Common. Here, commoners' stock (cattle and ponies) roam freely – a crucial role that maintains open habitats by controlling persistent species like bracken and purple moor-grass, which maintains the richness of heathland and wood pasture. Other forms of traditional management complement this, like heathland burning and cutting, which ensures structurally diverse habitats."

For breeding Curlew, Lapwing and Redshank, the annual programme of prescribed burning is crucial for maintaining sufficient open habitat with short vegetation; typically, vegetation in each area cycles from 'just burnt' to 'ideal' and then 'too long', before then being burnt again. The extent to which Forestry England is able to carry out planned burning varies significantly between years (dry weather in February and March is essential), but, overall, few people believe that the Forest is currently 'over grown'. Higher numbers of grazing stock are probably also contributing to the presence of more short-grazed habitat than in recent decades (HOS, 2024), though they could also pose a greater risk of 'predation' (see Section 4.10). It is important to understand that habitat management across the SAC is aimed at supporting both the commoners' stock and the full range of characteristic wildlife species, each of which requires different conditions. In practice, waders prefer a mosaic of short or grazed sward with clumps of taller vegetation or broken disturbed ground and there are no data on the degree to which their individual habitat requirements are being maintained.

There are also programmes of heathland restoration (through clear-felling of conifer plantations) and mire restoration (through re-meandering streams that were previously canalised to improve drainage), which benefit a wide range of wildlife species including breeding waders.

4.9 Reducing disturbance

Steven et al (2011) reviewed multiple primary studies on the impacts of recreational disturbance on birds. The vast majority found that recreation (e.g. walking, bird watching and dog walking) had negative impacts (e.g. on bird physiology, behaviour, abundance and breeding success).

In Dorset heathlands, Mallord et al (2006) found that recreational disturbance decreased the probability of Woodlarks setting up territories in suitable habitat. On coastal shingle, Ringed Plover avoid nesting in areas of suitable habitat when disturbance from walkers and dog walkers is high (Lily and Sutherland, 2007).

Across the New Forest SAC, it is widely considered that the unhindered public access negatively impacts many species of wildlife, and in particular, ground nesting birds such as waders. Ground nesting birds are found to be particularly sensitive to recreational disturbance (Thompson, 2015) and there is trail camera evidence of dog predation of curlew eggs (E. Rivers, pers. comm.).

Management of recreation is the responsibility of landowners such as Forestry England and the National Trust, New Forest National Park Authority, user groups, and ultimately the many thousands of individual people who exercise their right to enjoy time in the Forest. A comprehensive programme of publicity, signage and face-to-face engagement is regularly reviewed by partner organisations and a wider strategy includes more strategic issues such as the potential to re-shape or move car parks away from sensitive areas.

Key messages within the widely publicised New Forest Code include keeping dogs under control and keeping to the main tracks. Rangers regularly draw links between recreational disturbance and predation events, for example off-lead dogs flushing a sitting Curlew or Lapwing thereby enabling a watching Carrion Crow to find and eat the eggs. However, across such a wide area and with so many people, it is impossible to ensure that everyone enjoys the Forest responsibly.

4.10 Predator control

A wide range of birds and mammals have been recorded preying on adult waders, eggs and chicks. In the New Forest, all of the following pose risks during the breeding season: Fox,

Badger, dogs, stock (ponies, cattle and sheep), deer, Carrion Crow, Raven, Peregrine, Buzzard, Goshawk, Marsh Harrier and Red Kite. Studies have shown that, in general, eggs are taken most often by mammals, and chicks are mainly caught by birds (Barton et al, 2025).

In a New Forest study that monitored mostly curlew and lapwing nests, 62 out of 140 were predated, 56% by Fox (Case et al., 2022), and Short (2023) reported that of 41 curlew nests monitored with cameras in 2021 and 2022, 25 were predated and of these, 17 were attributed to Fox.

Short (2022) also reported that in 2021, in one Forest area, the Keeper responsible for the beat carried out intensive Fox and Carrion Crow control during the nesting season. Six curlew chicks fledged from his beat alone, more than twice the number of chicks thought to have fledged from the entire New Forest area in 2020. However, Williams (2025) found evidence that Fox numbers may quickly be replenished from adjacent areas with little or no predator control.

In farmland and on nature reserves (e.g. Normandy Lagoon, Lymington), electric fencing can provide effective protection from mammalian predators, and nest cages may work in some situations. Some farms (e.g. in the nearby Avon Valley) have gamekeepers who can keep numbers of Fox and Carrion Crow down. In contrast, the New Forest's grazing and access rights make physical barriers difficult to achieve.

4.11 Further research

Clearly, any actions to help breeding waders in the New Forest should ideally be evidence based and tailored to the New Forest's large size and unique nature. Evidence gathered both within the Forest and elsewhere may provide useful clues to what might work. The current GWCT work on New Forest Curlews is helping to reveal the multiple factors affecting their choice of nest site, nesting success and chick survival – and in particular the effect of predation. We also now know more about where Curlews feed whilst nesting and where some birds spend the winter. The GWCT work on Redshank in the Avon Valley is similarly showing the importance of nesting and feeding habitats and effective protection from predators.

For all the Forest's wader species it would be useful to know more about food preferences and abundance, the age profile of the breeding population, movement of pairs between nest sites within the Forest, where any new recruits to the Forest come from, how predation is best tackled (at both egg and chick stages) and how the weather and climate change affect all of the above.

It seems unlikely that there is a 'silver bullet' that would easily and significantly improve the fortunes of one species, let alone all four. A range of management measures is already in use but if the New Forest is to remain (or retrieve) its oft-quoted status as a stronghold for breeding waders, we need to know what more should be done.

5 CONSIDERATIONS FOR FUTURE SURVEYS

Surveying an area as large as the New Forest for waders is likely to be a challenge for any survey team, but the HOS approach of using lots of volunteers, supported by training and regular emails to develop survey skills and maintain enthusiasm, worked well. Fewer people came forward than for the 2024 Woodlark survey, probably because publicity included reference to the need to walk through wet habitats in search of Snipe, but all 195 1km survey squares were allocated before the start date.

Forestry England's tender documents allowed for Snipe to be surveyed separately from the other species on the grounds that it is 'more complex to survey'. HOS proposed that it would be much more efficient and cost effective for both contracts to be awarded to the same organisation. There was significant overlap in 1km squares to be surveyed, the methodology was almost identical, there was just one team of surveyors with one suite of survey instructions, one main channel of communication – and this report combines all aspects of all four species.

Future survey organisers will doubtless reconsider which 1km squares should be surveyed, especially areas which are without any wader species in successive surveys.

The website on which volunteers chose their survey squares had a much improved allocation map. The Google Maps background and ability to zoom and drag made it much easier to recognise and select the squares that needed surveying.

The two training sessions were well attended and feedback was positive; in contrast, the Zoom meeting could have been better attended and organised to allow more time for questions. As in other recent HOS surveys, it was important to have a small team of back-up surveyors to cover for people who were unable to do all three survey visits to all their allocated squares.

Given the known mobility of breeding Curlew and the associated risk of double-counting, it was also important to ask Forestry England Keepers and GWCT staff to comment on initial assessments of territory locations.

6 CONCLUSIONS

A survey of breeding waders undertaken in 2025 across the New Forest SAC identified a total of 25-29 Curlew territories, 50-74 Lapwing territories, 255 Snipe territories and two Redshank territories. These results suggest a decline in Curlew, stable but low numbers of Lapwing and good numbers of Snipe. The Redshank could disappear from the SAC before the next survey in five years' time.

Factors affecting how many adults attempt to breed include habitat condition, how many have survived from the previous year, whether they were successful the previous year and how much, if any, recruitment takes place from locally fledged chicks or elsewhere.

Breeding success is also constrained by the habitat, including its suitability for the nest, and feeding conditions for both adults and chicks. Disturbance and, in particular, predation at the egg and chick stages are thought to be the biggest reasons for low levels of fledging.

All these factors may be influenced by the weather before and during the breeding season.

The New Forest's rich and varied heathland habitats and landscape-scale management through grazing and prescribed burning are a wonderful reminder of what much of England used to look like. They still support a wide range of formerly widespread species including breeding waders.

However, whilst the Snipe population seems to be doing well, the low and declining numbers of Curlew, Lapwing and Redshank is a cause for concern. Further research may yet reveal actions that would, in theory, enable wader populations to recover and grow, but whether these will be practicable at scale remains to be seen. In the meantime, the survey results suggest that organisations responsible for the New Forest SAC should continue to manage and restore habitats, limit disturbance and, where possible, engage in targeted predator control.

The survey fulfils the commitment of the HLS board, under the agreement for the HLS scheme, to provide current population information for breeding waders which depend on the habitats for which the New Forest SAC is designated.

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N Addleton	P Budd	S Fox	N Owen	D Rogers
D Anderson	R Cameron	P Gibbs	A Page	D Russell
K Anderson	R Chapman	K Godfrey	A Parker	H Schneider
O Aslanidis	R Clements	R Groves	A Parsonage	P Sheaf
G Baker	N Coates	M Halligan	H Pearson	J Smith
M Bennett	R Coates	I Hampson	P Pearson	T Stone
K Betton	S Colenutt	C Hunnisett	P Pires	M Swann
G Bird	J Craddock	G James	A Prugel-	R Taylor
M Black	M Daniel	C Johnson	Bennett	B Thomas
A Blair	G Digby	N Kendall	A Pullen	G Thornton
W Bloomfield	P Durnell	S Lavington	J Puzio	M Violette
S Boswell	M Edgeller	A Layton	S Randall	R Webb
M Bradley	S Egleston	N Matthews	P Read	J West
J Brandsma	J Faulkner	J Moseley	N Reid	I Wigley
D Brookes	J Fenner	S Nickols	S Renyard	B Yexley

9 APPENDICES

Appendix A. Number of territories found in each 1km SAC square

	Curlew territories			Lapwing territories			Snipe territories			Redshank territories		
1km square	2014	2019	2025	2014	2019	2025	2014	2020-21	2025	2014	2019	2025
SU1608								1	4			
SU1708				2		1						
SU1709				1		3	1	3	4			
SU1710	4			1								
SU1711	3			1		1		1	1			
SU1801	1	1			1		1	3	2			
SU1802								2	1			
SU1803	2	1	1						3			
SU1804								2	3			
SU1805								4	2			
SU1806								1	2			
SU1808				1								
SU1810	2	1	1	3		2		2	3			
SU1811	5	1	2	3			1	2	3			
SU1812	1			1	1	2			2			
SU1813						1		2	2			
SU1814				2			2					
SU1815	1							1	1			
SU1816								2	2			
SU1900	1	1				1			1			
SU1901		1	2		1	1						
SU1902	2	1	1					2	2			
SU1903	2						2	2	3			
SU1904	2							1	1			
SU1905							1	3	1			
SU1906						1			5			
SU1907							1	2	4			
SU1911	1	1		1			1		4			
SU1912	1					2	1	1	4			
SU1913	1	1						1	2			
SU1915	2			1				1	4			
SU1916	3		1	1				1	2			
SU1917	1			1					1			
SU2000	1			2	3	3	1		1			
SU2001	2	1	1	3		1	1	1	1			
SU2005									3			
SU2006						1						
SU2007					2		1					
SU2008								2	1			

	Curlew territories			Lapwing territories			Snipe territories			Redshank territories		
1km square	2014	2019	2025	2014	2019	2025	2014	2020-21	2025	2014	2019	2025
SU2011	1											
SU2012	2								2			
SU2014	1						1	1				
SU2015	1				2		1	3	1			
SU2016		1					1	2	4			
SU2017									1			
SU2100		1	1		2	2		2	4			
SU2101	4	1			1	1	4	1	2			
SU2104	1	1			1		1	1	2			
SU2105							1					
SU2106				1			2		3			
SU2107								1	1			
SU2108								4	5			
SU2109								1	1			
SU2110								1	2			
SU2111								1				
SU2112							1	2	2			
SU2116	2						2	1	3			
SU2117				1				1	1			
SU2201	1						1	3	4			
SU2202				2		2						
SU2203				2	2	2	1		1			
SU2206								2	1			
SU2207								3	5			
SU2208							1	2	2			
SU2209									1			
SU2210	1		1	1			1	1	2			
SU2211		1			2				1			
SU2212							1	1	1			
SU2213									2			
SU2301	1			2	1	1	1	1	2			
SU2302	1		1	2	1	1	2					
SU2303	1			1		1	3	2	3			
SU2307								1				
SU2308								1	3			
SU2309							1	3	2			
SU2310								2	3			
SU2311	1					2		1				
SU2312				1								
SU2315	1	1			2	2			1			
SU2400									2			
SU2402							1	2	2			

	Curlew territories			Lapwing territories			Snipe territories			Redshank territories		
1km square	2014	2019	2025	2014	2019	2025	2014	2020-21	2025	2014	2019	2025
SU2403				2	1	3	1	5	5			
SU2410								2	1			
SU2411					1							
SU2412					1							
SU2415	1	1			1	1						
SU2501				1								
SU2502	2	1	1				2	6	3			
SU2503									1			
SU2510							1	2	4			
SU2511				3								
SU2512				1	1							
SU2600	1				1							
SU2601			1	1		2			1			
SU2602	2	1	1	1		2	4	7	5			
SU2603								3	1			
SU2608									1			
SU2609				1				1	1			
SU2610									1			
SU2612				1								
SU2700							1	5	3			
SU2701	2			1			1	3	3			
SU2702				2			1		1			
SU2703				1					2			
SU2707				1								
SU2708				1			1	1				
SU2800	2						4	3	2			
SU2801		1					4	1	2			
SU2802		1		1	2	2						
SU2804				1								
SU2805				3								
SU2900				1					2			
SU2903												
SU2906					1							
SU3017				1								
SU3108		1		1	1			1				
SU3207	3	1		1			1					
SU3208	2			1	1	1	1		1			
SU3300	1		1									
SU3301	1											
SU3305								1	1			
SU3306	1								2			
SU3307	1								1			

	Curlew territories			Lapwing territories			Snipe territories			Redshank territories		
1km square	2014	2019	2025	2014	2019	2025	2014	2020-21	2025	2014	2019	2025
SU3308					1							
SU3400	1	1	1	1					1			
SU3401	1			3								
SU3405	2		1	1	1	1	2	3	6	1		
SU3406	3		1	3	1		3	1	1	1		
SU3407	1	1		2		1		1	1			
SU3408	1				1							
SU3500	1					1			2			
SU3501	1	1		1		1		1	1		1	1
SU3504				9	2		6	3	5			
SU3505	2		1			2	1	1	1			
SU3506	1	1	2			1			3			
SU3507				1					3			
SU3600				7		2	1	1	1	4		
SU3601								1				
SU3604								1				
SU3605	1	1				1		2	2			
SU3606	3	1	1	1								
SU3607	2	1		1	1		1	1	4			
SU3700				1								
SU3705	2	1	1	1		1	2	5	4			
SU3706	3	1		4	2		3	1	2			
SU3805						2			2			
SU3806	2	1		1			1		1			
SU3904	1											
SU3905		1					1		1			
SU3906	1			3	3		1	4	1			
SU4002	1			1	2	1				1	1	
SU4003				5	3		3	1		2	2	
SU4004	1	1		6	2		2		1		1	
SU4005	1				1							
SU4102	1			4			3	5	1	1	1	1
SU4103	3	1	2	8			3	1		1		
SU4104	2	1	1	1	2	1	2		3	1	1	
SU4202	1											
SZ2299						2						
SZ2499									2			
SZ2598					2							
SZ2599								4	4			
SZ2698					2				1			
SZ2899		1			1	1		1	1			
SZ2998				1		1						

	Curlew territories			Lapwing territories			Snipe territories			Redshank territories		
1km square	2014	2019	2025	2014	2019	2025	2014	2020-21	2025	2014	2019	2025
SZ2999	1	1		2	2	2	1	2	1			
SZ3099								1				
SZ3498				2		3						
SZ3499	4		1	2		2		5	4			
SZ3598				2								
SZ3599	2	1	1	3	1	3	2	1	2	1		
SZ3699				2	1		1	3	2			
Total	122	40	29	143	64	74	102	181	255	13	7	2

Appendix B. Locations of wader territories found in 2025

Key to strength of evidence of Curlew and Lapwing territories

Strong / confirmed
Medium / likely
Weak / possible

1km square	Curlew grid references	
SU1803	SU 18613 03696	
SU1810	SU 18449 10720	
SU1811	SU 18201 11677	SU 18841 10969
SU1901	SU 19593 01000	SU 19852 01760
SU1902	SU 19764 02588	
SU1916	SU 19099 16104	
SU2001	SU 20760 01383	
SU2100	SU 21205 00816	
SU2210	SU 22360 10668	
SU2302	SU 23100 02137	
SU2502	SU 25418 02838	
SU2601	SU 26915 01977	
SU2602	SU 26225 02137	
SU3300	SU 33807 00326	
SU3400	SU 34270 00048	
SU3405	SU 34699 05992	
SU3406	SU 34016 06981	
SU3505	SU 35897 05799	
SU3506	SU 35527 06404	SU 35935 06516
SU3606	SU 36947 06351	
SU3705	SU 37867 05495	
SU4103	SU 41221 03033	SU 41457 03966
SU4104	SU 41039 04284	

1km square	Curlew grid references	
SZ3499	SZ 34615 99722	
SZ3599	SZ 36145 99695	

1km square	Lapwing grid references		
SU1708	SU 17819 08296		
SU1709	SU 17547 09332	SU 17785 09600	SU 17954 09889
SU1711	SU 17494 11304		
SU1810	SU 18427 10300	SU 18557 10926	
SU1812	SU 18211 12659	SU 18915 12693	
SU1813	SU 18079 13282		
SU1900	SU 19399 00496		
SU1901	SU 19350 01078		
SU1906	SU 19923 06775		
SU1912	SU 19072 12833	SU 19634 12489	
SU2000	SU 20435 00749	SU 20498 00899	SU 20873 00094
SU2001	SU 20661 01221		
SU2006	SU 20136 06916		
SU2100	SU 21064 00118	21103 00795	
SU2101	SU 21466 01051		
SU2202	SU 22877 02200	SU 22950 02119	
SU2203	SU 22765 03284	SU 22909 03312	
SU2301	SU 23413 01813		
SU2302	SU 23050 02111		
SU2303	SU 23058 03397		
SU2311	SU 23357 11686	SU 23440 11797	
SU2315	SU 23636 15099	SU 23773 15211	
SU2403	SU 24289 03246	SU 24565 03223	SU 24720 03536
SU2415	SU 24641 15199		
SU2601	SU 26660 01684	SU 26828 01888	
SU2602	SU 26321 02154	SU 26663 02475	
SU2802	SU 28322 02175	SU 28440 02098	
SU3208	SU 32899 08518		
SU3405	SU 34127 05203		
SU3407	SU 34666 07424		
SU3500	SU 35951 00237		
SU3501	SU 35864 01186		
SU3505	SU 35788 05898	SU 35939 05968	
SU3506	SU 35414 06433		
SU3600	SU 36434 00357	SU 36724 00514	
SU3605	SU 36412 05676		
SU3705	SU 37959 05701		
SU3805	SU 38122 05296	SU 38242 05144	

1km square	Lapwing grid references		
SU4002	SU 40828 02926		
SU4104	SU 41177 04058		
SZ2299	SZ 22284 99469	SZ 22300 99325	
SZ2899	SZ 28898 99186		
SZ2998	SZ 29604 98962		
SZ2999	SZ 29851 99254	SZ 29963 99218	
SZ3498	SZ 34146 98570	SZ 34225 98700	SZ 34277 98805
SZ3499	SZ 34218 99889	SZ 34826 99835	
SZ3599	SZ 35419 99465	SZ 35882 99754	SZ 35948 99535

1km square	Snipe grid references					
SU1608	SU 16464 08692	SU 16649 08779	SU 16796 08826	SU 16943 08866		
SU1709	SU 17340 09106	SU 17636 09373	SU 17699 09616	SU 17858 09818		
SU1711	SU 17693 11384					
SU1801	SU 18487 01661	SU 18387 01831				
SU1802	SU 18806 02751					
SU1803	SU 18915 03249	SU 18741 03511	SU 18616 03834			
SU1804	SU 18588 04301	SU 18635 04643	SU 18619 04914			
SU1805	SU 18754 05486	SU 18961 05577				
SU1806	SU 18615 06057	SU 18981 06631				
SU1810	SU 18322 10267	SU 18567 10569	SU 18716 10906			
SU1811	SU 18735 11332	SU 18325 11693	SU 18398 11587			
SU1812	SU 18352 12596	SU 18901 12700				
SU1813	SU 18955 13370	SU 18098 13255				
SU1815	SU 18760 15081					
SU1816	SU 18582 16345	SU 18782 16666				
SU1900	SU 19794 00434					
SU1902	SU 19140 02730	SU 19439 02871				
SU1903	SU 19342 03244	SU 19173 03491	SU 19211 03827			
SU1904	SU 19396 04466					
SU1905	SU 19873 05826					

1km square	Snipe grid references					
SU1906	SU 19949 06017	SU 19936 06262	SU 19879 06455	SU 19853 06634	SU 19185 06488	
SU1907	SU 19589 07163	SU 19827 07278	SU 19862 07458	SU 19989 07560		
SU1911	SU 19186 11264	SU 19342 11631	SU 19643 11804	SU 19853 11717		
SU1912	SU 19247 12440	SU 19470 12755	SU 19403 12969	SU 19041 12958		
SU1913	SU 19396 13122	SU 19247 13824				
SU1915	SU 19285 15285	SU 19481 15651	SU 19822 15547	SU 19206 15893		
SU1916	SU 19367 16142	SU 19897 16116				
SU1917	SU 19836 17632					
SU2000	SU 20730 00099					
SU2001	SU 20814 01635					
SU2005	SU 20013 05561	SU 20328 05566	SU 20846 05742			
SU2008	SU 20365 08012					
SU2012	SU 20590 12105	SU 20311 12490				
SU2015	SU 20052 15580					
SU2016	SU 20389 16210	SU 20747 16319	SU 20967 16378	SU 20696 16844		
SU2017	SU 20861 17197					
SU2100	SU 21145 00886	SU 21355 00655	SU 21569 00625	SU 21801 00843		
SU2101	SU 21015 01682	SU 21668 01734				
SU2104	SU 21276 04546	SU 21206 04786				
SU2106	SU 21303 06489	SU 21478 06655	SU 21484 06860			
SU2108	SU 21102 08033	SU 21124 08433	SU 21387 08454	SU 21063 08734	SU 21187 08856	
SU2109	SU 21601 09324					
SU2110	SU 21922 10923	SU 21756 10985				
SU2112	SU 21756 12432	SU 21909 12541				
SU2116	SU 21246 16404	SU 21542 16430	SU 21728 16665			
SU2117	SU 21470 17219					
SU2201	SU 22012 01736	SU 22304 01480	SU 22524 01263	SU 22702 01122		
SU2203	SU 22850 03260					

1km square	Snipe grid references					
SU2206	SU 22260 06828					
SU2207	SU 22044 07019	SU 22263 07175	SU 22037 07351	SU 22555 07996	SU 22791 07870	
SU2208	SU 22520 08239	SU 22263 08281				
SU2209	SU 22335 09490					
SU2210	SU 22189 10771	SU 22058 10829				
SU2211	SU 22045 11123					
SU2212	SU 22172 12619					
SU2213	SU 22345 13779	SU 22190 13951				
SU2301	SU 23268 01276	SU 23175 01899				
SU2303	SU 23218 03278	SU 23759 03230	SU 23877 03414			
SU2308	SU 23169 08073	SU 23106 08487	SU 23499 08583			
SU2309	SU 23356 09105	SU 23604 09326				
SU2310	SU 23394 10180	SU 23325 10718	SU 23477 10884			
SU2315	SU 23660 15503					
SU2400	SU 24212 00174	SU 24447 00024				
SU2402	SU 24390 02945	SU 24845 02279				
SU2403	SU 24077 03237	SU 24225 03060	SU 24459 03163	SU 24555 03354	SU 24638 03493	
SU2410	SU 24014 10289					
SU2502	SU 25204 02161	SU 25166 02895	SU 25718 02839			
SU2503	SU 25428 03131					
SU2510	SU 25195 10341	SU 25430 10455	SU 25547 10649	SU 25413 10902		
SU2601	SU 26832 01991					
SU2602	SU 26622 02195	SU 26919 02256	SU 26898 02495	SU 26421 02676	SU 26590 02846	
SU2603	SU 26218 03057					
SU2608	SU 26707 08995					
SU2609	SU 26883 09292					
SU2610	SU 26222 10702					
SU2700	SU 27087 00554	SU 27377 00521	SU 27867 00519			

1km square	Snipe grid references					
SU2701	SU 27371 01531	SU 27270 01908	SU 27608 01876			
SU2702	SU 27056 02579					
SU2703	SU 27787 03524	SU 27784 03738				
SU2800	SU 28338 00827	SU 28241 00914				
SU2801	SU 28352 01026	SU 28304 01330				
SU2900	SU 29261 00068	SU 29507 00204				
SU3208	SU 32672 08516					
SU3305	SU 33854 05389					
SU3306	SU 33964 06317	SU 33867 06553				
SU3307	SU 33636 07187					
SU3400	SU 34253 00137					
SU3405	SU 34922 05048	SU 34724 05050	SU 34494 05176	SU 34114 05353	SU 34859 05766	SU 34731 05927
SU3406	SU 34272 06281					
SU3407	SU 34887 07372					
SU3500	SU 35067 00052	SU 35826 00040				
SU3501	SU 35768 01285					
SU3504	SU 35336 04540	SU 35648 04551	SU 35951 04601	SU 35439 04763	SU 35360 04946	
SU3505	SU 35527 05532					
SU3506	SU 35319 06433	SU 35602 06459	SU 35784 06182			
SU3507	SU 35178 07508	SU 35201 07328	SU 35377 07443			
SU3600	SU 36848 00201					
SU3605	SU 36394 05930	SU 36532 05392				
SU3607	SU 36118 07244	SU 36460 07206	SU 36746 07066	SU 36404 07820		
SU3705	SU 37336 05850	SU 37550 05625	SU 37788 05417	SU 37886 05829		
SU3706	SU 37771 06374	SU 37214 06722				
SU3805	SU 38377 05198	SU 38160 05384				
SU3806	SU 38830 06540					
SU3905	SU 39530 05499					

1km square	Snipe grid references					
SU3906	SU 39215 06171					
SU4004	SU 40684 04858					
SU4102	SU 41143 02884					
SU4104	SU 41130 04119	SU 41721 04200	SU 41859 04358			
SZ2499	SZ 24602 99888	SZ 24781 99814				
SZ2599	SZ 25385 99671	SZ 25558 99649	SZ 25740 99620	SZ 25830 99818		
SZ2698	SZ 26096 99249					
SZ2899	SZ 28947 99376					
SZ2999	SZ 29945 99224					
SZ3499	SZ 34235 99789	SZ 34467 99618	SZ 34619 99365	SZ 34781 99770		
SZ3599	SZ 35851 99690	SZ 35802 99854				
SZ3699	SZ 36237 99454	SZ 36237 99718				

1km square	Redshank grid references
SU3501	SU 35662 01223
SU4102	SU 41173 02805