New Forest Woodlark (*Lullula arborea*) survey 2024

Higher Level Stewardship Agreement
The Verderers of the New Forest
AG00300016

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Juvenile Woodlark © A Parker

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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 Woodlarks in the New Forest in 2024. The area surveyed was primarily the New Forest Special Protection Area (SPA), including land managed by Forestry England (FE), National Trust (NT), Hampshire County Council (HCC) and Wellow Parish Council (WPC). Additional records of Woodlarks reported by surveyors outside of their allocated 1km squares were also collated, as were reports from other people and from elsewhere in the Hampshire part of the New Forest.

293 one kilometre squares within the SPA were surveyed over the period 15 February – 31 May 2024 using the national methodology. These included all squares thought to have suitable breeding habitat and/or where Woodlarks had been recorded in the preceding five years.

Analysis of survey data indicated a total of 260 Woodlark breeding territories within the SPA, plus a further 64 territories reported outside of the survey methodology. This is the highest population estimate ever recorded for the SPA and well above the Natural England target. 19 territories were found outside of the SPA.

Reasons for the increase in identified territories and considerations for future Woodlark surveys are discussed.

1 INTRODUCTION

1.1 The New Forest and its designations

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

It is classified as a Special Protection Area under Article 4.1 of the European Birds Directive, recognising that it is an internationally important site for breeding and over-wintering bird species. This includes an internationally important population of Woodlark (*Lullula arborea*).

The area is also designated as Special Area of Conservation (SAC) for its habitats and non-avian species of European importance, in accordance with the European Habitats Directive.

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

The New Forest Site of Special Scientific Interest is the national wildlife designation recognising the national scientific and biodiversity value of the site.

1.2 The Higher Level Stewardship Scheme

The HLS Scheme is awarded to The Verderers of the New Forest by the Department for Environment, Food and Rural Affairs (Defra) 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. The Woodlark is surveyed at about five year intervals and the last survey was done in 2019.

On behalf of the HLS partners, Forestry England commissioned HOS to survey breeding Woodlarks on land covered by the HLS Scheme, New Forest Crown Lands outside the scheme managed by the Forestry Commission and New Forest heathland areas managed by National Trust, HCC and Wellow Parish Council. The primary survey area was the New Forest SPA, so that comparisons with previous years could be made.

1.3 Woodlark ecology

The Woodlark's ecology is described in detail by HOS (2019) and summarised here.

In Britain, Woodlarks principally breed on lowland heathland where there is sufficient grazing or management regimes to create the short sward and bare ground they need – and within woodland plantations where suitable habitat is generated by clear-felling of trees. They favour woodland edges and areas with scattered bushes and small trees. In Hampshire, Woodlarks are known to feed on farmland in winter, with a preference for stubble or fields where the crop is still sparse (Keith Betton, HOS records) and it is thought that most spend the winter within a few miles of their breeding sites.

Woodlarks spend much of their time feeding on the ground. In the breeding season they eat insects and their larvae and spiders; in winter they turn to seeds.

New Forest studies (A. Page unpublished) show that nesting generally occurs in small often sparse clumps of vegetation, especially grass and heather, but also bracken. They usually return to breeding territories in January or February, singing in a high display flight or from a tree to stake out their territories and attract a mate. Eggs are laid from March onwards and most pairs are incubating by early April. The normal clutch size is 3 or 4 eggs, occasionally 5 or 6. Incubation lasts around 14 days and the young can leave the nest after 12 days. If predation occurs, repeat clutches can be laid within 10-14 days. Successful pairs are often double brooded.

Figure 1. Good Woodlark habitat with a short-grazed sward and scattered trees and birch scrub, here created by clearance of conifers adjacent to open heathland

1.4 Woodlark populations in the UK and New Forest

Following a dramatic decline in breeding numbers and contraction of range nationally during the latter half of the 20th century, national surveys were undertaken in 1986, 1997 and 2006, revealing a steady recovery. The 2006 national survey showed an overall increase in the population size and range for the whole of Britain, and a total population estimate of 3,064 territorial males.

The New Forest was surveyed as part of the national survey in 2006 (recording 143 breeding pairs), but a change in the sampling method meant that a small number of territories which had been identified in the 1997 survey were not included in 2006. This has been cited as a contributory factor in the apparent reduction in breeding pairs from the 182 found in 1997, against the rising national trend (Fearnley et al. 2012).

HLS -funded surveys of the New Forest found 134 breeding pairs in 2014 (Gates, 2014) and 169 pairs in 2019 (HOS, 2019). Differences in areas covered and survey techniques are discussed in section 4.

Supplementary advice on conserving and restoring site features for the New Forest SPA (Natural England, 2019) includes the following target: 'Restore the size of the breeding Woodlark population to a level which is above 177 pairs (at least 12.3% of the breeding population of Great Britain at the time of SPA classification), whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent'. The supporting and explanatory notes cite the importance of key breeding habitats (dry heathland, dry acid grassland and lichen heath with very short heather growth and recently felled conifer stands).

2 METHODS

2.1 The area surveyed

The 2024 survey was organised for HOS by Nigel Matthews, with assistance from Andy Page and Keith Betton.

The boundary of the area within the New Forest surveyed for breeding Woodlarks was primarily the SPA which is largely covered by the HLS Scheme. Most of the SPA is New Forest Crown Lands managed by Forestry England, with smaller areas managed by HCC, National Trust and Wellow Parish Council. Small areas of heathland close to but outside of the SPA were also surveyed: Foxbury managed by National Trust near West Wellow, around Badminston Common near Fawley, Setley Common (part of Hampshire & Isle of Wight Wildlife Trust's Roydon Woods nature reserve), Burton Common near Bransgore, and Gorley and Hyde Commons managed by HCC.

1km squares to be surveyed were identified using the 2014 and 2019 Woodlark surveys, the HOS species database (February-May records in 2019-23), aerial views of woodland that might contain suitable clearings, 1:25,000 OS maps and through fieldwork. HOS members were asked to survey 293 1km squares within the SPA, and 14 that were largely or entirely outside the SPA. This compares with 2019 totals of 267 and 4 respectively.

2.2 Additional records

In contrast to previous surveys, surveyors were also encouraged to provide details of Woodlarks found away from their own allocated survey squares, for example while on their way to do a survey or when out walking elsewhere. Reports on Going Birding and observations during the February and March HOS New Forest Winter Bird Surveys were

also followed up. The majority of these reports duplicated (and helped to confirm) sightings by surveyors using the prescribed methodology. However, some reports suggested that surveyors had missed territories (see Results).

2.3 Survey methodology

As with other recent HOS surveys, a dedicated website enabled volunteers to decide which of the survey squares they wanted to survey. To build on their experience and knowledge, previous surveyors were given early opportunity to choose the same squares that they had covered in the past. 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 including a 200m border or overlap with adjacent squares). 103 volunteers responded and subsequently surveyed between one and ten squares each.

To enable comparison with results of previous surveys, the survey methodology followed the national survey methodology (Wotton & Gillings, 2000; Conway et al., 2009). Surveyors were asked to survey their allocated 1km squares as follows:

- *Pre-survey visit to identify the edges of your area, paths, landmarks and best areas of habitat, including clearings and areas of newly planted conifers within woodland*
- *Minimum of two survey visits (14+ days apart), one within each of the periods:*
    - *15th February – 31st March*
    - *1st April – 31st May*
- *You may wish to do additional visits if weather conditions are not ideal or if you feel you did not cover all the area effectively*
- *Visits should commence asap after dawn and finish by midday on mild, clear, dry days with little wind*
- *All suitable habitat should be walked to at least within 100m to maximise detection of territorial birds. You do not need to walk across wet mires, and within woodland only clearings and very young plantations need to be checked.*
- *Your maps have an 'overlap zone' around the edge. Please check this area, especially where there are strips of potentially suitable habitat adjacent to your square that have not been allocated to other surveyors (e.g. where heathland borders woodland or farmland).*

Record the locations of all Woodlarks on the map on the Recording Form provided:

- *Singing males, noting especially if singing simultaneously with neighbouring birds*
- *All other observations (including alarm calls, feeding birds, birds carrying food and birds in flight).*
- *Use a separate map/form for each visit or use a different colour to distinguish different visits.*

Unusually high rainfall during the early weeks of the survey period meant that ideal weather conditions were hard to find but the large number of surveyors meant that best use of these was possible. Many also did repeat visits when initial attempts felt unproductive due to the conditions.

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

The start date of 15th February fitted well with local knowledge that Woodlark breeding activity has started by this time; indeed many birds were on territory from January onwards. The end date of 31st May reduced the chances of double recording pairs that may have changed breeding locations between early and late broods (Wotton & Gillings 2000) or inadvertently recording dispersing juveniles in locations where they had not been raised.

Encouragement of surveyors to check the 200m 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 support

Most volunteers knew the New Forest well and were experienced in doing bird surveys. Training was offered (on two separate mornings) to all volunteers, particularly to help those who were less experienced – and 32 people attended.

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 links to a BTO identification video, use of mapping apps, coping with poor weather conditions, Woodlark behaviour, searching techniques and looking out for fledged juveniles. As recommended by HOS (2019), volunteers were encouraged to complete their second phase surveys during April while Woodlarks were still singing strongly rather than relying on May visits when they are more difficult to find.

During the first phase of the survey, additional records of Woodlarks within the SPA were shared with the 'resident surveyor' in case this helped them to refine their own visits and thereby find birds they might otherwise have missed.

The regular communication with volunteers probably helped identify about nine volunteers who needed help to complete their surveys, either because they became unsure of their Woodlark identification skills or because personal circumstances prevented them from continuing. In these cases, help from a small team of competent surveyors was arranged – covering about 25 1km squares. The same team also double checked a few locations where sightings seemed lower than expected, resulting in some of the additional records.

2.5 Determination of territories

Annotated maps on completed Recording Forms were saved as images to enable Andy Page and Nigel Matthews to quickly mark up a paper 1:25,000 OS map with likely territories.

Records of birds more than 300m apart were usually assumed to relate to different pairs. Except where they are seen or heard simultaneously, those closer than 300m were generally assumed to be the same pair. This fits well with the number and distribution of territories within a well-studied area of maximum Woodlark density in the Longcross and Stoney Cross parts of the New Forest. Here the average territory size is approximately 18 hectares (maximum of about five pairs per 1km square) (A. Page, unpublished).

Additional records were also mapped and analysed alongside surveyor forms.

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

Sightings during preliminary (pre-survey) visits were not included in the analysis (except to confirm subsequent clusters) nor were sightings of juveniles only.

3 RESULTS

3.1 Breeding population of Woodlarks in the New Forest SPA in 2024

Within the SPA, a total of 260 territories was found by surveyors in or immediately adjacent to their survey squares. Additional reports (see section 2.2) suggested that there were a further 64 territories within this area, bringing the SPA total to 324.

Outside of the SPA, 19 territories were found bringing the total number of territories in the New Forest (within Hampshire) to 343.

The table below compares the numbers of territories recorded in each of the last three Woodlark surveys, with a breakdown of where within and outside the SPA they were found (Gates, 2014; HOS, 2019).

Year	FE	NT, HCC & WPC	SPA total	Outside SPA	Total
2014	108	26 (of which 6 outside SPA)	128	6 Foxbury (6)	134
2019	148	21 (of which 2 outside SPA)	167	5 Wiltshire (2), Foxbury (2), Badminston Common (1),	172
2024 surveyor records in SPA	229	31	260	N/A	N/A
2024 additional records	54	16 (of which 6 outside SPA)	64	19 Setley Common & nearby farmland (6), Foxbury (5), Burton Common & adjacent farmland (2), Badminston Common (2), Gorley Common (1), East End farmland (1), Ripley farmland (1), Beaulieu farmland (1)	343

Table 1. Numbers of territories recorded in each of the last three Woodlark surveys

Appendix A lists the number of Woodlark territories found in each 1km SPA square during the last three HLS-funded surveys.

3.2 Breeding distribution and density

Figures 3-8 show the distribution of Woodlark territories located across the New Forest during the 2024 survey. Most Woodlarks were found on the heathland parts of the SPA, where there is most of the very short vegetation on which they find food. Their preference for trees for song and lookout posts is demonstrated by the way many territories were around the edges of the heathland rather than way out in the open where there are very few trees. Woodlark breeding density appears to be lowest in the south and southwest of the SPA where heathlands are currently often dominated by heather and gorse.

The maps also show a sprinkling of territories within wooded parts of the SPA. These were focused on clearings which have either developed naturally through grazing by ponies and deer, or which have been created by recent tree felling operations. Woodland areas cleared since 2019, some funded through the HLS scheme, are shown as yellow on the maps. It's hard to be sure, but about six survey territories and two additional territories appear to be centred on these areas of developing heathland, and a further five or more territories were close enough to have benefitted from the additional feeding habitat.

Territories outside the SPA were in similar habitats or on nearby farmland.

Appendix B lists the grid references of Woodlark territories found 2024.

Figure 2. Adult Woodlark © Steve Laycock

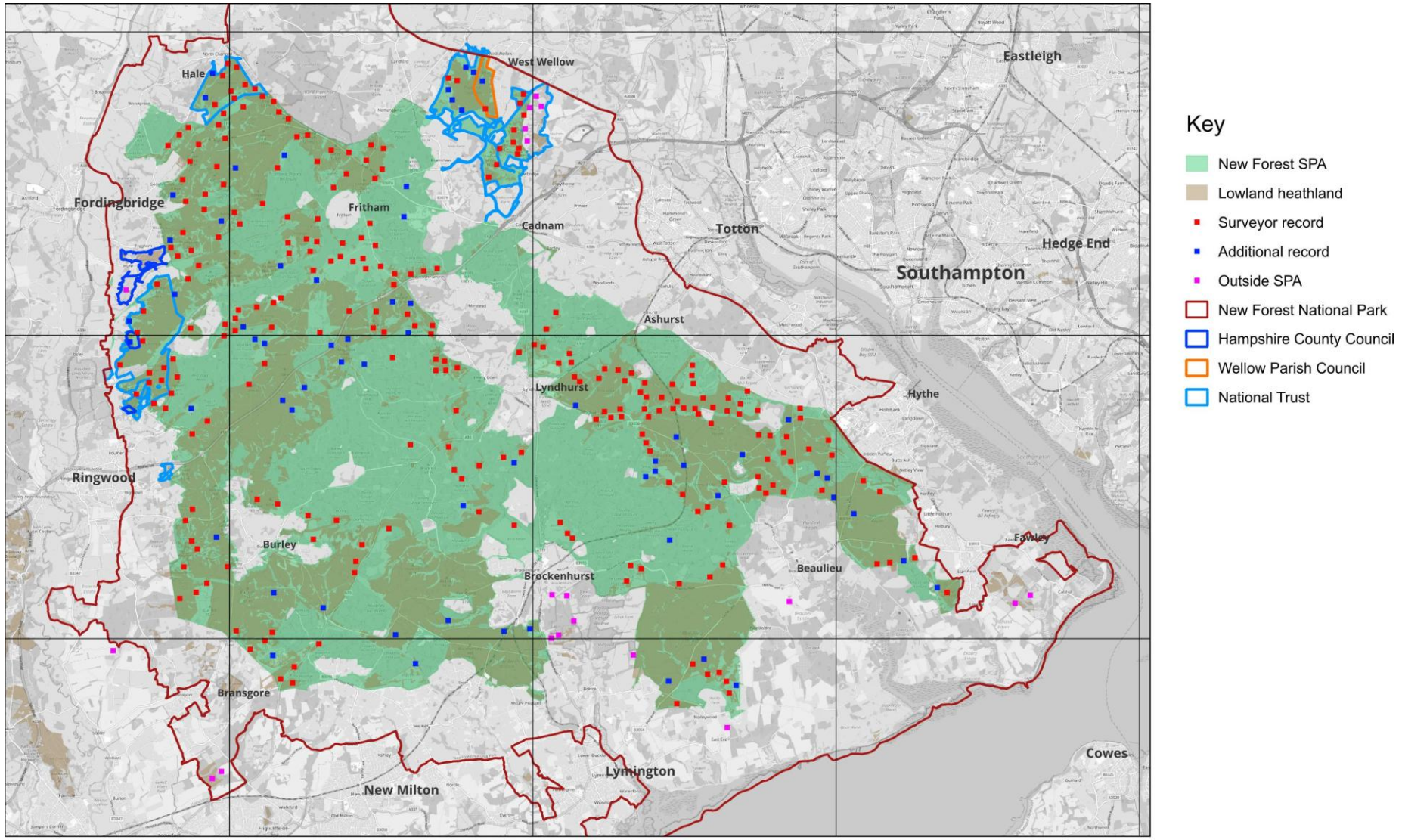

Figure 3. Overview of distribution of Woodlark territories found in 2024

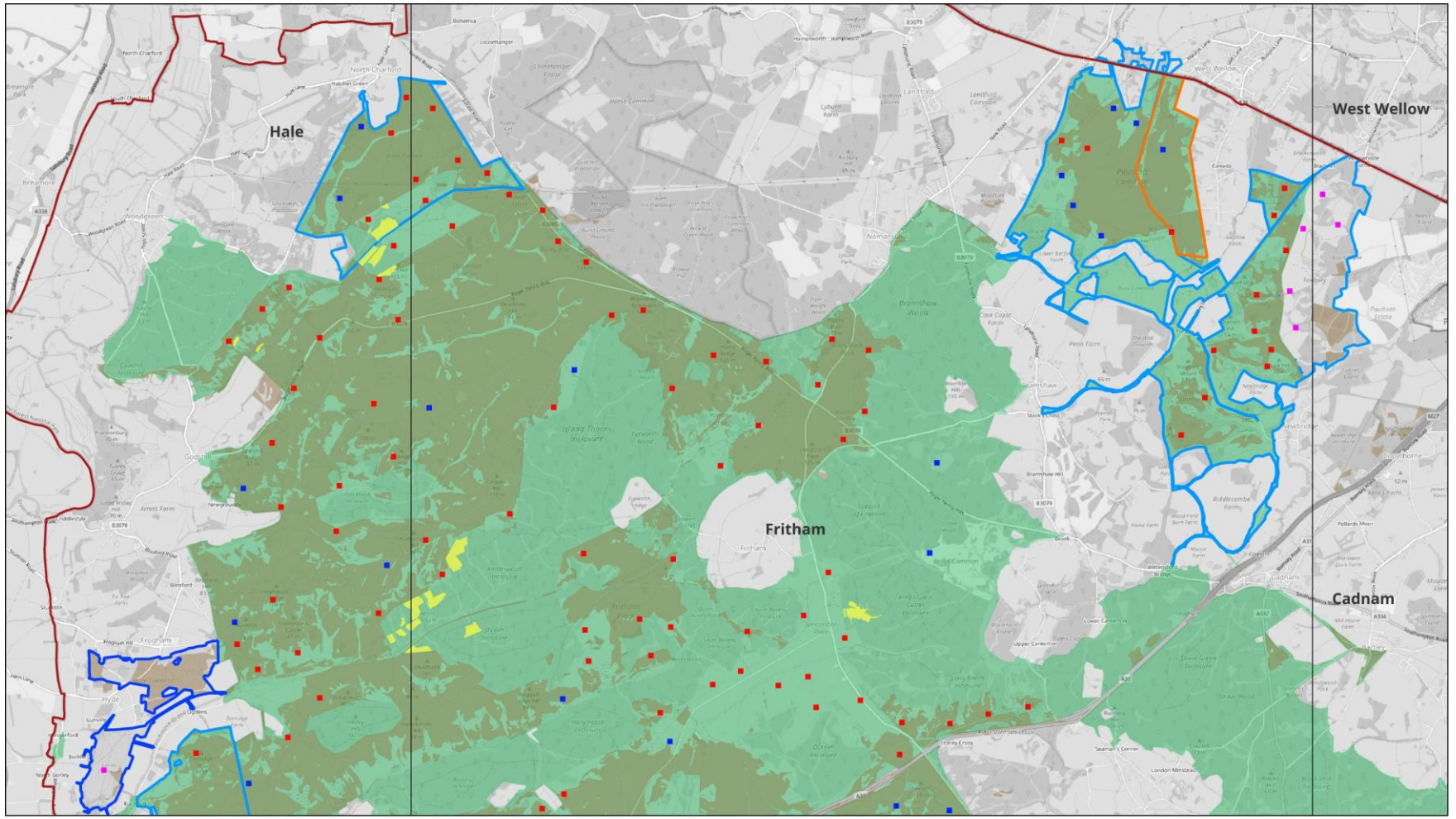

Figure 4. Distribution of Woodlark territories found in 2024 – NW segment.

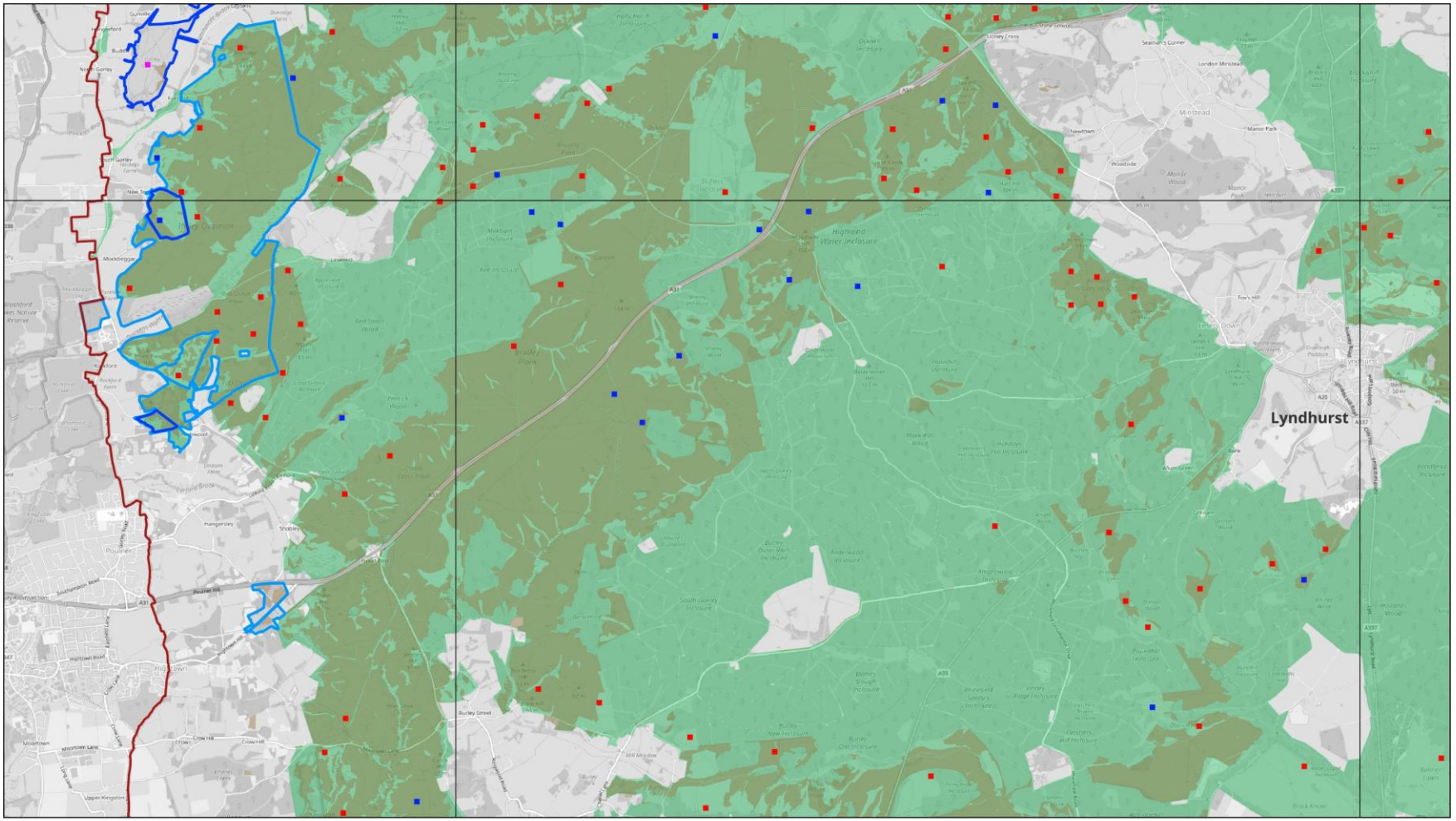

Figure 5. Distribution of Woodlark territories found in 2024 – W segment.

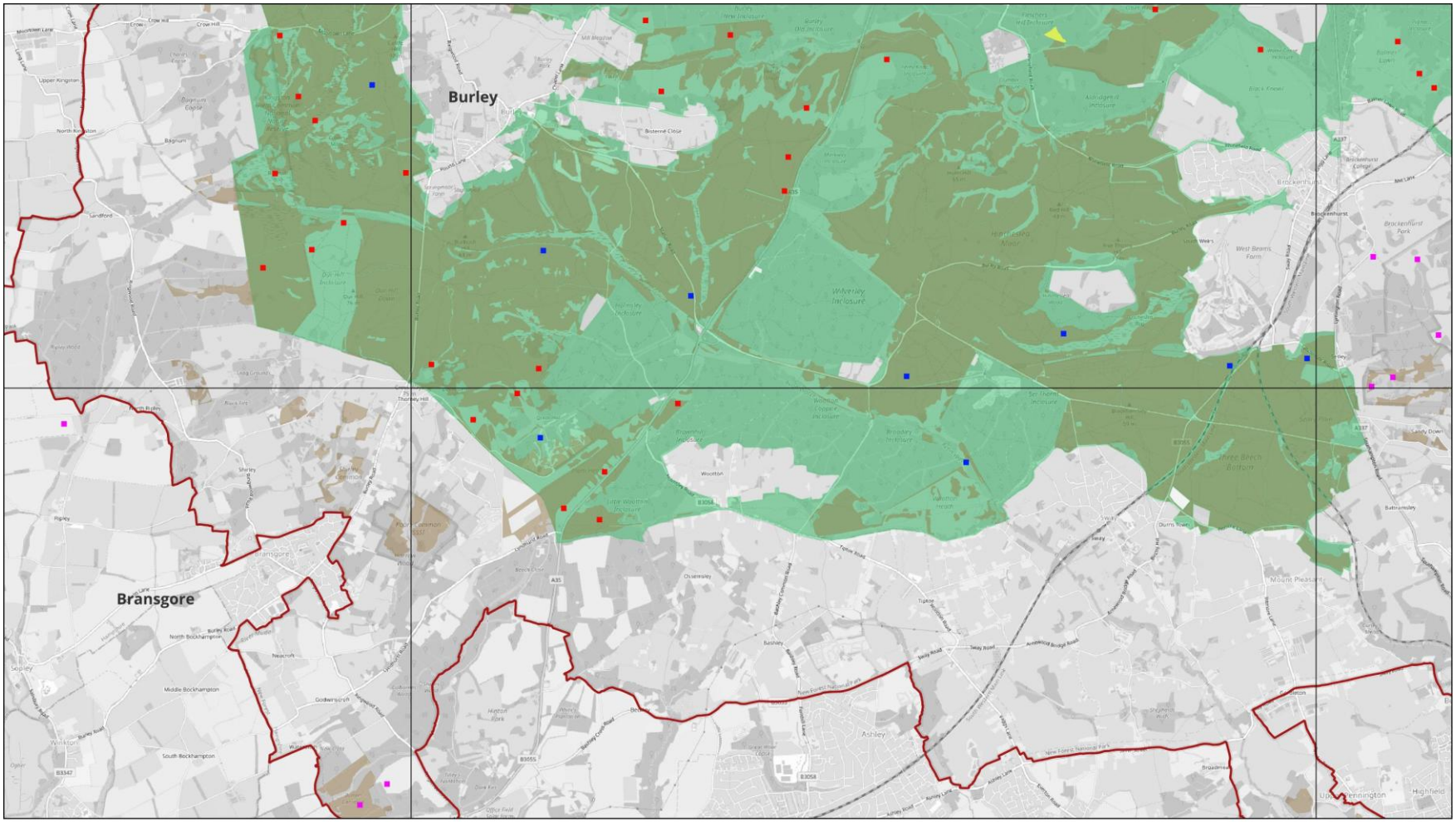

Figure 6. Distribution of Woodlark territories found in 2024 – SW segment.

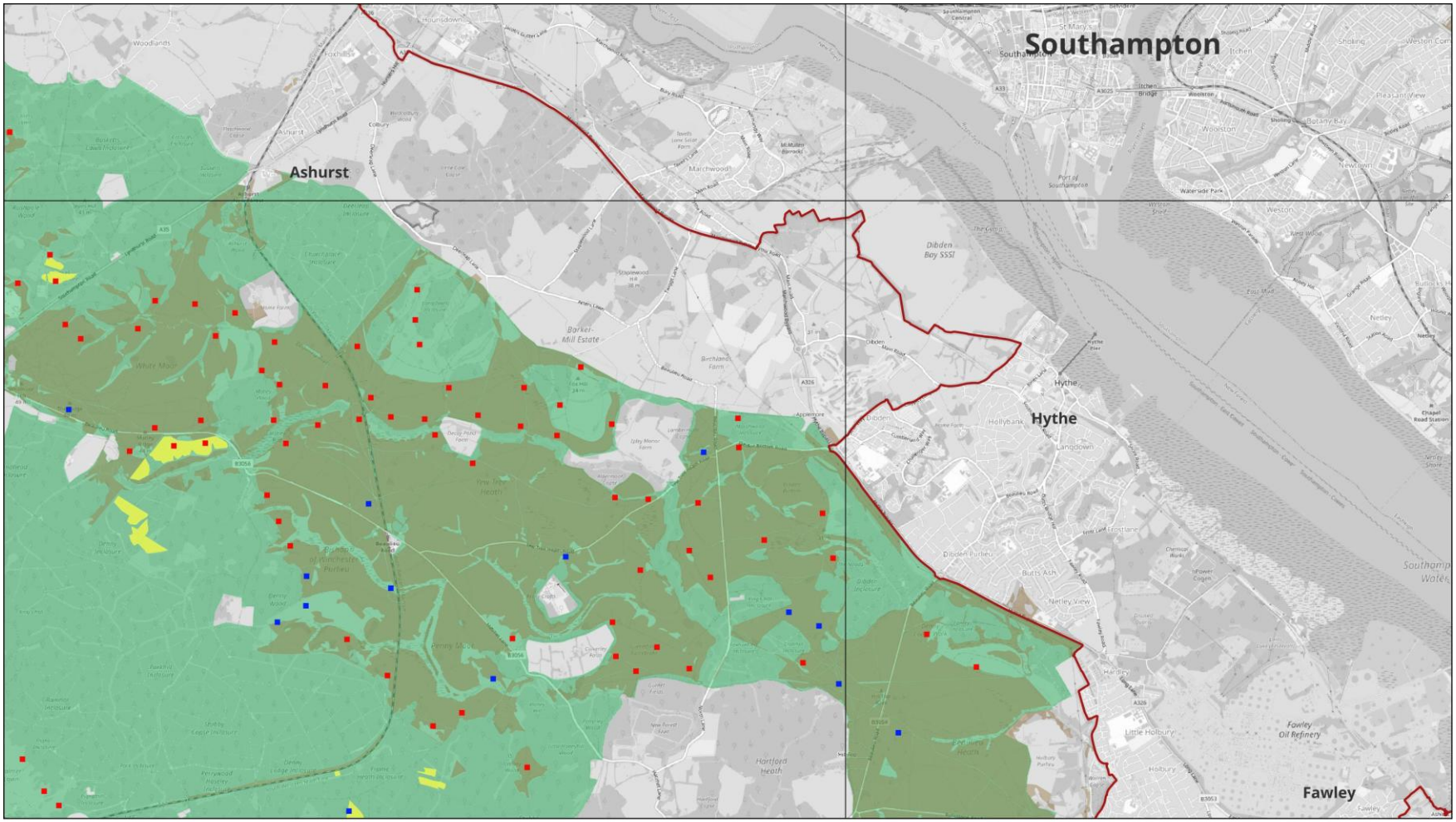

Figure 7. Distribution of Woodlark territories found in 2024 – E segment.

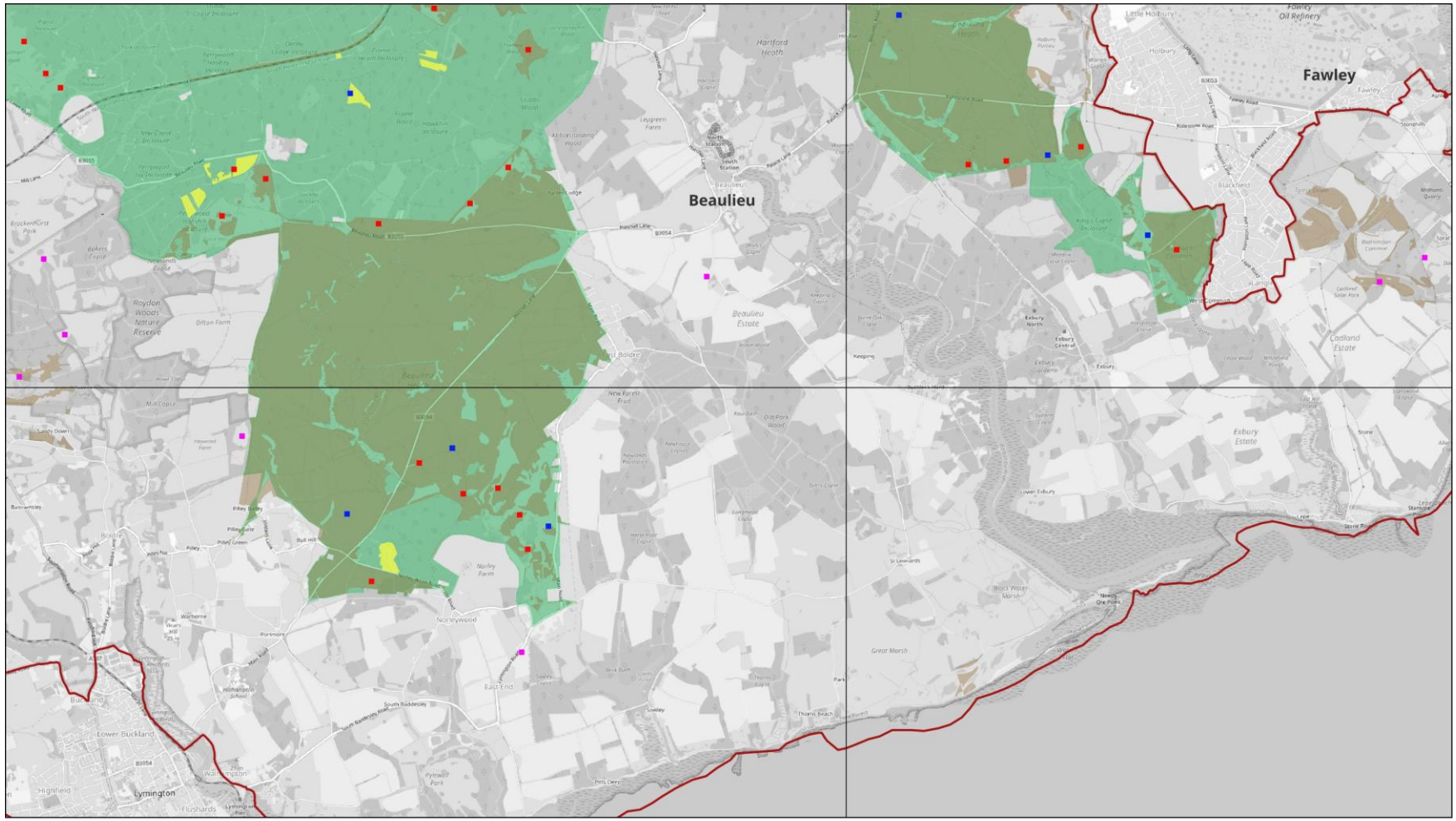

Figure 8. Distribution of Woodlark territories found in 2024 – SE segment.

4 EVALUATION AND DISCUSSION

4.1 An increase in population?

All three HLS-funded surveys focussed on and aimed to fully cover the New Forest SPA. They all also used the same national methodology. Resulting data (Table 1) suggest that the SPA population has risen from 128 territories in 2014, to 167 in 2019 and to 260 in 2024 – and additional records would bring the 2024 total to 324 territories.

HOS (2019) concluded that the apparent rise between 2014 and 2019 was largely due to differences in the way survey methodology was implemented. For example, the 2014 survey was carried out by a small number of professional surveyors walking prescribed routes, whereas the 2019 survey was done by almost 60 volunteers each covering set 1km squares and with greater flexibility to decide when to survey and to where within each square to spend most time on the day.

The 2024 survey also used the same methodology but again, as detailed above, there were differences in implementation: more 1km squares were surveyed, the number of volunteers rose to 103, training was given to 32 of these, there was increased communication with surveyors and some did more visits to their survey squares.

These and other factors are considered below.

4.2 Winter temperatures

It is not unusual for resident UK bird populations to fall as a result of cold and snowy winter weather, followed by a recovery (often over several years) when conditions are more favourable. For example, in the New Forest, this is widely known to be the case for the Dartford Warbler, the UK's only non-migratory warbler. Although cold weather movements to the coast are sometimes observed, most Woodlarks are believed to spend winter months close to their breeding grounds, on farmland. This makes them susceptible to hard winters, as was found to be the case after the severe winter weather of 1962-63 and 1981-82 (Lack, 1986).

Met Office data show that in the New Forest, all winters between 2014 and 2024 had mean temperatures at or above the 1991-2020 average. Prior to that the winter of 2013 was a bit colder than average, 2012 was average and both 2010 and 2011 were much colder than average (with some heavy snow). In addition, the 'Beast from the East' (caused by anticyclone Hartmut) resulted in heavy snowfall and strong winds in the New Forest between 24 February and 4 March 2018 – conditions that would have made it difficult for Woodlarks to find food and shelter.

Although not mentioned by either Gates (2014) or HOS (2019), it seems likely that the 2014 Woodlark population had been reduced by the colder winters of 2010, 2011 and 2013. A rise in numbers would then have been expected in subsequent years, but potentially held back by the 'Beast from the East' ahead of the 2019 survey. The run of average and warmer than average winters since then could have enabled the population to rise still further. It seems likely that climate change will result in a continuing trend towards warm winters which may in turn help the New Forest population of Woodlarks.

4.3 Rainfall prior to and during the breeding season

Gates (2014) describes the weather conditions preceding the start of the 2014 Woodlark survey period in mid-February as 'a succession of stormy, unsettled and wet weather, with heavy rainfall resulting in extensive flooding in the south of England'. He goes on to say 'the

extensively waterlogged Forest meant that birds were unable to settle into the majority of existing territories and many areas of suitable habitat were devoid of Woodlark in the early stages of the survey'.

In contrast, 2019 was drier than average prior to and during the survey period.

Although relatively warm, the late winter and spring of 2024 were unusually wet. In February rainfall in the New Forest was about 200% of the 1991-2020 average (Met Office data). March rainfall was about 175% of the average, April about 150% and May about 150%. Sunshine was less than average in February (60%), March (80%) and April (80%) but close to normal in May. This weather meant that initially, much of the Forest's 'dry heathland' was very wet; some areas were covered in standing water. This made access difficult for some surveyors and created the perception that at least some Woodlarks were initially displaced from their preferred breeding territories.

Although heavy rain is known to cause some nest failures (A. Page, unpublished) it is unlikely that it would limit the overall Woodlark population. Perhaps more likely, it increases the risk of double counting if some males sing temporarily in sub-optimal habitats and then move to better locations after waterlogged ground has dried out.

Another consequence of the heavy rainfall in 2024 was that very little controlled burning of gorse and heather was carried out by Forestry England staff (only about 7 acres out of a possible 300). This would not have affected the 2024 Woodlark population, but an ongoing lack of burning would ultimately result in less of very short vegetation that Woodlarks prefer.

4.4 Survey effort

Compared with 2019, 33 more 1km squares within the SPA were allocated to surveyors in 2024. However, this resulted in just three surveyor territories (and three additional territories) and can therefore be ruled out as a significant factor in causing the marked increase in identified territories.

As in previous years the instructions were to do a minimum of one visit in each of the two survey periods – and some volunteers did only these two visits. However, although impossible to quantify, the larger amount of communication with surveyors probably increased the survey effort of some volunteers, and thereby the number of Woodlarks they found.

The aim of the regular emails was to give volunteers encouragement and timely tips both for finding Woodlarks and in recording what they found. For example, volunteers were encouraged to listen for singing Woodlarks and scan the sky to see them at a distance. They were reminded that it might be necessary to criss-cross the best habitats in search of feeding birds because they are very unobtrusive and will allow close approach before they fly. They were encouraged to revisit their squares if early visits were in less than optimal weather conditions or if they felt they didn't cover all the area effectively. Some had several squares and could not effectively cover them all in a single visits even in the best conditions. Especially in the first two months, additional records of Woodlarks in locations where surveyors had yet to find them were shared with the 'resident surveyor' and this encouraged some to visit again. As a result, many volunteers visited at least some of their squares three or more times.

Given that even experienced surveyors don't find all territories on every visit, it is likely that this increased survey effort helped surveyors to find a greater proportion of the breeding Woodlarks than was achieved in 2014 and 2019.

4.5 Habitat availability

In some parts of the New Forest, grazing by ponies, cattle and deer has been sufficient to maintain the short-cropped sward favoured by Woodlarks for many years in succession. In other areas heather, gorse and bracken become established and although these species are held back by grazing, periodic burning or mechanical cutting is needed if Woodlark habitat is to be maintained or regained.

The number of ponies grazing the New Forest is currently fairly stable at around 5,500, but this is higher than it used to be (there were fewer than 4,000 prior to 2005). In recent decades the number of cattle registered to be depastured (usually for only part of the year) also increased – for many years there were only 2,000-3,000 but from about 2012 numbers increased to a peak of over 8,000 in 2019 and 2020, subsequently falling back to about 4,000 in 2022 and 2023 (The Verderers of the New Forest). Although Forest stock occasionally trample Woodlark nests (A. Page, unpublished) it seems likely that recent heavy grazing will have increased the overall quantity of good Woodlark habitat, thereby enabling a higher population.

In recent years, some HLS funding has been allocated to heathland restoration projects. Some fenced areas have been opened up to grazing and some conifer plantations have been felled. At least in some cases, these areas immediately attract breeding Woodlarks and if regrowth is managed they remain suitable for several years or more. As discussed in section 3.2, the map of Woodlark distribution in 2024 shows that some Woodlarks bred in areas of developing heathland.

4.6 Predation and disturbance

HOS (2019) lists Carrion Crow, Jackdaw, Raven, Fox and Badger as significant predators of Woodlarks at the nest. It is also likely that some are caught in flight by birds of prey. Disturbance by people and dogs (and subsequent predation by watching corvids) is often cited as a potential factor in determining where they nest and how successful they are.

However, it is not known whether the overall level of predation is increasing or decreasing. Furthermore, Woodlarks seem remarkably tolerant of recreational disturbance – they often allow approach to within about 20m and some territories were adjacent to very popular car parks.

4.7 Additional records

As described in section 2.2, this is the first time that a concerted effort was made to collate additional Woodlark records, found outside of the prescribed methodology. Such records came from both survey squares (but found by people other than the ‘resident surveyor’) and squares not selected for the survey (both inside and outside the SPA). The total of 64 additional SPA records seems remarkably high, but further emphasises how difficult it is for surveyors to find all the territories in their allocated squares, especially with only two survey visits.

4.8 Territories outside the SPA

Heathland sites outside the SPA (Foxbury, Badminston Common, Setley Common, Burton Common, Hyde Common and Gorley Common) were surveyed mostly by people who regularly visit them every year. Inclusion in the survey allocation map therefore didn’t add much to what was asked of other volunteers. Not surprisingly, all but three of the 19 Woodlark territories outside of the SPA came from these sites, or from nearby farmland.

Given the relative lack of other survey work outside of the SPA, limited public access to farmland and generally lower birding interest, it is likely that only a small proportion of non-SPA breeding birds were found.

5 CONSIDERATIONS FOR FUTURE SURVEYS

Surveying an area as large as the New Forest for Woodlarks is likely to be a challenge for any survey team. They breed both in expansive heathland areas and within woodland clearings, can be remarkably quiet and unobtrusive and will allow such close approach that it is easy to walk by without noticing them. They also start breeding very early in the year when good weather conditions may be few and far between.

One option would be to assume that squares that held no Woodlarks in 2024 or previous surveys do not need to be surveyed next time. This would greatly reduce the number of squares to be covered and enable a more concerted focus on areas most likely to contain breeding pairs. However, the New Forest's heathland is continuously changing as grazing pressure varies and as rotational heathland management (by cutting and controlled burning) takes place. Within woodland, some clearings are created through felling operations but some then become less suitable as ground vegetation (or newly planted trees) starts to grow. A balance needs to be struck between surveying all possible locations (potentially spreading surveyors too thinly) and focusing on the very best areas (therefore missing territories in areas not surveyed).

The national survey methodology (followed in 2014, 2019 and 2024) requires a minimum of two visits, one in each of the survey periods, *but sets no upper limit*. As such the instructions are somewhat vague and, at least in 2024, some surveyors did several visits (especially those who live close to their survey squares and regularly walk their 'local patch'). Even with these extra visits, the fact that 64 territories were found outside of the survey methodology suggests that across the whole of the SPA, about 20% of territories were missed by surveyors in their own squares.

This survey benefitted from a large number of volunteer surveyors, supported by training and regular emails to develop survey skills and maintain enthusiasm. Almost complete coverage of the SPA was therefore achieved (with additional records from only four[1] SPA squares not identified for the survey). Another benefit was that, early in the survey when high rainfall limited fieldwork, many volunteers were able to get out to their squares on the relatively few dry days. On the downside, with such a large number of volunteers it was inevitable that some had poorer hearing and eyesight than others. Where possible, assistance was provided through a small team of more experienced surveyors who accompanied less able surveyors and covered squares which became unallocated due to illness or other unavoidable reasons.

In accordance with the national methodology, the survey instructions included that 'visits should commence asap after dawn and finish by midday on mild, clear, dry days with little wind'. However, Woodlarks also sing after midday, were often observed singing in moderately windy conditions and were even heard singing in driving drizzle. Where capacity exists or when ideal weather conditions are hard to find, there is good reason not to be too constrained by these aspects of the national methodologies.

The inclusion of additional records of Woodlarks heard and seen outside of the survey methodology and sharing them with surveyors created a lot more administrative work.

[1] The territory found in one of these squares (SU3708) was immediately adjacent to the finder's own square and was therefore categorised as a 'survey record'

However, it provided useful interaction with surveyors and enabled a more realistic estimate of the total SPA population.

One of the other administrative challenges was dealing with the wide range of ways in which volunteers chose to annotate the map in the Recording Form. Rather than providing even more detailed instructions it might be better to go through this and other important topics during a video call prior to the survey start date.

One volunteer asked if additional information could be added to the allocation map to help people find the squares they wanted. This could be achieved by adding main roads and some place names and by making the colour-coding of squares (available; allocated etc.) translucent.

6 CONCLUSIONS

A survey of breeding Woodlarks undertaken in 2024 across the New Forest SPA identified a total of 260 Woodlark territories, far more than the 169 territories found in the similar survey undertaken in 2019. Additional records identified a further 64 territories within the SPA but outside of the survey methodology.

A combination of factors probably contributed to the higher number of identified SPA territories. Changing ground conditions prompting birds to relocate during the survey and 'survey effort' by volunteers probably played a part. However, it is also likely that mild winter conditions and increasing amounts of suitable habitat also meant that the Woodlark population is currently higher than in both previous surveys.

Given the thorough coverage of the SPA the estimated total of 324 Woodlark territories is likely to be more accurate than previous surveys. It is far greater than Natural England's target of 177 pairs and suggests that overall, Woodlark habitats and other factors influencing their population are currently being managed well by Forestry England, Hampshire County Council, National Trust and Wellow Parish Council.

19 territories were found in the wider New Forest (outside the SPA) but apart from targeted heathland areas, this is likely to be a significant underestimate.

The survey fulfils the commitment of the HLS board, under the agreement for the HLS scheme, to provide accurate and current population information for Woodlarks, one of the species for which the New Forest SPA is designated.

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8 ACKNOWLEDGEMENTS

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N Addleton
G Baker
A Baskett
J Baskett
G Batho
J Beck
K Betton
G Bird
M Black
A Blair
J Bloss
M Bradley
J Brandsma
Simon Boswell
Steve Boswell
R Broadway
S Broadway
D Brookes
M Boxall
P Budd
C Chapleo
R Chapman
R Clements
S Clemons
J Craddock
J Craven
P Craven
N Coates
A Colenutt
S Colenutt
R Cordery
M Daniel
T Davis
Janet Dedman
John Dedman
P Durnell
J Ecob
M Edgeller
R Farnworth
J Faulkner
B Fenner
J Fenner
S Fox
Olly Frampton
P Gibbs
D Gilman
K Godfrey
C Gouldstone
R Groves
I Hampson
S Hartill
M Hinge
A Holding
C Holley
D Houghton
J Hunt
L Jackson
G James
C Johnson
K Kearns
N Kendall
H Kent
S Laycock
S Leishman
R Lemon
N Matthews
J Moseley
R Mould-Ryan
D Munday
L Oakes
S Oakes
M O'Driscoll
N Owen
A Page
A Parker
A Parsonage
K Pearce
D Pearson
P Pearson
P Pires
A Prugel-Bennett
A Pullen
G Pullin
J Puzio
D Radden
S Randall
P Read
N Reid
S Renyard
A Rhodes
D Rogers
C Roseveare
J Ross
D Russell
H Schneider
C Searle
D Smith
R Smith
A Snook
J Snook
T Stone
R Stowe
D Taylor
R Taylor
G Thornton
H Tomlinson
B Vaughan
T Vaughan
M Violette
M Ward
R Webb
J West
B Weston
I Wigley
C Willard
A Yates
A Young

9. APPENDICES

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

1km square	2014	2019	2024 survey	2024 additional
SU1607	0	1	0	
SU1608	0	1	1	
SU1609	0	1	1	1
SU1610	0	0	1	1
SU1705	0	0	0	
SU1707	0	1	2	
SU1708	3	2	4	
SU1709	1	0	1	
SU1710	5	2	1	
SU1711	0	0	1	
SU1713	0	0	0	
SU1714	1	0	0	
SU1715	0	0	0	
SU1716	0	0	1	
SU1800	0	0	0	
SU1801	0	1	2	
SU1802	0	0	2	
SU1803	0	0	2	
SU1804	0	0	1	
SU1805	0	0	0	
SU1806	0	0	1	
SU1807	0	0	0	1
SU1808	0	2	2	
SU1809	0	1	1	
SU1810	1	0	1	
SU1811	1	1	1	1
SU1812	1	1	4	
SU1813	0	1	1	1
SU1814	0	1	1	1
SU1815	0	0	2	
SU1816	2	2	3	
SU1900	1	0	0	
SU1901	0	1	1	
SU1902	1	2	1	
SU1903	1	0	0	1
SU1904	0	0	0	
SU1905	1	1	0	
SU1906	0	0	0	
SU1907	0	0	1	

1km square	2014	2019	2024 survey	2024 additional
SU1909	0	0	1	
SU1910	0	1	1	
SU1911	0	0	0	
SU1912	1	0	0	
SU1913	0	0	1	1
SU1914	1	1	3	
SU1915	1	1	1	
SU1916	1	0	2	
SU1917	0	2	2	1
SU1918	1	1	2	1
SZ2099	0	0	1	
SU2000	1	1	1	
SU2001	0	0	0	
SU2002	0	0	0	
SU2003	0	0	0	
SU2004			1	
SU2005	0	0	0	
SU2006	0	0	0	
SU2007	0	0	0	
SU2008	1	2	1	
SU2009	0	1	0	1
SU2010	2	1	4	1
SU2011	0	0	0	
SU2012	0	1	0	
SU2013	1	0	1	
SU2014	0	2	1	
SU2015	0	0	0	1
SU2016	0	0	0	
SU2017	5	2	2	
SU2018	2	1	4	
SZ2198			1	
SZ2199	0	1	1	1
SU2100	0	1	1	
SU2101	0	0	0	1
SU2102	1	0	0	
SU2103	0	0	0	
SU2104	0	0	1	
SU2105	0	0	0	
SU2106	0	0	0	
SU2107	0	0	0	1

1km square	2014	2019	2024 survey	2024 additional
SU2108	0	0	0	
SU2109	0	1	1	1
SU2110	1	1	1	
SU2111	0	1	2	
SU2112	1	0	1	1
SU2113	1	0	2	
SU2114	0	0	1	
SU2115	0	1	1	1
SU2116	0	0	0	
SU2117	0	0	4	
SU2118	0		0	
SZ2298	0	0	1	
SZ2299	0	1	2	
SU2200	0	0	0	
SU2201	1	0	0	
SU2202	0	0	0	
SU2203	0	1	1	
SU2204	1	0	1	
SU2206	0	0	0	
SU2207	0	0	0	1
SU2208	0	1	0	1
SU2209	0	0	0	
SU2210	2	1	1	
SU2211	0	0	0	1
SU2212	4	3	2	
SU2213	5	3	3	
SU2214	0	0	0	
SU2215	1	1	1	
SU2216	1	2	2	
SU2301	0	0	0	1
SU2302	0	0	0	
SU2303	0	0	1	
SU2304	0	0	0	
SU2306	0	0	0	
SU2307	0	0	0	
SU2308	0	1	0	
SU2309	2	1	0	3
SU2310	3	1	1	
SU2311	0	1	0	
SU2312	0	2	2	
SU2313	1	1	1	
SU2314	1	1	1	
SU2315	2	2	1	

1km square	2014	2019	2024 survey	2024 additional
SU2316	0	2	2	
SZ2498			0	
SU2401	0	0	0	
SU2402	0	0	2	
SU2403	0	1	1	
SU2404	0	0	0	
SU2407	0	0	0	
SU2408	0	0	0	
SU2409	2	0	0	1
SU2410	1	0	2	
SU2411	0	2	1	
SU2412	4	3	5	
SU2413	0	1	2	
SU2414	1	1	0	
SU2415	2	2	2	
SU2416	2	1	1	
SZ2598			0	
SZ2599	0	0	0	
SU2500			0	1
SU2501	0	0	0	
SU2502	0	0	0	
SU2503	0	1	1	
SU2504	0	0	0	
SU2506	0	1	1	
SU2507	0	0	0	
SU2509	0	0	1	
SU2510	0	3	2	1
SU2511	2	2	1	2
SU2512	0	0	2	
SU2513			0	1
SU2514			N/A	1
SU2515	0	1	1	
SU2516	0	0	1	
SU2517	0	0	0	
SZ2698			0	
SZ2699			N/A	1
SU2600	0	0	0	
SU2601	0	0	0	
SU2602	2	0	0	
SU2603	0	0	0	
SU2606	1	0	0	
SU2607			0	
SU2608	0	2	1	

1km square	2014	2019	2024 survey	2024 additional
SU2609	1	1	1	
SU2610	0	1	3	
SU2612	1	2	2	
SU2613			0	
SU2614			0	
SU2615			0	
SU2617	0	0	0	
SZ2799			0	
SU2700			0	1
SU2701	0	0	0	
SU2702	0	0	0	
SU2703	1	0	0	
SU2704	1	1	0	1
SU2705	0	1	2	
SU2706	0	1	1	
SU2707	0	2	1	
SU2708	1	2	2	
SU2709	0	1	1	
SU2717	2	1	0	2
SU2718	0	1	2	2
SZ2899	0	0	0	
SU2800	0	0	0	
SU2801			0	
SU2802			0	
SU2803	0	1	0	
SU2804	1	1	1	
SU2805	0	1	1	
SU2806	0	0	0	
SU2807			0	
SU2812			0	
SU2813			0	
SU2815	2	1	2	
SU2816	0	1	1	
SU2817	0	1	1	
SU2818	1	0	0	2
SZ2999	0	0	0	
SU2900	0	0	0	2
SU2903	0	0	1	
SU2905	0	0	1	1
SU2906	0	1	1	
SU2909			1	
SU2910			0	
SU2911			0	

1km square	2014	2019	2024 survey	2024 additional
SU2915	0	0	1	
SU2916	1	2	3	
SU2917	1	1	3	
SU3003	0	0	1	
SU3006	0	0	0	
SU3008	0	0	0	
SU3009	0	2	3	
SU3010	0	2	2	
SU3011			0	
SU3103			2	
SU3106			0	
SU3107			0	1
SU3108	0	2	2	
SU3109	0	2	2	
SU3201			0	
SU3206	0	0	0	
SU3207	1	2	4	
SU3208	0	2	3	
SU3209	0	1	0	
SZ3399	0	0	0	
SU3300	1	0	0	
SU3301	0	0	1	
SU3302			2	
SU3305	0	0	0	1
SU3306	0	0	3	
SU3307	0	0	4	
SU3308	2	1	4	
SU3309			0	
SZ3497	2	1	1	
SZ3498	1	0	0	1
SZ3499	0	0	0	
SU3400	0	0	0	
SU3401	1	2	1	
SU3402			0	
SU3403			N/A	1
SU3404	0	0	1	
SU3405	1	2	1	3
SU3406	0	1	0	1
SU3407	0	1	5	
SU3408	2	1	1	
SZ3598	1	1	1	
SZ3599	2	1	1	1
SU3500	0	0	0	

1km square	2014	2019	2024 survey	2024 additional
SU3501	0	0	1	
SU3502	1	0	1	
SU3504	3	1	2	
SU3505	0	0	0	
SU3506	0	0	0	
SU3507	0	1	5	
SU3508	2	2	2	
SU3509			1	
SZ3697			0	
SZ3698	2	1	3	1
SZ3699	0	1	0	
SU3600	0	0	0	
SU3601	0	0	0	
SU3602	1	1	1	
SU3603	0	1	1	
SU3604	1	2	0	1
SU3605	1	0	1	
SU3606	0	0	0	1
SU3607	0	0	4	
SU3608	0	1	0	
SU3704	1	1	2	
SU3705	0	1	3	
SU3706	0	0	2	
SU3707	0	2	1	

1km square	2014	2019	2024 survey	2024 additional
SU3708			1	
SU3804	1	1	1	
SU3805	1	0	1	
SU3806	0	2	2	
SU3807			2	1
SU3904	1	2	1	1
SU3905	0	2	0	2
SU3906	0	1	3	
SU3907	0	1	0	
SU4002	0	0	0	
SU4003	0	0	0	
SU4004	0	0	0	1
SU4005	0	1	1	
SU4006			0	
SU4102	1	1	2	
SU4103	0	0	0	
SU4104	2	1	1	
SU4105	0	0	0	
SU4202	0	1	1	1
SU4204	0	0	0	
SU4301	2	0	1	1
SU4302	0	0	0	
Total	**128**	**167**	**260**	**64**

Appendix B. Locations of Woodlark territories found in 2024

1km square	Surveyor territories in SPA					Additional records in SPA			Territories outside SPA	
SZ1699									SZ 16163 99603	
SU1608	SU 16928 08062									
SU1609	SU 16388 09027					SU 16722 09780				
SU1610	SU 16963 10093					SU 16693 10470				
SU1611									SU 16589 11501	
SU1707	SU 17893 07598	SU 17508 07758								
SU1708	SU 17352 08444	SU 17360 08765	SU 17840 08930	SU 17758 08522						
SU1709	SU 17139 09818									
SU1710	SU 17165 10802									
SU1711	SU 17613 11688									
SU1716	SU 17976 16257									
SU1801	SU 18362 01328	SU 18901 01528								
SU1802	SU 18495 02369	SU 18938 02955								
SU1803	SU 18753 03221	SU 18548 03894								
SU1804	SU 18779 04268									
SU1806	SU 18769 06751									
SU1807						SU 18739 07594				
SU1808	SU 18085 08092	SU 18281 08630								
SU1809	SU 18141 09225									
SU1810	SU 18717 10239									
SU1811	SU 18631 11864					SU 18197 11353				
SU1812	SU 18985 12303	SU 18297 12619	SU 18742 12803	SU 18068 12897						
SU1813	SU 18466 13390					SU 18041 13141				
SU1814	SU 18554 14418					SU 18137 14626				
SU1815	SU 18456 15130	SU 18698 15736								
SU1816	SU 18984 16296	SU 18347 16615	SU 18644 16854							
SZ1995									SZ 19733 95623	SZ 19433 95392
SU1901	SU 19253 01825									
SU1902	SU 19941 02377									
SU1903						SU 19568 03348				
SU1907	SU 19270 07174									

SU1909	SU 19823 09987									
SU1910	SU 19853 10365									
SU1913	SU 19637 13241					SU 19729 13773				
SU1914	SU 19168 14150	SU 19202 14655	SU 19803 14977							
SU1915	SU 19585 15564									
SU1916	SU 19854 16496	SU 19644 16943								
SU1917	SU 19806 17316	SU 19523 17609				SU 19206 17842				
SU1918	SU 19777 18566	SU 19946 18961				SU 19445 18638				
SZ2099	SZ 20685 99649									
SU2000	SU 20223 00259									
SU2004	SU 20911 04593									
SU2008	SU 20640 08387									
SU2009						SU 20839 09871				
SU2010	SU 20189 10156	SU 20297 10836	SU 20898 10931	SU 20193 10561		SU 20455 10283				
SU2013	SU 20345 13672									
SU2014	SU 20160 14053									
SU2015						SU 20199 15519				
SU2017	SU 20456 17534	SU 20158 17818								
SU2018	SU 20051 18052	SU 20517 18266	SU 20843 18122	SU 20239 18841						
SZ2198	SZ 21686 98670									
SZ2199	SZ 21172 99939					SZ 21427 99450				
SU2100	SU 21409 00214									
SU2101						SU 21460 01518				
SU2104	SU 21586 04443									
SU2107						SU 21753 07856				
SU2109	SU 21160 09070					SU 21156 09734				
SU2110	SU 21396 10270									
SU2111	SU 21452 11075	SU 21695 11235								
SU2112	SU 21968 12711					SU 21681 12290				
SU2113	SU 21928 13055	SU 21913 13903								
SU2114	SU 21094 14343									
SU2115	SU 21581 15525					SU 21810 15939				
SU2117	SU 21942 17136	SU 21629 17366	SU 21459 17710	SU 21087 17884						
SZ2298	SZ 22081 98544									
SZ2299	SZ 22137 99073	SZ 22947 99828								
SU2203	SU 22764 03277									

SU2204	SU 22590 04061									
SU2207						SU 22062 07543				
SU2208						SU 22470 08281				
SU2210	SU 22979 10091									
SU2211						SU 22870 11819				
SU2212	SU 22763 12137	SU 22659 12772								
SU2213	SU 22535 13176	SU 22880 13088	SU 22907 13841							
SU2215	SU 22895 15735									
SU2216	SU 22224 16546	SU 22575 16603								
SU2301						SU 23091 01018				
SU2303	SU 23527 03900									
SU2309						SU 23689 09122	SU 23356 09676	SU 23903 09877		
SU2310	SU 23943 10799									
SU2312	SU 23345 12450	SU 23655 12599								
SU2313	SU 23729 13039									
SU2314	SU 23431 14876									
SU2315	SU 23852 15323									
SU2316	SU 23937 16031	SU 23354 16102								
SU2402	SU 24126 02177	SU 24167 02552								
SU2403	SU 24369 03094									
SU2409						SU 24445 09050				
SU2410	SU 24736 10244	SU 24833 10788								
SU2411	SU 24833 10788									
SU2412	SU 24493 12197	SU 24402 12537	SU 24073 12439	SU 24984 12275	SU 24811 12966					
SU2413	SU 24354 13216	SU 24628 13694								
SU2415	SU 24794 15169	SU 24513 15775								
SU2416	SU 24669 16280									
SU2500						SU 25475 00129				
SU2503	SU 25256 03630									
SU2506	SU 25964 06396									
SU2509	SU 25379 09268									
SU2510	SU 25098 10113	SU 25867 10700				SU 25892 10087				
SU2511	SU 25420 11673					SU 25382 11103	SU 25971 11053			
SU2512	SU 25445 12030	SU 25978 12018								
SU2513						SU 25753 13909				
SU2514						SU 25833 14909				

SU2515	SU 25033 15480									
SU2516	SU 25075 16158									
SZ2699						SZ 26133 99178				
SU2608	SU 26806 08843									
SU2609	SU 26806 09214									
SU2610	SU 26643 10046	SU 26691 10327	SU 26110 10316							
SU2612	SU 26404 12122	SU 26844 12203								
SU2700						SU 27210 00600				
SU2704						SU 27706 04392				
SU2705	SU 27656 05278	SU 27410 05567								
SU2706	SU 27226 06326									
SU2707	SU 27471 07522									
SU2708	SU 27135 08852	SU 27509 08933								
SU2709	SU 27093 09152									
SU2717						SU 27656 17427	SU 27345 17765			
SU2718	SU 27217 18483	SU 27503 18398				SU 27217 18096	SU 27793 18841			
SU2804	SU 28223 04183									
SU2805	SU 28233 05703									
SU2815	SU 28543 15216	SU 28806 15632								
SU2816	SU 28905 16155									
SU2817	SU 28437 17469									
SU2818						SU 28046 18676	SU 28341 18383			
SU2900						SU 29047 00245	SU 29901 00326			
SU2903	SU 29387 03739									
SU2905	SU 29034 05978					SU 29383 05802				
SU2906	SU 29622 06141									
SU2909	SU 29546 09441									
SU2915	SU 29499 15979									
SU2916	SU 29543 16165	SU 29357 16369	SU 29380 16772						SU 29815 16408	SU 29749 16814
SU2917	SU 29707 17264	SU 29576 17653	SU 29691 17954						SU 29897 17506	
SU3000									SU 30614 00016	SU 30850 00118
SU3001									SU 30632 01449	
SU3003	SU 30903 03828									
SU3009	SU 30852 09088	SU 30339 09611	SU 30048 09699							
SU3010	SU 30450 10209	SU 30762 10757								
SU3017									SU 30113 17887	SU 30283 17550

SU3100									SU 31354 00585	
SU3101									SU 31121 01421	
SU3103	SU 31306 03316	SU 31143 03474								
SU3107						SU 31415 07691				
SU3108	SU 31547 08474	SU 31377 08631								
SU3109	SU 31270 09110	SU 31207 09402								
SU3207	SU 32088 07231	SU 32366 07489	SU 32577 07290	SU 32924 07320						
SU3208	SU 32179 08585	SU 32370 08894	SU 32810 08858							
SZ3399									SZ 33315 99462	
SU3301	SU 33093 01898									
SU3302	SU 33576 02309	SU 33226 02414								
SU3305						SU 33721 05342				
SU3306	SU 33863 06185	SU 33735 06456	SU 33607 06745							
SU3307	SU 33815 07317	SU 33679 07575	SU 33745 07967	SU 32875 07572						
SU3308	SU 33690 08437	SU 33038 08505	SU 33253 08759	SU 33549 08123						
SZ3497	SZ 34748 97855									
SZ3498						SZ 34477 98601				
SU3401	SU 34825 01812									
SU3403						SU 34512 03254				
SU3404	SU 34937 04752									
SU3405	SU 34490 05152					SU 34036 05523	SU 34043 05850	SU 34975 05717		
SU3406						SU 34729 06650				
SU3407	SU 34168 07520	SU 34625 07584	SU 34975 07610	SU 34754 07823	SU 34251 07956					
SU3408	SU 34604 08389									
SZ3598	SZ 35762 98824									
SZ3599	SZ 35276 99165					SZ 35641 99329				
SU3501	SZ 35641 99329									
SU3502	SU 35838 02036									
SU3504	SU 35441 04194	SU 35760 04341								
SU3507	SU 35879 07098	SU 35463 07411	SU 35349 07586	SU 35938 07629	SU 35616 07932					
SU3508	SU 35293 08410	SU 35245 08682								
SU3509	SU 35265 09015									
SZ3697									SZ 36409 97071	
SZ3698	SZ 36476 98210	SZ 36386 98591	SZ 36146 98887			SZ 36705 98465				
SU3602	SU 36260 02435									
SU3603	SU 36482 03737									

SU3604						SU 36106 04716				
SU3605	SU 36319 05161									
SU3606						SU 36908 06065				
SU3607	SU 36811 07405	SU 36409 07507	SU 36843 07741	SU 36447 07933						
SU3704	SU 37684 04800	SU 37462 04964								
SU3705	SU 37424 05341	SU 37732 05917	SU 37916 05066							
SU3706	SU 37819 06700	SU 37452 06720								
SU3707	SU 37417 07530									
SU3708	SU 37074 08161									
SU3801									SU 38457 01227	
SU3804	SU 38273 04829									
SU3805	SU 38506 05837									
SU3806	SU 38273 06133	SU 38370 06660								
SU3807	SU 38811 07595	SU 38821 07272				SU 38432 07220				
SU3904	SU 39530 04893					SU 39926 04660				
SU3905						SU 39707 05300	SU 39374 05452			
SU3906	SU 39101 06249	SU 39746 06545	SU 39862 06049							
SU4004						SU 40584 04120				
SU4005	SU 40898 05208									
SU4102	SU 41351 02467	SU 41771 02506								
SU4104	SU 41446 04846									
SU4202	SU 42598 02663					SU 42230 02571				
SU4301	SU 43656 01524					SU 43336 01685				
SU4501									SU 45901 01169	
SU4601									SU 46401 01437	