# Wild Birds of the Betchworth & Buckland Nature Trail: A Base-line Survey Using the Merlin Bird Identification App

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## Introduction

One of the reasons for establishing a nature trail is to study and learn about the wildlife along the trail. This is our first study. Its aim is to characterise the wild bird populations along the trail.

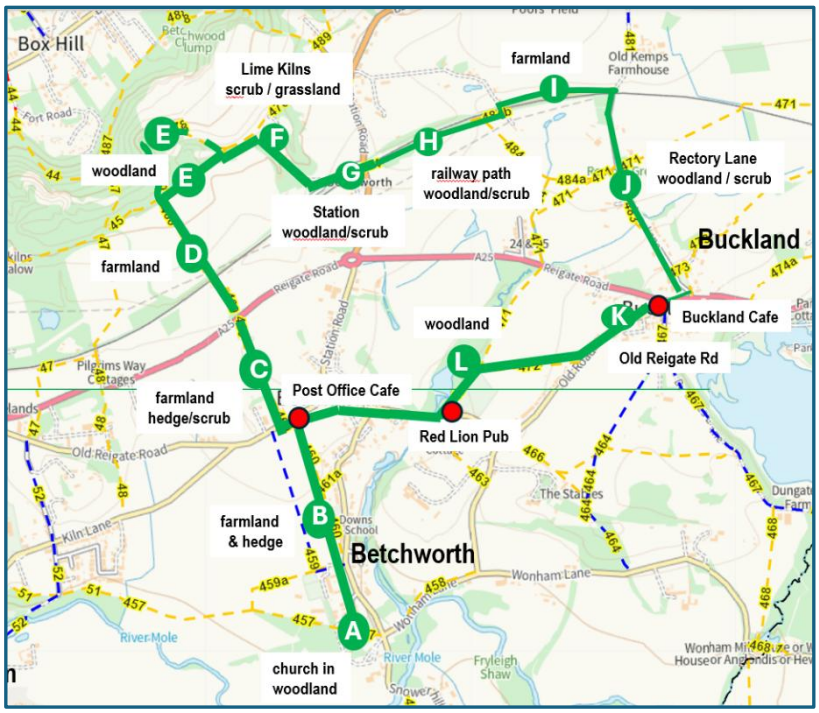


**Figure 1** Betchworth and Buckland Nature Trail with 12 data collection points.

The methodology is simple – each part of the nature trail has a designated letter code (Figure 1). As that part of the trail is walked, birds are observed with the Merlin App open and listening to the soundscape. As the app matches a song to the recorded sound profile the species is identified. A Dawn Chorus survey was completed at all locations together with at least three additional data collection walks in April 2026. Table 1 compiles all the data from the survey.

## Findings

A total of 51 species were identified in the Merlin App survey at 12 locations along the Betchworth & Buckland Nature Trail (Table 1 & Figure 1). 9 species were found in 11 or 12 of the locations - Robin, Blackbird, Common Chiffchaff, Wren, Blue Tit, Great Tit, Song Thrush, Blackcap, Wood Pigeon. 4 species - Carrion Crow, Jackdaw, Ring-Necked Pheasant and Nuthatch were found in 9 or 10 of the 12 locations. A further 8 species — Dunnock, Goldfinch, Goldcrest, Greenfinch, Common Firecrest, Chaffinch, Magpie and Rose-ringed Parakeet — were recorded at between 5 and 7 locations. These 21 species are the core contributors to Nature Trail bird populations – the birds we are most likely to see and hear.

**Table 1** Bird species identified by the Merlin App at 12 locations on the Betchworth & Buckland Nature Trail and three green corridors – A25, railway (R) and Betchworth Gardens along Station Rd & The Street

| **Species** | **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** | **I** | **J** | **K** | **L** | **N** | **A25** | **R** | **B** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Robin | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | 12 | ■ | ■ | ■ |
| Blackbird | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | 12 | ■ | ■ | ■ |
| Common Chiffchaff | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | 12 | ■ | ■ | ■ |
| Wren | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | 12 | ■ | ■ | ■ |
| Blue Tit | ■ | ■ | ■ |  | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | 11 | ■ | ■ | ■ |
| Great Tit | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | 12 | ■ | ■ | ■ |
| Song Thrush | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | 12 | ■ | ■ | ■ |
| Blackcap | ■ |  | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | 11 | ■ | ■ |  |
| Wood Pigeon | ■ | ■ | ■ | ■ | ■ | ■ | ■ |  | ■ | ■ | ■ | ■ | 11 | ■ | ■ | ■ |
| Carrion Crow | ■ | ■ | ■ | ■ | ■ | ■ | ■ |  |  | ■ | ■ | ■ | 10 | ■ | ■ | ■ |
| Jackdaw | ■ |  | ■ |  | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | 10 | ■ | ■ |  |
| Ring-Necked Pheasant | ■ | ■ | ■ | ■ |  |  | ■ | ■ | ■ | ■ | ■ | ■ | 10 | ■ | ■ | ■ |
| Nuthatch | ■ |  |  | ■ | ■ |  | ■ | ■ | ■ | ■ | ■ | ■ | 09 |  |  |  |
| Rose-ringed Parakeet | ■ | ■ |  |  |  | ■ | ■ | ■ |  | ■ | ■ | ■ | 08 |  | ■ | ■ |
| Magpie | ■ |  |  |  |  | ■ | ■ |  | ■ | ■ | ■ | ■ | 07 | ■ |  | ■ |
| Greenfinch |  | ■ | ■ |  |  | ■ | ■ | ■ |  | ■ | ■ |  | 07 | ■ | ■ | ■ |
| Dunnock | ■ |  |  |  | ■ |  | ■ |  | ■ | ■ | ■ | ■ | 07 | ■ | ■ | ■ |
| Goldfinch |  | ■ |  |  |  |  |  | ■ | ■ | ■ | ■ |  | 05 |  |  |  |
| Goldcrest |  |  |  |  | ■ | ■ | ■ |  |  |  | ■ | ■ | 05 |  | ■ | ■ |
| Common Firecrest | ■ |  |  |  | ■ | ■ |  |  |  | ■ | ■ |  | 05 |  |  | ■ |
| Chaffinch | ■ |  | ■ | ■ |  |  | ■ |  |  |  |  | ■ | 05 |  | ■ | ■ |
| House Sparrow |  | ■ | ■ |  |  | ■ |  |  | ■ |  |  |  | 04 |  | ■ | ■ |
| Greater Whitethroat |  |  |  |  | ■ | ■ |  |  | ■ | ■ |  |  | 04 | ■ |  |  |
| Skylark |  | ■ | ■ | ■ | ■ |  |  |  |  |  |  |  | 04 |  |  |  |
| Greater Spotted Woodpecker | ■ |  |  |  |  | ■ |  | ■ |  |  |  | ■ | 04 | ■ | ■ |  |
| Bullfinch | ■ |  |  |  |  |  | ■ |  | ■ | ■ |  |  | 04 |  |  |  |
| Mistle Thrush | ■ |  |  |  |  |  |  |  | ■ |  |  | ■ | 03 |  |  |  |
| Siskin |  | ■ | ■ |  |  |  |  |  |  |  |  | ■ | 03 |  |  |  |
| Collared Dove |  |  |  |  |  |  | ■ | ■ |  |  |  | ■ | 03 |  |  | ■ |
| Tree creeper |  |  |  |  | ■ |  | ■ |  |  |  |  | ■ | 03 |  |  |  |
| Stock Dove | ■ |  |  |  | ■ |  |  |  |  |  |  | ■ | 03 |  |  |  |
| Garden Warbler |  |  | ■ |  | ■ | ■ |  |  |  |  |  |  | 03 |  |  |  |
| Raven |  |  |  |  |  |  |  |  | ■ | ■ |  | ■ | 03 |  |  |  |
| Long Tailed Tit |  |  |  |  |  |  |  |  |  | ■ |  |  | 01 |  |  |  |
| Yellow Wagtail |  | ■ |  |  |  |  |  |  |  |  |  |  | 01 |  |  |  |
| Lesser Whitethroat |  |  |  |  |  | ■ |  |  |  |  |  |  | 01 |  |  |  |
| Willow Warbler |  |  |  |  |  |  |  |  |  |  |  | ■ | 01 |  |  |  |
| Marsh Tit |  |  |  |  | ■ |  |  |  |  |  |  |  | 01 |  |  |  |
| Coal Tit |  |  |  |  | ■ |  |  |  |  |  | ■ |  | 02 | ■ |  |  |
| Linnet |  |  |  |  | ■ |  |  |  |  |  |  |  | 01 | ■ |  |  |
| Meadow Pipit |  |  |  | ■ |  |  |  |  |  |  |  |  | 01 | ■ |  |  |
| Nightingale |  |  |  | ■ |  |  |  |  |  |  |  |  | 01 |  |  |  |
| White Wagtail |  |  |  | ■ |  |  |  |  |  |  |  |  | 01 |  |  |  |
| White Ferral Dove |  |  |  |  |  | ■ |  |  |  |  |  |  | 01 |  |  |  |
| Barn Swallow |  |  |  |  |  |  |  | ■ |  |  |  |  | 01 |  |  |  |
| Rock Pigeon |  |  |  |  |  | ■ |  |  |  |  |  |  | 01 |  |  |  |
| Green Woodpecker |  |  |  |  | ■ |  |  |  |  |  |  |  | 01 |  |  |  |
| Jay |  |  |  |  |  | ■ |  |  |  |  |  | ■ | 02 |  |  |  |
| Red-legged Partridge |  |  |  |  |  | ■ |  |  | ■ |  |  |  | 02 |  |  |  |
| Red Kite |  |  |  |  |  |  |  | ■ |  |  |  |  | 01 |  |  |  |
| Buzzard |  |  |  |  |  | ■ |  |  | ■ |  |  |  | 02 |  |  |  |
| **Species each location** | **22** | **17** | **18** | **16** | **24** | **26** | **22** | **18** | **22** | **23** | **21** | **27** | **-** | **20** | **19** | **19** |

**Table 1 Column Letter Codes:** A St Michaels Church & adjacent woodland, B Path by Common Field, C Path by post-office, D Farmland below the North Downs, E Woodland on the North Downs, F Lime Kilns scrub & woodland below Betchworth Quarry, G Betchworth Station & woodland to west, H Railway path, I Poors' Field Rectory Lane, J Rectory Lane south of level crossing, K Old Road Buckland L Tranquil Wood. N – number of species identified in the 12 locations. Additional locations A25 – trees, hedges and shrubs bordering A25 RM – Railway Margins BV- Betchworth Village The Street/Station Rd.

The remaining 32 species contribute to the soundscape in particular locations. They were identified in 1 to 4 of the 12 locations – Goldfinch, Goldcrest, Common Firecrest, Chaffinch, Long Tailed Tit, Yellow Wagtail, Bullfinch, Mistle Thrush, House Sparrow, Greater Whitethroat, Lesser Whitethroat, Siskin, Garden Warbler, Willow Warbler, Marsh Tit, Coal Tit, Linnet, Meadow Pipit, Nightingale, Skylark, White Wagtail, Tree Creeper, Collared Dove, White Ferral Dove, Rock Pigeon, Stock Dove, Greater Spotted Woodpecker, Green Woodpecker, Barn Swallow, Jay, Raven, Red-legged Partridge, Red Kite and Buzzard**.**

**Species variation**

The 51 species recorded along the Betchworth and Buckland Nature Trail paint a coherent ecological picture: the population is most accurately described as a woodland and woodland-edge community, structured around a core of species — wren, blackbird, robin, song thrush, great tit, blackcap and chiffchaff. All these species prefer the layered structural complexity of trees, shrub and ground cover habitats that the trail's mix of ancient woodland, scrub, hedgerow and mature village gardens provides continuously throughout its 6.5km length.

**The Wren Habitat Indicator**

The wren is present at all 12 locations on the nature trail and in the three additional green corridors - is ecologically significant. It has one of the smallest home ranges of any British bird, which is precisely what makes it such a useful connectivity indicator in your article. A breeding male wren typically holds a territory of around 0.5 to 1 hectare — roughly the size of a large garden or a short stretch of hedgerow. In optimal dense scrub habitat territories can be as small as 0.2 hectares. This is exceptionally small even by the standards of small passerines.

The wren is not simply a small-territory bird — it is genuinely reluctant to cross open ground. Research shows it will move through dense cover almost continuously, threading through hedgerow bottoms, bramble patches and scrubby undergrowth, but will avoid even short gaps of exposed ground. A gap of 50–100 metres of open field can be a real barrier to wren movement, which is why its presence is such a sensitive indicator of continuous cover.

The wren is a deeply sedentary, territory-bound species that needs dense ground-level cover — bramble, thick hedgerow, scrubby undergrowth — throughout its tiny home

range. Its presence everywhere along the trail shows that structural cover at ground level (within the detection limit of the microphone) is unbroken for the entire 6.5km. This is strong evidence for the connectivity of woodland/woodland edge and shrub/hedge habitats across the area.

**Locational variation**

The number of species recorded at each of the 12 locations along the trail ranged from 16 to 27, and this pattern is as ecologically revealing as the species list itself. Eight locations have 20 or more species - A St Michaels Church & adjacent woodland, E-Woodland in the North Downs F- woodland, shrubs and scrub near the Lime Kiln G the woodland along the railway line west of Betchworth Station, I Poors' Field Rectory Lane, J Rectory Lane south of level crossing, K Old Road Buckland and L Tranquil Wood. Given the limited amount of time spent surveying these areas this number represents a moderately species-rich community. Tranquil Wood has the highest number of bird species (n-27) in this survey. Four of the twelve locations returned totals clustered tightly between 15 and 18 species — a narrow band that speaks to the trail's underlying consistency. Wherever you stand along these 6.5 kilometres, the combination of woodland edge, hedgerow and scrub that borders the path delivers a reliable and broadly similar community of birds; no section of the trail is genuinely poor habitat.

The nightingale is a Red List species, in serious long-term decline across England, and now largely absent from much of Surrey. A single detection on the trail is a significant finding — it suggests that in the North Downs there is a patch of dense, low scrub of sufficient quality for this demanding species. Nightingales have been reported from the Fraser Down reserve immediately to the east.

**Habitats**

The villages of Betchworth and Buckland sit within and adjacent to the North Downs National Landscape, bounded to the south by the Greensand Ridge and threaded by the River Mole. The farmland that surrounds both villages is a mosaic of arable fields and pasture, ancient hedgerows, mixed woodland and scrub, and a small area of chalk grassland all operating at different ecological intensities. Our bird population reflects the habitats that are available to them. Three main habitats can be distinguished along the trail.

**1 Farmland** is the most abundant by area. It's a mixture of arable land with a crop, pasture for sheep and fields that have been sown with winter bird seed or are being developed as new cultivated woodland. The pasture north of the A25 is parkland with occasional large trees and shrubs. Fields are typically bordered by hedges of hawthorn and blackthorn.

**2 Deciduous or mixed woodland.** The main area of woodland is in the North Downs where ancient deciduous woodland sometimes gives way to Yew tree dominated woodland. There are plenty of woodland edges with scrub and patches of grass and scrub within the woodland.

There is also a strip of woodland known as Tranquil Wood in the shallow valley of Slough Brook. Elsewhere woodland borders Rectory Lane, the area around St Michaels Church, the pathway along the railway fence, either side of the east-west A25 and either side of the east-west railway-line.

**3 Gardens**. The villages of Betchworth and Buckland provide concentrations of mature tree and shrub cover, structural complexity, and year-round food provision that the farmland cannot consistently offer. In ecological terms, the gardens of Betchworth and Buckland behave less like urban green spaces and more like woodland fragments. Gardens with trees and hedges back onto the common field, the area around Betchworth railway station, Rectory Lane and Old Road in Buckland.

**The importance of gardens**

The defining character of gardens in older English villages like Betchworth and Buckland is their vertical structure. Where suburban gardens tend towards the horizontal — lawn, low planting, hard surfaces — the gardens of an ancient Surrey village typically contain mature trees, dense mixed shrubs, climbing plants on walls, and layered understoreys

that take decades to develop. This structure is precisely what woodland birds require. Research from the British Trust for Ornithology and studies of UK garden birds consistently show that the likelihood of many bird species occurring in UK gardens is related to the surrounding habitat rather than within-garden habitat features alone[1], but this cuts both ways. Where the surrounding landscape is predominantly farmland, as it is here, the garden's internal structure becomes disproportionately important as a refuge. Species like nuthatch, treecreeper, spotted flycatcher, blackcap, and song thrush all require the kind of vertical complexity — canopy height, shrub layer, bark surfaces, insect-rich foliage — that mature village gardens provide and that intensively managed farmland entirely lacks.

The nuthatch, for example, is a sedentary species far more likely to be found in gardens close to broadleaved woodland with mature oak trees. The presence of large oaks in the gardens and lanes of Betchworth and Buckland and the adjacent farmland much of which might be classed as parkland, effectively extends the woodland resource for such species into the village itself and across the parkland. A nuthatch does not draw a sharp line between the oak trees bordering Tranquil Wood and a mature oak 200 metres away in a garden on Old Road in Buckland. It moves between them as a single, connected foraging territory.

**The woodland/shrub/scrub connectivity argument**

Figure 2 shows in green the distribution of woodlands, major hedgerows, tree and hedge/shrub lined roads and railway and concentrations of gardens with trees (hashed) to reveal the extent to which trees, hedges and shrubs form a network through this landscape.

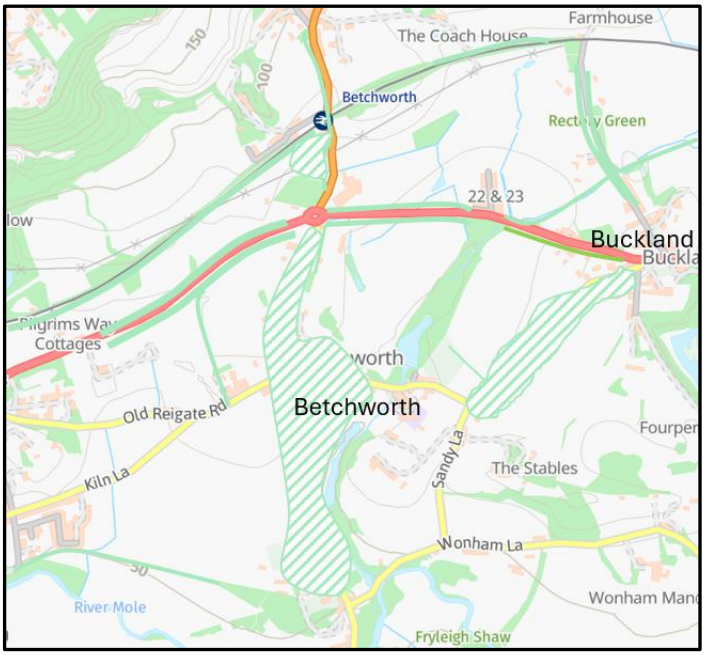


**Figure 2** Distribution of woodlands, green railway and road corridors and gardens with trees and shrubs (hatched).

**The A25 green corridor**

The busy A25 near Betchworth was built in 1927, cutting through fragments of ancient woodland and causing significant disruption to the local ecosystem at the time. A century later, thanks to the efforts of landowners and the gradual regeneration of roadside vegetation, the road is now almost continuously lined with mature trees, hedges and scrub on both sides. To test whether this man-made linear feature provides genuinely functional bird habitat rather than merely connecting woodland blocks on a map, an early morning Merlin App survey was undertaken when traffic was minimal, 20 species were recorded with an overall community profile identical to the core populations of the nature trail — robin, blackbird, chiffchaff, song thrush, blackcap, great tit and blue tit all present and singing. Critically, the wren was recorded, confirming that dense ground-level cover is continuous along the corridor.

**Railway green corridor**

The railway line that runs east-west across the Nature Trail was constructed in 1849. In the succeeding 176 years the slopes and cuttings of the railway have become part o the landscape and the local ecosystem hosting mature trees, coppiced hazel and dense shrubbery and ground cover. The east-west green corridor intersects hedges and woodland running south from the hills at several places.

A Merlin bird survey was conducted along this corridor going west from Betchworth Station to the bridge over the railway on the nature trail. 19 species were recorded with an overall community profile identical to the core populations of the nature trail — robin, blackbird, chiffchaff, song thrush, blackcap, great tit and blue tit are all present. Critically, the wren was recorded, confirming that dense ground-level cover is continuous along the corridor.

**Station Road and The Street green corridor**

The argument that village gardens function as woodland fragments rather than merely spaces with practical and aesthetic value to humans requires more than ecological theory — it requires evidence from the gardens themselves. To provide this, an early morning and late afternoon Merlin App survey was undertaken along Station Road and The Street in Betchworth, the main residential roads. Nineteen species were recorded, including robin, blackbird, chiffchaff, blackcap, song thrush and great tit and blue tit— the full core community of the nature trail, present within the village boundary. The wren was recorded here too, as it was along the A25 corridor, confirming that the structural complexity of these gardens — their mature trees, dense hedges, layered shrubs and boundary vegetation — provides the continuous ground-level cover that this indicator species requires.

Research is clear that individual gardens in isolation lack the capacity to enhance biodiversity at the scales at which species procure resources from the wider landscape. The important ecological point about Betchworth and Buckland is precisely that their gardens do not exist in isolation. They form a dense, interconnected patchwork — a network in which hedges, walls, lane-side trees and garden boundaries between properties provide continuous movement corridors for birds travelling between the North Downs woodland to the north and the wooded banks of the River Mole to the south. The village survey confirms empirically what the connectivity map of Figure 2 suggests visually: the gardens of Betchworth are not gaps in the green network but active, functioning habitats within it.

**General conclusions**

This survey of bird populations within the Betchworth and Buckland area demonstrates that the landscape, viewed through the eyes, needs and habits of a bird, functions as a single, connected ecological system rather than a patchwork of separate habitats. The 51 species recorded along 6.5 kilometres of footpath and lane are not simply a list of birds that happen to live nearby — they are the living signature of a landscape in which ancient woodland, managed farmland, scrub, hedgerow and village gardens are woven together into a fabric of sufficient complexity and continuity to support a diverse community of birds.

The wren, present at every one of the twelve survey locations, is the most eloquent symbol of that continuity: a small, sedentary bird that cannot cross open ground but

has found unbroken cover from one end of the trail to the other. The nightingale, detected in the dense scrub of the North Downs, speaks to the quality of what has been preserved. The nuthatch, moving between the oaks of Tranquil Wood and the garden trees of Old Road in Buckland, speaks to the connectivity that makes that quality meaningful at a landscape scale.

The survey reveals that far from disrupting the ecological integrity of this space the careful and long term crafting of villages over has woven human houses and gardens into the woodland ecology of the landscape. The same is true of roads, lanes and railways over time. With careful stewardship they have become green corridors to be inhabited by woodland species of birds.

This survey should is nor definitive, it should be seen as a starting point — the trail is still being established, the seasons have yet to unfold and surveys can be undertaken at different times of the year, As the trail is walked by residents and visitors, we can encourage them to share their own observations. In this way the trail can become a focus for our own citizen science project. What this initial study shows is that the Betchworth and Buckland Nature Trail passes through a landscape worth understanding, worth celebrating, and, above all, worth caring for. This is our biodiversity heritage and it is worth protecting.

**Invitation**

We welcome contributions to our baseline survey from users of the trail. Please send screen shots of merlin app identifications via whatsapp together with the location on the trail where they were recorded to 07810462403.

**Acknowledgement**

I am very grateful to my colleagues in the 4Bs Biodiversity team Kevin Clarke, and Suzy Stevens for their valuable contributions to the bird survey.

**Sources**

1 Goddard M.A. Andrew J. Benton, D., and Benton T.G. (in press). Scaling up from gardens: biodiversity conservation in urban environments. Tree 1175 p1-9

2 Delahay, J., Sherman, D., Soyalan, B. and Gaston, K.J. (2023) Biodiversity in residential gardens: a review of the evidence base. Biodiversity and Conservation (2023) 32:4155–4179 https://doi.org/10.1007/s10531-023-02694-9

## APPENDIX A note about the rose-ringed parakeet

One species in the survey sits outside the ecological narrative that the data otherwise tells so consistently. The rose-ringed parakeet — recorded at seven of the twelve trail locations, making it one of the most widely detected species in the survey — is not a native member of the woodland-edge community but an introduced bird whose story begins not in the Surrey Hills but in the suburbs of south London. Native to the Indian subcontinent and sub-Saharan Africa, the species became established as a self-sustaining wild population in the UK in 1969, beginning in Croydon and spreading rapidly through the Home Counties. From an estimated 500 birds in 1983, the RSPB currently estimates around 8,600 breeding pairs in Britain, with the population concentrated in south-east England and expanding steadily outward.

The Betchworth and Buckland area sits at the advancing edge of that expansion — the birds' presence here at seven survey locations, on the A25 corridor and in the village gardens, confirms that they are now well established in this part of the North Downs fringe. Their ecological impact is a matter of active scientific concern. As cavity nesters, rose-ringed parakeets compete directly with native species — particularly nuthatch and greater spotted woodpecker, both of which are recorded in this survey — for the large tree holes they require for breeding. They are early breeders and behaviourally dominant at nest sites, with evidence from Belgium suggesting they can displace native cavity nesters. At garden feeding stations their size gives them an additional competitive advantage over smaller species.

The parakeet's prominence in this survey is therefore not simply a colourful addition to the species list — it is a signal worth monitoring. As the nature trail survey continues over coming seasons, tracking whether parakeet numbers at individual locations correlate with changes in nuthatch and woodpecker detections would be a contribution to the citizen science evidence base that ornithologists and conservation bodies currently lack for this part of Surrey