# The breeding bird community of Lochend Woods in 2012

## A report to Dunbar Community Woodland Group

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## INTRODUCTION AND METHODS

We censused the breeding bird community of Lochend Woods in 2012 using the Common Birds Census (CBC) territory mapping method developed by the British Trust for Ornithology (BTO) (Marchant 1983, Bibby *et al.* 1992, Gilbert *et al.* 1998, all of whom are quoted freely here without further citation). During the breeding season many birds are territorial, often marking their territories by song, display and boundary disputes with neighbours. The CBC rules outlined below are a brief sketch only. Anyone planning such a study should consult Marchant or Bibby *et al.* (*op. cit.*). Scientific names of birds are given under Results or More Discussion below, those of plants in the Appendix.

The CBC usually requires ten well spaced visits of c.3-4 hrs each between mid March and late June to all parts of a well defined plot. Most visits should be in the morning when most birds are active (but avoiding the hyperactivity of the dawn chorus). One or two evening visits may be worthwhile, when there is a lesser song peak and any crepuscular or nocturnal species are more likely to be encountered. Contacts with birds may be by sight or sound. The position and activity of each bird is registered on a large scale outline map, usually 1:2500, using a series of standard species codes and activity symbols. Three or four coloured ballpoint pens make each species easier to pick out later. For instance, within the limits of a qwerty laptop, **WR** = Wren, **D** = Dunnock, **B**♂ = male Blackbird, **GR**♀ = female Greenfinch; a circled species code = a singing bird; two registrations joined by a broken line = two birds of seen or heard at the same time, e.g. Ⓡ-----Ⓡ = two Robins singing at once; underlining = a calling bird; a continuous line joining registrations means the same bird seen moving from place to place, thus **CC**—**CC** = a calling Chiffchaff seen to flit to another perch; an arrow shows the direction of a flying bird, e.g. **–MG→** = a Magpie seen in flight only, **CH**♂**→** = a male Chaffinch taking off, **→GT** = a Great Tit flying to a perch; two or more species codes circled by (aptly enough) pecking ("""""") = a fight; an asterisk = a nest, e.g. **GO*** = a Goldfinch nest. Where contact with a bird is too distant to be mapped to scale we cover its position with a larger symbol than ideal. Bad weather is best avoided of course, when birds often skulk in silence, maps get soggy and pens refuse to write. Even dry pens may sulk in the chill of early morning. Carry emergency pencil and sharpener. Although nest finding is too difficult and time-consuming with most species, a nest count may be useful for some, especially Woodpigeon, corvids, birds of human habitation and colonial breeders.

Each visit requires a separate map with the date and a visit letter (A-K, omitting I). The visit registrations are later transferred to species maps using visit letters instead of species codes. The analyst then hopes that on each species map the registrations will cluster into groups, each indicating a territory. Broken lines separating neighbours are especially cherished. Following rather complex rules, territories are outlined in soft pencil (for easy revision). To qualify as a territory a cluster usually requires at least three registrations covering at least ten days (to exclude passage migrants etc). For migrant species there may be fewer than nine effective visits, starting when the species was first detected. In these cases as few as two registrations are allowed for a territory. The same rule applies to species that are generally acknowledged to be elusive. Superfluous registrations, too few to form a territory and too isolated to be part of another, may be passing migrants or floating nonbreeders (or infuriatingly elusive birds). Intruders may produce excess registrations inside an otherwise good cluster, as may the territory holder when he makes a rapid unseen movement to another perch which thus lacks a solid line between registrations. Chiffchaff, Blackcap and Wren are especially likely to do so. Some species are semi-colonial, with several pairs nesting close together within bigger overlapping home ranges, e.g. the dove family and cardueline finches. Where such clusters appear on the map there is a formula to calculate the probable number of pairs: ignoring any early registrations that may comprise late winter flocks, take the second highest number of males present on any single visit; unsexed birds are totalled and halved between the sexes, treating any excess birds as males. Territory analysis may sometimes seem rather subjective or subject to chaos theory. The rules do not apply to all species equally and even where they should some birds seem to ignore them.

Territories at the edge of the plot are another problem since they may overlap the boundary and thus inflate estimates of territory density. To avoid this we exclude edge clusters unless more than half these registrations lie within the plot or on the boundary. Thus registrations just outwith the plot boundary should be mapped for such analysis later. Small or narrow plots or irregular boundaries should be avoided since they swell the edge:area ratio. A squarish or rounded plot is best, the bigger the better, provided it can be covered in a morning. Woodland plots should be at least 10ha. Comparisons of breeding bird densities between studies are often expressed as pairs or territories per square kilometre, but these can be misleadingly high since (i) such densities may derive from small areas of exceptionally favourable habitat or (ii) from sites small enough for many birds to feed outwith the study area. In the case of broadleaf woodland densities, note there are few sizeable broadleaf woods in Scotland.

The BTO began the CBC in the 1960s to monitor declining farmland bird populations countrywide during a period of rapid agricultural intensification. Woodland birds can be censused likewise. Populations can be compared between

seasons and between plots. The effects of severe winters can be assessed. A habitat map may show how birds are distributed according to environmental factors. Where habitat alters between seasons, e.g. by change of woodland management, the effects on bird populations can be measured by comparing species maps before and after. The likely effects of proposed management can be predicted by extrapolation from established case studies. More than one factor may be at work of course but the CBC has proved valuable in revealing population trends and their causes.

Territory mapping methods provide full site coverage with quality information, but because of the time-consuming nature of CBC fieldwork and the complex analysis required, an alternative scheme for national bird monitoring has now taken its place, the Breeding Bird Survey (BBS), a sampling method using computer analysis of transect counts. It takes less time and provides more reliable information on national trends than the CBC but the BBS does not provide as detailed census information at the plot level. Where a complete breeding bird census of a site is required the CBC method despite its drawbacks is the most accurate and practical way.

With our combined ornithological experience of 100 years we dare say we were competent enough by 2012. DJB has over 30 plot-years experience of CBC methods but admits little practice of the dark arts of territory analysis. Compared with professional BTO analysts his previous attempts tended to be underestimates. In recent years he has suffered hearing loss of high pitched sounds (>5kHz), a serious handicap with woodland birds (e.g. Goldcrest at 7-8kHz). However, he now uses hearing aids that greatly restore his abilities. ME's hearing remains keen. All CBC surveyors have different abilities. They usually work singly, thus the presence of two of us together on several visits doubtless improved our score but probably not to any significant extent.

DJB compiled all the maps and analysed the territories. Before the census he familiarized himself with the site and revised the mapping of the paths and other features by eye. We made full CBC visits on 27 March (A), 14 April (B), 27 April (C), 3 May (D), 12 May (E), 26 May (F), 2 June (G), 11 June (H), 18 June (J) and 25 June (K). Visits B and D were evening visits, the rest morning. Each usually took c.4 hours. More springlike weather would have encouraged more early season visits. We made a simple habitat survey on 25-26 July when we obtained a few extra records of under-recorded species, e.g. Woodpigeon (visits L-M). A casual visit on 18 February 2013 revealed two corvid nests doubtless used in 2012. DJB has the original visit maps and species maps with territories outlined. We invite readers to attempt their own territory analysis and offer their own population estimates.

## THE SITE

Lochend Woods, Dunbar, are former policy woodland (total 33ha) first planted in the late 18th century. Extensive housing development now encroaches. The census plot (see map) comprises those parts managed by Dunbar Community Woodland Group (DCWG), including the smaller semidetached woods to the SW (Laundry Wood and Lily Pond Wood) and the NE belt separated by Kellie Road. We include the scrubby fringe of Laundry Wood beside Kellie Road outwith DCWG ownership. We also include the housing in the midst of the plot around Middlemass Road since to exclude it would greatly increase the edge:area ratio and some woodland birds may use the gardens. The resulting edge:area ratio seems reasonably small. The site is c.20m above sea level and c.1km inland. The total census plot is c.25ha of which c.17.5ha are woodland, mostly broadleaf but c.1ha coniferous or mixed, and c.7.5ha are newish houses with small gardens and young shrubs plus roads with grass verges. The woodland looks mature enough but as it was replanted after felling in 1939-45 most of it at least must be younger than the senior author. Sycamore dominates in most parts, with Ash well represented. The conifers are mainly Scots Pine. There are some Yews. We noted much dead wood lying on the ground, often built into heaps, but little standing dead or decaying wood. The well developed shrub layer includes Sycamore, Ash, Wych Elm and Elder. The mostly dense ground layer is often nettle, perhaps suggestive of nutrient enrichment somehow. There are strips of willow along Kellie Road and a patch in Lily Pond Wood. The Lily Pond itself has almost 100% duckweed cover. There are several other wet patches and a ditch of running water. Much of the plot is surrounded by more houses with gardens, plus fields to the SW, and mixed woodland to the N and W around Hallhill almost as extensive as our study area.

According to the management plan (Dunbar Community Woodland Group 2012) the Scottish Wildlife Trust made a National Vegetation Classification (NVC) survey (Rodwell 1991) that identified compartments 1, 2 and 3 (i.e. the main wood W of Kellie Road and Middlemass Road but excluding its SW quarter) as sub-community type W8e: *Fraxinus excelsior - Acer campestre - Mercurialis perennis, Geranium robertianum*; compartments 4, 5 and 6 (the SW quarter of the main wood plus Lily Pond Wood) as community type W6: *Alnus glutinosa - Urta dioica*; the rest (NE of Kellie Road, the NE corner of Middlemas Road and Laundry House Wood) as probably W8: *Fraxinus excelsior - Acer campestre*. (Note that it is a quirk of NVC that not all the species that characterize a particular plant community are necessarily present at all sites.) Despite diligent inquiries to the SWT (Edinburgh) and the Wildlife Information Centre (Dalkeith) we could not trace this report.

**RESULTS (with some discussion)**

We encountered 50 bird species, as listed below. The 34 species that qualified as holding territory are detailed in the figure and the table. Their densities are compared with other studies, especially those quoted by Murray *et al.* (1998) for the Lothians, Forrester *et al.* (2007) for elsewhere in Scotland, and Cramp *et al.* (1977-93) for elsewhere in Europe. Murray *et al.* and Forrester *et al.* (and therefore we) owe much to the work of da Prato (1985). Also in the table we quote total populations for Scotland from Forrester *et al.* and for Britain (excluding Northern Ireland and Isle of Man) from Musgrove *et al.* (2013). We also consulted Ferguson-Lees *et al.* (2011) and Gibbons *et al.* (1993). All these works are freely quoted below without further citation. Although we include the housing area in the plot to avoid the edge:area distortions discussed above, many species were more or less limited to either woodland or housing, so numbers and densities can often be shown for either habitat as well as the whole site. Nevertheless, the caveats above about density comparisons of small areas cannot be stressed too greatly. We added significant records to the current South-east Scotland Breeding Bird Atlas 2007-13 survey that will update the work of Murray *et al.* (*op. cit.*). English and scientific names and sequence follow *The Scottish List* (2011) followed by CBC species codes. For local status see recent *Lothian Bird Reports*.

**Mute Swan** *Cygnus olor* (MS)

One flew over on 27 March.

**Greylag Goose** *Anser anser* (GJ)

Noted flying over on 26 May.

**Mallard** *Anas platyrhynchos* (MA, no map)

A pair at the Lily Pond 2nd and 18 June counts as one territory. Single brooded but with a long nesting season, earlier breeding attempts may have failed elsewhere.

**Grey Heron** *Ardea cinerea* (H)

Noting flying over on 27 March and 11 June.

**Sparrowhawk** *Accipiter nisus* (SH, map 9)

Seen four times, once carrying prey. On 27 March a pair perched on what appeared to be a nest in a Scots Pine.

Breeding sites are often traditional. However, the supposed nest was not identified again, nor any more evidence of breeding. Perhaps part of a larger territory based in Hallhill Woods.

**Buzzard** *Buteo buteo* (BZ, map 1)

Singles within the plot boundary on six visits, with four birds apparently in dispute high overhead on 27 April, one carrying food on 11 June, and two displaying overhead on 25 July. No evidence of breeding on site. Territories may be at least 1-2km$^2$, hunting ranges may be 10km$^2$ or more. Seldom breeds until third year, so our plot could be used by two or more nearby pairs or immature nonbreeders.

**Moorhen** *Gallinula chloropus* (MH, no map)

Bred at the Lily Pond: one small chick 3 May, another brood from 11 June (small young), four young 18th, family noted 25 June.

**Oystercatcher** *Haematopus ostralegus* (OC)

Noted flying over on 11 June.

**Lesser Black-backed Gull** *Larus fuscus* (LB)

Noted 14 April, 12th and 26 May, 18th and 25 June.

**Herring Gull** *Larus argentatus* (HG)

Noted 27 March, 27 April, 3rd, 12th and 26 May, 2nd, 11th, 18th and 25 June.

**Feral Pigeon (Feral Rock Dove)** *Columba livia* (FP)

Noted 14th and 27 April, 12th and 26 May, 2nd and 18 June. A potential breeder on buildings.

**Woodpigeon** *Columba palumbus* (WP, map 2)

A semi-colonial species, the recommended census method is by nest counts or registrations of song and display. We found no nests and saw no display. Most song occurs in summer when birds are hard to locate in foliage. Although noted as present on every visit, we obtained rather few registrations. Since this species has a long breeding season we added registrations on the two habitat mapping visits in July. Likewise we allow only two registrations for some

territories. Excluding two borderline clusters we reckon 20 pairs, a density of 80/km$^2$. Since all were in woodland this becomes 114/km$^2$. A woodland breeder that feeds largely on farmland, our density of 80-114/km$^2$ is thus probably misleading. Sharrock (1976) reports several estimates of >50 pairs/km$^2$ in arable areas of England. Much higher densities occur in central Europe.

**Collared Dove** *Streptopelia decaocto* (CD, map 2)

Five territories based mainly on housing but with some overlap into woodland. A rapid colonist from the continent in the 1950s-60s. Our density of 20/km$^2$ seems high but there appear to be few other density data for Britain. Much higher densities are reported from central Europe.

**Cuckoo** *Cuculus canorus* (CK)

One sang probably just outwith the plot at Hallhill on 2 June. This once familiar species is now in alarming decline, with few local records furth of the Lammermuirs.

**Swift** *Apus apus* (SI)

Noted 12 May, 2nd, 11th, 18th and 25 June. A potential breeder given nest sites, e.g. Swift-boxes.

**Great Spotted Woodpecker** *Dendrocopus major* (GS, map 3)

Three territories estimated from rather dispersed registrations throughout the woodland, with perhaps an intruder from Hallhill. A nest with large young found 26 May; a fledged family in another part of the wood 11 June. The small clusters in or near the two smaller woods seem inconclusive as extra territories, despite drumming heard in one and a family party noted in the other, since it is hard to see how young could have fledged unnoticed in the latter. Nevertheless quite a high density of 12-18/km$^2$ but not impossible, e.g. a rate of 15 pairs/km$^2$ in Roslin Glen.

**Magpie** *Pica pica* (MG, map 1)

One cluster of sightings where nest found the following winter. Other registrations could include immature nonbreeders. This species has greatly increased locally in recent years after long persecution.

**Jackdaw** *Corvus monedula* (JD)

A species usually best recorded by nest count. Although noted as present on most visits we noticed no nests. Perhaps

there are too few holes. About 70 counted at the rookery on the evening of 3 May. A species that associates with Rook, nonbreeders and others roost communally throughout the breeding season.

**Rook** *Corvus frugilegus* (RO, no map)

Rookery occupied until 2 June; c.60 nests 14 April; last recorded 11 June (in flight).

**Carrion Crow** *Corvus corone* (C, map 1)

Widely encountered on most visits. One territory, fledged young on 25 June and a nest discovered in winter.

**Goldcrest** *Regulus regulus* (GC, map 1)

One territory only, in mixed broadleaf / Scots Pine. A possible nearby territory at the plot boundary lacked sufficient registrations for inclusion. Of the few other superfluous registrations, a possible pair elsewhere with perhaps another singing male nearby on 2 June might represent a real territory or even two since this tiny thin-voiced bird can be inconspicuous in dark conifer canopy.

**Blue Tit** *Cyanistes caeruleus* (BT, map 4)

Twelve territories based mainly in woodland, plus a few puzzling superfluous registrations or territories based just outwith the plot. Density can vary greatly with habitat quality including availability of nest sites, e.g. nest boxes. Populations fluctuate widely from year to year.

**Great Tit** *Parus major* (GT, map 4)

Ten territories, almost entirely in woodland, plus a few puzzling superfluous registrations or territories based just outwith the plot. As with Blue Tit, density can vary with habitat and populations fluctuate widely from year to year.

**Coal Tit** *Periparus ater* (CT, map 4)

Four territories including one straddling the boundary: three in conifers as expected, one in mostly broadleaf.

**Swallow** *Hirundo rustica* (SL)

Noted 3rd, 12th and 26 May, 11 June. A potential breeder on or in buildings.

**House Martin** *Delichon urbicum* (HM, map 5)

First seen 3 May. Two nests, on houses of course, which started late: first one noted 11 June, second on 25th.

**Long-tailed Tit** *Aegithalos caudatus* (LT, map 4)

Only four widespread registrations; nonetheless one family fledged. Although not many more could be expected, it should be noted that breeding numbers may fall by up to 80% after a cold winter, and the high rate of nest failure in this species may be due in part to predation by the alien Grey Squirrel *Sciurus carolinensis* which now infests these woods.

**Chiffchaff** *Phylloscopus collybita* (CC, map 5)

This migrant was found on all visits 27 March to 25 June; 12 territories estimated, entirely in woodland. Hard to analyse as males may roam widely and rapidly through overlapping home ranges. An increasing bird in Scotland since the mid 20th century, nonetheless our estimated density is well above the local reported maximum. However, much higher densities are known elsewhere. The Chiffchaff likes a few tall trees in its territory; in Scotland it prefers policy woodland. Without specifying densities Forrester *et al.* (*op. cit.*) say that in most areas of Scotland sites with 5-10 males would be considered noteworthy.

**Willow Warbler** *Phylloscopus trochilus* (WW, map 5)

A migrant first noted 27 April, so only two effective registrations are allowed for a territory. Four territories with another just outside. Generally much more numerous than Chiffchaff in Scotland, the Willow Warbler prefers scrub to tall woodland.

**Blackcap** *Sylvia atricapilla* (BC, map 6)

Another migrant; only one seen before 27 April; 13 territories estimated, all in woodland. Hard to analyse as territories may grow or shrink during the season due to pressure of arriving or departing rival males, and like Chiffchaff, the Blackcap may make rapid unseen movements through its territory. It is likewise an increasing migrant to Scotland that prefers policy woodland. Also like Chiffchaff, we have estimated a high density here, but again lower than elsewhere in the species' range.

**Garden Warbler** *Sylvia borin* (GW)

One sang 26 May only. A potential breeder.

**Whitethroat** *Sylvia communis* (WH, map 6)

One territory. This species prefers scrubbier places e.g. hedges.

**Treecreeper** *Certhia familiaris* (TC, map 3)

One territory of five rather widespread registrations, three of song, so perhaps a lonely male. An inconspicuous species with a quiet, high pitched song , so we might have missed something more.

**Wren** *Troglodytes troglodytes* (WR, map 7)

High density makes territory analysis a special challenge. We reckon 64 territories (256/km$^2$), all in woodland (365/km$^2$), a high total but not without precedent. The Wren is now reckoned to be the most abundant breeding bird in Britain. Breeding numbers may fall by 80% or more after a cold winter.

**Starling** *Sturnus vulgaris* (SG, map 3)

Best censused on most plots by nest counts or song registrations but we noted no nests and little song. Evidence of perhaps ten territories on 27 March. Present on all visits until 18 June, entirely on or around buildings, avoiding woodland. Fledged young seen from 12 May. Some Starlings reared a second brood in Dunbar in 2012. One brood is more usual.

**Blackbird** *Turdus merula* (B, map 8)

We reckon 63 territories (252/km$^2$), mostly in woodland but also spilling into housing areas. This species often carries a sizeable population of non-breeders, so our total may have been inflated by some of these. Up to 250 pairs/km$^2$ have been found in suburbia in Britain and 300/km$^2$ in continental Europe.

**Song Thrush** *Turdus philomelos* (ST, map 9)

Seven territories, largely based on woodland but spilling into gardens. About normal density for woodland; can be much higher in gardens.

**Mistle Thrush** *Turdus viscivorus* (M, map 9)

One territory - little more could be expected. Adult(s) carrying food on 27 April and 11 June indicate two broods hatched. No song heard, which in our experience is usual hereabouts for this species.

**Robin** *Erithacus rubecula* (R, map 10)

Fifteen territories plus two based outwith the site. Perhaps more might have been expected given the Robin's fondness for policy-type woodland (see Chiffchaff, Blackcap) and since it is now reckoned the second most numerous British breeding bird. Its absence from gardens here is notable. The population may be expected to expand as gardens mature. A superfluity of birds in song on 27 March may reflect winter territories and/or passing migrants since both sexes defend individual territories with song in winter and on migratory stopovers.

**Dunnock** *Prunella modularis* (D, map 11)

Territory analysis in this species is bedevilled by its sensational sex life which may be monogamous, polyandrous, polygynous or polygynandrous (i.e. 2-3 ♂♂ consorting with 2-4 ♀♀). A bird of woodland edge (e.g. gardens) rather than woodland proper. We found at least 16 territories, almost entirely in woodland, plus a few puzzling excess registrations, a lot by local standards but not elsewhere.

**House Sparrow** *Passer domesticus* (HS, map 10)

Best censused by nest count but we noticed none. From our admittedly sparse counts we reckon only five pairs (but probably more), virtually all in the housing. In recent decades there have been declines on farmland and in some towns. The low number here may reflect few nest sites in new housing, absence of cereal fields or grain stores nearby, or predation by cats.

**Grey Wagtail** *Motacilla cinerea* (GL)

One flew over on 27 April.

**Chaffinch** *Fringilla coelebs* (CH, map 12)

Almost all registrations for the 31 territories within the plot (total density 124/km$^2$) were in woodland, making the woodland density 177/km$^2$, which is not exceptional.

**Brambling** *Fringilla montifringilla* (BL)

A pair on 27 April only, a typical departure date for this winter visitor which very seldom breeds in Scotland and then only in the Highlands, but "pair-formation often takes place in flocks on the breeding grounds" (Cramp *et al.* vol.8 1994). The Brambling breeds in open boreal forest in northern Eurasia, usually birch but often conifers. Our pair was

on a path beside a stand of Scots Pine and flew into a stand of Sycamore with a few spruce. We detected no song or display. The current South-east Scotland Breeding Bird Atlas survey allows a pair of any species seen in suitable habitat as a "probable breeder" but Lochend Woods would make very marginal breeding habitat.

**Greenfinch** *Carduelis chloris* (GR, map 13)

One diffuse cluster plus widely scattered registrations make perhaps two territories. Greenfinch is mainly monogamous but much polygyny also occurs and males may travel a long way from the nest(s). A density of 8-14 pairs/km$^2$ can be expected in woody areas, although much higher is possible, e.g. 56/km$^2$ at the Royal Botanic Garden in Edinburgh, so our population seems rather low. The British population has fallen greatly in recent years due to an epidemic of trichomonosis, a protozoan parasite aided by poor birdfeeder hygiene (BTO website www.bto.org). ME has noticed a decline of Greenfinch in Dunbar.

**Goldfinch** *Carduelis carduelis* (GO, map 13)

Like other cardueline finches, breeds mostly in small groups, each pair with a small nesting territory but foraging up to 400m or more. We reckon seven such clusters totalling 14 pairs, based mostly in woodland but one in gardens, a high estimate. A more experienced analyst might give a lower figure but not much, we dare say. Our clusters were biased towards the woodland/housing edges. Birds could have foraged over a wider area. The population in Scotland is estimated to have increased by 52% during 1994-2004, which matches our impressions. We found two nests, one with young.

**Siskin** *Carduelis spinus* (SK, map 13)

One cluster of two pairs and another along the NW edge, all more or less associated with conifers. A few migrants on 27 March. The Siskin has increased greatly with coniferous afforestation and perhaps winter garden feeding stations. It was not found breeding in East Lothian until 1987. A nice addition to the Dunbar avifauna. Musgrove *et al.* (*op. cit.*) place Siskin well down the British breeding roll at 410,000 pairs, but Forrester *et al.* (*op. cit.*) place Scotland's population at 500,000-3.5 million pairs, depending on the conifer seed crop, with up to 200,000 or more in the Lothians and Borders alone.

**Linnet** *Carduelis cannabina* (LI)

A pair on 2 June only. Prefers scrub and hedges.

**Common Crossbill** *Loxia curvirostra* (CR)

A nomadic species of protracted breeding season dependent on variable cone production in extensive conifer plantations at home or abroad. Migrants flew over on 27 March (10W), 25 June (70NW, 4 landed) and 25 July (4W). Perhaps a potential breeder.

**Bullfinch** *Pyrrhula pyrrhula* (BF, map 13)

Breeding densities are very variable and hard to assess due to its inconspicuous behaviour in thick cover. May attempt nesting in successive localities during the same season. We estimated three territories from our sporadic registrations.

## MORE DISCUSSION

The ecology of woodland bird communities is too complex to discuss fully here, nor did we attempt a detailed habitat survey. However, we can say that bird species and densities are influenced by three main factors: the species of tree, the physical structure of the wood and its extent. The richest woods tend to be big and broadleaf with a complex structure and perhaps high soil fertility (Fuller 1982). Tree species differ in the abundance of insects they carry available as bird food. Native trees usually support more than aliens. The main tree here is the alien Sycamore. Lochend Woods have good shrub and field layers and perhaps rich soil. As British woods go, Lochend Woods are of middling size, even if the adjacent Hallhill woods are included (total 33ha). Despite the general rule that the bigger the area of any habitat the more species it will hold, which often applies to woodland birds in south Britain, in Scotland there is little such relationship (Fuller *op. cit.*). Nevertheless, our total of 31 territory-holding woodland species (we include Sparrowhawk, Buzzard and Collared Dove) sits happily with Fuller's expectation of 25-35 species in woods of 50ha in SE Scotland (i.e. rather more than middling size). Densities may vary greatly from site to site, even in apparently similar habitat. In prime habitat or exceptional circumstances densities may be much higher than usual. Woodland densities elsewhere in East Lothian given by da Prato (*op. cit.*) and Bates (unpub.) are of woods too small to be meaningful. Several Lochend woodland birds might be expected to increase as the gardens mature, e.g. Robin, Dunnock.

The lack of standing dead or decaying wood here limits nest sites for hole nesters. Our Blue Tit and Great Tit densities are far lower than in some parts of the Lothians. The Starling avoided woodland. Other hole nesters are absent. Some of these, e.g. Kestrel *Falco tinnunculus*, Stock Dove *Columba oenas*, Tawny Owl *Strix aluco*, Green Woodpecker *Picus viridis*, Spotted Flycatcher *Muscicapa striata* and Tree Sparrow *Passer montanus*, have to a greater or lesser extent

declined locally in recent years. We once heard a Song Thrush here mimic the Tawny Owl *kee-wick* call (as they sometimes do) which it may have learned elsewhere since it is partial migrant. Nuthatch *Sitta europaea* is in the process of colonizing East Lothian from the south and may be expected here soon. Suitable nestboxes might entice any of these species.

The Jay *Garrulus glandarius* is another recent colonist to East Lothian that may be expected to arrive here if it can find enough acorns. These woods may be too small for Woodcock *Scolopax rusticola* which was never numerous locally and is now declining. The absence of the Pheasant *Phasianus colchicus* despite the 30 million or so released in Britain every year, 50,000 of them in the Lothians and Borders, makes us wonder how self sustaining is the population of these alien poultry. The Red Kite *Milvus milvus* may reach us from its reintroduction sites one day if sufficient of the gamekeeping gentry can be persuaded to respect public opinion and abide by the law.

Bird censuses are more valuable if they are related to the habitat variables within the plot. Such analyses can discover factors that affect species presence or abundance. Moreover, understanding bird-habitat relationships can help predict the effects of management and habitat change on bird populations (see Bibby *et al. op. cit.*). Our habitat map is rather crude and provisional since we admit little expertise in this field. The SWT NVC survey is lost. Felling of alien trees and replanting with natives as recommended in the DCWG management plan (*op. cit.*) might be expected to change the avifauna, first in the scrub stage and later as the more biologically productive tree species mature, but we can offer little expertise in this field either. Full habitat surveys and further CBCs could assess any woodland management. The value of Lochend Woods as an accessible resource for ecological education, research and recreation is clear.

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**REFERENCES**


BATES, D.J. [1992] The breeding birds of east Lothian coastal farmland [Auldhame]. Unpublished homework.

BIBBY, C.J., BURGESS, N.D., & HILL, D.A. 1992. *Bird Census Techniques*. Academic Press, London.

CRAMP, S., SIMMONS, K.E.L., PERRINS, C.M., *et al.* (eds.). 1977-94. *The Birds of the Western Palearctic,* 9 vols. Oxford University Press, Oxford.

DA PRATO, S.R.D. 1985. The breeding birds of agricultural land is south-east Scotland. *Scottish Birds* 13: 203-216.

DUNBAR COMMUNITY WOODLAND GROUP. 2012. Management Plan - Lochend Wood...revision of November 2012.

FERGUSON-LEES, J., CASTELL, R., & LEECH, D. 2011. *A Field Guide to Monitoring Nests*. British Trust for Ornithology, Thetford.

FORRESTER, R.W., & ANDREWS, I.J., *et al.* (eds.). 2007. *The Birds of Scotland*, 2 vols. Scottish Ornithologists' Club, Aberlady.

FULLER, R.J. 1982. *Bird Habitats in Britain.* Poyser, Calton (Staffs.).

GIBBONS, D.W., REID, J.B., CHAPMAN, R.A. 1993. *The New Atlas of Breeding Birds in Britain and Ireland: 1988-1991*. Poyser, London.

GILBERT, G., GIBBONS, D.W., & EVANS, J. 1998. *Bird Monitoring Methods.* Royal Society for the Protection of Birds, Sandy (Beds.).

*Lothian Bird Reports*. Scottish Ornithologists' Club Lothians Branch [Aberlady].

MARCHANT, J. [1983.] BTO Common Birds Census instructions. British Trust for Ornithology, Tring (Herts.).

MURRAY, R.D., HOLLING, M., DOTT, H., &VANDOME, P. 1998. *The Breeding Birds of South-east Scotland* . Scottish Ornithologists' Club, Edinburgh.

MUSGROVE, A., AEBISCHER, N., EATON, M., HEARN, R., NEWSON, S., NOBLE, D., PARSONS, M., RISELY, K., & STROUD, D. 2013. Population estimates of birds in Great Britain and the United Kingdom. *British Birds* 106: 64-100.

RODWELL, J. 1991. *British Plant Communities*. Cambridge University Press, Cambridge.

*The Scottish List.* 2011. *Scottish Birds* 30: Supplement 1. Scottish Ornithologists' Club, Aberlady.

SHARROCK, J.T.R., 1976. *The Atlas of Breeding Birds in Britain and Ireland*. British Trust for Ornithology, Irish Wildbird Conservancy, Tring (Herts.).

SMITH, P.M., DIXON, R.O.D., & COCHRANE, M.P. 2002. *Plant Life of Edinburgh and the Lothians*. Edinburgh University Press, Edinburgh.

**APPENDIX: PLANTS IN TEXT AND HABITAT MAP**

Sequence and scientific names follow Smith *et al.* (2002).

Spruce *Picea* sp.

Scots Pine *Pinus sylvestris*

Yew *Taxus baccata*

Wych Elm *Ulmus glabra*

Nettle *Urta dioica*

Walnut *Juglans regia*

Beech *Fagus sylvatica*

Oak *Quercus* sp.

Birch *Betula* sp.

Alder *Alnus glutinosa*

Lime *Tilia* sp.

Poplar *Populus* sp.

Willow *Salix* sp.

Raspberry, bramble *Rubus* sp.

Dog's Mercury *Mercurialis perennis*

Field Maple *Acer campestre*

Sycamore *A. pseudoplatanus*

Herb Robert *Geranium robertianum*

Ivy *Hedera helix*

Ash *Fraxinus excelsior*

Elder *Sambucus nigra*

Thistle *Cirsium sp.*

Duckweed *Lemna sp.*

Rush *Juncus sp.*

Tufted Hair-grass *Deschampsia cespitosa*

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