The Shropshire Bird Report 2019

Breeding Birds of Conservation Concern in Shropshire

Leo Smith, August 2020

Introduction

This Red and Amber List of *Breeding Birds of Conservation Concern in Shropshire* is based on local evidence of reductions in population and / or distribution, but also includes species that only breed at a few sites and are considered vulnerable. The lists are based on local, not national, data collected over 35 years and summarised in *The Birds of Shropshire* (Smith, 2019), referred to subsequently as BoS.

At present there is only robust data for assessing change in the county population and distribution of breeding species, and these lists therefore only cover these species. Compilation of the lists takes the same approach as that used to produce the national lists published in *Birds of Conservation Concern 4* (BoCC4 -Eaton *et al*, 2015), although they are based on less extensive data and use fewer criteria. The cut-off for data used in BoS was December 2014 although, where relevant, data from ongoing surveys has been used up until the end of 2019. The scope of the local data does not allow the same approach to be used for non-breeding species and these will be addressed shortly using different criteria. The lists will be reviewed regularly, as outlined in the final sections of the paper.

The lists will help shape conservation priorities and activities in the county. The national Red and Amber Lists in BoCC4 also apply in Shropshire and the two are complementary. Both will be considered when determining conservation priorities.

General Criteria

There are three criteria:-

1. Disappearance from large parts of the county, measured by changes in tetrad occupancy shown in the two county atlases ("*An Atlas of the Breeding Birds of Shropshire*" (1992), based on fieldwork 1985-90, and BoS, based on fieldwork 2008-13
2. Reduction in population, measured by local results from the BTO's national Breeding Bird Survey (BBS), or assessed in the species accounts in "*The Birds of Shropshire"*
3. Species whose population is vulnerable as it only breeds at a few sites.

Abundance is not a criterion in itself; common species may occur in large numbers in almost all tetrads, in spite of evidence of a severe population decline. Conversely scarce species may not be abundant, although they have a stable or growing population. The status definitions in BoS are shown in Appendix 1 for ease of reference.

The tables in Appendix 3 show changes in breeding species since 1950 i.e. species that no longer breed here and species that have bred for the first time. It is not appropriate to include species in the lists that no longer breed here, or breed only sporadically, but if any should return and become established they would automatically be included on the Red List under the "few breeding sites" criterion. Most of those that have bred for the first time since 1950 are thriving, but some still have less than 10 breeding pairs,

Naturalised non-native species have not been included.

For ease of reference, the red and amber lists summarise all the different criteria and identify the criteria under which each species qualifies.

Disappearance from large parts of the County (Reduction in Distribution)

Appendix 2 reproduces the table in BoS page 481, where the right-hand columns show breeding species that have been lost from more than 50 tetrads between 1985-90 and 2008-13. These are candidates for the red and amber lists. However, 50 tetrads is a low proportion of the distribution for the more common species, but a high proportion for scarce species. For example, some species like Whinchat have disappeared from former strongholds without quite reaching the 50-tetrad threshold. Therefore, the table of tetrad occupancy included in BoS for all species has been reviewed, and the percentage of tetrads where the species has been lost since 1990 has been calculated. This percentage has been used to apply this criterion.

All three categories of breeding evidence were included in defining tetrad occupancy in BoS, and this paper does the same. However, there are a few species where the proportion of confirmed + probable breeding records has gone down considerably, and the proportion of possible breeding records has gone up considerably, which suggests that breeding has become more difficult to prove because a smaller number of pairs was encountered. A large decline in the number of tetrads with confirmed + probable breeding only has also therefore been taken into account.

The result is shown in Appendix 4. Species with no confirmed or probable breeding records in 2008-13 (Black Redstart, Redshank and Ring Ouzel) have been excluded. Data from the two Atlases is not comparable for Black-headed Gull (foraging birds were often given "possible" breeding status in 1985-90, and colony counts fluctuate but show no major change in total population); while Quail numbers fluctuate from year to year. These species are therefore not included on the lists under this criterion, and they are not included in the table in Appendix 4 either. Black-headed Gull, and the issue of species that no longer breed here, are discussed below.

The Red List includes all species that have disappeared from 50% or more of the tetrads they occupied in 1985-90, using all categories of breeding evidence, or confirmed and probable breeding only.

The Amber List is similarly calculated but using disappearance from 25-49% of tetrads.

Reduction in Population

The most important data for judging this criterion is the local results from the BTO Breeding Bird Survey. In the BTO *Annual Report of The Breeding Bird Survey, Population Trends of the UK's Breeding Birds*, trends are only calculated for species occurring on average in 30 squares or more over the whole period. BoS contains BBS charts for 25 species which meet this criterion for the period between 1997 and 2014: Blackbird, Blackcap, Blue Tit, Buzzard, Carrion Crow, Chaffinch, Chiffchaff, Dunnock, Goldfinch, Great Spotted Woodpecker, Great Tit, Greenfinch, House Sparrow, Jackdaw, Magpie, Pheasant, Robin, Rook, Skylark, Song Thrush, Swallow, Willow Warbler, Woodpigeon, Wren and Yellowhammer.

Trend lines are shown on the BoS charts, and only four of these species, Chaffinch, Greenfinch, Willow Warbler and Yellowhammer, show a strong decline. Chaffinch and Greenfinch show a strong decline from 2005 onwards, attributed to the disease of trichomonosis, while Willow Warbler and Yellowhammer have declined over the whole period.

BBS has continued since, and data is now available up to and including 2019. The BBS charts for these four species have been updated, and the population change between 1997 and 2019 has been calculated using the trend-line equation generated by Microsoft Excel. The results are in the tables in Appendix 5.

The decline of Chaffinch (52%) and Greenfinch (66%) since 2005, when losses due to disease first became apparent, and Willow Warbler (63%) since 1997, all greater than 50%, justify their inclusion on the Red List, and Yellowhammer (46.2%), with a decline greater than 25% since 1997, has been included on the Amber List.

Other data for judging this criterion in BoS, is a comparison of the estimated population in the 1985-90 Atlas with the 2008-13 estimate (based on national estimates, and a calculation of the Shropshire proportion, based on TTV counts). In many cases the earlier estimate may not be reliable, as there was little up-to-date local information on which to base an estimate, and applying national assessments included in the BTO Breeding Atlas 1968-72 (Sharrock 1976), interpreted in the light of Population Trends in British Breeding Birds (Marchant 1990), had to suffice. However, in some cases the estimate was derived from reasonable assumptions based on Atlas data, and sometimes the Shropshire count from BTO surveys, and these cases are considered under species-specific data below.

Appendix 6, Tables 1 and 2 shows this calculation for every species on the lists generated by the reduction in distribution criterion. It should be noted that this criterion covers only disappearance from previously occupied tetrads. It takes no account of the thinning out of the population in tetrads where it was still found in 2008-13, although that would have almost certainly occurred in many cases.

The calculation of the percentage decline of the populations of species on the Red List supports them all being placed on that list, except Tree Pipit, but there is evidence in the BoS species account that it has "thinned out" in several former strongholds.

The calculation for the Amber List species is less conclusive, but it justifies the listing for most of them, and suggests that declines of over 50% occurred for Kestrel, Tawny Owl, Treecreeper, Yellow Wagtail and Yellowhammer. The first two are considered under the species-specific data below. The future

trends for the other three species should be monitored to see if the case strengthens for them to be placed on the Red List.

Species Limited to Few Breeding Sites

This criterion might apply to either colonial or rare species.

Of the colonial species, Black-headed Gull bred at eight colonies in 1985-90, but only six in 2008-13. The population fluctuates, with no obvious trends, but it is clearly vulnerable to any future loss of any of the colonial sites.

Merlin is known to have bred at only two sites since 1990. There have been only 1-2 breeding pairs on Long Mynd in most years, but none in the last two, and none on Titterstone Clee since 2011. Merlin is therefore very vulnerable as a breeding species and is placed on the Red List.

Two species – Pochard and Turtle Dove – have been included on the Red List, although there were no confirmed breeding records of either in the recent Atlas period, or subsequently, but there were probable breeding records.

Appendix 3 lists all the species lost or gained since 1950. Most of those gained have become well established, and do not qualify for inclusion on the lists.

Four native species bred for the first time in the Recent Atlas Period (2008-13):

- Common Tern bred once at Priorslee Lake, and at Chelmarsh in 2014
- Firecrest bred at Kempton in 2014
- Lesser Black-backed Gull bred at Ludlow in 2012 and Battlefield in 2014.
- Mediterranean Gull bred at Wood Lane in 2008

However, of these, only Lesser Black-backed Gull is now established as a regular breeding species, at two sites, and is included on the Red List.

Several waterfowl – Shoveler, Teal, and Gadwall - have small populations, but there were probable or confirmed breeding Atlas records from more than 10 sites. Only Teal occupied regular sites throughout the Atlas period (Whixall Moss and VP). This species is therefore apparently threatened by potential loss of breeding sites. The other two do not qualify under this criterion, but Shoveler qualifies for the Amber List on the reduction of distribution criterion.

Species that breed regularly at fewer than five sites have been placed on the Red List, and at fewer than 10 sites on the Amber List.

Persecuted Species

Some species still suffer persecution here, particularly Goshawk and Peregrine. Their populations, although small, are growing, so they are not of “conservation concern”, and are not included on either list. They are protected by the Wildlife and Countryside Act 1981 (as amended).

Non-native Species

Egyptian Goose, Feral Pigeon, Little Owl, Red-legged Partridge and Ruddy Duck (which has been eradicated), would qualify for the lists on the criteria used, but none of them have been included as they are non-native species.

Species-specific data

In addition to the three general criteria used above to determine which species should appear on which list, there is additional data for a few species which justify moving them from the Amber to the Red List.

i. **Kestrel**
   Kestrels are conspicuous, and were numerous in the greater Telford area, where large areas of land were left fallow awaiting development. Most observers live in the north-east, and a reasonably accurate estimate was made, of 2-3 pairs per tetrad in the east with confirmed and probable breeding, less in the west, giving an estimate of 1-2 pairs in each tetrad where it was recorded, a total of 700-1400 pairs in 1990. Since then, BoS shows a decline for many species in the east and north-east, due to more intensive arable farming and loss of hedgerows and field margins, there has been a loss of rough grassland, and very few Kestrels are now seen hunting over road-side and motorway verges, which used to be well-frequented. Comparing the mid-points in both

population ranges shows a decline of 69%. Even taking the lower figure in the 1990 range, rather than the mid-point, with the 2014 estimate in BoS, gives a decline of 54%.
The decline has continued since. While Kestrel is found in too few BBS squares to generate a county trend, in the West Midlands, which includes Shropshire, the decline 1995-2014 was 28%, but this has increased to 35% over the period 1995-2018.

ii. **Snipe**
Snipe appears on the Red List as calculated, but this is partly due to the number of probable and possible breeding pairs being over-estimated in 1985-90 (a lot of passage migrants were given breeding codes, with two together being counted as pairs). However, this listing is justified, as confirmed breeding records show a decline of 82%. Surveys of all known breeding sites every five years found only five drumming males at four sites in 2014, and nine at only three sites in 2019. Just one of these surveyed sites, the Long Mynd, held 20-25 breeding pairs annually in the course of the Long Mynd Breeding Bird Survey 1994-98.

iii. **Starling**
Including a species due to a reduction in the breeding population measured by BBS requires that the species be found in an average of 30 squares over the period of the survey. However, species in steep decline are found in fewer and fewer squares, so this criterion becomes increasingly more difficult to meet. Starling was found in more than 30 squares every year except one between 1997 and 2005, and an average of 30 squares every year up to 2010. In those 14 years, the population declined by 46%. Over the whole period to 2019, Starling was found in an average of 27.8 squares, but the population has continued to decline, by 71%. This is considerably more than the 50% criterion for Red Listing. The BTO BBS report for 2019 shows that Starling has also declined 1995-2018 by 70% in the West Midlands, 61% in England and 53% in the UK, and it is on the national Red List of Birds of Conservation Concern.

iv. **Swift**
Largely as a result of changes in Atlas methodology, specifically the introduction of the “F” category, and tighter validation, Swift shows only a 20% decline using all breeding codes, but a 33% decline using confirmed + probable, and would be included in the Amber List on this criterion. However, it shows a 52% decline in confirmed breeding records only. There are not sufficient BBS observations to produce a valid Shropshire trend, but BBS for the West Midlands shows a 56% decline 1995-2018.
The species account in BoS documents the loss of several large breeding colonies since 1990.

v. **Tawny Owl**
Comparing the mid-points in the 1990 and 2014 population ranges suggests a decline of 69%. Fortunately, the population estimate was recalculated to 1,200 pairs following a BTO species-specific Tawny Owl survey in 2005. Even if the population was unchanged between 1990 and 2005, the decline from 1,200 to 530 pairs estimated in 2011 in BoS was 55.8%

Based on this species-specific data, all these five species have been included on the Red List.

Shropshire Biodiversity Action Plan (BAP) Bird Species

The Shropshire BAP, launched in 2002, substantially revised in 2005, and reviewed in 2010-12, is the nearest equivalent to a previous county Red List. The BAP species are listed in Appendix 7.

It will be seen that several of the BAP species have not satisfied the criteria for inclusion on these Red and Amber Lists, largely because their declines occurred before the baseline dates of the current lists. These species are included in the national Red and Amber lists, because they are based on data starting in 1970. This highlights the need to place these county lists in the context of the national list of Birds of Conservation Concern (BoCC4) when considering conservation priorities.

Relationship between the county and national Red and Amber Lists

There are many species on the national lists that breed in other parts of the UK, but not in Shropshire. The national lists are based on a far more extensive set of criteria, and there is no local data to make comparable judgements. Some of these criteria are based on international declines. Others require habitats that are not found here and could never breed here regularly.

There are others, like some of the BAP species referred to above, that declined massively, both nationally and locally, but before 1990.

The same applies to other species that suffered substantial declines before 1990, and again reference to the national Red and Amber Lists will be more appropriate in highlighting the conservation status of such species.

Of the 32 species on the county Red List,

- 18 are on the national Red List (Cuckoo, Curlew, Grasshopper Warbler, Grey Partridge, Lapwing, Lesser Spotted Woodpecker, Merlin, Pied Flycatcher, Pochard, Spotted Flycatcher, Starling, Tree Pipit, Tree Sparrow, Turtle Dove, Whinchat, Willow Tit, Wood Warbler and Woodcock).
- 10 are on the national Amber List (Common Sandpiper, Kestrel, Kingfisher, Lesser Black-backed Gull, Nightjar, Snipe, Swift, Tawny Owl, Teal and Willow Warbler)
- four are on the national Green List (Chaffinch, Greenfinch, Long-eared Owl and Wheatear). Of these, the decline of the two finches has largely occurred since BoCC4 was assessed.

Of the 17 species on the County Amber List

- six are on the national Red List (Corn Bunting, Grey Wagtail, Marsh Tit, Mistle Thrush, Yellow Wagtail and Yellowhammer).
- four are on the national Amber List (Black-headed Gull, Dipper, Meadow Pipit and Shoveler)
- seven are on the national Green List (Garden Warbler, Great Crested Grebe, Green Woodpecker, Moorhen, Sand Martin, Sparrowhawk and Treecreeper).

The comparison is shown in Appendix 8.

The following species are on the national lists, and breed regularly in Shropshire, but are not included on the county lists

- Red List: House Sparrow, Linnet, Skylark and Song Thrush.
- Amber List: Bullfinch, Dunnock, Greylag Goose, House Martin, Mallard, Mute Swan, Oystercatcher, Red Grouse, Redstart, Reed Bunting and Stock Dove.

Of these, the BAP species referred to above all suffered their greatest decline before the county baseline was establish in 1990; Dunnock, Mallard, Mute Swan, Greylag Goose, Oystercatcher and Stock Dove all appear to be increasing locally; there is no evidence for much change in the population or distribution of Redstart, and there is no evidence that the declines of House Martin or Red Grouse are as much as 25% since 1990. Although Red Grouse has declined by more than this since the 1970s, the population then had been supplemented by releases.

Breeding Birds of Conservation Concern in Shropshire

Based on this paper, the SOS Board has adopted the policy statement, incorporating the Red and Amber Lists, attached as Appendix 10.

Keeping the Lists Under Review

Any species that has bred here previously, but which has become locally extinct (listed in Appendix 2), which becomes re-established as a breeding species in future, and any other breeding species that becomes established here, will be added to the list if it meets the criteria.

Consideration will be given to adding non-breeding species (winter visitors and passage migrants) to the lists shortly, but additional criteria will need to be developed.

Any changes to the lists will be published in the annual Shropshire Bird Report. The list will be reviewed in full every five years, as part of the review of the status of all species in the county.

It should be noted that BBS between 1997 and 2019 shows a decline of 46% for Yellowhammer. If the decline continues at the current rate, it will exceed 50% in the next 2-3 years, and Yellowhammer will then qualify for the Red List.

Next steps - Conservation Action

The lists have a value in themselves, as they highlight the changing fortunes of locally-breeding species. They can be considered by other organisations, including the planning authorities in Shropshire, and Telford and Wrekin, Local Authorities, and other bodies which influence land management.

However, the main purpose of these lists is to help prioritise the Conservation work of SOS. This will involve looking at all the species on the lists, to identify those whose status we may be able to influence, by habitat protection or improvement, or protection measures. Immediate priorities for Conservation Action will be identified, and Action Plans will be produced for them, and published in due course.

The status of locally occurring species on the national BoCC4 lists will also be considered, together with any similar assessments made by other local, regional and national bodies.

Breeding Birds of Conservation Concern in Shropshire

The County Red and Amber lists, and Qualifying Criteria

Red List	Qualifying criteria	Amber List	Qualifying criteria
Chaffinch	4	Black-headed Gull	12
Common Sandpiper	1,2,5	Corn Bunting	8,9,11
Cuckoo	1,2,5	Dipper	8,9,11
Curlew	1,2,5	Garden Warbler	9
Grasshopper Warbler	2,5	Great Crested Grebe	8,11
Greenfinch	4	Green Woodpecker	8,9,11
Grey Partridge	1, 2,5	Grey Wagtail	8,9
Kestrel	5,6	Marsh Tit	8,9,11
Kingfisher	2,5	Meadow Pipit	8,9,11
Lapwing	2,5	Mistle Thrush	9,11
Lesser Black-backed Gull	7	Moorhen	9
Lesser Spotted Woodpecker	1,2,5	Sand Martin	9,11
Long-eared Owl	1,2,5	Shoveler	8,9
Merlin	7	Sparrowhawk	9,11
Nightjar	1,7	Treecreeper	8,9,11
Pied Flycatcher	2,5	Yellow Wagtail	8,9,11
Pochard	1,2,5	Yellowhammer	10,11
Snipe	5,6		
Spotted Flycatcher	2,5		
Starling	5,6		
Swift	6		
Tawny Owl	5,6		
Teal	7		
Tree Pipit	1,2		
Tree Sparrow	2,5		
Turtle Dove	1,2,5		
Wheatear	1,2,5		
Whinchat	1,2,5		
Willow Tit	1,2,5		
Willow Warbler	3,5		
Wood Warbler	1,2,5		
Woodcock	1,2,5		

Qualifying criteria

1 Reduction in range >50% of occupied tetrads, all breeding codes
2 Reduction in range >50% of occupied tetrads, confirmed and probable breeding codes only
3 Reduction in population > 50% shown by BBS 1997-2019
4 Reduction in population > 50% shown by BBS 2006-2019
5 Reduction in population >50% between 1985-90 and 2008-13 per population estimates in BoS species accounts
6 Reduction in population >50% between 1985-90 and 2008-13, shown by species specific data
7 Less than 5 breeding sites
8 Reduction in range >25% of occupied tetrads, all breeding codes
9 Reduction in range >25% of occupied tetrads, confirmed and probable breeding codes only
10 Reduction in population > 25% shown by BBS 1997-2019
11 Reduction in population >25% between 1985-90 and 2008-13, per population estimates in BoS species accounts
12 Less than 10 breeding sites

Appendix 1 – Abundance criteria (taken from BOS page 62)

Abundance	Code	Definition
Residents and Summer Visitors (ie breeding species)		
Very rare	1	Less than annual
Rare	2	Annual and up to 10 Breeding Pairs
Scarce	3	11 – 100 Breeding Pairs
Uncommon	4	101 – 1,500 Breeding Pairs
Fairly Common	5	1,501 – 3,500 Breeding Pairs
Common	6	3,501 – 15,000 Breeding Pairs
Very Common	7	Over 15,000 Breeding Pairs

Appendix 2 - Species gained or lost from more than 50 tetrads between 1985-90 and 2008-13 (taken from BOS page 481)

Gained in more than 50 tetrads			Lost from more than 50 tetrads			
201+	101-200	51-100	51-100	101-200	201-400	401+
Buzzard (442)	Canada Goose	Blackcap	Corn Bunting	Feral Pigeon	Lapwing	Curlew (409)
Raven (385)	Great Spotted Woodpecker	Chiffchaff	Dipper	Green Woodpecker	Spotted Flycatcher	Little Owl (417)
		Goldfinch	Garden Warbler	Kestrel	Tawny Owl	Cuckoo (440)
	Greylag Goose	Goosander	Grey Wagtail	Lesser Spotted Woodpecker	Tree Sparrow	Grey Partridge (540)
	Nuthatch	Goshawk	Kingfisher		Turtle Dove	
	Siskin	Greenfinch	Mistle Thrush	Marsh Tit	Willow Tit	
		Mute Swan	Quail	Meadow Pipit		
		Red Kite	Sparrowhawk	Moorhen		
			Wheatear	Pied Flycatcher		
			Yellow Wagtail	Red-legged Partridge		
			Yellowhammer	Rook		
				Starling		
				Swift		
				Tree Pipit		
				Treecreeper		
				Willow Warbler		
				Wood Warbler		
				Woodcock		

Appendix 3. Changes in Breeding Status since 1950

Table 1. Lost

Species	Last confirmed breeding	
	Lost 1950-84	Lost since 1985-90
Wryneck	1953	
Black Grouse	1954	
Red-backed Shrike	1954	
Woodlark	1957	
Corncrake	1975	
Nightingale		1990
Hawfinch		1991
Redshank		1998
Ring Ouzel		2003
Ruddy Duck		2009

Table 2. Gained

Species	Date of first breeding
Goshawk	1951
Shelduck	1963
Collared Dove	1963
Ruddy Duck	1965
Greylag Goose	1969
Peregrine	1970
Little Ringed Plover	1976
Gadwall	1980
Oystercatcher	1981
Hobby	1983
Goosander	1987
Mandarin Duck	1988
Red Kite	2005
Egyptian Goose	2009
Common Tern	2009
Lesser Black-backed Gull	2012
Firecrest	2012
Mediterranean Gull	2013

Appendix 4. Disappearance from Large Parts of the County (reduction in distribution)

(Comparison of number of Occupied tetrads 1985-90 and 2008-13)
The table includes every species with at least one Confirmed or Probable breeding record in 2008-13 where the percentage change, on one or both of the two criteria, is at least 25%.Red shading shows species with a loss of at least 50%, amber shading shows a loss of at least 25%, on the relevant criterion. Shading in the species column indicates which list the species qualifies for, based on the criterion showing the highest percentage reduction. Non-native species are excluded.

Species	Occupied Tetrads							
	All breeding codes				Confirmed + Probable breeding codes only			
	1985-90	2008-13	Change		1985-90	2008-13	Change	
	No.	No.	No.	% of 1990	No.	No.	No.	% of 1990
Common Sandpiper	69	12	-57	-83	32	4	-28	-88
Corn Bunting	188	128	-60	-32	130	82	-48	-37
Cuckoo	783	343	-440	-56	462	88	-374	-81
Curlew	661	252	-409	-62	506	161	-345	-68
Dipper	202	135	-67	-33	166	104	-62	-37
Garden Warbler	644	556	-88	-14	461	290	-171	-37
Grasshopper Warbler	87	46	-41	-47	34	9	-25	-74
Great Crested Grebe	88	65	-23	-26	71	54	-17	-24
Green Woodpecker	490	353	-137	-28	286	169	-117	-41
Grey Partridge	623	83	-540	-87	530	51	-479	-90
Grey Wagtail	330	240	-90	-27	224	165	-59	-26
Kestrel	718	589	-129	-18	348	257	-91	-26
Kingfisher	254	163	-91	-36	137	68	-69	-50
Lapwing	743	400	-343	-46	660	323	-337	-51
Lesser Redpoll	88	60	-28	-32	40	34	-6	-15
Lesser Spotted Woodpecker	215	38	-177	-82	108	12	-96	-89
Long-eared Owl	20	4	-16	-80	10	3	-7	-70
Marsh Tit	409	294	-115	-28	290	199	-91	-31
Meadow Pipit	243	127	-116	-48	156	87	-69	-44
Merlin	7	8	1	14	7	4	-3	-43
Mistle Thrush	784	713	-71	-9	683	495	-188	-28
Moorhen	718	607	-111	-15	655	493	-162	-25
Nightjar	11	5	-6	-55	2	4	2	100
Pied Flycatcher	259	150	-109	-42	198	91	-107	-54
Pochard	27	5	-22	-81	11	2	-9	-82
Sand Martin	117	99	-18	-15	82	60	-22	-27
Shoveler	23	16	-7	-30	15	9	-6	-40
Snipe	128	32	-96	-75	58	15	-43	-74
Sparrowhawk	597	526	-71	-12	276	207	-69	-25
Spotted Flycatcher	748	418	-330	-44	652	284	-368	-56
Starling	860	686	-174	-20	838	554	-284	-34
Swift	705	611	-94	-13	440	302	-138	-31
Tawny Owl	653	393	-260	-40	434	247	-187	-43
Teal	61	38	-23	-38	40	28	-12	-30
Tree Pipit	223	112	-111	-50	150	75	-75	-50
Tree Sparrow	508	265	-243	-48	394	187	-207	-53
Treecreeper	718	534	-184	-26	488	303	-185	-38
Turtle Dove	231	15	-216	-94	125	5	-120	-96
Wheatear	103	46	-57	-55	76	31	-45	-59
Whinchat	75	24	-51	-68	55	13	-42	-76
Willow Tit	337	68	-269	-80	223	33	-190	-85
Willow Warbler	849	712	-137	-16	772	457	-315	-41
Wood Warbler	225	72	-153	-68	139	38	-101	-73
Woodcock	159	17	-142	-89	108	4	-104	-96
Yellow Wagtail	316	235	-81	-26	234	150	-84	-36

Appendix 5. Breeding Bird Survey population change 1997-2019, calculated from the trend-line equations

A trendline can be fitted to a chart showing the annual index (calculated by dividing the average number found per survey plot in each year, divided by the number found in 1997. By definition, the index in 1997 is 1.00).

The chart, in an excel spreadsheet, will generate a linear equation in the format Y = MX + C, where Y is the index for each year, M is the rate of change in the index (the slope of the line), X represents the year, from 0 to 23, and C is the value where the trend line crosses the Y axis (i.e. the value in 1997). Note that, although the index in 1997 is 1, by definition, the trendline is the best fit for all the data points, and it will calculate a value for year 0 (1997), which is rarely equal to 1.

The first Table below shows the index value in 1997, the annual rate of change, the index value in 2019 and the percentage decline over the 23-year period for the three species that qualify, all calculated from the trend-line equation.

The second table shows similar data for Chaffinch and Greenfinch, from 2005 onwards

Species	1997 value (Y = C)	Rate of Annual Change ("M")	2019 value (Y = MX + C)	Decline over 23 years (%)
Starling	0.8786	0.0272	0.6256	71.20
Yellowhammer	1.1454	0.0232	0.5336	46.59
Willow Warbler	0.8621	0.0237	0.5451	63.23

Species	2005 value (Y = C)	Rate of Annual Change ("M")	2019 value (Y = MX + C)	Decline over 14 years (%)
Chaffinch	1.14	0.042	0.588	51.6
Greenfinch	1.65	0.08	1.06	64.5

Appendix 6. Comparison of estimated populations in 1990 and 2014, taken from the Species Accounts in the Atlas (1992) and BoS (2019) respectively

There was little up to date data on which to base the 1992 estimates. Often only guesstimates of national populations and breeding density published in the national BTO Atlas (Sharrock 1976) were available, interpreted in the light of *Population Trends in British Breeding Birds* (Marchant et al, BTO 1990). There were no comparable local counts to the TTV data in 2008-11. Therefore, many of the estimates were educated guesses, and the uncertainty often resulted in a large range. Estimates for common / numerous species were probably less accurate than those for the less common ones. They were, however, considered realistic when published.

The tables show the percentage change in the mid-point of the population range published in the two Atlases, for the Red and Amber lists.

Estimated Population Change - Red List					
	1990		2014		
Species	Species Account	Mid-point	Species Account	Mid-point	% decline
Chaffinch	140,000	140,000	86,400-87,700	87,050	37.8
Common Sandpiper	20-40	30	5-10	8	75.0
Cuckoo	175-350	263	90-95	93	64.8
Curlew	700	700	160	160	77.1
Grasshopper Warbler	90-180	135	20-25	23	83.3
Greenfinch	9000-10000	9500	18,000-19,500	18750	-97.4
Grey Partridge	2500	2500	350-400	375	85.0
Kestrel	700-1400	1,050	300-350	325	69.0
Kingfisher	140-350	245	68-170	121	50.6
Lapwing	3000	3000	800	800	73.3
LBBG					
Lesser Spotted Woodpec	250-500	375	30-60	45	88.0
Long-eared Owl	20	20	0	0	100.0
Merlin					
Nightjar	0-5/6	3	1-3	2	33.3
Pied Flycatcher	2000	2000	500	500	75.0
Pochard	2-4	3	0	0	100.0
Snipe	200-300	250	15-20	18	93.0
Spotted Flycatcher	2000	2000	445-465	455	77.3
Starling	27000-54000	40000	11800-122000	12000	70.0
Swift	1400	1400	1,700-1,850	1775	-26.8
Tawny Owl	900-1800	1,350	530	530	60.7
Teal	5	5	3-4	4	30.0
Tree Pipit	900-1800	1350	600-900	750	44.4
Tree Sparrow	5000	5000	1850-2000	1925	61.5
Turtle Dove	250-600	425	16	16	96.2
Wheatear	180-300	240	90	90	62.5
Whinchat	110-275	193	75	75	61.0
Willow Tit	1400-2800	2100	140-200	170	91.9
Willow Warbler	40000	40000	13500-13800	13650	65.9
Wood Warbler	375-750 (400)	400	100	100	75.0
Woodcock	150-300	225	68	68	69.8

Estimated Population Change- Amber list					
	1990		2014		
Species	Species Account	Mid-point	Species Account	Mid-point	% decline
Black-headed Gull	100-200	150	65-190	130	13.3
Corn Bunting	400-900	650	400	400	38.5
Dipper	160-480	320	210	210	34.4
Garden Warbler	1600-2600	2,100	4,000-4,200	4,100	-95.2
Great Crested Grebe	150-200	175	110-150	130	25.7
Green Woodpecker	500-1000	750	390-400	395	47.3
Grey Wagtail	250-500	375	390-410	400	-6.7
Marsh Tit	1750-3500	2,625	1,600-1,700	1,650	37.1
Meadow Pipit	2500-5000	3,750	1,500-2,000	2,250	40.0
Mistle Thrush	4800-5500	5,150	2,400-2,500	2,450	52.4
Moorhen	3500-7000	5,250	4,000-4,200	4,100	21.9
Sand Martin	4,000	4,000	2,500	2,500	37.5
Shoveler	<=3	2	<=5	3	-50.0
Sparrowhawk	600-1800	1,200	530-1600	665	44.6
Treecreeper	5000-10000	7,500	3,000-3,100	3,050	59.3
Yellow Wagtail	1150-2300	1,725	350-500	425	75.4
Yellowhammer	35,000	35,000	13,900-14,300	14,100	59.7

Note that the population estimate in BoS is headed 2014. This is true where the species account author made an assessment based on local knowledge. However, most of the estimates are derived from TTV data for the period 2007-11, applied to the Shropshire proportion of the national population estimate published in Musgrove *et al* 2013.

Note also that the percentage change is a measure of decline i.e. a decline is a positive number. Where negative numbers occur in the tables, this implies that the population has increased, not declined. This is unlikely to be the case, suggesting in these cases in particular that the estimate in 1990 was too low, for reasons explained above.

Appendix 7. Shropshire Biodiversity Action Plan (BAP) Bird Species

The Shropshire BAP, launched in 2002, substantially revised in 2005, and reviewed in 2010-12, is the nearest equivalent to a previous county Red List. The data on which it was based has been superseded by the adoption of these Red and Amber Lists.

The BAP contained action plans for Barn Owl, Curlew, Dipper, Lapwing, Ring Ouzel, Snipe, Song Thrush, and a suite of farmland seed-eating Birds. The BAP species are still given special status in county planning policy.

Of these species, Curlew, Dipper, Lapwing, Snipe and some of the farmland birds are included on either the Red or Amber List, as appropriate.

Barn Owl has increased because of the work of the Shropshire Barn Owl Group in accordance with the BAP, but Ring Ouzel has become locally extinct.

Song Thrush had a BAP of its own, because numbers breeding on farmland in Britain declined by an estimated 66% between 1972 and 1996. The *Atlas of Breeding Birds in Shropshire* confirmed that a similar decline has also taken place here. However, the substantial decline had largely occurred before the 1985-90 Atlas, so the proportionate decline since then has been relatively small, and insufficient to include it on these lists.

Similarly, the Farmland Seed-eating Birds were included because of a large decline over the same period.

The British Trust for Ornithology (BTO) Common Bird Census shows that the UK population of these species declined very significantly between 1972 and 1996:

Tree sparrow	- down 76%
Reed bunting	- down 40%
Corn bunting	- down 74%
Linnet	- down 40%
House sparrow	- down 64%
Skylark	- down 75%
Yellowhammer	- down 37%
Bullfinch	- down 62%

Of these, Bullfinch, House Sparrow, Linnet, Reed Bunting, and Skylark are not included in these Red or Amber lists, largely because their substantial declines occurred before the 1985-90 Atlas, so the decline since then has been relatively small.

These species have been included in the current Birds of Conservation Concern in Shropshire in a separate list, County BAP species whose substantial decline occurred largely before 1990.

There is no basis for quantifying the local decline of many other species prior to 1990, to see if they qualify for inclusion on the lists.

Appendix 8. Comparison of the Shropshire and National Lists

For each species in the two County lists below, the right-hand column shows the species status on the national (Birds of Conservation Concern 4) list. R = Red List, A = Amber List and G = Green List

Shropshire Red List	BoCC4 list
Chaffinch	G
Common Sandpiper	A
Cuckoo	R
Curlew	R
Grasshopper Warbler	R
Greenfinch	G
Grey Partridge	R
Kestrel	A
Kingfisher	A
Lapwing	R
Lesser Black-backed Gull	A
Lesser Spotted Woodpecker	R
Long-eared Owl	G
Merlin	R
Nightjar	A
Pied Flycatcher	R
Pochard	R
Snipe	A
Spotted Flycatcher	R
Starling	R
Swift	A
Tawny Owl	A
Teal	A
Tree Pipit	R
Tree Sparrow	R
Turtle Dove	R
Wheatear	G
Whinchat	R
Willow Tit	R
Willow Warbler	A
Wood Warbler	R
Woodcock	R

Shropshire Amber List	BoCC4 list
Black-headed Gull	A
Corn Bunting	R
Dipper	A
Garden Warbler	G
Great Crested Grebe	G
Green Woodpecker	G
Grey Wagtail	R
Marsh Tit	R
Meadow Pipit	A
Mistle Thrush	R
Moorhen	G
Sand Martin	G
Shoveler	A
Sparrowhawk	G
Treecreeper	G
Yellow Wagtail	R
Yellowhammer	R

R = Red List
A = Amber List
G = Green List

Appendix 9. References

Smith, Leo (for Shropshire Ornithological Society) 2019 *The Birds of Shropshire* Liverpool University Press

Deans, P., Sankey, J., Smith, L., Tucker, J., Whittles, C. & Wright, C. (eds) (1992) *An Atlas of the Breeding Birds of Shropshire*. Shropshire Ornithological Society.

Harris, S.J., Massimino, D., Balmer, D.E., Eaton, M.A., Noble, D.G., Pearce-Higgins, J.W., Woodcock, P., & Gillings, S., (2020) *The Breeding Bird Survey 2019*. BTO Research Report 726. British Trust for Ornithology, Thetford.

Shropshire Council (2002) *Biodiversity Action Plan*. (Updated in 2005) Shropshire Council website www.shropshire.gov.uk.

Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R.D., Lock, L., Musgrove, A.J., Noble, D.G., Stroud, D.A. & Gregory, R.D. (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. *British Birds*, 108, 708–746.

Musgrove, A.J., Aebischer, N.J., Eaton, M.A., Hearn, R.D., Newson, S.E., Noble, D.G., Parsons, M., Risely, K. & Stroud, D. (2013) 'Population estimates of birds in Great Britain and the United Kingdom'. *British Birds*, 106, 64–100.

Appendix 10. SOS Policy Statement

Breeding Birds of Conservation Concern in Shropshire

This Red and Amber list of *Breeding Birds of Conservation Concern in Shropshire* has been adopted by Shropshire Ornithological Society. It is based on local data and observations collected over the last 35 years, culminating in the publication of *The Birds of Shropshire* by Liverpool University Press in 2019. The approach largely follows that used to produce the national lists published in *Birds of Conservation Concern 4* in 2015. The County and national lists are complementary, and both will be used to determine local conservation priorities.

Three main criteria have been used to select the species listed:

1. **Disappearance from large parts of the County (from more than 50% of the survey squares they occupied in 1985-90, to qualify for the Red list, and from more than 25% for the Amber list)**
2. **Big reductions in the County population (by more than 50% to qualify for the Red list, and 25% for the Amber list, over the same period)**
3. **The population is vulnerable because it only breeds at a few sites.**

A detailed explanation of the criteria, how they have been applied, and supporting references, can be found in a paper in the Shropshire Bird Report 2019. The lists will be reviewed regularly. Although only breeding species have been considered so far, non-breeding species will addressed shortly.

The lists highlight those native species that are under greatest threat in the County. They will steer SOS's conservation efforts and encourage other organisations to adopt the same conservation priorities.

The County Red and Amber lists

Red List
Chaffinch
Common Sandpiper
Cuckoo
Curlew
Grasshopper Warbler
Greenfinch
Grey Partridge
Kestrel
Kingfisher
Lapwing
Lesser Black-backed Gull
Lesser Spotted Woodpecker
Long-eared Owl
Merlin
Nightjar
Pied Flycatcher
Pochard

Red List (continued)
Snipe
Spotted Flycatcher
Starling
Swift
Tawny Owl
Teal
Tree Pipit
Tree Sparrow
Turtle Dove
Wheatear
Whinchat
Willow Tit
Willow Warbler
Wood Warbler
Woodcock

Amber List
Black-headed Gull
Corn Bunting
Dipper
Garden Warbler
Great Crested Grebe
Green Woodpecker
Grey Wagtail
Marsh Tit
Meadow Pipit
Mistle Thrush
Moorhen
Sand Martin
Shoveler
Sparrowhawk
Treecreeper
Yellow Wagtail
Yellowhammer

Approved by SOS Board August 2020
John Arnfield
Chair