

Abundance of terrestrial breeding birds

Scotland’s terrestrial breeding birds include those commonly associated with woodland, such as willow warbler and siskin; farmland birds such as yellowhammer and goldfinch; and upland species such as raven and curlew. Bird distribution, the timing and success of nesting attempts, survival and productivity can be affected by changing environmental conditions – and thereby affect abundance. Terrestrial breeding birds are now used widely as indicators of environmental change, being widespread and relatively well-recorded, and often associated with specific habitats.



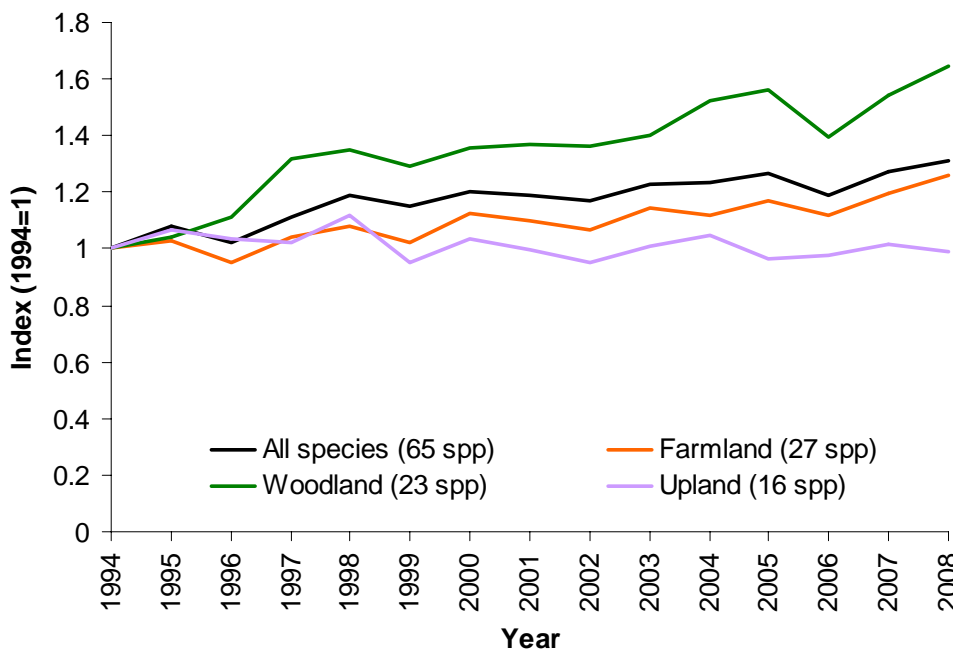
Great Spotted Woodpecker
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Evidence

In Scotland, terrestrial breeding birds are primarily monitored through the Breeding Bird Survey (BBS). Randomly located 1km square survey sites are representative of three main terrestrial habitats throughout Scotland: farmland, woodland and upland. Each site is visited twice in the breeding season. Visits are made in early-spring and mid-summer to count each species of bird present. Nine of the 65 species included here are too scarce for reliable estimation by BBS but are assessed by targeted surveys.

Abundance of Terrestrial Breeding Birds, 1994-2008

Breeding Bird Survey and targeted survey scheme data for 65 breeding bird species



Note: where a species is sufficiently common in more than one habitat it will be recorded in both, so the ‘all species’ total can be smaller than the sum of the habitat totals

Assessment

Since the start of the time series in 1994 to the most recent estimate in 2008:

- 50 of the 65 bird species increased in abundance, the all-species indicator increased significantly, by 31% overall;
- Woodland bird abundance increased significantly, by 64% overall;
- Farmland bird abundance increased significantly, by 26% overall;
- Upland bird abundance showed no overall change;
- From 2007 to 2008 the all-species indicator showed no significant change, although farmland birds increased significantly, by 5%; woodland birds increased significantly, by almost 7%; and upland birds showed no significant change.

TREND	Increased
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DATA CONFIDENCE	High
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Commentary

The appended table of individual species and their habitat associations summarises trends from 1994 to 2008, and the most recent year of change. A blank entry means the species did not show a strong habitat association or insufficient data were available to calculate a habitat-specific trend.

The largest observed increases were for great spotted woodpecker (494%), chiffchaff (446%) and stonechat (225%). The largest decreases were for golden plover (-40%), curlew (-45%) and swift (-57%).

Between 1970 and 1990, farmland birds declined in range in Scotland by 8%, woodland birds declined by 5%, and upland birds remained largely unchanged (Noble *et al.*, 2007). Range declines are similar to those observed throughout the UK since 1970 and across Europe since 1980. The population of several long-distance migrants have declined in recent years, such as spotted flycatcher (Freeman & Crick, 2003) and wood warbler (Eaton *et al.*, 2009). These species are not included in the indicator here because they occurred in fewer than 30 BBS sites.

Source data and updates

Data for 56 of the 65 species come from the British Trust for Ornithology (BTO), Joint Nature Conservation Committee (JNCC), Royal Society for the Protection of Birds (RSPB) and the Breeding Bird Survey (BBS) ([View map of BBS sites](#)). The BBS started in 1994, and volunteers survey about 400 sites each year in Scotland. Visits are made between April and June, recording resident and migrant birds. The BBS employs a stratified random sampling design and trends are generated from a generalised linear model, which accounts for site differences, weighted by regional variation in the number of participants within regions in Scotland. Species included in the indicator are those which were recorded on 30-or-more BBS sites on an annual basis.

Trends for common sandpiper and dipper are derived from the BTO Waterways Bird Survey and the Waterways Breeding Bird Survey. Grey heron trends are derived from the Heronries Census. Trends for six species (golden eagle, hen harrier, peregrine, corncrake, black grouse and capercaillie) are estimated from single-species surveys carried out periodically, during the period 1994 to 2008 as part of the SCARABBS (Statutory Conservation Agency/RSPB Annual Breeding Bird Scheme) programme, which targets species that are not adequately covered by annual monitoring schemes.

The Scottish Woodland Bird Surveys funded since 2007 by the Forestry Commission Scotland and Scottish Natural Heritage has increased the number of species that are included in the indicator. Data from this targeted survey has added four species (chiffchaff, treecreeper, tree pipit and great spotted woodpecker) to the woodland indicator, one species (magpie) to the farmland bird indicator. No species were added to the upland indicator and three species (grey wagtail, great spotted woodpecker and tree pipit) were added to the all species indicator.

References

Freeman, S.N. & Crick, H.Q.P. 2003. The decline of the Spotted Flycatcher *Muscicapa straita* in the UK: an integrated population model. *Ibis* **145**, 400-412

Eaton, M.A., Brown, A.F., Noble, D.G., Musgrove, A.J., Hearn, R., Aebischer, N.J., Gibbons, D.W., Evans, A. and Gregory, R.D. 2009. Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. *British Birds* **102**, 296–341.

Noble, D.G., Joys, A.C. & Eaton, M.A. 2007. Natural Heritage Trends: A Scottish Biodiversity Indicator for Terrestrial Breeding Birds. *Scottish Natural Heritage Commissioned Report No 245*.

http://www.snh.org.uk/pdfs/publications/commissioned_reports/Report%20No245.pdf



Table 1. Percentage change in abundance for the Scottish Terrestrial Breeding Birds Indicator 1994-2008 and 2007-2008, species listed in order of overall % change 1994 to 2008

NOTE: Species in *italics* are covered through other survey schemes and not BBS

Species name	All species		Woodland		Farmland		Upland	
	94-08	07-08	94-08	07-08	94-08	07-08	94-08	07-08
Great Spotted Woodpecker	494	32	494	32				
Chiffchaff	446	47	446	47				
Stonechat	215	-4						
<i>Corncrake</i>	181	11			181	11		
House Martin	146	-9						
<i>Grey Heron</i>	132	-4						
Goldfinch	127	23			182	16		
Grey Wagtail	126	30						
Blackcap	114	-2	156	16				
Goldcrest	111	18	111	18				
Wren	102	7	102	7				
Snipe	94	27					94	27
<i>Capercaillie</i>	92	13	92	13				
Bullfinch	91	-4	91	-4				
Treecreeper	91	11	91	11				
Great Tit	89	3	68	-8	119	-10		
Reed Bunting	81	13			81	13		
Whitethroat	80	-2			80	-2		
<i>Hen Harrier</i>	76	6					76	6
Siskin	69	41	69	41				
Raven	61	-43					61	-43
Buzzard	56	7	43	24	69	8		
Dunnock	53	16	46	-16	23	14		
Sedge Warbler	49	17			49	17		
Tree Pipit	48	-14	48	-14				
House Sparrow	46	9						
Cuckoo	41	-9	3	-4			124	45
Willow Warbler	41	4	41	4				
Magpie	33	13			33	33		
Song Thrush	32	3	25	-3	81	16		
Greenfinch	31	15			25	24		
Coal Tit	27	23	27	23				
Swallow	26	14			26	14		
Jackdaw	25	5			-3	-20		
Linnet	24	4			24	4		
Mistle Thrush	20	-14	20	-14				
Red Grouse	20	5					20	5
Starling	19	24			19	28		
Blackbird	18	-6	4	-12	28	-5		
Blue Tit	14	-10	10	1	19	-6		
Robin	12	7	22	7				
Pied Wagtail	9	0			9	0		
Mallard	6	1						
Chaffinch	5	-2	6	-8	3	-9		
Skylark	4	4			0	6	18	-1
Lesser Redpoll	4	18	4	18				
<i>Golden Eagle</i>	3	0					3	0
Yellowhammer	2	-14			2	-14		
Woodpigeon	2	19			-9	7		
Wheatear	1	-5					1	-5
Carrion Crow	-5	-18			-1	-20		
Meadow Pipit	-14	8					-14	8
<i>Peregrine</i>	-15	-1					-15	-1
Lapwing	-19	19			-19	19		
Oystercatcher	-22	8			-22	8		
Rook	-24	-20			-24	-20		
Collared Dove	-25	-18						
Kestrel	-29	45			-29	45		
<i>Common Sandpiper</i>	-30	-10					-30	-10
Hooded Crow	-31	14					-31	14
<i>Dipper</i>	-37	-22					-37	-22



Species name	All species		Woodland		Farmland		Upland	
	94-08	07-08	94-08	07-08	94-08	07-08	94-08	07-08
<i>Black Grouse</i>	-37	-3					-37	-3
Golden Plover	-40	-32					-40	-32
Curlew	-45	0					-45	0
Swift	-57	-20						

