

Scottish Raptor Monitoring Scheme Trends 2009-2018: Parameter-focus



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Introduction

This document focusses on considering trends on a parameter-by-parameter basis, allowing users to readily compare trends for different species across regions.

Clicking on the various links below will take you straight to the relevant tables for the parameter of interest.

[Breeding pairs](#)

[Breeding success](#)

[Clutch size](#)

[Brood size](#)

[Number of fledglings](#)

Methods

Details of the methods used to produce trends can be found in a technical report available on the SRMS website (<https://raptormonitoring.org/trends/technical-report>).

Caveats

Any caveats that need to be considered when interpreting trends are noted below each of the tables and graphs, both in this report and in the various accounts available via the SRMS website. These caveats, together with their potential implications for the observed trend, are detailed below.

- 'a' – All data used – these are trends based on all available data for the period but, unlike national trends, are not considered to be robustly representative of the national population. This is due to under-representation of particular regions, habitats, demographic cohorts, or some combination of these.
- 'n' – Nest box based – a large proportion of monitored individuals are based in nest boxes. If nest boxes tend to be preferred over natural sites or vice versa, numerical trends may not be representative unless a high proportion of pairs nesting in natural sites are also found and monitored. Moreover, because only a small proportion of the population of any Scottish raptor breeds in nest boxes, if any measures of productivity differ between nesting attempts in boxes and those in natural sites, estimates of and trends in productivity may also be unrepresentative.
- 'r' – No home range random effect – inclusion of the home range as a random effect in a productivity trend model caused the results of that model to depart unrealistically from the observed range of variation for that trend, so this variable was removed from the model. This could make the trend more prone to being unduly influenced by variation between individual home ranges; particularly when the home ranges contributing to the trend changed over time.
- 's' – Sample sizes small – mean annual sample size is less than 20. This is likely to decrease the precision of annual estimates, and to increase the influence of 'noise' (random variation) on apparent change from one year to the next. This is not based on any formal power analyses but simply highlights that trends based on samples of more than 20 home ranges are likely to be more robust/representative than those based on smaller samples.

Front cover image: Clutch of five Merlin eggs on Orkney (Stuart Williams).

- 'v' – Variable effort – variation in sample size between years suggests that variable monitoring effort could result in inter-annual variation in the location and nature of home ranges that are monitored, or in the effort put into collecting data from these. Such variable effort could result in 'noise' (random variation between years) or, if effort increases or decreases over time, introduce bias into the trend.
- 'x' – Expanding population – population of a recently re-introduced species, known to be undergoing rapid expansion. This means that traditional approaches to raptor monitoring (focussing on known home ranges or discrete study areas) are likely to underestimate rates of population growth, and may bias measures of breeding productivity towards older, more experienced pairs.

Breeding pairs

Table 1: Summary of SRMS regional trends for the number of breeding pairs during 2009-2018. Figures in parentheses indicate the annual change, with significant increases (Inc) highlighted in green, significant decreases (Dec) highlighted in blue and non-significant (NS) changes highlighted in grey. 'NL' indicates non-linear trends. '—' indicates where the species occurs but no trend is available. 'ND' indicates where the SRMS does not hold any records for the region of interest. 'Abs' indicates where the species is not known to breed.

	Osprey	Golden Eagle	Sparrowhawk	Goshawk	Hen Harrier	Red Kite	White-tailed Eagle	Buzzard	Barn Owl	Tawny Owl	Kestrel	Merlin	Peregrine	Raven
Scotland	—	—	—	—	—	—	Inc ^{ax} (5.4%)	—	—	—	—	—	—	—
SRMS Region:														
Argyll	NS ^s	—	—	—	NS	ND	Inc ^{ax} (5.8%)	Dec ^r (-4.2%)	—	—	—	—	Dec ^s (-11%)	NS
Central	NS	NS ^s	—	—	—	NS ^x	Abs	—	Dec ^{ns} (-42.5%)	—	—	—	NS ^s	—
Dumfries & Galloway	—	—	—	NS ^s	NS ^s	Inc ^x (4%)	Abs	—	Dec ⁿ (-5.9%)	NS	—	—	NS	Inc (5.4%)
Highland	Inc (4.9%)	NS	—	—	Dec (-9.4%)	Dec (-10.8%)	NS ^{ax}	NS	—	NS ^{ns}	—	NS	—	—
Lewis & Harris	Abs	—	—	Abs	—	Abs	NS ^{asx}	—	Abs	Abs	—	—	—	—
Lothian & Borders	—	—	—	—	—	—	Abs	—	—	—	—	NS	NS	NS ^s
North East Scotland	NS ^s	—	—	—	—	NS ^{sx}	—	—	—	—	—	NS	NS	—
Orkney	Abs	Abs	—	Abs	NL	Abs	—	—	Abs	Abs	NL	NS	NS ^s	—
Shetland	Abs	Abs	—	Abs	Abs	Abs	Abs	Abs	Abs	Abs	Abs	—	—	—
South Strathclyde	—	—	—	—	Dec (-27%)	—	Abs	—	NS ^{ns}	—	—	—	NS	NS
Tayside & Fife	NS ^s	NS ^s	—	—	NS	NL	—	Dec (-4.5%)	—	—	—	NS ^{sv}	Dec (-4.1%)	NS
Uist	Abs	NS ^s	—	Abs	—	Abs	NS	—	Abs	Abs	—	—	—	NS ^{sv}

^a All data used, ⁿ Nestbox based, ^r No home range random effect, ^s Sample sizes small, ^v Variable effort, ^x Expanding population.

Table 2: Summary of NHZ regional trends for the number of breeding pairs during 2009-2018. Figures in parentheses indicate the annual change, with significant increases (Inc) highlighted in green, significant decreases (Dec) highlighted in blue and non-significant (NS) changes highlighted in grey. 'NL' indicates non-linear trends. '—' indicates where the species occurs but no trend is available. 'ND' indicates where the SRMS does not hold any records for the region of interest. 'Abs' indicates where the species is not known to breed.

	Osprey	Golden Eagle	Sparrowhawk	Goshawk	Hen Harrier	Red Kite	White-tailed Eagle	Buzzard	Barn Owl	Tawny Owl	Kestrel	Merlin	Peregrine	Raven
Scotland	—	—	—	—	—	—	Inc (5.4%) ^{ax}	—	—	—	—	—	—	—
NHZ Region:														
01. Shetland	Abs	Abs	—	Ab _s	Abs	Abs	Abs	Abs	Abs	Ab _s	Abs	—	—	—
02. North Caithness and Orkney	ND	Abs	—	Ab _s	NL	Abs	—	—	—	ND	Dec (-14.8%) ^s	NS	NS ^s	—
03. Coll, Tiree and the Western Isles	Abs	NS	—	Ab _s	—	Abs	Inc (6.4%) ^{ax}	—	Abs	Ab _s	—	—	—	NS ^v
04. North West Seaboard	—	NS _s	N _D	Ab _s	Abs	Abs	—	—	—	—	—	—	—	—
05. The Peatlands of Caithness and Sutherland	—	—	—	—	—	—	—	—	—	—	—	NS ^s	—	—
06. Western Seaboard	Abs	—	—	Ab _s	—	Abs	Inc (4.9%) ^{ax}	—	—	—	—	—	—	—
07. Northern Highlands	—	—	—	ND	—	NS ^{svx}	—	—	—	—	—	—	—	—
08. Western Highlands	—	—	N _D	Ab _s	—	Abs	NS ^{ax}	—	—	ND	—	—	—	—
09. North East Coastal Plain	—	Abs	N _D	—	—	NS ^{sx}	Abs	—	—	—	—	—	—	—
10. Central Highlands	—	—	—	—	NS ^{sv}	—	—	—	—	—	—	NS ^s	—	—
11. Cairngorm Massif	—	—	—	—	NS ^s	—	—	—	—	—	—	Dec (-6.7%) ^s	Dec (-6.7%) ^s	Dec (-8.4%) ^s
12. North East Glens	—	—	—	—	NS ^{sv}	—	—	—	—	—	—	NS	NS ^s	—

	Osprey	Golden Eagle	Sparrowhawk	Goshawk	Hen Harrier	Red Kite	White-tailed Eagle	Buzzard	Barn Owl	Tawny Owl	Kestrel	Merlin	Peregrine	Raven
13. East Lochaber	—	—	ND	—	—	Abs	—	—	—	ND	—	—	—	—
14. Argyll West and Islands	NS ^s	NS ^s	—	—	—	Abs	NS ^{ax}	Dec (-4.2%)	—	—	—	—	Dec ^s (-11%)	NS ^v
15. Loch Lomond, The Trossachs and Breadalbane	—	NS ^s	—	—	NS ^s	NS	—	NS ^s	—	—	—	—	Dec (-11.1%)	NS ^v
16. Eastern Lowlands	NS	—	—	—	—	NS	—	—	Dec ^s (-42.5%)	—	—	—	NS	NS ^{sv}
17. West Central Belt	—	Abs	—	—	NS ^s	—	Abs	—	—	—	—	—	NS	NS ^v
18. Wigtown Machairs and Outer Solway Coast	—	Abs	—	Abs	—	—	Abs	—	Dec (-5.9%)	—	—	Abs	NS	—
19. Western Southern Uplands and Inner Solway	—	—	—	—	Dec (-22.5%)	Inc (3.8%)	Abs	—	—	—	—	—	NS	Inc (4.9%) ^v
20. Border Hills	—	—	—	—	NS ^s	—	Abs	—	—	—	NS ^s	NS	NS	NS ^v
21. Moray Firth	Inc (5.1%)	Abs	—	—	—	—	Abs	NS	—	NS	—	—	—	—

^a All data used, ⁿ Nestbox based, ^r No home range random effect, ^s Sample sizes small, ^v Variable effort, ^x Expanding population.

Breeding success

Table 3: Summary of SRMS regional trends for breeding success during 2009-2018. Figures in parentheses indicate the annual change, with significant increases (Inc) highlighted in green, significant decreases (Dec) highlighted in blue and non-significant (NS) changes highlighted in grey. 'NL' indicates non-linear trends. '—' indicates where the species occurs but no trend is available. 'ND' indicates where the SRMS does not hold any records for the region of interest. 'Abs' indicates where the species is not known to breed.

	Osprey	Golden Eagle	Sparrowhawk	Goshawk	Hen Harrier	Red Kite	White-tailed Eagle	Buzzard	Barn Owl	Tawny Owl	Kestrel	Merlin	Peregrine	Raven
Scotland	—	—	—	—	—	—	NS ^x	—	—	—	—	—	—	—
SRMS Region:														
Argyll	NS ^s	NS ^v	—	—	NS	ND	NS ^x	NL	NS ⁿ	—	—	—	NS ^s	NS ^r
Central	NS	—	—	—	—	NS ^x	Abs	NS ^v	Dec ⁿ (-0.7%)	Inc ⁿ (5.3%)	—	—	NS ^s	NS ^r
Dumfries & Galloway	—	—	—	Dec (-1.4%)	—	NS ^x	Abs	NS ^{rs}	Dec ⁿ (-0.8%)	NS ^{ns}	—	—	NS	NS ^r
Highland	NS	NS	—	—	NS ^s	NS ^x	NS ^x	NS ^r	—	NS ⁿ	—	—	—	NS ^s
Lewis & Harris	Abs	NS	—	Abs	—	Abs	NS ^{sx}	—	Abs	Abs	—	—	—	—
Lothian & Borders	Dec ^s (-1.7%)	—	—	NS	—	—	Abs	NS ^r	NS ⁿ	Inc ^{ns} (6.2%)	—	—	Dec (-2.1%)	NS ^r
North East Scotland	NS	—	—	—	—	NS ^{sx}	—	—	—	—	—	NL	Inc (8.3%)	—
Orkney	Abs	Abs	—	Abs	NL	Abs	—	—	Abs	Abs	NS	—	Dec ^s (-2.4%)	—
Shetland	Abs	Abs	—	Abs	Abs	Abs	Abs	Abs	Abs	Abs	Abs	—	—	—
South Strathclyde	—	—	—	—	—	—	Abs	—	NS ^{nrs}	—	NS ^{ns}	—	NL	Dec ^r (-1%)
Tayside & Fife	NS	NS	—	—	Dec (-3.9%)	NS ^x	—	NS	—	—	—	NS ^{rs}	NS	NS
Uist	Abs	NS ^{sv}	—	Abs	—	Abs	—	NS	Abs	Abs	—	—	—	NS ^s

^a All data used, ⁿ Nestbox based, ^r No home range random effect, ^s Sample sizes small, ^v Variable effort, ^x Expanding population.

Table 4: Summary of NHZ regional trends for breeding success during 2009-2018. Figures in parentheses indicate the annual change, with significant decreases (Dec) highlighted in blue and non-significant (NS) changes highlighted in grey. 'NL' indicates non-linear trends. '—' indicates where the species occurs but no trend is available. 'ND' indicates where the SRMS does not hold any records for the region of interest. 'Abs' indicates where the species is not known to breed.

	Osprey	Golden Eagle	Sparrowhawk	Goshawk	Hen Harrier	Red Kite	White-tailed Eagle	Buzzard	Barn Owl	Tawny Owl	Kestrel	Merlin	Peregrine	Raven
Scotland	NL	NS	—	—	—	—	NS ^x	—	—	—	—	—	—	—
NHZ Region:														
01. Shetland	Abs	Abs	—	Abs	Abs	Abs	Abs	Abs	Abs	Abs	Abs	—	—	—
02. North Caithness and Orkney	ND	Abs	—	Abs	NL	Abs	—	—	—	ND	NS ^s	—	Dec (-2.4%) ^s	—
03. Coll, Tiree and the Western Isles	Abs	NS	—	Abs	—	Abs	NS ^x	NS ^s	Abs	Abs	—	—	—	NS
04. North West Seaboard	—	NS ^{sv}	ND	Abs	Abs	Abs	—	—	—	—	—	—	—	—
05. The Peatlands of Caithness and Sutherland	—	—	—	—	—	—	—	—	—	—	—	—	—	—
06. Western Seaboard	Abs	NS ^{rsv}	—	Abs	NS ^s	Abs	NS ^x	—	—	—	—	—	—	—
07. Northern Highlands	—	NS ^s	—	ND	—	—	—	—	—	—	—	—	—	—
08. Western Highlands	—	NS	ND	Abs	—	Abs	—	—	—	ND	—	—	—	—
09. North East Coastal Plain	—	Abs	ND	—	—	NS ^{rsvx}	Abs	—	—	—	—	—	—	—
10. Central Highlands	—	NS ^{sv}	—	—	—	—	—	—	—	—	—	—	—	—
11. Cairngorm Massif	—	NS ^{sv}	—	—	—	—	—	—	—	—	—	Dec (-1.3%)	NL	—
12. North East Glens	NS ^s	—	—	—	—	—	—	—	—	—	—	Dec (-1.4%) ^s	NS ^s	—
13. East Lochaber	—	—	ND	—	—	Abs	—	—	—	ND	—	—	—	—

	Osprey	Golden Eagle	Sparrowhawk	Goshawk	Hen Harrier	Red Kite	White-tailed Eagle	Buzzard	Barn Owl	Tawny Owl	Kestrel	Merlin	Peregrine	Raven
14. Argyll West and Islands	NS ^s	NS	—	—	NS ^{sv}	Abs	—	NL	NS ^{nr}	—	—	—	NS ^s	NS
15. Loch Lomond, The Trossachs and Breadalbane	NS ^s	NS ^s	—	—	NS ^s	NS ^{svx}	—	NS	—	—	—	—	NS ^{rs}	NS
16. Eastern Lowlands	NS	—	NS ^{sv}	NS ^{sv}	—	NS ^{vx}	—	NL	Dec ^{nv} (-0.5%)	—	—	—	Dec ^s (-1.3%)	NS
17. West Central Belt	—	Abs	—	—	—	—	Abs	NL	NS ^{nv}	—	NS ^s	—	NS	NS ^r
18. Wigtown Machairs and Outer Solway Coast	—	Abs	—	Abs	—	—	Abs	—	NL	—	—	Abs	NS ^s	—
19. Western Southern Uplands and Inner Solway	—	—	—	NL	—	NS ^{vx}	Abs	NS ^{rs}	NS ⁿ	—	—	—	NS	NS ^r
20. Border Hills	NS ^s	—	—	NS ^s	—	—	Abs	NS ^{rs}	NS ⁿ	NL	—	Dec ^s (-1.3%)	NS	NS ^r
21. Moray Firth	NS	Abs	—	—	—	NS ^{vx}	Abs	NS	—	NS ⁿ	—	—	—	—

^a All data used, ⁿ Nestbox based, ^r No home range random effect, ^s Sample sizes small, ^v Variable effort, ^x Expanding population.

Clutch size

Table 5: Summary of SRMS regional trends for clutch size during 2009-2018. Figures in parentheses indicate the annual change, with significant decreases (Dec) highlighted in blue and non-significant (NS) changes highlighted in grey. 'NL' indicates non-linear trends. '—' indicates where the species occurs but no trend is available. 'ND' indicates where the SRMS does not hold any records for the region of interest. 'Abs' indicates where the species is not known to breed.

	Osprey	Golden Eagle	Sparrowhawk	Goshawk	Hen Harrier	Red Kite	White-tailed Eagle	Buzzard	Barn Owl	Tawny Owl	Kestrel	Merlin	Peregrine	Raven
Scotland	NS	NS	—	—	—	—	NS ^s	—	—	—	—	—	—	—
SRMS Region:														
Argyll	—	—	—	—	—	No SRMS data	—	—	—	—	—	—	—	—
Central	—	—	—	—	—	—	Abs	—	NS	—	—	—	—	—
Dumfries & Galloway	—	—	—	—	—	—	Abs	—	NS	NS	—	—	NS ^s	—
Highland	—	—	—	—	—	—	NS ^s	NS	—	NS	—	—	—	—
Lewis & Harris	Abs	—	—	Abs	—	Abs	—	—	Abs	Abs	—	—	—	—
Lothian & Borders	—	—	—	—	—	—	Abs	NS	—	NS	—	—	NS	—
North East Scotland	—	—	—	—	—	—	NS ^s	—	—	—	—	NS	—	—
Orkney	Abs	Abs	—	Abs	Dec (-2.2%)	Abs	—	—	Abs	Abs	—	—	—	—
Shetland	Abs	Abs	—	Abs	Abs	Abs	Abs	Abs	Abs	Abs	Abs	—	—	—
South Strathclyde	—	—	—	—	—	—	Abs	—	—	—	—	—	—	—
Tayside & Fife	NS	—	—	—	NS ^s	—	—	—	—	—	—	—	—	—
Uist	Abs	—	—	Abs	—	Abs	—	—	Abs	Abs	—	—	—	—

^a All data used, ⁿ Nestbox based, ^r No home range random effect, ^s Sample sizes small, ^v Variable effort, ^x Expanding population.

Table 6: Summary of NHZ regional trends for clutch size during 2009-2018. Figures in parentheses indicate the annual change, with significant decreases (Dec) highlighted in blue and non-significant (NS) changes highlighted in grey. 'NL' indicates non-linear trends. '—' indicates where the species occurs but no trend is available. 'ND' indicates where the SRMS does not hold any records for the region of interest. 'Abs' indicates where the species is not known to breed.

	Osprey	Golden Eagle	Sparrowhawk	Goshawk	Hen Harrier	Red Kite	White-tailed Eagle	Buzzard	Barn Owl	Tawny Owl	Kestrel	Merlin	Peregrine	Raven
Scotland	NS	NS	—	—	—	—	NS	—	—	—	—	—	—	—
NHZ Region:														
01. Shetland	Abs	Abs	—	Abs	Abs	Abs	Abs	Abs	Abs	Abs	Abs	—	—	—
02. North Caithness and Orkney	ND	Abs	—	Abs	Dec ^r (-2.2%)	Abs	—	—	—	ND	—	—	—	—
03. Coll, Tiree and the Western Isles	Abs	—	—	Abs	—	Abs	NS ^{rsx}	—	Abs	Abs	—	—	—	—
04. North West Seaboard	—	—	ND	Abs	Abs	Abs	—	—	—	—	—	—	—	—
05. The Peatlands of Caithness and Sutherland	—	—	—	—	—	—	—	—	—	—	—	—	—	—
06. Western Seaboard	Abs	—	—	Abs	—	Abs	NS ^{rsx}	—	—	—	—	—	—	—
07. Northern Highlands	—	—	—	ND	—	—	—	—	—	—	—	—	—	—
08. Western Highlands	—	—	ND	Abs	—	Abs	—	—	—	ND	—	—	—	—
09. North East Coastal Plain	—	Abs	ND	—	—	—	Abs	—	—	—	—	—	—	—
10. Central Highlands	—	—	—	—	—	—	—	—	—	—	—	—	—	—
11. Cairngorm Massif	—	—	—	—	—	—	—	—	—	—	—	NS ^r	—	—
12. North East Glens	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13. East Lochaber	—	—	ND	—	—	Abs	—	—	—	ND	—	—	—	—
14. Argyll West and Islands	—	—	—	—	—	Abs	—	—	—	—	—	—	—	—
15. Loch Lomond, The Trossachs and Breadalbane	—	—	—	—	—	—	—	—	—	—	—	—	—	—
16. Eastern Lowlands	NS ^{rs}	—	—	—	—	—	—	NS ^r	—	—	—	—	NS ^{rs}	—
17. West Central Belt	—	Abs	—	—	—	—	Abs	—	—	—	—	—	—	—
18. Wigtown Machairs and Outer Solway Coast	—	Abs	—	Abs	—	—	Abs	—	NS ^{nr}	—	—	Abs	—	—
19. Western Southern Uplands and Inner Solway	—	—	—	—	—	—	Abs	—	NS ^{nr}	—	—	—	—	—
20. Border Hills	—	—	—	—	—	—	Abs	—	NS ^{nrs}	NS ^{nrs}	—	—	NS ^{rs}	—
21. Moray Firth	—	Abs	—	—	—	—	Abs	NS ^r	—	NS ^{nrs}	—	—	—	—

^a All data used, ⁿ Nestbox based, ^r No home range random effect, ^s Sample sizes small, ^v Variable effort, ^x Expanding population.

Brood size

Table 7: Summary of SRMS regional trends for brood size during 2009-2018. Figures in parentheses indicate the annual change, with significant decreases (Dec) highlighted in blue and non-significant (NS) changes highlighted in grey. 'NL' indicates non-linear trends. '—' indicates where the species occurs but no trend is available. 'ND' indicates where the SRMS does not hold any records for the region of interest. 'Abs' indicates where the species is not known to breed.

	Osprey	Golden Eagle	Sparrowhawk	Goshawk	Hen Harrier	Red Kite	White-tailed Eagle	Buzzard	Barn Owl	Tawny Owl	Kestrel	Merlin	Peregrine	Raven
Scotland	NS	NS	—	—	—	—	NS ^x	—	—	—	—	—	—	—
SRMS Region:														
Argyll	—	—	—	—	—	ND	NS ^s	—	—	—	—	—	—	—
Central	—	—	—	—	—	—	Abs	—	Dec (-2.4%)	—	—	—	—	—
Dumfries & Galloway	—	—	—	—	—	—	Abs	—	NS	—	—	—	NS ^s	—
Highland	—	—	—	—	—	—	NS ^s	NS	—	NS ^s	—	—	—	—
Lewis & Harris	Abs	—	—	Abs	—	Abs	—	—	Abs	Abs	—	—	—	—
Lothian & Borders	—	—	—	—	—	—	Abs	NS	—	—	—	—	NS ^s	—
North East Scotland	—	—	—	—	—	NS ^s	—	—	—	—	—	NS	—	—
Orkney	Abs	Abs	—	Abs	NS	Abs	—	—	Abs	Abs	—	—	—	—
Shetland	Abs	Abs	—	Abs	Abs	Abs	Abs	Abs	Abs	Abs	Abs	—	—	—
South Strathclyde	—	—	—	—	—	—	Abs	—	—	—	—	—	—	—
Tayside & Fife	NS	—	—	—	—	—	—	—	—	—	—	—	—	—
Uist	Abs	—	—	Abs	—	Abs	—	—	Abs	Abs	—	—	—	—

^a All data used, ⁿ Nestbox based, ^r No home range random effect, ^s Sample sizes small, ^v Variable effort, ^x Expanding population.

Table 8: Summary of NHZ regional trends for during brood size 2009-2018. Figures in parentheses indicate the annual change, with non-significant (NS) changes highlighted in grey. ‘—’ indicates where the species occurs but no trend is available. ‘ND’ indicates where the SRMS does not hold any records for the region of interest. ‘Abs’ indicates where the species is not known to breed.

	Osprey	Golden Eagle	Sparrowhawk	Goshawk	Hen Harrier	Red Kite	White-tailed Eagle	Buzzard	Barn Owl	Tawny Owl	Kestrel	Merlin	Peregrine	Raven
Scotland	NS	NS	—	—	—	—	NS	—	—	—	—	—	—	—
NHZ Region:														
01. Shetland	Abs	Abs	—	Abs	Abs	Abs	Abs	Abs	Abs	Abs	Abs	—	—	—
02. North Caithness and Orkney	ND	Abs	—	Abs	NS ^r	Abs	—	—	—	ND	—	—	—	—
03. Coll, Tiree and the Western Isles	Abs	—	—	Abs	—	Abs	—	—	Abs	Abs	—	—	—	—
04. North West Seaboard	—	—	ND	Abs	Abs	Abs	—	—	—	—	—	—	—	—
05. The Peatlands of Caithness and Sutherland	—	—	—	—	—	—	—	—	—	—	—	—	—	—
06. Western Seaboard	Abs	—	—	Abs	—	Abs	NS ^{rsx}	—	—	—	—	—	—	—
07. Northern Highlands	—	—	—	ND	—	—	—	—	—	—	—	—	—	—
08. Western Highlands	—	—	ND	Abs	—	Abs	—	—	—	ND	—	—	—	—
09. North East Coastal Plain	—	Abs	ND	—	—	—	Abs	—	—	—	—	—	—	—
10. Central Highlands	—	—	—	—	—	—	—	—	—	—	—	—	—	—
11. Cairngorm Massif	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12. North East Glens	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13. East Lochaber	—	—	ND	—	—	Abs	—	—	—	ND	—	—	—	—
14. Argyll West and Islands	—	—	—	—	—	Abs	—	—	—	—	—	—	—	—
15. Loch Lomond, The Trossachs and Breadalbane	—	—	—	—	—	—	—	—	—	—	—	—	—	—
16. Eastern Lowlands	NS ^{rs}	—	—	—	—	—	—	NS ^r	NS ^{nr}	—	—	—	NS ^{rs}	—
17. West Central Belt	—	Abs	—	—	—	—	Abs	—	—	—	—	—	—	—
18. Wigtown Machairs and Outer Solway Coast	—	Abs	—	Abs	—	—	Abs	—	NS ^{nr}	—	—	Abs	—	—
19. Western Southern Uplands and Inner Solway	—	—	—	—	—	—	Abs	—	NS ^{nr}	—	—	—	—	—
20. Border Hills	—	—	—	—	—	—	Abs	—	—	NS ^{nrs}	—	—	NS ^{rs}	—
21. Moray Firth	—	Abs	—	—	—	—	Abs	NS ^s	—	NS ^{nrs}	—	—	—	—

^a All data used, ⁿ Nestbox based, ^r No home range random effect, ^s Sample sizes small, ^v Variable effort, ^x Expanding population.

Number of fledglings

Table 9: Summary of SRMS regional trends for the number of fledglings during 2009-2018. Figures in parentheses indicate the annual change, with significant increases (Inc) highlighted in green, significant decreases (Dec) highlighted in blue and non-significant (NS) changes highlighted in grey. 'NL' indicates non-linear trends. '—' indicates where the species occurs but no trend is available. 'ND' indicates where the SRMS does not hold any records for the region of interest. 'Abs' indicates where the species is not known to breed.

	Osprey	Golden Eagle	Sparrowhawk	Goshawk	Hen Harrier	Red Kite	White-tailed Eagle	Buzzard	Barn Owl	Tawny Owl	Kestrel	Merlin	Peregrine	Raven
Scotland	NS	NS	—	—	—	—	NS ^x	—	—	—	—	—	—	—
SRMS Region:														
Argyll	NS	NS ^s	—	—	—	ND	NS ^s	NS	Inc (3.5%)	—	—	—	—	NS
Central	NS	—	—	—	—	NS ^s	Abs	NS	NS	—	—	—	NS ^s	NS
Dumfries & Galloway	—	—	—	NS	—	Dec (-5.4%)	Abs	NS ^s	NS	—	—	—	Dec (-2.4%)	NS
Highland	NS	NS	—	—	—	NS	NS ^s	NS	—	NS ^s	—	—	—	NS ^s
Lewis & Harris	Abs	—	—	Abs	—	Abs	—	—	Abs	Abs	—	—	—	—
Lothian & Borders	—	—	—	NS	—	—	Abs	NS	Dec (-3.4%)	—	—	—	NS	NS
North East Scotland	NS	—	—	—	—	NS ^s	—	—	—	—	—	NS	—	—
Orkney	Abs	Abs	—	Abs	—	Abs	—	—	Abs	Abs	—	—	—	—
Shetland	Abs	Abs	—	Abs	Abs	Abs	Abs	Abs	Abs	Abs	Abs	—	—	—
South Strathclyde	—	—	—	—	—	—	Abs	—	NS ^s	—	—	—	NS	NS
Tayside & Fife	NS	NS ^s	—	—	—	NS	—	NS	—	—	—	—	NS	NS
Uist	Abs	—	—	Abs	—	Abs	—	—	Abs	Abs	—	—	—	NS ^s

^a All data used, ⁿ Nestbox based, ^r No home range random effect, ^s Sample sizes small, ^v Variable effort, ^x Expanding population.

Table 10: Summary of NHZ regional trends for the number of fledglings during 2009-2018. Figures in parentheses indicate the annual change, with significant increases (Inc) highlighted in green, significant decreases (Dec) highlighted in blue and non-significant (NS) changes highlighted in grey. 'NL' indicates non-linear trends. '—' indicates where the species occurs but no trend is available. 'ND' indicates where the SRMS does not hold any records for the region of interest. 'Abs' indicates where the species is not known to breed.

	Osprey	Golden Eagle	Sparrowhawk	Goshawk	Hen Harrier	Red Kite	White-tailed Eagle	Buzzard	Barn Owl	Tawny Owl	Kestrel	Merlin	Peregrine	Raven
Scotland	NS	NS	—	—	—	—	NS	—	—	—	—	—	—	—
NHZ Region:														
01. Shetland	Abs	Abs	—	Abs	Abs	Abs	Abs	Abs	Abs	Abs	Abs	—	—	—
02. North Caithness and Orkney	ND	Abs	—	Abs	—	Abs	—	—	—	ND	—	—	—	—
03. Coll, Tiree and the Western Isles	Abs	NS ^{rs}	—	Abs	—	Abs	NS ^{sx}	NS ^{rs}	Abs	Abs	—	—	—	NS ^{rs}
04. North West Seaboard	—	—	ND	Abs	Abs	Abs	—	—	—	—	—	—	—	—
05. The Peatlands of Caithness and Sutherland	—	—	—	—	—	—	—	—	—	—	—	—	—	—
06. Western Seaboard	Abs	—	—	Abs	—	Abs	NS ^{sx}	—	—	—	—	—	—	—
07. Northern Highlands	—	—	—	ND	—	—	—	—	—	—	—	—	—	—
08. Western Highlands	—	—	ND	Abs	—	Abs	—	—	—	ND	—	—	—	—
09. North East Coastal Plain	—	Abs	ND	—	—	—	Abs	—	—	—	—	—	—	—
10. Central Highlands	—	—	—	—	—	—	—	—	—	—	—	—	—	—
11. Cairngorm Massif	—	—	—	—	—	—	—	—	—	—	—	NS ^r	—	—
12. North East Glens	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13. East Lochaber	—	—	ND	—	—	Abs	—	—	—	ND	—	—	—	—
14. Argyll West and Islands	NS	—	—	—	—	Abs	—	NS ^r	Inc ^{nr} (3.6%)	—	—	—	—	NS ^r
15. Loch Lomond, The Trossachs and Breadalbane	NS	—	—	—	—	NS ^{sx}	—	—	—	—	—	—	—	NS ^r
16. Eastern Lowlands	NS	—	—	NS ^{rs}	—	NS ^{rx}	—	NS	NS ^{nr}	—	—	—	NS	NS ^r
17. West Central Belt	—	Abs	—	—	—	—	Abs	NS ^r	Dec ^{nr} (-3%)	—	NS ^{ns}	—	NS ^{rs}	NS ^r
18. Wigtown Machairs and Outer Solway Coast	—	Abs	—	Abs	—	—	Abs	—	NS ^{nr}	—	—	Abs	NS	—
19. Western Southern Uplands and Inner Solway	—	—	—	NS ^{rs}	—	Dec ^{rx} (-5.4%)	Abs	—	NS ⁿ	—	—	—	NS ^r	NS ^{rs}
20. Border Hills	—	—	—	NS ^{rs}	—	—	Abs	NS ^{rs}	Dec ^{nr} (-3%)	NS ^{ns}	—	—	NS ^{rs}	NS ^{rs}
21. Moray Firth	NS	Abs	—	—	—	NS ^{rx}	Abs	NS ^r	—	NS ^{ns}	—	—	—	—

^a All data used, ⁿ Nestbox based, ^r No home range random effect, ^s Sample sizes small, ^v Variable effort, ^x Expanding population.