

Annual surveillance of choughs in the Pembrokeshire Coast National Park-2017

Skomer & Skokholm SPA

A report to the Wildlife Trust South & West Wales Islands Advisory Committee, and to the Pembrokeshire Coast National Park Authority and Natural Resources Wales

1 Introduction

The Pembrokeshire Coast National Park supports a nationally/internationally important chough population that has been the focus of annual surveillance since the early 1980s. The main focus of the annual surveillance work is on the distribution and numbers of breeding pairs and on productivity, in line with the Chough Conservation Strategy for Pembrokeshire (Hodges (Ed.), 1994). Information on the numbers and distribution of choughs outside the breeding season has been collected on a much more *ad hoc* basis e.g. during snap-shot surveys in the autumn and winter such as the Winter Coastal Bird Survey carried out in February 2011 (Haycock & Hodges, 2011).

A key component of the annual surveillance of chough populations in the National Park is the surveillance of breeding choughs within the Skomer & Skokholm SPA, for which the chough is a feature of European importance. Similar work is carried out in the Ramsey & St Davids Peninsula Coast SPA and the Castlemartin Coast SPA, for which the chough is the feature of European importance.

The data collected on Skomer and Skokholm Islands during the 2017 breeding season are summarised in this short report, together with observations on the chough feature of the SPA in the context of the National Park as a whole. Factors that may have influenced the breeding (and non-breeding) chough population within the SPA and in the rest of the National Park are briefly considered.

2 Surveillance methods

2.1 Breeding choughs

The annual surveillance of breeding choughs in the National Park is carried out on a territory-by-territory basis. On the mainland, historic or traditional territories as well as currently or recently occupied territories are visited at intervals between mid-March and late May to ascertain the following:

- ❖ Whether or not territories are occupied;
- ❖ Whether or not the pairs occupying those territories attempt to breed (i.e. they got at least as far as building or refurbishing a nest);
- ❖ Whether or not completed nests contain eggs (as deduced from observing the behaviour of the pairs occupying the nest sites).

Follow-up visits are made between late May and mid-July to confirm:

- ❖ The stage at which any attempts to breed failed;
- ❖ If (and how many) young fledged from each nest site.

On Skomer and Skokholm Islands, data on occupied territories/breeding pairs and on non-breeding choughs present on the islands are collected on a regular basis by the islands staff and volunteers.

The criteria used to determine the breeding status and subsequently the different stages of the breeding season are based on standard methods used to interpret behavioural observations during e.g. the Decadal Census carried out in 2002 (Johnston *et al*, 2007). These are set out below, together with the equivalent criteria/definitions that are used in national surveys under e.g. the Statutory Conservation Agencies/RSPB Rare Breeding Birds Survey (SCARABBS).

Territory occupied: evidence of territorial and courtship behaviour; territorial behaviour elicited by other choughs entering a pair's territory; assumed pairs visiting known or potential nest sites; two birds (assumed to be a pair) foraging near a known/suspected nest site on at least two occasions during the breeding season, but no other behaviour observed that suggests attempted breeding (this equates to the term "*possible breeding pair*" used by SCARABBS);

Pair attempting to breed: evidence of nest-building or refurbishment of an old nest, and nest-lining e.g. with wool; male observed feeding female; mating observed; visits to potential nest sites e.g. "one in; two out" observed but no other indications of breeding success i.e. no young seen or heard in the nest; no faecal sacs observed to be removed and no young seen during the expected fledging period (this equates to the term "*probable breeding pair*" used by SCARABBS);

Eggs in the nest: behavioural evidence indicating that the female is incubating eggs (e.g. the male feeding alone and making regular return visits to the nest site to feed the female; the female leaves the nest for short periods of time only, to exercise, preen and forage usually along-side the male before returning to the nest: "one in; two out; "two in, one out", "one in and stays in" (this equates to the term "*confirmed breeding pair*" used by SCARABBS);

Young in the nest: behavioural evidence e.g. adults visiting a nest with food and leaving it a short time afterwards, followed (typically) by bill-wiping on a perch nearby; bringing out of faecal sacs (or egg shells) for disposal away from the nest (often over the sea): "two in; two out and two away" but returning to the nest c. 15-30 minutes later where-by they repeat the above behaviour; aggressive behaviour towards other birds e.g. ravens, carrion crows and peregrine falcons which are known to predate young choughs. Food-begging calls from young in the nest: well-grown nestlings can sometimes be heard calling in the nest from the cliff tops above, although caution should be exercised as young jackdaws in the nest can sound remarkably similar to young choughs (this equates to the term "*confirmed breeding pair*" used by SCARABBS);

Number of young known to have fledged: noisy family parties out on the cliff tops; adults feeding recently fledged young; aggressive/defensive behaviour in the presence of potential predators or in some circumstances, other choughs that are deemed to be within the family's foraging territory and therefore competing with the family for food. Features such as bill and leg colour, calls/voice and general demeanour e.g. proficiency of flight (which increases rapidly after the young have left the nest) can be used to gauge how long young choughs have been out of the nest. Return visits are often required at this stage, in order to be certain about the outcome of breeding attempts. Within a few days of fledging, family groups become highly mobile often moving considerable distances away from the nest site. The task of determining how many choughs fledge from each nest site becomes increasingly difficult as time goes on.

Note on unconfirmed breeding pairs

Each year, presumed pairs (sometimes only single birds) are likely to be observed at locations with known or potentially suitable nest sites (including sites not known to have been recently occupied). These birds do not quite fit the "territory occupied" criteria. They can include birds visiting a potential nest site in April or May but there is insufficient evidence of regular occupancy e.g. no obvious courtship behaviour, no interactions with other choughs or they are not seen during later visits.

Such birds could be young non-breeding pairs that are prospecting. They might also be two non-breeding (e.g. same sex) birds that are not part of a non-breeding flock. They could still be quite mobile and not yet attached to any one particular location. In some instances, they might just be birds from an adjacent confirmed territory/nest site that are possibly extending their territory (e.g. to increase their foraging territory).

Where such uncertainties over the status of birds arise, a question mark is entered into the territory occupancy column in the records. Visits in future breeding seasons may clarify whether (or not) such pairs are definitely occupying a territory.

2.2 Non-breeding choughs

Information on non-breeding choughs and on important foraging areas/habitats is collected during visits to check on the status of breeding pairs. Experience suggests that data on non-breeding choughs can only reliably be collected between late March (by which-time, pairs are settled in their territories) and the first half of May, after-which the situation can become confused by failed breeding birds which may leave their territories from time-to-time to associate with any non-breeding birds that are in the area. Later-on in the season, flocks of failed and non-breeding birds are joined by juveniles as they disperse from their natal territories, further complicating the situation.

Recording non-breeding choughs during the spring has a further advantage: it provides a good indication of how well (or otherwise) the less experienced birds without a territory have survived the preceding winter and are therefore potentially available for recruitment to the breeding population.

The task of estimating how many non-breeding birds there are on any given section of the coast or island at any one time is made difficult by the highly mobile nature of non-breeding birds: they can turn up almost anywhere on the coast at any time. If, however a similar number of non-breeding birds are observed or are reported using (e.g. for foraging or roosting) a particular part of the coast (or island) on more than one occasion during the spring, then it can be assumed that the coast at that location is likely to be supporting those non-breeding birds on a regular basis. Repeat observations of non-breeding birds using a particular area are used as the basis for estimating the total number of non-breeding choughs in the SPA (and in the National Park as a whole).

3 Summary of the data collected in the SPA in 2017

3.1 Breeding population

Data obtained for the breeding and non-breeding chough population in the SPA, together with productivity are summarised on Tables 1 and 2, below. A more detailed summary of data for the breeding population on a territory-by-territory basis is provided in the annex to this report.

Table 1: General summary of data on the chough population in the SPA in 2017

Status	Skomer	Skokholm	SPA total	% PCNP total
No. occupied territories	3	2	5	6.3
No. pairs attempting to breed	3	2	5	7.6
No. nests with eggs	2	2	4	6.5
No. nests with young	2	2	4	6.6
No. pairs successfully fledging young	1	2	3	5.9
No. young known to have fledged	2	8	10	7.9
No. non-breeding choughs	20-30*	20-30*	20-30	20-27
Notes				
1 For the purpose of this report, a pair attempting to nest is defined as a pair that got at least as far as building or refurbishing a nest;				
2 A successful pair are defined as a pair that successfully fledged young in 2017;				
3 The flocks of up to 20-30 non-breeding birds seen on the islands and on the mainland “opposite” in spring 2017 were most likely to have been the same birds “commuting” between the islands and the mainland-see under 2.3 in the main text.				

Table 2: Productivity

Productivity expressed as:	Skomer	Skokholm	SPA as a whole	National Park
Ave. no. young fledged/occupied territory	0.7	4	2	1.6
Ave. no. young fledged/pair attempting to breed	0.7	4	2	1.9
Ave. no. young fledged/successful pair	2	4	3.3	2.5

The data summarised in Table 1 indicate that the number of territories occupied in the SPA in 2017 was five-one less than in 2016 (Hodges, 2016) and the number of pairs attempting to breed was also one less in 2017 than in 2016. Four pairs got as far as having young in the nest, three of which went on to successfully fledge 10 young between them in 2017. Skomer and Skokholm between them accounted for approximately 6.3% of the total number of occupied territories and 7.6% of the total number of pairs that attempted to breed in the National Park in 2017. Around 7.9% of the total number of choughs known to have fledged from nest sites in the National Park fledged from nest sites within the SPA.

The figures in Table 2 indicate that within the SPA, productivity expressed as the average number of young fledged per occupied territory was about the same as in 2016. In terms of the average number of young fledged per pair attempting to breed and the number of young fledged per successful pair, productivity was higher in 2017 than in 2016. The average number of young fledged per successful pair in the SPA was also higher than that for the National Park as a whole in 2017.

At first glance, the productivity data for the SPA are encouraging however, it is noted that this is almost entirely due to the outstanding performance of the two pairs that bred on Skokholm Island which fledged eight young between them. This is the highest productivity that has been recorded on the island.

On Skomer Island, the 2017 breeding season was disappointing: only three pairs were known to have attempted to breed and only one pair (from the Payne's Ledge site on the west coast of the island) managed to fledge any young. It is likely that the young in a second nest site (South Castle Beach Cave) were either predated (whilst still in the nest) by carrion crows that were nesting near-by or lost during the adverse weather during the week beginning 5th June (E. Stubbings pers. comm.).

On the mainland coast between St Brides and St Ann's Head, a total of seven territories were occupied and six pairs went on to fledge 16 young between them. The data indicate that in terms of the number of young fledged per occupied territory and the number of young fledged per pair attempting to breed, productivity was (once again) higher on the mainland coast between St Brides and St Ann's Head

than in the SPA. It was however slightly higher in terms of the average number of young fledged per successful pair in the SPA than on the mainland “opposite”, as a result of the outstanding breeding performance of the two Skokholm pairs.

3.2 Non-breeding choughs

Up to 20-30 non-breeding choughs were regularly recorded on Skomer and Skokholm Islands between mid-March and late May 2017 (the islands’ daily bird logs). A flock of between 20 and 26 non-breeding choughs was also recorded on the Deer Park and south Marloes coast on several occasions during the spring. As in previous years, movements of birds between the islands and the mainland were observed during the spring. It is likely that the flocks seen on the islands and mainland “opposite” were the same flock. Assuming that this was the case, the SPA together with the mainland “opposite” supported a flock of between 20 and 30 non-breeding choughs, representing approximately 20-27% of the total non-breeding population in the National Park in the spring 2017.

As in 2014, 2015 and 2016, co-ordinated roost counts were carried out between mid-August and mid-September 2017 at the request of the RSPB’s Bangor Office (part of a Wales-wide roost watch) at known or suspected roost sites. A co-ordinated roost watch was carried out on the islands and on the Deer Park on 2nd September 2017. On this occasion, a flock of 15 choughs was observed feeding on the cliff tops and coastal slopes on the south side of the Deer Park. At c.19.00 hrs, two of the choughs “peeled off” from the flock and headed east towards the Renny Slip nest site where they subsequently roosted. A few minutes later, 12 of the 13 remaining birds left the Deer Park and headed out towards the south side of the Neck (they were lost from view in the vicinity of Amy’s Reach). They did not return to the Deer Park and were presumed to have roosted on the Neck. The 13th bird flew across Jack Sound a few minutes later but turned around on reaching Midland Island and eventually went to roost somewhere in the vicinity of the Renny Slip nest site (this bird may have been one of the three juveniles that fledged from this nest site in 2017).

On Skomer Island, 23 choughs roosted together in Protheroe’s Dock, on the north side of the Neck. It is thought that these included the 12 choughs that crossed to the south side of the Neck earlier on the same evening. A small communal roost of four birds was observed at Middle Rock on Skokholm Island on the same evening.

It would appear that during August and early September, choughs from the mainland and the two islands were using a communal roost on Skomer Island on a regular basis. On 26th August, a flock of seven choughs was watched crossing Broad Sound from Skokholm Island to the Neck of Skomer. By mid-September, up to 29 choughs were occupying a communal roost on the Neck of Skomer, and were watched crossing to the mainland in the morning on at least one occasion. By late September however, choughs had also started to use a communal roost on the Deer Park (in line with observations made in previous years). On 25th September, c. 16 choughs roosted in the Horseshoe Cave on the south side of the Deer Park.

4 Observations on the data for the breeding population in the SPA in 2017

The 2016/17 winter was relatively benign: mild with few winter storms and little in the way of frost. Generally, winter survival appeared to have been good. By mid-March 2017, territories on the mainland were occupied and breeding was well-underway in most occupied territories by mid-April. The at times very stormy, wet weather during the weeks beginning 5th and 26th June was likely to have had a negative impact on breeding choughs on Ramsey Island and on parts of the mid and north coasts on the mainland. Nest sites on Skomer Island may also have been affected by poor weather in June. The two nest sites on Skokholm (which may have been in more sheltered locations) did not appear to have been affected by the poor weather in June.

The 2017 breeding season within the SPA was marked by the outstanding results from Skokholm Island where two pairs fledged eight young between them. Subsequent observations however, suggested that at least one juvenile bird was lost from each family group soon after fledging (R. Brown, pers. comm.). The 2017 breeding season on Skomer was by comparison disappointing, with only one pair managing to fledge any young. As noted above, the young in a second nest site (South Castle Beach Cave) may have been predated by carrion crows nesting nearby in early June. If this was the case, it would not have been the first occasion on which this has happened at this site which appears to be particularly vulnerable to predation by other corvids.

In 2017, the breeding population within the SPA accounted for a very similar percentage of the total population for the National Park as in 2016 (within which a total of 79 territories were known to have been occupied; 51 pairs went on to successfully fledge at least 127 young between them).

As noted in previous reports, there are several factors that may influence the breeding success and productivity of individual pairs and of the breeding population as a whole within the SPA. These include the following:

- The condition of the birds at the start of the breeding season. In 2017, most choughs might have been expected to have entered the breeding season in reasonably good condition given the relatively benign winter of 2016/17;
- Pairs that failed to progress beyond the initial stages of breeding (e.g. the pair occupying the Lantern nest site on Skomer which also failed to get beyond the initial stages in 2016) may have been inexperienced. “New” pairs can take two or three seasons to become fully established in their territories before finally managing to breed successfully;
- The availability of safe, secure nest sites may be limited on both islands. Nest sites may also deteriorate as the season progresses e.g. as a result of storm damage and/or water-logging, resulting in losses of eggs or small nestlings. Any nest sites that are low-down in exposed cliffs will have been vulnerable to drenching sea sprays generated by the huge ground-swells that accompanied the strong winds and rain in early and late June 2017;
- Good quality, reliable foraging habitat appears to be quite limited on both islands (although Skokholm Island proved to be capable of supporting two very successful pairs in 2017). Changes in the structure of the vegetation (e.g.

encroachment by bracken or tall herbs such as ragwort into areas that were previously dominated by short, rabbit-grazed turf) have occurred on both islands. These changes may have influenced the distribution and quantity of soil invertebrates that are available to choughs. Other factors that potentially limit the extent and quality of foraging habitat on the two islands include the often thin, acidic soils that are regularly disturbed e.g. by burrowing activity (of rabbits and seabirds) and that are subject to rapid wetting and drying-potentially hostile conditions for soil invertebrates. In previous years, choughs have been observed commuting on a daily basis between the Neck of Skomer and the Deer Park to forage, an energetically demanding strategy which may have impacted on productivity;

- It is possible that (as may be the case on remote parts of the mainland coast) observations of chough activity may have been insufficient to obtain an accurate picture of what happened at individual nest sites, some of which are very difficult to observe from the cliff tops. A considerable amount of effort (including repeat visits) and many hours of observations are often required in order to be certain about the locations of nest sites and the outcomes of breeding attempts;
- Other factors such as intra and interspecific competition for e.g. food on and of the islands may also affect breeding and non-breeding choughs alike, especially if foraging habitats are already sub-optimal and/or they are subjected to prolonged periods of adverse weather.

As suggested in previous reports (e.g. Hodges, 2016), the data obtained for breeding choughs in 2017 should be viewed in the context of the other primary and qualifying features of the SPA. Skomer and Skokholm Islands are first and foremost seabird islands that support globally important numbers of burrow-nesting birds e.g. Manx shearwaters and it is difficult to envisage management interventions that could be carried out e.g. to improve the extent and quality of foraging habitat for choughs without compromising other SPA features.

The health and viability of the breeding population within the SPA continues to be inextricably linked to that on the mainland and in particular the Deer Park-St Ann's Head coast. The islands' population will always be dependant to a greater or lesser extent on the "mainland opposite" for additional options for foraging, recruitment to the breeding population within the SPA and other aspects (including social interactions) of their annual life cycle. This needs to be taken into account in the setting of and reporting on conservation objectives and performance indicators for the chough feature of the SPA.

Mention should also be made of the non-breeding population. The SPA together with the mainland opposite, continued to support a significant proportion of the non-breeding population in the National Park in 2017. The reasonably good numbers of non-breeding birds that moved around between the islands and mainland during the spring suggested that there was good winter survival and that there are good numbers of birds available for recruitment to the breeding population. Overall, the data for 2017 suggest that the islands together with the mainland in the National

Park are currently capable of sustaining a healthy non-breeding population which bodes well for the future of the breeding population.

There remains some concern over an apparently low genetic diversity in the chough population in the National Park (Wenzel *et al*, 2012), which appears to be relatively sedentary. Sightings of colour-ringed birds especially on the mainland coast in the north of the National Park suggest a low-level recruitment of birds from elsewhere in Wales (e.g. Ceredigion) to the breeding population in the National park which may help to increase the genetic diversity of the resident population.

5 Acknowledgements

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6 References

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Annex

Skomer & Skokholm SPA: chough feature

Summary of breeding data-2017

1 Skomer Island

Name of site/territory	OS grid ref	Territory occupied	Breeding attempted	Eggs in nest	Young in nest	No. young known to have fledged
The Lantern	SM7430009160	Yes	Yes	No	-	-
Thorn Rock	SM7402008960	No	-	-	-	-
South Castle Beach Cave	SM736089	Yes	Yes	Yes	Yes	0
Amy's Reach	SM738090	No	-	-	-	-
Wick Cliff	SM725087	No	-	-	-	-
Wick Basin	SM721088	No	-	-	-	-
The Basin	SM719089	No	-	-	-	-
Tom's House	SM718089	No	-	-	-	-
Pigstone Bay/Bull Hole	SM7109	No	-	-	-	-
Payne's Ledge	SM722103	Yes	Yes	Yes	Yes	2
Double Cliff	SM7210	No	-	-	-	-

2 Skokholm Island

Name of site/territory	OS grid ref	Territory occupied	Breeding attempted	Eggs in nest	Young in nest	No. young known to have fledged
Crab Bay	SM7304	No	-	-	-	-
Steep Bay/Twinlet	SM731005230	Yes	Yes	Yes	Yes	4
The Dip/Dip Gully	SM734045	Yes	Yes	Yes	Yes	4
The Quarry	SM728047	No	-	-	-	-
South coast/Frank's Point	SM7304	No	-	-	-	-

Note

Historical nest sites and territories have been included for the sake of completeness and to facilitate easy comparisons of data in previous years.