

# Annual Surveillance of choughs in the Pembrokeshire Coast National Park-2016

## 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 subject 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 *et al*, 1994). Information on the numbers and distribution of choughs outside the breeding season has been collected on a more *ad hoc* basis e.g. during snap-shot surveys in the autumn and winter such as the Winter Coastal Birds 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 annual 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 Cliffs SPA, for which the chough is the feature of European importance.

The data collected on Skomer and Skokholm Islands during the 2016 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 looked at.

### 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 e.g. during the Decadal Census carried out in 2002 (Johnston *et al*, 2007). These are summarised as follows:

**Territory occupied:** evidence of territorial and courtship behaviour; pairs visiting a known or potential nest site;

**Pair attempting to nest:** evidence of nest building or refurbishment of an old nest; territorial behaviour elicited by other choughs entering a pair's territory;

**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 for food along-side the male: "one in; two out; one in and one away");

**Young in the nest:** behavioural evidence e.g. adults visiting a nest with food and leaving it a short time afterwards, followed by bill-wiping on a perch near-by; bringing out of faecal sacs for disposal away from the nest (usually over the sea): "two in; two out and two away"; aggressive behaviour towards other birds e.g. ravens; carrion crows and peregrine falcons which are known to predate young choughs. Well-grown nestlings can sometimes be heard calling in the nest from the cliff tops above, (although calls need to be listened-to carefully as young jackdaws in the nest can sound quite similar);

**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 a family's feeding 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 leave 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 becomes increasingly difficult as time goes on.

## **2.2 Non-breeding choughs**

Information on non-breeding choughs and on important foraging areas is collected during visits to check on the progress being made by 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, groups 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 a particular part of the mainland coast (or on the islands) 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 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 a basis for estimating the total number of non-breeding birds in the SPA (and in the National Park as a whole).

## **3 Summary of the data collected in the SPA in 2016**

### **3.1 Breeding population**

Data obtained for the breeding and non-breeding population and on productivity in the SPA in 2016 are summarised on tables 1 and 2, below. A summary 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 2016**

Status	Skomer	Skokholm	SPA total	%National Park total
No. occupied territories	4	2	6	7.14
No. pairs attempting to breed	4	2	6	7.89
No. nests with eggs	3	2	5	7.04
No. nests with young	2	2	4	5.80
No. pairs successfully fledging young	2	2	4	6.90
No. young known to have fledged	5	5	10	6.94
No. non-breeding choughs	Max. 14-16	0	Max. 14-16	16.8

**Table 2: Productivity**

Productivity expressed as:	Skomer	Skokholm	SPA as a whole	National Park
Ave. no. young fledged/occupied territory	1.25	2.5	1.6	1.71
Ave. no. young fledged/pair attempting to breed	1.25	2.5	1.6	1.89
Ave. no. young fledged/successful pair	2.5	2.5	2.5	2.48

**Notes**

1 For the purpose of this report, a pair attempting to nest are 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 2016.

The data summarised in Table 1 indicate that the number of territories occupied in 2016 was the same as in 2015 (Hodges, 2016) and that the number of pairs attempting to breed in 2016 was 6 (*c f* 5 in 2015). Four pairs went on to successfully fledge 10 young between them in 2016, compared with two successful pairs in 2015. The figures in Table 2 indicate that within the SPA, productivity was significantly higher than in 2015 and that in terms of the average number of young fledged per successful pair, it was slightly higher than that in the National Park as a whole.

On Skokholm Island, the two pairs that occupied territories in 2016 went on to successfully fledge three and two young respectively. The well-established nest site in Twinlet produced three young whilst the relatively recently established site in The Dip produced two young. On Skomer Island, the Payne's Ledge nest site produced

at least one young and four young fledged from the South Castle Beach Cave site- this gave a significant boost to the overall productivity figures for the island.

On the mainland coast between St Brides and St Anne's Head, a total of seven pairs fledged 20 young between them, an average of 2.86 young per pair. Only one traditional territory on this section of the coast remained unoccupied in 2016. As in 2014 and 2015, the data obtained for the mainland between St Brides and At Anne's Head indicate that in 2016, productivity was higher on this section of the mainland than it was in the SPA.

### **3.2 Non-breeding choughs**

Non-breeding choughs were recorded on Skomer Island regularly between late March and mid-May: flocks of 12 and 13 were present on the island in late March and early April, and smaller flocks of up to 7 were recorded on several dates in May (Skomer daily bird log-2016). The largest flock recorded on Skomer during the spring in 2016 was 14-16 birds on 5<sup>th</sup> April. There were no flocks of non-breeding choughs recorded on Skokholm between late March and mid-May (Skokholm daily bird log-2016)

On the mainland, a flock of 7 non-breeding choughs was recorded on several occasions between St Anne's Head and West Dale between late March and mid-May. These birds appeared to be more-or-less resident on this part of the coast during the spring and are thought to have been a different flock to that seen on Skomer. As in previous years, it is likely that non-breeding birds on the island commuted to/from the Marloes Peninsula Coast.

It is estimated that the SPA, together with the mainland between the Deer Park and St Anne's Head supported approximately 16.8% of the total number of non-breeding choughs in the National Park in the spring 2016.

As in 2014 and 2015, coordinated roost counts were carried out between mid-August and mid-September 2016, at known or suspected communal roost sites at the request of the RSPB's Bangor office (as part of a Wales-wide chough roost watch). A co-ordinated roost watch was carried out on Skomer and Skokholm Islands and on the Deer Park on 23rd August (in relatively poor weather conditions). On this occasion, a flock of 9 choughs that were seen on the Neck prior to roosting were thought to have roosted in Protheroes Dock on the north side of the Neck (which was relatively sheltered from the prevailing weather conditions). No communal roosts were observed on Skokholm Island or the Deer Park on the same evening, and no birds crossed from the mainland to the islands or *vice-versa*. The Skomer roost was one of several communal roosts that were observed in the National Park as part of the Wales-wide roost watch.

#### **4 Observations on the data for the breeding population in the SPA in 2016**

The 2015/16 winter was generally mild and wet (December 2015 was particularly mild, wet and windy), and early indications were that winter survival had been good. By mid-late March 2016 most territories on the mainland were occupied and by mid-April, breeding was well underway. The spring was in general cool and unsettled at times (late April in particular was characterised by relatively low day and night temperatures and June was generally cool and wet). This did not appear to unduly affect fledging dates, with the majority of young choughs fledging between mid and the end of June (*c f* 2015 which was a late and protracted breeding season on many parts of the Pembrokeshire coast). On the islands, fledging took place during the latter two weeks of June, in line with fledging dates on most of the mainland coast.

The 2016 breeding season within the SPA was a significant improvement on the 2015 breeding season. Although the total number of occupied territories and pairs that got as far as at least building or refurbishing a nest was the same in 2016 as in 2015, the number of pairs that progressed to having eggs and then young in the nest was higher in 2016 as was the total number of young known to have fledged. Productivity was similar to or slightly higher than that in the National Park as a whole, and there were no late-stage failures within the SPA. The numbers of non-breeding choughs recorded on Skomer Island in the spring were also slightly higher than in 2015, suggesting reasonably good winter survival.

In 2016, the breeding population within the SPA accounted for a slightly lower percentage of the total population in the National Park than in 2015, even though it was a far better breeding season for choughs on the islands. This reflects the fact that the 2016 breeding season in the National Park as a whole was particularly good (a total of 84 territories were known to have been occupied; 58 pairs went on to successfully fledge at least 144 young): several traditional sites that had been vacant in recent years were re-occupied and there was a certain amount of “infilling” in between established territories by new pairs attempting to enter the breeding population.

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 in the SPA. These include the following:

- The condition of the birds at the start of the season. In 2016, most choughs might have been expected to have entered the breeding season in reasonably good condition given the mild winter of 2015/16.
- Pairs that failed to progress beyond the initial stages of breeding may have been relatively inexperienced. New pairs can take two or three seasons to become fully established in their territories before finally managing to breed successfully. Pairs occupying The Basin and Lantern territories on Skomer Island may have included inexperienced birds.

- 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.
- Good quality, reliable foraging habitat is thought to be quite limited on both islands. Changes in the structure of the vegetation (e.g. encroachment by bracken of areas that were previously dominated by short, rabbit-grazed turf) have been taking place on both islands which 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 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 the more remote sections of the mainland coast) observations of chough activity may have been insufficient to obtain an accurate picture of what happened at individual 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 observation are 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 off 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 2016 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 supporting globally important numbers of burrow-nesting birds such as Manx shearwaters and it is difficult to envisage management 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 Anne'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 when considering setting 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 2016. The reasonably good numbers of non-breeding birds present on Skomer and on the mainland during the spring suggest good winter survival, and a continuation of the (long-term) recovery of the population from the effects of the hard winters of 2009/10 and 2010/11 (during which younger, less experienced choughs without territories were thought to have perished whilst older birds that did survive entered the following breeding seasons in poor condition). The data for 2016 suggest that the islands together with the mainland in the National Park are currently capable of supporting a healthy non-breeding population which bodes well for the future of the breeding population.

There is continuing concern over an apparently low genetic diversity in the chough population in the National Park (Wenzel *et al* 2012), which is thought to be fairly sedentary. Sightings of colour-ringed birds on parts of the mainland over the past 2-3 years however, suggest that there continues to be potential for the recruitment of choughs from e.g. Ceredigion to the breeding population in the National Park.

## 5 Acknowledgements

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## 6 References

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Jane E. Hodges, Ecologist

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## Annex

### Skomer & Skokholm SPA: chough feature

#### Summary of breeding data-2016

##### 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	Yes	No	0
Thorn Rock	SM7402008960	No	No	No	No	0
South Castle Beach Cave	SM736089	Yes	Yes	Yes	Yes	4
Amy's Reach	SM738090	No	No	No	No	0
Wick Cliff	SM725087	No	No	No	No	0
Wick Basin	SM721088	No	No	No	No	0
The Basin	SM719089	Yes	Yes	No	No	0
Tom's House	SM718089	No	No	No	No	0
Pigstone Bay/Bull Hole	SM7109	No	No	No	No	0
Payne's Ledge	SM722103	Yes	Yes	Yes	Yes	1
Double Cliff	SM7210	No	No	No	No	0

##### 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	No	No	No	0
Steep Bay/Twinlet	SM731005230	Yes	Yes	Yes	Yes	3
The Dip/Dip Gully	SM734045	Yes	Yes	Yes	Yes	2
The Quarry	SM728047	No	No	No	No	0
South Coast/Frank's Point	SM7304	No	No	No	No	0

Note: Historical nest sites and territories have been included for the sake of completeness and to facilitate easy comparison with data from previous years.