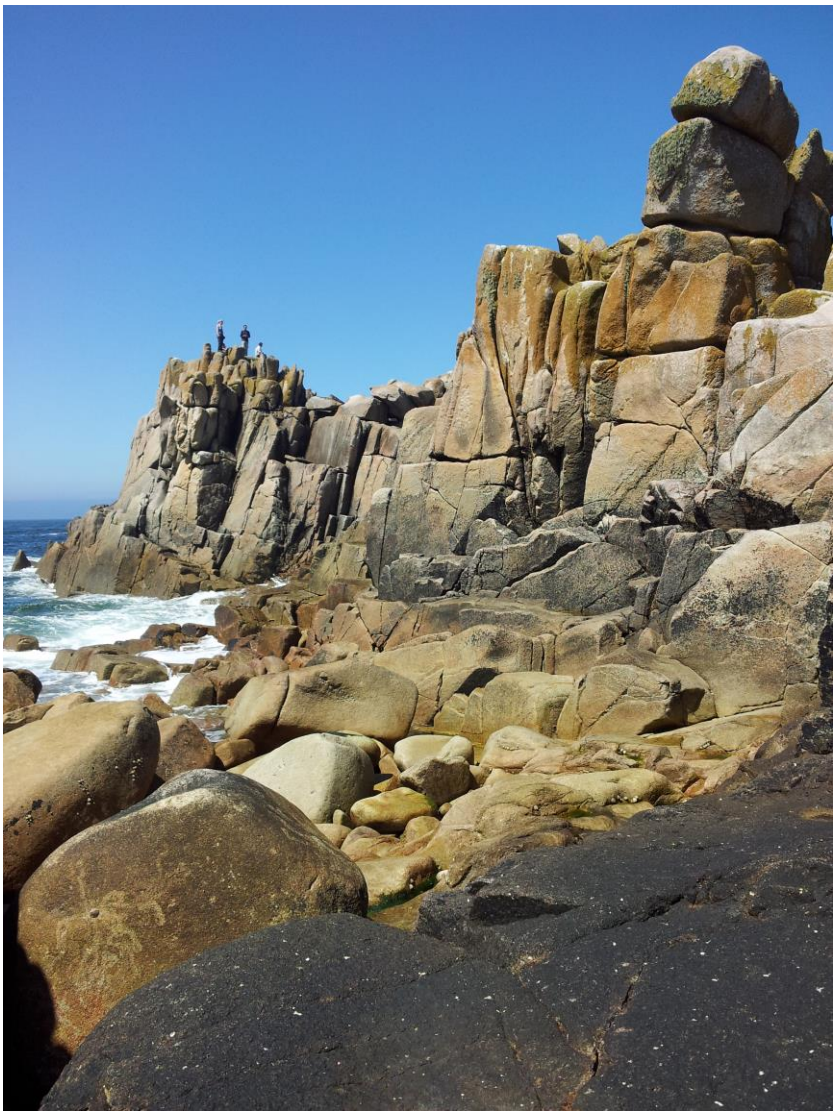
Seabird Monitoring & Research Project Isles of Scilly 2013



Minmanueth, Annet 31.05.13

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Summary of Results

Productivity Monitoring

- **Kittiwake** All sub-colonies counted - numbers breeding down by a quarter again, to just 59 pairs at two sites. Complete breeding failure of 21 pairs at the Daymark; Success at Turks Head sub-colony – approx. 36 chicks fledged from 38 nests.
- **Herring Gull** Approx. 20% of breeding areas surveyed. Samson breeding success (0.56 ch.pr.) and numbers settling (n = 55) similar to last year**.** Gimble Porth colony failed. Hugh Town same number of nests (n = 9), some reduction in success.
- **Fulmar** Approx. 20% of breeding areas surveyed. Numbers stable at Daymark (n = 54) and Menawethan (n = 27); reduced breeding success at Daymark (and other sites – Annet, Round Island)
- **Common Tern** All sub-colonies counted - Late arrival, showed brief interest in Green Is. and later at Peasehopper Is., but no laying recorded – soon to be 'lost' as a breeding spp. for Scilly?

Monitoring Breeding Numbers

- **Storm petrel** Breeding numbers recorded at study beach on Annet stable.
- **Annet breeding numbers** Overall numbers similar to last year. Shag nests much healthier this year (more chicks and eggs) – in 2012 57% of nests empty. Lesser black-back colony dwindling to nothing.

Baseline (pre-rat eradication) Data St Agnes & Gugh

Manx Shearwater productivity

- As many as two-thirds of 21 Annet burrows followed showed signs of success
- Less than a third of burrows on islands with rats showed evidence of possible chick fledging (feathers, guano, broken vegetation, nesting material etc)

St Agnes full survey

- Herring Gull numbers halved (61 to 32prs), Kittiwake increased (24 to 38prs)
- Storm Petrel all suitable habitat surveyed, no breeding recorded

Gugh full survey

- Lesser black-backed gull numbers increased, chicks successfully fledged

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Isles of Scilly Seabird Monitoring & Research Project 2013-15

The last full SPA count of breeding seabirds in Scilly was conducted in 2006. With the next survey planned for 2015, this project adds to various breeding data recorded to add to the picture in the interim period and to get an idea of the causes of the major species trends observed. Productivity data for key seabird species have been collected at key sites across the islands annually since 2006, as well as the continuation of regular counts of seabird breeding numbers on Annet. Baseline data on seabird distribution and breeding success on St. Agnes and Gugh pre- rat eradication is also presented as part of this project.

The fieldwork was conducted between April and September 2013 with the help of Isles of Scilly Wildlife Trust and Seabird Recovery Project employees and local volunteers. Guided by the Isles of Scilly Seabird Conservation Strategy this work forms part of the Seabird Recovery Project and is funded by the Heritage Lottery Fund, the EU LIFE programme and the Isles of Scilly Wildlife Trust in collaboration with the RSPB and Isles of Scilly Bird Group.

Data collected

Productivity Monitoring

- Productivity of Herring gulls; Samson, Tresco & Hugh Town
- Productivity of Kittiwakes; all sub-colonies
- Productivity of Fulmars; Menawethan & Daymark
- Productivity of Common terns; all sub-colonies

Monitoring Breeding Numbers

- Annet Counts - annual count of breeding seabirds on Annet
- Sample beach on Annet (rat-free) surveyed for breeding Storm Petrel

Seabird breeding baseline data St. Agnes & Gugh

- Manx Shearwater playback surveys and monitoring of productivity on St Agnes, Gugh, Bryher & Peninnis
- Storm Petrel playback survey of suitable habitat on St. Agnes, Gugh & Bryher
- Count of all breeding seabirds (not already covered above) St. Agnes & Gugh
- Monitoring of lesser black-backed gull productivity on Gugh

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Productivity Monitoring Species Accounts

Between April and September 2013, productivity for the species listed were collected using standard methods as set out in *The Seabird Monitoring Handbook* (Walsh et al. 1995[1]). Further notes on methodology for individual species are outlined in the species accounts below;

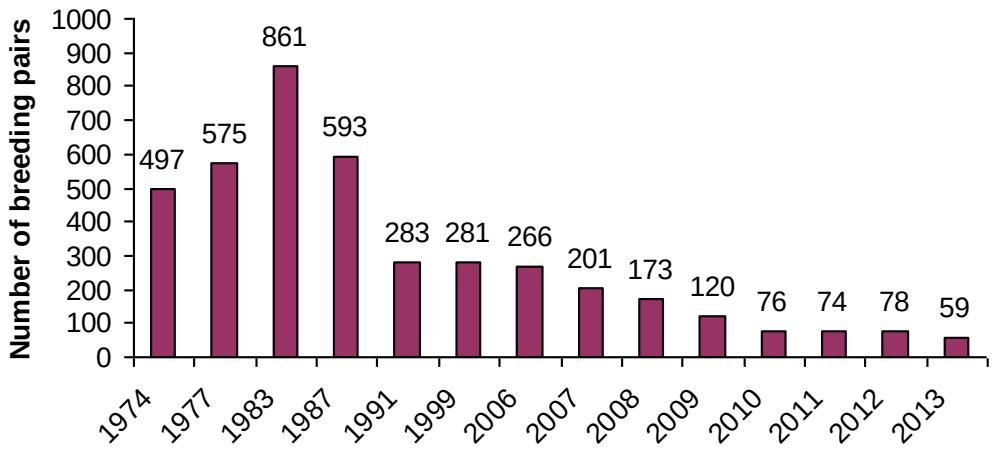
Kittiwake *Rissa trydactlya*

In early/ mid-June Apparently Occupied Sites were counted and mapped using digital photography. The colony was then visited at regular intervals and nest histories recorded. Chicks were considered fledged/ capable of flying 35 days after hatching.

The overall numbers of kittiwakes breeding in Scilly fell by a quarter again in 2013, to just 59 pairs at two sites. This represents a 79% drop in numbers and a loss of 4 sub-colonies in the last 7 years. The 21 pairs attempting to breed at the Daymark failed in early incubation. However, the Turks Head sub-colony did much better fledging as many as 36 chicks from 38 nests. This colony may have included a few pairs that re-tried after failing at the Daymark, with a cohort of 7 chicks fledging a good 2 weeks later than the rest.

SUB-COLONY SITE	1999	2006	2007	2008	2009	2010	2011	2012	2013
Gugh	155	131	69	50	41	26			
Gimble Porth, Tresco	54	37	39	30	29				
St. Helen's	7	36	31	35	18	2			
Samson North Hill	28	25	26	21	9				
Samson South Hill	10	22	15	10					
St. Martin's, Daymark	27	15	21	27	22	47	69	54	21
Turk's Head, St. Agnes					1	1	5	24	38
Total Breeding Pairs	**281**	**266**	**201**	**173**	**120**	**76**	**74**	**78**	**59**
Total Chicks Fledged	**-**	**0**	**0**	**0**	**1**	**54**	**9**	**0**	**36**

Kittiwake breeding numbers 1974-2013



[1] Walsh PM, Halley DJ, Harris MP, del Nevo A, Sim IMW & Tasker MC (1995) *Seabird monitoring handbook for Britain and Ireland*. JNCC/ RSPB/ ITE/ Seabird Group, Peterborough.

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Herring gull *Larus argentatus*

The sites selected for productivity monitoring for this species are all discrete colony locations where chick wandering is prohibited due to high backed beaches and/ or isolated habitat in which to disperse. All nests were mapped from accessible vantage points during incubation and the colony then observed at roughly weekly intervals. A few days before the first chicks were due to fledge, all the large chicks (3+ weeks) visible were counted and productivity estimated as the number of large chicks divided by the number of nests. A separate note was made of small chicks and nests with apparently incubating adults and these nests re-checked later and totals adjusted accordingly.

In 2013 the numbers settling on Samson were similar to last year, although over 30% down in the last 5 years. Breeding success 0.56 chicks per pair is similar to previous years and approaching the 0.66 success needed to support a stable colony. However the Gimble Porth colony failed again and although numbers settling in Hugh Town were similar to last year, there was some reduction to the high breeding success recorded in previous years.

SITE	2008	2009	2010	2011	2012	2013
Samson	0.30 (*n*=84)	0.66 (*n*=73)	0.68 (*n*=63)	0.54 (*n*=71)	0.46 (*n*=56)	0.56 (n=55)
Gimble Porth, Tresco	0.48 (*n*=50)	0 (*n*=41)	0 (*n*=17)	0 (*n*=9)	0 (*n*= 3)	0 (n=2)
Hugh Town	1.29 (*n*=7)	1.67 (*n*=6)	1.86 (*n*=7)	2.25 (*n*=8)	1.4 (*n*= 10)	1.22 (n=9)

Fulmar *Fulmarus glacialis*

Discrete cliff-side colonies on Menawethan and the Daymark St. Martin's, were monitored as in previous years, from the sea. These sub-colonies can be viewed by boat in their entirety, safely and without disturbance. Three visits 5-10 days apart late May to mid-June were used to assess the number of Apparently Occupied Sites (those where an egg or apparently incubating adult is recorded on at least two consecutive checks). These sites were then checked again mid-August for the presence or absence of a chick – all large young (including downy young about adult size) were assumed to fledge.

Numbers settling were similar to previous years at both sites, but productivity was particularly low at the Daymark, with only 9 chicks successfully fledged from 54 nesting attempts. This poor success was repeated elsewhere on the islands, with very few chicks seen to fledge from Round Island or Annet (WWagstaff., & *pers. obs*.)

	Menawethan	Daymark	Total
2006	0.25 (*n* = 44)	0.20 (*n* = 46)	90
2007	0.30 (*n* = 41)	0.49 (*n* = 45)	86
2008	0.35 (*n* = 37)	0.28 (*n* = 46)	83
2009	0.43 (*n* = 33)	0.64 (*n* = 36)	69
2010	0.39 (*n* = 30)	0.45 (*n* = 51)	81
2011	0.29 (*n* = 24)	0.25 (*n* = 49)	73
2012	0.56 (*n* = 25)	0.39 (*n* = 59)	84
2013	0.52 (*n* = 27)	0.17 (*n* = 54)	81

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Common tern *Sterna hirundo*

As last year, in 2013 the terns were late arriving in any numbers to the islands. They subsequently showed little interest in settling, with 20 or so pairs hanging around Green Island for a day or so in mid-June and a few birds sitting briefly on Peasehopper Island in July (W. Wagstaff *pers. comm*.) No evidence of laying was observed.

Year	Productivity	Notes
2003	0.43 (*n* = 86)	
2004	0.59 (*n* = 76)	Majority of nests on North Hill, Samson
2006	0 (*n* = 78)	Young inundated by storm tide, Green Island
2007	0 (*n* = 1)	Only one breeding attempt recorded, Annet
2008	0.26 (*n* = 51)	Green Is. 41 nests; Peasehopper 10 nests
2009	0.39 (*n* = 52)	Green Is. 51 nests; Annet 1 nest
2010	0 (*n* = 0)	Birds settling on Green Is. But site abandoned before laying
2011	0 (*n* = 10+)	Late settlement, then Green Is. Site inundated by storm tide
2012	0 (*n* $\leq$ 10)	Late settlement, some eggs lost to storm tide Green Island
2013	0	No breeding attempts recorded

Monitoring Breeding Numbers

Storm petrel *Hydrobates pelagicus*

For the last four years the number of Apparently Occupied Sites at a study beach on Annet has been recorded annually using diurnal tape-playback. The study area is located at the South end of the island, in boulder beach between Smith's Carn and Minmow. The number of AOSs recorded here were similar in 2013 to last year, and slightly up on the 3 years previous to that; although the confidence intervals on playback response results are relatively large.

Year	Number AOSs	Notes
2000	49 (±)	17 responses x 2.86
2006	37	13 responses x 2.86
2010	40	14 responses x 2.86
2011	34	12 respon7ses x 2.86
2012	52	18 responses x 2.86
2013	54	19 responses x 2.86

Annet breeding numbers

Following a main count at the end of May, plus a boat count for fulmars and a later check for lesser black-backed gulls, the overall numbers of birds recorded breeding on Annet in 2013 were similar to last year. The numbers of smaller gulls continued to decline, and fulmars and razorbills showed a drop in numbers, but there was an increase in great black-backed gulls. The main difference this year was that the shag population appeared much healthier. The numbers of breeding attempts were similar overall, however in 2012 57% of the nests recorded were empty. This year 85% of nests contained chicks or eggs.

Year	SH	GBBG	LBBG	HG	RAZ	FUL	COT	TOTAL
2000	209	137	517	42	4	21	1	**931**
2001								
2002		171	215	7	4			
2003	150	164	18	17	0	45	0	**394**
2004	159	197	7	32	2	44	0	**441**
2005								
2006	177	187	281	24	4	37	0	**710**
2007	140	88	0	5	1	37	0	**271**
2008	164	47	(5)	4	3	48	0	**271**
2009	154	168	54	7	7	43	0	**433**
2010	198	213	76	11	2	40	0	**540**
2011	115	180	27	5	4	37	0	**368**
2012	107	177	32	8	2	49	0	**375**
2013	99	208	6	4	1	36	0	**354**

SH – shag; GBBG – great black-backed gull; LBBG – lesser black-backed gull; HG – herring gull; RAZ – razorbill; FUL – fulmar; COT – common tern.

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Baseline (pre-rat eradication) Data St Agnes & Gugh

Manx shearwater *Puffinus puffinus*

Apparently Occupied Burrows were identified during the incubation period using diurnal playback and then visited periodically through July and August to check for activity. In the majority of cases in Scilly burrows have been found to be too long or convoluted to check adequately by hand. However, evidence suggesting fledging success was recorded, including feathers, guano and broken vegetation near the entrance, as well as nesting material retrieved from down the burrow after fledging. Evidence of rat presence around burrows, including sightings, was also noted.

	Gugh	Wingletang, St. Agnes	Shipman Head, Bryher	St. Helen's	Peninnis	Annet
2000	22	5	12	5	0	
2006	9	8	13	9	0	
2007	8	5	-	-	-	
2010	6*	3*	-	-	4	
2011	13	10	-	39	7	
2012	16	8	-	-	4	
2013	17	5	12	-	2	21

*AOBs recorded mid-June, likely to be an underestimate

At the sites with rats present – Peninnis, Bryher, St. Agnes and Gugh – less than a third of the burrows showed signs of fledging success. In many cases there was significant evidence of rat presence later in the season (mainly droppings in burrow entrances) and evidence of direct rat predation of a chick. At Shipman Head there was a lot of digging around many of the burrows, since the damage was quite extensive and no rabbit droppings were observed, this was probably done by a dog or dogs.

On rat-free Annet as many as two-thirds of burrows showed signs of success. Also on visiting the island directly after rain an area with many burrows in the deep swathes of grass inland and south of Carn Windlass was discovered. This active breeding area (estimated 10-20 AOBs) has not been documented before and was particularly noticeable on this occasion because the heavy rain had caused the birds to do some extensive digging, with big piles of dirt rendering the previously hidden burrow entrances clear. A couple of burrows on Wingletang also showed damage from cow hooves.

% of burrows showing signs of success	Gugh	Wingletang St. Agnes	Shipman Head, Bryher	Peninnis	Annet
2011	0% (n=13)	0% n=10)	-	0% (n=7)	-
2012	19% (n=16)	25% (n=8)	-	0% (n=4)	-
2013	24% (n=17)	40% (n=5)	33% (n=12)	0% (n=2)	66% (n=21)

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St Agnes full survey

A full survey of all seabird species was conducted on St. Agnes as last year and is included with data from the last two full SPA counts in the table below. In particular herring gull, though showing an increase in numbers since 2006 declined in the last year – these birds are mainly nesting on the rocks between the Turk's Head and the bar to Gugh. The numbers of kittiwakes nesting in this same area increased this year. This is now the main breeding area for this species in Scilly and it seems likely that birds that failed at the Daymark sub-colony have relocated to boost numbers here. As discussed earlier these kittiwakes were successful in raising an average of 0.95 chicks per pair (36 chicks from 38 nests).

All suitable breeding habitat for storm petrel across St. Agnes was surveyed using tape-playback during peak incubation; no responses were recorded.

	FUL	MX	SH	LBBG	HG	GBBG	KIT	COT	SP	Total	RPl	OYC
2000	0	5	0	2	25	0	0	3	0	**35**	-	-
2006	0	8	0	0	15	1	0	0	0	**24**	-	-
2012	0	8	0	8	61	0	24	0	-	**101**	2	9
2013	2	5	0	8	32	0	38	0	0	**85**	1	8

MX – Manx shearwater; KIT – kittiwake; SP – storm petrel; RPl – ringed plover; OYC – oystercatcher.

Gugh full survey

Data from the full survey of all seabird species conducted on Gugh in 2013 as last year is included with data from the last two full SPA counts in the table below. The kittiwake sub-colony that was active on the eastern coast of Gugh up until 2010 is now completely abandoned.

	FUL	MX	SH	LBBG	HG	GBBG	KIT	COT	SP	Total	RPl	OYC
2000	2	22	0	1123	159	3	155	0	0	**1464**	-	-
2006	3	9	0	875	69	4	131	0	0	**1091**	-	-
2012	4	16	2	361	53	10	0	0	-	**446**	0	7
2013	1	16	0	418	51	7	0	0	0	**493**	0	10

The number of lesser black-backed gulls nesting on the south col increased by 16% this year. As in 2012 productivity was estimated by observing nest histories from vantage points around the colony. However, the height of vegetation in the South Col top colony this year meant that this is an absolute minimum and probably quite an under-estimate.

Year	LBBG	Productivity Estimates
2012	361	Approx. 180 chicks fledged from 262 nests South Col top colony (0.69 ch/pr); minimum 19 chicks fledged from 65 nests lower rocks colony Cuckold's Carn (0.29 ch/pr).
2013	418	Minimum 103 chicks fledged from 355 nests South Col top colony (0.29 ch/pr); minimum 32 chicks fledged from 48 nests lower rocks colony Cuckold's Carn (0.67 ch/pr).

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Discussion & Recommendations

After a very slow cold start to the year, the end of May saw a thick green algal bloom across the islands. Anecdotal observation by local fishermen suggested that this was followed by a good year for sandeels and other small fry. Certainly numbers of shearwaters and puffins seen on evening 'Seabird Specials' were the highest for a number of years and the kittiwakes at last fledged some young. However, the picture for seabird success was not clear-cut.

The overall decline in kittiwake numbers continued in line with regional trends, where the loss of birds from southern English colonies is in the region of 44%. The Isles of Scilly lies towards the southern edge of the species range and they have recently been lost as a breeding species from the Channel Islands[2]. However, this year's success of the kittiwakes on St Agnes was great to see, but begs the question as to why the Daymark colony failed so early? The numbers settling were low, just 21 pairs, raising the possibility of a minimum viable sub-colony size. However, the Turks Head colony was successful in fledging chicks in 2010 and 2011 when it supported just 1 and 5 nests respectively. Another possible issue at the Daymark is predation. Although no direct predation was observed, the remains of at least two broken kittiwake egg-shells were found a couple of bays around the Daymark headland in the vicinity of a raven nest.

Again the common terns were late and flaky and this species seems set to be lost as a breeding bird for Scilly. The meteoric rise in the fulmar population appears to be slowing now, in line with regional trends and apparently as a result of reduced breeding success. Herring gull breeding success in Hugh Town was reduced this year, though still more than enough to maintain a stable population. In contrast, Gimble Porth has now lost pretty much all its nesting herring gulls (as well as all its kittiwakes). This reflects the overall trend in numbers for both these species across the islands, although disturbance issues may be higher here than on uninhabited Samson where there has been less of a decline in the number of gulls.

Annet has now virtually lost its sub-colonies of lesser black-backed gull, which numbered over 500 nests in 2000. This is in line with a reduction from 1123 to 418 pairs on Gugh in the same time period. The full SPA count scheduled for 2015 will reveal if many of these birds have settled elsewhere in the islands or if as suspected this evidences a serious decline in the overall population. The main good news on Annet, as well as apparently stable storm petrel numbers, was the success of the shag population compared to last year. The high proportion of empty nests in 2012 was mainly attributed to the very poor weather. Although this year started cold there was much less rain and stormy weather at the egg and young chick phases which appears to have resulted in greater success at this critical stage.

The big news is of course the start of rat-baiting on St Agnes and Gugh this winter as part of the Seabird Recovery Project. Comparison of Manx shearwater breeding success on rat-free Annet and other sites with rats (Peninnis, Bryher, St Agnes & Gugh) shows a very clear reduction of over 50% in breeding success where rats are present. Hopefully 2013 will have been the last year the birds on St Agnes and Gugh will need to face this threat. The breeding success of 0.66 recorded on Annet is within the range recorded elsewhere; Skomer & Bardsey 1986-2004, averaged 0.56

[2] Brown A, Davies M, Booker H & Lock L *in prep.*

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and 0.81 ch/pr respectively[3] and on Lundy 0.62-0.76 ch/pr recorded in 2007.[4] Unfortunately, excessive digging of active burrows, probably by dog(s) appears to be a problem on Bryher as has been recorded in previous years.[5]

Recommendations for future seabird monitoring and research work include;

- Continued annual monitoring of productivity study species & sites;
- Continued annual monitoring of seabird breeding numbers on Annet;
- Further monitoring of all seabird species on St Agnes & Gugh and selected productivity on St Agnes & Gugh (Rats, No rats), Bryher (Rats, Rats) and Annet (No rats, No rats) to investigate impact of SRP;
- Coordinated communication plan for publication of seabird research results (IOSBG Bird Review; Scilly Now & Then; Radio Scilly; Twitter etc);
- Full SPA count of all seabird species 2015 (to include closer study of new shearwater burrow area discovered on Annet);
- Review and coordination of response to disturbance issues including kite-surfing, dogs and visits to closed islands (to include visitor and resident engagement);
- Review habitat management to include study of historic photographic records (e.g. Samson, St. Helen's, Annet, Eastern Isles) and research into vegetation density studies at other seabird colonies – link with ERCIS GIS mapping project;
- Review of historic data on laying dates and clutch size;
- Further investigation of specific response rates for diurnal playback;
- Full review of regional population trends, nearby colony fledging success, colour-ring and controls recruitment data, patterns of loss for terns and kittiwakes from Channel Islands;
- Closer observation of kittiwake colonies during failure (predation, food deliveries, attendance patterns etc);
- Consolidation and review of results from other studies in Scilly (FAME tracking studies, Plymouth Marine Lab fronts and food proxy data, Shag social foraging study).

[3] Mavor RA, Parsons M, Heubeck M & Schmitt S (2006) *Seabird numbers and breeding success in Britain and Ireland 2005.* JNCC Peterborough
[4] H. Booker *pers. comm*.
[5] Heaney V (2011) *Seabird Monitoring & Research Project Isles of Scilly 2006-2011*

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Appendix 1: Disturbance Statement

Disturbance Statement for the Isles of Scilly Seabird Monitoring & Research Project 2013-15

Summary

Between April and September 2013-15, using standard methods, data will be collected on seabird breeding numbers and productivity at key sites across the islands (see method statement).

Species to be studied;

Manx shearwater, fulmar, storm petrel, shag, lesser black-backed gull, herring gull, great black-backed gull, kittiwake, common tern, razorbill, puffin, oystercatcher, ringed plover.

Study sites;

- Annet (Annet SSSi)
- St. Agnes & Gugh (Big pool & Browarth, Gugh & Wingletang Down SSSi)
- Samson & Green Island, (Samson SSSi)
- The Daymark, St. Martin's (Chapel Down SSSi)
- Gimble Porth, Tresco
- Peninnis & Hugh Town, St. Mary's (Peninnis Head SSSi)
- Menawethan (Eastern Isles SSSi)
- Bryher (Shipman Head SSSi)

Licences & Permissions

This work is contracted by the Wildlife Trust who manage the majority of the study sites. The IOSWT and NE Research Information and Project Accent forms are included with this submission. All sites are included in the Isles of Scilly SPA and SAC and most are also SSSi designated (see above). No bird disturbance licences are required as no eggs or young birds will be handled as part of the project, and none of the seabirds studied are Schedule 1 listed species.

Potential Impacts & Mitigation

Potential Environmental Impact	Mitigation
Disturbance and stress caused to breeding seabirds and their young	Standard approved methods used Utmost care taken when walking in areas where nests are present and full briefing of any volunteers on all disturbance mitigation protocols Time in colony kept to a minimum, with counts of denser sub-colonies (e.g. gulls and Annet) conducted by a team of

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	surveyors Care taken to avoid exposure or over-heating of nest contents (counts not conducted in heavy rain, shags not disturbed in hot sunlight) Where more than one species is being monitored at a single location (e.g. gulls and kittiwakes), counts combined to reduce overall disturbance As much as possible counts conducted before chicks hatch to avoid issues with displacement of mobile chicks Fulmar counts in cliff or sloping areas conducted from the sea to avoid egg rolling by startled adults (Annet, Menawethan, Daymark)
Negative publicity	Liaison with local residents, boatmen and birders about purpose of study and methods employed to minimise disturbance Explain work to any visitors that stop to observe in any areas with public access Awareness of any sensitive local issues and where necessary advice and steer taken from the IOSWT and their Seabird Liaison Group Partners
Habitat damage	Utmost care taken to avoid disturbance of the natural and historic habitat, paths kept to as much as possible. Special care taken around areas with burrow nesting birds.