RSPB 4/D

Rebuttal Proof of Evidence
of
Dr John Underhill-Day
for the
Royal Society for the Protection of Birds

28th January 2011

Town & Country Planning Act 1990 (as amended)

In the matter of:

Planning Applications for Construction of a runway extension and erection of a terminal building at London Ashford Airport, Lydd, Kent

Planning Inspectorate Refs:	**APP/L2250/V/10/2131934**
	APP/L2250/V/10/2131936

RSPB

Contents

1. OVERVIEW

1.1. The Dungeness area is one of the most important non-estuarine sites in southern England for birds. The site designations recognise internationally important populations of wintering Bewick's swans and shoveler ducks, and nationally and internationally important winter assemblages of waterfowl including mute swans, geese, ducks, waders, grebes, coots and cormorants, as well as wintering hen harriers. Breeding birds include over 1% of the UK population of garganey, gadwall, shoveler, pochard and tufted duck, avocet, bittern, bearded tit, Cetti's warbler, cormorant, little grebe, sandwich, common and little tern, black-headed and Mediterranean gull, water rail and marsh harrier. There are also internationally and nationally important populations of passage aquatic warbler, whimbrel and common sandpiper and Dungeness is a notable and heavily used migration point for large numbers of small passerines, swallows and martins, thrushes, doves and pigeons and many other species. There are also important wintering and breeding populations, including, at times, huge numbers of wintering gulls, substantial roosts of starlings, populations of at least eight species of birds of prey and large numbers of corvids, and in the breeding season, breeding larger gulls, ducks and grebes, herons and reedbed birds, including the first pair of purple herons known to have bred in Britain, in 2010. On the agricultural land around the airport, there are important concentrations of wintering birds, at times including species featured in the SPA pSPA, pRamsar and SSSI designations, as well as populations of threatened farmland birds that are declining and threatened elsewhere. There is nowhere else in the south of England in my experience, of a similar size, with such large and important populations and diversity of birds all the year round.

1.2. For a number of these species, the creation of habitat has been of vital importance in attracting and retaining them on the SPA. The management of the gravel pits to create islands for breeding terns, gulls, and waterfowl together with the large numbers of wintering and roosting wildfowl, and the creation and management of reedbeds and their associated habitats which have attracted breeding bittern, marsh harrier, bearded tit, purple heron and Cetti's warbler are all examples of this.

1.3. The applicant has recognised that "*LAA is located in an area of very high significance for birds*" (Appendix 2 to Mr Deacon's proof para. 4) and that "*LAA is situated in an area of high conservation value*" (para. 13). However, the full significance of the importance of the surrounding area for birds and the numbers, movements and distribution of the numerous species that occur does not seem to have been recognised by the applicant. It has failed to carry out full surveys of the distribution and movements of wintering birds, of night time movements of birds between daytime roosts and night time feeding grounds or made any assessment of the day time and night time movements of migrant birds. It has not considered the effects of contrary weather conditions including fog on the behaviour of migrants either arriving or departing. It has not attempted to locate and assess bird roosts from late summer through to spring, nor considered dawn and dusk movements of birds roosting on the nearby gravel pits or coastal sands. It has made no estimates of birds overflying the airport (except some records of swans and geese) or made any assessment of the use made of the airport itself by hunting raptors, particularly harriers, owls or kestrels. It has made no assessment of the night time roosts on the airport itself of corvids, pigeons or other species.

1.4. In order to assess the likely bird usage on and above the much expanded airport and to be able to monitor changes in the numbers and distribution including within the SPA, pSPA, pRamsar and SSSI following any expansion, and including changes resulting from scaring and other measures, a comprehensive baseline survey is needed. This has not been carried out by the applicant. I had assumed in the absence of a description of the method of collection, that the data in the graphs presented in Appendix 1 section 6 of Mr Deacon's proof were based on the bird logs from the airport and it has now been confirmed by a letter from Pinsent Masons dated 26th January 2011 that this is the only basis for these data. As a basis for an assessment of the bird populations around the airport these appear quite inadequate if the examples given as a summary for 2007 and attached to the letter from Pinsent Masons to Natural England and dated 1st December 2010 are typical and complete.

1.5. The airport's current bird scaring operations appear to be confined to the airport. Mr Deacon states that all the bird control techniques that will be used in the future are in place now at the airport and are used daily (main proof, para. 3.2.3). However, Mr Deacon accepts the probability that such activities will take place more intensively and for longer periods (para. 3.2.4) and states that many activities including control/dispersal of birds at breeding, feeding and roosting sites, scaring, shooting and removal of nests and eggs, will take place both on and off the airport (Appendix 2, 4.1.1 e, 5.3.1 p). And nor has the applicant assessed the effects of these activities on the designated sites. He provides no evidence that these activities currently take place off the airport (or that lethal shooting or taking of nests and eggs takes place at all), and off-airport bird control measures are not set out in the existing BCMP (CD2.13).

1.6. The increased noise and visual disturbance from the expanded airport will combine with more intensive scaring and bird control measures both on and off the airport to impact the birds of the designated sites and associated functional land. These effects, together with the imposition of restrictions through more active safeguarding on the freedom to manage the designated sites in ways that will maximise their value for the important bird species, as well as restrictions to off-airport land and habitat management of linked functional areas[1], will individually and collectively have a significant affect on the SPA, pSPA and pRamsar and SSSI, and will adversely affect their integrity. The evidence presented by the applicant does not consider the potential cumulative impacts of all these activities, nor in my opinion, does it show that there will be no significant effect and it is inadequate to inform an appropriate assessment by a competent authority to conclude no adverse effect on site integrity.

2. MR DEACON – PROOF OF EVIDENCE, LAA/6/A

2.1. I will not comment on the risk assessment methodology as this is within the area of expertise of Dr. Allan.

2.2. Mr Deacon is of the view that there would be no likely significant effect from changes in aircraft activity or the bird control/strike risk management on the SPA, pSPA, pRamsar, or RSPB reserve (paras. 2.3.1, 2.3.2) and that this view is supported by the evidence of Dr Armstrong. I can find no reference in Dr Armstrong's proof to bird control/strike risk management, and in that proof, Dr Armstrong concludes no significant effect specifically only through the impact of aircraft, with no mention of bird control/strike risk management (para. 4.5).

2.3. My main comments in this rebuttal, in relation to Mr Deacon's proof, however concern the data base used by Mr Deacon to assess risk and his description of the bird hazard species at LAA.

Data base

2.4. In compiling the data base, a number of sources of information have been used. These include the airport's bird strike records from 1990-2010, local bird population levels and

[1] The non-designated land surrounding the designated sites is functionally important for designated species, and therefore functionally linked to the designated sites.

distribution, including the occurrence on the airport (from WeBS, ornithological surveys, bird control records and observations), flight line or other overflight activity (main proof 3.3.5 and Appendix 1 section 2) and personal visits to inform the risk assessment.

2.5. Between 1990 and 2010 there were 29 recorded bird strikes, or an average of 1.4 a year. Given this low rate of recorded strikes, these data provide virtually no substantive information on the levels of bird activity on and around the airport. They provide, for example, an average of 7 records over the last five years or, on average, one every 260 days. Indeed, it has been accepted that the level of recorded bird strikes over recent years has been too low to provide a reliable basis for a risk assessment based solely on these data (Appendix 1, Section 2 of Mr Deacon's proof). In my view they have also been too low to provide any meaningful data on the frequency, distribution, trends or movement of birds on or above the airport either alone or when added to any other data.

2.6. There is reference to WeBS counts, which certainly give an indication of population levels on a monthly basis, but are confined to specific sites, mostly to the south east, south and south west of the airport. They give no indication of birds on or over the airport; they do not cover gulls in any detail, nor cover non WeBS species such as thrushes, corvids, pigeons, starlings or raptors. They do not include the large number of birds which can be found on the agricultural fields around the airport and on Romney Marsh. WeBS do not cover bird movements, and specifically, as they take place at convenient times for volunteers and when visibility is expected to be at its best, they do not cover bird movements at and after dawn or before or at dusk. They do not reflect the distribution of birds other than on the day of the count, are conducted by volunteers with mixed abilities and, as I have noted in my main proof (para. 6.3), the records show that counts have been missed.

2.7. The ornithological survey commissioned by the applicant (Mr Deacon's main proof, para. 3.3.5.4) is also referred to and I have dealt with the shortcomings of these in my main proof (para. 6.42). These surveys covered only a limited area, did not include roosts, and were based on counts of birds on the ground within defined fields or 1km squares, and did not record bird movements. The counts are also out of date. For example, marsh harriers, a rare species with an internationally important population now breeding locally, were not recorded at all in the breeding bird surveys.

2.8. There is also reference to the bird records kept by the airport employees engaged on bird control duties. It is clear from the evidence of Dr. Allan (e.g. main proof para. 24), where specific counts have been conducted by Fera, that the records kept by the airport are incomplete and inadequate as a basis for estimating numbers, distribution and movements of local bird populations over and around the airport.

2.9. Finally, Mr Deacon states that he has visited the airport nine times (main proof, para. 3.3.5.5), but gives no details of whether he carried out any formal observations, where his observations took place, what seasons and times of day he visited, what notes he took, how long his observations lasted or any other details to suggest that he carried out any organised data collection. These observations appear to be confirmed by Pinsent Masons letter of 26th January 2011, para 2.2.1 where they record that visits have taken place "over a number of years", that they were not carried out "pursuant to any one specific methodology", and that anything material (which is not specified) "has already been reported in Mr Deacons proof of evidence and in the supplementary Environmental Information". While Mr Deacon's proof does report that he has made nine visits, it does not give any details of material information collected, and Pinsent Masons have not referenced where material information is to be found in the supplementary environmental information.

2.10. It is apparent from the above that the applicant does not have sufficient information to make a well informed assessment of the numbers, distribution, movements or behaviour of the bird populations around the airport, and without this baseline, any conclusions on risk and the extent of the measures required to manage this will be seriously deficient.

Bird scaring

2.11. The absence of a comprehensive set of ornithological data for birds, feeding, roosting and moving on, around, and flying over, the airport is a matter of considerable concern. If the applications are successful, I believe the applicant will discover a need for a much higher level and extent of bird scaring and off-airport land and habitat management than is currently suggested for the expanded airport. This will, in my opinion, arise as a result of the inadequate survey work carried out by the applicant which under-estimates the bird activity currently taking place on, above and around the airport.

2.12. It is quite clear that bird scaring will need to take place over a much wider area than it does currently. This conclusion is supported by a number of statements in Mr Deacon's proof and appendices that confirm the applicant's intention to carry out bird scaring/control outside the airport, but with the level and scope of activity vague and ill defined. For example:

2.12.1. The proof refers to "*dispersal of hazardous birds as they arrive or approach the aircraft manoeuvring area*" (para. 3.2.4) and "*bird dispersal activity at the aircraft boundary will involve the occasional displacement of flocks of common species close to the airport*". There is no definition of 'manoeuvring area' or 'common species' or 'close to the airport'.

2.12.2. Appendix 1 (para. 9.2) states that it is the applicant's intention if the application(s) is/are successful, to purchase land and lease back with conditions that would reduce the bird strike hazard. In other words, the intention is to acquire and manage an unspecified area of land near the airport, which may be currently functionally linked to, or even within the SPA pSPA/pRamsar/SSSI, and then to manage it in ways that will reduce the number of birds there.

2.12.3. In Appendix 1, the fourth para. of 9.3 states that swans could be excluded from fields by the "*deployment of remote scarers*". Again, this proposes scaring activities off the airport with possible consequences for non target species as well as Bewick's swans which are featured species in the SPA designation and mute swans which are included in the pRamsar and are part of the SSSI designation. Again, this could affect land which is adjacent or functionally linked to the SPA.

2.12.4. Para. 6.8 of Appendix 1, (2nd para. pg. 18-19), notes that" *there have been a number of periods of increased greylag goose traffic (notably in Sept-Oct of 2007 and 2009) associated with birds feeding on stubble fields to the north of the airport and south and south west of New Romney*". It goes on to say "*It is highly likely that these short term 'flight lines' to a specific food source could be manageable by bird scaring at the feeding site or by encouraging local farmers to accelerate the ploughing of stubbles if they begin to attract geese*". This statement begs the question as to what action would be proposed if such activity was observed by mute swans, Bewick's swans or other featured species of the designated sites, and if the flight lines across the airport took these birds to feeding areas much further away.

2.12.5. Appendix 2 of Mr Deacon's proof (para. 5.3.1p) notes that one of the duties of the Bird Control Coordinator will be to "*undertake control/dispersal action if appropriate and necessary at breeding, feeding or roosting sites on and off the airfield***"**. In addition, 7.2.1 suggests that for a specific bird hazard, the bird control vehicle would be deployed off the airfield, and 7.2.2 that the Bird Control Team "*should actively look for concentrations of hazardous birds in the fields immediately adjacent to the airport perimeter and disperse them when it is safe to do so*". The reference to "*fields immediately adjacent to the airport*" is later defined as fields visible from within the airport boundary.

2.12.6. Then 12.4.2 states that bird dispersal efforts will be prioritised within the airport boundary and the approach and climb out areas *normally* within 0.5 km of the perimeter fence". While 12.5.1 states that "*if large numbers of hazardous birds are observed to be overflying the airport to concentrate at feeding sites nearby then disturbance or habitat management measures will be considered*". The surveys by Fera have confirmed that large numbers of hazardous birds <u>are</u> overflying the airport. A distance of 0.5km could, of course, take the bird dispersal efforts into the SPA, pSPA, pRamsar site and SSSI to the south of the airport and further into the SSSI to the north. In addition, as pointed out by Mrs Dear (main proof para. 191), not only would the bird scaring off the airport effectively deny birds from the SPA suitable feeding and roosting areas, but the encouragement of farmers to make habitat changes (by ploughing in crops that might otherwise provide food resources for birds, for example) will also reduce available food resources not only for SPA birds but for other threatened farmland birds for which the area is particularly important.

2.13. The uncertainties inherent in all the statements above are indicative of an approach relying largely on the information available from the existing small, local airport. The scale of the changes envisaged with an increase in passenger traffic from less than 600 ppa in 2009 (Mrs Congdon's proof, para. 4.2) to 300,000 or 500,000 ppa in relation to the expected scale of disturbance to the surrounding bird populations is, in my view, effectively akin to the creation of a new commercial passenger airport within an environment of outstanding bird biodiversity and importance.

2.14. It seems clear from the above that the applicant has attempted to cover all eventualities but without carrying out a proper assessment of what these might be and where they might occur. The statement that "*Although all species are potentially a bird strike hazard, in the local context, only the Bewick's swan has the potential to cause problems*" (para. 14), in the light of the information presented in Dr. Allan's proof on overflying frequencies and species, shows how far the applicant is from having a proper understanding of the bird activity on and around LAA airport.

2.15. That the applicant has not yet fully considered the level of bird control needed is confirmed by the statement at the end of section 9.3 of Appendix 1 to Mr eacon's proof that "*Careful consideration must be given to how the challenge of establishing the exemplary level of bird hazard risk management that will be required at this site can best be met*". In my view, given this level of uncertainty over the scale of bird control/scaring on and around the airport, an issue that is critical to the assessment of impact on the interest features of the designated sites, it is not possible for a competent authority to conclude no adverse effect on integrity from bird scaring and control on the basis of the available information.

<u>Safeguarding</u>

2.16. In 9.1 of Appendix 1 of his proof, Mr Deacon notes a number of potential developments that could constitute an increase in bird strike risk and would be of concern to the airport authorities. He also notes that wetland creation to the south and west of the airport would be less problematic than new wetlands to the north and west of the airport. In Appendix 2 to his proof (para. 11.4) it is suggested that there will be no anticipated objection to wetland creation, management or modification schemes within the "boundaries" of existing wetland complexes apart from features designed or with the potential to increase local breeding populations of large gulls, incorporation of reed areas larger than 1 ha and supplementary feeding of wildfowl on a scale likely to increase local concentrations. Figure 4 shows that there could be areas with a presumption of no objections expected.

2.17. Dr. Allan has already drawn attention (main proof para. 52) to the question as to whether an airport operator would be able to avoid making objections to proposals in areas that they were advised could constitute even a minor increase to the bird strike risk.

2.18. The exclusions Deacon gives in Appendix 2, para. 11.4 are also a serious source of uncertainty. The RSPB has, in the past carried out management for breeding terns and smaller gulls, species featured in the SPA designation and also birds that are well known for moving breeding sites from time to time (Mr Gomes proof paras. 6.3, 6.7). Although specifically targeted at smaller gulls and terns, breeding islands can also be colonised by larger gulls. The creation or enlargement of islands, which are of central importance to the conservation of breeding and wintering birds (which use them as safe roosts) on the gravel pits within the designated sites, could be compromised by safeguarding objections where planning consents were required.

2.19. Similarly, the creation of further reedbed habitat, which has already proved so successful in attracting rare and threatened bird species, could also be put at risk. Although reedbed specialists such as bittern and marsh harrier will use smaller reedbeds, at times when populations are under stress (from hard weather, or pollution for example), the smaller sites are the first to be abandoned, and birds breeding in smaller sites are also at greater risk from disturbance or physical damage which has, in the past led to nest abandonment. Conditions relating to the scaring of starlings in new reedbeds would result in further effects on featured species, as the main concentrations of starlings are found in summer when a number of featured species are still breeding.

2.20. Figure 4 in Appendix 2 to Mr Deacon's proof does not include areas of the SPA, pSPA and pRamsar site nor the SSSI, and is expressed as being indicative only (para. 11.4.2). There is thus no certainty of approach here and considerable concern that this might change following any approval.

2.21. There are still a number of active gravel workings in the area together with potential future workings. In these cases, the RSPB and others would make representations that where appropriate these should be required to be restored as bird habitat in order to increase the available habitat for breeding and wintering birds. In some cases this may include proposals for islands, reedbeds or other habitat to attract particular species or groups of species, some of which may be seen as a strike risk. There is concern that the extension of the airport and a greater emphasis on safeguarding will lead to objections from the airport authorities for such proposals.

2.22. It has been suggested that the Bird Hazard Risk Assessment (BHRA) will satisfy the CAA and is not within the remit of the RSPB or NE to comment on, and is comparable to those prepared for other airports (Mr Deacon main proof, paras. 3.3.3, 3.3.6, 3.3.7). However, the proposals for the airport have not reached a stage where they are being considered by the CAA, who have expressed no public view on the planning applications, and are therefore still matters integral to the applications. The Secretary of State has indicated that he particularly wishes to be informed about the extent to which the proposed development is likely to have an impact on the local flora and fauna of any designated sites (GOSE letter to Shepway District Council 22 June 2010) and this will be considered as part of the planning Inquiry, and as such, is very much a part of the concerns expressed by the objectors.

3. MR DEACON APPENDIX 1 ATTACHED TO LAA/6/C

3.1. Mr Deacon gives some anecdotal information on groups of species considered to be a bird hazard at LAA, each account accompanied by two graphs showing recorded numbers by month and year during 2004-2010 and annual totals.

3.2. These accounts do not include thrushes or other migrants, no counts have been made of raptors, ducks, grey herons or cormorants (some or all of which may have been lumped under `other') despite the latter being large, frequently occurring and easily identifiable species. The coastal waders included with grassland plovers and lapwings are not defined. Although curlew and green sandpiper are mentioned in the text, the graph shows only lapwing. The behaviour and movements of waders such as green sandpipers and curlew will differ from lapwing. Gulls are not identified to a species level which is an unfortunate omission as the smaller grassland feeding gulls, (black-headed and common), will have quite different behaviours and movement patterns to the larger gulls (herring, lesser and greater black-backed). No recording times are given and it is unclear whether and how recording takes place, if at all during fog or after dark.

3.3. It is not clear whether these are counts of birds on the ground within the airport, birds flying over the airport or both, and whether they include observations of birds on the ground or in the air around the airport, particularly on the approach and take-off paths. In the account of swans, the account notes that in this case records are of overflying birds, suggesting that other records are of birds on the ground.

3.4. The main weakness of the data apart from a lack of definition is that it does not record how long the observers spent observing either by day, by month or by year. It appears that the periods of observation were different by month and year, so the data are not comparable between these times and the totals will be similarly flawed. If recorders were out observing a lot of the time in one month, (e.g. for swans in May in 2005 and October in 2007) but spending virtually no time in other years and months (e.g. swans in 2010), then the figures will not give a reliable estimate of either varying numbers between different months or years or realistic totals or trends. It appears that the data is simply sourced from ad hoc observations, where the time spent observing has fluctuated from day to day and may include no records at all on some days to short periods of observation on other days.

3.5. Many of the figures given seem scarcely credible. No swans were recorded at all overflying the airport during the whole of 2010. The number of recorded gulls was around 2750 in December 2006 but had dropped to nil during the following month in January 2007, and apart from September-October virtually no geese were recorded in that year, or any in 2010; almost no gulls were recorded during March-July in 2010 (the graphs are difficult to read where the lines are together); and no pigeons or doves seem to have been recorded in two of the seven years (it is difficult to tell which these are because the colours used are similar for 2004/2008/2010) or between August-December 2010.

3.6. At various places in the text, it is noted that numbers are small compared to other airports, or lower than the UK average, e.g. large gulls, corvids, pigeons and doves, but no data are given in support of these statements. The conclusion given, again without any evidence of numbers, dispositions or movement patterns, is that the situation at LAA is significantly better than at Liverpool, Dundee, Warton and RAF Kinloss, all of which are associated with large estuarine environments rather than small freshwater gravel pits. Many estuarine birds spend the whole winter within the estuarine environment whereas at Dungeness, many species roost on the gravel pits and move out to feed on the agricultural land both by day and by night, and in doing so, can cross the airport or its approaches.

3.7. No evidence is presented on whether the distribution of birds on these estuarine sites is affected by the movement of aircraft or that feeding densities or rates or roosting patterns are unaffected.

3.8. In short, these data confirm the concerns expressed in my main proof (e.g. para. 4.2) that the assessment by the applicant of bird numbers on, around, and flying over the airport are inadequate to inform an appropriate assessment of the impacts on the birds of the designated sites of measures necessary to reduce the bird strike risks.

3.9. In the section on gulls (para. 6.1), Mr Deacon refers to the extraordinary number of 90,000 gulls at Romney Sands given by the RSPB. I have referred to this in my main proof and have noted that the figure of 81,000 gulls in 2000 was from the Dungeness Bird Observatory Records (DBO). I assume that the reported figure of 90,000 gulls included 8,800 gulls recorded elsewhere in the area at about the same time. A further count of 43,000 gulls was recorded on Lade Sands in 2001 (DBO report 2001), but no further counts of Lade Sands are reported in the DBO records for subsequent years.

3.10. Numbers have since been much lower and co-ordinated counts have been few. However, Table 1 gives some figures for gull numbers in the area which should be treated as minima. Although these indicate that numbers were exceptionally high in 2000 and 2001, they also show that large numbers of gulls can still occur, particularly the two smaller species that spend much of their time feeding inland, with a total of 20,000 common and black-headed gulls recorded in September 2009. These counts are incomplete as they do not include counts of roosting gulls on the RSPB gravel pits.

Table I. Numbers of gulls at roosts in the Dungeness area 2000-2009. All counts were in January or February. (Notable counts at other times of year are noted below the table).

Species[2]	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
BHG	2000	5000	1500	3500	10000	5000	5000	3000	5000	3000
CG	1500	3000	500	1000	5000	1000	3000	500	500	1000
LBBG	100	250	-	-	50	-	-	-	-	-
HG	4000	25000	5000	10000	12000	6000	7000	5000	2000	3000
GBBG	1000	1000	1000	1200	2000	1200	1000	1400	-	200
Totals	8800	34250	8000	15700	29050	13200	16000	9900	7950	7200

Figures are from Dungeness Bird Observatory counts 2000-2009 (see Appendix I).

3.11. In addition to the above there were counts by DBO of 10,000 black-headed gulls in April 2003, 5,000 black-headed gulls and 2,000 common gulls in July 2007 and 10,000 black headed gulls and 10,000 common gulls in September 2009.

[2] BHG= Black-headed gull, CG= Common gull, LBBG= Lesser black-backed gull, HG = Herring gull, GBBG = Greater black-backed gull.

3.12. The above counts do not include gulls roosting on the RSPB pits, as the count dates here do not necessarily coincide with those carried out by the DBO. However, gull numbers on the RSPB pits would be likely to increase the numbers above, at times by several thousand.

4. MR DEACON APPENDIX 3 ATTACHED TO LAA/6/C

4.1. Appendix 3 gives details of an analysis of bird numbers and aircraft movements at Liverpool, Belfast, Derry and Glasgow airports. It might help in the consideration of my comments on this analysis to first of all give a brief explanation of the background to wintering waders and wildfowl in the British isles, especially in relation to birds of estuaries, as, once again, all these airports are either on large estuaries or in the case of Northern Ireland, on extensive sea loughs.

4.2. Most of the migratory estuarine waders, geese, swans and ducks wintering in the British Isles breed in the far north, from Ellesmere and Baffin islands in northern Canada, to Greenland, Iceland, Scandinavia and across to Siberia. Some of these birds winter in north-west Europe, only moving across to the British Isles in hard winter weather, while others winter further south and pass through the UK on their journey south in autumn and again travelling north in spring. Particular populations of birds return to the same estuaries year after year. Some birds use one area for moulting (a period when many wildfowl are flightless) and another area for wintering, and huge numbers of birds use estuarine and wetland sites as stop-offs to feed and rest during migration to wintering areas further south or west.

4.3. The number of birds returning to winter in the UK in autumn will depend not on conditions in the UK, but on the conditions during migration and on the arctic breeding grounds. Severe weather conditions during and after migration can result in mortality of adult birds, poor weather conditions on the nesting grounds can cause breeding failure, and shortages of food either before, during or after migration can also result in higher mortalities or failure to breed either successfully or at all. Levels of predation, particularly by arctic foxes can affect breeding success, and persecution by man, during migration and at stop off points further north, and human disturbance and developments can also have an effect.

4.4. When the birds return to winter in the UK their numbers will have been affected by the mortality of adults and the recruitment into the population by young birds from that breeding season. Anyone who has counted wild geese or swans, where young birds of that year can be separated from adults by their plumage or other features, will know that in some years the flocks are swelled by perhaps 30% of young birds, whereas in other years young birds are almost completely absent after a poor breeding season. It will be apparent from this that the numbers of birds returning to a particular site in autumn is more a function of the factors influencing migration and breeding than conditions on the estuary or wetland itself.

4.5. In the analysis in Appendix 3, the bird numbers have been taken from WeBS counts at 11 wetland sites near four airports. It is unclear from the maps provided in Table 1 which areas have been included. The numbers of each of 39 selected bird species have then been summed as a single calendar year figure for each species from the WeBS data during 1995-2008 for each of the four airports and this figure has then been correlated for each species with a single figure for total number of take-offs and landings (ACM) during the calendar year (all aircraft) and a single figure for air traffic movements (ATM) (commercial flights only) within the same year. It seems probable that ACMs and ATMs are themselves correlated. We are not told what hypothesis these figures are testing, but presume it is that if bird numbers are affected by aircraft movements then they would go down as aircraft movements go up.

4.6. There are a number of serious errors in the methodology used and in this approach, such that the results are not just deficient, but in my opinion, seriously flawed and invalid.

4.7. Firstly, the figures used in calculating annual totals for birds are based on calendar years. As explained above, wintering birds arrive in autumn and leave in spring therefore the figures used in the annual calculations used here include bird numbers from the end of one wintering season combined with the figures for the beginning of the next wintering season, with a breeding season in between. Thus in some cases this will combine wintering figures following a poor breeding season with figures after a good breeding season or vice versa, or figures from good/good seasons or poor/poor seasons. As the numbers of birds each autumn returning to winter will largely depend, as explained above, on factors outside the UK, not only is such a correlation meaningless as a measure of the effects of disturbance of birds on each estuary, but it has been further compounded by combining parts of two seasons to arrive at an annual figure. This error alone would in my opinion, invalidate the results.

4.8. As Mr Deacon has pointed out (main proof, para. 3.3.2), most of the increases in numbers of aircraft will occur in the summer months, and during this time, a large proportion of the 39 species chosen including most of the waders and wildfowl are away on their northern breeding grounds. Thus any increase or decrease in flight movements taking place during the summer will have no affect whatever on birds which are only present in the winter. Therefore taking an annual figure for aircraft movements including summer movements is invalid for making a comparison with wintering bird numbers and introduces a serious deficiency into the results.

4.9. The most serious basic flaw in the figures given however is that they ignore the underlying national trends in numbers of birds of each species. Numbers of some of these will be going up or down, or be stable or fluctuating, due to factors affecting whole populations or populations regionally. In some cases this may be due to Europe-wide declines or increases linked to habitat change, food supplies, human activities, increases or declines in predators or in the case of the UK, birds staying further north or east in Europe or in the UK over the recent run of mild winters.

4.10. In order to allow for these national trends and remove the effects of any changes in bird numbers locally, caused by factors on a wider spatial scale as described above, it would be necessary to compare trends in bird numbers on a sample of estuaries with adjoining airports to trends on a comparison group of estuaries with no adjoining airports. It would also be necessary to allow for other variables such as estuary size and topography, the effects of pollution incidents or increased nutrients, other human disturbances and exploitations (e.g. damage to invertebrate populations on which birds feed, from bait digging or destructive shellfish harvesting). These activities may also act in combination with aircraft disturbance (for example bird numbers might be affected by the recent popularity of kite-surfing in winter on some estuaries), the distribution of the actual flight paths (which run across some estuaries and parallel with others) and weather conditions in different parts of the country. It can be seen from this far from exhaustive list that there are a multiplicity of factors that might affect the numbers and trends in numbers of birds on an estuary other than aircraft, and any study which attempted to assess the effect of aircraft alone, would need to find ways of discounting these other effects. This study has made no attempt to do this.

4.11. As has been pointed out (this rebuttal proof, para. 3.6), none of these marine sites have similar characteristics to LAA where the main roost sites are freshwater pits where water levels only change with the water table. The activities of birds living in estuaries or sea loughs during the winter are largely governed by the rise and fall of the tides exposing and covering feeding grounds both during the day and at night. In addition, LAA is in a different part of the country with different weather and bird movements to the estuarine and lough sites used in this analysis which are all in the north and west. Even within the sample given there are differences between sites for many of the species listed in population trends with numbers of some species increasing in some sites and decreasing in others. This underlines the absence of a proper analysis which considers and controls for other variables which could affect bird numbers.

4.12. In conclusion, the flawed methodology, the absence of comparable sites where aircraft are not present, the failure to consider other national and local variables which might explain observed trends, in my view make this analysis invalid to the discussion of the effects of aircraft on bird populations at LAA. Mr Deacon's conclusion therefore that numbers of aircraft are not impacting on bird numbers is not supported by his analysis.

5. MR PERKINS - PROOF OF EVIDENCE AND APPENDICES, LAA/5/A, LAA/5/C

5.1. I note that Mr Perkins (main proof, paras. 3.3.10 and 7.1.5) does not discuss or comment on the effects of noise on wildlife but refers to the Proof of Dr. Armstrong who considers this issue.

5.2. In his proof, Mr Perkins confirms that the airport will adopt the preferential flight path over the Ministry of Defence DO44 danger area and that this will be possible for at least a third of the time (para. 4.2.6). This scenario was suggested as long ago as March 2009 (revised Chapter 16 of the supplementary environmental information 2009, paras. 16.9.3-16.9.10, CD 1.41a). At that time, the point was made that the reduction in noise that might be achieved by flying due south rather than over the village of Lydd would benefit the residents. The fact that this flight path would take aircraft much closer to, or over designated sites was not considered. Although Mr Perkins has produced another set of modelled noise contours in the appendix to his proof, these (and the earlier figures) do not include the noise contours for jet airliners flying south across the MOD danger area, passing close to the edge of the SPA and over parts of the potential SPA extension and the proposed Ramsar site and SSSI, even though it has been known that this has been a preferred option for nearly two years.

5.3. In the trial of a Boeing 737-300 aircraft, the noise recorded at ground level as the aircraft passed over Lydd cemetery at 1000 ft was SEL 91 DB (Table 16.8 of the revised Chapter 16, supplementary environmental information 2009, CD1.41a and b), against a modelled SEL of

88 DB. A typical SEL range at 1000ft for a Boeing 737-800 is SEL 88-104 dB (16.7.23 of the revised Chapter 16, supplementary environmental information 2009, CD1.41a), so the applicant has used the lowest sound level for their comparison (Table 16.8, CD1.41a and b) even though in the event of a commercial aircraft taking off it would be expected to be loaded with fuel, passengers and luggage, compared to the trial aircraft without this additional weight.

5.4. In his latest model, Mr Perkin's shows the noise contour from a Boeing 737 (presumably a 737-800) departure crossing Lydd cemetery as being 82 L_{max} (Appendices to Mr Perkins' proof, figure NV18), but in Figure 12 attached to Appendix 6.2 to Volume 3A of the supplementary environmental information 2007 (CD1.24c), the noise contour crossing the same point for a south departure of a 737-800 is shown as 87 $L_{max.}$ Comparing the same two figures (NV18 and Figure 12) the former shows an L_{max} contour of 88dB around the runway, whereas the earlier figure shows this as 93dB. This difference of 5dB is significantly lower, but Mr. Perkins gives no explanation for this change in the modelled sound contours.

5.5. The noise produced by an aircraft will depend on the weight of the aircraft (fuel, passengers and luggage all contribute to weight), the rates of ascent, the strength of the wind (aircraft can take off and climb more rapidly with stronger headwinds), temperature and relative humidity, and conditions on the ground where the presence of trees, shrubs, and large buildings can act as noise attenuation buffers[3]. The noise will also vary depending on the model of aircraft.

5.6. Mr Perkins gives no information on what assumptions he has made and put into his model with respect to the variables listed above in estimating his modelled noise contours, and in the case of the noisiest aircraft which it is proposed to use, the Boeing 737, he does not give the aircraft model (e.g. 300, 400, 500, 700, 800) used to calculate the contours. It seems that the figure on which greatest reliance can be placed is the flight trial. Here, the noise level recorded from the ground with the aircraft at 1000ft was SEL 91 dB and could have been expected to have been even louder at the point of take-off (and/or with the addition of a full payload). This take off point for the trial aircraft was not measured in the trial and is far closer to the designated sites than that at which the measurement was taken in Lydd cemetery.

[3] http://www.boeing.com/commercial/airports/737.htm (see Appendix III).

5.7. Mr Perkins has used a 16-hour average figure for most of his modelled noise contour scenarios, although he admits that this "is unlikely to give a representative indication of the noise level that would actually be heard on the ground" (para. 3.3.4). He then goes on say that the Sound Exposure Level (SEL) gives a closer indication of the magnitude of the instantaneous noise levels experienced during aircraft "fly-overs" (para. 3.3.5). He also notes that the modelling software includes a data base of SEL for aircraft at different payloads. Given these considerations, it is surprising that Mr Perkins has not used SEL values in any of the contour maps.

5.8. However SEL has been used in the measurements of the noise of the trail flight. In view of what Mr Perkins says about the closer indication this measurement gives of the magnitude of aircraft noise levels (compared presumably with other noise measurements over longer times), this appears to confirm the credibility of the actual, measured noise level in the trial, over the estimates produced by the model.

5.9. Mr Perkins also confirms that existing noise levels are "fairly low" (para. 5.2.5), and that aircraft currently in use "are small and do not give rise to a wide spread of noise levels". This appears to contradict the applicant's claim using contour models from BAe 146 aircraft as a baseline scenario, that "the SPA at LAA already receives peak noise levels from departing aircraft of 90 dB(A)" (Appendix 6.1 to supplementary environmental information 2007, CD1.23i). The contention here is that the general noise levels from the existing airport are low, that any loud aircraft noise is unusual and when it occurs causes considerable disturbance. This point is reinforced by Mr Gomes (main proof para. 10.10) where he reports a single event which was so unusual that it caused him to notice and remember it and also caused considerable disturbance to flocks of birds off the airport.

6. DR. ARMSTRONG - PROOF OF EVIDENCE, LAA/7/A

6.1. Mr Perkins' proof (paras. 3.3.10 and 7.1.5) notes that the effects of noise on wildlife will be considered in the Proof of Dr. Armstrong, but in relation to LAA I can find no such consideration in this proof other than a comparison with an airboat experiment on open water birds in the southern USA (Frid & Dill 2000).

6.2. Dr. Armstrong notes in his proof (para. 2.5) that he has "*assessed all of the bird species considered to be of conservation significance in areas where there is any perceived potential* *for negative impacts arising as a result of development proposals at the airport*". However, nowhere in the proof that follows this assertion does he list the species he considers of conservation importance and why, give details of how he has carried out his assessment or produce the results of that assessment.

6.3. Dr. Armstrong states that he has also reviewed the conservation "value" of populations of conservation significance around the airport (para. 2.6). Again, no information has been given on the information used to inform the review, the criteria used to decide whether particular populations have conservation value, and what populations have been reviewed and the results of such a review.

6.4. Dr. Armstrong then goes on to say that he has reviewed the likely impacts on each species from their known behavioural ecology (para. 2.7). There seems to be no further information in his proof on which species he has reviewed, what sources of information on their known behavioural ecology he has referred to (or which similar species he has used to extrapolate information from and his sources for this information) and what likely impacts he has concluded. Given the lack of information on the assessment and reviews, it is not possible to comment on their validity or value.

6.5. In relation to individual issues (para. 3.2), Dr. Armstrong's proof notes that species assemblages similar to those found in designated sites in the UK are found close to airports in other countries, including reserves adjoining some of the busiest airports in the world. However, no further details of the location of such airports, the aircraft that use them, the types and location of the reserves to which there is reference, the species which are found there, their numbers, distribution and population trends or any other detail is given which might provide this statement with context or value.

6.6. Mr Deacon's proof is referred to as evidence that, in the UK, expansion of aircraft activities have not resulted in decreases in bird populations in neighbouring SPAs. The only evidence presented to support this is in Appendix 3 of Mr Deacon's proof on which I have commented at length earlier in this rebuttal proof and concluded that it is seriously flawed.

6.7. The proof (para. 3.3) then goes on to assert that the development will have three changes that are likely to have a significantly positive impact on neighbouring bird populations, compared to no development:

6.7.1. Increased predictability of [aircraft] movements.

6.7.2. The introduction of a cap on helicopter flights.

6.7.3. A limit on night flying.

6.8. There is no evidence that the aircraft that will use the airport, other than those which will fly scheduled services will conform to a more predictable pattern than at present. The airport is currently used by a large variety of small and medium sized aircraft and there is no indication that their flight patterns are likely to change, other than to be directed so as to avoid the scheduled flight movement of passenger jets. The movements of these jets will be to introduce unpredictable, mobile and much larger scale visual and noise disturbances to the area around the airport compared with the present situation and will not, in my view increase the predictability of disturbance.

6.9. The suggestion that the cap on helicopter flights will also be beneficial for birds compared to no development, suggests that Dr Armstrong believes that helicopter flights, if allowed to increase without such a limit, will be harmful to the bird populations on the designated sites. I understand that helicopter movements currently account for 6.6% (Mr Perkins' proof, para. 4.3.11) of the 20,000 aircraft movements pa (Mrs Congdon's proof LAA/4/A para. 4.4) giving some 1452 movements per annum (although I have not seen any data which verifies this) and therefore a cap of 2000 (Mr Perkins proof, para. 4.3.11) would in any event increase current helicopter movements by some 38%. The disturbance from helicopter flights on bird populations on the designated sites and functional land beyond the airport has been one of the concerns expressed throughout by the objectors.

6.10. The final claim is that the situation on night flights will be improved under the applicant's proposals as these will exclude night time flights between 23.00-7.00, whereas there are no such restrictions currently. However, no figures have been given for existing levels of night time flying during these hours (although I believe the applicant will be sending details of night time helicopter flights in October for the last five years but these have not arrived in time for comment in this proof), or any information that might lead to a conclusion that if the applications are refused, there will be an increase in demand for night flights. This appears to be highly speculative, unsupported by data and not "likely" as Dr. Armstrong claims.

6.11. The above three assertions in respect of the fall back position made by Dr. Armstrong are not accepted.

6.12. In 3.7 Dr. Armstrong summarises published findings relating to human disturbance and a wading bird, black-tailed godwit, where human disturbance had no measurable effect on the numbers of this wader either on mudflats or on the whole estuary. However his summary did not note that the authors also point out that effects of human disturbance may be extremely important during periods of extreme weather, when birds are experiencing the stress of moulting in late summer, and for species that associate humans with greater mortality risk, for example hunting. Many wildfowl and some wader species (some of which regularly winter near LAA) are hunted either in the UK and/or across their migration routes although black-tailed godwits are protected across their breeding, migrating and wintering range.

6.13. In 3.8 there is a summary of a paper by West et al (2002) of predictive studies on the effect of disturbance on wintering oystercatcher. This paper describes the results of a modelled study on a population of birds, oystercatchers feeding on mussel beds subject to particular types and frequencies of disturbance, from walkers, dogs, bait diggers, boats and crab collectors moving on or around mussel beds. The authors suggest that this type of model has wider applicability but that if used for other situations it would have to properly parameterised to include site-specific data, for example prey abundance in areas of conservation importance, weather, patch exposure times and the availability of alternative sources of food. Therefore the results from this study cannot be simply applied elsewhere without a similar modelling exercise being carried out to reflect the different parameters at another site. The model has been specifically designed to consider disturbance effects of feeding birds, whereas many of the birds likely to be affected by aircraft disturbance at Dungeness will be carrying out other activities such as roosting or nesting.

6.14. A later paper not referenced by Dr. Armstrong, by two of the same authors (Goss-Custard *et al.*, 2006 - see Appendix IV tab 2), also used a model to predict the critical thresholds for the frequency with which wading birds can be disturbed before they die from starvation. Disturbance can cause birds to spend energy flying away, losing feeding time when relocating to different feeding areas where interference competition from increased bird densities may be intensified, and where competition may also increase as available prey is depleted. This paper concluded that in a mild winter in which the main prey (cockles) remained abundant that disturbance frequency during daylight hours would only have increased bird mortality a little. In a mild winter when cockles had disappeared as a food source, mortality would start to increase at one disturbance event per 1 hour 40 mins - two hours. If cockles were depleted and there was a period of severe weather, the critical threshold for increased mortality was only one disturbance every 3 hours 20 mins - 5 hours. The disturbance events modelled were over-flying raptors or the activities of humans and the critical levels reported were precautionary as they assumed the same birds were repeatedly disturbed. Once again, this study looked only at the disturbance effects to feeding birds and the authors caution that it cannot be regarded as being applicable everywhere.

6.15. However, these studies indicate that there can be increased mortality to wintering birds from disturbance events where only limited parts of a site are affected and where the disturbance is at very low frequencies, and that where disturbance is from more than one cause, these can operate in combination. Dr. Armstrong refers to the effects of density dependence and notes (para. 3.10) that any efforts to manage disturbance in order to maintain populations must therefore be based on an understanding of the density-dependant consequences of avoidance of disturbed areas. Dr. Armstrong provides no evidence that density dependant factors such as feeding areas or prey densities have been considered in any way at Dungeness, and has relied on generalities rather than any specific studies or information relating to the situation at LAA.

6.16. In the situation at LAA, where the noise and vision disturbance from large aircraft would affect a substantial area of the designated sites or areas of the functional land used by designated species, these results suggest that the effects of disturbance could cause significant levels of mortalities among birds if food resources are low even in mild weather, and that such effects would be more significant during hard weather. They also suggest that where increased aircraft disturbance occurs in combination with other pre-existing human activities; the activities of raptors (or the increased disturbance from bird scaring on or around the airport for example), these events can act in combination to raise disturbance levels and increase bird mortalities even further. The quoted modelling studies were on oystercatchers which are relatively large wading birds, and it might be expected that smaller wading birds that are found at Dungeness such as plovers, redshank or dunlin would have even lower critical thresholds where disturbance began to cause mortality as their body weights are lower. These impacts would clearly constitute a significant effect and an adverse effect on integrity through direct effects on the featured bird species of the designated sites.

6.17. It is then suggested by Dr. Armstrong that the potential impacts of disturbance are reduced for species that can feed at night as most of the waterfowl species that occur on the Dungeness peninsula feed at night and can make up any depletion in feeding rates during the day by increasing night time feeding (para. 3.14). A reference in Tamisier (2004) is quoted which suggests that areas without night time shooting support populations of wildfowl ten times greater than those with night time shooting. In other words, it is asserted that this example indicates that undisturbed night time conditions will have beneficial effects from no night time aircraft flights under the development proposals on the populations of wildfowl and waders at Dungeness.

6.18. However Tamisier (2004) also reports in the same paper that the number of birds present at sites during the day that are hunted has been estimated in published studies as 5 to 50 times lower than those that are not hunted. If an increase in night time flying would disturb birds in a similar way to hunting and reduce their numbers in the affected areas, then presumably the same would happen in daytime, and using the same logic, there would be much lower numbers of birds on sites disturbed by aircraft during the day than on sites which were not so disturbed. Tamisier goes on to reference several studies showing that although a number of species can change their feeding behaviour to compensate for increased disturbance (the point also made in paras. 3.12-3.14 of Armstrong's main proof), other studies show that disturbed birds have a lower body mass and lower fat reserves, can leave later for, and arrive later at, the breeding grounds, have lower egg production, higher egg losses and a reduced productivity of fledged young. These findings show that there can be sub-lethal affects on wintering birds from disturbance that results in reduced feeding rates, which are not necessarily apparent at the site where the disturbance takes place, but can affect the bird's fitness long after it has left for the breeding grounds.

6.19. In paras. 3.15-3.21, it is concluded that because the response by birds to disturbance can be compared to their response to predators and because predator response has been relatively well researched compared to responses to aircraft, that the former can be used to predict the response of species to aircraft disturbance. However, Dr. Armstrong gives only one reference to this approach, a paper by Frid & Dill (2002). In this review paper the authors test a number of hypotheses by reference to published studies. One of these, explored in 3.17, is that animals will flee at a greater distance from an approaching predator if the distance to a refuge is greater. It is suggested that the presence of the RSPB reserve close to the airport is therefore likely to reduce the disturbance effects from the airport as this is an excellent refuge.

6.20. Frid & Dill (2002) make it clear that when they refer to a refuge they are talking about a physical area or structure which the animal will regard as giving greater protection from predators. The examples they give are bighorn sheep finding refuge on rocky slopes, woodchucks closer to a refuge burrow and squirrels closer to a refuge tree. Some wildfowl may see areas of open water as refuges from predators, but open water areas are not confined to the RSPB reserve around the airport and many species including most waders, raptors, herons, starlings and many others would not normally settle on open water. Whilst in practice the RSPB reserve may offer a relatively undisturbed environment, so do many of the surrounding fields and gravel pits outside the reserve, and it appears Dr. Armstrong is taking the word `refuge' as used by Frid and Dill to describe some physical retreat offering greater safety to a fleeing animal or bird, and is using it to describe an area that has been designated as refuge by humans, where the boundaries are administrative and are not apparent to a fleeing animal or bird, as is the case with the RSPB reserve. If a bird flees from an approaching aircraft it is as likely to go onto land adjoining or on the airport as it is onto the RSPB reserve, and where on the non RSPB land it could be subject to further disturbance from scaring or other measures and activities, including shooting.

6.21. In a discussion on buffer zones (paras. 3.19-3.21), it is suggested that because of its size the RSPB reserve would extend far beyond any suggested buffer zones. There is reference to only one study, which gives flush distances based on a 14ft airboat approaching birds on the open water at 35-40km/hr. The responses differed between species and between members of the same species, none of the species concerned are found at Dungeness and at all the sites studied the birds were used to regular shoreline boat traffic. It is difficult to see the relevance of this study to the possible effects of fast moving, low flying large aircraft on the birds within the designated sites at Dungeness. Studies have shown that for aircraft, flushing distances can be far greater than given in this study (see my main proof paras. 10.57, 10.64 - 10.67 & 10.74).

6.22. The suggestion that part of the RSPB reserve, which is all within the SPA, and partly within the pSPA, Ramsar site and SSSI, could act as a buffer zone, misses the point that the integrity of the designated sites concerns "the coherence of the site's ecological structure and function across its whole area" (see Mrs Dear's proof para. 202) and that if birds are disturbed from one part of the SPA, pSPA and pRamsar site, even if they then move away to another part, this may still constitute an adverse effect on site integrity.

6.23. Para. 3.25 of Dr. Armstrong's proof notes that with the recent run of mild winters the numbers of wildfowl and waders wintering in the UK has reduced as some species stay further to the north and east. The example of smew is given, a duck which has only ever wintered in very low numbers in the UK and where the numbers have fluctuated considerably at Dungeness over the last 20 years. This seems a curious choice to illustrate this point as this species has had a population at Dungeness of between 5 and 38 since 1989/90 (a tiny population at a site with over 30,000 wintering waterfowl), and the figures show that numbers have been below the 20 year mean only since 2005/06, not long enough to suggest a long term decline (Table 2, data from RSPB reserve counts). During the period 99/00-03/04 to 04/05-08/09, the numbers of another wintering species which does not occur at Dungeness during the summer, golden plover has gone up (see my main proof para. 6.28), showing that the selection of a single species to illustrate this point can be misleading.

Table 2. Wintering smew number at Dungeness 1989/90 to 1908/09

Years	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99
Smew	5	12	18	11	33	25	31	16	18	38
Years	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09
Smew	29	27	32	18	37	24	20	18	21	11

From WeBS data (see Appendix II)

6.24. It is then suggested in the proof that the numbers of many qualifying species are likely to reduce in the near future, but only one reference (Rehfisch et al 2004) is quoted to support this contention (n.b. the word "near" in this connection has not been defined in the proof). It is certainly true that some species of ducks and waders are showing long term declines as there are subtle shifts in core wintering distributions reflecting milder winters. However, these changes are long term, they are more significant in the west of the UK than the east, not all species are affected, and the effects are reversed during hard winters when the UK becomes very important as a hard weather refuge for birds from across north-west Europe. Additionally, as some birds gradually change their distribution and stay further north, others move in from the south or east or remain during the winter instead of migrating south.

6.25. The paper by Rehfisch referenced in Dr. Armstrong's proof, compares the populations of nine species of wintering waders on non-estuarine sites in the UK during 1984/85 and 1997/98. Of the nine species analysed only two (sanderling and lapwing) are featured species in the pSPA assemblage at Dungeness and of these two, sanderling showed no evidence of geographical variation between surveys and lapwing showed a significant increase in the east but not the north. The conclusion that has been drawn that many of the qualifying species for the designated sites look likely to reduce in the near future is not supported by the reference quoted in the proof, nor by the general body of work on this subject which is summarised by Newton (2010)(see Appendix IV tab 3). That changes are taking place is undeniable, but there is no consensus on the speed with which this is happening and while many wader species are showing declines in south-west England and South Wales, there have been increases in the south and south-east (Austin et al 2000 – see Appendix IV tab 1).

6.26. It is of course possible that numbers of wintering birds in the UK will reduce over the next 50 years due to climate change, but this is of little relevance to consideration of the likely adverse effects of the airport proposals on the designated sites now; wintering sites in the UK including Dungeness will continue to offer suitable conditions for wintering birds during severe continental winters, and if birds which winter in the UK now show a tendency to stay further north, they could be replaced by birds that currently winter south or east of the UK and by other species which winter here rather than moving further south.

6.27. In his conclusions Dr. Armstrong first of all states that any species currently present are tolerant of existing levels of disturbance (para. 4.1). This statement ignores the possibility of wintering species being affected by the levels of disturbance in terms of feeding or other behaviour, resulting in weight loss and subsequent lower breeding success as explained above (para. 6.17), or direct effects on breeding species affecting breeding productivity directly, which have not been investigated. It is possible that the current populations are affected by present levels of disturbance from the airport and that without aircraft landing and taking off and other airport generated disturbances that the populations of birds would be larger, have a different distribution and have greater breeding success.

6.28. Whether other more significant sources of disturbance exist (para. 4.2 of Dr. Armstrong’s proof) is irrelevant when assessing the increase in disturbance resulting from the proposed expansion of the airport if this has an adverse effect on the features of the designated sites. If there are already significant sources of disturbance locally outside the airport (for which no evidence has been adduced) then increased disturbance from the development proposals will cumulatively increase the overall levels of disturbance.

6.29. Dr. Armstrong (para. 4.3) suggests that the distance from the airport to local sites (by which it is assumed he means the designated and proposed sites) and the angle of approach by aircraft is unlikely to affect the behaviour of key species (undefined). However it is clear from my main proof (e.g. paras. 10.19, 10.22, 10.23), that the main concern in relation to take-offs and landings is not from landing aircraft from the north (although these will affect the functionally linked land north of the airport) but from aircraft taking off to the south, which Dr. Armstrong does not mention.

6.30. I have already commented on the suggestion (para. 4.4 of Dr. Armstrong's proof) that the RSPB reserve is large enough to provide a refuge should disturbance occur.

6.31. Dr. Armstrong (para. 4.5) concludes, having examined the applications and the proof of evidence of Mr Deacon, that the development proposals would not have a likely significant effect on the SPA, pSPA or pRamsar or an adverse effect on the integrity of those sites or any significant adverse effects on the RSPB reserve or the SSSI. He appears to be basing his conclusions not on the evidence he has given in his own proof, (and in my view rightly, because his proof does not support these conclusions) but on evidence given by another. In any event Natural England has also examined the issues and stated that it cannot conclude no adverse effect on integrity (Mrs Dear's proof, page 66, table 3.2).

6.32. Finally (para. 4.6) Dr. Armstrong concludes that the populations of most of the species present in significant numbers (presumably this means on the designated sites), can reasonably be expected to reduce to the point of species no longer being present in the area in the near future. Dr. Armstrong has given no evidence to support this contention, once again, no definition is given for the word `near' in this context and such a conclusion is in any event irrelevant to the consideration/assessment of the applications' potential impacts now on the currently featured species of the designated sites.

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