

**NATURE RESERVES AND AERODROMES - RESOLVING CONFLICTS**

**Jackson, V.S. & Allan, J.R.**

Birdstrike Avoidance Team, Central Science Laboratory,  
Sand Hutton, York, YO41 1LZ, UK  
Email: v.jackson@csl.gov.uk

**Abstract**

In the U.K, local and national authority biodiversity action plans encourage, amongst other things, the creation of wetland regions, reedbeds and areas of open water in order to establish suitable habitats for a wide range of species of conservation concern. Nature reserves and restoration schemes for sand and gravel quarries which aim to fulfil the objectives of these action plans may cause an increase in birdstrike risk if located close to an aerodrome.

It is possible for the UK Ministry of Defence or any civil airport to object outright to any planning proposals within 13 kilometres of the airfield for wildlife enhancement or other features such as landfills which may increase the birdstrike hazard. However, conflicts between conservation and the birdstrike hazard can often be resolved at an early stage by design modifications and development of management plans that control hazardous species whilst protecting those of conservation importance. This paper discusses the areas of conflict and provides examples of how to manage areas for conservation without compromising flight safety.

**Key Words:** Wetlands, Conservation, Airfields, Management, Birdstrikes.

## 1. Introduction

In the UK, local and national authorities, and businesses including the aviation industry are under increased pressure to create environmentally enriched areas and developments which are managed to enhance biodiversity plans. Despite the acknowledged problems of birdstrikes, this also includes airports (Dekker, 1996).

Constraints on land availability and considerations such as noise mean that land used for airport developments is usually away from residential/retail areas on land which can be unsuitable for these uses. This land may already have conservation value for example floodplains or mudflats of estuaries, or may be considered suitable for other bird attracting developments for example landfills or quarries. These factors may all affect the birdstrike risk at an aerodrome nearby.

In the UK, the safeguarding legislation designed to preserve flight safety ensures that planning applications within 13 kilometres of an airfield which may affect the birdstrike risk are submitted for assessment by birdstrike experts. This process occurs with both civil and military aerodromes. The UK Ministry of Defence (MOD) which owns all RAF stations, and the civil airports as landowners review each planning application to determine whether it has the potential to affect the birdstrike hazard at their airports. They may then lodge an objection to the plans on the grounds of increased birdstrike risk.

## 2. The safeguarding process

The Central Science Laboratory Birdstrike Avoidance Team act as independent advisors to the MOD regarding all safeguarding cases which have the potential to increase the birdstrike hazard to military airfields. A similar process occurs with the civil aviation industry. Sites such as domestic waste landfills, agricultural water storage reservoirs, quarry restoration plans and nature reserves are all potential feeding, loafing or roosting locations for birds. Gulls, large waterfowl, corvids, pigeons and Starlings are the most hazardous species in terms of the birdstrike risk to aircraft.

There are two possible responses that the safeguarding authority can make in respect of a site which is likely to increase the birdstrike risk at an airfield:-

- a) Outright objection
- b) Compromise

If an objection is raised, the application is normally rejected, but the applicant may appeal and this can result in a lengthy and expensive public enquiry. The aviation industry, be it the airport itself, the MOD or CAA, has never lost a

public enquiry regarding an objection if an unacceptable birdstrike risk has been predicted from a development. However, with increasing pressure for environmental enrichment, a repeated opposition to all proposals may be looked on less favourably than an agreement with the instigation of a management plan ensuring the development does not compromise flight safety and yet retains as many beneficial conservation effects as possible. Flight safety must always be paramount when the final decision is made, but in some cases it may be possible to allow a nature conservation site or other bird attracting development to go ahead with the inclusion of management plans and/or modifications to the site design.

UK planning law allows applicants to enter into agreements which control the way that sites are managed (e.g. to deter a particularly hazardous bird species). Such agreements may be part of the planning application or entered into separately by the applicant and the airport.

It must be remembered that even with a legally binding agreement, in some cases, a mutually acceptable compromise may not be possible. For example a development on the edge of the aerodrome boundary may create an unacceptable increase in the birdstrike risk even with management procedures in place and in such cases an objection by the airport can, and will be, sustained.

Risk Assessments are a vital component of the safeguarding process. They allow the possible costs and benefits of a development or suggested management strategy to be objectively assessed in a way that assists in reaching a final decision on which all parties can agree. The problem with an environmental consultancy company carrying out this process as part of an environmental impact assessment is that the birdstrike issue may be overlooked or underestimated. Input from a birdstrike prevention specialist at an early stage is therefore vital to this process if costly re-designs are to be avoided. For example, the design of a restoration plan for a sand and gravel quarry is crucial if hazardous birds are not to be attracted. Designs involving water bodies which are more than 200 metres wide could become host to a gull roost. Dividing the lake into two or more parts would discourage a gull roost from forming (Rochard, 1987), but smaller bodies of water are more attractive to waterfowl such as Mallard (*Anas platyrhynchos*), Coot (*Fulica atra*) and Canada Geese (*Branta canadensis*), especially if central islands are present. The majority of water bodies in such restoration schemes are deliberately designed to attract waterfowl as part of the environmental enrichment of the restoration scheme, and as such have gently sloping banks with well vegetated margins. Once a risk assessment has determined which bird species need to be avoided at a particular site, designs that remove the habitat features that attract them can be developed.

As well as habitat management, bird deterrents can also include wiring and a range of active bird control methods such as playing distress calls of relevant species, use of pyrotechnics, egg and nest removal or culling of adult birds. As for site design, the choice of management strategies will depend on the species deemed most hazardous and those with greatest conservation value. Techniques which control the former without adversely affecting the latter need to be selected. For example, the use of distress calls to disperse a winter gull roost would not adversely affect breeding passerines in a nearby reedbed. Appropriate licences for egg and nest removal would need to be obtained by the land owner. If possible, a full management plan detailing the methods to be used including independent monitoring schedules (usually no-notice visits) would need to be agreed between all parties before the application is submitted. In our experience, it is often far more difficult to change a completed design than to agree a compromise from the outset.

### **3. Locations with designated conservation status**

Other areas of conflict can arise if a statutory conservation designation has been granted to an area on which birds may then accumulate and create a birdstrike hazard. The European Union Birds Directive requires member states of the EU to take measures to preserve a sufficient diversity of habitats for all species of wild birds naturally occurring within their territories in order to maintain populations at ecologically and scientifically sound levels. It also requires Member States to take special measures to conserve the habitats of Annex 1 (rare species) and Migratory species. For example, a Special Protection Area (SPA) could be designated under the Birds Directive to protect an overwintering population of hazardous birds such as swans. This may create problems for an airfield if the designated SPA is nearby. Such cases may be especially problematic if the species for which the site is designated causes an unacceptable birdstrike risk and delicate negotiation may be needed to reach a mutually acceptable compromise. Fortunately, most of the hazardous airfield species are not rare and may not even be native bird species to the UK, so there is less pressure to protect them than indigenous species. For example, Canada Geese are an introduced species and would not fall into a category of species for encouragement in a wildlife area. Population control and management of such species may be possible to reduce the hazard, even on a designated SPA. Also, although the species for which the SPA was designated may not be the hazardous species of concern to the airport, any management methods used which may cause disturbance to the protected species, e.g. roost dispersal, would have to be considered carefully. In any situation where off-airfield bird management in a nature reserve is needed, liaison and goodwill between the parties involved is essential.

One example of a failure in co-operation is the gull problem at John F. Kennedy airport in New York. The problem here was that the airport and its bird control advisors were unable to reach an agreement with the managers of a nearby nature reserve to control a colony of Laughing Gulls (*Larus articilla*). The number of Laughing Gulls crossing the airfield twice daily from their roost and nesting sites on the Jamaica Bay Wildlife Refuge increased so much that the risk to aircraft was unacceptable. The nesting colony grew to 7600 pairs and was creating 170 birdstrikes a year with this species (Dolbeer, 1998). Because it was unable to relocate or otherwise manage the colony, the airport was reduced to shooting any Laughing Gulls that flew over its property. A total of 35,692 gulls were shot in the three seasons shooting was carried out. This reduced the number of strikes with this species by up to 90% in the third year. However, the nesting colony reduced over 3 years by only 20% and further shooting action may become necessary in future years (Dolbeer, & Bucknall, 1994). There are many other colonies of Laughing Gulls along the coast from JFK Airport and numbers of this species are increasing in the area. If a sensible agreement to disperse the colony from the area close to the airport could have been reached, then the destruction of 35,000 of the very birds that the conservationists sought to protect would have been avoided.

The creation of a large reedbed nature reserve site close to a military airfield in England recently showed the effectiveness of co-operation in establishing a situation acceptable to all parties involved. The proximity of this site, with its proposal for a large area of open water suitable for the establishment of a gull roost, to a landfill site accepting domestic waste which attracted thousands of gulls could have created a major flightline resulting in an increase in the birdstrike hazard on the aerodrome nearby. The site was also designed in such a way that Canada Geese would be likely to breed there. Once the birdstrike issue was realised, full consultation occurred between the conservation body, CSL and MOD with a view to allowing the reedbed development to go ahead without compromising flight safety at the nearby aerodrome. Discussions led to the implementation of design changes and a management plan to enhance the area for species of conservation importance whilst preventing hazardous species being attracted to the site. The scheme has included reducing the amount of open water on the site to discourage gull roosts, a stringent management plan to ensure there is no increase in hazardous birds such as gulls or Canada Geese, and independent monitoring of the site by the local aerodrome's Bird Control Unit. The legally binding management agreement allows the MOD staff to access the site and disperse hazardous birds if the nature reserve managers are unwilling to do so. This has allowed a large conservation area to be permitted to encourage rare bird, plant and insect species, whilst ensuring that hazardous bird species are eliminated from the area.

In Glasgow, Scotland a government-designated Site of Special Scientific Interest (SSSI) with plans to become a Special Protection Area (SPA) specifically for Whooper Swans is located near to one of the U.K's busiest airports. An internationally important number of Whooper Swans (*Cygnus cygnus*), weighing on average 9.5kgs each, overwinter at a Black Cart, a floodplain directly North of Glasgow Airport. Whooper Swans are listed under Annex 1 of the EC Wild Birds Directive as requiring special protection. A clause has been written into the site designation of the SSSI to allow airport staff to carry out bird scaring, to move Whooper Swans away from the airport if they are perceived to be a risk to flight safety. This followed much consultation between the private landowner, Scottish Natural Heritage (SNH) - the statutory environmental body in Scotland, and the airport.

#### **4. Conclusion**

The above examples show what can happen if a confrontational approach is taken by airports or conservation bodies. Even if airports can successfully prevent new nature reserves nearby, growing environmental pressure will eventually force concessions. It is far better to take a wider viewpoint to rule out completely unsuitable sites and co-operate where possible with landowners, developers and conservationists to promote biodiversity without compromising flight safety. The examples in this paper show that with proper consultation and goodwill such co-operation can be achieved.

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