

Prevention Planning: The Consultants' Role in Mitigating Wildlife Strikes

Wildlife strikes have gained much more attention since the emergency landing of US Airways flight 1549 in the Hudson River in January of this year. Prior to the accident there was, however, reason for concern. The Federal Aviation Administration (FAA) National Wildlife Strike Database shows that these incidents have been on the rise, with nearly 8,768 occurrences in 2008, compared to 2,074 recorded in 1990. Nearly three-quarters of these incidents occurred less than 500 feet above ground level. In addition, according to the *Bird Strike Committee*, USA, aircraft wildlife strikes cause over \$600 million in damage to U.S. civil and military aviation annually.

Fortunately, much can be done by consultants and their airport counterparts to mitigate the risk of wildlife strikes. The basic steps to protect against potential hazards before, during, and following completion of improvement projects at airports are to be well informed, to involve the right combination of stakeholders and to obtain the necessary financing to mitigate potential hazards.

Target Areas

Rather surprisingly, wildlife concerns exist virtually everywhere on the airport. The paved areas used for landing, taking off, taxiing and parking of aircraft, commonly referred to as the Airport Operations Area (AOA), require particular attention because of the ponding of water on the pavement. Runway Safety Areas (RSA) at the end and adjacent to runways also potentially provide a natural source of food, water and shelter to a variety of resident wildlife.

However, developed areas, including passenger terminals, cargo/freight areas and parking lots, create man-made habitats for a variety of species. Artificial lighting, ledges, heat sources (i.e. roof-top air conditioning units), water retention/ponding and waste disposal collection sites potentially located in these areas attract and sustain unwanted wildlife.

Early Planning and Design

Attentive planning and design by consultants and airport operators can mitigate many common problems like wildlife roosting, loafing and human interaction. In fact, some of the

greatest opportunities for the immediate control and reduction of wildlife populations exist during these phases of a project. Alterations to man-made wildlife habitats can be early targets for aggressive modifications in order to control the life-cycle of resident and migratory wildlife roosting and loafing.

With regard to terminals, the design process is where consultants can do a tremendous amount to mitigate wildlife risks. For example, consider where and how baggage handling systems are installed. If careful decisions are made with wildlife risk management in mind, consultants can ensure that these systems are regularly maintained. System cleanliness eliminates possible sources of food and shelter and is a key factor in the prevention of wildlife in and around the airport terminal.

Other specific steps during design and construction to mitigate wildlife strikes include:

- Using rooftop equipment that discourages potential nesting sites, which can begin a dangerous cycle of species returning to these sites to birth their own young,

Effective steps to reducing the risk of a wildlife strike:

- 1) Provide wildlife control and management training to airport staff.
- 2) Incorporate hazardous wildlife deterrence's in master planning design standards and codes.
- 3) Design/install/construct harassments to existing and predictable wildlife presence near aircraft operating areas.
- 4) Assess wildlife populations and habitats.
- 5) Modify food, water, and shelter habitat opportunities (ecosystems) to reduce hazardous wildlife populations.
- 6) Document and analyze lagging and leading performance indicators that demonstrate progress towards a reduced threat to wildlife hazards.



- Ensuring proper drainage of airport parking systems to avoid pooling a manageable water source that often becomes an attractant to airport wildlife,
- Equipping ledges with spikes or prong strips in order to discourage roosting, and
- Using properly designed trash receptacles with lids and covers that keep wildlife from accessing the trash inside.

Any wildlife management plan should strive to maintain a measurable reduction in the wildlife population on and around the airport, thereby reducing the risks of damage or loss of life associated with a bird/aircraft strike. Harassment activity addresses the presence of wildlife hazards on the AOA and is an immediate solution to reducing the risk of bird strikes. Unfortunately, the short-term technique of harassment is only partially successful in that driving birds away from one location might result in flushing them into the path of oncoming aircraft in another area.

In order for the mitigation to be successful, consultants, airport operators, regional land use experts and environmental biologists familiar with the area must meet to identify and discuss potential hazards, consider the multitude of optional measures and agree upon appropriate solutions.

Federal Regulations

Federal requirements, including Federal Aviation Regulation, 14 CFR 139.337, state that each airport operator shall establish the priorities for needed habitat modification and changes in land use, as identified in the ecological study. Federal Aviation Administration (FAA)

Advisory Circular 150/5200-33, *Hazardous Wildlife Attractants On Or Near Airports*, provides valuable guidance in terms of identifying certain land uses that potentially attract wildlife at or in the vicinity of airports. It also provides guidance concerning airport development projects, construction, expansion and renovation of facilities relative to aircraft movement in the vicinity of hazardous wildlife attractants.

The FAA Wildlife Hazard Mitigation Home Page provides valuable information on strike reporting, guidance, legislation, data and news regarding wildlife incursions (FAA Wildlife Hazard Mitigation Home Page: <http://wildlife-mitigation.tc.faa.gov/>).

No airport is exempt from the risk of exposing an aircraft to a damaging wildlife strike. Even with a well-managed program that governs grass height and ponding, wildlife will find adequate supplies of water and food to sustain their existence.

Despite this, mitigation is essential and notwithstanding the requirements of FAA Part 139.337, all airports should have a plan. These plans need to follow the professional guidance of wildlife and safety experts and FAA professionals in identifying hazards and mitigating their effects in order to diminish the risks of wildlife activities within proximity to aircraft operations.

Hazard Reduction Campaigns & Mitigation Programs

Wildlife harassment techniques like the use of air cannons, lasers, dogs, patrols or traps will continue to be a cornerstone of any wildlife mitigation program. However, consultants can help to ensure the effectiveness of wildlife

harassment and prevention techniques at airports. Poor wildlife control habits by people working at airports can be corrected through wildlife hazard reduction campaigns, specifically aimed at particular segments of the airport community. Campaigns should include education into the causes of wildlife strikes and consequences, and what individuals can do to develop good habits that discourage wildlife populations at airports.

Provide briefings to airport employee groups and safety committees and post signs prohibiting the feeding of birds in populated areas of the airport. Adequate signage and awareness campaigns make passengers and airport operations personnel active participants in the prevention of aircraft wildlife incursions.

Conclusion

The FAA can be expected to make wildlife risk management a much higher priority in the future. At press time, the agency was about to issue a CertAlert requiring around 150 airports to complete wildlife hazard assessments, as required by 14 CFR Part 139. The FAA is also intending to undertake a rulemaking process addressing wildlife hazard management programs.

Habitat modifications and harassment techniques must be combined in an effective wildlife hazard management program to show long-term success and a measurable reduction in the risk of bird-aircraft strike. The most effective wildlife hazard management programs start with collaborative efforts that include consultants, airport operators, and environmental experts, providing all parties with a general understanding of all potential risks in the earliest stages and throughout airport development projects. ✈