## Mitigating wildlife hazards

The world's increasingly busy airports face a growing threat of birdstrikes and wildlife hazards, partly due to expanding urban environments and bird populations, but also due to the global growth of airport traffic. *Lee Pannett*, Director at the Scarecrow Group, reveals how bio-acoustic technology can successfully mitigate the issue.

EGULATIONS concerning airside bird control differ across the world in terms of what is mandatory and the extent to which practices are then governed by authorities. The International Civil Aviation Authority (ICAO), for example, has published a set of Standards and Recommended Practices (SARPs) and although not binding, the SARPs recommend that member countries establish a national procedure for aircraft and airport personnel to record birdstrikes. Understanding the importance and the implications

of birdstrikes and wildlife hazards remains a major challenge for all airports no matter their size, for ground staff, operations teams and management.

## Minimising risk of incidents

To minimise the risk of wildlife-related incidents at airports, operators should be aware of the conditions attracting birds and other animals at their airports. Active wildlife management and bird control can be successfully implemented with dedicated tactics. However, due to the highly adaptable nature of most





wildlife species, the risk can never be eliminated, meaning airport personnel need to be carefully trained and well-equipped to manage the ongoing cycle of risk assessment and elimination.

Most birds and wildlife are attracted to the airport environment because the area has something they want. This might be food, water or shelter – for birds, food from the abundance of insects in the grass and terminal building waste; water either in the form of balancing ponds or fresh water puddles on the runway or surrounding areas; security as large predators are actively removed from the site; and finally shelter in hangars or disused aircraft. Additionally, when an airport is undergoing expansion, building work will disturb the ground, bringing insects to the top which can attract additional species.

As wildlife-related incidents can happen in and around the aerodrome, ICAO recommends airports

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operate a zone of 'bird or wildlife attracting sites' (traditionally 13km), with particular attention to the approach and departure corridors as surrounding land use undoubtedly impacts airfield safety.

## **Global challenges of wildlife control**

Across the world we have seen airports facing all manner of local challenges. In one busy city centre international airport, residents from the nearby slums dumped their rubbish over the perimeter fence into the airfield as they knew operators would take the rubbish away. In more rural locations airports would typically look to work with local land owners and farmers where possible, as crop growth could serve to be a major attractant.

To identify the wildlife and birds that pose a threat to aviation safety, an ecological study of the airport and surrounding areas can be conducted, providing recommendations for mitigating wildlife attractants.

Airports need to have fully-trained bird control personnel in order to implement a comprehensive Wildlife Hazard Management Plan (WHMP); personnel who can log activity and analyse data to help establish daily/seasonal movement patterns and plan accordingly. It is easier to disperse birds arriving than once they have settled. On a global basis, considering what we have seen from airport visits, the collection of data and the way it is recorded varies incredibly between operators.

## Taking control of the problem through bio-acoustic technology

There are many options open to airports to tackle the issue of airside bird activity – and worldwide practices vary enormously. Acoustics is one such option, and in some locations the broadcast of 'loud noises/bangs' are utilised – typically these will have a short-term success when compared to the use of bio-acoustics, which is the application of science with nature.

For over 40 years, bio-acoustic technology has helped airports disperse and control bird populations. Broadcasting the distress calls of birds to deter them from airfields and surrounding areas has proven successful, and the technology can be effectively integrated with other control methods to reduce the risk of an incident.

Distress calls are the natural, biological sounds birds make to warn each other of danger, as it is only broadcast when a bird has been caught by a predator. Using distress calls means you are talking to the birds in their own language. For the



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birds hearing their species-specific sound, it provides a call to action because of predator activity. As in the real world, predators move, so providing the calls are not broadcast too frequently from the exact same spot (i.e. they are best to broadcast from a vehicle), then the use of bio-acoustics as a controlled dispersal method can have long-term success.

At Scarecrow we always advocate that trained, knowledgeable and well-equipped personnel should have a mix of options at their disposal – there is no one silver bullet solution that successfully tackles all species **J**  Different species of birds react to distress calls in different ways. For example, gulls will hear the call, fly to the source to try and identify the threat, but when unable to do so (they are looking for a predator) they become confused, perceive the area to be hostile, and fly away; whereas starlings disperse straight away.

Not all birds have a distress call. For this reason it is important that airports have a toolbox of methods to disperse birds, along with fully-trained operators who understand how different species will react to different methods and calls.

Jan Kadlec, Head of Airfield Operations at Vaclav Havel Airport Prague, regularly uses bio-acoustics along with falconry, dogs, rifles, pyrotechnics, lasers and lures, but easily places bio-acoustics as one of the airport's preferred methods.

In Christchurch, New Zealand, Ian Faulkner, Manager of Fire and Airfield Operations at Christchurch International Airport states that the Scarecrow system offers a wide range of bird calls that covers all their needs, so is the main dispersal method used there.

The WHMP includes the process of identifying the problem, the causes, the attractants, actions to take for tackling the birds, establishing control policies and then monitoring the standards. This is an ongoing cycle, so it is important that the bird control operators, through wildlife management courses, are fully aware of the different behaviours and environmental issues that can bring wildlife to an airfield and how to implement new processes to minimise their risk of birdstrike incidents.

Wildlife hazard management training courses should be attended regularly and can

vary widely in content depending on airport's needs. A wide-ranging training programme would typically be tailored to cater specifically for the airport by looking at the local habitat, understanding the airport ecosystems and any local and migratory patterns. For airports that are less advanced in their wildlife control procedures, species identification together with harassment techniques also prove effective.

Having a detailed WHMP sees airport operators aiming at the common goals of improved safety and limited disruption to operations due to birdstrike incidents.

We travel to many different locations across the world, visiting new potential markets and face the different types of issues, challenges and levels of expertise that airports may have in terms of wildlife/bird control. Where required, we may look to work closely with specialist companies, who are able to provide a more 'hands on' involvement on matters like ecology, bio-diversity and habitat, as well as meeting any wider training needs.

No matter what proactive steps an airport may take to mitigate wildlife presence through various environmental measures, it is inevitable that from time to time there will still be birds present at an airfield; as such there is always likely to be a need for airport operators to employ active wildlife control/dispersal. However, bio-acoustics are very effective and well established as a dispersal technique and Scarecrow works with consultants all over the world to assist airports with implementation of the most appropriate technique dependent on the circumstances confronted at the airport.

At Scarecrow we always advocate that trained, knowledgeable and well-equipped personnel should have a mix of options at their disposal – there is no one silver bullet solution that successfully tackles all species. However, using the nature-inspired, evolutionary method that birds have used for hundreds of years to keep themselves safe from predators, is an excellent starting point.