

ACRP Report 32

GA Airports and Wildlife Conflicts

ACRP 32, *A Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports* is an excellent FAA-funded report produced by the Transportation Research Board's Airport Cooperative Research Program.

All airports—GA and commercial—have a legal responsibility to provide a safe aircraft operating environment. ACRP Report 32 is a wildlife management guidebook for general aviation airport personnel designed to assist them in providing the safest environment possible in an efficient manner.

The guidebook discusses the different species that can be found at airports and specific information that will be helpful in identifying and controlling numbers, especially of the most hazardous species.

Also discussed are various wildlife attractants and best management practices airport operators can use to minimize wildlife activity at and around airports.

While we highly recommend you read the entire report at <http://www.trb.org/main/blurbs/163690.aspx>, Loomacres has summarized many of the main points for your convenience.

General aviation (GA) airports are usually “resource constrained,” a fancy way to say they have limited money, equipment and

staff. Many GA airports are manned by only one or two people whose duties range from managing the airport to moving snow and mowing grass.

While these folks are generally very well aware of wildlife using the airport, they seldom have the background and training to properly manage wildlife hazards. Plinking at rabbits and gophers with a .22 might be fun, but does not constitute a wildlife hazard management program. This is where ACRP 32 and Loomacres can help.

Wildlife Strike Risks

Experts within the U.S. civil and military aviation communities recognize the threat to aviation safety (as well as the resulting economic repercussions) from collisions between aircraft and wildlife. These hazards are increasing for several reasons, the most obvious of which is the growing number of in-service aircraft, both commercial and private.

Also, many populations of wildlife species commonly involved in strikes have increased markedly in the last few decades, creating more possibilities for strikes.

General aviation airports range in size from small, privately owned, single turf runways to large metropolitan airports with several runways and thousands of operations each year. Nearly all GA airports face similar problems: a lack of money and the inability to access much of the federal money larger Part 139 certificated airports can obtain. Because of these budget constraints, many

GA airports do not have the equipment or personnel with the expertise to deal with wildlife hazards at and near their airports.

Many GA airport operators and administrators believe that wildlife occurring at or near the airport is natural and that nothing can be done about it. Their feeling is that if an accident occurs as the result of a wildlife strike, it is an act of nature.

However, disregarding wildlife hazards, regardless of the budget or the airport operator’s viewpoint, may result in expensive legal action against the airport operator and the airport sponsor or owner if a strike occurs. Several wildlife aircraft strikes at U.S. airports have resulted in legal action. Win or lose, litigation is always expensive. The best defense is a good offense, and that means an effective wildlife hazard management plan.

Most Hazardous Species

To prioritize expenditures of their limited resources, GA airport managers should be aware which wildlife species pose the greatest hazard to GA aircraft. The top 25 groups or guilds that pose the greatest hazard to GA aircraft were grouped according to multiple ranking factors, ranging from the percentage of damaging strikes to the secondary cost for each incident. These species are shown below in table 4.1 from the document. However, your airport might be different. Don’t hesitate to get professional advice. The European starlings flying across your airport

twice a day on to way to and from a local feedlot might be far more hazardous and difficult to deal with than a couple of red-tailed hawks hunting for rodents now and then.

Table 4.1. Relative hazard ranking for wildlife species involved in 10 or more strikes with GA aircraft, January 1, 1990, to October 31, 2008, in the United States. The wildlife species are ranked on the relative “severity of outcome” if involved in a strike. Deer, the species having the greatest potential to cause aircraft damage, are ranked highest (100), and all other species are ranked relative to deer. Raptors are about half as hazardous as deer, and bats are 86% less hazardous than deer.

Species or Species Group	Sum of All Rankings	Relative Hazard Rankings
Deer	18	100
Gulls/Terns	19	95
Geese	26	69
Ducks	32	56
Raptors	37	49
Vultures	41	44
Doves	48	38
Canines	50	36
Hérons/Egrets/Cranes	52	35
Blackbirds/Starlings	55	33
Pelicans/Cormorants	67	27
Owls	71	25
Crows	78	23
Gallinaceous	82	22
Shorebirds	83	22
Thrushes	83	22
Laysan Albatross	94	19
Sparrow-like	100	18
Foxes/Raccoons	102	18
Meadowlarks	104	17
Swallows	110	16
Perching birds	114	16
Rodents/Lagomorphs	117	15
Bats	127	14

Recognizing Wildlife Attractants

Land use practices and habitat are the key factors determining the wildlife species and the size of wildlife populations attracted to airport environments. The recognition and control of these land use practices and habitats at or near airports are fundamental to effective wildlife hazard management plans.

For all airports, a minimum separation distance of 5 statute miles is recommended between the farthest edge of the airport's AOA and a known hazardous wildlife attractant if the attractant could cause movement of hazardous wildlife into or across the approach or departure airspace.

That's a tall order, considering these offsite attractants can include landfills, composting facilities, trash transfer stations, recycling centers, construction and demolition debris facilities, water management facilities, wetlands and marshes, agriculture areas, golf courses, sport or commercial fishing, and even shellfish production and harvesting. This is where expert advice such as that offered by Loomacres is invaluable.

Regardless of the source of the attraction, when hazardous wildlife is noted on a public-use airport, airport operators must take prompt remedial action to protect aviation safety.

For more information on nearby land use practices that could be a potential attractant for wildlife, please read the full document at <http://www.trb.org/main/blurbs/163690.aspx>

Wildlife Control Strategies and Techniques

Wildlife is attracted to airports because the airport offers something the wildlife wants or needs. Most often the attractants are food, water or shelter. Therefore, controlling wildlife problems at or near an airport requires taking measures to deny

wildlife easy access to the attractants. Occasionally it may be necessary to reduce or eliminate specific wildlife species or populations to protect aircraft safety.

Airport managers can use five basic strategies to manage hazardous wildlife at or near the airport:

- **Habitat modification:** Elimination or reduction of food, water or shelter attractive to wildlife at or near the airport. This the best long-term solution, greatly reducing the need for using the techniques mentioned below.
- **Repelling techniques:** Use of various audio, visual, or chemical repellents to harass and repel problem wildlife. This is not always as difficult as it sounds; sometimes it is as simple as driving near the offending wildlife and honking the horn. Then again, sometimes we have to pull out the pyrotechnics, and if that doesn't work, we move on to other means.
- **Exclusion:** Use of physical barriers to stop wildlife from gaining access to food, water, or shelter at or near the airport. Physical barriers can work excellently, such as in many cases where wire or netting is stretched across a pond. However, whatever keeps out wildlife might also interfere with other management, such as burning off slough grass or spraying weeds; Think ahead.
- **Notice to Airmen (NOTAM) of potential wildlife hazards:** This can include delaying or advancing takeoff and landing times, and

even a temporary closure of an active runway.

- **Population management:** Reduction or elimination of wildlife populations posing a hazard to aircraft at or near the airport by either capturing (live capture and relocation) or killing the problem animals. This is a last resort, but sometimes the only solution. Be sure all permits are in place and safety standards are adopted before anyone pulls a trigger.

Airport managers need to implement adaptive control strategies to address the ever-changing threat and risk levels. In other words, a manager needs a toolbox with many different tools. Moreover, he or she needs to know which tools to use and when, and if a wrench no longer suffices, it might be time to use a hammer.

No standard protocol or set of procedures is suitable for all situations; repelling wildlife is an art as much as a science. To be successful, managers must employ motivated, trained, and properly equipped personnel who understand the wildlife situation at their airport. Each wildlife species is unique and will often respond differently to various repellent techniques.

Wildlife Control Programs

GA airports are not subject to 14 CFR 139 as are commercial airports. However, no matter the size of a GA airport—small or large—it is important to follow the recommended best management practices when dealing with wildlife problems; Part

139 is the nationally and internationally recognized standard.

Not every GA airport will be able to meet the FAA's Wildlife Hazard Assessment (WHA) and Wildlife Hazard Management Plan (WHMP) standards when trying to correct airport wildlife problems, nor should every airport have to meet these standards. The extent to which GA airports should try to meet the standards will depend on several factors, including but not necessarily limited to the size and aeronautical activity at the airport, the severity of the problem, strike history, and the resources available—money, personnel, and time—to commit to correcting the problem.

The first step in developing an airport Wildlife Hazard Management Plan (WHMP) at a commercial airport is to conduct a year-long Wildlife Hazard Assessment. However, due to the number of GA airports and their varying needs, a Wildlife Hazard Site Visit (WHSV) is often used in place of a WHA. The WHSV is essentially a shorter version of a WHA, and is still conducted by a qualified airport wildlife biologist. It provides the scientific basis for the development, implementation, and refinement of a WHMP. Although parts of the WHSV Report may be incorporated directly into the WHMP, they are two separate documents.

Complex situations at large airports may require a 12-month Wildlife Hazard Assessment (WHA) to determine and proper document the seasonal patterns of

birds and other wildlife using the airport and surrounding area. In less-complex situations, a few days may suffice to identify the majority of problems and to suggest possible solutions in a WHSV Report.

There are many advantages to developing a WHMP. In particular, it allows the airport manager to develop and set priorities and benchmarks, plan budgetary needs, and justify requests for additional funding. This all helps reduce wildlife hazards to humans and aircraft, our primary goal.

However, having a WHMP in place also helps defend against legal action should a damaging strike occur. Aircraft owners and insurance companies make take legal action against airport managers and regulators to recover the costs of wildlife strike damage. A well-developed, implemented and documented plan shows positive actions are being taken to correct hazardous situations. This includes recording all wildlife control actions taken by airport personnel to help show satisfactory wildlife control program was in place and the program was functioning properly.

Necessary Elements of a Wildlife Hazard Management Plan

The WHMP must accomplish the following:

- Identify personnel responsible for implementing each phase of the plan;
- Identify and provide information on attractants for hazardous wildlife at or near the airport;
- Identify appropriate wildlife management techniques to minimize the wildlife hazard;
- Prioritize appropriate management measures;
- Recommend necessary equipment and supplies;
- Identify training requirements for the airport personnel who will implement the WHMP;
- Identify when and how the plan will be reviewed and updated.

Data gathered as part of a wildlife control program is important in assessing the effectiveness of control actions taken. In particular, report all strikes whether or not they cause damage to the aircraft and regardless of the wildlife species involved. Make every effort possible to identify the species struck. Unless the species are known, management efforts cannot be directed correctly.

Do not penalize airport or aircraft operators for reporting wildlife strikes. Even though strikes from small species such as swallows or sparrow-sized birds are unlikely to cause damage, encourage airport personnel or aircraft owners to report the strikes.

Evaluating Wildlife Hazard Management Programs

Wildlife populations at or near airports are constantly changing in response to changes in land use, state and federal management policies, and environmental factors. In addition, wildlife may adapt or habituate to control strategies that were once effective, or develop new behavioral or feeding patterns at or near the airport.

New wildlife control technologies may become available, or established products or techniques may be withdrawn or banned. Finally, there could be changes in wildlife control and management personnel at an airport. Once a WHMP is in place, develop a process to evaluate the program at least annually.

Maintain a daily log of wildlife activity and management actions. Important factors to record include:

- Date, time, and location at airport where wildlife is observed,
- Species of wildlife and approximate numbers, and
- Control actions taken and response of wildlife.

Please note by definition a wildlife strike has occurred and should be reported when:

1. A pilot reports striking one or more birds or other wildlife;

2. Aircraft maintenance personnel identify aircraft damage as having been caused by a wildlife strike;

3. Personnel on the ground report seeing an aircraft strike one or more birds or other wildlife;

4. The animal's presence at the airport had a significant negative effect on a flight (such as aborted takeoff or landing, high-speed emergency stop, or aircraft leaving pavement area to avoid collision with the animal); or

5. Bird or other wildlife remains are found within 250 feet of the centerline of a runway or 1000 feet from the end of a runway, unless another reason for the animal's death is identified.

In addition to maintaining a daily log of wildlife control activities and wildlife strikes, it is important to keep records of other preventative management actions that may not be part of the daily routine of wildlife control. Examples of such actions could be installing or repairing fencing, thinning trees, clearing construction debris, applying pesticides or repellents, conducting grass height management, installing netting in hangars or wires over ponds, and regrading pavement or grass areas to eliminate standing water.

The airport should maintain and annually summarize a record of all training that wildlife control personnel have received. Include attendance at conferences, courses, and workshops (i.e., firearms safety), self-

study courses. and specialized on-the-job training.

Wildlife hazard management programs should be reviewed at least annually or following an event that would normally trigger a WHA. The review should include the program's effectiveness in dealing with known wildlife hazards at and in the vicinity of the airport, and a reevaluation of the wildlife hazards described in the WHA or WHSV Report.

These periodic evaluations of an airport's WHMP and the activities undertaken to implement the plan are critical because of the dynamic nature of wildlife hazards and control technologies.

Wildlife Hazard Management Training for General Aviation Airport Personnel

GA airport managers or administrators must ensure that wildlife control personnel (WCP) have the necessary knowledge, skills, and abilities to successfully carry out the work of controlling hazardous wildlife. When a program is in place and training has been provided to WCP, periodic oversight and review of the program by a professional biologist trained in wildlife damage control is necessary.

Aspects to include are bird and mammal ID, basic life histories and behavior of common species, wildlife and environmental laws and regulations, recordkeeping and strike reporting, and wildlife control techniques, including the use of firearms, pyrotechnics,

pesticide application, distress calls, propane cannons and other techniques.

Government Agencies and Regulations

Wildlife management is a complex mixture of science, experience and art, regulated and implemented by various federal, state, and local governmental agencies.

Overlapping regulations enforced by the various governmental organizations protect wildlife and associated wildlife habitat.

Federal Agencies:

U.S. Department of Transportation, Federal Aviation Administration

The mission of the FAA is to provide a safe, secure, and efficient global aviation system that contributes to national security and the promotion of U.S. aviation. Among its other responsibilities, the FAA is responsible for enforcement of 14 CFR 139, Certification of Airports. The FAA issues Advisory Circulars to systematically inform the aviation public of non-regulatory material of interest.

In general, airports that have received federal grants-in-aid assistance must use the standards presented in an AC. Advisory Circulars are revised on an irregular schedule. Copies of the most current 150/5200 series ACs are available online at: www.faa.gov/arp/.

U.S. Department of Agriculture/Wildlife Services

The U.S. Department of Agriculture/Wildlife Services provides federal leadership in

managing problems caused by wildlife. USDA/WS can help manage wildlife to reduce damage to agriculture, natural resources, and property. They can also minimize potential threats to human health and safety, and assist in the protection of threatened and endangered species.

Private companies such as Loomacres can also offer these same management services.

U.S. Army Corps of Engineers

GA airports may need to contact the U.S. COE when planning projects such as runway expansion or drainage of wetlands to reduce wildlife habitat. Some of these projects requiring permits may also require mitigation of impacted resources.

U.S. Environmental Protection Agency

The mission of the U.S. EPA is to safeguard the nation's environment. EPA functions include setting and enforcing environmental standards and regulations related to air and water pollution, hazardous wastes, and pesticides and toxic substances. One federal act administered by the EPA and of specific interest to GA airports faced with hazardous wildlife problems is FIFRA, the Federal Insecticide, Fungicide and Rodenticide Act. Pesticides, including herbicides, must be registered with the EPA. Anyone wishing to use restricted-use pesticides or apply pesticides on GA airports must be a certified applicator or work under the direct supervision of a certified applicator.

U.S. Department of Interior, U.S. Fish and Wildlife Service (USFWS)

The mission of the USFWS is to conserve, protect, and enhance the nation's fish and wildlife and their habitats for the continuing benefit of all people. The US FWS is responsible for the conservation and enhancement of migratory birds, threatened and endangered species, certain marine mammals, anadromous fishes, and wetlands.

In general, a federal depredation permit issued by the U.S. FWS must be obtained before any migratory birds may be taken outside of the normal hunting season or beyond established bag limits or methods.

State Agencies

These agencies establish the take and possession regulations for all state-protected species. States set migratory game-bird hunting seasons and bag limits within guidelines established by the USFWS.

Persons needing to take state-protected species outside of the legal hunting season or beyond the established bag limits to promote airport safety must first secure a state depredation permit.

Airport Personnel

The logical place to start addressing wildlife strike hazards is at the airport. Everyone—airport operators, fixed base operators (FBOs), air traffic control personnel, and pilots—working at or using an airport must do his or her part to reduce the problem.

Without the full cooperation of all parties,
the problem cannot be solved.

Again, for more information about Wildlife
Control at GA airports, please read the full
document at

[http://www.trb.org/main/blurbs/163690.as
px](http://www.trb.org/main/blurbs/163690.aspx)

Airport managers can also contact
Loomacres for help on any of these issues
at:

<http://www.airportwildlife.com/index.php>