



## Controlling The Deer-Strike Hazard

*“The stag passes his whole life in the alternatives of plenitude and want, of corpulence and leanness, of health and sickness. He remains stately and unmolested. Once and again he is hunted down — or subject to the perils of man.” — George Buffon , 1794*

by

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Certain wilderness-type wildlife are intolerant of human activities that accompany an airport and the hubbub created by its air and ground operations. An exception is the deer. Deer are a special breed of wildlife especially attracted to the airport environment.

This wild animal creates a unique hazard to safety at airports located in “deer country.” A word of caution to pilots who fly to airports located near wooded real estate — during certain seasons of the year, the danger of a deer strike is more prevalent than one might think.

Once deer establish their home range and settle into an area, including airport land, they are very reluctant to leave. Good feeding grounds assure permanent deer residency. For these and other reasons, the proliferating deer population has become a unique threat to the safety of certain airports.

### Runway Threshold Threat

Following are some of the reasons and behavior traits that extend this threat to the runway threshold:

- Deer seem to become better accustomed to people than any other big game animal. Activity around an airport is not always sufficient to turn them away. Deer are seldom bold and obvious. They are wary and rarely seen.

Simply because they cannot be seen is no reason to assume they are not near critical airport operations areas. Deer are masters in the use of camouflage. Often, they will lie down in grassy areas and blend with the natural scenery.

- Deer seem to sense winter storms 24 hours in advance, at which times they will seek the best shelter from snow and establish a “deer yard” — sometimes in wooded groves not far from the airport proper.

One of their greatest urges during the inclement winter months is to escape the bitter cold. As a consequence, they often wander onto heat-soaked runways and taxi areas at the close of a wintry day to take advantage of the reflected residual heat.

They have been found in empty hangars when the doors have been left ajar. Be wary of such cold periods, particularly when it is a bright day, and the runways are well plowed or void of snow cover.

- Deer have several behavioral drives. The greatest of these is food. When they are extremely hungry, deer have less fear of man’s presence in their quest for feeding area. The sounds of axes and power saws have been known to alert deer to where food is likely to be available.

Starving deer have been known to browse on aspen tree tops when only a few yards from woodmen cutting trees for local pulp mills. Experience has taught older deer that the activity of felling trees is a new source of food supply. Even ground equipment and engine noises have attracted deer before the trees were actually cut.

- Deer can eat some 600 species of plants. But, like humans, they prefer some foods over others. In the order of preference, they appear to like (1) the sprout growth of trees and shrubs, (2) seedlings of trees and shrubs and (3) weeds and grasses.

North country deer are partial to (1) white cedar, (2) yew, (3) ground hemlock and (4) aspen.

Deer sometimes overbrowse on some foods simply because they taste good, to the exclusion of more nourishing foods that are less palatable. By knowing these food preferences and the deer's feeding habits, airport managers and their advisory biologists can roughly gauge their real estate in terms of **deer food attractivity**. This knowledge also is helpful in deer behavior manipulation.

Some wildlife experts have advised the placing of "salt licks" in out-of-the-way places to lure deer away from the more critical airport areas. Consulting with wildlife experts should provide more precise advice based upon specific local situations.

- Deer, in most areas of the world, have no serious wild enemies, primarily because the larger wild predators capable of killing adult deer have been greatly reduced or wiped out. Barring man, wild or large, free-running dogs can be the deer's greatest enemy.

Some airport managers have used dogs during controlled hunting activities. As with controlled shooting, using dogs to rid deer from the airport results in only short-lived success, if any.

- Deer react primarily to three stimulants — being startled, hunger and sex, in that order. Deer are prodigious athletes in jumping and running. Biologists have observed young buck deer leap distances of some 100 feet while being chased by hounds going down a steep slope.

From a standing start, most fully grown deer can clear a standard eight-foot fence. From a running start, some deer have negotiated a 14-foot fence.

At a full gallop, a strong buck can accelerate to 40 miles per hour and hold that speed for a mile or two.

When pressed, deer have cruised at a speed of 30 miles per hour for as long as two hours.

Conversely, when they are not pressed hard, they would rather crawl under an obstacle rather than jump over it. Hungry deer have been observed crawling on snow under a barbed wire strand only 18 inches above ground to reach a food patch.

- During hours of darkness, bright lights focused directly on a deer may cause it to "freeze." When blinded by illumination such as that from an aircraft's landing lights, a wandering deer may remain motionless when caught on an active runway in the path of an approaching airplane.

## Comparing Car/Deer Accident Experiences

Perhaps something can be learned from car/deer collision experience. In Pennsylvania, for example, during a one-year period, 10,000 deer were killed on the highways. Many other states in the United States have reported similar statistics. A majority of these accidents occurred at night, and many were attributed to deer "freezing" before the impending collision.

Salt blocks placed back from the road have reduced this type of accident greatly in certain areas where deer trails cross or run adjacent to the highways. This same practice could be applied to certain airport runway areas.

- Deer become most mobile during the rutting season while answering nature's call to mate. The rut is triggered by the waning light of the fall season and, depending upon where an airport is located, the rutting season may start as early as mid-September and end as late as mid-February in the northern hemisphere. Some deer in the southern United States breed even later.

Most deer strikes occur during the fall season but can happen at any time if an airport is located on or near wooded real estate.

- When bucks are seeking mates, several may follow a single doe closely in trail formation. A deer sighted during the rutting season may be indicative of several others nearby. Aircraft have waited until a deer was clear of the active runway before takeoff only to experience another deer in the way when the takeoff was commenced.

## Few Statistics Exist

Like other animal and bird incidents occurring on or near an airport, deer-strike incidents and accidents are difficult to

access, primarily because airport operators and pilots are not prone to report such occurrences and near misses. A conservative estimate made several years ago placed the total at about 200 deer-strike "near hits" annually in the United States alone. About one-fourth of these resulted in some physical contact between hard-metal aircraft and the solid bones or antlers of deer.

## Analyzing Incident Reports

Following are isolated incident data gathered recently:

- In one year at Dulles International Airport, serving Washington, D.C., U.S., there were five deer-strike accidents during the fall and winter months. These ranged from deer bolting into a taxiing single-engine aircraft to a B-707 strike during the takeoff run. The single-engine aircraft owner brought a lawsuit against the U.S. Federal Aviation Administration (FAA), which operates Dulles, for damages.
- A twin-engine aircraft used to transport a U.S. senator to his home state struck a deer while landing. The senator was not injured, but the aircraft was substantially damaged. A few months later, the same senator experienced a "near miss" between a deer and the aircraft on which he was a passenger.
- An airport operator decided to rid his airport of deer by letting hunters in to shoot them. The ensuing melee caused as much trauma as the deer, with hunters shooting in all directions and running across active runways in pursuit of their prey. The herd was reduced slightly at the peril of the hunters shooting one another, other persons or equipment.

Within a few days, the herd was observed returning by jump-ing the airport perimeter fence or by simply walking in from the main roadway and proceeding to feed on the lush grass there to the consternation of a distraught fixed-base operator. The safety-hazard lesson learned was that "good feeding grounds assure lifetime deer residency."

## Dulles Experience

A useful example of permanent deer residency is Dulles International. Dulles is surrounded by a perimeter fence, which extends for approximately 32 miles.

Wildlife experts estimate that the deer herd inside the fence, which encloses 10,000 acres, numbers 300 head. An effort is made each year to thin the herd by strictly controlled hunting. The control method harvests a crop of approximately 60 deer, but there is little evidence that the herd is substantially smaller from one hunting season to the next.

## Understanding the Lifespan of a Deer

The lifespan of a deer can extend to about 20 years. During that period, a doe can produce more than 50 descendents, if breeding and feeding conditions are right. If deer are ensconced on airport property and left to their own devices, they can multiply at a rapid rate.

Nature has its own answer to this dilemma, however. The greatest enemy to the deer is not a preying animal or even hunters. It is the stark possibility of starvation because of their own over population.

## Tips for Controlling Deer

Similar to the solutions of the bird-strike hazard, the principle involved in deer control is to deny them a convenient feedbag. Conversely, other areas adjacent to the airport's more critical zones can be made more palatable and alluring to the deer's taste buds. Local deer experts can provide the best advice on this type of deer management.

Various approaches have been taken to repel deer from orchards, gardens and tree nurseries. In past decades, woodlore experts have used bearskins, mothballs and even dried blood. These were placed on perimeter fences, but the deer continued to be a problem after the initial odors wore off.

More recently, airports have tried many types of animal repellents with little success. Most failed because, to a really hungry deer, there is no such thing as a fully effective repellent. Advancements in repellent technology are continuing, however, particularly in the use of polymer mixtures.

When a pungent repellent is mixed with certain polymers, its effective life may be extended by up to six months. Field testing continues using mechanical and even aerial sprays, and, thus far, there has been no wide agreement on a fully effective polymer-mixture type repellent.

Chemicals can be sprayed on plants and trees where deer are known to feed, but one of the problems to overcome is making such a repellent resistant to washing away in the rain. When that problem is solved, such repellents should have long-range effectiveness.

As a last resort, some airports have fenced in critical areas with special "hot-wire" electrical fences. This is not a 100 percent solution, but it has been found to be 90 to 95 percent effective in many cases. These fences use low-impedance-type energizers. They give out high voltage and high wattage to provide strong electrical shocks at the slightest touch.

Deer are prone to first inspect a fence by sniffing with its nose. A first shock usually is effective in repelling the deer. Such a trauma also discourages deer from jumping or crawling under the fence. These type fences have excluded the majority of

deer and are considered a cost-effective method of controlling their movement.

### **Gaining Expert Assistance for the Problem**

In summary, the deer-strike problem is a real one, which affects the safety level of airports located in wooded areas.

Government regulatory agencies recognize that airport managements must face it to prevent recurrences of accidents that have happened in the past.

In short, it is difficult — but not impossible — to keep deer off airport real estate. Local wildlife experts can provide invaluable assistance to airport managements, as can government agencies familiar with the problem. Tactical and strategic action can be taken to greatly diminish the hazard. ♦

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