

**THE USE OF BORDER COLLIES  
IN AVIAN AND WILDLIFE CONTROL PROGRAMS**

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**Abstract**

Airports attract large numbers of birds and deer primarily because they offer immense tracts of foraging and nesting habitats free from the threat of predation. Border Collies can serve as an effective means of wildlife control in these environments by introducing a predator into the ecosystem. Many wildlife dispersal methods seek to imitate predators or the effect of predators and become increasingly ineffective as the birds or deer habituate to the stimuli. Border Collies however, are true predators, representing an actual, not perceived, threat to wildlife thereby eliminating the problems of habituation. Since Border Collies are under the direct control of a handler, they disperse wildlife only in prescribed areas and at the direction of the handler. Border Collies can be stopped at any point in time, by either recalling the dog to the handler or lying the dog down. Border Collies, being top predators, elicit flight reactions from almost all forms of wildlife and birds. Border Collies have been bred to run a hundred miles a day and will work for hours on end. Not only can they deter the largest of birds, particularly Canada geese, but are also highly effective against wildlife like deer and rabbits. Border Collies are also bred not to harm wildlife, including birds, so they can be employed in dispersing protected or endangered species of birds or mammals. A single Border Collie and handler can easily maintain an area of approximately 2 square miles free of larger birds and wildlife.

In February 1999, Southwest Florida International Airport became the first commercial airport in the world to employ Border Collies in an airfield wildlife control program. Since then, several other airports and airbases have instituted similar programs at their facilities – including Vancouver International Airport, Cold Lake Air Force Base, and Dover Air Force Base – and have met with similar success. At Southwest Florida International Airport, strike data for the months of January 1998 through September 1998 showed 13 confirmed birdstrikes. After employment of a Border Collie the following

year, strike data for the same months (January 1999 through September 1999) showed 0 birdstrikes.

**Key Words:** Control Methods, Predators, Border Collie, Harassment, Wildlife Control, Deer, Birds, Airports, Air Force bases

## Introduction

In February 1999, Southwest Florida International Airport (RSW) became the first commercial airport in the world to employ a Border Collie in its airfield wildlife management program. Since then, several other airports and military airbases (including Vancouver International Airport, Dover Air Force Base, Augusta Regional Airport, and Cold Lake Air Force Base) have initiated programs utilizing Border Collies in their avian and wildlife harassment campaigns. The results of a two-year study conducted at RSW suggest that the use of Border Collies in the airport environment can serve to greatly reduce the strike risk to airplanes by eliminating the presence of some avian species and markedly reducing the overall numbers of other species. Preliminary data from bird counts conducted at Dover Air Force Base after the introduction of a single Border Collie into their wildlife management program show the virtual complete exclusion of larger bird species (primarily geese and ducks) within the airfield environment and up to an additional 4 km radius outside the perimeter fence in only a four-week period.

Border Collies avoid the primary limitation of almost all other forms of harassment – habituation. Border Collies are effective because they are true predators, representing an actual, not perceived, threat to wildlife. Birds and wildlife do not habituate to Border Collies since the dogs are essentially top predators and are continually moving and changing behavior. Border Collies are now the fastest-growing and most popular form of bird control on golf courses and other venues across North America. The reasons for this are numerous but the primary rationale is that they are highly intelligent, adaptable and intense working dogs that are able to cope with most species of bird and larger wildlife in all but the worst of environments and circumstances. Airport and military officials are discovering the true advantages of putting a herding dog to the task of harassing geese and a wide variety of other species, with a small investment of finances and initial handler training.

## BCR's Birdstrike Control Program

Border Collie Rescue (BCR) is a national humane organization that assists in the rescue and placement of Border Collies in the United States and throughout the world. BCR is a fully registered US federal non-profit organization dedicated to the promotion of responsible Border Collie ownership and public educational endeavors. The primary focus of BCR's Birdstrike Control Program is to improve air safety for commercial and military aviation operations by employing specially trained Border Collies in wildlife harassment programs.

BCR is the only organization in the world currently training dogs for wildlife control at airports and military bases. BCR trained and placed the first dog in the United States to ever be employed by a commercial airport for bird strike control (at RSW), as well as the first (and only) dogs to be used by the U.S. Air Force, the Canadian Air Force, and Canadian commercial airports. BCR was also the first in the world to introduce a trained dog for bird control in the aquaculture industry.

By working with Border Collie Rescue, airports not only dramatically attenuate their bird strike hazards but also, in effect support a good cause (by contracting with a non-profit humane organization), which obviously reflects well on their public image - something critical to most large-scale commercial and military aviation operations. A program of this type gives these dogs a second chance and a job to perform, something they inherently need. Often BCR's most difficult dogs are the ones best suited for this type of work.

BCR provides three different services for airports and military airfields looking to utilize dogs in their wildlife control programs:

- 1) Custom-trained dogs - For commercial airports that have the required personnel in place to handle wildlife control and are looking to include a dog into their wildlife program, BCR offers custom-trained dogs, specifically prepared for that airfield. BCR's dogs are not simply trained for bird control work and then placed with the next facility that garners the requisite funds. Every airport environment is unique (from the wildlife that are to be harassed down to the vehicle that transports the dog) and each dog is precisely qualified for the specific airport environment after months of specialized training. Dogs are put through an initial five to six-month training regimen and then an individual dog is selected from the group and trained in the requisite tasks of the airfield for an additional five to six-month period.
- 2) Complete wildlife control packages - For military airfields or other interested airports that either do not have the required personnel in place to handle a dog or have a high turnover rate of personnel (due to military reassignment, for example), BCR offers complete wildlife control packages

- including wildlife control personnel, trained dogs, vehicles, and variable secondary control equipment. With the complete package, the dog(s) remain the responsibility of BCR and BCR staff members are charged with the overall harassment duties of wildlife control at the airfield. BCR wildlife control personnel house and handle the dog(s) as well as collect bird population data, monitor perimeter fencing, trap wildlife as needed, and coordinate airfield habitat management. Additionally, BCR wildlife control personnel recommend, develop and implement new control methods and procedures in conjunction with base command and other wildlife control/safety units.

- 3) Consulting and training services - For those airfields that already have a Border Collie provided by BCR or are simply interested in learning more about wildlife control at their airfield, BCR offers expert training and consulting services in Border Collie handling and overall wildlife control. BCR personnel are trained not only in handling dogs but are also wildlife management experts with the skills, education, and experience necessary to help formulate new wildlife control programs or upgrade existing ones. Consultation and training are achieved either by phone, or more often, on-site with direct interaction with airfield personnel.

## **Program Results**

### **Southwest Florida International Airport (RSW)**

In June 1997, RSW contracted with the United States Department of Agriculture (USDA) to conduct a baseline 11-month ecological study of the airport environment and its wildlife. The USDA study recorded 113 wildlife species within and just outside the aircraft operations area (AOA). The majority of observed wildlife species were birds - primarily wading birds, waterfowl, and crows/blackbirds. These three categories of birds accounted for more than 92% of all the wildlife observed. After the employment of a single Border Collie on Feb. 11, 1999, RSW commissioned a comparison study to measure the effect the dog had on wildlife populations. The airport contracted with Kevin L. Erwin Consulting Ecologist (KLECE) to survey the wildlife from February to September 15, 1999 and to analyze and compare the datasets.

In 1999, after the introduction and use of the Border Collie, wildlife monitoring showed a significant overall reduction in the number of species as well as the total number of birds in each category. The 1999 survey revealed a 29% reduction in the overall number of species in the top 4 categories of birds (wading birds, waterfowl, crows/blackbirds, and raptors). Additionally there was an overall reduction in the number of individual birds observed. The

abundance of wading birds in the 1999 survey was less than half that observed in 1997/98.

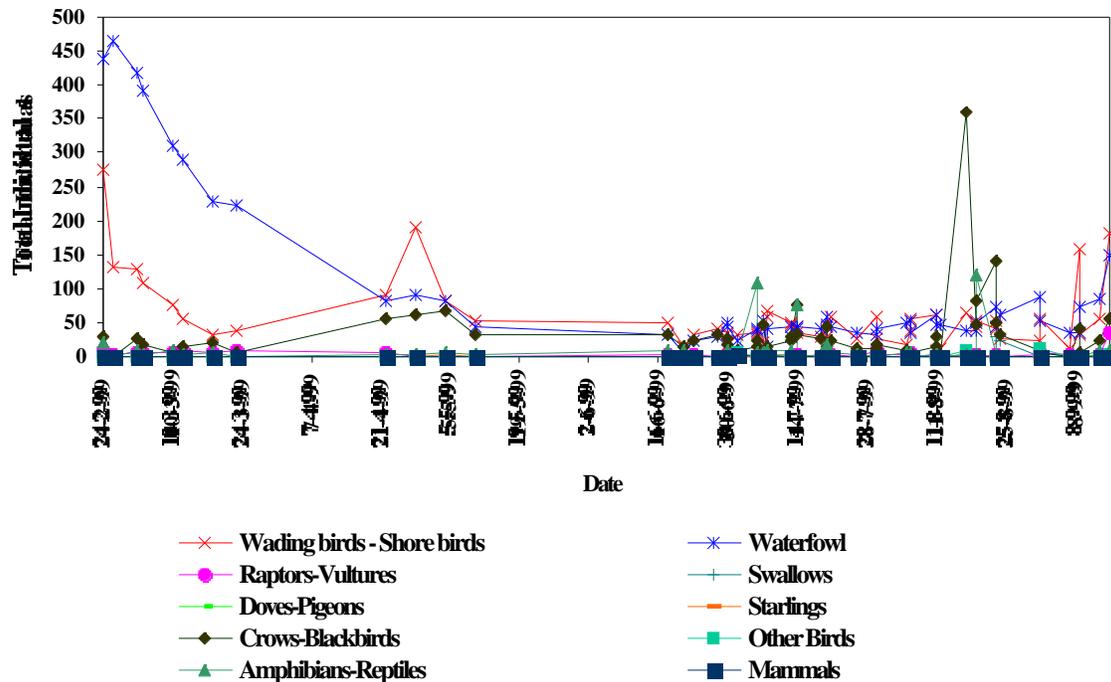


Figure 1: Bird count data for Southwest Florida International Airport after the employment of a single Border Collie on Feb. 11, 1999

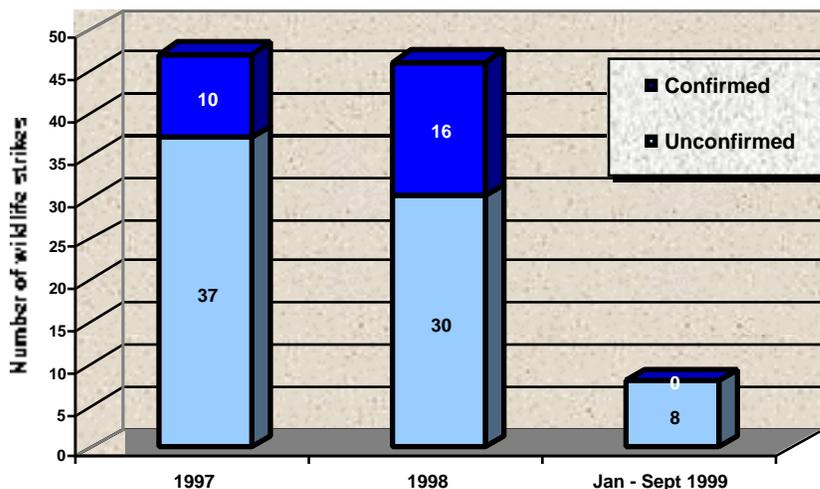
Bird counts reduced dramatically immediately after the employment of the Border Collie and remained low for the duration of the survey period, except for two periods of moderate increase in late April and August (Figure 1). The rise in blackbirds in August was primarily due to a single large flock of more than 300 individual birds that was observed on the AOA, influencing the August average. The increase in wading birds in April was most likely caused by the absence of the Border Collie. After only two months of work at RSW, bird numbers were so low that the dog resorted to herding alligators – one of the few remaining moving objects left on the AOA. The dog was returned to Border Collie Rescue for additional training in alligator avoidance and in his absence, bird numbers began to rise significantly.

Additionally the Border Collie had a dramatic effect on the behavior of birds on the AOA. Almost all of the birds that remained on the AOA after the introduction of the Border Collie congregated in a large drainage ditch several hundred yards south of the runway. Due to the presence of several alligators in the habitat, the dog was not allowed to harass wildlife within the drainage swale. As a result, a small number of waterfowl and wading birds that were

flushed by the dog in open areas of the AOA sought refuge in the deep water habitat of the swale. Before February 1999, large aggregates of birds would forage and loaf in the open grassy areas around the runway. After the Border Collie began its work, most birds responded by vacating the AOA altogether but the few individuals that remained relocated to the protection of the wide drainage swale, several hundred yards further from the runway.

The Border Collie also prevented pairs of Florida sandhill cranes from nesting or roosting on the AOA. Prior to the dogs arrival, at least two pairs of sandhill cranes were observed nesting within the AOA each year. The dog managed to successfully prevent any pairs from breeding within the AOA in both 1999 and 2000, even though the dog was introduced into the habitat in 1999 only weeks before the normal nesting period. Sandhill cranes pose the most significant threat to aircraft operations at RSW and the minimization of their time within the AOA (as well as the exclusion of any immature birds) represented an important accomplishment for the Border Collie and the management program.

Even more significant, the number of bird strikes to aircraft dropped to zero during the study period, after the introduction of the Border Collie. RSW recorded during the dog's work have resulted in damage or passenger delays. Unconfirmed strikes also dramatically fell, from 37 in 1997 and 30 in 1998, to 8 unconfirmed strikes from January to September 15, 1999.



*Figure 2: Comparison of bird strike data for RSW before and after the utilization of the Border Collie. The results achieved by RSW and its Border Collie are quite impressive.*

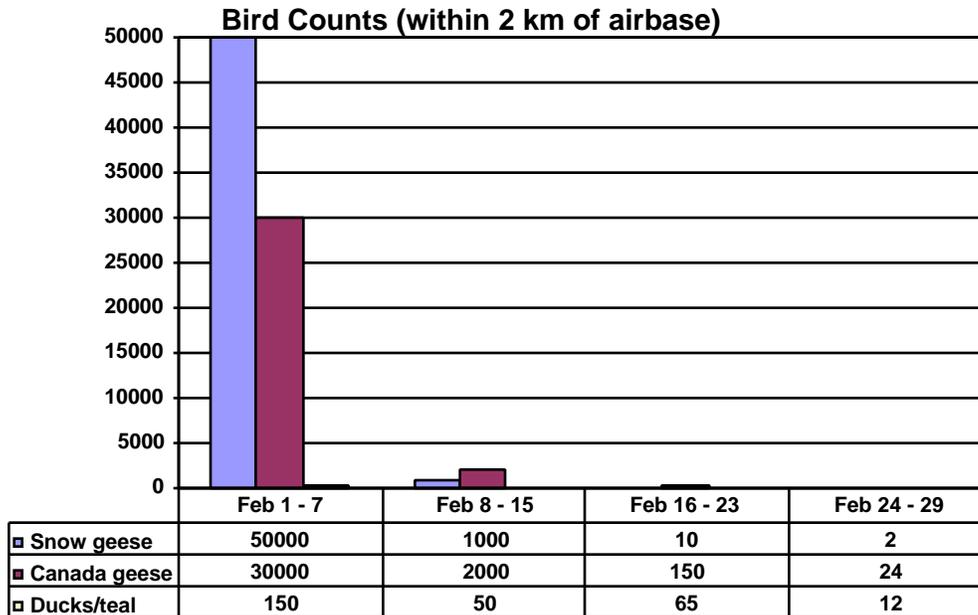
considering some of the limitations of the management program. The Border Collie is handled by airport operations agents and is only worked for two short periods during the day (once in the morning and once in the afternoon). Additionally, due to the presence of alligators, the dog is not allowed to work the large drainage swale south of the runway, where the majority of remaining birds congregate. Training of airport personnel has also been very limited and airport officials are looking to establish a training support program in the future with BCR staff.

### **Dover Air Force Base**

On February 1, 2000, BCR began a wildlife control contract with the Dover Air Force Base. The Dover AFB contract called for a complete wildlife control program package, focused around the use of Border Collies in wildlife harassment. Initial results from BCR's program at Dover AFB are tremendously encouraging, as a substantial percentage of large birds has been excluded from the airbase and the surrounding farmlands, an overall area encompassing roughly 46 km<sup>2</sup>. Total bird numbers were reduced by more than 150,000 birds in the short initial 4-week period of February 1-28, 2000.

Dover Air Force Base is situated between three large wildlife refuges and along the eastern US migratory flyway. The base is surrounded by farmland and is less than 2 miles from the Atlantic Ocean, providing the perfect habitat for large migratory birds. A squadron of large C-5 Galaxy cargo planes operates out of Dover AFB and even though the planes are larger and slower than most military aircraft, bird strikes have posed a significant problem for the base. In the last two years alone (1998-1999), collisions between birds and aircraft have caused more than \$1.2 million in damage to Dover's C-5 fleet. The primary threat are large flocks of Canada geese (*Branta canadensis*), snow geese (*Chen caerulescens*), as well as smaller aggregates of ducks, teal and seagulls. Prior to the contract with BCR, all attempts to eliminate birds from the surrounding environment have been unfruitful. Pyrotechnic usage was unproductive and an organized hunt of Canada geese resulted in a public relations nightmare for the airbase (as well as resulting in no overall change in bird presence).

Geese are the most critical concern for aircraft operations at Dover AFB and large flocks of the birds (100 – 20,000 individuals) congregate just outside of the base perimeter fence in the cultivated fields of neighboring farms. At the initiation of the Border Collie program, weekly bird counts totaled more than 50,000 snow geese and 30,000 Canada geese within 2 kilometers of the airbase (Figure 3). By the end of the second week, weekly bird counts for the



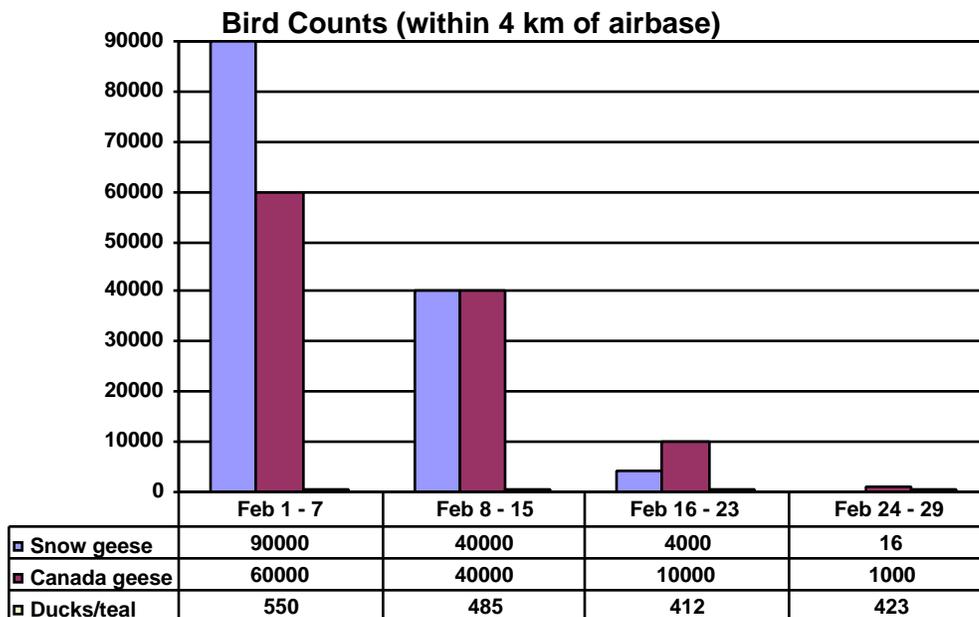
*Figure 3: Weekly bird counts for Dover AFB within 2 km of the base perimeter fence after the initiation on Feb. 1, 2000 of a wildlife control program utilizing harassment by a Border Collie.*

geese within the 2 kilometer radius dropped to a combined total (Canada geese and snow geese) of just over 20 individual birds. Overall counts within a 4 km radius dropped markedly but remained relatively high. The decrease in number could be directly attributed to the reduction in bird numbers within the 2 km radius. The area between 2 km and 4 km from the base however continued to exhibit large numbers of birds. At the end of the second week, harassment efforts with the Border Collie were extended to a 4 kilometer radius from the base (Figure 4). By the end of the month, the overall size of the area covered by the wildlife control program covered approximately 46 km<sup>2</sup> and total weekly bird counts totaled slightly more than 1,000 geese – a 99.1% reduction in bird numbers in a 28-day period. All of this was accomplished with one wildlife officer, a single Border Collie, and a vehicle.

Though mid-March begins the migratory season for the geese, there was a slight reduction in the overall numbers of geese in the area (approximately 25%), noted by counts of birds transitioning over the airbase in the early morning and late afternoon. This reduction cannot however account for the dramatic decrease in the overall number of birds in the area surrounding the base. Pilots have noted large numbers of birds congregating just outside the Border Collie-patrolled “zone” and field surveys have verified these observations. Large flocks of geese remain just at the periphery of the

patrolled area and the only limitation of the range of the dog has been the geographical restriction (most of the remaining area is within wildlife refuge boundaries) and time restrictions of patrolling such a large expanse of land.

As the migratory season begins and most of the larger birds migrate further north, focus for the wildlife control program will shift to controlling the small number of flocking birds located on the AOA. Prior to 2000, the main concern was centered on the non-migratory resident geese (and their offspring), as several thousand individual geese remained in the vicinity of the airfield. This year however, with the absence of a resident goose population surrounding the airbase, the only remaining birds are small flocks of starlings and seagulls and the wildlife control program can concentrate on excluding these smaller residual birds. Though the long-term effect on the migratory populations of birds at Dover AFB remains to be seen, the initial results are impressive and encouraging and suggest a highly effective mechanism for Dover AFB to combat its bird strike problem.



*Figure 4: Weekly bird counts for Dover AFB within 4 km of the base perimeter fence after the initiation on Feb. 1, 2000 of a wildlife control program utilizing harassment by a Border Collie.*

For copies of the complete report by KLECE for Southwest Florida International Airport, please contact Ms. Jami McCormick, Office of Planning, at (941) 768-4326 or <[jmccormick@swfia.com](mailto:jmccormick@swfia.com)>

For continually updated bird count and strike data from Dover AFB or for more information on Border Collie Rescue's Birdstrike Control Program, visit <http://birdstrike.bcrescue.org>

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