

**THE MODERN OPTIONS FOR RECORD KEEPING  
AND ANALYSIS OF AIRFIELD BIRD CONTROL**

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**Abstract**

Airfield Bird Control current “best practice” guides require a high level of record keeping. Detailed logs of bird control protect airports and staff, allowing them to demonstrate “due diligence” in the event of an incident. Incidents are relatively rare, due diligence has to be demonstrated at all times.

Handwritten records may raise integrity questions, records can be tampered with after an incident. Recent technological advances, including GPS location reporting, help to eradicate this problem. The benefits of a bird activity database also carry high importance, allowing airfield operations to monitor bird dispersal activities, safety standards, pre-empt influxes of birds and organise control protocol accordingly. What are the options available to Airports? What risks are incurred when airports neglect safety recommendations and dictates?

**Key Words:** data logging, best practice, due diligence

## **Introduction**

In today's increasingly litigious society it is vital to maintain compliance in all aspects of aviation safety. Best practice procedures demand detailed record keeping of activities in order to prove due diligence and, therefore, meet the necessary dictates; this is not easy considering the prominence of multi-role duties in airside operations. Bird control, naturally, is part of this demand. This paper intends to look at the benefits and limitations of the various techniques/products available to the modern airport. Can technology help? Undoubtedly yes, but not without consequence. What are the options? How will different options improve flight safety?

The responsibility for bird control rests with the airport whether the actual control is undertaken by an airport management company or a sub-contractor fulfilling a contract requirement. When referring to liability throughout this paper I shall simply refer to "the airport" as a pronoun for all responsible parties.

## **Why collect data?**

In the event of a damage causing, wildlife related, incident it is highly likely that an insurance claim will follow. Subsequent to an insurance claim, it is probable that the question of liability will be asked. In the event of court proceedings the controlling bodies of the airport in question will be placed under scrutiny. These processes have been well documented by Dr. Valter Battistoni (2005) and Ante Matijaca (2005) in previous IBSC meetings.

Battistoni raises an interesting example of a court decision being solely based on the opinion of an independent expert. In this incidence the independent expert, a former airline pilot, did not appear to be well-informed of recommended bird control techniques - "*propane cannons would have avoided the damage with a high degree of probability (if not 100%)*". If independent experts used in court hearings do not have sufficient knowledge on the subject of bird control, airports must ensure that they are protected against all angles of criticism. The total compensation in this example was \$2,000,000 with split liability. The sentence passed in 2001, was twelve years after the bird strike. It must be considered that the total cost of the investigation to the airport was significantly higher considering the timescale involved.

The only way the airport can prove that any incident was not related to negligence is to demonstrate that it had maintained all possible bird control practices. Comprehensive records of bird control activity, populated with accurate and useful information, will provide strong evidence that the airport had done everything it could to avoid the incident.

An airport can have every piece of bird control equipment available at their disposal, but if there is no record of how, when and where it was used they could be exposed to litigation in the event of a serious bird strike.

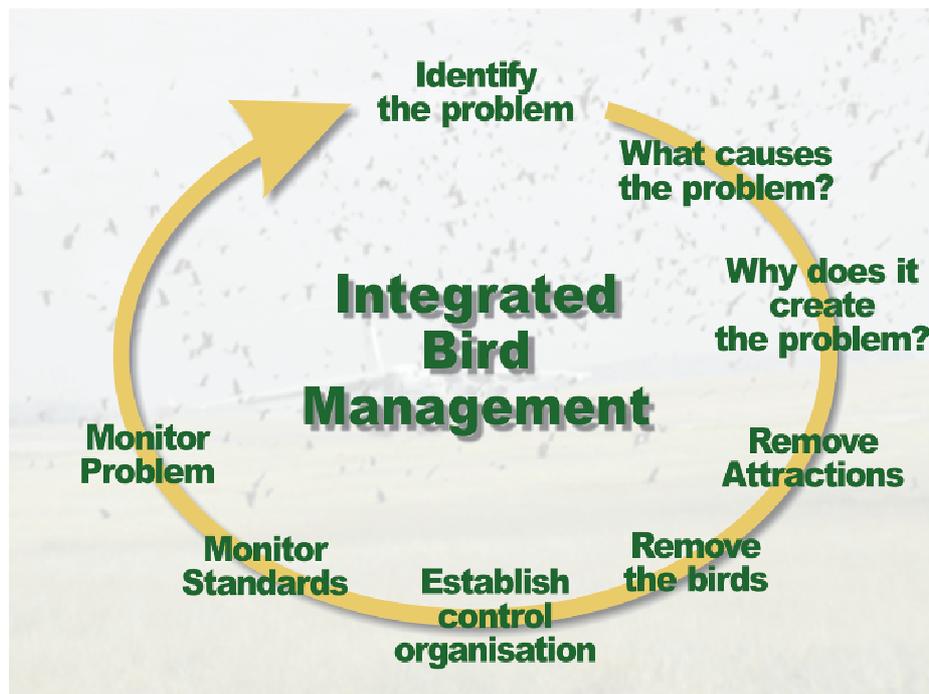
## **Knowledge is power**

Fortunately, serious incidents are relatively rare. Beside the risk of litigation, comprehensive data records are a great benefit to day-to-day operations. Without records of bird control activity, there is no measurable method of assessing the success or failings of the airport's bird control methodology.

Comprehensive data gives management and bird controllers tangible evidence whether, or not, the operation is effective. It also highlights any changes in the problem, such as a major species decline; reveals problem areas that may need changes to the habitat management policy and perhaps most importantly, this data can be used to satisfy the accountants that the money spent on this flight safety function is justifiable.

It is important that a comprehensive data log should not be viewed as a litigious insurance policy only. By collating information on bird control activity it is possible to review the effectiveness of your organisational policies.

The establishment of a control organisation that can monitor how effectively a bird control management plan is working is very important (illustrated by Nigel Horton's Integrated Bird Management model).



This is impossible without first collating the data that you wish to monitor.

## How to record the data?

Out of the many potential logging methods this paper will be looking at the benefits and limitations of each option. This paper will be comparing and contrasting three widespread methods in use today: Manual logging, such as a conventional logbook; digital logging, such as PDA/palmtop based data collection tools; and dynamic digital logging (hybrid dispersal and logging systems).

## The Options

### Handwritten Logbook

The simplest form of logging Airside bird control actions is where the Airside staff record the wildlife event using the most rudimentary form of data collection, the logbook. For example:

Date	Operator	Time	Location	Species	Flock Size	Technique	Result
17.09.08	Diamond	08:46	C4	Crow	8	Distress Call	Dispersed NE
17.09.08	Diamond	09:11	H6	Black-headed gull	17	Distress Call	Dispersed E
17.09.08	Diamond	09:30	F11	No bird activity			
17.09.08	Diamond	10:00	B2	Starling	23	Human Presence	Dispersed N
17.09.08	Diamond	10:17	C5	Starling	23	Pyrotechnic	Dispersed N
17.09.08	Diamond	10:50	E5	Rook	3	Vehicle Presence	Dispersed E

This is a basic log of bird control activity over a 2 hour period used to illustrate a basic level of data logging. Simply put, what? When? Where? How? What happened? In depth analysis of bird movements, population trends, attractions etc, could warrant the addition of such fields as ground conditions, precipitation level and such.

Using such a simple method for registering details of wildlife control carries many benefits. Very little training would be required to install such a documentation system in to a wildlife/bird control team that was previously not collating data. No additional prior knowledge is required to complete the form<sup>1</sup> – such as IT systems. A large benefit with a non-technological system is its reliability. A paper logbook will never crash whilst in the middle of recording something!

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<sup>1</sup> Assuming a general level of literacy, airport geography and basic zoological knowledge.

The functionality of a logbook cannot be questioned. The usability is where the limitations come to fruition. The logbook is always a secondary function, *another* thing to do on the list of the multi-function staff member. This can create resentment to the action of logging. The importance of creating accurate records has to be conveyed to all members of the team. A common phrase used when discussing databases is “Rubbish in equals rubbish out”. When placing this rather ungracious saying into the bird control arena it would be better said as:

“If we (the airport) are to guarantee that our wildlife management database is suitable to protect us from litigation and will allow us to learn how to adapt our procedures as to better approach the problem, we must first ensure the quality and consistency of our wildlife management data.”

A blank page of a logbook offers no guide to the staff member on how to complete it. It is human nature to look for shortcuts. Abbreviations are common place on the airfield and naturally are when it comes to filling logbooks. Black-headed gull, soon becomes bhg, or bh gull, or gull bh. Strict processes have to be placed to ensure data conformity is adhered to. Handwriting can also be an issue, spotting the difference between bhg (Black-headed gull) and bbg (Black-backed gull) that was hurriedly scribbled down is not as easy as one might expect.

Another limitation with manual logging is a simple point. The example at the beginning of this section is hypothetical but illustrates the point that in order to display it in the middle of this MS Office document, it had to be manually typed. This is not a big issue when presenting an example but when analysing or purely archiving airfield wildlife management records, the data levels are vast. The IBSC recommends recording data every 30 minutes (depending on the number of aircraft movements). If the airport in question is operational 24hours, this translates to a minimum of 48 entries per day. Based on my above example of data logging in its simplest form, this becomes approximately 384 pieces of data per day (48 X 8 cells per entry), 2688 pieces of data per week, 10,752 pieces of data per month and so on, exponentially *ad infinitum*. These figures are approximated as they do not take into account variables such as the length of a month and entries of “no bird activity” which require less input.

If any level of analysis of the wildlife situation is desired or for creating a convenient archive, the data will generally need to be input into a digital format – spreadsheet or database, for example. When dealing with these levels of data entry, the potential for human error is large. A potential error, such as mistyping a flock size as “10” instead of “100”, an error of realistic potential, could prove to be the failure of due diligence. In the event of an incident and a subsequent investigation, the pilot may have recorded a large number of birds. When the logs are cited and the Airside wildlife team appears to have only noticed 10 birds, the integrity of the wildlife management is questioned. A harsh reality if this particular entry was the result of the missing of a single keyboard stroke, especially when put in the perspective of the 9403 pieces of data that were entered that month! The improbability of this chain of events connecting should not affect the judgment of its potential value. History has shown us that serious bird strikes are improbable, yet we know that any bird strike has the potential to bring down an aircraft and therefore we try to reduce the likelihood of their occurrence.

Alternatives to handwritten logbooks appeared at the beginning of the millennium, these are software based manual data collection tools. There are many different systems available today. These systems are generally based on Personal Digital Assistants (PDAs) or Palmtop computers. Bird/wildlife

control usually features as a module or add on to a larger, Airport wide data collection system or auditing tools. This can feature such other modules as Aircraft turnarounds and baggage handling functions to toilet cleaning and rubbish bin emptying.

These systems create a huge network of integrated data that allows airport management to either access or receive (via email or SMS) the information relevant to them. Because of the large infrastructure requirements these systems are high cost, very often with additional service/maintenance packages.

The software platform provides fast access to the data and has the flexibility to display reports/graphs very quickly. The speed of access reduces the departmental running costs in terms of both analysis and proof of due diligence in the event of an incident. It is worth mentioning that the former will only ever enhance the latter.

Any digital platform will also afford great process reduction in terms of the vulnerable data entry stage, as the data is stored primarily in a digital format. This fact cannot go unnoticed when planning budgets. Referring back to the data quantity calculation, an experienced secretary can type accurately at approximately 50 words per minute. A month of bird control data translates to approximately 3.5 hours. It would be fair but generalized assumption that an experienced secretary can type faster than a bird control supervisor. This coupled with the nature of the data being entered (tables as opposed to free flowing prose) demonstrates the timescales involved.

In addition, digital systems remove the issue of data conformity. The user is generally presented with a list of options to select, as opposed to free entry of criteria. This helps guarantee the accuracy of report results. A search for all Black-headed gull activity produces, unquestionably all of the related data, without missing "bh gull" and "bhg".

Limitations appear when considering the format of a PDA/Palmtop. In an operational sense the small form factor of these units can hinder their use. A 3 inch screen operated using a stylus is far from user-friendly when considering the fact that they are being utilised as a time saving device. Using a stylus out on the airfield at 05:30 on a winter morning is not very easy with cold fingers, nor is reading very small text on a backlit screen in the poor light of dawn.

The limits of what can be physically displayed at one time can increase the time taken to fully log an event beyond that of a manual logbook. This fact coupled with additional reality that these integrated solutions remain a secondary function, can exacerbate the all important time variable. If this is the case then the product has failed.

More recently the addition of dynamic digital logging has appeared. These systems attempt to bridge dispersals and logging. Early incarnations were based on a laptop PC connected to a bio-acoustic dispersal unit. The PC acted as the control panel of the dispersal unit, silently logging its operation and prompting the user for additional information, such as flock size, dispersal result etc. This created issues with the impracticality of a laptop PC and the space required to store the unit in an airfield vehicle. Over time this has now evolved, taking advantage of technological enhancements, to now utilise touch screen tablet PCs. The depth of data recording has evolved simultaneously to include GPS vehicle tracking and image capture. The ethos has remained: to automate the act of data collection wherever possible, without compromising data quality and never removing human judgment. The data stored by the unit includes any technique required (or not as the case may be) such as pyrotechnic, laser, shotgun etc. The equipment list is controlled by the airport, at any time the list of methods can be edited on-the-fly as and when new equipment is purchased.

As a time saving device the dynamic digital logging systems can be configured to learn the bird movements of a particular airfield, always showing the most prominent species to a location on an initial screen as well as only asking for the depth of information required.

The dynamic digital logging systems were designed specifically for the wildlife control arena and are therefore bespoke to the industry, as opposed to being added in a modular sense to larger non-specific software based auditing system. By their own creation they are consistently reviewed following feedback from the industry, thus will evolve to include any wildlife related needs, without adding functions that are unnecessary to wildlife management but highly desirable when auditing toilet cleaning routines.

## **Conclusions**

Thankfully, modern technological advances have produced a variety of options when deciding how to monitor wildlife management. Accurate data recording of all wildlife control activity on an airfield is an essential part of an airport's understanding of its hazard from these animals. The variety of options for making these records has increased with the advance of technology in general. Hand-written paper notes are now superseded by digital data logging that, by automatic analysis generation releases middle management staff time.

It is not possible to stop every bird strike and for that reason alone Airports should protect themselves against liability claims by demonstrating that they are maintaining best practice procedures. In the same way Airports that are not meeting the necessary dictates should have their awareness raised of the potential ways in which to improve Aviation safety. This is only possible by monitoring data records of Airside wildlife activity.

There are many techniques and systems available for comprehensively registering Airside activities, whether using rudimentary formats or the most technologically advanced systems available. What is employed at each Airport will vary, mostly due to financial flexibility, but it is impossible to ignore the importance. The airport that does not take the subject seriously, perhaps feels that money is better allocated elsewhere will, in time, get caught out.

**Acknowledgements:**

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