Response to Docket No. FAA-2009-0245, Voluntary Disclosure Reporting Program, published in the Federal Register on 19 March 2009

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My response to the FAA is split into two sections. The first section has specific objections to the proposed FAA rule changes concerning access to the Wildlife Hazard Database. Those proposed changes were published in the Federal Register on 19 March 2009 [Docket No. FAA-2009-0245]. In the second section, I provide suggestions on what kinds of data the FAA could restrict or replace with alternative data without significantly affected the usefulness of the remaining data, and I also provided suggestions on additional data that could be added to future submissions that would enhance the usefulness of the data.

Note: While the Docket refers to this database by the name Wildlife Hazard Database, it appears to be referring to the National Wildlife Strike Database, which is maintained on behalf of the FAA by the US Department of Agriculture. This submission will use the database name used in the proposal published in the Federal Register.

Section 1: FAA Arguments and AirSafe.com Objections

The FAA's argument for restricting public access to the Wildlife Hazard Database was based on a variety of arguments. I've provided my objections to several of these arguments below.

FAA Argument: The Agency is concerned that there is a serious potential that information related to bird strikes will not be submitted because of fear that the disclosure of raw data could unfairly cast unfounded aspersions on the submitter.

Objection: There are three parts to this objection:

1. Individuals who submit information to the database are not identified.

2. Assuming that it is somehow possible to identify the organization associated with one or more submissions, for example a specific airline or airport, then if someone makes unfair or unsupported claims, then that implies that there was a very poor analysis based on the data. A competent analysis would likely put the raw data in the proper context and neutralize any unfair claims.

3. The FAA provides no estimate of how the rule change would affect the likelihood that a strike would be reported. According to the US government publication "Wildlife Strikes to Civil Aircraft in the United States 1990-2007," only one in five bird and wildlife strikes are reported to the FAA's Wildlife Hazard Database. This implies that there are two actions that an organization or individual can take when in possession of information about a wildlife strike—report the strike or not report the strike. Those who don't report the strike may not do so because of the current disclosure rules, or may not submit events to the database for other reasons. There is no indication or estimate from the FAA about what faction of the 80% of unreported strikes are not reported because of the current disclosure rules, or how much much the reporting rates would be affected by changing the disclosure rules.

FAA Argument: Releasing information from the database without benefit of proper analysis would not only produce an inaccurate perception of the individual airports and airlines but also inaccurate and inappropriate comparisons between airports or airlines.

Objection: The fact that individuals or organizations may not understand how to do a proper analysis is not relevant because it is not the FAA's job to judge the competence, motives, or experience of those who may request data from a public database. The FAA could address this issue by following advice that was provided to the agency several years ago. In the 1997 report "Aviation Safety Data Accessibility Study Index" (at http://www.asias.faa.gov/aviation_studies/safety_data/safety_data_index.html) which was prepared for the FAA's Office of System Safety. That report stated three general principles that could usefully guide FAA's policymakers as they increase the public availability and accessibility of aviation safety data. One of those principles was that "information made available to the public should be presented in a way that allows and encourages sensible use of the data. This includes informative discussions of the pros and cons of the various exposure measures that are used for normalizing event data."

FAA Argument: Inaccurate portrayals of airports and airlines could have a negative impact on their participation in reporting bird strikes.

Objection: As stated before, the FAA has no control over the actions of anyone who requests data. Inaccurate portrayals are always a possibility. However, the FAA has the expertise that should be able to easily counter any inaccurate analysis that unfairly portrays an airline or airport with a better analysis. There are a number of other industry organizations, including any affected airline and airport, that would be very willing to help the FAA to counter these kinds of unfair portrayals.

FAA Argument: The database should be exempt from public disclosure because when the FAA began collecting this data, it assured the entities submitting the data that the submissions would not be made available to the public.

Objection: A review of the current online form and downloadable paper form for inputs to the Wildlife Hazard Database (links below) have nothing that promises that the data would not be available to the public. AirSafe.com's review of historical paper input forms going back to 1997 also show no such written promises. While the FAA may have made promises when the database was first created, the fact that for at least the last 12 years the FAA has apparently not made any promises of data privacy implies that they were not serious about maintaining the assurances made nearly 20 years ago.

Online Form: http://wildlife.pr.erau.edu/strikeform/birdstrikeform.php
Downloadable Paper Form: http://forms.faa.gov/forms/faa5200-7.pdf

Section 2: What Data Should Be Available to the Public

Earlier, I addressed the reasons why the FAA proposal should be rejected. Now I'd like to make an argument about what data should be made available to the public.

The rare serious bird strikes that result in substantial damage or even in an accident will show up in other databases of the FAA and NTSB. The Wildlife Hazard Database contains the far more frequent events that result in minor damage or no damage. This kind of data is very useful when it comes to understanding the extent of a risk, since for every serious outcome such as accidents, there may be tens, hundreds, or even thousands of less serious events. Analyzing these minor events is key to understanding how to prevent more serious events.

My general approach to public databases is basically the same as what was stated in the 1997 report "Aviation Safety Data Accessibility Study Index" which was prepared for the FAA's Office of System Safety. That report stated three general principles that could usefully guide FAA's policymakers as they increase the public availability and accessibility of aviation safety data.

1. Any information available to some persons outside FAA should be available to all persons outside FAA.

2. Information made available to the public should be presented in a way that allows and encourages sensible use of the data (This includes providing some guidance for use of the data, especially guidance on what kind of exposure measures (flights, flight hours, etc.) should be used in association with the event data).

3. The release of information to the public should not make safety worse, nor should it make achieving higher levels of safety more difficult (in other words, releasing data should encourage more voluntary inputs of data).

Even if the Wildlife Hazard Database is made freely available to the public, the second and third points have not been addressed by the FAA's proposed rule change and would also not be addressed if the rule change does not take place.

With respect to the second point, my suggestions to the FAA are based on my experience in analyzing safety data from specialized databases and from individual aviation accident and incident reports. In my 2000 book "Understanding Aviation Safety Data," I explained that most, but not all, aviation safety questions fall into a limited number of categories. For the kinds of data in the strike database, the relevant categories of aviation safety questions would include the following:

1. Event History: how many times has a particular kind of event occurred,

2. Population: how many entities with a specific set of characteristics exist,

3. Category: what are the specific characteristics that define a particular kind of entity or event,

4. <u>Frequency</u>: how many times does a specific kind of event occur within a more general, but well defined, population, set of events, or other situation (for example, the number of damaging bird strikes associated with an airport during a calendar year),

5. <u>Rate</u>: how many times does a specific kind of event occur for each unit of a particular kind of risk exposure or risk opportunity (for example, damaging bird strikes per million takeoffs),

6. <u>Distribution</u>: how are specific kinds of entities or events distributed within a more general but well defined population,

7. <u>Pattern</u>: what specific set of characteristics occur regularly among a group of distinct events.

8. <u>Exposure</u>: how often or under what circumstances is an entity or an activity exposed to some specified set of conditions,

9 <u>Probability</u>: how likely is it that a particular population of entities or events will have one or more specific characteristics,

10. <u>Conditional Probability</u>: for a population of entities or events with a specific set of characteristics, what is the likelihood that some additional set of attributes exists,

11. <u>Risk Level</u>: what is the combination of a specific hazard and either a probability of occurrence or rate of occurrence of that hazard, or

12. <u>Identification</u>: what information uniquely identifies a particular event or entity.

For bird and wildlife strike information to be useful, data from individual strikes has to be relevant and specific enough to address these kinds of questions. Based on my experience working with bird strike data, most of the information currently asked for on the input form is relevant. Some information, such as the name of the airline or aircraft operator, the aircraft registration number, are not relevant to the kind of risk assessment activities associated with the analyses of bird or wildlife strikes.

Serious bird strikes that result in substantial damage or in an accident are extremely rare, but these events are required to be included in particular publicly available accident and incident databases of the FAA and NTSB. These reports are quite detailed, and will have a level of detail that may include many pieces of data that are not asked for in the online or offline input forms of the Wildlife Hazard Database. However, this is not a bad thing. The Wildlife Hazard Database is most useful when the data is used for addressing the kind of risk assessment related questions that are implied by the 12 types of aviation safety questions I mentioned earlier.

The need to have the database be a useful resource to the public has to be balanced against the concerns of those who submit information to the database. Clearly, the FAA's proposal appeared to address the needs of airports and airlines that were concerned that the data would be used to generate unfair and negative public attention. These are also entities that often have first hand information on most of the bird and wildlife strikes that occur an an airport and if there participation were to increase, that could raise the reporting rate to well above the current estimate of 20% of the total strikes.

If there were no chance to directly associate an event with with a bird or wildlife strike, then an airline or airport would have nothing to fear from a public relations backlash. There are only four data fields in the current input form that would directly tie a strike report with a particular airport or airline: the airline name, the aircraft registration number, the flight number, and the airport location.

If the airline name and registration number were not made available to the public, the usefulness of the database would not suffer. The risk of bird and wildlife strikes, as well as the affect on the aircraft, doesn't depend on the airline. If the airline name were not included, the flight number shouldn't be either. However, this data could be replaced with the origin and destination airports. While the airline name and aircraft registration number are not important when it comes to assessing strike risks, information such as the number of passengers and crew on board would be. Also important would be the rules under which the airline were flying. For example, it would be important to know if a large jet airliner were flying a repositioning flight under Part 91 rules as opposed to a passenger flight operating under Part 121. I would propose that in addition to the current data fields, that others be added that would indicate the number of persons on board the aircraft and the type of flight operation (e.g. Part 121, Part 91, military, public use, etc).

Given the nature of the threat, there is no realistic alternative to including the airport data. Each airport represents a unique environment, with widely varying bird and wildlife populations. If the public had no access to information about airport location, it would make it impossible to draw any conclusions between the population of birds at a location and the effect on aircraft operating at that location. Wildlife strikes that don't involve birds, bats, or other flying creatures, can only occur when the aircraft is on the ground or very, very close to the ground, so every strike involving non-flying wildlife will be associated with a specific airport. Most bird strikes are also closely associated with the area on on near an airport. In fact, according to FAA report "Wildlife Strikes to Civil Aircraft in USA, 1990-2007" (available at http://wildlife.pr.erau.edu/BASH90-07.pdf) over two-thirds of all the reported bird strikes with a known altitude occurred at or below 200 feet above ground level.

There is another reason to provide the airport information to the public. Bird and wildlife mitigation efforts at airports often affect communities near the airport and may involve a number of public policy issues dealing with wildlife and the environment. If all the affected parties are going to have an informed debate, it would be extremely helpful for all sides to have objective information about the risk, including the experience of aircraft operating at or near the airport.

One issue that was absent from the FAA's proposal was the effect that their policy change would have on the willingness of engine manufacturers to provide inputs to the database. If the FAA and the engine manufacturers have not seen this as an issue, then the engine data should also be released to the public. If this is an issue that may affect the willingness of engine manufacturers to add unique events to the database, then the FAA should look for ways to include useful information about engines that are damaged or that are affected by strikes while not directly identifying the manufacturer. For example, instead of providing specific engine make and model, the public should at the very least be able to identify what kind of bird strike certification requirements are relevant to that the engine model.

Another issue absent from the FAA's proposal was what guidance the FAA would provide to the general public for analyzing the data. This is an issue under the current data access rules would continue to be an issue if the FAA were to implement their proposals. The "Aviation Safety Data Accessibility Study Index" I referred to earlier suggested that the FAA provide guidance for use of the data. This would include, but would not be limited to, providing guidance on what kinds of risk exposure data should be combined with the event data in the strike database. Several of the categories of aviation safety questions. This is a general issue that would be relevant to any kind of publicly available FAA data, not just the data in the Wildlife Hazard Database.

Summary and Recommendations

Denying the public access to the registration number or airline name associated with a strike report would not significantly affect the usefulness of the database to the public. Airport data for strikes occurring on or near the ground should be accessible to the public because the data would be much less useful if it were not possible to associate strikes at or close to ground level with a particular location.

I recommend that the input form should be changed to allow additional data fields that would allow a report to include the following:

- Number of passengers and crew on board the aircraft,
- The rules under which the incident aircraft was operating (Part 91 general aviation, Part 121 airline, etc.)

If the FAA has concerns about the willingness of engine manufacturers to submit data, then the data made available to the public should replace the engine make and model data with information that identifies what FAA bird strike standards were met by that particular engine.

I also recommend that the FAA routinely provide general guidance (or at least links to online resources) on how to fairly or objectively analyze aviation safety data to every person who requests aviation safety data.