Countermeasures against bird strikes

On January 15th (16th Japan time), 2009 there was an airplane accident in New York State in the US. A US Airways airplane landed in the Hudson River with both engines cut out as a result of being struck by a flock of birds during take-off at LaGuardia Airport. A collision between birds and aircraft is usually called a "bird strike" and is an increasing problem internationally as air transportation is increasing.

◇ **Current status of bird strikes in Japan.**

More than 1,000 bird strikes occur in Japan annually, and particularly at Tokyo International Airport (Haneda Airport) which has very busy traffic and accounts for approximately 10% of all collisions.
Bird strikes have been increasing in the last several years as shown in Fig. 1. This increase may have been caused by 1) augmentation of air traffic and 2) an increase in the number of birds around airports.

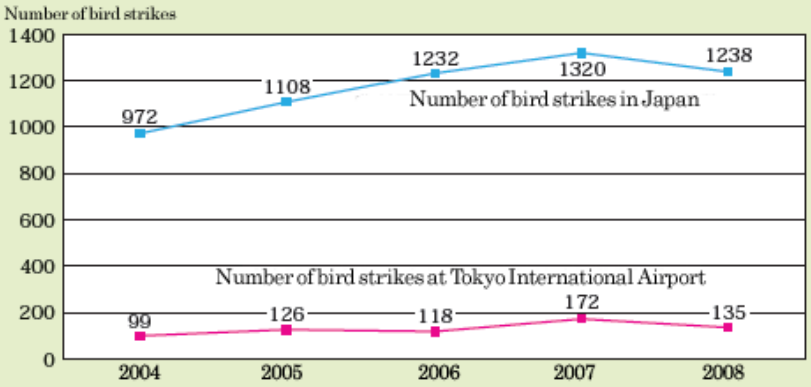


Fig. 1 Bird strikes occurring from 2004 to 2008

◇ **Countermeasures against bird strikes in Japan.**

The following is a list of countermeasures currently being performed by the Ministry of Land, Infrastructure, Transport and Tourism.

1. Collecting information relevant to bird strikes.

   In collaboration with scheduled air transport services, relevant bird strike information (including incidents of near midair collisions with birds) has been collected, and analysis of this information has been distributed as basic material for bird strike countermeasures to airport administrations nationwide.

2. Bird control at airports.

   Controlling the birds has been carried out by scheduled *patrol around the major government controlled airports which suffer from many bird strikes. Other airports have their bird controls as necessary. Patrolling system: Full-time patrol staff at the airport, with equipment including guns (loaded and not-loaded), bird repellents and bird distress call speakers, make regular patrols around the airport throughout the year.

3. Holding a bird strike countermeasure conference.

   An annual conference has been held to report bird strike analysis and to discuss counter measures formed by experts who are specialized in the ecology of birds, airliners and other relevant parties. The chair person is Prof. Hiroyoshi Higuchi at the Graduate School of Tokyo University based at the Civil Aviation Bureau of MLIT.

Extermination of birds by patrol

◇ **Extermination effects of patrols around the airports.**

The total number of airports under government control which have installed patrol systems to exterminate birds since 1982 is 18. This includes Kagoshima Airport, which is going to patrol the area starting in 2009. Exterminating birds as you go is considered the most effective method of getting rid of birds, and the actual number of bird strikes is almost half that of airports which are not patrolling the area to exterminate birds (the figure is per 10,000 take-offs and landings).

Patrolling system: Full-time patrol staff at the airport, with equipment including guns (loaded and not-loaded), bird repellents and bird distress call speakers, make regular patrols around the airport throughout the year.

◇ **Reinforcement of extermination systems for the future.**

MLIT held a special bird strike countermeasure conference on February 13th, 2009, responding to the US Airways plane that was struck by birds. Additionally, they held a regular conference on March 11th of the same year. Reinforcement of observation systems relevant to bird strikes and nighttime bird control systems, and upgrades of general bird control systems at airports nationwide were the suggested subjects for improvement at the two conferences. The following measures will be the focus of the next conference in 2009:

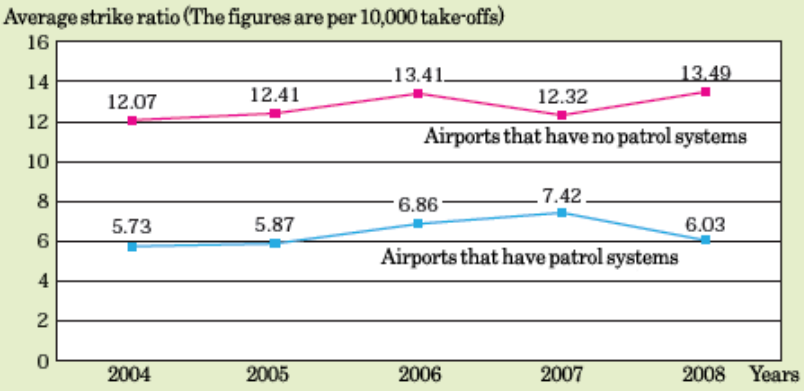
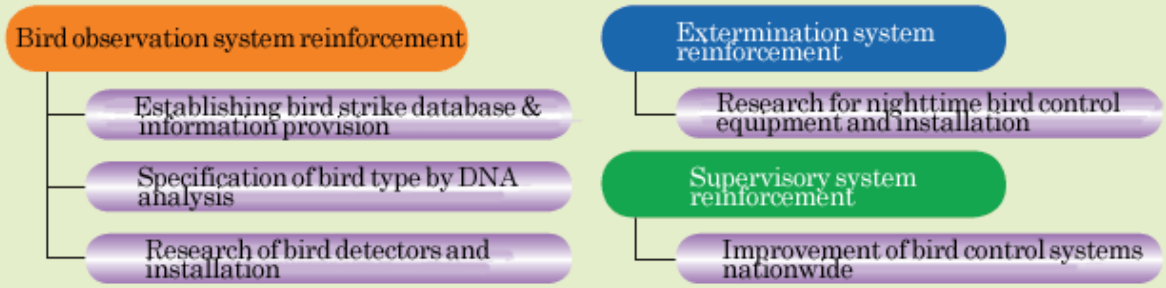


Fig 2. Bird strike comparison (with and without patrol)



1. Bird observation system reinforcement

(1) Establishing bird strike database & information provision.

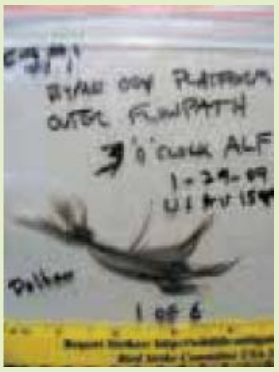
It is necessary to establish an Internet based database in order to distribute information among concerned parties, and to collect information about incidents of bird strikes promptly. Currently, specified air transportation businesses are asked to provide bird strike information, but all businesses will be asked to do the same in order to have a broad base of information.

(2) Specification of bird type by DNA analysis and bird feather analysis.

Approximately 60% of birds that have collided with aircraft are of unknown type. But specifying the types of birds, using new technology such as DNA analysis, makes it possible to develop countermeasures compatible with the ecology of respective bird types.

(3) Research of bird detectors and installation.

Various bird detectors (bird radar, etc.), which are adopted in many countries and operating conditions, and effectiveness and safety of such detectors, will be researched, focusing on the installation of the detectors.



Bird feather on US Airways airplane that landed on the Hudson River

2. Extermination system reinforcement (nighttime bird control system reinforcement).

In response to the approximately 40% of bird strikes that occur at night, installation of nighttime usage bird extermination equipment is being considered. More effective bird control will be presented due to the expected increase in nighttime air traffic at Tokyo International Airport (Haneda Airport) starting in 2010. Ecology research on birds at night will be implemented as well.

3. Supervisory system reinforcement (improvement of bird control systems nationwide).

A reference to incidents in foreign lands and effective measures carried out by domestic airports, a guideline for bird strike countermeasures will be created to benefit effective operations at each airport. These countermeasures should be appropriate to the current situation and effective at the same time. The MLIT and bird strike countermeasure conference will work together to give advice to airport administrations to actively support adoption of bird strike countermeasures.