



**NORDIC BIRD STRIKE ADVISORY GROUP
(NBSAG)**

**MINUTES FROM THE 16TH NORDIC BIRD STRIKE ADVISORY GROUP MEETING IN
TRONDHEIM, NORWAY, 1-2 June 2016**

Agenda:

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| 1. | Opening, introduction | Avinor |
| 2. | Statistics, significant changes and reasons why | All |
| 3. | Lessons learned since last meeting, including any new tools? | All |
| 4. | Education Bird control | All |
| 5. | WBA | Albert de Hoon |
| 6. | Common challenges, increased number of bigger birds | Intro by Christian |
| 7. | Radar used at Trondheim airport, including a visit to the TWR | Magne Jerpstad, Erik Løvli (Radian) |
| 8. | New EU-regulations | Jens Erik Ditlevsen |
| 9. | Evaluation of the meeting, planning of next meeting | All |

Attendees:

- Denmark** Stinne Louise Hjorth, Aalborg Airport
Michael Olsen, Copenhagen Airport
Jens Erik Ditlevsen, CAA Denmark
- Faroe Islands** Rúni Emil Johansen, Vagar Airport
- Finland** Juha Joutsen, Finavia
Mikael Lindroos, Finavia/EFHK
Matti Portaanpää, Finavia/EFHK
Jukka-Pekka Nikolajeff, CAA Finland
- Iceland** Einar Jonsson, Isavia Keflavik
Jonas Petursson, Isavia Reykjavik
- Sweden** Martin Ekenstierna, Swedavia/ESMS
Ronny Kristensson, Swedavia/ESGG
Claes-Göran Malm, Swedish AF/Såtenäs flygplats
- Netherlands** Albert de Hoon, WBA
- Norway** Asbjørg Selvli, CAA Norway
Odd Thomassen, Widerøe
Gisle Simonsen, SAS
Magne Jerpstad, Avinor ATM
Espen Kurthi, Avinor
Pål Ranestad, Avinor (Chairman)
Christian K. Aas, Natural History Museum, University of Oslo (notetaker)
Erik Løvli, Radian (only during the radar session)

The minutes

1. Opening, introduction

Espen Kurthi introduced himself, opened the meeting and welcomed the participants. All other participants introduced themselves, after which Espen introduced Pål Ranestad as the chairman of this meeting. Christian K. Aas was suggested as notetaker. Program and participation list are shown in Appendices 1 and 2.

2. Statistics, significant changes and reasons why

Pål presented the EASA Network of Analysts (Appendix 3). The rise in bird strike reports from 2006 to 2010 (as shown in the Appendix) can be due to reporting standards. Gisle Simonsen asked if EASA receives data from ICAO's IBIS? There was a common understanding in the meeting that ICAO has not prioritized IBIS highly in recent years, but since September 2015 two people at ICAO are working regularly with IBIS. However, the new EASA regulation 139 states that bird strike reports should be forwarded to EASA. Stinne Louise Hjorth asked how valuable are the statistics given the fact that reporting standards differ between countries (e.g. Denmark vs. Norway).

Pål showed the Avinor statistics 2012-2015 (Appendix 4). Avinor has experienced a decrease in bird strikes with big birds, but an increase in strikes with other bird sizes. 90 % of the increase is related to 5 airports on the westcoast of Norway, and details of the bird strikes at these 5 airports were shown. Gisle asked what will happen if all grass on an airport was killed. It was replied that the worms will come up. Stinne had visited Eindhoven airport, which was more like a desert now. Albert de Hoon told about heath (*Ericaceae*), a plant that can displace other plants. Martin Ekenstierna told that at Malmø airport, they used weed-killer over an area and this resulted in stronger grass growing up. Are the standards for reporting dead birds found different between the Nordic countries, Gisle asked? Pål mentioned that Avinor does not have a system for reporting bird strikes directly to the airlines. Stinne pointed out the importance of a standardized reporting system. In Malmø everything related to birds is reported, calling it "bird occurrence", and it even includes "near misses" and "downwash". Jens Erik Ditlevsen added the importance for each airport to report the same incidents every year. Martin called for a better cooperation between airports and airlines.

Jens Erik presented the bird strike statistics for 2014 from the Danish airports (Appendix 5). Data from 8 airports in Denmark + Vagar and Kangerlussuaq was shown. The airports with few aircraft operations are on top of the list. The 2014 bird strike statistics was not different from previous years. The large birds in the statistics were mainly gulls.

Jukka-Pekka Nikolajeff presented the Finnish bird strike statistics for 2015 (Appendix 6). All Finnish reports, including those abroad, amounted to 239 bird strikes. He informed us that the birds involved in bird strikes in Finland are identified by photos. Jukka-Pekka did in fact a master thesis on bird strikes in 2013 (http://www.trafi.fi/filebank/a/1415198541/d363a19f66f872efb04d95d42af321d5/16150-Trafin_tutkimuksia_07-2014_-_Analysis_of_the_Bird_Strike_Reports.pdf).

Asbjørg Selvli showed the updated Internet site on bird strikes of the CAA Norway (<http://www.luftfartstilsynet.no/flysikkerhetsstatistikk/C%2017%20Birdstrike.htm>). Several graphs were shown, such as the consequential event, birdstrike by location for aerodromes with many strikes and with fewer strikes, yearly birdstrikes in Norway and abroad from 2008 to 2014, birdstrikes by phase of flight, by type of operations, by bird size by location, and birdstrikes by species. To Stinnes question what bird strike statistics from abroad airports are used for, it was replied that airlines can use them to evaluate risk at the airports they fly to.

3. Lessons learned since last meeting, including any new tools?

Stinne presented the wildlife management plan at Aalborg Airport (Appendix 7). The airport has both civilian and military air traffic. The challenges are herring gulls, rooks, lapwings, swallows, buzzards, kestrels, geese, swans and deer. Another challenge is groundwater which is penetrating the Apron every year. The environment has to be taken into account. The authorities planned a bird reservation for geese at Egholm just outside Aalborg Airport, but the airport managed to stop these plans.

Elements in the wildlife management at the airport:

- The “scarehawk” was not effective, it had to be moved the whole period, and eventually it was removed.
- Gas canons were tested in a period of time, did not prove effective.
- Laser – good against swans!
- Pyrotechniques
- Rifle caliber 17 mm with HMR ammunition
- FLIR (Forward Looking InfraRed) cameras
- New bird control education
- A new fence, 2 m 20 cm high, has kept the deer out

Rúni Emil Johansen presented the New Vagar Airport and the bird control at the airport (Appendix 8). An expansion of the airport including a new terminal was finished in 2014. The bird control procedure includes:

- Education/training
- Bird counting
- Filling out the Bird strike reporting form
- External bird expert

The number of bird strikes from 2006 to 2015 was shown. The numbers were low in 2011 and 2012 due to the extension of the runway those years. To Espens question if the airport has bird problems all year round, Rúni answered only in the summer. The airport uses a shotgun and pyrotechniques to scare off the birds.

Martin showed two presentations: «Viltövervakning och skydds jakt – Transportstyrelsens perspektiv på fågel- och viltövervakningen» by Jörgen Andersson (Appendix 9) and «Fåglar på Malmö Airport» by himself (Appendix 10). The first presentation focused on bird strikes in Sweden from 1998 to 2015 in relation to different parameters, such as aircraft movements, temperature, geographical distribution and seasonal and diurnal differences among others. Martin’s second presentation showed the bird control and bird strikes at Malmö Airport. The focuses in 2016 are on specified strengths, challenges and activities. A variety of methods and equipment was shown. For instance was a .357 Magnum rebuilt to a good bird control pistol. A risk assessment standard used at the airport was shown. In addition Martin has produced several other documents which he would like to share with the rest of us, such as the Malmö bird book and Malmö Risk assessment of birds (Appendices 11-14).

Pål presented the Avinor bird control mitigating measures (Appendix 15). These include radar, mowing robots, lasers, gas cannons and different bird control activities. Christian showed results from Avinor’s Risk analysis bird – and wildlife control, and listed several bird control measures that were recommended (Appendix 16).

Juha Joutsen presented the Finavia methods and education in bird control (Appendix 17). The methods were:

- Long grass policy
- Bird/wildlife patrols
- Non wildlife attractive vicinity
- Migration forecasts for pilots (spring/autumn)

- Information and warnings (NOTAM, ATIS (HBA))

The education in Finavia was also outlined.

Claes-Göran Malm presented the bird control at Sâtenäs Airport (Appendix 18). Sâtenäs is located at the southern end of Vänern, the largest lake in Sweden. There were a lot of birds at Sâtenäs around 1990. During rainfalls, and with bad grass and poor drainage, the insects and larvae crept up in the grass and on the tarmac and attracted many birds. So the airport action started in the 1990s, hiring an ornithologist who worked for a year surveying the bird activity. It resulted in tests and experiments and an action plan. A farm unit was rented to process the grass surface without leaving black soil that could attract birds. The airport added nutrients needed to the grass after having consulted a soil analyst, and the result was a healthy grass. Different fright measures, hunting and operational adaptation were described. The results so far were shown: i) minor disruptions in air traffic, ii) less number of birds that rest at the airport, and iii) less number of birds nesting on or around the airport. And the work is still ongoing.

Christian showed the latest result of the propeller painting project together with Widerøe (Appendix 19). The 2016-data show that even if 12 aircraft had an increase in bird strike-rate after the sebra-striped painting and 13 aircraft had a decrease in bird strike rate after the sebra-striped painting, the overall average for the 27 painted aircraft was the same before as it was after the painting. This means that the results are weaker in 2016 than they were in 2014. However, we are optimistic since new parameters will be studied (such as type of bird and location of the bird strikes) and the project will continue for some more years.

4. Education Bird control

Martin presented the program for education in Swedavia and at Malmø Airport (Appendix 20). The education includes among other things the use of an excellent bird book made by Martin.

Pål presented the program for education of bird control in Avinor (Appendix 21). The content of ICAO Airport Service Manual Part 3 para 4.9 was shown. The historical education was mentioned and the current e-learning education was described.

5. WBA

Albert de Hoon gave a presentation about the World Birdstrike Association. All information he shared with us is available on www.worldbirdstrike.com.

To Jonas Peturssons question about how many Greylag geese are killed in Amsterdam, Albert replied about 10-15 000 each year.

6. Common challenges, increased number of bigger birds

Christian introduced the topic of increased number of bigger birds (Appendix 22). The focus was on geese and swans. The study of Thomas Kjær Christensen and others (2014) was mentioned as well as Avinor's measures against bigger birds.

Reykjavik airport has problems with Brent goose, which is a protected species on Iceland. The airport has permit to shoot the geese, and a few birds have been shot inside the fence. Espen pointed out that if these populations continue to increase, all authorities must work together.

7. Radar used at Trondheim airport, including a visit to the TWR

Erik Løvli showed the bird radar and some features used at Trondheim airport (Appendix 23). The track range of a 3 kg bird is 3 km, a 16-bird flock 6 km and a flock of geese 7 km. There is a 4 seconds real time delay of the radar today, which hopefully will be reduced 1-1,5 seconds this year. An incident on 9th April 2015 at night was shown when a flock of geese (presumably Pink-footed geese) was heading towards an incoming B-737, but the flock changed its flight path and no conflict

occurred. The radar in use at Trondheim airport is the most powerful ship radar with the biggest antenna.

Magne Jerpstad presented the radar from an Air Traffic Controller's point of view (Appendix 24). He showed the ENVA Bird hazard which is published in AIP Norway, where for instance the migration of Pink-footed geese both spring and autumn is described. Magne told us that the installation of the radar has had the positive effect that it has increased the awareness of birds on the entire airport.

After Magne's presentation we had a nice visit to the tower.

8. New EU-regulations

Jens Erik presented the new EASA Regulation 139 on aerodromes – wildlife (Appendix 25). He told us that Mogens Hansen has made a document which describes the current regulations in relation to the new regulation EASA 139. There was a discussion at the meeting on how the regulations in the different countries relate to the 13 km distance to the airport and the bird attractants within this distance.

9. Evaluation of the meeting, planning of next meeting

The next meeting will be in Finland in 2018.

Oslo, August 8, 2016