

A Collaborative Document Produced by EASA Together4Safety

Written by Phil Mountain, Starr Consulting Services and Marta Giordano, DGAC France

With Thanks for the support from AESA Spain, Bologna Airport, British Helicopter Association, Fraport Greece, Easyjet, Wizzair,

STARR
CONSULTING
SERVICES



The importance of effective Wildlife Hazard Management

Following the outbreak of COVID-19, aerodrome operators may have been forced to scale down or suspend operations due to the large reduction or cancellation of flights. This situation has also continued for much longer than we imagined at the start of the pandemic. Across Europe there have been many different approaches in response to the pandemic situation when it comes to wildlife management – for all sorts of reasons, many of which may have been out of your control. The situation varies from ‘no change at all’ with the Wildlife Risk Management Plan (WRMP) continuing as before through to a ‘full stop’ of all actions for a period of time. Any reduction or change to your WRMP will result in changes to the actions you need to take to reduce the risk of wildlife strikes that could lead to accidents, financial costs and operational delays.

The starting point for your ramp up should be the [EASA SIB on the Progressive Restart of Aerodrome Operations after Complete or Partial Closure](#) where there are a number of points on Page 3 about WHM.

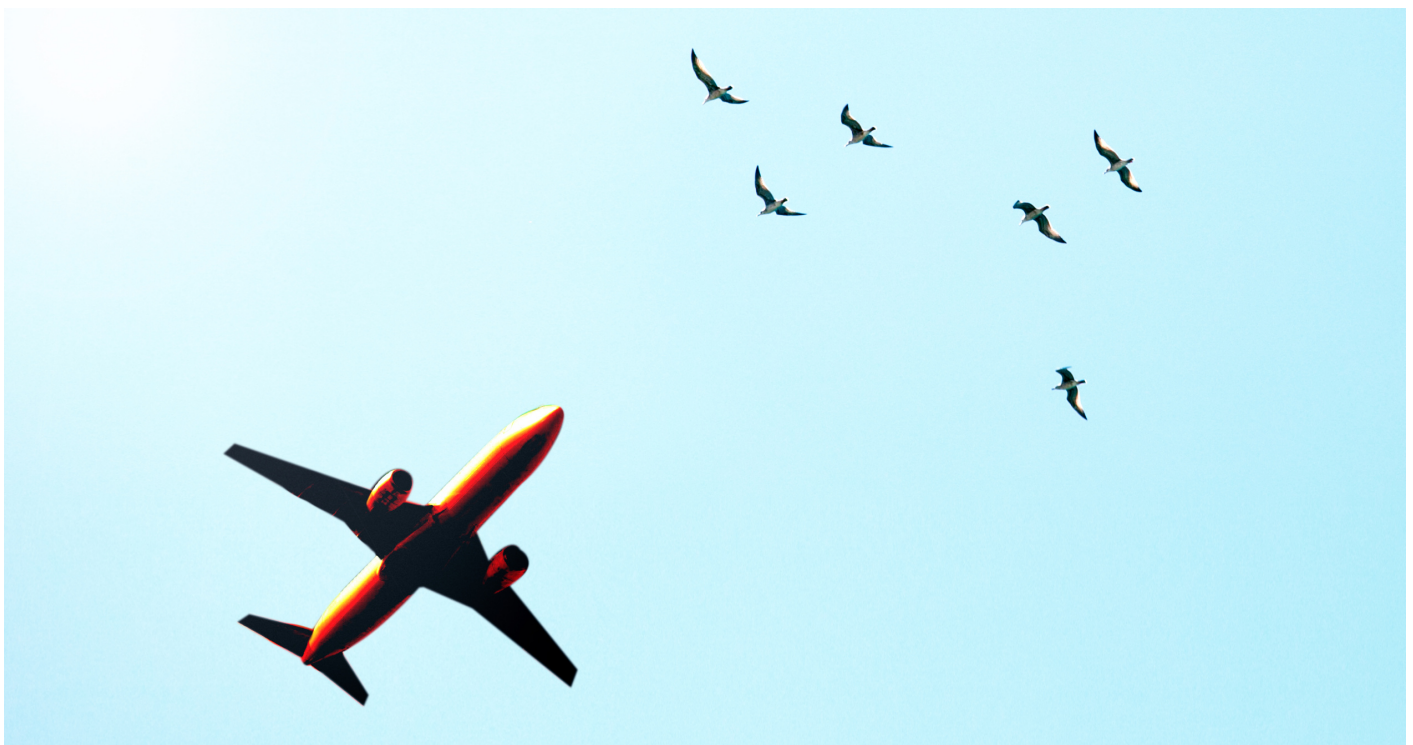
Your goal is to ensure effective Wildlife Hazard Management (WHM) - regardless of the level of operations you are currently facing. Ultimately, you should aim to reduce the operational and financial impact of bird and wildlife strikes.

EASA’s Safety Issue analysis has identified the increased presence of wildlife at aerodromes to be one of the most important topics for National Aviation Authorities (NAAs), aerodromes and airlines to consider. This makes WHM something important for all stakeholders to be thinking about right now.

The role of NAAs, aerodromes and also airlines in identifying and reducing the risks posed by birds and wildlife – how this document can help you?

If you work in an NAA, at an aerodrome or an airline there are different ways that you can use this document to help ensure that wildlife hazards are identified and managed effectively.

- **For NAAs:** Use this guide to ensure that aerodromes under your oversight are managing wildlife hazards effectively in view of the potential for an increased presence of wildlife due to the reduction in operations caused by the pandemic. It will help you to evaluate the potential changes that may have occurred during periods of reduced flying and that risks are effectively managed in all situations that airports face. To ensure that WHM assessments are effective, it is important that you gather the appropriate evidence from each aerodrome.
- **For Aerodromes:** Use this guide as part of a structured approach to identifying how your WHM risks may have changed during the crisis and to evaluate where your risks are to enable you to put in place the appropriate mitigation measures. Your efforts at an operational level are vital in the safety of operations!
- **For Airlines:** Monitor the bird and wildlife strikes in your route network to help identify where your greatest wildlife hazards might exist. This in turn may help you in your discussions with the respective NAAs and aerodrome operational teams in order to identify the best way to mitigate the risk.



What can you do to establish if an effective WRMP is in place?

- Go through the questions below - a socially distanced on-site visit using competent personnel is the most effective approach.
- Refer to the relevant part of EASA regulation (EU) No 139/2014 - Acceptable Means of Compliance (AMC) and Guidance Material (GM), provided in Appendix 1, and the supplementary information in Appendix 2 when needed.
- Use the table in Appendix 3 as an easy way to record your findings if it helps.

What are your identified Wildlife Hazard Management risks associated with the changes imposed by the COVID-19 situation?

This opening question allows the aerodrome operator to demonstrate how their WRMP has reacted to the changing situation. The answer should be well-structured, detailing how the aerodrome operator foresees the impact of any changes to the plan and how it will mitigate such changes to maintain compliance with regulations.



Regulatory References

COMMISSION REGULATION (EU) No 139/2014

Article 10 – Wildlife Hazard Management

1. Member States shall ensure that wildlife strike hazards are assessed through:
 - c) An ongoing evaluation of the wildlife hazard by competent personnel.

AMC1 ADR.OPS.B.020 Wildlife strike hazard reduction

GENERAL

- (c) ensure that wildlife hazard assessments are made by competent personnel.

GM1 ADR.OPS.B.020 Wildlife strike hazard reduction

WILDLIFE RISK ASSESSMENT

- (a) The aerodrome operator should:
 1. conduct a risk assessment using strike data for each species, as well as information on the presence of species, the number of individuals, and their biology, and update this regularly;
 2. take into account the number of strikes for each species and the severity of damage arising from those strikes; and target actions on those species which are present with the highest frequency and create the greatest damage.
- (b) Wildlife risk assessments should be made by qualified personnel.

Various wildlife risk assessment methodologies are used across Europe based on a variety of metrics. Some of these metrics require the aerodrome operator to have identified strikes or wildlife presence on their airfield. This requires a high degree of (ornithological) subject knowledge which needs to be evidenced to ensure the assessment is valid. The aerodrome operator should be able to demonstrate that the risk assessment is then used to take appropriate actions to reduce the identified risk(s).



Suggested Evidence

- Obtain a copy of the Risk Assessment. The assessment should have been updated in response to the challenges caused by COVID-19 (check for changes). The aerodrome operator should be able to prove that the risk assessment has helped to reduce risk.

What changes have been made to your Wildlife Management Plan in response to the COVID-19 situation?

As a result of significant financial pressure caused by the COVID-19 pandemic, many aerodrome operators have looked to reduce their operating costs. As a result, aerodrome operators have considered reducing their WRMP budgets. A reduction of the budget will impact the ability to deliver the full WRMP. As such, this situation has the potential to increase the wildlife-strike risk. It is important to understand the impact of any changes and to be assured that actions result in reduced risk.



Regulatory References

COMMISSION REGULATION (EU) No 139/2014

ADR.OPS.B.020 Wildlife Strike Hazard Reduction

The aerodrome operator shall:

- b) Establish means and procedures to minimise the risk of collisions between wildlife and aircraft, at the aerodrome;

GM2 ADR.OPS.B.020 Wildlife strike hazard reduction

WILDLIFE RISK MANAGEMENT PROGRAMME

The wildlife risk management programme may cover an area of approximately 13 km (7 NM) from the aerodrome reference point, and should include, at least, the following elements:

(a) assignment of personnel:

1. a person who is accountable for developing and implementing the wildlife risk programme;
2. a person who oversees the daily wildlife control activities, and analyses the collected data and carries out risk assessments in order to develop and implement the wildlife risk management programme; and
3. trained and qualified staff who detect and record the birds/wildlife, and assess the bird/wildlife hazard, and expel hazardous birds/wildlife;
4. a process to report, collect, and record data of struck and living birds/wildlife;

(c) a process to analyse the data and to assess the bird/wildlife hazard to develop mitigation, proactive, and reactive measures. This should include a risk assessment methodology;

(d) a process of habitat and land management both on, and in its surroundings, whenever possible, in order to reduce the attractiveness of the area to birds/wildlife;

(e) a process to remove hazardous birds/wildlife;

(f) a process for liaison with non-aerodrome agencies and local landowners, etc. to ensure the aerodrome is aware of developments that may contribute to creating additional bird hazards within the surrounding of the aerodrome's infrastructure, vegetation, land use and activities (for example crop harvesting, seed planting, ploughing, establishment of land or water features, hunting, etc. that might attract birds/wildlife).



Suggested Evidence

- Obtain a copy of the latest WRMP and evidence any changes resulting from the COVID-19 pandemic, i.e., delivery of active control, availability of control equipment and changes to the airside habitat management plan.

Please describe your current Active Control procedures.

Effective active control should result in a safe operating environment for aircraft movements to take place. The level of active control can be flexible depending on the aircraft movement rate. Supplementary guidance (see appendix 2) provides direction for variable aircraft movement rates.



Suggested Evidence

- Check log data to obtain evidence of the level of delivery of active control and document control of the use equipment.
 - Identify the times that patrols were carried out.
 - Identify aerodrome areas patrolled.
 - Note the level of recording of airside wildlife.
 - Note the detail of control provided.
- However, the presence of hazardous wildlife airside provides a reliable indicator about potential ineffectiveness of active control.

Please describe your current airside Habitat Management procedures

The EASA regulation (see question 2) requires the aerodrome operator to: *[Implement and maintain a process of habitat and land management both on, and in its surroundings, whenever possible, in order to reduce the attractiveness of the area to birds/wildlife;]*

Should changes in the airside habitat management plan be made due to the COVID-19 pandemic, it will be important to know what they are if their potential to affect risk is to be identified. Supplementary guidance (item 2) provides guidance on what good looks like (see appendix 2).

If the aerodrome operator follows internationally accepted practices, it will have documented evidence of the latest airside habitat management plan and of any changes resulting from the COVID-19 pandemic.

Good airside habitat prevents the presence of hazardous wildlife. However, this varies depending on the geographic location of the aerodrome (both on a global and local level) and on the climatic conditions of the location. Aerodromes that have a continental climate will require different approaches to those located in oceanic or Mediterranean climates, as the fauna will have adapted to the local conditions.

Evidence that the aerodrome operator is aware of these differences needs to be obtained. These will include the aerodrome operator being able to state the reasons why they are applying a certain policy and specify the actions to reduce attractants for key species (see risk assessment mentioned in question 1).



Suggested Evidence

- Obtain a copy of the latest Airside Habitat Management Plan.
- Make an airside inspection or request photographic evidence of the airside habitat in representative sections of the airfield. This information will help evidence progress made.

Provide details of your plan to ensure wildlife risks are managed when the number of flights increases/operations restart (including lead time – how far in advance such a plan is activated).

Request evidence of the aerodrome's plan to deal with the increase of flying, paying attention to the timelines and goals set. The plan should clearly state that the aim is to ensure that the wildlife-strike risk should be managed in line with ICAO ALARP principles. Any new WRMP will need enough time to enable the plan to provide a safe operating environment for aircraft.



Suggested Evidence

- All hazardous wildlife should have been controlled from critical areas and not habituated to the airfield (seen not to return). Documented evidence of this (logbook) should be obtained before the restart of operations.
- Each wildlife-related hazard must be evaluated, and the most appropriate actions must be chosen to reduce or eliminate the consequences of the strike risk.

On-site assessments: Suggested actions to perform an aerodrome wildlife risk assessment

- Assess the presence of wildlife on the aerodrome and its surroundings through:
 - Detailed inspections of the movement area, including infrastructures and parked aircraft. Focus on areas that may be attractive to wildlife, such as standing water, soil irregularities (broken ground) or berry bushes.
 - Count and remove nests that have been built in parked aircrafts, ground equipment or in any aerodrome infrastructure (e.g. hangars).
 - Regular wildlife counts on the aerodrome and the surrounding area (area of approximately 13 km from the aerodrome reference point).
 - Notification and removal of wildlife remains on the movement area.
 - Wildlife patrols prior (i.e. 15 minutes) to any movement.
 - Communication with external stakeholders (landowners, local and environmental authorities, etc.) in order to be informed on changes in wildlife behaviour and presence in the vicinity of the aerodrome.
- Record and report of all wildlife related incidents data.
- Record and report of all wildlife strikes.
- Comparative analysis between 'strike data during the lockdown/restart phase' and the 'average strike data of the previous 3 or 5 years'.

ADR.OPS.B.020 Wildlife strike hazard reduction

Regulation (EU) No 139/2014

The aerodrome operator shall:

- (a) assess the wildlife hazard on, and in the surrounding, of the aerodrome;
- (b) establish means and procedures to minimise the risk of collisions between wildlife and aircraft, at the aerodrome; and
- (c) notify the appropriate authority if a wildlife assessment indicates conditions in the surroundings of the aerodrome are conducive to a wildlife hazard problem.

AMC1 ADR.OPS.B.020 Wildlife strike hazard reduction

ED Decision 2014/012/R

GENERAL

The aerodrome operator should:

- (a) participate in the national wildlife strike hazard reduction programme;
- (b) establish procedures to record and report to the appropriate authority wildlife strikes to aircraft occurred at the aerodrome, in close cooperation with organisations operating, or providing services at the aerodrome;
- (c) ensure that wildlife hazard assessments are made by competent personnel; and
- (d) establish, implement and maintain a wildlife risk management programme.

GM1 ADR.OPS.B.020 Wildlife strike hazard reduction

ED Decision 2014/012/R

WILDLIFE RISK ASSESSMENT

(a) The aerodrome operator should:

- conduct a risk assessment using strike data for each species, as well as information on the presence of species, the number of individuals, and their biology, and update this regularly;
- take into account the number of strikes for each species and the severity of damage arising from those strikes; and
- target actions on those species which are present with the highest frequency and create the greatest damage.

(b) Wildlife risk assessments should be made by qualified personnel*.

[QUALIFICATION OF PERSONNEL]*

The term 'qualified' denotes fitness for the purpose. This may be achieved through fulfilment of the necessary conditions, such as completion of required training, or acquisition of a diploma or degree, or through the gaining of suitable experience. It also includes the ability, capacity, knowledge, or skill that matches or suits an occasion, or makes someone eligible for a duty, office, position, privilege, or status.

Certain posts may by nature be associated with the possession of certain qualifications in a specific field (e.g. rescue and firefighting, civil, mechanical, or electrical engineering, wildlife biology etc.). In such cases, the person occupying such a post is expected to possess the necessary qualifications at a level that is in accordance with the applicable national or European Union legislation.]

GM2 ADR.OPS.B.020 Wildlife strike hazard reduction

ED Decision 2014/012/R

WILDLIFE RISK MANAGEMENT PROGRAMME

The wildlife risk management programme may cover an area of approximately 13 km (7 NM) from the aerodrome reference point, and should include, at least, the following elements:

(a) assignment of personnel:

- a person who is accountable for developing and implementing the wildlife risk programme;
- a person who oversees the daily wildlife control activities, and analyses the collected data and carries out risk assessments in order to develop and implement the wildlife risk management programme; and
- trained and qualified staff who detect and record the birds/wildlife, and assess the bird/wildlife hazard, and expel hazardous birds/wildlife;

(b) a process to report, collect, and record data of struck and living birds/wildlife;

(c) a process to analyse the data and to assess the bird/wildlife hazard to develop mitigation, proactive, and reactive measures. This should include a risk assessment methodology;

(d) a process of habitat and land management both on, and in its surroundings, whenever possible, in order to reduce the attractiveness of the area to birds/wildlife;

(e) a process to remove hazardous birds/wildlife;

(f) a process for liaison with non-aerodrome agencies and local landowners, etc. to ensure the aerodrome is aware of developments that may contribute to creating additional bird hazards within the surrounding of the aerodrome's infrastructure, vegetation, land use and activities (for example crop harvesting, seed planting, ploughing, establishment of land or water features, hunting, etc. that might attract birds/wildlife).

GM3 ADR.OPS.B.020 Wildlife strike hazard reduction

ED Decision 2014/012/R

TRAINING FOR WILDLIFE CONTROL

(a) The aerodrome wildlife control personnel should receive formal training prior to their initial engagement as wildlife controllers.

(b) Training for aerodrome wildlife control should be documented and records of it should be retained to satisfy periodic reviews, audits, and competence checks;

(c) Training of aerodrome wildlife control personnel should be conducted by qualified aerodrome wildlife control personnel, or specialists with proven experience in this field.

(d) Wildlife control initial training should, at least, address the following general areas:

- an understanding of the nature and extent of the aviation wildlife management problem, and local hazard identification;
- an understanding of the national and local regulations, standards, and guidance material related to aerodrome wildlife management programs (use of best-practice models);
- appreciation of the local wildlife ecology and biology, including (where applicable) the importance of good airfield grass management policies, and the benefits they can deliver to wildlife control;
- the importance of accurate wildlife identification and observations, including the use of field guides;
- local and national laws and regulations relating to rare and endangered species, and species of special concern, and the aerodrome operators policies relating to them;
- wildlife strike remains collection, and identification policies and procedures;

- long-term (passive) control measures, including on and off aerodrome habitat management, including identification of wildlife attractions, vegetation policies, air navigation aids protection, and drainage system, and water body management practicalities;
- short-term (active) tactical measures, using well established effective wildlife removal, dispersal, and control techniques;
- documentation of wildlife activities and control measures, and reporting procedures (the aerodrome wildlife management plan);
- firearms and field safety, including the use of personal protective equipment;
- wildlife strike risk assessment and risk management principles, and how these programs integrate with the aerodrome's safety management system.

(e) Wildlife control staff should be fully aware of the conditions and terms of the operations of the aerodrome environment. Where this is not relevant, the wildlife control personnel should receive appropriate training, including:

- aerodrome airside driver training, including aerodrome familiarisation, air traffic control communications, signs and marking, navigational aids, aerodrome operations, and safety and other matters the aerodrome operator deems appropriate; and
- aircraft familiarisation, including aircraft identification, aircraft engine design, and impact of wildlife strikes on aircraft systems.

(f) It should be ensured that wildlife control staff maintains competence in the role. This could be achieved either by regular refresher training or another system of monitoring, acceptable to the appropriate authority. The maintenance of competence should include the areas in (d) and (e) above, and also include:

- reviewing firearms safety;
- changes in the local environment;
- changes in risk management policy;
- recent wildlife events at the aerodrome;
- improvements in active and passive measures; and
- any other matters the aerodrome operator deems appropriate.

GM4 ADR.OPS.B.020 Wildlife strike hazard reduction

ED Decision 2014/012/R

RECORDING AND REPORTING OF WILDLIFE STRIKES AND OBSERVED WILDLIFE

(a) It is necessary to maintain a record of all wildlife activity or 'bird/wildlife log'. The log should include, at least, the following information:

- numbers, species, and location of birds/wildlife seen; and
- actions taken to disperse birds/wildlife, and the results of these actions.

(b) The log should be completed at regular intervals by the wildlife control staff.

(c) The log should be analysed to identify which species represent a hazard, at which times of day or year, or under which weather conditions, etc.

Appendix 2

Additional Information on Wildlife Hazard Management

Item 1 – Responsibilities for the Aerodrome Wildlife Control Programme

A named member of the senior management team at the aerodrome should be responsible for the implementation of the wildlife control programme, including both habitat management and active wildlife control.

Item 2 - Review of Aerodrome Features that Attract Birds/Wildlife

The aerodrome operator should undertake a review of the features on its property that attract hazardous birds/wildlife. The precise nature of the resource that they are attracted to should be identified and a management plan developed to eliminate or reduce the quantity of that resource, or to deny wildlife access to it as far as is practicable. Where necessary, support from a professional bird/wildlife strike prevention specialist should be sought. Documentary evidence of this process, its implementation and outcomes should be kept.

Item 3 – Bird/Wildlife Controller

A properly trained and equipped bird/wildlife controller should be present on the movement area for at least 15 minutes prior to any aircraft departure or arrival. Thus, if aircraft are landing or taking off at intervals of less than 15 minutes there should be a continuous presence on the movement area throughout daylight hours. The controller should not be required to undertake any duties other than bird control during this time. Note that for aerodromes with infrequent aircraft movements, 15 minutes may not be long enough to disperse all hazardous birds/wildlife from the vicinity of the runway. In this case the controller should be deployed sufficiently in advance of the aircraft movement to allow full dispersal to be achieved. At night, active runways and taxiways should be checked for the presence of birds/wildlife at regular intervals and the dispersal action taken as needed.

Item 4 – Wildlife Control Equipment

Wildlife control staff should be equipped with deterrent devices appropriate to the species encountered, the numbers of wildlife present, and to the area that they need to control. Staff should have access to appropriate devices for removal of birds/wildlife, such as firearms or traps, or the means of calling on expert support to supply these techniques at short. All staff should receive proper training in the use of wildlife control devices.

Item 5 – Recording of Bird/Wildlife Movements

Aerodrome bird/wildlife controllers should record the following at least every 30 minutes (if air traffic is sufficiently infrequent that bird patrols are more than 30 minutes apart, an entry should be made for each patrol carried out).

- areas of the aerodrome patrolled,
- numbers, location and species of birds/wildlife seen,
- action taken to disperse the birds/wildlife,
- results of the action.

More general information such as the name of the bird/wildlife controller on duty, time on and off duty, weather conditions etc should be recorded at the start of a duty period.

Item 6 – Defining Bird/ Wildlife Incidents

Bird/wildlife incidents should be defined in 3 categories:

- **Confirmed strikes:** Any reported collision between a bird or other wildlife and an aircraft for which evidence in the form of a carcass, remains or damage to the aircraft is found or any bird/wildlife found dead on the movement area where there is no other obvious cause of death (e.g. struck by a car, flew into a window etc.).
- **Unconfirmed strikes:** Any reported collision between a bird or other wildlife and an aircraft for which no physical evidence is found.
- **Serious incidents:** Incidents where the presence of birds/wildlife on or around the airfield has any effect on a flight whether or not evidence of a strike can be found.

Item 7 – Reporting or Bird/ Wildlife Strikes

Aerodrome operators should establish a mechanism to ensure that they are informed of all bird/wildlife strikes reported on or in the vicinity of the aerodrome. The total number of wildlife strikes should never be used as a measure of risk or of the performance of the wildlife control measures at an aerodrome. Aerodrome operators should ensure that the identification of the species involved in birdstrikes is as complete as possible. Aerodrome operators should record all birdstrikes and include, as far as they are able, the data required for the standard ICAO reporting form. National Aviation Authorities should collate wildlife strike data and submit this to ICAO annually.

Item 8 – Risk Assessment of the Wildlife Strike Situation

Aerodrome operators should conduct a formal risk assessment of their wildlife strike situation and use the results to help target their wildlife management measures and to monitor their effectiveness. Risk assessments should be updated at regular intervals, preferably annually.

Item 9 – Inventory of Attracting Sites within 13km of the Aerodrome

Aerodrome operators should conduct an inventory of wildlife attracting sites within a 13km circle around the aerodrome, paying particular attention to sites close to the aerodrome and the approach and departure corridors. A basic risk assessment should be carried out to determine whether the movement patterns of birds/wildlife attracted to these sites means that they cause, or may cause, a risk to air traffic. If this is the case, options for wildlife management at the site(s) concerned should be developed and a more detailed risk assessment performed to determine if it is possible and/or cost effective to implement management processes at the site(s) concerned. This process should be repeated annually to identify new sites or changes in the risk levels produced by existing sites.

Where national laws permit, aerodromes, or National Aviation Authorities, should seek to have an input into planning decisions and land use practices within the 13km circle for any development that may attract significant numbers of hazardous birds/wildlife. Such developments should be subjected to a similar risk assessment process as described above and changes sought, or the proposal opposed, if a significant increase in birdstrike risk is likely to result.

WHM Evaluation Checklist

Hazards	Controls	Notes	Evidence
Increased wildlife presence	Detailed visual inspection of the manoeuvring area (Check if wildlife occupy "new" areas at aerodrome)		BCU Log - Airside visit - Check for presence of wildlife
	Check if nests have been built in any aerodrome infrastructure or parked aircraft		BCU Log - Airside visit - Check airside environment for nests
	Regular surveys on aerodrome and 13Km radius area around aerodrome		BCU Log - Define 'regular'
	Check if new species are present at aerodrome		BCU Log - Airside visit
	Wildlife prevention measures reinforced during the initial stages of the transition to normal operations		BCU Log - Airside visit
Changes in wildlife behaviour: reduced reaction to frightening actions	Wildlife prevention measures reinforced during the initial stages of the transition to normal operations		BCU Log
Wildlife causing degradation or failure of critical aircraft systems	Check if wildlife have used parked aircrafts as shelter or nesting site during the lockdown		BCU Log - Airside visit
Increased wildlife strike risk	Risk assessment analysis	Risk assessment methods:	SMS - Check for RA updates - Obtain a copy of latest Wildlife Risk Management Plan
	Collect and report to ATC and NAA data on wildlife incidents	GM1 ADR.OPS.B.020 Wildlife strike hazard reduction	BCU Log
	Notify wildlife strikes to ATC and NAA	Airport Service Manual - Part 3 (Doc 9137 - OACI)	SMS
		Assessment of wildlife hazard on aerodromes - Technical Guide STAC www.stac.aviation-civile.gouv.fr/fr/publications/	
		Soldatini et al (2011) Wildlife Strike Risk Assessment in Several Italian Airports: Lessons from BRI and a New Methodology Implementation	
		Allan, J.R. (2006) A Heuristic Risk Assessment Technique for Birdstrike Management at Airports Risk Analysis Vol. 26 No. 3	
Reduction in WHM staff during lockdown	Maintain knowledgeable staff		WRM Coordinator - Check shift roster
	Recrute new staff when necessary		WRM Coordinator
	Provide training on wildlife hazard management to new staff	GM3 ADR.OPS.B.020 Wildlife strike hazard reduction ED Decision 2014/012/R -TRAINING FOR WILDLIFE CONTROL	WRM Coordinator - Training record, certification and syllabus
Deterioration/lack of scaring equipment	Check scaring equipment stock		WRM Coordinator
Habitat management	identify possible airside habitat changes		Airside visit - Receipt of photographic evidence
	Check and updated the habitat management plan		WHM Coordinator - Obtain a copy of Airside habitat management plan