Wildlife Hazard Management Programme

Wildlife Strike

A wildlife strike is identified when:

- **A pilot reports a strike through the Air Traffic Controller;**
- **Maintenance personnel report that aircraft damage is due to a wildlife strike;**
- **Airport personnel report seeing a wildlife strike; and**
- **Airport personnel find wildlife remains on airside areas within 200 ft of a runway centre line and no other cause of death is identified.**




Wildlife Hazard Management Programme (WHMP)

- **An aerodrome operator shall implement a Wildlife Hazard Management Programme in order to reduce the risks presented by wildlife at the aerodrome and in its vicinity;**

- **The presence of wildlife on and within the aerodrome vicinity may pose a serious hazard to aircraft operational safety;**

- **To reduce the risk to aviation safety, active assessments, reporting and management of wildlife are necessary;**

- **WHMP is a method for aerodrome operators to adopt reasonable wildlife risk control measures, in order to prevent wildlife from colliding with aircraft;**

Wildlife Hazard Management Programme (WHMP)

- **Land use around the aerodrome shall, wherever possible, not be attractive habitats for wildlife;**
- **A wildlife safety risk assessment shall be conducted, covering the aerodrome and its vicinity;**
- **The WHMP shall be established and tailored to the local environment and be commensurate with the wildlife safety risk assessment;**
- **The WHMP shall include procedures and measures for reducing the wildlife risk at the aerodrome to an acceptable level;**
- **Wildlife strike reports shall be collected and forwarded to ICAO for inclusion in the ICAO Bird Strike Information System (IBIS) database.**

ICAO DOCS REFERENCE

- **Procedures for Air Navigation Services (PANS) Aerodromes, Doc 9981, Third Edition, 2020**
  - **Chapter 2.1.2 : Wildlife Hazard Management forms part of certification process of an aerodrome.**
- **Airport Services Manual, Doc 9137, Part 3**
- **Annex 14, Volume 1, Chapter 9.4.2**

Wildlife Hazard Management Programme (WHMP)

An aerodrome operator shall develop, implement and demonstrate an effective WHMP at the aerodrome, and this shall be tailored to and commensurate with the size and level of complexity of the aerodrome, and the number of aircraft movements and their type, taking into account the wildlife hazards identified and the risk assessment of those hazards.

Contents of WHMP

- Roles and tasks in the Wildlife Hazard Management Programme.
- Collecting, reporting and recording data on wildlife strikes and observed wildlife.
- Wildlife safety risk assessment.
- Habitat and land use management.
- Expelling and deterring wildlife.
- Coordination with stakeholders.
- Personal training.
- Aircraft Operators

Roles and tasks in the Wildlife Hazard Management Programme.

- **a Manager who is accountable for developing and implementing the Wildlife Hazard Management Programme ;**

- **a Coordinator who shall oversee the daily activities, analyse the collected data and carry out risk assessments in order to develop and implement the Wildlife Hazard Management Programme ;**

- **trained and competent staff who shall detect and record the presence of wildlife and assess the wildlife hazard and expel and/or deter hazardous wildlife;**

- **trained and competent staff to reduce the attractiveness of identified areas.**

Collecting, reporting and recording data on wildlife strikes and observed wildlife

- **An effective WHMP depends on accurate and reliable data. Reviewing.**

- **Analysing wildlife strikes and wildlife observations shall help identify hazards at the aerodrome and its vicinity and indicate the effectiveness of current wildlife strike prevention methods;**

- **Wildlife incident reporting shall comply with the criteria included at Attachment A;**

- **The aerodrome operator shall establish procedures to record and report wildlife strikes that have occurred at the aerodrome and its vicinity, in close cooperation with all relevant organizations operating at the aerodrome;**

Collecting, reporting and recording data on wildlife strikes and observed wildlife

- **The aerodrome operator's reporting system shall contain a requirement for all relevant third parties and all aerodrome personnel to report wildlife strikes, wildlife remains, including findings thereof during aerodrome inspections, and any other relevant identified hazards, to the aerodrome operator.**

- **Wildlife activities, including incident reports, shall be recorded in a wildlife log.**

- **Data shall be analysed to identify which species represent a hazard at specific times of day and/or year, and during different types of meteorological conditions.**

Collecting, reporting and recording data on wildlife strikes and observed wildlife

- **The compilation of precise wildlife observations and strike statistics shall facilitate the analysis of data so as to improve wildlife hazard management;**

- **Wildlife detection is necessary and this is best done using mobile patrols with trained, competent and well equipped staff who are dedicated to the task.**

Wildlife safety risk assessment

- **Aerodrome operators shall conduct a specific safety risk assessment of the wildlife situation and use the results to help target wildlife management measures and monitor their effectiveness.**

- **Safety risk assessments shall be updated and repeated at regular intervals, commensurate with assessed risks;**

- **The aerodrome operator shall prioritize its wildlife management measures on those species with the highest frequency (probability) and which may create the greatest damage (severity).**

Wildlife safety risk assessment

The aerodrome operator's wildlife safety risk assessment shall, as a minimum:

- **Define the area for the safety risk assessment, which would, in most cases, be the entire aerodrome but may also include the vicinity of the aerodrome;**

- **Rate the strike probability using strike data from reports for each species, information on the presence of species, and the number of individuals and their biology, and update the data and probabilities regularly;**

- **Rate the severity of damage arising from those strikes for each species;**

Wildlife safety risk assessment

- **Determine the risk for each species; and**
- **Identify the causes (attractants, migration routes) of each wildlife hazard.**

Habitat and land use management

- **Habitat and land use management, including preventive and proactive actions, is intended to reduce the presence of wildlife on the aerodrome by taking appropriate actions.**

- **Aerodrome operators shall conduct an inventory of sites that attract wildlife within a defined radius around the aerodrome – 13 km approach corridors.**

- **Aerodrome operators shall regularly review features on, and within the vicinity of, the aerodrome that attract wildlife.**

- **A management plan shall be developed to reduce the attractiveness of these features and to decrease the number of hazardous wildlife present or to deny them physical access to these areas.**

Habitat and land use management

- **Aerodrome development shall be designed such that it will not be attractive to hazardous wildlife and no attraction shall be created during construction. This may include denying resting, roosting and feeding opportunities for hazardous wildlife.**

- **A complete perimeter fence of adequate height, strength and structure, shall be the prime method of preventing hazardous wildlife, other than birds, from gaining access to the aerodrome areas. Fences and gates shall remain closed and be regularly inspected. Fencing shall also be trenched in order to preclude burrowing animals from gaining access to the aerodrome.**

- **No food sources shall be available to hazardous wildlife on the aerodrome. The aim shall be to prevent food sources from being available through management of the aerodrome environment.**

Habitat and land use management

- **Where applicable, vegetation shall be kept at a height (6 inches) that is considered unattractive to hazardous wildlife.**

- **Where applicable, the vegetation composition on the aerodrome shall not encourage wildlife.**

- **Agricultural crops shall be discouraged from the aerodrome environment since agricultural crops and related activities (ploughing, seeding) may provide food for hazardous wildlife.**

- **Water bodies such as depressions, open drainage ditches, ponds and lakes may be a particular hazard as they may attract hazardous wildlife. These hazards shall be made less attractive by mitigation measures such as drainage, replacement by buried drain pipes, netting and fencing to deny access to wildlife that walk in or by steepening the sides.**

Habitat and land use management

List of the types of land uses which have proven to attract hazardous wildlife and which shall, in particular, be prevented, eliminated or mitigated on and in the vicinity of aerodromes:

- **fish processing;**
- **agriculture;**
- **cattle feed lots;**
- **garbage dumps and landfill sites;**
- **factory roofs and parking lots, or other infrastructure;**
- **theatres and food outlets;**
- **wildlife refuges;**
- **artificial and natural lakes;**
- **golf or polo courses, etc.;**
- **animal farms; and**
- **slaughterhouses.**

Expelling and deterring wildlife

Wildlife deterring and expelling techniques shall be based on:

- **wildlife patrols;**
- **acoustics, such as distress and alarm call simulators, specific signals, natural and synthetic cries;**
- **pyrotechnics, such as medium- and long-range cartridges and shell crackers;**
- **optical and visual deterrents, such as laser devices, flags and streamers, lights, predator models, gull models, hawk kites, balloons; and**
- **firearms, chemical repellents, lethal chemicals, trained predators (dogs and falcons), gas cannons, traps and relocation methods.**

Coordination with stakeholders

- **Effective wildlife hazard management requires communication, cooperation and coordination with all relevant stakeholders.**

- **Aerodrome operators shall identify which stakeholders on and off the aerodrome shall be involved and consulted.**

- **Such stakeholders may include transportation officials (including government), aerodrome staff, the ATS unit, aircraft operator representatives (including pilots), nature conservation organizations (government and non-government), local municipalities/cities, and organizations responsible for land management and local planning and development approvals in the vicinity of the aerodrome.**

Coordination with stakeholders

- **The aerodrome operator shall encourage stakeholders to share data that was collected, reported and recorded on wildlife observations and strikes, in order to improve the WHMP.**

- **Process for rapid communication among those involved in wildlife control as well as with ATS including issuance of appropriate warnings to aircraft operating on, and within the vicinity, of the aerodrome, by the air navigation services provider (ANSP).**

- **Liaising with non-aerodrome agencies, local landowners and other relevant stakeholders, to ensure that the aerodrome operator is aware of developments that may contribute to creating additional wildlife hazards in the infrastructure, vegetation, land use and activities within the aerodrome's vicinity (e.g. crop harvesting, seed planting, ploughing, establishment of land or water features, hunting).**

Personnel Training

- **Initial and recurrent training of staff.**

- **The initial training for wildlife control personnel shall, as a minimum, address the following areas:**

  - **an understanding of the nature and extent of the aviation wildlife hazard, and local hazard identification;**

  - **an understanding of national and local regulations, standards and guidance material related to the aerodrome wildlife hazards management programme (use of best-practices models);**

  - **a broad appreciation of local wildlife ecology and biology;**

Personnel Training

- **the importance of accurate wildlife identification and observations, including the use of field guides;**

- **local and national laws and regulations relating to protected species, and species of special concern, and the aerodrome operators' policies relating to them;**

- **high-risk species identified in the wildlife risk assessment;**

- **wildlife strike remains collection procedures, identification and reporting;**

- **active/tactical measures, using well-established effective wildlife removal, dispersal, detection and control techniques;**

Personnel Training

- **documentation of wildlife activities, control measures and reporting procedures (the aerodrome wildlife management programme); and**

- **firearms, drones and any other equipment and their use on the aerodrome, including the use of personal protective equipment.**

- **airside driver training, aerodrome familiarization, air traffic control communications (radiotelephony (RTF)), signs and markings, navigational aids, aerodrome operations and safety, and other matters that the aerodrome operator deems appropriate; and**

- **aircraft familiarization, including aircraft identification and effect of wildlife strikes on aircraft systems.**

Personnel Training

Recurrent training shall include the following:

- **changes in the local environment;**
- **recent wildlife events at the aerodrome;**
- **changes in active and passive measures; and**
- **any other matters that the aerodrome operator deems appropriate.**

Evaluation of the wildlife control programme

- **The following questions are designed to assist in determining if there is an effective wildlife control programme at the aerodrome.**

- **Local risk assessment**
  - **Has a wildlife strike reporting procedure been implemented at the aerodrome?**
  - **What is the wildlife strike rate at the aerodrome over the last five years (with or without damage to the aircraft)?**
  - **Is there a procedure to collect regularly information about wildlife, both dead (carcasses) and living?**
  - **Has a means for positively identifying carcass remains been established?**

Evaluation of the wildlife control programme

- **How many reports from pilots are related to intrusions of wildlife, other than birds, over the last five years? and**

- **Has a list wildlife attractants at and surrounding the aerodrome been completed?**

Evaluation of the wildlife control programme

➢ Wildlife control programme

- **Is there a wildlife control officer responsible for the management of wildlife on the aerodrome?**

- **Has a land-use plan been established with regard to effective land use on and off the aerodrome as it pertains to the wildlife control programme?**

- **What ecological measures are implemented to reduce wildlife attractiveness at the aerodrome and in the vicinity of the aerodrome?**

- **Is there a habitat management programme on the aerodrome?**

Evaluation of the wildlife control programme

Wildlife control programme

- **Are garbage dumps forbidden around the aerodrome? If yes, within what distance are they forbidden?**
- **Is the fence suitable to prevent hazardous animal incursions?**
- **Which scaring methods are implemented at the aerodrome? and**
- **Have staff been employed and trained specifically to scare off wildlife at the aerodrome?**

Measures To Control Wildlife On And Around The Aerodrome

- **maintain fences around the aerodrome to prevent the entry of domesticated and feral animals;**
- **cover or eliminate/alterate food sources;**
- **cutting and keeping grass height at approximately 20 cm;**
- **trimming shrubs, bushes, and trees to prevent or discourage birds from nesting or animals from building dens;**
- **avoid nesting of birds in waste water treatment plants, hangars and roofs of buildings;**

- **avoid collection of water in drains and use of garbage disposal dumps in the vicinity of the aerodrome;**
- **posting signs along roadways to discourage the feeding of wildlife;**
- **use of distress signals, auditory and visual deterrents to disperse wildlife;**
- **it is recommended that aerodrome lands are not used for agriculture;**
- **aerodrome operator shall require wildlife-proof storage of food waste, prohibit wildlife feeding and promote good sanitation;**
- **prohibition of waste management facilities (refuse collection, land fill sites and garbage dumps) within 13 km of the Aerodrome Reference Point;**

- **pits and depressions that can be filled with rain water, shall be levelled and drained;**

- **clearing of water ditches at regular intervals to avoid clogging with vegetation and soil;**

- **structures (buildings and hangars) shall be so designed to minimize exposed areas that birds can use for perching and nesting;**

- **all unnecessary or abandoned posts, fences and other structures that can be used as perches by raptors and other birds shall be removed from aerodrome property;**

- **avoid trees that produce fruits and seeds, at the aerodrome;**

- **Use of repellent (audio and visual) harassment techniques to be used to keep hazardous wildlife away from specific areas on or near the aerodrome;**

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- **avoid trees that produce fruits and seeds, at the aerodrome; and**

- **Use of repellent (audio and visual) harassment techniques to be used to keep hazardous wildlife away from specific areas on or near the aerodrome;**

Passive Wildlife Management Techniques

Examples	Suggested Approaches
Cropland	• Limit to: cereals, not corn or oats as well as fruits plants • Avoid ploughing – require night-time ploughing, haying; other harvesting controls and no standing bales
Grass	• Manage height according to hazards at the airport • Adaptive management, experimental manipulation at individual airports • Avoid allowing grass to set seed, seed-head suppression
Buildings	• Ensure entry holes/crevices blocked, screened, netting • Influence design of new buildings, slope ledges • Porcupine wire, electric shocking, sticky caulking
Open water, ponds, ditches, poorly drained areas	• Drain, improve drainage • Fill, over-wire, netting, BirdBalls • Grade slopes steeply, remove vegetation • Trap mammals (e.g., Dogs & Cats)
Shrubs, trees, brush, hedges, woodland	• Remove, including undergrowth and understorey layers • Reduce biodiversity, habitat niches
Infield perching features	• Remove • Apply spikes when required
Waste storage	• All disposal containers must be wildlife proof • Eliminate dumps on the airport
Outdoor picnic areas	• Signage(near perimeter fence) • Provide wildlife proof garbage containers
All remaining habitats, airport perimeter	• Chain-link fencing, high-tensile fixed knot fencing, • ElectroBraid fencing, • Buried fences • One-way gates.
Aircraft	• Ensure that bird nesting does not occur within parked aircraft, generally during peak season for Private Flight.

Active Wildlife Management Techniques

	Technique	Primary Targets	Potential Efficacy as Part of an Integrated Program
Non-lethal	Pyrotechnics	Birds, some mammals	High
	Live trapping	Birds, some mammals	Low to moderate
	Playback of distress calls – remote system	Birds	Low to moderate

Wildlife Hazard Management Programme

QUESTIONS?

THANK YOU