BIRD AND WILDLIFE STRIKE MANAGEMENT AT AERODROMES

Published by the National Bird and Wildlife Hazard Committee

Issue Nr. 1 - March 2021

IAA
Údarás Eitlíochta na hÉireann
Irish Aviation Authority

Contents

FOREWORD

Aircraft and birds have shared the sky since the earliest days of powered flight. On 7th of September 1908, while piloting the Wright Flyer, Orville Wright had what is believed to be the first collision between an aircraft and a bird, what is now known as a 'bird strike'. Since then, the number and rate of bird strikes has increased principally due to growth in air traffic, the development of faster, quieter turbofan-powered aircraft and, in many parts of the world, successful wildlife conservation that has led to increasing numbers of birds and other wildlife that are known to represent a risk to aviation.

The presence of wildlife (birds and animals) on and in the vicinity of an aerodrome poses a serious threat to flight safety, which can result in accidents, serious incidents and economic loss. So, it is essential that the aviation industry continues to focus efforts on formulating effective strategies in preventing and mitigating the risk of what we now call 'wildlife strikes'.

This publication has been prepared as a collaboration between the Irish Aviation Authority – Safety Regulation Directorate and members of the State's National Bird and Wildlife Hazard Committee. Its purpose is to provide aerodrome operators and other aviation stakeholders with information to assist them in managing wildlife hazards on or in the vicinity of aerodromes in Ireland. The document may also be beneficial to non-aviation stakeholders particularly in relation to land use activities in the vicinity of aerodromes, or those who have an academic or pastime interest in this area.

The Irish Aviation Authority's State Plan for Aviation Safety in Ireland 2019 – 2022 identifies wildlife strikes as a significant safety risk. As an action to ensure continued focus on the threat posed, this publication has been prepared to assist aerodrome operators in the establishment, maintenance, and continuous improvement of an effective aerodrome Wildlife Hazard Management Plan. The content is provided as supplementary guidance material in support of European and National regulatory requirements and reflects best practice and accepted standards presented at the National Bird and Wildlife Hazard Committee.

The IAA would like to acknowledge the significant contribution of the members of the National Bird and Wildlife Hazard Committee including specialist subject matter advice in the development of this aviation safety publication.

Diarmuid Ó Conghaile

Aviation Regulator/ CEO Designate

1 Introduction

Based on the guidance in the ICAO Airport Services Manual Part 3 (Doc 9137), the Irish Aviation Authority established the Irish National Bird and Wildlife Hazard Safety Committee (formerly known as National Bird Hazard Committee) which amongst other issues is to share information and exchange views on the subject of wildlife management and wildlife strike reduction at aerodromes in the State.

Irrespective of the applicable regulatory certification / licencing regime (European or national), operators of aerodromes open to public use are required to take all necessary actions to identify, manage and mitigate the risk posed by wildlife to aircraft operations by adopting measures likely to minimise the risk of collisions between wildlife and aircraft to as low as reasonably practicable.

As the acceptable means of compliance with ICAO and EASA rules and requirements, each certificated / licenced aerodrome operator has to develop a Wildlife Hazard Management Plan (WHMP) to encompass the ICAO / EASA requirements in assessing their wildlife strike risk, and to define appropriate wildlife control measures.

It is acknowledged that there is a considerable volume of existing international detailed publications concerning wildlife hazard management on aerodromes which is available to assist aerodrome operators in their implementation of a Wildlife Hazard Management Plan. However, it is not intended to replace this valuable information but to present information in the Irish context, gathering general principles for wildlife management that are agreed at the National Bird & Wildlife Hazard Committee and best practices discussed at this forum.

Wildlife strike problems at aerodromes result from various factors interacting at a local level. The nature and magnitude of the problem an individual aerodrome faces will depend on many factors, including air traffic type and volume, local and migratory wildlife populations and local wildlife habitat conditions.

The presence of wildlife (birds and animals) on and in the vicinity of an aerodrome poses a serious threat to aircraft operational safety. Collisions between aircraft and wildlife are common occurrences. Wildlife strikes are numerous, affect the safety of aircraft operating at aerodromes and costly. Wildlife strikes have resulted with fatalities and loss of aircraft and cost billions of euros on a global scale since records of strikes began.

Most wildlife strikes occur in the vicinity of an aerodrome with the majority of strikes occurring when an aircraft is less than 3000ft above ground level. Statistics issued from the analyses of wildlife strike reports for the years 2008 to 2015, based on 97,751 reports, received from ninety one States (Electronic bulletin EB2017/25 refers), show that 96% of wildlife strikes occurred on or near aerodromes, among which 39% occurred during the take-off run or climb phases and 57% occurred during the decent, approach or landing roll phases. Thus, management efforts to reduce wildlife hazards are focused at the aerodrome. There are many techniques used to reduce wildlife hazards at aerodromes, and these usually work best when used in an integrated manner.

2 Roles and Responsibilities within a Bird / Wildlife Strike Control Programme

2.1 General

The principles in this document are coherent with the wildlife strike hazard reduction provisions of European Regulation 139/2014, Article 10 Wildlife hazard management, Implementing Rule ADR.OPS.B.020 Wildlife strike hazard reduction and ICAO Annex 14, Chapter 9 (9.4) Wildlife strike hazard reduction.

2.2 Role and Responsibilities of the IAA Aviation Regulator

2.2.1 IAA Aviation Regulator ensures that wildlife strike hazards are assessed through:

(a) the establishment of a national procedure for recording and reporting wildlife strikes to aircraft;
(b) the collection of information from aircraft operators, aerodrome personnel and other sources on the presence of wildlife constituting a potential hazard to aircraft operations, and;
(c) an ongoing evaluation of the wildlife hazard by competent personnel.

2.2.2 IAA Aviation Regulator ensures that any procedures in the aerodrome manual relating to bird/ wildlife control are developed and implemented as part of the aerodrome safety management system.

2.2.3 IAA Aviation Regulator adopts, if required, the mutual coordination and communication among aerodrome operators and any external authorities (Local Authority Planning departments) regarding land-use planning and development in the vicinity of an aerodrome as long as such development affects the likelihood of wildlife existence.

2.2.4 IAA Aviation Regulator shall, at the end of each year, after receiving the number of confirmed wildlife strikes recorded, submit this data to ICAO for inclusion in the ICAO Bird Strike Information System (IBIS) database.

2.3 Role and Responsibilities of the Aerodrome Operator

2.3.1 The aerodrome operator is required to:

(a) assess the wildlife hazard on, and in the surroundings of the aerodrome and implement a wildlife risk management programme which may cover an area of approximately 13 km (7NM) from the aerodrome reference point;

(b) establish means and procedures to minimise the risk of collisions between wildlife and aircraft, 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.

2.3.2 The aerodrome operator Accountable Manager, who has the authority for ensuring that all activities can be financed and carried out in accordance with the applicable requirements, has the final accountability for the wildlife management program.

2.3.3 The aerodrome operator is responsible for the conduct of a wildlife hazard assessment on and in the vicinity of the aerodrome.

2.3.4 The aerodrome operator is required to include in the aerodrome manual, the wildlife hazard assessment and the measures established / adopted to control the identified hazards and minimise the likelihood of strikes between wildlife and aircraft.

2.3.5 The aerodrome operator, in cooperation with IAA AviationRegulator if necessary, approaches and communicates with external authorities (Local Authority Planning departments) in the aerodrome vicinity to be notified with any development or land-use planning which may affect the likelihood of wildlife existence.

2.3.6 Wildlife hazard management on an aerodrome requires communication, cooperation, and coordination among various stakeholders on the aerodrome. This is especially true when identifying hazardous wildlife situations, executing large scale habitat management actions, or developing management strategies for hazardous wildlife that are endangered or threatened. The aerodrome operator shall establish an aerodrome wildlife committee in order to facilitate communication, cooperation and coordination.

2.3.7 Membership of the above aerodrome wildlife committee should typically include the following (depending on the scale of the aerodrome, proportionate to the size, traffic and complexity):

- Line manager (delegated responsibility for wildlife management program);
- Wildlife Control Coordinator;
- Wildlife Control Operator representative;
- Aircraft Operator representatives;
- Aerodrome Planning;
- Aerodrome maintenance and operations;
- Air Traffic Services;
- Local Runway Safety Team representative;
- Local Authority;
- Depending on the organisational structure of the aerodrome, other representatives can also be included such as Rescue and Fire Services;

2.3.8 The aerodrome Wildlife Committee shall review strike data collected and observations of bird/wildlife, assess bird/wildlife risks and summarise trends in order to evaluate and determine what effective control measures should be implemented in order to manage the issue arising.

2.3.9 The aerodrome operator safety manager should ensure the oversight of wildlife management activities within the framework of the aerodrome safety management system.

3 Legal and Regulatory Considerations

The compliance with national regulations or practices, such as environmental and animal protection regulations, is emphasised to ensure that a Wildlife Hazard Management Plan does not conflict with the objectives of preservation of biodiversity and reduction of environmental impact of the environmental impact of air transportation.

The most important legislation underpinning biodiversity and nature conservation in Ireland is the Wildlife Act, 1976 the Wildlife (Amendment) Act, 2000 and the European Union (Natural Habitats) Regulations, SI 94/1997, which have been amended twice with SI 233/1998 & SI 378/2005. The 1997 Regulations and their amendments were subsequently revised and consolidated in the European Communities (Birds and Natural Habitats) Regulations 2011.

The Wildlife Act, 1976 provides a good legislative base for nature conservation. The species protection provisions, including those regulating hunting, are quite comprehensive, to the extent, for example, that they largely foresaw similar aspects of the EU Birds and Habitats Directives. Nature conservation legislation was substantially enlarged and improved by the Wildlife (Amendment) Act, 2000 and the Birds and Natural Habitats Regulations.

In July 2017, the 1976 Wildlife Act was amended with S.I. No. 166 of 2017. These Regulations amend the Second Schedule of the European Communities (Wildlife Act, 1976) (Amendment) Regulations 1986 by the addition of non-lethal means to existing lethal means of controlling certain species of wild birds mentioned in the First Schedule.

The Department of Culture, Heritage and the Gaeltacht (DCHG) provides the legislative and policy framework for the conservation of nature and biodiversity in Ireland. The Birds Directive (Directive 2009/147/EC) on the conservation of wild birds is implemented in Ireland, inter alia, under the Wildlife Act. Under the terms of the Directive, all Member States of the EU are bound to take measures to protect all wild birds and their habitats.

Under Article 9, Member States may derogate from these terms for one or more of the following reasons:

- public health and safety;
- air safety;
- prevent serious damage to crops, livestock, forests, fisheries and water;
- protection of flora and fauna.

In Ireland, these derogations are achieved by the competent authority, the Minister for DCHG, by way of Declarations made under the European Communities (Wildlife Act, 1976) (Amendment) Regulations 1986, as amended.

These Declarations are reviewed annually for publication in April each year. There are two Declarations for the most recent year (May 2018 –April 2019), comprising the general state-wide declaration and an air-safety declaration (which is shown in Appendix B).

Birds are an air safety hazard and present a risk of collision or bird strike with aircraft. This risk is considered to be greatest during take-off, approach, climb and landing.

In terms of aircraft damage, many bird strikes will have no effect, however where damage occurs the effects can range from minor (e.g. Soldatini *et al*. 2010), where a strike may lead to an aircraft inspection to catastrophic with structural failure which cannot be repaired.

To allow for the control of birds for the purposes of air safety in Ireland, airports can apply for species to be included in the Air Safety Declaration. These species are a risk to air safety in Ireland and the Minister is satisfied that no other solution exists, other than to capture, kill or otherwise interfere with those species listed.

At the international level, the International Civil Aviation Organisation (ICAO) provides global standards and guidance for member nations regarding wildlife hazards to aviation. ICAO mandates that member states (1) assess hazards posed by birds and mammals in the vicinity of aerodromes licenced for international civil transport / public use. (2) take all necessary actions to decrease the numbers of hazardous birds and mammals, and (3) eliminate or prevent the establishment of wildlife attractants on or near aerodromes. Another key component of the ICAO guidance is the recommendation that member states create a committee to assess and respond to wildlife hazard problems at their aerodromes. The Irish Aviation Authority has established the National Bird Hazard Committee to facilitate the exchange of information, promote the collection and analysis of accurate wildlife strike data, promote the development of new technologies for reducing wildlife hazards, promote professionalism in wildlife management programmes on aerodromes and serve as a liaison to similar organisations in other countries.

The European Commission introduced Commission Regulation (EU) No 139/2014 laying down requirements and administrative procedures related to aerodromes pursuant to new Basic Regulation (EU) 2018/1139 repealing Regulation (EC) No 216/2008. This regulation in effect mirrors that of ICAO in relation to Wildlife management.

In pursuance to compliance with the requirements of EU Regulation 139/2014 or ICAO Annex 14 Volume 1 depending on the regulatory regime, aerodrome operators have a responsibility to ensure their aerodrome maintains a safe operating environment. As part of this responsibility, they must assess the risk and magnitude of the wildlife strike problem for their aerodrome. This assessment must include accurate and complete reporting of all strike incidents, assessment of wildlife using the aerodrome environment and assessment of wildlife habitat available to wildlife on the aerodrome. Based on aerodrome conditions and assessed strike risk, aerodrome personnel may need to devise a Wildlife Hazard Management Plan for reducing strike risk and occurrence. Aerodrome personnel must then act to implement and periodically evaluate the plan.

This manual therefore contains a compilation of information to assist aerodrome personnel engaged in conducting Wildlife Hazard Assessments and in the development, implementation and evaluation of Wildlife Hazard Management Plans. The manual includes information on the nature of wildlife strikes, legal authority, regulations, government agency roles and responsibilities, wildlife management techniques, assessments and management plans and sources of assistance and information. It must be emphasised that this manual provides only a starting point for addressing wildlife hazard issues on aerodromes. Wildlife management is a complex, evolving and public sensitive discipline and ecological conditions may vary across the state. Therefore, the assessment of wildlife hazards, the development of wildlife hazard management plans and the implementation actions by

aerodrome personnel must be under consultation by qualified wildlife biologists trained in wildlife damage control.

4 Bird Species Identification and Information Fact Sheets

In Ireland, there are around 200 'regularly occurring' bird species, some of which are here all year round and others that migrate to spend part of the year here. Of those migratory species, some come to Ireland for the summer to nest and others come to spend the winter. If rare and/or 'vagrant' species are included, then over 450 bird species have been recorded. The latest version of the Irish Bird List sets out that 475 wild bird species have been recorded at least once in Ireland or its marine waters since January 1st, 1950.

It is expected that aerodrome operator personnel involved in wildlife control should be competent to undertake the role and have received appropriate training. Some personnel involved in these activities may not have formal education in wildlife biology. However, all personnel must have sufficient training to be knowledgeable in the basic principles of wildlife management and in the identification, behaviour, general life history and legal status of the hazardous species in the area. Personnel must be trained in the proper implementation or deployment of various control strategies and techniques outlined in the Wildlife Hazard Management Plan. Finally, an awareness of endangered and threatened wildlife species that might visit or reside on the aerodrome is critical.

The following pages provide aerodrome operators with bird species information fact sheets to assist them to manage the wildlife hazards at their aerodrome. The fact sheets provide useful information and management techniques for the species posing the greatest risk to safe aerodrome operations in Ireland. The species included have been identified by aerodrome operators and their appointed ornithologists as being the most common encountered on or in the vicinity of their aerodrome. Their numbers will vary depending on season, time of day and location of the aerodrome.

Each wildlife species has unique features, behaviour patterns and actions. The following bird species and animal fact sheets provide information on the following:

- Size
- Location
- Identification
- Habitat
- Food
- Flocking
- Behaviour
- Breeding
- Transit Routes

Behaviour varies with season, time of day, weather and other factors. Its way of life is based on mobility: some species migrate to exploit seasonal food abundance and to avoid harsh winters, some commute daily between safe roosts and feeding grounds and some take flight to avoid predators.

Birds have sharp eyesight, communicate vocally and have good hearing over a similar range of frequencies as humans. They are unable to hear ultrasonic sound devices and most birds found on Irish aerodromes have little or no sense of smell.

Gulls

There are 22 species and 5 races of Gull recorded in Ireland, eight of these are extremely rare in a European context, however with regard to Irish aerodromes we are only dealing with 4 species. Gulls are intelligent and adaptable birds, existing in great numbers along our coastal areas, as well as inland areas. Gulls can drink either salt or freshwater and their scavenger diets allow them great adaptability often traveling up to 30 miles to their food source. They eat anything from fish to domestic waste from city centres and landfills.

Gulls can be noisy and aggressive that cause regular problems in coastal cities. The build-up of large amounts of their bird droppings can result in structural damage to streetlights, boats, car finishes, and roof tops, etc. this is due to uric acid in their droppings. The bacteria, fungal agents and ectoparasites found in gull droppings can carry a host of serious diseases, including histoplasmosis, encephalitis, salmonella, meningitis, toxoplasmosis and more.

Gulls may be storm driven on to aerodromes, arrive to digest food (loafing) or after heavy rain they may gather to feast on earthworms. The hard-standing areas (taxiways or disused pavement areas) are particularly attractive. Once they arrive, they can be very difficult to disperse, and persistent harassment seems to be the best method.

4.1 Black Headed Gull *(Chroicocephalus ridibundus)*

Size	Length 35-39cm, wingspan 86cm-99cm.
Other Name	
Locations	Black-headed Gulls can occur on or over the airfield at any time of year. From mid-summer, post-breeding flocks may be present. Will feed on grassland and disturbed ground and are attracted to drink and preen in pooled water.
Identification	A small Gull. Adults are pale grey above and white below. Adults are easily told apart from other common gull species by the thick white leading edge to outer wing, which can be seen at some distance. Adults have red legs, and in summer plumage, a dark chocolate-brown hood on the head; in the winter, the hood in absent and is replaced by a dark spot behind the eye. First winter and first summer birds retain the wing and tail markings of the juvenile bird but show grey on the mantle and in the first summer, a hood with a variable amount of white mixed in with the brown. Expect to see this species during periods of wind and rain especially when Barometric pressure falls below normal level. Extra vigilance required during bad weather.
Habitat	Towns, marshes, moors, sea, shoreline and fields.
Food	Feeds on insects especially in arable fields. Will also exploit domestic and fisheries waste.
Flocking	1-40,000. Can be driven inland by storms.
Behaviour	Noisy and gregarious gull species. Very active and mobile and can form large flocks outside of the breeding season.
Breeding	The largest colonies in Ireland are in Northern Ireland on Lough Neagh. Colonies in are found inland in Counties Galway, Monaghan and Mayo. and at coastal sites in counties Wexford and Donegal. Breeds in small numbers on islands and in larger lakes in western Ireland.
Transit Routes	Resident along all Irish coasts, with significant numbers arriving from the Continent in winter.
Scaring Methods	Pyrotechnics, Distress calls, Laser, Arm wave, Falcons, Flags.

4.2 Herring Gull (Larus argentatus)

Size	Length 54-60cm, wingspan 123-148cm.
Other Name	
Locations	Herring Gulls occur widely and are increasingly breeding on roof tops away from the coast. They are vocal and gregarious omnivores that will quickly find and exploit a source of food. Can occur singly or in flocks, particularly in winter and may occur in grassland, on buildings or airfield hard standing areas.
Identification	A large gull, which in adult plumage has light grey upper wings, showing black tips with white 'mirrors' the rest of the plumage is white. at the wing tip as an adult. Adult birds have heavy yellow bills with an orange spot on the lower bill, the head is pure white in the summer and streaked in the winter. The legs are pink at all ages. Herring Gulls have four age groups and attain adult plumage after three years when they moult into adult winter plumage. Immature birds are brown with finely patterned feathers which fade until they eventually attain the plain grey adult feathers in the upperparts. Expect to see this species during periods of wind and rain especially when barometric pressure falls below normal levels. Extra vigilance required during bad weather.
Habitat	Towns, freshwater marshes, moors, sea, sea cliffs, estuaries and shores
Food	Omnivores that will feeds inland in fields, on the coast and follows fishing boats. Uses landfill sites. They will feed on any human food waste from uncontained rubbish bins.
Flocking	Can flock in large numbers up to 10,000. Can be driven inland by storms.
Behaviour	Heavy and responsive to bird scaring methods. Gregarious and vocal. Can be difficult to disperse from around buildings, particularly if nesting locally.
Breeding	Breed in colonies around the coast of Ireland and inland in Co. Donegal and Co. Galway. The biggest colony in Ireland is on Lambay island off Co. Dublin. Increasingly exploiting roof tops to breed in towns and cities throughout Ireland.
Transit Routes	Resident along all Irish coasts, with significant numbers arriving from the Continent in winter.
Scaring Methods	Pyrotechnics, Distress calls, Laser, Arm wave, Falcons, Flags.

4.3 Lesser Black Backed Gull *(Larus fuscus)*

Size	Length 48-56cm, wingspan 117-134cm.
Other Name	
Locations	Can congregate on grassland (particularly after mowing), standing water and on hard-standing areas if there is a local feeding resource.
Identification	A large gull, which in adult plumage has dark grey upper wings, showing black tips with white 'mirrors'. Adult birds have heavy yellow bills with an orange spot on the lower bill, the head is pure white in the summer and streaked in the winter; the legs are yellow. Lesser-Black Back Gulls have four age groups just like Herring Gull and attain adult plumage after four years. Immatures do not have any plain dark grey adult like feathers in the upperparts and can be difficult to tell apart from immature Herring Gulls and Greater Black-back Gulls. Expect to see this species during periods of wind and rain especially when barometric pressure falls below normal levels. Extra vigilance required during bad weather.
Habitat	Marshes, shores, sea, moors, estuaries and fields.
Food	Like all Gulls they will take a wide variety of prey including fish from the sea, waste from fisheries, rubbish from landfill sites, insects in flight, young birds and food from other birds.
Flocking	Can flock in large numbers up to 1,000.
Behaviour	Heavy and responsive to bird scaring methods.
Breeding	Breeds colonially, often with other gull species especially Herring Gull. Will use a variety of sites, including offshore islands, islands in inland lakes, sand dunes and coastal cliffs. Small numbers also nest on roof tops in Co. Dublin. Most colonies in Ireland are on the coast, mostly on the west coast. Most inland colonies are found in Co. Mayo and in Co. Donegal.
Transit Routes	Summer visitor to lakes and coasts from March to September, wintering in Iberia and northwest Africa. Winter visitor in small numbers along eastern and southern coasts, probably from Iceland and the Faeroe Islands.
Scaring Methods	Pyrotechnics, Distress calls, Laser, Arm wave, Falcons, Flags.

4.4 Great Black Backed Gull (Larus marinus)

Size	Length 61-74cm, wingspan 144-166cm. This is one of the largest gull types.
Other Name	
Location	Rarely present inland but occasionally occur, particularly when there are storms at sea. Will congregate with other gull species present. This gull can be found on buildings, hard-standing areas and on grassland (particularly wetter areas).
Identification	The largest widespread Gull to be seen in Ireland. Adult plumage has black upper wings showing a broad white margin and darker wing tips showing white 'mirrors 'a bulky body, broad wings, dull pink legs, a very heavy bill and a thick neck. Has four age groups, like Herring Gull and Lesser Black-backed Gull, and attains adult plumage after four years when it moults into adult winter plumage. Mainly marine but penetrates inland during winter and may be seen during periods of low barometric pressure.
Habitat	Sea, Coast, Estuaries and Marshes.
Food	Fish, waste from commercial fishing, offal, and other birds, for example auks at colonies in the breeding season. Will also rob other birds of food – kleptoparasitism.
Flocking	Can flock in small groups of up to 100s. Less frequently seen inland, usually only following storms.
Behaviour	Heavy and responsive to bird scaring methods.
Breeding	Breeds on the ground in colonies all around the coast of Ireland. Most colonies are on well-vegetated offshore islands or in other areas difficult of access, making the species difficult to census. Larger colonies occur on islands, such as Lambay, County Dublin and Inishmurray Co. Sligo. A few pairs breed inland where they associate with freshwater lakes in Co. Mayo and Co. Galway.
Transit Routes	Resident birds are joined by immigrants in the winter. Found around the coast with some birds inland.
Scaring Methods	Pyrotechnics, Distress calls, Laser, Arm wave, Falcons, Flags.

4.5 Rook *(Corvus frugilegus)*

Size	Length 41-49cm, wingspan 81-94cm.
Irish Name	Crow
Locations	Runway edges and on areas of weaker grassland. During breeding season will be observed commuting from feeding to nest sites.
Identification	A big crow, full black body with purplish gloss. Pointed bill and hanging underpart A social flocking species. Harsh deep “Kraaa” call.
Habitat	Mature copse for nesting. Attractants include grass fields, freshly mowed grass, plough, ground engineering, poor ground.
Food	Omnivorous favouring earthworms, insects particularly beetles, seeds and grains
Flocking	Can flock in groups up to thousands. Can flock en-route to roost sites.
Behaviour	A clever bird, responsive to bird scaring methods however constant harassment required.
Breeding	Breed widely throughout Ireland and tend to form clusters of nests in neighbouring trees (Rookeries) that may also have other nesting Corvids present. Early nesters with most young Rooks on the wing by early July.
Transit Routes	From rookeries to feeding grounds, evening flight back to roost often more concentrated.
Scaring Methods	Pyrotechnics, Distress calls, Laser, Arm wave, Falcons, Flags, Shotgun.

4.6 Hooded Crow *(Corvus cornix)*

Size	Length 44-51cm, wingspan 84-100cm.
Irish Name	Grey Crow, Scawl Crow
Locations	Runway edges, on the runway, sometimes in flocks of 10+, weak/ mowed grass land.
Identification	Dirty grey body, black wings, tail and head. Similar size as the rook. Hoarse hard call.
Habitat	Mature trees for nesting. Frequents fields, refuse tips, shorelines and urban zones.
Food	Omnivorous; earthworms, insects, other birds' eggs, animal feedlots, shellfish and carrion. Can be quickly attracted into an area by a food source, including discarded wastes and carrion – can bring food to hard-standing areas to handle.
Flocking	Flocks in groups of 1-15, often in company of rooks.
Behaviour	Shy cautious crow, Responsive to bird scaring methods.
Breeding	Nests in mature trees, large construction of loose sticks.
Transit Routes	From nest sites to feeding grounds and local flights to feeding patches.
Scaring Methods	Pyrotechnics, Distress calls, Laser, Arm wave, Falcons, Flags, Shotgun.

4.7 Jackdaw *(Corvus mondedula)*

Size	Length of 30-34cm, wingspan 64-73cm, weight 200g range.
Irish Name	Crow
Locations	Can colonise hangar buildings, notorious for nesting in Auxiliary Power Units (APU) vents of parked aircraft. Frequents short grass areas, terminal buildings.
Identification	Noisy, tidy crow similar to a pigeon in shape. Dark grey with lighter grey (nape) neck. Distinctive pale grey / white eye. Small all dark grey crow with a lighter nape and neck side which contrasts with a blackish forehead.
Habitat	Urban and countryside bird. Frequents grasslands, and rough ground.
Food	Omnivorous, seeds, berries, insects, debris from food stalls.
Flocking	1 – 100+, often seen with rooks and hooded crow, often forages in pairs. In Autumn, large flocks roost together in favoured trees.
Behaviour	Noisy, clever bird. Often heard chattering and calling in a series of hard “Kyack!” sounds.
Breeding	Holes in trees, within buildings, under canopies. Nest is often a very large clump of sticks, tie wraps, plastic materials.
Transit Routes	Tends to concentrate in a social flock just before night roosting.
Scaring Methods	Pyrotechnics, Distress calls, Laser, Arm wave, Falcons, Flags, Shot gun.

4.8 Magpie *(Pica pica)*

Size	Length 44-46cm, wingspan 52-60cm, weight range 250 grams.
Irish Name	
Locations	Often seen on taxiway edges or where carrion located. Generally, roost and often perch on tall trees and occasionally on airfield structures
Identification	Black and white plumage with a long green glossy tail. Hard “Cha-ka” call.
Habitat	Urban and countryside dweller. Woods, farmlands, grasslands.
Food	Insects, especially beetles, seeds, scraps form food stalls, carrion. Can be quickly attracted into an area by a food source, including discarded wastes and carrion – can bring food to hard-standing areas to handle.
Flocking	5-25
Behaviour	Noisy, alert bird. Not overly shy, lives in close proximity to humans. Resident species with similar numbers and distribution year-round.
Breeding	Nests in trees, in the countryside and also in urban areas. Breed throughout the country in high densities.
Transit Routes	From nest sites to feeding grounds and local flights to feeding patches.
Scaring Methods	Distress calls, Laser, Falcons, pyrotechnics. Tends to fly to nearest bush / tree cover.

4.9 Common Buzzard *(Buteo buteo)*

Size	Large bird. Wingspan 1.0-1.4m. Weight 500g – 1400g.
Irish Name	Often confused for a “hawk” or “eagle”
Locations	Runway edges and on runway searching for worms, slugs, beetles or carrion. Use signs, lights, fence posts etc. as perches.
Identification	Medium size, plumage varies from streaky brown to dark brown. Adults have dark brown eye. Juveniles 1-3 year have pale grey/ brown eye. Often seen on fence posts or soaring high. High pitched “keeyou” call especially in spring.
Habitat	Farmland, often seen on roadkill. Resident adults can nest within two kilometres of each other where food is abundant. Formerly uncommon, but in recent decades have become very widespread and numerous.
Food	Rabbits, worms, slugs, beetles, carrion.
Flocking	Seen in singles and pairs mostly although occasionally in larger numbers when soaring or in association with recently fledged young. Territorial displays in spring can have up to ten or more soaring and calling while defending their territory. In the Autumn, juvenile birds can often be seen flying around together.
Behaviour	Often seen on fence posts and signs. Seen soaring high overhead and calling loudly particularly in Spring.
Breeding	Nesting in bushy trees often with heavy ivy cladding. Large stick nest.
Transit Routes	Can forage over large areas and juveniles and non-breeders can be highly mobile, especially outside the breeding season. Localised, but numbers of birds can soar high in spring-time territorial displays. The majority of the population currently resides to the east of a line drawn between Sligo and Cork. Buzzards have not yet become properly established in Kerry, Clare or Galway.
Scaring Methods	Pyrotechnic, laser, falcons, flags. Can be difficult to clear. Persistent harassment required.

4.10 Common Kestrel (Falco tinnunculus)

Adult Male Kestrel

Adult Female Kestrel

Size	Length of 31-39cm with a wingspan of up to 78cm. Weight Range; 200g
Irish Name	Often referred to as a “hawk”
Locations	Can occur widely, seen foraging over grassland and particularly in areas with longer grass and margins of roads, runways and taxiways.
Identification	Often seen hovering in one spot with tail and wings spread wide while searching for food. Long narrow wings. Adult males have greyish head and tail with spotted brown back. Adult female lacks grey head / tail and has more barring than spots. Check bird ID book for more detail.
Habitat	Farmland, Towns, Marshes, Moors, Heaths, Cliffs and Forests. Regularly seen along roadways.
Food	Rodents, small birds, worms, beetles.
Flocking	Generally solitary, outside of breeding period and post-fledging dispersal.
Behaviour	Seen hovering or sitting on fence posts and airside structures. Resistant to conventional dispersal or scaring techniques.
Breeding	Nests on cliffs, ledges and tall buildings. Can nest on ledges or window-boxes in gardens and suburban areas.
Transit Routes	Largely resident and birds may remain in the same general area year-round.
Scaring Methods	Difficult to move, pyrotechnics fired close will usually move them a little further into grassland.

4.11 Long Eared Owl *(Asio otus)*

Size	Length 31-37cm, wingspan up to 98cm.
Other Name	Owl
Locations	Night-time visitor to aerodromes (occasionally active diurnally), hunting rodents over the grasslands.
Identification	Distinctive ear tufts, orange eye, streaked front and barred tail. Rarely seen in flight.
Habitat	Forests, woods and heaths.
Food	Rodents
Flocking	Solitary, post-fledging young may occur together
Behaviour	Solitary hunter, nocturnal. Heavy and responsive to conventional bird scaring methods.
Breeding	Distinctive ear tufts, orange eye, streaked front and barred tail. Rarely seen in flight.
Transit Routes	From tree copses to favoured hunting grounds local to roost.
Scaring Methods	Human patrols probably best. Unlikely to be cleared by conventional bird scaring methods.

4.12 Peregrine Falcon *(Falco peregrinus)* [Annex I species]

Size	Length 38-51cm, wingspan of up to 100cm. Weight Range; 700g – 1400g
Other Name	Falcon
Locations	Can be found plucking and eating prey on grassland or sealed surfaces. Will occasionally roost and breed on roof tops or other tall structures.
Identification	Medium-large, stocky sharp winged falcon. Broad shoulders powerfully built. Distinct moustache. Adults; Slate grey / blue above, white barred underparts. Distinctive yellow feet. Juveniles are mostly brown above and streaked brown underparts, yellow feet. Females about 1/3 heavier and bigger than males.
Habitat	Moors, Sea cliffs, Estuaries, Shores, Quarries. Occasionally in urban areas (frequently use Church towers) Numbers recovering from population crash in 1960s.
Food	Mostly feed on other birds, typically Feral and Racing pigeons, Stock doves, various waders and crows.
Flocking	Solitary outside breeding season
Behaviour	Unresponsive to conventional bird scaring methods. Persistent harassment required. Usually high-flying but can be found plucking and eating prey on runways. Aerodromes are good for hunting grounds for transiting birds because they have virtually no cover to escape from hunting Peregrines.
Breeding	Nests on high cliff ledges, quarry's, church steeples
Transit Routes	Resident but highly mobile. Most common around the coast.
Scaring Methods	Human presence and activity are probably the best method of dispersal.

4.13 Sparrowhawk *(Accipiter nisus)*

Size	Length: Male 29-34cm, Female 35-41. Wingspan: Male 58-65cm, Female 67-80cm
Other Name	Hawk
Locations	Urban areas, Farmland. Favours wooded areas close to fields or gardens for hunting.
Identification	Small hawk. Distinctive yellow eye, long narrow, yellow legs. Short wings and long tail. Male with slate grey underparts often with bluish tinge. Barred front. Female larger than male with brown plumage. Females about 25% larger.
Habitat	Forests and woods, fields and hedgerows, Heaths.
Food	Other birds, sometimes larger ones such as pigeons.
Flocking	Solitary.
Behaviour	Very brazen hawk. Reluctant to give up prey even when approached within a few metres. Tends to work along tree lines and hedge rows.
Breeding	Nests in woodlands.
Transit Routes	Edges of woodlands, along hedgerows.
Scaring Methods	Human presence

4.14 Starling *(Sturnus vulgaris)*

Flock in flight

Size	Length 19-22cm, wingspan up to 100cm. Weight Range 100g
Other Name	Stare
Locations	Frequents aerodrome grasslands especially May-July when juvenile birds search for beetles, often around terminal buildings. Can roost in large numbers and nest within hangars and other buildings. Starlings are often seen in the company of Curlews on airfield grassland utilising the Curlew's taller physique to act as an early warning against the appearance of predators in the long grass.
Identification	Purple green-gloss, blackish head and underparts, pointed yellow bill. Wings triangular in flight. Juveniles are grey brown, white throat and dark bill.
Habitat	Gardens, Marshes, Moors, Sea cliffs, Estuaries, Woods, Hedges, Terminal food stands.
Food	Insects, worms, slugs, seeds, berries, food debris
Flocking	1 – many. Can gather in large flocks often numbering several thousand but this is very rare on Irish aerodromes
Behaviour	Large flocks feed together in noisy groups. Responsive to bird scaring methods. A flock must be harassed persistently, can just move around grassland (and or split into smaller flocks) when harassed. Evening flocks form and can number many thousands. Often large night roosts, in trees, reed beds, industrial structures e.g. multi-storey carparks.
Breeding	Nests in building cavities, holes in trees. Can attempt to breed in parked aircraft.
Transit Routes	Morning dispersal from roost can transit aerodromes in flocks. Tend to feed in small flocks, flying short hops across the grass as they forage. Evening flocks can be enormous, particularly during the Autumn and Winter.
Scaring Methods	Pyrotechnics, Flags, Distress calls, Shotgun.

4.15 Woodpigeon *(Columba palumbus)*

Size	Length 38-43cm, wingspan 68-77cm. Weight Range 450g
Other Name	Woodies, Pigeon
Locations	Can be found anywhere there are weeds, herbs, clover and seeds.
Identification	Plump bird, blue/grey head with purple/ green gloss side of neck, white neck patch. Breast is purplish brown. Yellow / orange bill with white cere. Primary coverts dark, tail has dark terminal band. Grey wing with distinctive white band on upper wing.
Habitat	Forest and Woods, Fields, Hedges, Gardens and Heaths. Largest of the pigeon family. Population increased dramatically and has become less shy.
Food	Seeds, cereals, leaves, herbs.
Flocking	Can occur in large flocks when feeding
Behaviour	Heavy and responsive to conventional bird scaring methods.
Breeding	Traditional nesting in trees and bushes. Now frequently seen under building canopies and building exteriors.
Transit Routes	Flight lines across aerodromes can form as birds move to and from nest sites and roosts to feed. Birds move in singly or in small loose flocks
Scaring Methods	Pyrotechnics, Falcons, Flags, Visual deterrents (e.g. kites), Shotgun

4.16 Feral Pigeon *(Columba livia)*

Size	Length 29-35cm, wingspan up to 68cm, weight range 400g.
Other Name	Pigeon, Town Pigeon
Locations	Can be found anywhere on grassland, overflying and close to terminal buildings, hangars
Identification	Can vary in colour from white to multicoloured. Not shy and will forage around areas where people are present.
Habitat	Can be found in all environments, Urban, Countryside.
Food	Seeds, herbs, berries, food scraps
Flocking	1-150+
Behaviour	Can Fly in tight flocks when travelling to and from feeding areas. May also travel in pairs. Responsive to bird scaring methods.
Breeding	In buildings, under canopies, cliffs. Frequently nest around aerodrome buildings
Transit Routes	Flight lines across aerodromes can form as birds move to and from roosts to feed.
Scaring Methods	Pyrotechnics, Falcons, Flags, Visual deterrents, Shotgun.

4.17 Racing Pigeon *(Columb livia domestica)*

Size	Length 29-35cm, wingspan up to 68cm, weight range 500g.
Other Name	Pigeon, Town Pigeon
Locations	These birds are in transit from release points to their home lofts. Can be found anywhere on grassland, overflying and close to Airport terminal buildings and hangars
Identification	Can vary in colour, usually grey/multicoloured. Flying in flocks from 10 to several hundred depending on whether it's a race or training flight. Any birds involved in a bird strike will have coloured leg rings and identification numbers. Rings from white to multicoloured. Not shy and will forage around areas where people are present.
Habitat	Can be found in all environments, Urban, Countryside.
Food	Seeds, herbs, berries, food scraps
Flocking	1-500+
Behaviour	The birds tend to fly directly through the grounds on their way to home lofts. Can fly in tight flocks when travelling to and from feeding areas. May also travel in pairs. Responsive to bird scaring methods.
Breeding	Young birds reared by owners in Spring.
Transit Routes	Racing pigeons appear in tight flocks at various heights depending on the weather and time of year. High winds tend to result in lower flight levels. Moving quickly, real time warning to Air Traffic Control is virtually impossible for individual flocks. Flight lines across aerodromes can form as birds move to and from roosts to feed.
Scaring Methods	None

Waders

A large and diverse family of birds with almost 70 species recorded in Ireland. The group ranges in size from the diminutive Least Sandpiper to the large Curlew. There are only 5 species dealt with here in an Irish Aviation context.

As already stated, Waders come in many shapes and sizes, but all of them share certain physical and behavioural traits, nearly all have a distinct preference for wet habitats and shorelines, both on coasts as well as along inland waterways or marshes but also short grassy areas. Waders are carnivorous and eat a range of insects, molluscs, crustaceans, worms, larvae, tadpoles, and similar prey. Physically, these birds have round heads, generally longer legs, and very useful bills to probe for food.

Waders come onto aerodromes for a variety of reasons and usually do this in large flocks. Feeding, roosting or to avoid predation and coastal storms can all be factors why they congregate on grass margins on aerodromes. Some of the species are present in summer, but most are most common and widespread in the winter months.

4.18 Curlew *(Numenius arquata)*

Size	Length 50-60cm, wingspan up to 100cm, weight between 575 -1,000g.
Other Name	
Locations	Will occur on grassland, and on hard-standing areas. Forage in grassland, sometimes associated with Starling flocks.
Identification	Irelands largest wader - very distinctive with long legs, bulky body, long neck and long decurved bill. Fairly uniform greyish brown, with bold dark streaking all over.
Habitat	A wide range of wetland habitats including damp fields.
Food	They feed mostly on invertebrates, particularly ragworms, crabs and molluscs. They will enter onto inland fields for earthworms. They are usually well dispersed across the estuary while feeding, but roost communally, usually along salt marshes and sand banks.
Flocking	1->50
Behaviour	Large, vocal and mobile wading bird. Use their long decurved bill to probe for invertebrates in the soil. Can congregate (and roost) on paved areas and walk into grassland to feed.
Breeding	Huge decline in the Irish breeding population – both in range and in numbers. Ground-nesting bird, typically on bog, heath and wet grassland.
Transit Routes	Winter visitor to wetlands throughout Ireland. The small breeding population is supplemented greatly by Scottish and Scandinavian birds in winter.
Scaring Method	Constant harassment. Very pistol, Falcons, Distress calls.

4.19 Snipe *(Gallinago gallinago)*

Size	Length 23-28 cm, wingspan up to 45cm, weight 120g.
Other Name	
Locations	In grassland, particularly wetter areas and occasionally on bare and revegetating bare ground.
Identification	A relatively common cryptically coloured wader, when flushed out of marshy vegetation it typically towers away in a frantic zig zag fashion. The disproportionately long, straight bill is easily visible in flight. Overall dark brown with pale buff and black stripes and bars on the head and body which produces a good camouflage effect.
Habitat	They can be found in a wide variety of wetland habitats.
Food	Diet consists largely of vegetable matter and seeds, and earthworms, tipulid larvae and other soil invertebrate fauna.
Flocking	Usually solitary or in small groups, flocks of >50 are unusual but can occur.
Behaviour	Mostly nocturnal feeders in wetland and grassland habitats. Will move off when disturbed from daytime roosts, but do not generally disperse far before landing.
Breeding	Widespread breeding bird in or near wet or boggy terrain.
Transit Routes	Highly dispersed distribution in winter. They forage across a variety of wetland and damp habitats. Large numbers immigrate here during the winter from Faeroe Islands, Iceland and northern Scotland.
Scaring Method	Human presence, Very pistol, distress calls.

4.20 Ringed Plover *(Charadrius hiaticula)*

Flock in Flight

Size	Length 20cm, wingspan up to 57cm, weight 75g.
Other Name	
Locations	Winter around the entire coastline.
Identification	Compact, small wader, Grey-brown upperparts and white underparts. Adults with orange bill with black tip in summer, which is mostly black in winter, orange legs, black ring widens as it extends across the chest. White throat and across the back of the neck. Prominent white wing-bar in flight.
Habitat	Typical coastal bird.
Food	A variety of invertebrates, particularly polychaete worms and crustaceans. Characteristic plover feeding action - short run…pause…short run.
Flocking	Winter flocks can be several hundred along coastal beaches.
Behaviour	Mostly recorded along sandy stretches or along the upper shores of estuaries and non-estuarine coastline.
Breeding	Mostly coastal breeding distribution, preferring to nest on exposed wide sandy or shingle beaches. Small numbers breed inland, on short-grazed pasture, yards and revegetating bare-ground e.g. cutover bog.
Transit Routes	Resident & winter visitor from Iceland, the Baltic & southern Scandinavia. Peak numbers between August and early October, and then numbers decline slightly and stabilise between November and January.
Scaring Method	Human presence, falcons, distress calls.

4.21 Golden Plover *(Pluvialis apricaria)*

Flock in Flight

Size	Length 25-28cm, wingspan 53-59cm.
Other Name	
Locations	Will generally be recorded in grassland, occasionally on bare ground and paved areas.
Identification	A medium sized bird with narrow-pointed wings. Golden brown upperparts, which look grey at close range. Birds in summer plumage have black underparts - extends from throat, towards each eye, and ventrally under neck, chest and belly. In winter they no black underparts. Can be difficult to see in tall grass and dull conditions.
Habitat	Moors, heaths, uplands, fields and marshes.
Food	They feed on a variety of soil and surface-living invertebrates, principally beetles and earthworms, but also on plant material such as seeds and grasses. They regularly feed in association with other waders including Lapwing.
Flocking	Can flock in groups of up to 1,000 or more.
Behaviour	Heavy and responsive to conventional bird scaring methods. Form tight flocks and when disturbed can circle for prolonged periods.
Breeding	A large decline in the breeding population in Ireland. Breeds on heather moors, blanket bogs & acidic grasslands. The breeding distribution is limited to the uplands of the northwest.
Transit Routes	The Irish population is supplemented greatly by winter visitors from Iceland & Scandinavia. Mostly encountered in large flocks between October & March.
Scaring Method	Constant harassment. Very pistol, Distress calls, Falcons

4.22 Lapwing *(Vanellus vanellus)*

Flock in Flight

Size	Length 28-31cm, wingspan up to 72cm.
Irish Name	Peewit
Location	In grassland, particularly damper areas and around standing water.
Identification	Distinct black-and-white, pigeon-sized wader, with wide rounded wings and floppy beats in flight. Wispy crest extending upwards from back of head and green/purple iridescence seen at close range. Pinkish legs.
Habitat	Freshwater marshes, moors, estuaries and fields.
Food	Feed on a variety of soil and surface-living invertebrates, particularly small arthropods and earthworms. Also feed at night, possibly to avoid kleptoparasitic attacks by Black-headed Gulls, but also, some of the larger earthworm species are present near the soil surface at night, and thus are more easily accessible. They use traditional feeding areas, are opportunistic, and will readily exploit temporary food sources, such as ploughed fields and on the edge of flooded areas.
Flocking	Can flock in groups of up to 1,000.
Behaviour	Heavy and responsive to conventional bird scaring methods.
Breeding	A large decline in the breeding population. They breed on open farmland and appear to prefer nesting in fields that are relatively bare (particularly when cultivated in the spring) and adjacent to grass.
Transit Routes	Irish birds supplemented by winter visitors (from western & central Europe). Greatest numbers occur in Ireland between September & April. Wintering distribution in Ireland is widespread. Large flocks regularly recorded in a variety of habitats, including most of the major wetlands, pasture and rough land adjacent to bogs.
Scaring Method	Constant harassment. Very pistol, distress calls, falcons.

4.23 Pheasant *(Phasianus colchicus)*

Size	Length 70-90cm (incl. tail).
Other Name	
Locations	Often seen on grassland and associated with hedges and woodland patches.
Identification	Large bird with long barred tail. Males are very colourful. Blackish green head, bright red facial skin. Many have white collar copper red plumage with black crescents on underparts. Black and white fringes on underparts. Females have shorter tail, buff brown plumage with dark barring and spotting on breast
Habitat	Farmland, copses with dense undergrowth, thickets, large gardens and parks.
Food	Fruit, seeds, berries, leaves, stems, insects and worms
Flocking	1-15
Behaviour	Tends to hide in grass, can run very fast for long distances.
Breeding	Nests on ground, long grass preferred. Captive bred birds also released for hunting purposes.
Transit Routes	To and from nesting, foraging and roosting sites.
Scaring Method	Human presence, shotgun.

4.24 Merlin (Falco columbarius)

Size	Length 26-33cm, wingspan 55-69cm, weight range 200g.
Other Name	Pigeon Hawk
Locations	Nests on ground (occasionally in old Corvid nests), long grass preferred. Occasional visitor to airfields, opportunistically foraging low over the grassland. Will occasionally handle prey on paved areas.
Identification	Small falcon, similar in shape to peregrine. Male; underparts blue grey, tail with broad black terminal band. Breast is rusty yellow, streaked. Throat white. Female; underparts brownish grey, tail heavily barred and dark. Breast buff white, streaked dark.
Habitat	Estuaries, Heathland, Bogs and Aerodrome grassland.
Food	Small birds such as larks and meadow pipits
Flocking	Solitary
Behaviour	Unresponsive to normal bird scaring methods.
Breeding	Nests on ground and in trees. Uncommon breeding bird.
Transit Routes	More widely distributed in the winter, than in the breeding season. Merlins tend to move away from high ground at this time of the year and can be more regularly seen on the coast at this time of year.
Scaring Methods	Human approach usually moves the bird clear

4.25 Meadow Pipit *(Anthus pratensis)*

Size	Length 14-15cm.
Other Name	Riabhog mhona, Mipit
Locations	Common on verges and grassland. Breeding male's song display rising high in the sky before dropping back to ground.
Identification	Olive-tinged grey-brown and buff-white or dirty white +/- streaked plumage.
Habitat	Marshes, heaths, coasts, estuaries, fields, meadows, pastures and bogs.
Food	Feeds on Invertebrates such as crane flies, mayflies and spiders and to a lesser extent on seeds.
Flocking	Can flock in groups of up to 50.
Behaviour	Light and responsive to conventional bird scaring methods.
Breeding	Very widespread breeding species in Ireland, with around 500,000 to 1,000,000 pairs.
Transit Routes	Resident in Ireland and Britain, also many winter visitors from north east Europe.
Scaring Methods	Scaring of territorial breeding adults impossible. Non-breeding adults difficult to disperse.

4.26 Grey Heron *(Ardea cinerea)*

Size	Length 84-102 cm (neck extended), wingspan 155 - 175cm, weight between 1.5-2kg.
Other Name	Corr éisc/ghlas, Crane
Locations	Near flowing water, ponds and drains.
Identification	Grey plumage and stature of Grey Herons make them unmistakable and easily recognisable.
Habitat	Woodland with tall trees, beside lakes and brackish lagoons.
Food	Fish/Frogs.
Flocking	Not known for flocking in large numbers outside of breeding sites.
Behaviour	Rests, often on one leg, in shallow water, often at edge of reeds. Slow and usually low in flight.
Breeding	Breeds in colonies (heronies), or sometimes solitarily. Nests can be a flat basket of sticks in a tree crown.
Transit Routes	Resident in Ireland and Britain but known to retreat from ice in northern Europe to Western Europe.
Scaring Methods	Human presence – close approach will usually be effective.

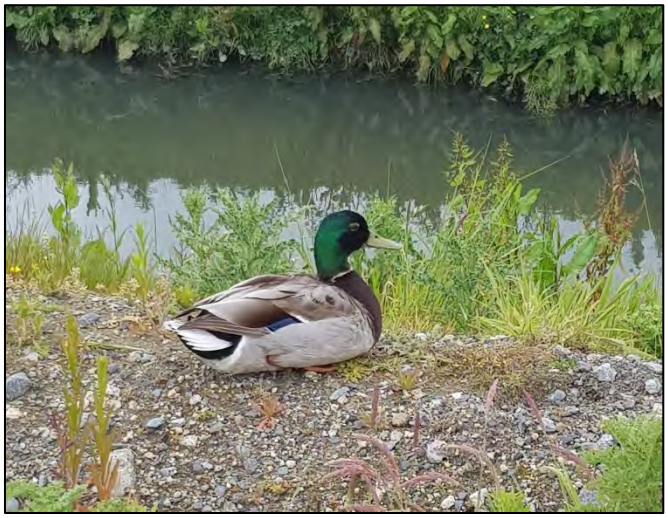
4.27 Mute Swan *(Cygnus olor)*

Size	Length 130-155cm, wingspan 200-230cm, weight 10-12kg.
Other Name	Eala bhalbh, Swan
Locations	Damp and wetland areas, sometimes overflying.
Identification	Large white swan with a long neck and small head, an orange-red bill with prominent black knob on the forehead, black nostrils and cutting edges. Tail comparatively long and pointed (seen when a swan is upending).
Habitat	Lakes, rivers and estuaries.
Food	Water plants, which these large birds can reach with their long necks at depths of up to one metre. Also graze on land and occasionally feed on small amphibians, snails and insects.
Flocking	2-20
Behaviour	Not shy and can act aggressively. Males have territorial flights with wing splashing rushes and long landing slides on the water.
Breeding	Breeds on freshwater lakes, generally with reed beds and along coasts. Clutch: 4-7 eggs (1 brood) Incubation: 34-45 days. Fledging: 120-150 days (precocial). Age of first breeding: 3 years. Nests are a large mound constructed from reed stem and other aquatic vegetation, with seaweed being used in coastal locations.
Transit Routes	Resident all year round, some migration from eastern Europe and Scandinavia.
Scaring Methods	Close approach, Very Pistol

4.28 Whooper Swan *(Cygnus cygnus)*

Size	Length 145-160cm, wingspan 225-235cm, weight 9-11kg.
Other Name	Eala ghlorach
Locations	Grassland, Damp and wetland areas, sometimes overflying.
Identification	Similar to Bewick's Swan, but larger, with longer neck. Yellow and straight black bill, with the yellow projecting below the nostril.
Habitat	Wintering: Most on lowland open farmland around inland wetlands, regularly seen while feeding on grasslands and stubble.
Food	Aquatic vegetation, but they are increasingly being recorded grazing on grass in pasture and spilt grain, as well as potatoes and animal fodder crops on cultivated land.
Flocking	5-40+
Behaviour	Similar to Mute and Bewick's swans. Typically seen in wetlands, flooded areas and grassland. When on land arriving flocks can spread out widely to graze and roost. Can move in low light and in the hours of darkness.
Breeding	Doesn't breed in Ireland. The population occurring in Ireland breeds in Iceland and over winters throughout Ireland.
Transit Routes	Winter visitor to wetlands throughout Ireland from October to April. Spreads south from Iceland, northern Scandinavia and the tundra of northern Russia.
Scaring Methods	Close approach, Very Pistol

4.29 Mallard (*Anas platyrhynchos*)



Size	Length 58-62cm, wingspan 81-95cm, weight up to 1kg.
Other Name	Lacha fhiain
Locations	Drains, streams and areas of pooled water.
Identification	Males with striking green head, yellow bill, white ring around the neck, grey underparts, blue speculum, black rump. Females brown in colour, but with blue speculum, dark stripe across the eye and whitish tail sides. Widespread and common.
Habitat	Wetland habitats in Ireland e.g. Lough Neagh, Lough Swilly, Wexford Slobs etc.
Food	A big surface feeding duck. Diet highly variable, and plant material, particularly seeds predominate. A range of animal material is also taken, including molluscs and crustaceans. Other food taken includes grain and stubble, and they have been shown to feed on a variety of food items presented by humans.
Flocking	1-20
Behaviour	Male with nasal 'rheab', repeated when alert on water, and short whistle during courtship. Loud quacking of females.
Breeding	Nest sites vary, mostly in ground where hidden in vegetation.
Transit Routes	Resident all year, winter migrant from Iceland, Fennoscandia, Russia, Poland, Denmark, Germany, The Netherlands, Belgium & France. Additional captive-bred birds are released each year for hunting.
Scaring Methods	Pyrotechnics, Shotgun, Close approach.

4.30 Skylark *(Alauda arvensis)*

Size	Length 16-18cm, wingspan 33cm, weight 45g.
Other Name	Fuiseog, Lark
Locations	Occur on grassland at airfields.
Identification	Adult Skylarks have a prominent white supercilium and frequently raise their crown feathers to form a little crest on their heads. Juveniles have much of the black streaking replaced by spotting and lack the crest. Can be confused with Meadow Pipit.
Habitat	Often seen on fields and along roadsides.
Food	Skylarks feed on a variety of insects, seeds and plant leaves.
Flocking	Flocks on stubble fields during winter. Generally seen in small numbers together.
Behaviour	When approached and flushed from the ground, it keeps close to the ground unlike the similar Meadow Pipit which typically rises straight up. Climbs higher and higher on fluttering wings during breeding season aerial display with more melodious song than Meadow Pipit.
Breeding	Breeds in a variety of habitats including cultivated areas, ungrazed grasslands and upland heaths. Ground nesting species.
Transit Routes	Common resident throughout Ireland. Influx in winter from northern Europe.
Scaring Methods	Dispersal of breeding adults not practicable. Will flush and disperse only a short distance before return. Similarly, non-breeding flocks difficult to disperse more than a short distance.

4.31 Swift *(Apus apus)*

Size	Length 16-17cm, wingspan 42-48cm, weight 50g.
Other Name	Gabhlan gaoithe
Locations	Seen typically in flight, foraging over grassland and stooping to drink while on the wing. Occasionally on the ground to collect nesting material. Will nest in crevices in buildings.
Identification	About the same size as a Swallow, but all dark except for pale throat. Spends virtually all of its' life airborne and never seen resting on wires, as Swallows and Martins frequently do. Vocal and 'screaming' call easily recognisable.
Habitat	Urban areas throughout Ireland and occurs widely on passage.
Food	Feeds exclusively on various invertebrates (midges, flies, spiders) caught in flight.
Flocking	Seen in ones and two's mainly. Pairs stay together throughout their lives.
Behaviour	Observed incessantly hunting insects in the air, often in the company of swallows.
Breeding	Nests in ventilation shafts, cracks in walls, under convex roof tiles or in church towers. Pairs can reuse the same nest site for years.
Transit Routes	Summer visitor (mostly May – Aug), winters in South Africa.
Scaring Methods	Building exclusion possible, scaring virtually impossible. Rapid and free flying.

4.32 Swallow *(Hirundo rustica)*

Size	Length 17-22cm, wingspan 32-34cm, weight 18g.
Other Name	Fainleog, Barn Swallow
Locations	Will feed over grassland and wetland areas predominantly. Nests inside buildings on girders and ledges and will congregate on wires and signs.
Identification	Blue-glossed black above, white below with blue-black breast band and blood-red throat and forehead. Characteristic appearance with long, pointed wings and deeply forked tail. Summer migrant from Africa.
Habitat	Gardens, freshwater marshes, moors and fields. Population of six million from April to September making it Ireland's second most common bird species.
Food	Commonly hunts insects low over the ground, often around the legs of grazing cattle, but also at treetop height.
Flocking	Can flock in large groups, particularly near communal roosts in reedbeds, but generally seen in smaller groups.
Behaviour	Flight is fast and powerful with clipped beats, passing back and forth and often low above the ground. Light and unresponsive to conventional bird scaring methods. Persistent harassment required.
Breeding	Usually nests on ledges of buildings/barns. Nest an open mud cup reinforced with plant material.
Transit Routes	Summer visitor (Apr – Oct) and winters in Africa. Large flocks gather at wetland sites prior to migration in autumn.
Scaring Methods	Building exclusion possible. Rapid and free flying. Light and unresponsive to conventional bird scaring methods. Persistent harassment required.

4.33 House Martin (Delichon urbicum)

Size	Length 12-15cm, wingspan 29cm, weight 23g.
Other Name	Gabhlan binne
Locations	Forage widely over open areas, including grassland and hard-standing areas.
Identification	Between Sand Martin and Swallow in size. In all plumages has a prominent large white rump, a feature not shown by either Sand Martin or Swallow.
Habitat	Attracted to nest on the outside of houses, but also use cliff faces in undeveloped areas.
Food	House Martins feed on insects such as aphids and mayflies caught in flight often high in the air.
Flocking	When young have fledged, birds often perch in numbers on telephone wires.
Behaviour	Flight not as swift as that of the Barn Swallow, more 'fluttery' with frequent and at times long glides on straight wings.
Breeding	Similar to Swallow, the House Martin constructs a nest out of mud. It is usually sited externally underneath the eaves of a building. Also nests on cliffs. Usually raises between two or three broods every year, with some fledging as late as October.
Transit Routes	Widespread throughout Ireland, especially in urban areas. Summer visitor (Apr – Oct). Winters in tropical Africa.
Scaring Methods	Unresponsive to bird scaring measures.

4.34 Wheatear *(Oenanthe oenanthe)*

Size	Length 14-16.5cm, wingspan 29cm, weight 25g.
Other Name	Clochran
Locations	On open areas of grassland, or heath, particularly with stone walls or other nesting cover.
Identification	Slightly bigger than the Robin. Grey back, dark wings, dark face mask, upright posture on long legs. White rump and tail with a broad black, upside down T-shaped tail band.
Habitat	Moors, heaths, grassland, pastures, coasts and farmland. Ground dwelling summer visitor
Food	Insects.
Flocking	Solitary or small flock.
Behaviour	Preferring open terrain with grass fields and rock outcrops. Light and responsive to conventional bird scaring methods.
Breeding	Nests in rock crevices, stone walls, rabbit burrows etc. Breeds in a variety of habitats, typically with some areas of exposed rock and short vegetation, such as along rocky coasts, pasture with stone walls and bogs in uplands.
Transit Routes	Summer visitor to Ireland (Mar – Oct). Has one of the longest migration routes of any songbird.
Scaring Methods	Unresponsive to bird scaring measures.

4.35 Pied Wagtail *(Motacilla alba)*

Size	Length 16-18cm, wingspan 28cm, weight 24g.
Other Name	Siubhainin an bhothair, Willy Wagtail, White Wagtail
Locations	Edge of paved areas, around buildings and storage areas.
Identification	Slender with a long, narrow black and white tail which is constantly wagged up and down.
Habitat	Cultivated countryside close to habitation and water, e.g. farmland, lakesides, gardens, villages, towns and cities.
Food	Pied Wagtails feed mainly on insects caught on the ground or in flight.
Flocking	1-10
Behaviour	Walks with jerking head movements, rushes after prey only to pull up suddenly with tail pumping excitedly.
Breeding	Breeds in a wide variety of habitats, including urban areas but largely absent from bogs and upland areas. Can nest in stockpiled pipes, lumber etc.
Transit Routes	A common resident throughout Ireland. Some birds migrate south to winter in southern France and Iberia.
Scaring Methods	Light and somewhat responsive to conventional bird scaring methods.

4.36 Linnet *(Carduelis cannabina)*

Size	Length 13-14cm, wingspan 24cm, weight 20g.
Other Name	Gleoiseach
Locations	Grassland, Hedgerows, Areas with seeding plants.
Identification	A typical finch, slightly smaller than a Chaffinch. Has a medium-length grey bill. Adult males are distinctive when seen well, having a lead grey head and throat, with a red patch on the crown. The back is plain brown.
Habitat	Heaths, estuaries, woods, hedges and gardens.
Food	Feeds on seeds, split grain, buds and some insects, especially when feeding young.
Flocking	1 to 500. Pair-members stay close together throughout summer. Will gather in large flocks outside of the breeding season. Increasingly noted visiting bird feeders in suburban areas.
Behaviour	Perches on seeding plants and along fence wires.
Breeding	Breeds in areas with thick bushes, in gardens and especially on coastal heaths with gorse.
Transit Routes	Widespread resident throughout Ireland.
Scaring Methods	Light and responsive to conventional bird scaring methods. Flocks will disperse when approached.

4.37 Redwing *(Turdus iliacus)*

Size	Length 19-23cm, wingspan 34cm, weight 75g.
Other Name	Deargan sneachta
Locations	Grassland and hedges and woodland, especially areas with berry trees.
Identification	About the same size as a Song Thrush. Ages and sexes have the same appearance. The head is plain brown with an obvious, broad white supercilium. The throat and breast are white with extensive brown streaks. The belly and vent are white and there is an obvious patch of red along the flanks. The back, rump and tail are plain brown. Often seen with Fieldfares.
Habitat	Mixed woodland and often near water. Favours open fields in lowland areas but tends to avoid urban areas.
Food	Redwings feed on worms and other invertebrates, as well as berries (Rowan, Hawthorn).
Flocking	50-500
Behaviour	Flocks at migration stopovers sometimes give noisy chorus of squeaks. Rattle-sounding flight call familiar in Autumn and Winter.
Breeding	Does not breed in Ireland. Breeds in Iceland and from Scandinavia eastwards to Siberia.
Transit Routes	Common winter visitor to Ireland with birds from the Icelandic and Scandinavian breeding populations arriving in October and departing again between mid-March and early-April.
Scaring Methods	Pyrotechnics, Falcons, Flags, Visual deterrents, Shotgun.

4.38 Fieldfare *(Turdus pilaris)*

Size	Length 22-27cm, wingspan 40cm, weight 110g.
Other Name	Sacan
Locations	Farmland/Garden.
Identification	About the same size as a Blackbird. Sexes and ages virtually identical. A very striking bird when seen well. Has a grey head and nape with indistinct white supercilium. The throat and breast are buffy brown with extensive black streaks. The flanks have black arrow-markings (not spotted!), while the belly and vent are white. The back is brown, while the extensive rump is a pale grey. The tail and legs are black. Regularly associated with Redwings.
Habitat	Grassland and hedges and woodland, especially areas with berry and fruit trees.
Food	Insects, especially earthworms. Also berries and other fruit including apples.
Flocking	Large flocks in open fields and other grassy areas (50-500)
Behaviour	Winters in open fields in lowland areas, generally avoiding suburban and urban areas. May visit gardens during very poor weather conditions.
Breeding	Does not breed in Ireland. There is a small population in Scotland (<10 pairs), but the majority breed in parks and gardens from Scandinavia and eastern France to Siberia. Frequently nests in small colonies. Twig nest often high up in treetops.
Transit Routes	Common and widespread winter visitor from October to March throughout Ireland.
Scaring Methods	Pyrotechnics, Falcons, Flags, Visual deterrents, Shotgun.

4.39 Red Fox *(Vulpes Vulpes)*

Size	Length: Male = 67cm; Female = 63cm, Weight: Male = 6.7kg; Female = 5.4kg
Other Name	Madra rua / Sionnach rua
Locations	Occur widely and can be found in many habitats.
Identification	Easily recognisable by their small doglike appearance. Colouration consists of a reddish to brown tint with a long bushy tail often with a white tip. The body is long and sleek with a pointed head and muzzle with sharp pointed upright ears. Mostly nocturnal.
Habitat	Variable. The Red Fox is mostly an inhabitant of rural habitats, but it has adapted well to urban environments - where densities may be very high. In the countryside the best habitat appears to be where productive farmland alternates with dense scrub and hedges.
Food	Although the fox is an omnivore (i.e. eating both plants and animals) it is primarily a predator of birds and mammals (especially rabbits, rats and mice) but it will also eat earthworms and insects. The fox can also survive by scavenging edible household wastes. This is one of the main reasons for its success in urban habitats. The fox may switch to berries, upon which it feeds well in the autumn.
Risk Status	Very high because of length and weight.
Behaviour	Mostly nocturnal. Will forage over a wide distance and dig and grub for invertebrate prey along the edge of grassland. A capable hunter and scavenger and a capable climber and swimmer. Will utilise paved areas to commute across the airfield. Clever and resourceful mammal that occupies an underground burrow or 'den'. Largely solitary outside of breeding season and when with unweaned young.
Breeding	Cubs are usually born in March and April with litter sizes averaging four or five cubs.
Scaring Methods	Will generally retreat when approached and will shy away from human contact. Can habituate to humans and become forward and even aggressive. Pyrotechnics and shotgun effective.

4.40 Irish Hare (Lepus timidus hibernicus)

Size	Length: head and body 545mm, Weight: 3.2 - 3.6 kg;
Other Name	Giorria (giorria sléibhe Éireannach)
Locations	On grassland but will use paved areas to commute around airfield.
Identification	Large rabbit-like mammal with white tail and short ears. Females a little larger than males.
Habitat	Found in a wide range of habitats from coastal to mountain top, including upland and lowland bogs and farmland. Common, frequent and resident on the airfield. Does not burrow like rabbits, lives on the ground in Forms.
Food	Diet is composed mainly of grasses but will also feed on heather and sedge species.
Risk Status	Very high because of length and weight. Population fluctuates from year to year. The survival rate for leverets is low. This can depend on the weather.
Behaviour	More active nocturnally. Hares live above ground and are ideally adapted to this lifestyle. Leverets (young hares) are born fully furred with open eyes and are capable of walking and running soon after birth. Hares have well developed senses of hearing and smell and their vision is excellent. They are vigilant and are fast and agile and can choose to hide in place or outsprint an approaching predator.
Breeding	1-3 born mainly in spring and summer but may have multiple breeding attempts each year. Breeding can occur at any time of year.
Scaring Methods	Will disperse when approached but usually to the nearest available cover, or to a safe distance. Pyrotechnics, laser etc. will have a similar and localised and temporary effect. Trapping/Translocation possible. Removal under license.

4.41 Rabbit *(Oryctolagus cuniculus)*

Size	Weight: Females up to 1.5kgs, Males up to 2kgs;
Other Name	Coinin
Locations	Near cover, or burrows. Feed on grassland.
Identification	Distinctive ears and cotton-ball tail. Hopping gait unmistakeable. One of Ireland's most common mammal species.
Habitat	Grassland, woodland, hedgerows
Food	Rabbits are herbivores with sharp teeth that can grind grasses. Rabbits have a relatively wide diet and will consume different types of vegetation as it is available in different habitat types, usually consisting of grasses, leaves and herbs. They re-ingest their soft droppings to extract additional nutritional value. Rabbits preferentially feed on grasses, cereals and root crops and tree seedlings and saplings (especially in winter when natural grass growth is reduced). Rabbits are mainly nocturnal grazers with a peak in feeding activity occurring at dusk and dawn.
Risk Status	Rabbits may cause **several** potential problems. Rabbits can graze down long grass in areas close to their burrows. If they become sufficiently numerous, they can cause serious local damage to the long grass. The burrows can also indent areas of the grassland especially in sandy areas. In area where they become more numerous, they may attract predators which then may be struck by aircraft. **Foxes** are major predators of rabbits. As the rabbit population increases more foxes will be attracted into the area of the airport. Bird predators also prey on rabbits. The **Buzzard** is a major predator of rabbits.
Behaviour	
Breeding	Three to seven litters per year can be produced by each breeding female with the average litter size being five to ten kittens each.
Scaring Methods	Will retreat to cover when approached.

SPECIES	FLOCK	CATEGORY	SEASONALITY	DISTRIBUTION
BLACK HEADED GULL	1 TO 40,000	H&R	YEAR ROUND	NATIONWIDE
HERRING GULL	1 TO 10,000	H&R	YEAR ROUND	NATIONWIDE
LESSER BLACK BACKED GULL	1 TO 1,000	H&R	YEAR ROUND	COASTAL
GREAT BLACK BACKED GULL	1 TO 100'S	H&R	YEAR ROUND	COASTAL BUT PENETRATES INLAND
ROOK	1 TO 200	H&R	YEAR ROUND	NATIONWIDE
BUZZARD	1 TO SMALL GROUPS	H&R (WHEN PERCHED)	YEAR ROUND	ALMOST NATIONWIDE, NOW COMMON HERE
HODDED CROW	1 TO 10	H&R	YEAR ROUND	NATIONWIDE
KESTREL	SOLITARY	H&UR	YEAR ROUND	NATIONWIDE
STARLING	1 TO 100,000 OR MORE	L&R	YEAR ROUND	NATIONWIDE
WOOPIGEON	1 TO 1,000	H&R	YEAR ROUND	NATIONWIDE
GOLDEN PLOVER	1 TO 1,000 OR MORE	H&R	WINTER VISITOR MOSTLY BETWEEN OCTOBER AND FEBRUARY	MANY AREAS OF IRELAND.
MEADOW PIPPIT	1 TO 50	L&UR	YEAR ROUND	NATIONWIDE
LAPWING	1 TO 1,000	H&R	RESIDENT, ALSO SUMMER AND WINTER VISITOR	WIDESPREAD IN WINTER
LONG EARED OWL	SOLITARY	H&R	YEAR ROUND	NATIONWIDE
PEREGRINE FALCON	SOLITARY	H&UR	YEAR ROUND	NATIONWIDE
WHEATEAR	SOLITARY OR SMALL FLOCK	L&R	S UMMER VISITOR FROM MID MARCH TO EARLY OCTOBER.	WIDESPREAD IN UPLANDS AND SCRUBLAND
PHEASANT	1 TO 15	H&R	YEAR ROUND	NATIONWIDE
SWALLOW	1 TO 100	L&UR	APRIL TO LATE SEPT/EARLY OCT	NATIONWIDE, SECOND MOST COMMON BIRD IN IRELAND

SPECIES	FLOCK	CATEGORY	SEASONALITY	DISTRIBUTION
PIED WAGTAIL	1 TO 10	L&R	YEAR ROUND	NATIONWIDE
LINNET	1 TO 500	L&UR	YEAR ROUND	NATIONWIDE
MERLIN	SOLITARY	H&UR	WINTER	NO
FOX	N/A		YEAR ROUND	NATIONWIDE
HARE	N/A		YEAR ROUND	NATIONWIDE
RABBIT	N/A		YEAR ROUND	NATIONWIDE

5 Communicating the hazards

Informing aircrew of hazards, particularly when an acute hazard exists, will help inform their operational decisions (e.g. to delay take-off). Hazard communication can be achieved through:

- Direct communication with aircrew;
- Direct communication with ATC;
- Distribution of Wildlife Hazard Notifications or Bird Watch Condition Reports;
- Distribution of wildlife NOTAMs for short-term hazards;
- Inclusion of a hazard warning in the ATIS for short-term hazards; and
- Inclusion of wildlife hazards in the ERSA for ongoing hazards.

Hazard notifications should provide as much detail as possible in order to ensure aircrew are well informed. It is recommended that hazard notifications include:

- Species;
- Location of the hazard on the airfield;
- Height of the hazard;
- Time of the hazard; and
- Recommended actions.

6 Habitats that attract wildlife – on aerodrome

Before wildlife management actions are implemented at an aerodrome, it is important to understand the local wildlife attractants. This is usually determined via the WHA. The three primary needs of wildlife are food, water and cover and these should be related to the aerodrome context. Aerodrome environments provide a wide variety of attractants and these should be identified and assessed to determine the most appropriate prevention, controls, reduction and eradication actions. The following may also apply to sites in the vicinity of the aerodrome:

6.1 Food

Food resources will vary by species but could include:

- Earthworms, snails, slugs, spiders, millipedes, insects and larvae that are typically present in grassland, thatch and underlying soil;
- Plant species present in the grass such as clovers, Trifolium spp, dandelion Taraxacum officinale, chickweeds Stellaria media and Cerastium spp, vetches Vicia spp and Lathyrus spp, amongst others;
- Plant species that are present within water bodies;
- Small mammals, such as rabbits, voles, mice and rats along with reptiles and amphibians such as newts, toads, frogs, lizards, snakes and fish and invertebrates that inhabit water bodies;
- Wastes from in-flight and terminal catering areas, litter bins in car parks or on aircraft viewing terraces, etc.;
- Scrub, bushes, brambles, nut or berry bearing trees including, but not limited to; barberry, holly, cotoneaster, rowan, hawthorn, wild cherry, buddleia etc.;
- Struck or predated carcasses may attract scavenging species of mammals and birds

6.2 Open terrain

Flat, open terrain, including airfield grassland, runways, taxiways, aprons and paved surfaces, may all create secure areas for birds and some wildlife, as do buildings, lighting structures and other installations such as radar towers.

Evidence in the UK suggests that cutting the airfield grass to an appropriate optimum height can be one of the most effective measures of bird hazard control, often referred to as the Long Grass Policy or 'LGP'.

The presence of other, less prominent features such as open drainage ditches, ponds, scrub, bushes and trees, earth banks, and waste food also provide further resources for wildlife to exploit and should be managed and secured where possible.

Car parks may also provide refuges for wildlife if they are not busy, as well as providing discarded food sources for birds and wildlife opportunities during busy peak seasons.

6.3 Buildings and Structures

Aircraft hangars, terminal buildings, airport rescue and fire stations, old or long stay parked aircraft, lighting and signage structures all provide roosting sites, perching opportunities or possible nest sites. Sheltered ledges, access holes and crevices within and underneath such structures can prove ideal nesting locations for feral pigeons, stock doves, pied wagtails and starlings.

Rooftops themselves, including green roofs, may be attractive to gulls or wading birds such as oystercatchers, for nesting, loafing and roosting.

Rooks, carrion and hooded crows have been known to nest on aerodrome lighting gantries and they should be designed to prevent this or allow nests to be removed easily.

6.4 Landscaping

Landscaping developments include grass reinstatement, tree and shrub planting and may include the creation or enhancement of water features. Landscaping schemes have the potential to:

- Create dense vegetation that may become a roost;
- Provide an abundant autumn and winter food supply in the form of fruits, nuts and berries;
- Create standing water or watercourses that attract gulls and waterfowl; and
- Result in areas of short grass that provide feeding opportunities for a wide range of hazardous wildlife.

As they can increase the wildlife attraction, any landscaping scheme on the aerodrome should, be avoided and could also set a precedent for safeguarding policies concerning off-airfield developments.

Trees provide food in the form of fruits (acorns, beech-mast etc.) flowers and leaves, and are a place for birds to roost or nest. Where possible, there should not be any trees within airside areas or the airport boundary. If trees are necessary, those that offer minimal resources should be chosen and planted in such a way as to reduce their attraction to birds.

Dense vegetation, such as thorn thickets, game coverts and young un-thinned conifer screening belts, can provide nesting sites for woodpigeons, small passerines (perching birds) and corvids, as well as roosting sites for potentially large flocks of starlings.

6.5 Water

Open, standing water, such as balancing ponds, reed beds and watercourses, drainage ditches or river channels, may attract large flocking birds, including ducks, geese, swans, grebes, waders, herons, coot, moorhen and cormorant. The more open water sites there are on and around an aerodrome, the more complex and frequent the movements of waterfowl will be. There may also be more activity at night than during the day.

Wet weather can create waterlogging that brings worms and other soil invertebrates to the surface, making them very accessible to foraging wildlife.

7 Habitats that attract wildlife – off aerodrome

Both manmade and natural landscaping features off-aerodrome can attract wildlife onto and aerodrome. These can include:

- Landfill sites;
- Sewage works;
- Building developments;
- Drainage schemes;
- Reservoirs;
- Gravel pits;
- Coastal areas;
- Rivers and estuaries;
- Woodland and agricultural land.

If feeding sites are numerous and spread out (e.g. ploughed fields in autumn) bird activity can be unpredictable, with the overnight roosts being the only constant feature. Their flight lines can cross over an aerodrome or low-level aircraft arrival or departure routes.

Agricultural activities in fields close to an airport, like ploughing, harrowing and cropping, which disturb the soil, together with sludge spraying, manure spreading, seed drilling, ripe crops, harvesting, and hay and silage cutting, create ideal feeding opportunities for waterfowl, gulls, lapwings, corvids, starling and pigeons that may then cross the airfield. Such activities will increase the resources needed for on-aerodrome wildlife control.

Awareness and understanding of wildlife concentrations and movements can improve the efficiency of wildlife control on the aerodrome. For example, if the dusk return passage of gulls over the aerodrome to a roost is understood, aerodrome wildlife control personnel may be able to warn air traffic control at the appropriate time.

7.1 The coast

Sandy and muddy shores, especially around estuaries, have the potential to support large numbers of gulls, waders, wildfowl and fish-eating birds. Coastal aerodromes may therefore have larger numbers of bird species, whose activity patterns are complicated by tide state and affected more by the weather, which could have a significant impact on flight safety and require further specialist assessment.

7.2 Landfills for food wastes

Waste from household and commercial premises at open landfill sites can contain a high proportion of food waste which may support large numbers of gulls, corvids and starlings.

Similar waste at open transfer stations or composting facilities can attract similar species of birds.

Gulls congregating at landfills present the following risks:

- When not feeding, they spend most of the day on open sites within 6km of the landfill;
- They may soar up to 3000ft or more in clear weather; and
- Their flight lines between food source and roost may cross an aerodrome or its approach and departure routes. Corvids and starlings present similar risks, but they generally travel less than gulls (max 16 km to or from a roost site). In some areas, Red Kites can also be abundant at landfill sites presenting a similar risk to large gulls.

7.3 Sewage treatment and disposal

Sewage treatment plants can attract large numbers of black-headed gulls, common gulls and starlings. Numbers vary depending on the type of installation and effluent release system.

7.4 Reservoirs, lakes and ponds

Water bodies ranging from small ponds to large manmade reservoirs can attract wildlife for food (weed, vertebrate and invertebrate species), roosting (space and security) and nesting sites (often islands or spits). Waterfowl, wading birds, fish eating birds (cormorants, herons, grebes and egrets) and gulls may congregate in large numbers.

7.5 Sand, gravel and clay pits

The large voids created by mineral workings sometimes result in ponding. This can create temporary habitats suitable for a range of waterfowl. Similarly, restoration by flooding to provide lakes or nature reserves may provide habitats around an aerodrome.

7.6 Agricultural attractants

Growing and harvesting crops inevitably attracts wildlife at some stage. However, the attraction usually arises suddenly and persists for only a few days or weeks and the risk is mainly confined to local farms.

Livestock can also attract birds. Cattle feed, either as spillage or in store, can attract large numbers of collared doves, feral pigeons, starlings and house sparrows. Free-range pig farming can attract large numbers of gulls, corvids and pigeons, and grazing cattle, sheep and horses keep grass short and maintain suitable feeding conditions for gulls, waders, corvids and starlings. Farm buildings may be suitable for nesting species such as feral pigeons.

8 Lethal control

When implementing Wildlife Hazard Management Plans (WHMPs), aerodrome personnel must abide by relevant local and state regulation. Ireland is home to an abundance of species, both migratory and permanent. Habitats range from the country's highest mountains to the depths of the offshore environment on the western edge of Europe. The conservation of species in Ireland concentrates mainly on those protected under international or national legislation. It is the role of the National Parks and Wildlife Service of the Department of Culture, Heritage and the Gaeltacht to work with partners in the public service and wider community to provide the best possible scientific advice and ensure effective protection is provided to secure the conservation of wildlife in Ireland.

However, the Minister for Culture, Heritage, and the Gaeltacht, in pursuance to Regulation 3(1)(a) of the European Communities (Wildlife Act 1976) (Amendment) Regulations 1986 (S.I. No. 254 of 1986) can for the purpose of preventing a threat to public health or safety or other potentially damaging event where no other satisfactory solution exists, permit through the issuance of a declaration, the capture or culling of specific wildlife species. The method of control for these purposes is set out in the declaration.

Lethal control can be defined as the hunting or trapping of wildlife/birds. One highly regulated activity at the state level is legal take (lethal removal) of wildlife.

If there is no other satisfactory course of action for preserving air safety, lethal methods can be an effective means of control. There are several reasons for resorting to lethal methods:

- To reduce overall numbers and thus to decrease the problem;
- For the deterrent effect it has on surviving wildlife and to enhance the effect of other control techniques;
- To remove individual animals that do not depart in response to scaring action, either because of sickness or disability, or because of aberrant behaviour;
- To deal with an immediate situation posing a hazard to flight safety.

8.1 Legislation - Firearms

The licensing of firearms which are one of the main methods of lethal control is monitored in the State by the Department of Justice and is administered through An Garda Siochana.

There is an extensive range of firearms legislation which is included in Appendix A.

8.2 EU Directives

Council Directive 91/477/EEC on the Control of the Acquisition and Possession of Weapons

Directive 2008/51/EC of the European Parliament and of the Council of 21 May 2008 amending Council Directive 91/477/EEC on control of the acquisition and possession of weapons

8.3 EU Regulations

Commission Implementing Regulation (EU) 2015/2403 of 15 December 2015 establishing common guidelines on deactivation standards and techniques for ensuring that deactivated firearms are rendered irreversibly inoperable.

A private individual must apply to An Garda Siochana to licence each individual firearm they intend to own. In the case on of the State Airports (Dublin, Cork and Shannon), a license is issued to the Airport Police Fire Service departments for the use of firearms for the purpose of bird scaring on the airfield and only authorised officers within that section are allowed to do so.

9 Dispersal methods

There are various dispersal and deterring methods with varying levels of success. In most cases it is effective to use a combination of more than one method. By varying the approach used and the combination of scare techniques, often the effectiveness will be increased:

- Human presence is the simplest method of dispersing wildlife. Also, animals will often react to the presence of the vehicle of the wildlife control unit if they associate it with being harassed;
- The use of distress calls is effective with certain kind of birds if the birds are correctly identified, and the right distress calls are used. For certain species, this method cannot be used. Distress calls must also be used sparingly as resident birds can habituate quickly to their use;
- Gas cannons and other (mobile) noise makers remain effective methods, but variation is needed to avoid habituation. These devices must be under control of the wildlife control unit, the use of automatically generated noises can be dangerous;
- In certain circumstance, the use of trained birds of prey can be an effective means of scaring and dispersing certain species.
- Kites, balloons, flags, scarecrows, reflective objects, rotating spinners are cheap visual deterrents, but they show very rapid habituation;
- Pyrotechnic scaring cartridges / flare guns are within the limits imposed by its range more rapidly mobile than birds. It enables to control the direction of movement of target flocks. By positioning themselves and aiming the pistol appropriately, it is possible to keep a flock on track and keep the birds together;
- The use of UAV predator models can be interesting, but with care being taken as they may also constitute a safety hazard for aircraft in flight. The more mobile the model, the longer it will be effective;
- Repellents are substances that animals may find unpleasant due to their taste, smell or touch;
    - Green laser beam guns seem to be effective to chase water birds away from the water surfaces at the airport.

10 Grass management at aerodromes

Airside grassland ideally should be maintained between 150 - 200mm unless alternative proven strategies are advised by a habitat management specialist. At no point should the height of cut fall below 200 mm, other than due to the exemptions listed below and during bottoming out.

Deviations from a long grass policy

Helicopter operations: Aerodromes and Heliports predominantly used for helicopter operations may typically adopt a shorter grass policy regime, maintaining swards at between 50 and 100 mm in take-off, landing and low-level operation areas of the airfield. Perimeter grasslands and areas away from flight situations should still follow standard long grass policy in order to address the bird hazard, as deemed necessary.

Light aircraft (GA) grass landing strips, taxiways and parking areas: The grass in these areas typically require maintaining at 75 mm throughout the growing season. It is recommended that regular inspections of these areas are undertaken by appropriately trained habitat management specialists to monitor surface drainage compaction, weeds and grass density issues created by aircraft movements.

ILS glidepath and critical areas: the height of the grass in certain areas on an aerodrome may affect the performance of aeronautical navigational and visual aids, especially the Instrument Landing System (ILS). In damp or wet conditions, the radiated signal as received by an aircraft or the signal received by the ILS field monitors may become distorted, affecting both the integrity and continuity of service of the system. The effect of grass heights on the ILS signal depends on the: 1. Type of grass (broad or narrow leaf); 2. Height of the grass and density of growth; 3. Water content within, or water from dew or rain on the leaves; and 4. Heights and types of aerials (transmitting and monitor). It is not possible to give exact grass heights that would cover all systems and environments. However, the following have been shown to be acceptable custom and practice:

- ILS glidepath: grass height of up to 100 mm is acceptable from the glidepath aerial to approximately 5 m beyond the monitors. A grass height of up to 200 mm is considered to be acceptable beyond this point up to the limit of the glidepath critical area;

- ILS localiser: a grass height of up to 200 mm may be considered acceptable within the critical area. Other heights may also be suitable; however, the advice from the Air Navigation Service Provider (ANSP) should be sought before implementation of any deviation from these grass heights;

- Aerodrome visual aids: aerodrome visual aids should be maintained as short grass for the smallest radius around the object necessary to prevent sightlines being obscured. The use of a 'total kill' herbicide in these areas will create bare ground and bird feeding opportunities and therefore should be avoided. Shorter grass should be maintained at between 50 mm and 100 mm.

11 Handling wildlife remains

All personnel involved in the collection, handling or storing of wildlife remains should ensure they are equipped with the appropriate Personal Protective Equipment (PPE) and that they wear the

appropriate items of PPE when handling the remains from a wildlife strike. Personnel should also follow the Health and Safety guidance provided by the aerodrome operator.

PPE can consist of:

- Gloves;
- Protective Glasses;
- Appropriate clothing, such as overalls;
- Breathing masks when there is a threat of infection.

12 Bird Species Identification

The importance of correctly identifying the bird species involved in a collision with an aircraft cannot be exaggerated. If the bird strike problem is to be managed efficiently and minimised, it is essential that the species involved in collisions with aircraft be accurately identified.

12.1 Carcass collection

All carcasses found on the airfield should be collected, placed in a polythene bag and sealed. This bag should then be placed in a second polythene bag into which the label, facing outwards so that it can be read without having to open the bag upon inspection. The LABEL IS VITAL. Ideally the label should be written in pencil as this will not fade if it gets wet. The label should contain the following information:

- The date of collection
- The time of collection
- The exact location where the carcass was found and where known, the aircraft involved
- The number of carcasses
- The identity of the species (if known). If unsure do not guess.
- A log should be kept of all carcass collections
- A report should be compiled on all carcass identifications made by the Ornithologist and the condition of the carcass.

12.2 Guidelines for sample collection for DNA and/or feather

(Based on AAIU (www.aaiu.ie) and FAA (www.faa.gov) guidelines)

There are 3 sample types, which can be taken to help to identify the species of the bird:

1) Comparison of whole or part of a bird carcass;
2) Microscope examination of the structure of bird feathers;
3) DNA profiling/analysis.

12.3 Bird Remains

A bird can be identified by its remains, i.e. whole body or body parts e.g. wings, feet, head, bill, etc. These remains will help to identify the species, possible size of the bird and provide good DNA samples if required. Care should be taken when collecting any samples of bird remains and to prevent contamination by extraneous DNA (human), latex gloves should be worn by all who handle the hull, windscreens or engine. Contamination of samples will negate the analysis. Samples should be taken at the earliest opportunity.

12.4 Feather Samples

In some cases, feathers can be used to identify a bird to species level. However, when this is not possible, small contour (body) feathers may help with identification in 2 ways.

NOTE: It is essential to retrieve the entire body feather (i.e. from the breast or belly) as it's the soft feathering at the base of these feathers that is used in the identification.

Firstly, these feathers can hold DNA at the base of the feather, and secondly microscopic examination of the feather barbules may prove the family, if not the species of bird. Therefore, especially in the absence of a carcass (e.g. following an engine ingestion) it is essential to collect as much material (even if very minute) as possible.

12.5 DNA Samples

- DNA is sometimes likened to a bar code, and each individual's DNA is unique. The DNA of each bird or mammal species is unique – though sometimes it is difficult to separate closely related bird species by using this technique. This, unfortunately, is true of many of the gulls which have proven very difficult to identify to the species level.

- If there are no substantial bird remains on the runway or at the site of impact, take all available blood, feather and tissue samples from the airframe/engine. The general rule is the more flesh and /or blood on the sample the greater the probability of providing a good DNA sample.

- If a multiple bird strike is suspected, the larger bird remains may identify this fact straight away by the number of feet, bills, wings etc. However, if there are no large bird remains, which can confirm the number of birds, then multiple DNA samples have to be taken from the available remains.

- In the case of an incident involving a multiple bird strike that had serious consequences such as loss of life, it will be required to take the appropriate samples for DNA analysis.

12.6 Taking and Labelling Samples

- To prevent the likelihood of contamination of bird remains, any personnel involved with an engine suspected of suffering a bird strike, should wear latex gloves during strip activities.

- Latex gloves should be worn whilst taking any sample to prevent human DNA contamination. All of the bird remains found should be gathered, double bagged and stored in the deep freeze at the airport fire station and the Chief Officer Fire & Rescue should be informed as soon as possible and these samples will be sent to the DNA Lab.

- The best samples are larger remains of the bird i.e. wing, breast etc, this size of sample should be double bagged, labelled, and stored in the deep freeze at the Fire Station

- Any bird remains, which have experienced high temperatures should be bagged and labelled as experiencing high temperature and stored in the deep freeze.

- Other good samples are wet samples (e.g. blood, flesh, etc) or feathers. All feathers found should be gathered, bagged, labelled and stored in the deep freeze.

- If there are no other types of sample available, then DNA samples should be taken with swabs dipped in (sterile water but see above) or PREFERABLY Ethanol (80% alcohol) and then rubbed over the suspect area of the bird remains. The swab should then be placed into a clean plastic bag and labelled.

- DNA collecting cards may also be used if available.

- Clearly label the sample with date, aircraft type, aircraft registration and engine serial numbers, the location on the airframe/engine at which the sample was taken and whether the sample had experienced a temperature of greater than 80 degrees C or not.

12.7 Typical Equipment required when taking samples

Listed below is the type of equipment required to take bird samples:

1. Swabs;
2. Plastic bags/bottles with labels;
3. Latex gloves;
4. Sterile water (not demineralised) or Ethanol (40-80% alcohol);
5. Clean containers to store DNA samples.

13 Reporting a wildlife strike

Commission Implementing Regulation (EU) 2015/1018, laying down a list of classifying occurrences in civil aviation to be mandatorily reported according to Regulation (EU) No 376/2014 requires that a wildlife strike including bird strike are to be reported. ((Ref: Reg (EU) 2015/1018 Annex IV, Occurrences Related to Aerodromes and Ground Services.

Note, whilst traditionally, the term 'Bird Strike' has been used, ICAO and EASA now refer to the subject matter as 'Wildlife'.

A wildlife strike is defined as a collision between an animal and an aircraft which is in flight or on a take-off or landing roll.

The reporting of a wildlife strike should be completed using the online ECCAIRS European Aviation Reporting Portal.

Pilots, aerodrome operations, aircraft maintenance and ground handling personnel or anyone else who has knowledge of a wildlife strike should report it. It is important to include as much information as possible on the form. The identification of the species of wildlife struck is particularly important. Where identification of the species is not possible, the aerodrome operator should be notified so as to allow trained personnel to carry out appropriate assessment including identification. Accurate species identification is critical for bird-aircraft strike reduction programs. The Wildlife biologist should know what species of animal they are dealing with in order to make proper management decisions.

Wildlife strike reports are collected by the Irish Aviation Authority and forwarded to ICAO on an annual basis for inclusion in the ICAO Bird Strike Information System (IBIS) database.

Note: The IBIS is designed to collect and disseminate information on wildlife strikes to aircraft. In formation on the system is included in the Manual on the ICAO Bird Strike Information System (IBIS) Doc 9332.

Appendix A - Firearms legislation

Acts

- Firearms Act 1925 (No. 17 of 1925)
- Firearms Act 1964 (No. 1 of 1964)
- Firearms (Proofing) Act 1968 (No. 20 of 1968)
- Firearms Act 1971 (No. 13 of 1971)
- Wildlife Act 1976 (No.39 of 1976)
- Firearms and Offensive Weapons Act 1990 (No. 12 of 1990)
- Firearms (Firearm Certificates for Non–Residents) Act 2000 (No. 20 of 2000)

Statutory Instruments

- 1925 Firearms Regulations 1925 revised (Updated to 15 September 2015
-
- SI 65 of 1969 Firearms (Shotguns) (Proofing Methods, Marks And Fees) Regulations, 1969
- SI 251 of 1972 Firearms (Dangerous Weapons) Order, 1972
- SI 239 Of 1976 Firearms Regulations 1976
- SI 239 of 1977 Wildlife Act, 1976 (Firearms and Ammunition) Regulations, 1977
- SI 313 of 1990 Firearms And Offensive Weapons Act, 1990 (Part II) Commencement) Order,1990
- SI 362 of 1993 European Communities (Acquisition and Possession of Weapons and Ammunition) Regulations 1993
- SI 21 of 2008 Firearms (Restricted Firearms and Ammunition) Order 2008
- SI 295 of 2009 Firearms Acts 1925 to 2009 (Firearm Certificate) Regulations 2009
- SI 307 of 2009 Firearms (Secure Accommodation) Regulations 2009
- SI 311 of 2009 Firearms Act 1925 (Prescribed Firearms Certificates) Regulations 2009
- SI 337 of 2009 Firearms (Restricted Firearms and Ammunition) (Amendment) Order 2009
- SI 493 of 2010 European Communities (Acquisition and Possession of Weapons and Ammunition) (Amendment) Regulations 2010
- SI 391 of 2015 Firearms (Restricted Firearms and Ammunition) (Amendment) Order 2015

Appendix B - Sample Declaration of Species which may be captured or killed in the interest of aviation safety issued by National Parks and Wildlife Service

DEPARTMENT OF CULTURE, HERITAGE AND THE GAELTACHT

DECLARATION UNDER REGULATION 3(1) (b) OF THE

EUROPEAN COMMUNITIES (WILDLIFE ACT, 1976) (AMENDMENT)

REGULATIONS, 1986 (S.I. No. 254 of 1986)

The Minister for Culture, Heritage and the Gaeltacht, being of the opinion that the species referred to in the Schedule to this declaration represent a threat to air safety and being satisfied that no other satisfactory solution exists, hereby declares that the said species may be captured or killed or captured and killed or otherwise interfered with by any of the means, arrangements or methods set out in the Second Schedule to the European Communities (Wildlife Act, 1976) (Amendment) Regulations, 1986 (S.I. No. 254 of 1986), as adapted, (excluding the use of poisoned or anaesthetic bait) during the period beginning on 1st day of May 2020 and ending on 30th day of April 2021 throughout the State by the owner or occupier of any property or the agent of the owner or occupier of any property on which a threat to air safety is represented by such species.

SCHEDULE

BLACK-HEADED GULL *Larus ridibundus*	GOLDEN PLOVER *Pluvialis apricaria*
COMMON GULL *Larus canus*	HOODED (GREY) CROW *Corvus corone*
HERRING GULL *Larus argentatus*	WOOD PIGEON *Columba palumbus*
LESSER BLACK-BACKED GULL *Larus fuscus*	FERAL PIGEON *Columba livia*
GREATER BLACK-BACKED GULL *Larus marinus*	COLLARED DOVE *Streptopelia decaocto*
ROOK *Corvus frugilegus*	In the case of the COMMON BUZZARD *Buteo buteo* the Declaration applies to Cork Airport, Dublin Airport and Casement Aerodrome only
JACKDAW *Corvus monedula*	In the case of the EURASIAN CURLEW *Numenius arquata* the Declaration applies to Dublin Airport only
MAGPIE *Pica pica*	In the case of the BARN SWALLOW *Hirundo rustica* the Declaration applies to Shannon Airport only
STARLING *Sturnus vulgaris*	In the case of the GREY HERON *Ardea cinerea* the Declaration applies to Shannon Airport only
LAPWING *Vanellus vanellus*	In the case of the MUTE SWAN *Cygnus olor* and WHOOPER SWAN *Cygnus cygnus* the Declaration applies to Shannon Airport only

GIVEN under the Official Seal of the Minister for Culture, Heritage and the Gaeltacht

this 28 day of April 2020

Josepha Madigan

Minister for Culture, Heritage and the Gaeltacht

Note: Where a live wild bird is used as a decoy in a cage trap it is necessary to ensure that the live decoy bird may only be used to hunt birds of the same species and that the live decoy bird must be regularly provided with ample food and water and that when caged must only be kept in a cage which is of sufficient dimensions to enable the bird to move and exercise freely.

1	2	3	4
SPECIES TYPE	REASON FOR CONTROL	PERIOD COVERED BY DECLARATION	METHOD OF CONTROL
Wood Pigeon *(Columba palumbus)*	Prevent serious damage to arable crops, including cereals, legumes and brassicas	1 May 2020 to 31 May 2020 and 1 September 2020 to 30 April 2021	Shooting with rifle or shotgun.
Feral Pigeon *(Columba livia)*, *Collared Dove (Streptopelia decaocto)*	Threat to public health notably contamination of food storage	1 May 2020 to 30 April 2021	Shooting with rifle or shotgun. Non meat based poisoned or anaesthetic bait may be used as a method of control but only under permit with prescribed conditions as issued by the National Parks and Wildlife Service prior to control action taking place.
The following specified members of the Pigeon family are not included: Stock Dove (*Columba oenas*), Turtle Dove (*Streptopelia turtur*), Wild Rock Dove (*Columba livia*), carrier pigeon, homing pigeon or any other domestic types of Rock Dove.			
Herring Gull (*Larus argentatus*), Greater Black-backed Gull (*Larus marinus*), Lesser Black- backed Gull *(Larus fuscus)*	Threat to public safety	1 May 2020 to 30 April 2021 confined to the area within the boundary map at Schedule 2	To take the nests or to take the eggs

GIVEN under the Official Seal of the Minister
for Culture, Heritage and the Gaeltacht
this day of 2020

Minister for Culture, Heritage and the Gaeltacht

NOTE:

[1] Where a live wild bird is used as a decoy it is necessary to ensure that the live decoy bird may only be used to hunt birds of the same species and that the live decoy bird must be regularly provided with ample food and water and that when caged must only be kept in a cage which is of sufficient dimensions to enable the bird to move and exercise freely.

References

- European Commission (EC) Regulation 139 / 2014;
- New Basic Regulation (EU) 2020/1139;
- ICAO Annex 14 Volume 1, Aerodromes;
- ICAO Doc 9137 AN/898 Airport Services Manual Part 3, Wildlife Control and Reduction, 4th Edition – 2012;
- Australia Managing Bird Strike Risk Species Information Sheets;
- UK CAA 772 Wildlife hazard management at aerodromes 2nd Edition, October 2017;
- FAA Wildlife Hazard Management at Airports (Manual for Airport Personnel) 2nd Edition, July 2005;
- Wildlife Hazard Management Handbook – Airports Council International
- Citation: Crowe, O., R. H. Coombes, O. O'Sullivan, T.D. Tierney, A.J. Walsh & J. O'Halloran. 2014 Countryside Bird Survey Report 1998 – 2013. Birdwatch Ireland, Wicklow.

Acknowledgements

The Safety Regulation Directorate of the Irish Aviation Authority would like to acknowledge the contribution of the members of the National Bird and Wildlife Hazard Committee in the development of this guidance document which it is hoped will assist aerodrome operators, airlines, air traffic service providers and other airport stakeholders in managing wildlife hazard at an aerodrome.