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# *Assessment of wildlife hazard on aerodromes*

*Technical guide*



MINISTÈRE  
DE LA TRANSITION  
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STAC



# *Assessment of wildlife hazard on aerodromes*

## *Technical guide*

Civil aviation technical center  
Development, Capacity, Environment department

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## Abstract

The assessment of wildlife hazard on aerodromes is a recent approach governed by several international recommendations and several European or French statutory instruments. It is used to identify the wildlife species considered to be a problem for aviation safety on each aerodrome, based on the strikes in which they are involved and their year-round presence on aerodromes and their vicinity.

Wildlife hazard assessment follows a method developed by the STAC (French Civil Aviation Technical Centre) on civil aerodromes. This approach based on the measurement of a statistical and local risk level should enable us to define courses of action graduated for each wildlife species present on aerodromes.

This technical document offers a risk assessment methodology which may be used by certified aerodrome operators to develop and implement their own wildlife hazard prevention programme.

## Keywords

Wildlife hazard, aviation safety, assessment, methodology.

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# 1. Introduction

## 1.1. Reminder of the context

Birds and other animals present on aerodromes and their vicinity represent a potential danger for aviation safety. The various civil aviation stakeholders (civil aviation authority, aerodrome operators, manufacturers, airlines, etc.) have been implementing daily actions for several years now, to better control the wildlife hazard and significantly reduce the number of wildlife strikes and air incidents that can sometimes have damaging results at both human and physical levels.

The objectives defined by the French government in its PSE (State security programme), and the recent changes in regulations with respect to safety management and wildlife hazard prevention on aerodromes have made the stakeholders in the world of aeronautics update and change their practices, in order to include the concept of wildlife hazard-related safety management in particular.

Within this framework, and in order to help certified aerodrome operators with their obligations to monitor and manage the wildlife hazard, this guide offers a method for assessing wildlife hazard based on a set of technical recommendations and leanings enabling them to respond to the new regulatory requirements and to improve wildlife hazard control on aerodromes.

## 1.2. Purpose of the document

This document offers a wildlife hazard assessment methodology for aerodrome operators.

Based on statistical measurements of wildlife strikes and observations of wildlife on site, this method can be used to measure the graduated risk level for each wildlife species present on aerodromes and their vicinity. This method is also accompanied by a set of recommendations to analyse the origin of a risk, and to implement measures to reduce such risks depending on the risk level calculated for each wildlife species.

This methodological guide first offers a reminder of the wildlife-related problems and the regulatory references to which it belongs.

## 2. The problem of wildlife on French aerodromes

Over the last ten years (2003-2013), an average of 700 wildlife strikes has been recorded each year on French aerodromes. 9 % of them have been considered serious for aviation safety, and have led to structural damage and/or delays in operation.



Although the number of serious occurrences has tended to decrease over the past few years, the number of strikes remains high and has been growing since the 1980s. This trend is not specific to France. At international level, several countries are having similar experiences. This can be explained by a set of factors, with the most important ones being :

- ▶ The increase in air traffic. It has increased by 2.6 % in France over the last thirty years (average annual rate spread over the 30-year period).
- ▶ Urbanisation which causes wildlife, and birds in particular, to move towards zones of retreat such as the vegetated areas of aerodromes.
- ▶ Technological innovations in the aeronautical field, and in the design of aircraft engines in particular. These improvements have led to the design of more silent, efficient engines, and lengthened the birds' reaction time during take-off.
- ▶ The optimisation of wildlife strike notification procedures, which means that the French database, Pica, can be updated with more specific data, and the ground truth can be better understood.

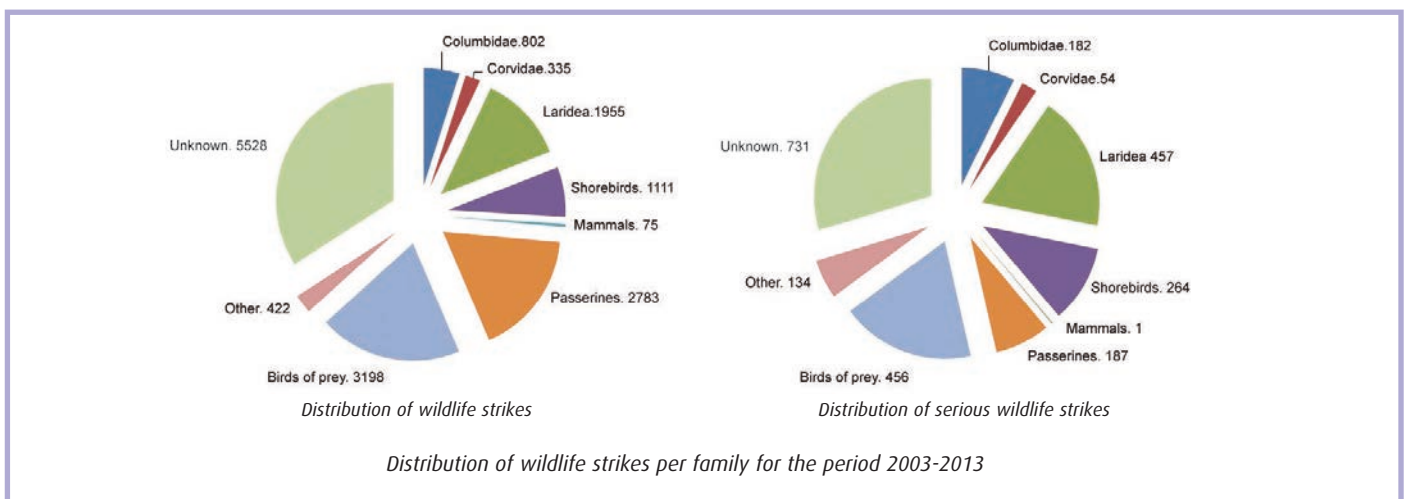
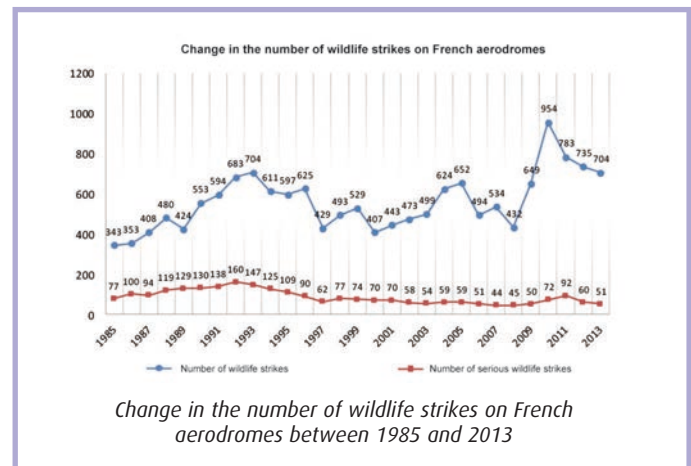
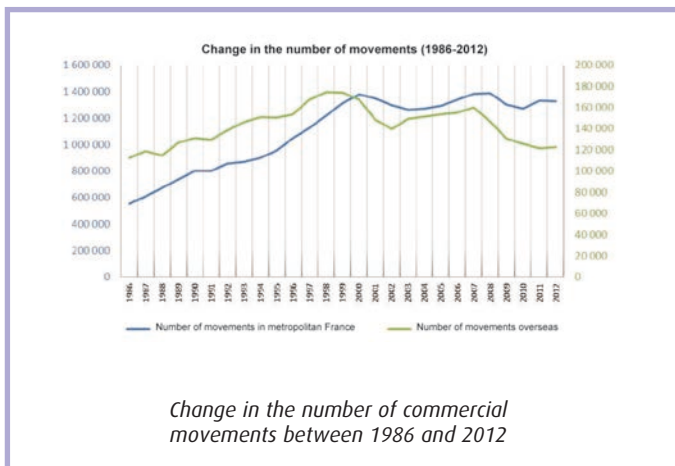
Despite this, France remains one of the most efficient countries when it comes to managing wildlife hazards, with an average of less than 5 strikes for every 10,000 commercial movements. A correlation can be established between this result and the French regulations implemented over the past few years in the field of wildlife strike hazard prevention on aerodromes. This regulatory framework, combined with the numerous French and international recommendations, has enabled us to define the main wildlife hazard management requirements, as we know them today.



<i>Périod 1985-2013</i>			
	<i>Total number of strikes</i>	<i>Total number of serious strikes</i>	<i>% of serious incidents</i>
<i>Columbidae</i>	802	182	22,69
<i>Corvidae</i>	335	54	16,12
<i>Laridae</i>	1 955	457	23,38
<i>Shorebirds</i>	1 111	264	23,76
<i>Mammals</i>	75	1	1,33
<i>Passerines</i>	2 783	187	6,72
<i>Birds of prey</i>	3 198	456	14,26
<i>Other</i>	422	134	31,75
<i>Unknown</i>	5 528	731	13,22
<i>Total</i>	10 259	1 601	15,61

<i>Périod 2003-2013</i>			
	<i>Total number of strikes</i>	<i>Total number of serious strikes</i>	<i>% of serious incidents</i>
<i>Columbidae</i>	368	50	13,59
<i>Corvidae</i>	144	10	6,94
<i>Laridae</i>	657	109	16,59
<i>Shorebirds</i>	343	52	15,16
<i>Mammals</i>	72	0	0
<i>Passerines</i>	1 616	63	3,90
<i>Birds of prey</i>	1 448	117	8,08
<i>Other</i>	160	36	22,50
<i>Unknown</i>	2 252	200	8,88
<i>Total</i>	7 060	637	9,02

*Distribution of wildlife strikes for the periods 1985-2013 and 2003-2013*



### 3. The regulatory and normative approach to wildlife hazard



Initially centred on wildlife control and wildlife hazard prevention, the regulations and recommendations in force in this field have changed over the past few years, and are now turned towards the concept of wildlife hazard management. Although the purpose of this guide is not to present all the instruments dealing with this particular field, it nevertheless seems important to recall the main references that currently govern the prevention and management of wildlife hazard on aerodromes.

#### 3.1. Wildlife hazard assessment and international standards and recommendations (ICAO) (non statutory)

► **Annex 14 to the Convention on International Civil Aviation, Aerodromes, Volume 1. Aerodrome design and operations, part 9.4 Wildlife strike hazard reduction (sixth edition, July 2013).**

The wildlife strike hazard shall be assessed through

- (...),
- an ongoing evaluation of the wildlife hazard by competent personnel.

► **Annex 19 to the Convention on International Civil Aviation, Safety management and Safety management manual (doc 9859).**

The danger that wildlife represents is a very high risk that must be considered by the safety programmes developed by the States and by the safety management systems implemented by aerodrome operators, in order to control, monitor and, if possible, reduce it. The ICAO's safety management manual (SMM - doc 9859) presents the major principles of safety management that can be adapted to wildlife hazard prevention.

- ▶ Airport services technical manual. Part 3. Wildlife control and reduction. Doc 9137 (fourth edition, 2012).

A part of this document is focused on wildlife assessment methodology. To realize this document, the French civil aviation authority has taken into account a part of the Airport services technical manual.

- ▶ **Certification specifications for Engines CS-E. Amendment 2, CSE.800 : bird strike and ingestion.**

### 3.2. European statutory references (regulation (EU) no.139/2014)

- ▶ Art. 9. Monitoring of aerodrome vicinity and Art. 10. Wildlife hazard management.
- ▶ ADR.OPS.B.020. Wildlife strike hazard reduction (together with AMC1 and corresponding GMs).

The aerodrome operator shall:

- A.** Assess the wildlife hazard on, and in the vicinity of, the aerodrome;
- B.** Establish means and procedures to minimise the risk of collisions between wildlife and aircraft, on the aerodrome;
- C.** Notify the competent authority if a wildlife hazard assessment indicates conditions in the vicinity of the aerodrome are conducive to a wildlife hazard problem.

The aerodrome operator shall assess the wildlife hazard on, and in the vicinity, of the aerodrome (ADR.OPS.B.020 (a)). In order to do so, the operator shall implement a wildlife strike hazard programme (AMC1 (d)) based on the following in particular:

- ▶ A description of the wildlife hazard assessment methodology, and its implementation. The methodology is based on the literature about the behaviour of each species on the aerodrome (presence, number and biology of each species), and the assessment of the risk associated with each species (in relation to the number and severity of strikes) (GM1 (a)). It includes a process to analyse and assess the wildlife hazard using strike reports and the measures to be taken to mitigate the risk (GM2).
- ▶ A person who is accountable for developing and implementing the programme (GM2 (a)). The people involved in implementing the wildlife strike hazard prevention programme are qualified in wildlife hazard assessment (GM1 (b), GM2 (a) and GM3).

### 3.3. French regulations

- ▶ Articles D.213-1-14 - D.213-1-25 of the Code de l'Aviation Civile (French Civil Aviation Code).
- ▶ Amended decree of April 10, 2007 on wildlife strike hazard prevention on aerodromes:

Art. 1b – Aerodrome operators develop, implement and keep a wildlife strike hazard prevention programme up-to-date. This programme includes the assessment and monitoring of the wildlife hazard on aerodromes and neighbouring land. The provision of this article came into force on July 1<sup>st</sup>, 2015.

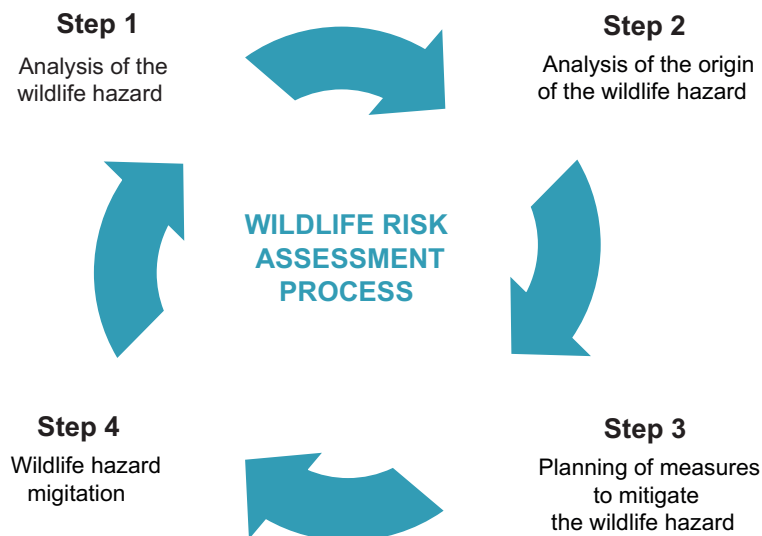
## 4. General principles of wildlife hazard assessment

In the field of wildlife control, the changes to French and European regulations have led to new requirements concerning the assessment and monitoring of the wildlife hazard on aerodromes and surrounding land.

This new approach, based on risk identification, may be represented by a 4-step loop similar to the "Plan-Do-Check-Act" loops used, for example, in the field of safety management systems. It can be used to present the general principles of wildlife hazard assessment without imposing a rigid, exclusive framework.

It follows the four steps below :

- ▶ **Measurement of the wildlife hazard** on the aerodrome and its vicinity: determination of the risk level,
- ▶ **Assessment of the wildlife hazard** on the aerodrome and its vicinity: finding the origin of the risk level,
- ▶ **Planning the measures** to mitigate the wildlife hazard: development of an action programme,
- ▶ **Wildlife hazard mitigation**: implementation of measures to mitigate the wildlife hazard.



*Approach used to assess the wildlife hazard on aerodromes*

All these successive and interdependent steps are presented in the course of the document. They make up the foundations of the methodology used to assess the wildlife hazard on aerodromes.

## 5. Method used to assess the wildlife hazard

### 5.1. Prerequisites

The implementation of a method to assess wildlife hazard requires several prerequisites that are presented below. They make up the base of the methodology developed in this guide. Without them, the risk assessment would only offer a partial, altered image of the level of wildlife hazard on an aerodrome.

<i>Main prerequisites needed to assess the wildlife hazard</i>				
<i>Hazard assessment procedure included in a wildlife strike hazard prevention programme</i>	<i>Training and skills</i>	<i>Scope of hazard analysis</i>	<i>System to report wildlife observations and strikes</i>	<i>Coordination between the various departments</i>

*Prerequisites needed to assess the wildlife hazard*

#### 5.1.1. Wildlife hazard prevention programme

In view of the French and European regulations in force, aerodrome operators assess and monitor the wildlife hazard on the aerodromes and their neighbouring land. They develop, implement and keep a wildlife strike hazard prevention programme up-to-date (Art.1b of the amended French decree of April 10, 2007 and AMC1 ADR.OPS.B.020 (d)).

Kept up-to-date, this programme presents the organisation of the wildlife control department and the way in which it works, and describes the wildlife hazard assessment procedure based on the analysis of wildlife strikes and field observations. Operators will be able to decide to include it in the compendium of instructions for action.

The wildlife strike hazard prevention programme should contain the following information, in accordance with the information in GM2 ADR.OPS.B.020:

- ▶ Description of the preventive actions aiming to make the environment unattractive to wildlife, and the actions relating to scaring away wildlife and collecting samples,
- ▶ Presentation of the human and physical resources available to prevent wildlife strike hazards,
- ▶ Process to collect, record and report wildlife strike reports,
- ▶ Process for liaison with third parties (especially State departments and private landowners), relating to the creation of developments or activities that attract wildlife, and to the mitigation of the associated risks.
- ▶ **Procedure for wildlife hazard assessment on aerodromes and their vicinity**
  - ▶ Measurement of the wildlife hazard level,
  - ▶ Analysis of the wildlife hazard origin,
  - ▶ Definition of the risk mitigation measures and programme to continuously monitor the measures.





### 5.1.2. Training and skills

Pursuant to the regulatory requirements in force, aerodrome operators shall ensure that their staff in charge of wildlife strike hazard prevention are competent (in particular, article D213-1-19 of the French Civil Aviation Code, articles 16 to 21 of the decree of April 10, 2007 on the prevention of wildlife hazards on aerodromes and ADR.OR.D.017 on the training and proficiency check at European level). They may identify a person within their organisation to be in charge of the development and implementation of the wildlife strike hazard prevention programme (GM2 ADR.OPS.B.020 (a) (1)).

**Note:** Those people in charge of the development and implementation of the wildlife strike hazard prevention programme should have the knowledge required by the regulations, and knowledge in the fields of biology and recognition of wildlife species. As the wildlife hazard assessment is based on safety management principles, the personnel in charge of this activity should also have knowledge in this field.

#### //////////////////////////////////// SKILLS OF THE PERSONNEL IN CHARGE OF THE MONITORING AND ASSESSMENT OF WILDLIFE HAZARD.

The staff in charge of wildlife hazard assessment should have knowledge in the following fields in particular :

- ▶ Command of the principles of a safety management system and wildlife hazard assessment methods
- ▶ Command of the regulations, recommendations and practices in force in the field of wildlife strike hazard prevention
- ▶ Knowledge of the local environment, ecology and biology of the wildlife species present on aerodromes
- ▶ Command of the techniques for observation and recognition of local wildlife
- ▶ Command of the procedures for collection and identification of wildlife found after strikes
- ▶ Command of the procedures for transmission and analysis of strike reports

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**Note:** If there are no competent personnel available to assess the wildlife hazard, aerodrome operators may call on natural or legal persons with proven knowledge in the fields of reference (biology, ornithology, mammalogy, aeronautics, etc.), to either carry out a preliminary study of the airport environment or other, more targeted missions relating to naturalist inventories and mappings of the risk areas, on the aerodrome and its vicinity. By way of example, environmental mapping and/or wildlife inventories produced at a pace that is adapted to the wildlife situation may seem satisfactory, as long as this work is combined with environmental monitoring and regular wildlife observations conducted by the aerodrome operators themselves.

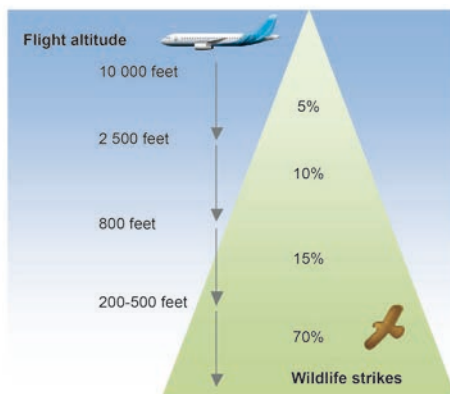
### 5.1.3. Scope of analysis

#### 5.1.3.1. Available data

French regulations do not impose specific scopes of wildlife hazard analysis. It is nevertheless possible to refer to bibliographical data, international recommendations and the European regulations in force.

European regulations mention, in GM2 ADR.OPS.B.020 (explanatory material), that the wildlife hazard assessment process should cover an area of 13 km from the aerodrome reference point.

The publication by the EASA “Bird population trends and their impact on aviation safety 1999-2008” specifies that most bird strikes occur below 2 500 feet (around 90 %); the majority of them take place below 200 or 500 feet, according to the bibliographical sources<sup>1</sup>.



*Distribution of strikes at different flight altitudes*

At international level, document 9137 by the ICAO (part 9.2.6), on the prevention and mitigation of wildlife risks, specifies that “airports should conduct an inventory of wildlife attracting sites within a 13 km circle centred on their reference point, paying particular attention to sites close to the aerodrome and the approach and departure corridors...”.

Document 9332 by the ICAO, on the bird strike information system (chapter 3), mentions that strikes occurring at 200 feet or less above ground level during approach or up to 500 feet above ground during climb, or during parking, manoeuvring or taxiing on landing, are considered as taking place within the airport.

#### 5.1.3.2. Proposal of two scopes of analysis

As part of the methodology used to assess and monitor the wildlife hazard presented in this guide, we recommend that the operators assess a sufficiently wide area to enable them to analyse **the origin of or increase in wildlife hazard**. They shall define a caution area within which they think it is appropriate to find the facilities, structures, works and activities that are at the origin of a wildlife hazard, at an adapted frequency (for example, once a year, as part of the updating of their wildlife hazard prevention programme).

#### <sup>1</sup> Sources:

- EASA. *Bird population trends and their impact on aviation safety 1999-2008, 2009.*
- Robert F. Ehasz. *USAF. Avian Radar – is it worth the cost. Department of the air force. Air University. 2012.*
- Pica (wildlife strike information programme) software. *DGAC/STAC. Statistical extraction 2014.*

Operators are also advised to define a more restricted area including the aerodrome and its neighbouring land, within which they shall record all wildlife strikes and observations needed to assess the wildlife hazard. This airspace shall correspond to the area within which the majority of wildlife strikes take place. Operators are advised to pay particular attention to aircraft approach and departure corridors.

<i>Perimeters of analysis, recommended by the Civil Aviation Technical Service</i>	<i>Field of analysis</i>
<b>Perimeter 1</b> <i>An area including the airport site and its surroundings ( an area of 3 Km around the aerodrome enclosure<sup>2</sup>).</i>	<ul style="list-style-type: none"> <li>• <i>Wildlife surveys.</i></li> <li>• <i>Reporting of wildlife strikes.</i></li> </ul>
<b>Perimeter 2</b> <i>A caution area including the aerodrome and a sufficiently wide outer area for the analysis of the origin of the hazard inherent to a change in land use (an area of 13 Km around the reference point of the aerodrome).</i>	<ul style="list-style-type: none"> <li>• <i>Inventory and monitoring of attractive areas, for each of the wildlife species classified as being at high or very high risk level.</i></li> </ul>

*Suggested perimeters of wildlife risk analysis*

#### 5.1.4. Systems to report environmental observations and strikes

Articles D213-1-19 and D213-1-22 of the French Civil Aviation Code include the regulatory obligation to systematically report wildlife strikes and actions relating to wildlife strike hazard prevention.

##### 5.1.4.1. Reporting wildlife strikes in the aerodrome's airspace

Wildlife strike notification to civil aviation authority is a regulatory obligation. Article 14 of the decree of April 10, 2007 on wildlife strike hazard prevention on aerodromes mentions that wildlife strike reports must be written with reference to the template in annex 3 of the decree. This template is based on the standard "IBIS-Animal/bird strike report form" produced at international level by the ICAO.



#### TYPES OF INFORMATION CONTAINED IN WILDLIFE STRIKE REPORTS:

- ▶ Aircraft (airline, type, model, registration number)
- ▶ Date and time of the occurrence, and period of the day
- ▶ Name of the aerodrome (ICAO code, runway in use)
- ▶ Location of the strike in the aerodrome's airspace (georeferencing)
- ▶ Flight parameters (altitude, speed, flight phase, etc.)
- ▶ Weather conditions (cloud cover, visibility, etc.)
- ▶ Wildlife species (name of the animal, number, mass)
- ▶ Effects on the flight (interrupted take-off, engine shutdown, etc.)
- ▶ Damage (areas hit or damaged)
- ▶ Costs, etc.

You are advised to complete the data entry by sending a photo of the identified wildlife species and the damage observed. You are also advised to send feathers in the event of strikes causing damage.

<sup>2</sup> An area of 3 km is proposed on the basis of the following considerations:

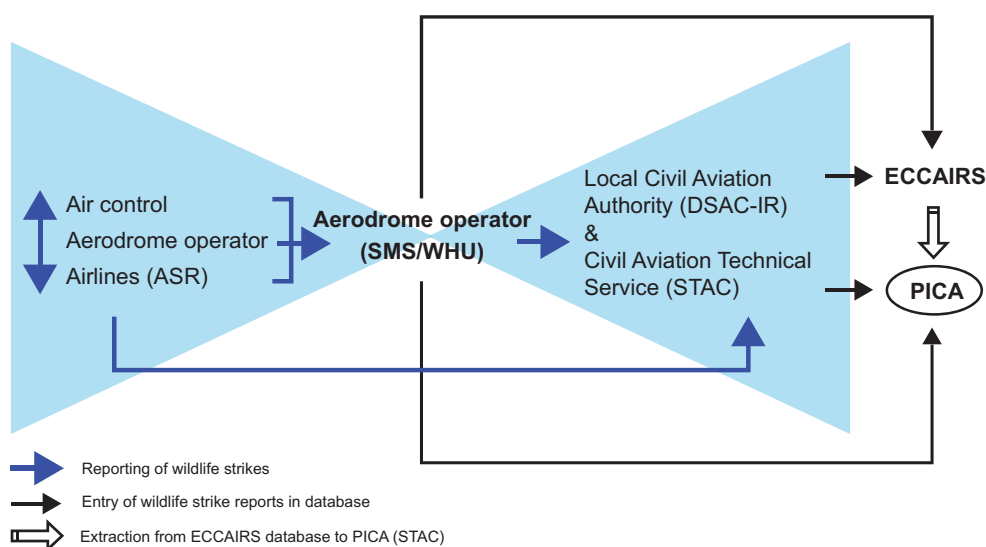
- 70 % of wildlife strikes take place at an altitude lower than 500 ft (data from EASA and STAC),
- Wildlife strikes occurring below 500 ft are considered to be "on airport" (ICAO document 9332),
- A landing approach follows a theoretical glide slope greater than 3° (around 5 %).

Aerodrome operators play the role of data centraliser in this field. They draft the reports about the wildlife strikes that have taken place in the airspace of their aerodrome, and retrieve the wildlife strike reporting forms issued by the air traffic authorities and airlines. Aerodrome operators report their wildlife strikes to the appropriate French civil aviation centre (DSAC-IR (inter-regional Civil Aviation Safety Division)), which enters the information contained in the strike reporting forms in the European database ECCAIRS<sup>3</sup> or ensures that these forms are forwarded to the database. A copy is sent to the STAC so that the French wildlife strike information programme (PICA<sup>4</sup> software) can be updated. The forwarding of a wildlife strike report to the STAC by an aerodrome operator is also a satisfactory process, to the extent that the DSAC-IR ensures that the reporting of the safety occurrence is received.

The STAC also enters the data forwarded directly by airlines and motorists. The deadline for forwarding civil aviation incidents and occurrences to the DSAC is specified in the decree of August 17, 2007 on civil aviation incidents and occurrences, and regulation (EU) no.376/2014 that shall come into force on 15/11/2015.

Updating the French PICA database means that aerodrome operators, airlines and civil aviation centres have access to a set of statistical data on wildlife strikes at both local and national levels. This access differs depending on the user profile. By way of example, each aerodrome operator is able to access both statistical data about its particular land and data summarised at national level. Access to the software is free of charge and made secure by a username and password given to each organisation making such a request to: [stac-picaweb@aviation-civile.gouv.fr](mailto:stac-picaweb@aviation-civile.gouv.fr).

As a part of the framework of the method used to assess wildlife risk explained in this document, the PICA database becomes the baseline interface to measure the level of statistical risk. The functional capability of this interface lies mainly in the quality of the information forwarded and the efficiency of the forwarding of occurrence reporting. You are therefore asked to both enter data about impacts using the strike report template defined by the ICAO ( annex 1 of the guide), and follow the reporting procedure described above, summarized in diagram on the next page.



*Procedure for entering and reporting wildlife strikes*

<sup>3</sup> ECCAIRS is the European database enabling air accidents and incidents to be reported, stored and analysed.

<sup>4</sup> The PICA software is a wildlife strike information programme, and the French database used to know the wildlife strike situation at each aerodrome. It is also used to calculate the level of statistical risk needed to assess the wildlife hazard. Requests for access to the software can be made to: [stac-picaweb@aviation-civile.gouv.fr](mailto:stac-picaweb@aviation-civile.gouv.fr).



#### 5.1.4.2. Reporting of bird scaring operations and wildlife observations

The French regulations in force oblige aerodrome operators to draw up a report of daily operations (paragraph j. - article D213-1-19 of the French Civil Aviation Code).

Operators wishing to assess the wildlife hazard are advised to list and follow :

- ▶ all the bird scaring operations performed at the aerodrome, i.e. acoustic, pyrotechnic, optical scaring operations, for example.

Date	Time	Wildlife control employee	Location of wildlife species exposed to repellent actions	Identification of wildlife species (genus, species)	Number of repelled animals	Type of repellent action <ul style="list-style-type: none"> <li>• acoustic: signal type</li> <li>• pyrotechnic: rocket type</li> <li>• optical: laser type</li> <li>• falconry, etc.</li> </ul>
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*Example of information to be listed for bird scaring operations*

- ▶ all the sample collection/capture operations performed on the aerodrome by the operator or a third party.

Date	Time	Wildlife strike hazard prevention employee/or third party	Location of the sample collection/capture area	Identification of wildlife species (genus, species)	Number of captured/sampled animals	Type of sample collection/capture <ul style="list-style-type: none"> <li>• shooting: material-type</li> <li>• capture: material-type</li> <li>• other: falconry, etc.</li> </ul>
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*Example of information to be listed for sampling/capture operations*

- ▶ all the wildlife observations made in the aerodrome's airspace by the aerodrome operator or a third party.

Date	Time	Wildlife strike hazard prevention employee/or third party	Location of the observation area	Identification of the wildlife species observed (genus, species)	For each observation <ul style="list-style-type: none"> <li>• number</li> <li>• behaviour (feeding/resting/reproduction/movement)</li> </ul>
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*Example of information to be listed for wildlife observation*





#### 5.1.4.3. Reporting of attractive areas and activities at risk

The STAC recommends that aerodrome operators have sufficient resources to list the facilities, structures, works and activities at the origin of a hazard or an increase in the wildlife hazard within and outside their aerodromes.

Within the aerodrome, the aerodrome operator shall list all the maintenance operations carried out in vegetated areas for example (mowing, scrub clearing, planting, etc.) and the works undertaken to develop the airport infrastructure (development of a terminal, wastewater treatment cells, parking stands, taxiways, installation/maintenance of fencing, etc.) likely to lead to a wildlife hazard.

Outside the aerodrome, the aerodrome operator shall have sufficient knowledge of the airport environment to inform the local Civil Aviation Authority of any activity or planned activity, facilities, works or structures at the origin of a wildlife hazard.

Annex 2 of the methodological guide lists, for information purposes, the main land uses and facilities likely to attract wildlife around the aerodrome. The Civil Aviation Technical Service advises the use of the European nomenclature of biophysical land use, CORINE Land Cover (list in annex 2 of the guide) for the notification of the main attractive areas.

<i>Date</i>	<i>Time</i>	<i>Wildlife strike hazard prevention employee/or third party</i>	<i>Location of the attractive area</i>	<i>Typology of the attractive area</i>
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*Example of information to be listed to map the areas and activities at risk*

#### 5.1.4.4. Data traceability

Data acquisition is an integral part of the wildlife hazard assessment process. It is unavoidable and is based on the implementation of a traceability system enabling data to be collected, filed away and processed within a risk analysis framework.

The data traceability procedure may be associated with a global mapping operation enabling all the observations, scaring operations and/or activities resulting in a wildlife hazard to be detected. This chart-based referencing is also part of the wildlife hazard assessment and, in particular, of the analysis of certain levels of risk, especially regarding the attractive activities or areas on an aerodrome and its vicinity.



**Note :** Data can be traced using a “paper-type” report sheet from which data may be retrieved to be filed away and processed on a computer, using either office software or specific databases. Computer systems, in the form of mobile applications, are also available to trace operations and process data used to assess the wildlife hazard in particular.

*Georeferencing of the bird scaring, sample collection/capture operations, wildlife observations and attractive areas.*

- By gridding the airport area and its environment, centred on the preferential runway centre line (cell of 150x150m for example).
- Using GPS coordinates expressed as latitude and longitude.

#### 5.1.5. Coordination with third parties

Aerodrome operators are advised to develop heightened coordination regarding wildlife problems within the airport and its vicinity in order to optimally manage such problems. Coordination should be with the main State departments and third parties concerned, in particular the Civil Aviation services (air control and Civil Aviation Safety Division), airlines, prefectural departments and both natural and legal persons whose activity outside the airport is likely to have an impact on aviation safety.

The aim of such coordination could be to:

- ▶ Inform all parties of the wildlife hazard prevention programme implemented by the aerodrome operator, the wildlife hazard monitoring indicators and objectives,
- ▶ Define or recall individual missions in the field of wildlife strike hazard prevention,
- ▶ Implement communication and information processes between the different stakeholders, relating to the creation of areas likely to attract wildlife, define the associated measures to mitigate the risks if necessary and give feedback on these processes.

The wildlife hazard prevention programme may be presented during an occasion such as an environmental advisory board meeting or safety committee meeting (SGS). One may also decide to set up a wildlife hazard prevention committee, steered by the person in charge of this field, as mentioned by the ICAO in its manual 9137 on wildlife hazard prevention. Such committees should be set up at each aerodrome and bring together all the services/departments and organisations inside or outside the aerodrome that are concerned by this subject. They should convene at least once a year, and both encourage discussions between the various organisations and establish the wildlife strike hazard prevention policy at each aerodrome.

**Note:** The points discussed during such meetings might concern the following aspects (without being limited to):

- ▶ the presentation of the local wildlife situation,
- ▶ the presentation of the wildlife hazard monitoring indicators or objectives,
- ▶ the presentation of the measures proposed by the aerodrome operator to mitigate the wildlife hazard.



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The roles and responsibilities of the main stakeholders in wildlife strike hazard prevention are specified in the French Civil Aviation Code and the decree of April 10, 2007, amended by the decree of April 30, 2014, on wildlife strike hazard prevention at aerodromes

#### EXAMPLES OF REGULATORY REQUIREMENTS ACTING AS A FRAMEWORK FOR RELATIONSHIPS BETWEEN THE VARIOUS STAKEHOLDERS.

##### Aerodrome operator ⇔ Air traffic authority

(article D213-1-19 of the French Civil Aviation Code, paragraph d.): The aerodrome operator shall “inform the air traffic authority, when there is one on the aerodrome, of the presence of wildlife, the wildlife scaring and sample collection measures that have been put into place, and the results of these measures, and ensure that this information is of quality”. The aerodrome operator shall also inform the air traffic authority of any suspension or momentary reduction in part or all of the wildlife control tools. When these tools are likely to be unavailable for more than 12 hours, the air traffic authority shall request that a notice is published for the attention of air navigators, once it has been informed of this by the aerodrome operator (article 11 of the decree of April 10, 2007 on wildlife strike hazard prevention).

In pursuance of article D213-1-20 of the French Civil Aviation Code, the air traffic authority shall “inform the operator of the presence of wildlife near marshalling areas and of the impacts on aircraft as soon as it becomes aware of this. It shall also enable the employees in charge of wildlife strike hazard to implement their actions”.

##### Airport operator ⇔ Prefecture (especially the local aviation safety authority)

After consulting the aerodrome operator, “the Prefect shall draw up a decree on the minimum periods during which wildlife strike hazard prevention measures shall be implemented”. The aerodrome operator is also obliged to inform the Prefect of 1/ “the situations or places in the aerodrome or on neighbouring land that are particularly attractive to wildlife”, 2/ “send it the wildlife strike reports, the annual report on the wildlife sampled per species as well as the annual report on preventive actions”, 3/ “send the designated department the non putrescible remains of birds collected on runways or a digital photo of the bird remains”. Upon request from the aerodrome operator, and whenever justified by the wildlife situations, “the Prefect may authorise the implementation of appropriate wildlife sample collection or scaring measures, both day and night”. (Respectively articles D231-1-16, D213-1-17 and D213-1-19 of the French Civil Aviation Code).

The local civil aviation authority shall forward the compendium of instructions for action (wildlife strike hazard prevention programme) to the Prefect. The latter may have follow-up visits performed on site or on facts, and reserves the right to order the implementation of measures needed to comply with the regulations, and even to decide to limit the airport activity (articles D213-1-23 and D213-1-24 of the French Civil Aviation Code and article 22 of the decree of April 10, 2007).

##### Airlines/maintenance workshops ⇔ Civil aviation authority ⇔ Aerodrome operator

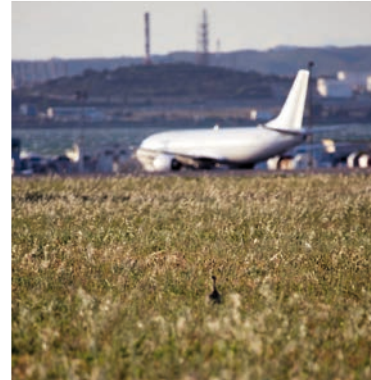
In pursuance of article D213-1-22 of the French Civil Aviation Code, airlines shall draw up “for any reported wildlife strike, a report that shall be sent to the ministry in charge of civil aviation (in our case, to the STAC via the Pica database). The aerodrome operator shall be kept informed of the wildlife strikes that have been proven to have occurred on the aerodrome”.

It is important to recall that crews must report the presence of wildlife on the aerodrome and its vicinity, and strikes, to the air navigation services with which they are in contact (article D213-1-22 of the French Civil Aviation Code). Once these services have been informed, they must inform the operator of the aerodrome concerned. It is important to recall that crews must report the presence of wildlife on the aerodrome and its vicinity, and strikes, to the air navigation services with which they are in contact (article D213-1-22 of the French Civil Aviation Code). Once these services have been informed, they must inform the operator of the aerodrome concerned.

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## 5.2. Wildlife hazard assessment procedure



An animal may be a danger for aviation safety at different times of the day or year. By way of example, it has been proven that animals are generally more active at sunrise and sunset, as this is when they move from one place to another in their territory (for example: resting areas, feeding grounds). Such movement may correspond to air traffic peaks on aerodromes. Likewise, migratory periods are generally critical in terms of aviation safety, as a lot of birds cross metropolitan France when migrating. Although most of these movements take place at night, they may affect part or all of the flights, especially when the birds choose the airport or its vicinity as a staging area.

Independently of the circadian rhythms that govern the activity of wildlife species, the physiognomic (mass/shape) and behavioural (gregarious/solitary wildlife species, etc.) features of such species may also bring about a danger for aviation safety. A flock of birds of low mass may be as much a danger as a heavy bird on the aerodrome.

It remains difficult to foresee the presence of wildlife on aerodromes, especially because each wildlife species is governed by a set of biological cycles and mechanisms that may make hazard assessment difficult and complex.

**The aerodrome operator must ensure that the wildlife controllers know the environmental and faunistic situation of the aerodrome and neighbouring land well enough. This knowledge is one of the basic steps needed to assess the wildlife hazard.**



### 5.2.1. Definitions

Before going into details about the procedure for assessing wildlife risk, we should recall two important definitions commonly used in the field of wildlife risk management, which have a specific meaning in the field of risk analysis.

**A hazard** is defined as a situation that, in some circumstances, can lead to an aviation safety event (serious incident, accident). In this case, a hazard is the probability (or the frequency) of occurrence of wildlife species on the aerodrome (wildlife can be observed all year round or only during a part of the year), combined with the severity of this occurrence, expressed by the mass and the average number of individuals of each species that have been observed on and near the aerodrome.

**Risk** is the probability that the harmful event will occur, multiplied by the severity of the harm that may be caused. In this case, it is the probability (or the frequency) of occurrence of wildlife strike on the aerodrome multiplied by the severity of the resulting damage to the aircraft.

### 5.2.2. Application to wildlife hazard assessment: procedure elaborated by the STAC

The procedure for assessing wildlife risk proposed by the STAC follows the more recent developments in national and European policy on wildlife hazard prevention. This procedure is based on the calculation of the wildlife risk level (NRA) for each of the wildlife species present on and near the aerodrome. The calculation is based on two complementary approaches, defined by the abbreviation "ARA" (*Animal Risk Assessment*).

- ▶ A first approach based on the analysis of wildlife strikes risk on the aerodrome, (Wildlife strike risk level (NRC): levels ranging from 1 to 3). The aerodrome operator should use the software PICA, in order to analyse the statistics of the strike reports for each wildlife species present on or near the aerodrome and calculate the NRC.
- ▶ A second approach based on the analysis of the hazard represented by the wildlife present on and near the aerodrome (Wildlife hazard level (NDA): levels ranging from 1 to 3). The aerodrome operator should have an updated list of the wildlife species present on and near its aerodrome, mentioning the frequency of observation, mass and abundance of each one of them.

<b>Wildlife risk level (NRA)</b> For each wildlife species involved in a strike and/or present on or near the aerodrome	=	<b>Strike risk level (NRC)</b> Wildlife strikes	+	<b>Wildlife hazard level (NDA)</b> Wildlife observations
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#### 5.2.2.1. Calculation of the strike risk level (NRC)

The level of strike risk level is measured based on a matrix drawn up at international level by experts in the fields of wildlife hazard prevention and aeronautics <sup>5</sup>. This calculation defines the risk level based on the frequency of strikes and their severity, for each wildlife species involved in one or more strikes on and near the aerodrome over the previous three years.

<b>Strike risk level (NRC)</b>  Risk level ranging from 1 (low risk) to 3 (high risk)	=	<b>FREQUENCY</b>  Average number of strikes recorded over three years on and near the aerodrome	+	<b>SEVERITY</b>  Percentage of strikes with damage, calculated at national level over three years
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<sup>5</sup> The procedure for measuring the NRC complies with the rules defined by the ICAO in its *Airport Services Manual, Part 3, Wildlife control and reduction (Doc 9137)* and with the recommendations of ACI appeared in its *Aerodrome Bird Hazard Prevention and Wildlife Management Handbook (first version)*.

**Frequency of strikes** is calculated, for each wildlife species involved in one or more strikes, using the yearly average number of strikes recorded on and near the aerodrome over a three-year period.

<i>Average number of strikes recorded on and near the aerodrome over three years</i>	$f > 10$	$10 \geq f > 3$	$3 \geq f > 1$	$1 \geq f > 0.34$	$0.34 \geq f > 0$
<i>Type of frequency</i>	<i>Very high</i>	<i>High</i>	<i>Moderate</i>	<i>Low</i>	<i>Very low</i>

**Severity of strikes** is calculated, for each wildlife species involved in one or more strikes, using the percentage of wildlife strikes with damages recorded at national level over a three-year period. It is the ratio of the number of strikes with damages to the total number of strikes recorded at national level, for the same wildlife species over a period of three years.

<i>Percentage of strikes with damage, calculated at national level over three years</i>	$g > 20 \%$	$20 \% \geq g > 10 \%$	$10 \% \geq g > 6 \%$	$6 \% \geq g > 2 \%$	$2 \% \geq g \geq 0 \%$
<i>Type of severity</i>	<i>Very high</i>	<i>High</i>	<i>Moderate</i>	<i>Low</i>	<i>Very low</i>

Using these two variables, “frequency” and “severity” of strikes, a matrix can be used to calculate, for each wildlife species involved in one or more strikes over the last three years, the wildlife strike risk level (NRC) ranging from 1 to 3.

<i>Severity</i>	<i>Frequency</i>				
	<i>Very high</i>	<i>High</i>	<i>Moderate</i>	<i>Low</i>	<i>Very low</i>
<i>Very high</i>	3	3	3	2	2
<i>High</i>	3	3	3	2	2
<i>Moderate</i>	3	3	2	1	1
<i>Low</i>	2	2	1	1	1
<i>Very low</i>	1	1	1	1	1

*Assessment matrix of the strike risk level (NRC)*

- Level 1 : low risk
- Level 2 : high risk
- Level 3 : very high risk



The relevance of the calculation of the wildlife strike risk (NRC) is closely linked to the quality of the reporting of the wildlife strikes that occur on the aerodrome.

Calculating the risk level over a period of three years from n-1 is recommended at least once a year. For example, in 2017, the risk level may be calculated for the years 2014-2016.

In the absence of wildlife strikes over the reference period of three years, the wildlife strike risk (NRC) cannot be calculated. The risk assessment will be only based on the assessment of the hazard represented by the wildlife species present on the aerodrome (See Wildlife hazard level - NDA).

#### 5.2.2.2. Calculation of the wildlife hazard level (NDA)

The wildlife risk is not simply the result of the sum of all the wildlife strikes occurring in the aerodrome's airspace. It is also related to the hazard represented by the wildlife observed on or near the aerodrome throughout the year.

Indeed, simply reporting wildlife strikes, even if it is a fundamental step in wildlife risk assessment procedure, is not sufficient to accurately determine the wildlife species that, even if not involved in wildlife strikes, may be considered a problem for aviation safety due to their presences on or near the aerodrome during the whole year or a part of the year.

Moreover, the calculation of the strike risk level (NRC) doesn't give a proactive vision of the risk. Indeed, given the way in which it is calculated over the last three years, the wildlife risk level gives a somewhat backward-looking vision of the local wildlife situation. In order to remedy that, the STAC suggests to combine the strike risk level (NRC) with a measurement based on the evaluation of the wildlife hazard represented by the wildlife species that are present on and near the aerodrome ( Wildlife hazard level: NDA).

<i>Wildlife hazard level (NDA)</i>		<i>FREQUENCY</i>		<i>SEVERITY</i>
<i>Hazard level ranging from 1 (low hazard) to 3 (high hazard)</i>	=	<i>Number of weeks during which the wildlife species has been observed over one year</i>	+	<i>Average number of individuals observed per group over one year, combined with the average mass of the wildlife species</i>

The strike risk level (NRC) can be weighted by measuring the wildlife hazard level (NDA). The latter can be used to define the hazard level based on the wildlife observations carried out throughout the year on and near the aerodrome. Its measurement is based on the calculation of the frequency and the severity of the hazard.

The **frequency of the occurrence** is measured, for each wildlife species observed on and near the aerodrome, using the direct or indirect (footprints, spraints or pellets, etc.) wildlife observations that are carried out daily, or at least once a week, throughout the year. Scaring actions and lethal control (or animal capture) are also observations to be included in the measurement.

It is preferable to record each observation on a report sheet, for example in hard copy or electronic format, so that the frequency of occurrence of wildlife on and near the aerodrome can be calculated over 1 year. These observations may also be geolocated (or georeferenced) so that data can be recorded on charts.

<i>Frequency of occurrence of each wildlife species on or near the aerodrome</i>	
<i>Regular</i>	<i>Wildlife species that is present on and near the aerodrome throughout the year (for example, sedentary species). Wildlife species observed more than 26 weeks/year.</i>
<i>Occasional</i>	<i>Wildlife species that is present on and near the aerodrome on an irregular basis throughout the year (for example, species only present during nesting or wintering periods). Wildlife species observed between 10 and 26 weeks/year.</i>
<i>Rare</i>	<i>Rare wildlife species or species passing through the airspace on and near the aerodrome (migratory stopover). Wildlife species observed less than 10 weeks/year.</i>

*Estimation of the observation frequency of wildlife species on and near the aerodrome*

**Severity** is calculated using the combination of the number of individuals of the same wildlife species observed in the same place at the same time, averaged over one year, and the average mass of the individuals.

The number of individuals of a particular wildlife species, on the ground or in flight, can be estimated by the naked eye or using binoculars depending on the distance and size of the animals. The number of individuals per group should be noted for each species. Using a method of counting per "set of animals", with each set containing 10, 30, 50 or 100 birds for example, when there are a lot of animals and/or birds, can make counting easier.

The use of good quality binoculars or telescope facilitates the observation and the identification of animals.

Average mass of each species has been proposed in the book "CRC Handbook of avian body masses. Second edition. 2008. by J.B. Dunning". It is also possible to refer to scientific and technical publications published by the French Ministry of Ecology, natural history museums or the French Hunting and Wildlife Commission.

<i>Heavy birds</i>	<i>Severity of the hazard</i>		
	<i>Nb ≥ 1</i>		
<i>mass ≥ 1,85 kg</i>	<i>Very high/high</i>		

<i>Average-weight birds</i>	<i>Severity of the hazard</i>		
	<i>Nb ≥ 5</i>	<i>5 &gt; Nb &gt; 1</i>	<i>Nb = 1</i>
<i>0,7 kg ≤ mass &lt; 1,85 kg</i>	<i>Very high to high</i>	<i>Moderate</i>	<i>Low to very low</i>

<i>Light birds</i>	<i>Severity of the hazard</i>		
	<i>Nb ≥ 15</i>	<i>15 &gt; Nb ≥ 5</i>	<i>5 &gt; Nb</i>
<i>mass &lt; 0,7 kg</i>	<i>Very high to high</i>	<i>Moderate</i>	<i>Low to very low</i>

Severity of the hazard represented by birds

<i>Heavy mammals</i>	<i>Severity of the hazard</i>		
	<i>Nb ≥ 1</i>		
<i>Masse ≥ 2 Kg</i>	<i>Very high/high</i>		

<i>Average-weight mammals</i>	<i>Severity of the hazard</i>		
	<i>Nb ≥ 5</i>	<i>5 &gt; Nb &gt; 1</i>	<i>Nb = 1</i>
<i>1 kg ≤ mass &lt; 2 kg</i>	<i>Very high to high</i>	<i>Moderate</i>	<i>Low to very low</i>

<i>Light mammals</i>	<i>Severity of the hazard</i>		
	<i>Nb ≥ 15</i>	<i>15 &gt; Nb ≥ 5</i>	<i>5 &gt; Nb</i>
<i>mass &lt; 1 kg</i>	<i>Very high to high</i>	<i>Moderate</i>	<i>Low to very low</i>

Nb: Number of individuals of the same wildlife species observed at the same time in the same place.

Severity of the hazard represented by mammals

Assessment of the severity of a hazard on or near an aerodrome



### DETERMINATION OF THE “NUMBER” AND “MASS” VARIABLES OF BIRDS.

The severity of a hazard represented by birds is determined by referring to the standards of certification of aircraft engines currently in force in Europe, and in particular to the “Certification specifications for Engines CS-E. Amendment 2, CSE.800: bird strike and ingestion”. These specifications lay out the tests to be carried out to certify the aircraft engines for bird ingestion. As the risk assessment procedure should apply to all aerodromes, it is agreed that the engine in the aircraft frequently encountered on French aerodromes, i.e. the SNECMA CFM56-5, should be chosen. This engine is used in Airbus A318/A319/A320/A321.

The “mass” and “number of birds” variables have therefore been defined using CFM56-5 certification test protocols and the technical expertise of the STAC’s ornithologists.



A matrix elaborated using the two variables “frequency” and “severity”, can be used to calculate the wildlife hazard level, ranging from 1 to 3 (and matching a colour varying from green to red in the table below), for each wildlife species present on and near the aerodrome over 1 year.

<i>Severity of the hazard</i>	<i>Frequency of the hazard</i>		
	<i>Regular</i>	<i>Occasional</i>	<i>Rare</i>
<i>Very high/high</i>	3	3	2
<i>Moderate</i>	3	2	1
<i>Low/very low</i>	2	1	1

*Assessment matrix of the wildlife hazard level (NDA)*

- Level 1: low risk
- Level 2: high risk
- Level 3: very high risk

The accuracy of this hazard level mainly depends on the quality of the observations made by wildlife controllers on and near the aerodrome. Consequently, thorough knowledge in the field of wildlife recognition needs to be acquired and a system for reporting and tracing wildlife observations needs to be implemented in order to measure the wildlife hazard level.

### 5.2.2.3. Calculation of wildlife risk level (NRA)

Combining the wildlife strike risk and the wildlife hazard level in a matrix enables the wildlife risk level (NRA) to be ranked. 3 risk levels, each associated with recommended actions, can be measured for each wildlife species present on and near the aerodrome and / or involved in one or more strikes. These recommendations are detailed in part 5.2.4 of this document. They are taken from the ICAO's technical document 9137 "Airport Services Manual. Part 3, Wildlife control and reduction".

This calculation allows a classification of the risk levels which shows both the likelihood of occurrence of serious wildlife strikes and the likelihood of occurrence of dangerous situations for flight safety.

Strike risk level (NRC)	Wildlife hazard level (NDA)		
	3	2	1
3	3	3	2
2	3	2	1
1	2	1	1
NR *	2	1	1

Assessment matrix of the wildlife risk level (NRA)

- Level 1: low risk
- Level 2: high risk
- Level 3: very high risk

\*NR: In the absence of wildlife strikes over the reference period of three years, the wildlife strike risk (NRC) cannot be calculated by the software PICA. Consequently, the wildlife risk level will be only based on the wildlife hazard level, represented by the wildlife species present on and near the aerodrome.

Risk reduction measures must be implemented for wildlife species ranked as risk level 2 and 3. These measures should depend on the preliminary implementation of a risk analysis on the sources of the risk for each wildlife species, as presented in part 5.2.3 of this guide.

### 5.2.3. Risk analysis

Wildlife, and birds in particular, are not exclusively settled on aerodromes. They fly over infrastructures, from different areas located within the aerodrome or in its vicinity. In view of the air traffic requirements and rules for maintaining a high level of safety, the presence of wildlife species considered to be at risk on or near the aerodrome requires the implementation of actions to reduce the hazard and the monitoring of such actions over time.

These actions should be defined on the basis of a documented analysis of the origin of the hazard, by identifying the attractive factors for wildlife and examining the aerodrome operator's in-house organisation.

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Tracing the source of wildlife hazard for the wildlife species ranked as level 2 and 3 is particularly based on :

- ▶ An inspection of the airport environment,
- ▶ An examination of the ecology and biology of the wildlife species,
- ▶ An inspection of the airport operator's organisation and wildlife hazard management implemented by the wildlife strike hazard prevention department.
- ▶ A statistical analysis of strike data: seasonal/hourly distribution, species involved etc.

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### 5.2.3.1. Inspection of the airport environment

Knowledge of the airport environment is an important element of the wildlife hazard management process. Land use strongly determines the presence and distribution of a more or less large number of individuals of wildlife species on aerodromes and neighbouring land. **So, the operator shall try to identify the areas, facilities, structures or activities (sources of food, resting areas, areas of refuge, etc.) on the aerodrome and its vicinity, likely to be the source of a significant wildlife hazard, for each wildlife species ranked at risk level 2 and 3. This step seems to be fundamental in understanding the source of a wildlife hazard and implementing reduction measures. It also infers that the aerodrome operator already has knowledge of the airport environment and is in possession of updated mapping elements.**

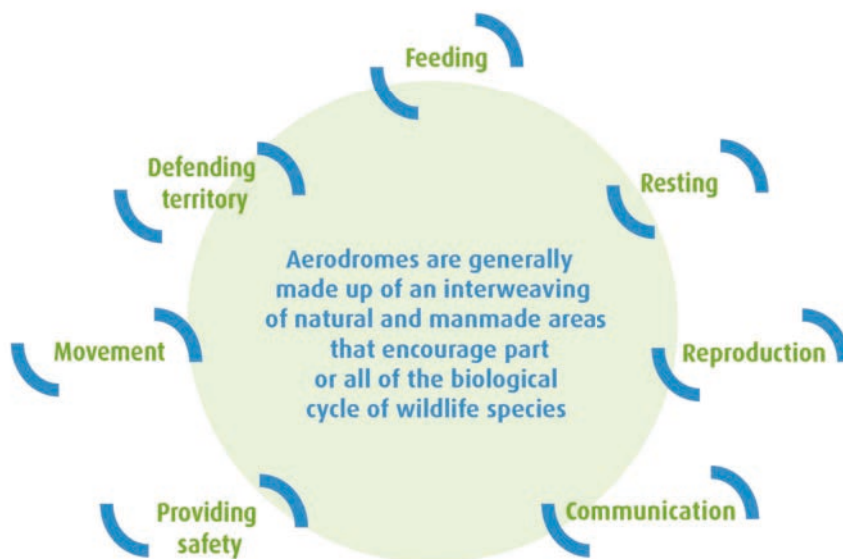
Annex 2 of the methodological guide shows the typology of attractive areas for wildlife in the aerodrome caution area, by way of example.



### 5.2.3.2. Examination of the ecology of wildlife species

Airport rights-of-way are generally made up of a set of environments likely to welcome a more or less large number of animal populations over part or all of the year.

They therefore play an important role in the distribution of these populations, as they generally offer environmental conditions (physical, chemical and biological parameters) that favour part or all of the biological cycle of wildlife species (food, rest, refuge, reproduction, movement/transit/migration corridors, etc.) present on or near the aerodrome.



*Main phases in the biological cycle of wildlife species*

As a result, knowledge of the ecology and biology of the animal populations present on or near the aerodrome is extremely important, as it can help explain the presence of species considered to be a problem for aviation safety on the one hand, and identify the levers of action meant to reduce wildlife hazard on the other hand.

**Example :** the problem raised by the common buzzard may originate from the presence of favourable hunting grounds and afforestation that is sufficiently high and dense to enable its reproduction. By working on part or all of the species' ecological niche, the risk can be reduced. Keeping grass cover high and thus making access to prey difficult may be an acceptable solution to reduce the risk created by this bird. Such action can be combined with measures that aim to reduce the number of hunting stands and breeding grounds such as high trees.

On a different note, daily movements by Laridae in approach paths may create a hazard for aviation safety. The analysis of this hazard must lead the operator to find the source of these bird movements by listing and mapping attractive areas such as feeding areas (industrial estates, waste storage facilities, ports, etc.) and resting areas or breeding grounds (flat-roofed urbanised areas/business parks, car parks, natural zones with sand or gravel, etc.). These areas may be found in the vicinity of the aerodrome and require action from the local civil aviation authority so that levers of action can be defined to reduce the wildlife hazard. Complementary actions may also be implemented in order to control the current hazard at the aerodrome, by implementing strengthened measures to monitor, scare and even collect samples of wildlife. The possibility of rescheduling some flights outside the bird movement periods may be studied in coordination with the air traffic control service, if all the wildlife control tools are inefficient.

### 5.2.3.3. The organisation of the unit in charge of wildlife strike hazard prevention and the operation of the aerodrome

In some cases, the source of a wildlife hazard can be found within the airport's organisation. In the event of the appearance of or increase in a wildlife hazard, the aerodrome operator should question the way in which such a hazard is managed within its own organisation. It should examine its internal organisation in order to ensure that there is enough organisation and investment in terms of resources, equipment and training to control the wildlife hazard at its aerodrome.



## Control!

<i>Wildlife hazard prevention unit</i>	<i>Coordination between services</i>	<i>Change in the way the aerodrome is operated</i>
<ul style="list-style-type: none"> <li>• Wildlife hazard prevention plan,</li> <li>• Wildlife hazard assessment procedure,</li> <li>• Wildlife control practices,</li> <li>• Human resources,</li> <li>• Training,</li> <li>• Physical resources, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Within the aerodrome,</li> <li>• Between the aerodrome and third parties.</li> </ul>	<p>Facilities, structures, works or activities likely to have an effect on wildlife hazards (work, servicing, etc.).</p>

*Examination of the aerodrome operator's internal organisation*

#### 5.2.4. Wildlife hazard reduction plan

The aerodrome operator is advised to draw up an action programme based on the results of its hazard analysis, for each of the wildlife species ranked according to the risk level.

The type of undertaken actions and their implementation timeline depend on the risk level. It is important to clarify that the suggested actions must be realistic and feasible.

##### ■ Risk level 1

The risk represented by the wildlife species is low. No additional action is required beyond the wildlife hazard management measures already implemented. **It is advisable to pursue the actions already implemented with the same thoroughness and intensity.**

##### ■ Risk level 2

The risk represented by the wildlife species is high. The aerodrome operator must reinforce the monitoring of the aerodrome and carry out an in-depth examination of the procedures and measures implemented to reduce wildlife hazard that are currently in force. **Depending on the analysis of the situation, additional actions to reduce the wildlife hazard are to be implemented without delay.** The aerodrome operator may inform the appropriate civil aviation service by giving the risk level, the risk reduction measured implemented and how the implementation of these measures is monitored.

##### ■ Risk level 3

The risk represented by the wildlife species is very high. The aerodrome operator must reinforce the monitoring of the aerodrome and carry out an in-depth examination of the procedures and measures implemented to reduce wildlife hazard that are currently in force. **Additional actions to reduce the wildlife hazard are to be implemented without delay. The aerodrome operator shall inform the appropriate civil aviation service by giving the risk level, the risk reduction measured implemented and how the implementation of these measures is monitored.**

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#### Reminder of the two main types of wildlife control actions implemented on aerodromes

► **Preventive actions** are meant to handle the wildlife ecological niche. In this specific case, the actions should modify the habitat so that it is no longer attractive for the wildlife species which may be dangerous for the safety of flights. These actions do not generally yield positive results immediately, and it is therefore necessary to combine them with wildlife control remedial actions and regular monitoring, in order to validate the effectiveness of these measures if so required.



► **Wildlife control remedial actions** consist in disturbing and stressing wildlife by implementing a set of scaring methods with immediate effects (pyrotechnics, acoustics, optics, falconry, etc.). Different methods must be implemented and repeated on a regular basis, so that the wildlife does not become accustomed to such methods, and so as to heighten the effectiveness of scaring operations. In some circumstances, especially when the wildlife species represents an imminent hazard for aviation safety or when no traditional wildlife hazard management tools are effective, it may be necessary to implement individual capture and/or sample collection methods.

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In order to propose operational, effective solutions, the aerodrome operator shall make use of the experience it has acquired in this field and the experience of other aerodrome operators or services with proven expertise in the field of wildlife hazard prevention. The aerodrome operator should also ensure that the chosen measures comply with the regulations in force, especially as far as the environment and aviation safety are concerned.

The actions implemented to manage the wildlife hazard must be adapted to the reality of what is physically possible to implement in pursuance of the statutory requirements in force. It is important to point out that the aerodrome operator may find itself unable to take favourable action towards the wildlife hazard, due, in particular, to the presence of attractive areas in which it may be extremely difficult to implement actions (for example: large bodies of water, relief, conservation areas or areas of economic activity). In these conditions, the aerodrome operator should be able to justify the fact that it is difficult to implement actions and propose, wherever possible, wildlife control measures that will enable the wildlife hazard to be kept under control, without being able to reduce it.

Regardless of the chosen measures, the aerodrome operator shall ensure that the effectiveness of the implemented actions is monitored and adjust these actions, if necessary. The effectiveness of the measures to reduce the wildlife hazard may be assessed using performance objectives or indicators such as:

- ▶ The change in the number of individuals of the wildlife species with risk level 2 and 3,
- ▶ The change in the number of wildlife strikes or incident rate,
- ▶ The change in the number of delays or groundings caused by strikes or dangerous wildlife situations.



It is advisable to use several types of safety performance indicators that will give a more complete view of the effectiveness of the measures implemented to reduce the wildlife hazard.

#### 5.2.5. Coordination with the civil aviation services

The aerodrome operator and competent civil aviation service are advised to keep each other informed of the development projects likely to create a wildlife hazard, especially outside the airport site. This exchange of information is necessary to enable, for example, the civil aviation service to make all the necessary arrangements to have the wildlife hazard removed or reduced.



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In this regard, article 9 of the European regulation EU 139/2014 on the monitoring of aerodrome vicinity specifies that States must “ensure that consultations are conducted with regard to the creation of areas that might encourage wildlife activity harmful to aircraft operations”. The ADR.OPS.B.020 “Wildlife strike hazard reduction” requires that the aerodrome operator inform the appropriate authority if the assessment shows that the situation on or near the aerodrome can create a wildlife hazard. At international level, the ICAO specifies in annex 14 (aerodrome part – part 9.4: wildlife strike hazard reduction) at the Chicago Convention that “the competent authority shall take action to eliminate or prevent the establishment of garbage disposal dumps or any other source which may attract birds to the aerodrome, or its vicinity, unless an appropriate aeronautical study indicates that they are unlikely to create conditions conducive to a bird hazard problem”.

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# ANNEX 1 : Wildlife collision report



## WILDLIFE COLLISION REPORT

1. Airline:

2. Aircraft (manufacturer/model):

3. Engine (manufacturer/model):

4. Aircraft registration number:

5. Date ( dd/mm/yy ):

6. Time GMT:

7. Dawn ☐ day ☐ dusk ☐ night ☐

8. Name of the aerodrome:  
Runway used:  
Place of the incident (if occurred in flight)

9. Altitude / Ground (in feet):

10. Indicated airspeed (in knots):

11. Flight phase:

-take-off (0-50 ft)	
-climb (>50 ft)	
-cruise	
-holding	
-descent	
-approach (100-50 ft)	
-landing (<50 ft)	
-unknown	

12. Lights on:

-landing lights	
-flashing lights	

13. Weather conditions:

-VMC	
-IMC	
-Fog	
-Rain	
-Snow	

Clouds:  
Visibility:

14. Wildlife species:.....

Number of animals	hit	seen
-1		
-2 to 10		
-11 to 100		
-more than 100		

Size of animals:

-small	
-medium	
-large	

Pilot informed of wildlife presence:  
Yes ☐ No ☐

### 15. Consequences on the flight:

-none	
-aborted takeoff	
-precautionary landing	
-engine shutdown	
-other (please specify)	

### 16. Parts of the aircraft hit and damage caused

	Hit	Damaged
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-radome		
-windscreen		
-nose fuselage		
-engine no.1		(re. part 18)
-engine no.2		(re. part 18)
-engine no.3		(re. part 18)
-engine no.4		(re. part 18)
-propeller		
-wing/rotor		
-fuselage		
-landing gear		
-tail unit		
-lights		
-other		(re. part 19)

### 17. Aircraft grounding:

- Grounding duration (in hours):
- Estimated cost of repairs or replacement (in euros):

-Other estimated costs (in euros):  
(for example: loss of potential earnings, fuel, hotel)

### 18. Engine damage (Reason for failure or engine shutdown)

Engine position number	1	2	3	4
-engine breakage				
-with projection of debris				
-fire				
-shutdown Vibrations				
-shutdown Temperature				
-shutdown Fire warning				
-shutdown Other (please specify)				
-shutdown - unknown				

-Estimated percentage of loss of thrust:

-Estimated number of birds ingested:

### 19. Observations:

Photos and/or feathers (if bird): to be sent to one of the addresses below.

## ANNEX 2 : Typology of attractive areas

Several different animals may find all the environmental conditions needed for their biological cycle (reproduction, feeding, nesting, resting, etc.) on the aerodrome and in its vicinity. Some environments are indeed known to be attractive for wildlife, the majority of which are natural environments and the remainder, environments developed by man.

The STAC's guide on the environment and wildlife strike hazard on French aerodromes presents guidelines on the way in which land at aerodromes and their close environment are to be managed.

The typology of the areas presented in the table below is the result of an overview of the main natural environments, activities, facilities and structures likely to be attractive for some or all of the wildlife on aerodromes and their vicinity. This typology is also based on the European inventory called CORINE Land Cover<sup>5</sup>, which provides a codelist of land cover at European level.

### Typology of the areas likely to be attractive for wildlife

<i>Agricultural areas</i>	<i>Forest areas</i>
<i>Crops (cereals, fodder plants, legumes, etc.)</i>	<i>Softwood forests</i>
<i>Prairies (pasture stands, hayfields)</i>	<i>Hardwood forests</i>
<i>Vineyards</i>	<i>Mixed-wood forests</i>
<i>Wildland/fallow land</i>	<i>Barren land, shrubberies</i>
<i>Wetlands</i>	<i>Agricultural, industrial and tourism infrastructures</i>
<i>Marshes, swamps, peatland</i>	<i>Slaughterhouses, agrifood factories, fish farms</i>
<i>Coastline</i>	<i>Harbours (marinas, industrial ports)</i>
<i>Waterways and rivers</i>	<i>Racetracks, golf courses, parks and gardens</i>
<i>Reservoirs / lakes / mill ponds</i>	<i>Silos, farms</i>
	<i>Waste storage and transformation centres (non-hazardous waste storage facilities, composting stations, waste transfer bays, etc.)</i>
	<i>Wastewater and rainwater treatment facilities</i>
<i>Gravel pits / sandpits</i>	<i>Building sites (general excavation, etc.)</i>

(Variable attractiveness depending on the surface area and local establishment)

<sup>6</sup> The geographical database, CORINE Land Cover, was established as part of the European programme to coordinate information on the CORINE environment. It is a biological and physical inventory of land cover available at European level, managed by the European Environment Agency. The French contributing authority is the Department of observation and statistics within the Ministry of Environment.

## EXAMPLES OF ATTRACTIVE ENVIRONMENTS

### 1. Water areas



The presence of natural wetland (marshes, peatland, waterways, mill ponds, etc.) within aerodromes or their vicinity may be restrictive for air traffic, with respect to the wildlife species that may be found in these areas. Although we may envisage draining or filling some types of wetland located within the airport for safety reasons, such work, when considered necessary, must have been agreed to by the prefectural authorities and departments in charge of environmental protection beforehand.

Likewise, wetland outside the airport must either be removed, or managed by taking account of the wildlife hazard that it is likely to create for aviation safety.

So, in the event of a hypothetical or proven risk, water areas, such as gravel pits, retention ponds, sedimentation basins, infiltration basins, planted filters, canals or lagoons, must be equipped with specific bird control tools (bird nets or flags, revegetation, compartmentalisation, bank grading, water jets, floating balls, etc.). These tools should also be accessible, so that additional wildlife control, wildlife hazard monitoring, and equipment inspection and maintenance measures may be implemented wherever necessary.

Outside the airport site, coordination between the different stakeholders (airport services, manager/owner of the wetland in question, civil aviation authorities and environmental authorities) should lead to the establishment of measures to reduce the attractiveness of these natural environments for wildlife.



## 2. Agricultural and forest areas

### Agri-environments

Although the French regulations in force in the field of wildlife strike hazard prevention allow agricultural areas to be established outside runway strips, neither the international community nor the civil aviation technical centre recommend the implementation of agricultural practices on aerodromes due to the risks that this is likely to create for aviation safety. In addition to the attraction of crops for wildlife, agricultural practices, such as ploughing or seeding soils, may also be at the origin of a wildlife hazard, and raise a certain amount of safety and security-related problems. By way of example, the height of some crops can reduce the visibility of the platform used to assess the wildlife situation, manage ground traffic, perform security controls and enable fire-fighting operations, especially in the event of an aviation accident. Pilots must also have a clear view of the entire airport site, in order to perform their taxiing, takeoff and landing operations as safely and securely as possible.



### Afforestation

Clusters of trees, hedges and single trees on aerodromes may be resting areas or hiding places for wildlife, and also encourage movement between these areas and feeding areas. Such movement is likely to disturb air traffic and have an impact on aviation safety.

Generally speaking, the presence of trees and shrubs is only recommended on aerodromes if they enable the wildlife species at risk to remain outside the areas considered as aviation safety-critical by aerodrome operators. It may therefore be possible to keep single trees within the airport site, and to prevent several individual animals from moving regularly towards the critical areas.

The wildlife hazard created by vast wooded and monospecific areas (afforestation of softwood trees, for example) is generally not as high as that due to smaller afforestation (clusters of trees) or diversified, mature afforestation outside airport sites.

### 3. Waste storage and transfer facilities



The attractiveness of waste storage and transfer facilities for wildlife depends on the kind of waste that is treated and stored (household and fermentable waste is particularly attractive), and the management methods implemented. Generally speaking, the main facilities likely to create a hazard for aviation safety are listed below (non-exhaustive list):

- ▶ Non-hazardous waste storage facilities, waste transfer and unloading bays, receiving a lot of fermentable substances.
- ▶ Composting and compost storage cells.
- ▶ Sludge storage platform, etc.

Non-fermentable waste treatment and storage centres are generally not very attractive for wildlife. Having said that, these facilities are likely to be visited on a regular basis (resting areas, etc.) by several wildlife species, depending on their configuration.

Waste transfer, storage and treatment cells are particularly attractive for wildlife, especially opportunist birds or scavengers. If the waste is visible and accessible at these facilities, birds may both gather there and transit through them, and this can be very problematic for aviation safety if they are located in the vicinity of an aerodrome. Furthermore, the risk may be greater if the aerodrome is located between the feeding and resting areas, as the birds fly back and forwards between these areas in the morning and evening.

In France, several non-hazardous waste storage facilities near to aerodromes are a real problem for aviation safety. Organic waste is a substantial food resource that attracts and establishes several bird species (especially birds of prey, corvidae or laridae) which are a hazard for air traffic.

If there is a project to set up a non-hazardous waste storage facility or transfer bay in the vicinity of an aerodrome, international legislation recommends that a technical study be conducted to show that the planned facility does not create another wildlife hazard in addition to the one that already exists on the aerodrome and in its vicinity. Despite the fact that operators have made efforts to reduce the attractiveness of these facilities, there is currently no method to distance the number of birds in the long run. The measures proposed to mitigate the wildlife hazard generally remain partial and/or temporary.

This is why it is not recommended to have fermentable waste storage, transfer and treatment facilities in the vicinity of aerodromes.



## 4. Silos, farms

Setting up silos or farms dedicated to breeding in the vicinity of an aerodrome may create a wildlife hazard.

Indeed, silos attract grain-eating species such as pigeons or doves, or in other words, species that often move together and form large colonies.

Insect-eating or opportunist species such as corvidae, laridae and other groups of birds associated with farmland, like lapwings or ardeidae (herons, egrets, etc.), are attracted to pasture lands, because of the low height of the canopy and food resources provided by coprophagous insects that grow in cattle faeces or insects that grow in these fertilised lands (worms, for example).

It is therefore not judicious to have feeding areas, attractive for different species of birds that can move in groups especially within the aerodromes and represent a hazard for aviation safety, located in the vicinity of aerodromes.



## 5. Conclusion

Whether they be located within the airport site or in its vicinity, the wildlife hazard for aviation safety created by land development projects and other facilities, structures, works or activities governed by environmental regulations and subject to a study of the impact on the environment should be assessed. Such an assessment should bring together the different stakeholders, especially the aerodrome operator, and the competent administrative authorities in the fields of civil aviation and the environment.

Outside the airport site, these projects should be submitted to the aerodrome operators for information, and to the local civil aviation services for consultation. In this regard, the ICAO (Annex 14, volume 1, part 9.4) states the following: "States should give due consideration to aviation safety concerns related to land developments in the vicinity of the aerodrome that may attract wildlife". In this regard, "The appropriate authority shall take action to eliminate or to prevent the establishment of garbage disposal dumps or any other source which may attract wildlife to the aerodrome, or its vicinity, unless an appropriate wildlife assessment indicates that they are unlikely to create conditions conducive to a wildlife hazard problem. Where the elimination of existing sites is not possible, the appropriate authority shall ensure that any risk to aircraft posed by these sites is assessed and reduced to as low as reasonably possible". The EASA's ADR.OPS.B.020, dedicated to wildlife hazard prevention, also introduces several requirements for the aerodrome operator, including the requirement to inform the appropriate authority if the assessment shows that the situation on or near the aerodrome creates a wildlife hazard.

For further information, the STAC's guide on the environment and wildlife strike hazard on aerodromes can be downloaded on its website.

## ANNEX 3 : Mass of birds of mainland France and French overseas territories (taken from Pica database, 2017)

### Body mass of birds of mainland France

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Allen's Gallinule</i>	<i>Porphyrio alleni</i>	154
<i>Alpine Accentor</i>	<i>Prunella collaris</i>	46.5
<i>Alpine Swift</i>	<i>Tachymarptis melba</i>	104
<i>American Black Duck</i>	<i>Anas rubripes</i>	1400
<i>American Golden-Plover</i>	<i>Pluvialis dominica</i>	154
<i>American Pipit</i>	<i>Anthus rubescens</i>	21.6
<i>American Redstart</i>	<i>Setophaga ruticilla</i>	8.4
<i>American Wigeon</i>	<i>Anas americana</i>	792
<i>American Woodcock</i>	<i>Scolopax minor</i>	219
<i>Aquatic Warbler</i>	<i>Acrocephalus paludicola</i>	11.6
<i>Arctic Loon</i>	<i>Gavia arctica</i>	3494
<i>Arctic Tern</i>	<i>Sterna paradisaea</i>	110
<i>Arctic Warbler</i>	<i>Phylloscopus borealis</i>	10.6
<i>Atlantic Puffin</i>	<i>Fratercula arctica</i>	381
<i>Audouin's Gull</i>	<i>Ichthyaeus audouinii</i>	535
<i>Azure Tit</i>	<i>Cyanistes cyanus</i>	15.5
<i>Baikal Teal</i>	<i>Anas formosa</i>	437
<i>Baillon's Crake</i>	<i>Porzana pusilla</i>	35.4
<i>Baird's Sandpiper</i>	<i>Calidris bairdii</i>	43.5
<i>Balearic Shearwater</i>	<i>Puffinus mauretanicus</i>	497
<i>Band-rumped Storm-Petrel</i>	<i>Oceanodroma castro</i>	49.2
<i>Bank Swallow</i>	<i>Riparia riparia</i>	13.9
<i>Barn Owl</i>	<i>Tyto alba</i>	612
<i>Barn Swallow</i>	<i>Hirundo rustica</i>	18.1
<i>Barnacle Goose</i>	<i>Branta leucopsis</i>	1788
<i>Barred Warbler</i>	<i>Sylvia nisoria</i>	22.5
<i>Barrow's Goldeneye</i>	<i>Bucephala islandica</i>	1130
<i>Bar-tailed Godwit</i>	<i>Limosa lapponica</i>	332
<i>Bearded Reedling</i>	<i>Panurus biarmicus</i>	15
<i>Black Grouse</i>	<i>Lyrurus tetrix</i>	1255
<i>Black Guillemot</i>	<i>Cephus grylle</i>	378
<i>Black Kite</i>	<i>Milvus migrans</i>	567

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Black Redstart</i>	<i>Phoenicurus ochruros</i>	16.5
<i>Black Scoter</i>	<i>Melanitta americana</i>	1117
<i>Black Stork</i>	<i>Ciconia nigra</i>	2926
<i>Black Tern</i>	<i>Chlidonias niger</i>	65.3
<i>Black Wheatear</i>	<i>Oenanthe leucura</i>	41
<i>Black Woodpecker</i>	<i>Dryocopus martius</i>	321
<i>Black-bellied Plover</i>	<i>Pluvialis squatarola</i>	250
<i>Black-browed Albatross</i>	<i>Thalassarche melanophris</i>	3922
<i>Black-crowned Night-Heron</i>	<i>Nycticorax nycticorax</i>	810
<i>Black-eared Wheatear</i>	<i>Oenanthe hispanica</i>	16.4
<i>Black-faced Bunting</i>	<i>Emberiza spodocephala</i>	20.4
<i>Black-headed Bunting</i>	<i>Emberiza melanocephala</i>	29.7
<i>Black-headed Gull</i>	<i>Chroicocephalus ridibundus</i>	284
<i>Black-headed Heron</i>	<i>Ardea melanocephala</i>	1060
<i>Black-legged Kittiwake</i>	<i>Rissa tridactyla</i>	421
<i>Blackpoll Warbler</i>	<i>Setophaga striata</i>	12.3
<i>Black-shouldered Kite</i>	<i>Elanus caeruleus</i>	280
<i>Black-tailed Godwit</i>	<i>Limosa limosa</i>	330
<i>Black-throated Accentor</i>	<i>Prunella atrogularis</i>	18.5
<i>Black-throated Thrush</i>	<i>Turdus atrogularis</i>	82
<i>Black-winged Pratincole</i>	<i>Glareola nordmanni</i>	97.2
<i>Black-winged Stilt</i>	<i>Himantopus himantopus</i>	161
<i>Blue Rock-Thrush</i>	<i>Monticola solitarius</i>	46
<i>Blue-cheeked Bee-eater</i>	<i>Merops persicus</i>	49.3
<i>Bluethroat</i>	<i>Luscinia svecica</i>	19.3
<i>Blue-winged Teal</i>	<i>Anas discors</i>	380
<i>Blyth's Pipit</i>	<i>Anthus godlewskii</i>	26
<i>Blyth's Reed-Warbler</i>	<i>Acrocephalus dumetorum</i>	11.2
<i>Bobolink</i>	<i>Dolichonyx oryzivorus</i>	33.9
<i>Bohemian Waxwing</i>	<i>Bombycilla garrulus</i>	56.4
<i>Bonaparte's Gull</i>	<i>Chroicocephalus philadelphia</i>	222
<i>Bonelli's Eagle</i>	<i>Aquila fasciata</i>	2500
<i>Booted Eagle</i>	<i>Hieraaetus pennatus</i>	968
<i>Booted Warbler</i>	<i>Iduna caligata</i>	8.9
<i>Boreal Owl</i>	<i>Aegolius funereus</i>	179
<i>Brambling</i>	<i>Fringilla montifringilla</i>	22.6

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Brant</i>	<i>Branta bernicla</i>	1370
<i>Bridled Tern</i>	<i>Onychoprion anaethetus</i>	95.6
<i>Broad-billed Sandpiper</i>	<i>Calidris falcinellus</i>	37.1
<i>Brown Shrike</i>	<i>Lanius cristatus</i>	33.5
<i>Brown-headed Cowbird</i>	<i>Molothrus ater</i>	48.7
<i>Buff-breasted Sandpiper</i>	<i>Tryngites subruficollis</i>	68.5
<i>Bufflehead</i>	<i>Bucephala albeola</i>	473
<i>Bulwer's Petrel</i>	<i>Bulweria bulwerii</i>	99
<i>Calandra Lark</i>	<i>Melanocorypha calandra</i>	61.6
<i>California Quail</i>	<i>Callipepla californica</i>	186
<i>Canada Goose</i>	<i>Branta canadensis</i>	4858
<i>Canvasback</i>	<i>Aythya valisineria</i>	1252
<i>Carrion Crow</i>	<i>Corvus corone</i>	570
<i>Caspian Gull</i>	<i>Larus cachinnans</i>	150
<i>Caspian Plover</i>	<i>Charadrius asiaticus</i>	77.1
<i>Caspian Tern</i>	<i>Hydroprogne caspia</i>	655
<i>Cattle Egret</i>	<i>Bubulcus ibis</i>	372
<i>Cetti's Warbler</i>	<i>Cettia cetti</i>	15.2
<i>Chestnut Bunting</i>	<i>Emberiza rutila</i>	17.5
<i>Chestnut-sided Warbler</i>	<i>Setophaga pensylvanica</i>	9.5
<i>Chimney Swift</i>	<i>Chaetura pelagica</i>	23.6
<i>Cinereous Vulture</i>	<i>Aegypius monachus</i>	10000
<i>Cirl Bunting</i>	<i>Emberiza cirlus</i>	25.6
<i>Citrel Finch</i>	<i>Carduelis citrinella</i>	12
<i>Citrine Wagtail</i>	<i>Motacilla citreola</i>	20.3
<i>Cliff Swallow</i>	<i>Petrochelidon pyrrhonota</i>	21.6
<i>Coal Tit</i>	<i>Periparus ater</i>	9.2
<i>Collared Flycatcher</i>	<i>Ficedula albicollis</i>	12.9
<i>Collared Pratincole</i>	<i>Glareola pratincola</i>	84.9
<i>Common Buzzard</i>	<i>Buteo buteo</i>	969
<i>Common Chaffinch</i>	<i>Fringilla coelebs</i>	28.3
<i>Common Chiffchaff</i>	<i>Phylloscopus collybita</i>	8.3
<i>Common Crane</i>	<i>Grus grus</i>	5500
<i>Common Cuckoo</i>	<i>Cuculus canorus</i>	117
<i>Common Eider</i>	<i>Somateria mollissima</i>	2218
<i>Common Goldeneye</i>	<i>Bucephala clangula</i>	1136

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Common Grasshopper-Warbler</i>	<i>Locustella naevia</i>	13.3
<i>Common Greenshank</i>	<i>Tringa nebularia</i>	187
<i>Common House-Martin</i>	<i>Delichon urbicum</i>	14.5
<i>Common Kingfisher</i>	<i>Alcedo atthis</i>	27
<i>Common Loon</i>	<i>Gavia immer</i>	5460
<i>Common Merganser</i>	<i>Mergus mergaster</i>	1709
<i>Common Murre</i>	<i>Uria aalge</i>	991
<i>Common Nighthawk</i>	<i>Chordeiles minor</i>	79.3
<i>Common Nightingale</i>	<i>Luscinia megarhynchos</i>	18.3
<i>Common Pochard</i>	<i>Aythya ferina</i>	823
<i>Common Quail</i>	<i>Coturnix coturnix</i>	103
<i>Common Raven</i>	<i>Corvus corax</i>	785
<i>Common Redpoll</i>	<i>Acanthis flammea</i>	13
<i>Common Redshank</i>	<i>Tringa totanus</i>	129
<i>Common Redstart</i>	<i>Phoenicurus phoenicurus</i>	14.7
<i>Common Ringed Plover</i>	<i>Charadrius hiaticula</i>	64.8
<i>Common Rock Thrush</i>	<i>Monticola saxatilis</i>	50.3
<i>Common Rosefinch</i>	<i>Carpodacus erythrinus</i>	25
<i>Common Sandpiper</i>	<i>Actitis hypoleucos</i>	48
<i>Common Scoter</i>	<i>Melanitta nigra</i>	1117
<i>Common Shelduck</i>	<i>Tadorna tadorna</i>	1261
<i>Common Snipe</i>	<i>Gallinago gallinago</i>	113
<i>Common Swift</i>	<i>Apus apus</i>	37.6
<i>Common Tern</i>	<i>Sterna hirundo</i>	120
<i>Common Wood-Pigeon</i>	<i>Columba palumbus</i>	490
<i>Corn Bunting</i>	<i>Emberiza calandra</i>	53.6
<i>Corn Crake</i>	<i>Crex crex</i>	169
<i>Corsican Finch</i>	<i>Carduelis corsicana</i>	12
<i>Corsican Nuthatch</i>	<i>Sitta whiteheadi</i>	11.8
<i>Cory's Shearwater</i>	<i>Calonectris diomedea</i>	535
<i>Cream-colored Courser</i>	<i>Cursorius cursor</i>	138
<i>Crested Lark</i>	<i>Galerida cristata</i>	47.6
<i>Crested Tit</i>	<i>Lophophanes cristatus</i>	11.4
<i>Cretzschmar's Bunting</i>	<i>Emberiza caesia</i>	21.3
<i>Curlew Sandpiper</i>	<i>Calidris ferruginea</i>	59.6
<i>Dartford Warbler</i>	<i>Sylvia undata</i>	10.8

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Daurian Jackdaw</i>	<i>Coloeus dauuricus</i>	208
<i>Demoiselle Crane</i>	<i>Grus virgo</i>	2417
<i>Desert Wheatear</i>	<i>Oenanthe deserti</i>	20.1
<i>Double-crested Cormorant</i>	<i>Phalacrocorax auritus</i>	2089
<i>Dovekie</i>	<i>Alle alle</i>	175
<i>Dunlin</i>	<i>Calidris alpina</i>	59.7
<i>Dunnock</i>	<i>Prunella modularis</i>	19.7
<i>Dupont's Lark</i>	<i>Chersophilus duponti</i>	39.4
<i>Dusky Thrush</i>	<i>Turdus eunomus</i>	74
<i>Dusky Warbler</i>	<i>Phylloscopus fuscatus</i>	9
<i>Eared Grebe</i>	<i>Podiceps nigricollis</i>	422
<i>Eastern Bonelli's Warbler</i>	<i>Phylloscopus orientalis</i>	8.5
<i>Egyptian Goose</i>	<i>Alopochen aegyptiaca</i>	1873
<i>Egyptian Vulture</i>	<i>Neophron percnopterus</i>	2082
<i>Elegant Tern</i>	<i>Thalasseus elegans</i>	260
<i>Eleonora's Falcon</i>	<i>Falco eleonora</i>	390
<i>Eurasian Blackbird</i>	<i>Turdus merula</i>	113
<i>Eurasian Blackcap</i>	<i>Sylvia atricapilla</i>	16.7
<i>Eurasian Blue Tit</i>	<i>Cyanistes caeruleus</i>	10.6
<i>Eurasian Bullfinch</i>	<i>Pyrrhula pyrrhula</i>	21.8
<i>Eurasian Capercaillie</i>	<i>Tetrao urogallus</i>	4100
<i>Eurasian Collared-Dove</i>	<i>Streptopelia decaocto</i>	152
<i>Eurasian Coot</i>	<i>Fulica atra</i>	531
<i>Eurasian Crag-Martin</i>	<i>Ptyonoprogne rupestris</i>	21
<i>Eurasian Curlew</i>	<i>Numenius arquata</i>	869
<i>Eurasian Dotterel</i>	<i>Charadrius morinellus</i>	117
<i>Eurasian Eagle-Owl</i>	<i>Bubo bubo</i>	2992
<i>Eurasian Golden Oriole</i>	<i>Oriolus oriolus</i>	79
<i>Eurasian Green Woodpecker</i>	<i>Picus viridis</i>	176
<i>Eurasian Griffon</i>	<i>Gyps fulvus</i>	7436
<i>Eurasian Hobby</i>	<i>Falco subbuteo</i>	233
<i>Eurasian Hoopoe</i>	<i>Upupa epops</i>	61.4
<i>Eurasian Jackdaw</i>	<i>Coloeus monedula</i>	246
<i>Eurasian Jay</i>	<i>Garrulus glandarius</i>	172
<i>Eurasian Kestrel</i>	<i>Falco tinnunculus</i>	201
<i>Eurasian Linnet</i>	<i>Linaria cannabina</i>	20.2



<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Eurasian Magpie</i>	<i>Pica pica</i>	242
<i>Eurasian Marsh-Harrier</i>	<i>Circus aeruginosus</i>	814
<i>Eurasian Moorhen</i>	<i>Gallinula chloropus</i>	415
<i>Eurasian Nightjar</i>	<i>Caprimulgus europaeus</i>	67
<i>Eurasian Nutcracker</i>	<i>Nucifraga caryocatactes</i>	205
<i>Eurasian Nuthatch</i>	<i>Sitta europaea</i>	22.6
<i>Eurasian Oystercatcher</i>	<i>Haematopus ostralegus</i>	526
<i>Eurasian Penduline-Tit</i>	<i>Remiz pendulinus</i>	9.3
<i>Eurasian Pygmy-Owl</i>	<i>Glaucidium passerinum</i>	62.5
<i>Eurasian Reed-Warbler</i>	<i>Acrocephalus scirpaceus</i>	12.3
<i>Eurasian River Warbler</i>	<i>Locustella fluviatilis</i>	16.1
<i>Eurasian Siskin</i>	<i>Spinus spinus</i>	13.5
<i>Eurasian Sparrowhawk</i>	<i>Accipiter nisus</i>	325
<i>Eurasian Spoonbill</i>	<i>Platalea leucorodia</i>	1868
<i>Eurasian Thick-knee</i>	<i>Burhinus oedicephalus</i>	459
<i>Eurasian Three-toed Woodpecker</i>	<i>Picoides tridactylus</i>	70.1
<i>Eurasian Tree Sparrow</i>	<i>Passer montanus</i>	22
<i>Eurasian Treecreeper</i>	<i>Certhia familiaris</i>	9
<i>Eurasian Wigeon</i>	<i>Anas penelope</i>	819
<i>Eurasian Woodcock</i>	<i>Scolopax rusticola</i>	313
<i>Eurasian Wren</i>	<i>Troglodytes troglodytes</i>	8.9
<i>Eurasian Wryneck</i>	<i>Jynx torquilla</i>	33.5
<i>European Bee-eater</i>	<i>Merops apiaster</i>	56.6
<i>European Golden-Plover</i>	<i>Pluvialis apricaria</i>	214
<i>European Goldfinch</i>	<i>Carduelis carduelis</i>	16
<i>European Greenfinch</i>	<i>Chloris chloris</i>	26
<i>European Honey-buzzard</i>	<i>Pernis apivorus</i>	832
<i>European Pied Flycatcher</i>	<i>Ficedula hypoleuca</i>	15.6
<i>European Robin</i>	<i>Erithacus rubecula</i>	17.7
<i>European Roller</i>	<i>Coracias garrulus</i>	146
<i>European Scops-Owl</i>	<i>Otus scops</i>	92
<i>European Serin</i>	<i>Serinus serinus</i>	11.2
<i>European Shag</i>	<i>Phalacrocorax aristotelis</i>	1948
<i>European Starling</i>	<i>Sturnus vulgaris</i>	87.6
<i>European Stonechat</i>	<i>Saxicola rubicola</i>	15.3
<i>European Storm-Petrel</i>	<i>Hydrobates pelagicus</i>	25.2

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>European Turtle-Dove</i>	<i>Streptopelia turtur</i>	132
<i>Eyebrowed Thrush</i>	<i>Turdus obscurus</i>	62.6
<i>Fea's Petrel</i>	<i>Pterodroma feae</i>	311
<i>Ferruginous Duck</i>	<i>Aythya nyroca</i>	574
<i>Fieldfare</i>	<i>Turdus pilaris</i>	106
<i>Firecrest</i>	<i>Regulus ignicapilla</i>	5.6
<i>Fischer's Lovebird</i>	<i>Agapornis fischeri</i>	48.3
<i>Forster's Tern</i>	<i>Sterna forsteri</i>	149
<i>Franklin's Gull</i>	<i>Leucophaeus pipixcan</i>	280
<i>Gadwall</i>	<i>Anas strepera</i>	968
<i>Garden Warbler</i>	<i>Sylvia borin</i>	18.2
<i>Garganey</i>	<i>Anas querquedula</i>	342
<i>Glaucous Gull</i>	<i>Larus hyperboreus</i>	1855
<i>Glossy Ibis</i>	<i>Plegadis falcinellus</i>	662
<i>Goldcrest</i>	<i>Regulus regulus</i>	5.6
<i>Golden Eagle</i>	<i>Aquila chrysaetos</i>	4627
<i>Gray Heron</i>	<i>Ardea cinerea</i>	1443
<i>Gray Partridge</i>	<i>Perdix perdix</i>	418
<i>Gray Wagtail</i>	<i>Motacilla cinerea</i>	18
<i>Gray-cheeked Thrush</i>	<i>Catharus minimus</i>	32.6
<i>Gray-headed Woodpecker</i>	<i>Picus canus</i>	137
<i>Graylag Goose</i>	<i>Anser anser</i>	3509
<i>Gray's Grasshopper-Warbler</i>	<i>Locustella fasciolata</i>	27.6
<i>Great Bittern</i>	<i>Botaurus stellaris</i>	1440
<i>Great Black-backed Gull</i>	<i>Larus marinus</i>	1829
<i>Great Blue Heron</i>	<i>Ardea herodias</i>	2480
<i>Great Bustard</i>	<i>Otis tarda</i>	11975
<i>Great Cormorant</i>	<i>Phalacrocorax carbo</i>	3240
<i>Great Crested Grebe</i>	<i>Podiceps cristatus</i>	738
<i>Great Egret</i>	<i>Ardea alba</i>	935
<i>Great Reed-Warbler</i>	<i>Acrocephalus arundinaceus</i>	30
<i>Great Shearwater</i>	<i>Puffinus gravis</i>	849
<i>Great Skua</i>	<i>Stercorarius skua</i>	1409
<i>Great Snipe</i>	<i>Gallinago media</i>	184
<i>Great Spotted Cuckoo</i>	<i>Clamator glandarius</i>	169
<i>Great Spotted Woodpecker</i>	<i>Dendrocopos major</i>	81.6

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Great Tit</i>	<i>Parus major</i>	18.9
<i>Great White Pelican</i>	<i>Pelecanus onocrotalus</i>	11450
<i>Greater Flamingo</i>	<i>Phoenicopterus roseus</i>	3540
<i>Greater Sand Plover</i>	<i>Charadrius leschenaultii</i>	74.8
<i>Greater Scaup</i>	<i>Aythya marila</i>	1054
<i>Greater Short-toed Lark</i>	<i>Calandrella brachydactyla</i>	20
<i>Greater Spotted Eagle</i>	<i>Clanga clanga</i>	2678
<i>Greater White-fronted Goose</i>	<i>Anser albifrons</i>	3000
<i>Greater Whitethroat</i>	<i>Sylvia communis</i>	15.1
<i>Greater Yellowlegs</i>	<i>Tringa melanoleuca</i>	153
<i>Green Heron</i>	<i>Butorides virescens</i>	212
<i>Green Sandpiper</i>	<i>Tringa ochropus</i>	71.4
<i>Greenish Warbler</i>	<i>Phylloscopus trochiloides</i>	7.1
<i>Green-winged Teal</i>	<i>Anas carolinensis</i>	392
<i>Green-winged Teal</i>	<i>Anas crecca</i>	325
<i>Gull-billed Tern</i>	<i>Gelochelidon nilotica</i>	233
<i>Gyr Falcon</i>	<i>Falco rusticolus</i>	1752
<i>Hawfinch</i>	<i>Coccothraustes coccothraustes</i>	58
<i>Hazel Grouse</i>	<i>Tetrastes bonasia</i>	429
<i>Herring Gull</i>	<i>Larus argentatus</i>	1199
<i>Hoary Redpoll</i>	<i>Acanthis hornemanni</i>	12.7
<i>Hooded Crow</i>	<i>Corvus cornix</i>	525
<i>Horned Grebe</i>	<i>Podiceps auritus</i>	453
<i>Horned Lark</i>	<i>Eremophila alpestris</i>	32.2
<i>House Sparrow</i>	<i>Passer domesticus</i>	28
<i>Hume's Warbler</i>	<i>Phylloscopus humei</i>	6
<i>Iberian Chiffchaff</i>	<i>Phylloscopus ibericus</i>	7.7
<i>Iberian Green Woodpecker</i>	<i>Picus sharpei</i>	200
<i>Iceland Gull</i>	<i>Larus glaucoideus</i>	863
<i>Icterine Warbler</i>	<i>Hippolais icterina</i>	13.2
<i>Imperial Eagle</i>	<i>Aquila heliaca</i>	3845
<i>Indian Silverbill</i>	<i>Euodice malabarica</i>	12
<i>Isabelline Shrike</i>	<i>Lanius isabellinus</i>	25.2
<i>Isabelline Wheatear</i>	<i>Oenanthe isabellina</i>	29.4
<i>Italian Sparrow</i>	<i>Passer italiae</i>	30
<i>Ivory Gull</i>	<i>Pagophila eburnea</i>	550

<i>Common nam</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Jack Snipe</i>	<i>Lymnocyptes minimus</i>	53.7
<i>Kelp Gull</i>	<i>Larus dominicanus</i>	1050
<i>Kentish Plover</i>	<i>Charadrius alexandrinus</i>	42.3
<i>Killdeer</i>	<i>Charadrius vociferus</i>	101
<i>King Eider</i>	<i>Somateria spectabilis</i>	1668
<i>Kittlitz's Plover</i>	<i>Charadrius pecuarius</i>	34
<i>Lammergeier</i>	<i>Gypaetus barbatus</i>	5680
<i>Lanceolated Warbler</i>	<i>Locustella lanceolata</i>	10.6
<i>Lanner Falcon</i>	<i>Falco biarmicus</i>	726
<i>Lapland Longspur</i>	<i>Calcarius lapponicus</i>	27.4
<i>Lappet-faced Vulture</i>	<i>Torgos tracheliotos</i>	6969
<i>Laughing Gull</i>	<i>Leucophaeus atricilla</i>	327
<i>Leach's Storm-Petrel</i>	<i>Oceanodroma leucorhoa</i>	41.4
<i>Least Sandpiper</i>	<i>Calidris minutilla</i>	23.8
<i>Lesser Black-backed Gull</i>	<i>Larus fuscus</i>	880
<i>Lesser Crested Tern</i>	<i>Thalasseus bengalensis</i>	209
<i>Lesser Gray Shrike</i>	<i>Lanius minor</i>	47.3
<i>Lesser Kestrel</i>	<i>Falco naumanni</i>	164
<i>Lesser Sand Plover</i>	<i>Charadrius mongolus</i>	64
<i>Lesser Scaup</i>	<i>Aythia affinis</i>	850
<i>Lesser Short-toed Lark Raro/Ac</i>	<i>Alauda rufescens</i>	24.1
<i>Lesser Spotted Eagle</i>	<i>Clanga pomarina</i>	1540
<i>Lesser Spotted Woodpecker</i>	<i>Dendrocopos minor</i>	19.8
<i>Lesser White-fronted Goose</i>	<i>Anser erythropus</i>	1900
<i>Lesser Whitethroat</i>	<i>Sylvia curruca</i>	11.1
<i>Lesser Yellowlegs</i>	<i>Tringa flavipes</i>	77.5
<i>Little Bittern</i>	<i>Ixobrychus minutus</i>	118
<i>Little Bunting</i>	<i>Emberiza pusilla</i>	13.8
<i>Little Bustard</i>	<i>Tetrax tetrax</i>	825
<i>Little Crake</i>	<i>Porzana parva</i>	49.7
<i>Little Egret</i>	<i>Egretta garzetta</i>	312
<i>Little Grebe</i>	<i>Tachybaptus ruficollis</i>	140
<i>Little Gull</i>	<i>Hydrocoloeus minutus</i>	118
<i>Little Owl</i>	<i>Athene noctua</i>	164
<i>Little Ringed Plover</i>	<i>Charadrius dubius</i>	38.7
<i>Little Stint</i>	<i>Calidris minuta</i>	21.1

<i>Common nam</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Little Swift</i>	<i>Apus affinis</i>	23.9
<i>Little Tern</i>	<i>Sternula albifrons</i>	57
<i>Long-billed Dowitcher</i>	<i>Limnodromus scolopaceus</i>	109
<i>Long-eared Owl</i>	<i>Asio otus</i>	337
<i>Long-legged Buzzard</i>	<i>Buteo rufinus</i>	1314
<i>Long-tailed Duck</i>	<i>Clangula hyemalis</i>	932
<i>Long-tailed Jaeger</i>	<i>Stercorarius longicaudus</i>	307
<i>Long-tailed Tit</i>	<i>Aegithalos caudatus</i>	8.6
<i>Long-toed Stint</i>	<i>Calidris subminuta</i>	30.2
<i>Macqueen's Bustard</i>	<i>Chlamydotis macqueenii</i>	2200
<i>Magnificent Frigatebird</i>	<i>Fregata magnificens</i>	1704
<i>Mallard</i>	<i>Anas platyrhynchos</i>	1082
<i>Mandarin Duck</i>	<i>Aix galericulata</i>	628
<i>Manx Shearwater</i>	<i>Puffinus puffinus</i>	468
<i>Marbled Duck</i>	<i>Marmaronetta angustirostris</i>	477
<i>Marmora's Warbler</i>	<i>Sylvia sarda</i>	9.8
<i>Marsh Sandpiper</i>	<i>Tringa stagnatilis</i>	77.5
<i>Marsh Tit</i>	<i>Poecile palustris</i>	10.9
<i>Marsh Warbler</i>	<i>Acrocephalus palustris</i>	11.5
<i>Masked Booby</i>	<i>Sula dactylatra</i>	2095
<i>Masked Shrike</i>	<i>Lanius nubicus</i>	19.7
<i>Meadow Pipit</i>	<i>Anthus pratensis</i>	18.4
<i>Mediterranean Gull</i>	<i>Ichthyaeetus melanocephalus</i>	256
<i>Melodious Warbler</i>	<i>Hippolais polyglotta</i>	11
<i>Merlin</i>	<i>Falco columbarius</i>	218
<i>Mew Gull</i>	<i>Larus canus</i>	490
<i>Middle Spotted Woodpecker</i>	<i>Dendrocopos medius</i>	59
<i>Mistle Thrush</i>	<i>Turdus viscivorus</i>	123
<i>Montagu's Harrier</i>	<i>Circus pygargus</i>	370
<i>Moustached Warbler</i>	<i>Acrocephalus melanopogon</i>	10.9
<i>Mute Swan</i>	<i>Cygnus olor</i>	11800
<i>Naumann's Thrush</i>	<i>Turdus naumanni</i>	77.9
<i>Northern Fulmar</i>	<i>Fulmarus glacialis</i>	649
<i>Northern Gannet</i>	<i>Morus bassanus</i>	3067
<i>Northern Giant Petrel</i>	<i>Macronectes halli</i>	4902
<i>Northern Goshawk</i>	<i>Accipiter gentilis</i>	1137



<i>Common nam</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Northern Harrier</i>	<i>Circus cyaneus</i>	515
<i>Northern Hawk Owl</i>	<i>Surnia ulula</i>	340
<i>Northern Lapwing</i>	<i>Vanellus vanellus</i>	226
<i>Northern Parula</i>	<i>Setophaga americana</i>	8.6
<i>Northern Pintail</i>	<i>Anas acuta</i>	1006
<i>Northern Shoveler</i>	<i>Anas clypeata</i>	636
<i>Northern Shrike</i>	<i>Lanius excubitor</i>	63.4
<i>Northern Waterthrush</i>	<i>Parkesia noveboracensis</i>	16.3
<i>Northern Wheatear</i>	<i>Oenanthe oenanthe</i>	24
<i>Olive-backed Pipit</i>	<i>Anthus hodgsoni</i>	21.3
<i>Oriental Turtle-Dove</i>	<i>Streptopelia orientalis</i>	238
<i>Ortolan Bunting</i>	<i>Emberiza hortulana</i>	19.9
<i>Osprey</i>	<i>Pandion haliaetus</i>	1568
<i>Pacific Golden-Plover</i>	<i>Pluvialis fulva</i>	140
<i>Paddyfield Warbler</i>	<i>Acrocephalus agricola</i>	9.6
<i>Pallas's Grasshopper-Warbler</i>	<i>Locustella certhiola</i>	14.4
<i>Pallas's Gull</i>	<i>Ichthyaeus ichthyaeus</i>	1599
<i>Pallas's Leaf Warbler</i>	<i>Phylloscopus proregulus</i>	6
<i>Pallas's Sandgrouse</i>	<i>Syrhaptes paradoxus</i>	274
<i>Pallid Harrier</i>	<i>Circus macrourus</i>	445
<i>Pallid Swift</i>	<i>Apus pallidus</i>	41.9
<i>Parasitic Jaeger</i>	<i>Stercorarius parasiticus</i>	478
<i>Parrot Crossbill</i>	<i>Loxia pytyopsittacus</i>	53
<i>Pechora Pipit</i>	<i>Anthus gustavi</i>	19.8
<i>Pectoral Sandpiper</i>	<i>Calidris melanotos</i>	97.8
<i>Peregrine Falcon</i>	<i>Falco peregrinus</i>	1201
<i>Pied Avocet</i>	<i>Recurvirostra avosetta</i>	304
<i>Pied Wheatear</i>	<i>Oenanthe pleschanka</i>	20.6
<i>Pied-billed Grebe</i>	<i>Podilymbus podiceps</i>	474
<i>Pine Bunting</i>	<i>Emberiza leucocephalos</i>	28.5
<i>Pine Grosbeak</i>	<i>Pinicola enucleator</i>	56.4
<i>Pink-footed Goose</i>	<i>Anser brachyrhynchus</i>	2770
<i>Pin-tailed Sandgrouse</i>	<i>Pterocles alchata</i>	329
<i>Plain Martin</i>	<i>Riparia paludicola</i>	13.5
<i>Pomarine Jaeger</i>	<i>Stercorarius pomarinus</i>	740
<i>Purple Heron</i>	<i>Ardea purpurea</i>	1112

<i>Common nam</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Purple Sandpiper</i>	<i>Calidris maritima</i>	67.6
<i>Pygmy Cormorant</i>	<i>Microcarbo pygmeus</i>	743
<i>Radde's Warbler</i>	<i>Phylloscopus schwarzi</i>	13
<i>Razorbill</i>	<i>Alca torda</i>	726
<i>Red Crossbill</i>	<i>Loxia curvirostra</i>	36.4
<i>Red Kite</i>	<i>Milvus milvus</i>	1213
<i>Red Knot</i>	<i>Calidris canutus</i>	148
<i>Red Phalarope</i>	<i>Phalaropus fulicarius</i>	62.2
<i>Red-backed Shrike</i>	<i>Lanius collurio</i>	29
<i>Red-billed Chough</i>	<i>Pyrrhocorax pyrrhocorax</i>	288
<i>Red-billed Leiothrix</i>	<i>Leiothrix lutea</i>	21.3
<i>Red-breasted Flycatcher</i>	<i>Ficedula parva</i>	9.9
<i>Red-breasted Goose</i>	<i>Branta ruficollis</i>	1375
<i>Red-breasted Merganser</i>	<i>Mergus serrator</i>	1135
<i>Red-crested Pochard</i>	<i>Netta rufina</i>	1118
<i>Red-eyed Vireo</i>	<i>Vireo olivaceus</i>	16.8
<i>Red-flanked Bluetail</i>	<i>Tarsiger cyanurus</i>	14
<i>Red-footed Booby</i>	<i>Sula sula</i>	1223
<i>Red-footed Falcon</i>	<i>Falco vespertinus</i>	170
<i>Red-headed Bunting</i>	<i>Emberiza bruniceps</i>	24.8
<i>Red-knobbed Coot</i>	<i>Fulica cristata</i>	826
<i>Red-legged Partridge</i>	<i>Alectoris rufa</i>	540
<i>Red-necked Grebe</i>	<i>Podiceps grisegena</i>	1023
<i>Red-necked Nightjar</i>	<i>Caprimulgus ruficollis</i>	68.5
<i>Red-necked Phalarope</i>	<i>Phalaropus lobatus</i>	39
<i>Red-necked Stint</i>	<i>Calidris ruficollis</i>	27.2
<i>Red-rumped Swallow</i>	<i>Cecropis daurica</i>	22.2
<i>Red-throated Loon</i>	<i>Gavia stellata</i>	1486
<i>Red-throated Pipit</i>	<i>Anthus cervinus</i>	20.9
<i>Red-throated Thrush</i>	<i>Turdus ruficollis</i>	83
<i>Redwing</i>	<i>Turdus iliacus</i>	61.2
<i>Reed Bunting</i>	<i>Emberiza schoeniclus</i>	19.7
<i>Reeves's Pheasant</i>	<i>Syrnaticus reevesii</i>	1529
<i>Richard's Pipit</i>	<i>Anthus richardi</i>	33.5
<i>Ring Ouzel</i>	<i>Turdus torquatus</i>	109
<i>Ring-billed Gull</i>	<i>Larus delawarensis</i>	566

<i>Common nam</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Ring-necked Duck</i>	<i>Aythya collaris</i>	730
<i>Ring-necked Pheasant</i>	<i>Phasianus colchicus</i>	1317
<i>Rock Bunting</i>	<i>Emberiza cia</i>	24.2
<i>Rock Partridge</i>	<i>Alectoris graeca</i>	700
<i>Rock Petronia</i>	<i>Petronia petronia</i>	30.2
<i>Rock Pigeon</i>	<i>Columba livia</i>	369
<i>Rock Pipit</i>	<i>Anthus petrosus</i>	22.4
<i>Rock Ptarmigan</i>	<i>Lagopus muta</i>	550
<i>Rook</i>	<i>Corvus frugilegus</i>	489
<i>Roseate Tern</i>	<i>Sterna dougallii</i>	112
<i>Rose-breasted Grosbeak</i>	<i>Pheucticus ludovicianus</i>	42
<i>Rose-ringed Parakeet</i>	<i>Psittacula krameri</i>	126
<i>Ross's Gull</i>	<i>Rhodostethia rosea</i>	187
<i>Rosy Starling</i>	<i>Pastor roseus</i>	79.6
<i>Rough-legged Hawk</i>	<i>Buteo lagopus</i>	1065
<i>Royal Tern</i>	<i>Thalasseus maximus</i>	367
<i>Ruddy Duck</i>	<i>Oxyura jamaicensis</i>	629
<i>Ruddy Shelduck</i>	<i>Tadorna ferruginea</i>	1368
<i>Ruddy Turnstone</i>	<i>Arenaria interpres</i>	138
<i>Rueppell's Warbler</i>	<i>Sylvia ruppeli</i>	13.1
<i>Ruff</i>	<i>Philomachus pugnax</i>	102
<i>Rufous-tailed Scrub-Robin</i>	<i>Cercotrichas galactotes</i>	20.3
<i>Rüppell's Vulture</i>	<i>Gyps rueppelli</i>	7400
<i>Rustic Bunting</i>	<i>Emberiza rustica</i>	21
<i>Sabine's Gull</i>	<i>Xema sabini</i>	198
<i>Sacred Ibis</i>	<i>Threskiornis aethiopicus</i>	1618
<i>Saker Falcon</i>	<i>Falco cherrug</i>	1062
<i>Sanderling</i>	<i>Calidris alba</i>	57
<i>Sandhill Crane</i>	<i>Grus canadensis</i>	3350
<i>Sandwich Tern</i>	<i>Thalasseus sandvicensis</i>	208
<i>Sardinian Warbler</i>	<i>Sylvia melanocephala</i>	11.7
<i>Savi's Warbler</i>	<i>Locustella luscinioides</i>	13.8
<i>Scarlet Tanager</i>	<i>Piranga olivacea</i>	28.2
<i>Sedge Warbler</i>	<i>Acrocephalus schoenobaenus</i>	11.2
<i>Semicollared Flycatcher</i>	<i>Ficedula semitorquata</i>	14.4
<i>Semipalmated Sandpiper</i>	<i>Calidris pusilla</i>	27.5

<i>Common nam</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Sharp-tailed Sandpiper</i>	<i>Calidris acuminata</i>	74.4
<i>Short-billed Dowitcher</i>	<i>Limnodromus griseus</i>	117
<i>Short-eared Owl</i>	<i>Asio flammeus</i>	378
<i>Short-toed Snake-Eagle</i>	<i>Circaetus gallicus</i>	1735
<i>Short-toed Treecreeper</i>	<i>Certhia brachydactyla</i>	8.2
<i>Siberian Stonechat</i>	<i>Saxicola maurus</i>	14
<i>Siberian Thrush</i>	<i>Geokichla sibirica</i>	75.5
<i>Sky Lark</i>	<i>Alauda arvensis</i>	42.7
<i>Slender-billed Curlew</i>	<i>Numenius tenuirostris</i>	308
<i>Slender-billed Gull</i>	<i>Chroicocephalus genei</i>	281
<i>Smew</i>	<i>Mergellus albellus</i>	652
<i>Snow Bunting</i>	<i>Plectrophenax nivalis</i>	42.2
<i>Snow Goose</i>	<i>Anser caerulescens</i>	2847
<i>Snowy Owl</i>	<i>Bubo scandiacus</i>	2279
<i>Sociable Lapwing</i>	<i>Vanellus gregarius</i>	252
<i>Solitary Sandpiper</i>	<i>Tringa solitaria</i>	48.4
<i>Song Thrush</i>	<i>Turdus philomelos</i>	68.9
<i>Sooty Falcon</i>	<i>Falco concolor</i>	250
<i>Sooty Shearwater</i>	<i>Puffinus griseus</i>	787
<i>Sooty Tern</i>	<i>Onychoprion fuscatus</i>	175
<i>Sora</i>	<i>Porzana carolina</i>	74.8
<i>Southern Gray Shrike</i>	<i>Lanius meridionalis</i>	61
<i>Spanish Eagle</i>	<i>Aquila adalberti</i>	3000
<i>Spanish Sparrow</i>	<i>Passer hispaniolensis</i>	24.2
<i>Spectacled Warbler</i>	<i>Sylvia conspicillata</i>	9
<i>Spotless Starling</i>	<i>Sturnus unicolor</i>	85
<i>Spotted Crake</i>	<i>Porzana porzana</i>	87.1
<i>Spotted Flycatcher</i>	<i>Muscicapa striata</i>	15.9
<i>Spotted Redshank</i>	<i>Tringa erythropus</i>	158
<i>Spotted Sandpiper</i>	<i>Actitis macularius</i>	40.4
<i>Squacco Heron</i>	<i>Ardeola rallioides</i>	287
<i>Steller's Eider</i>	<i>Polysticta stelleri</i>	842
<i>Steppe Eagle</i>	<i>Aquila nipalensis</i>	3158
<i>Stilt Sandpiper</i>	<i>Calidris himantopus</i>	60.9
<i>Stock Dove</i>	<i>Columba oenas</i>	302
<i>Subalpine Warbler</i>	<i>Sylvia cantillans</i>	9.6

<i>Common nam</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Surf Scoter</i>	<i>Melanitta perspicillata</i>	1148
<i>Swainson's Thrush</i>	<i>Catharus ustulatus</i>	30.3
<i>Swinhoe's Storm-Petrel</i>	<i>Oceanodroma monorhis</i>	39.8
<i>Sykes's Warbler</i>	<i>Iduna rama</i>	9.3
<i>Taiga Bean-Goose</i>	<i>Anser fabalis</i>	3198
<i>Taiga Flycatcher</i>	<i>Ficedula albicilla</i>	11.8
<i>Tawny Owl</i>	<i>Strix aluco</i>	524
<i>Tawny Pipit</i>	<i>Anthus campestris</i>	23
<i>Temminck's Stint</i>	<i>Calidris temminckii</i>	23
<i>Terek Sandpiper</i>	<i>Xenus cinereus</i>	78.8
<i>Thekla Lark</i>	<i>Galerida theklae</i>	36.8
<i>Thick-billed Murre</i>	<i>Uria lomvia</i>	964
<i>Thrush Nightingale</i>	<i>Luscinia luscinia</i>	23.8
<i>Tree Pipit</i>	<i>Anthus trivialis</i>	21.7
<i>Trumpeter Finch</i>	<i>Bucanetes githagineus</i>	19.6
<i>Tufted Duck</i>	<i>Aythya fuligula</i>	723
<i>Tundra Bean-Goose</i>	<i>Anser serrirostris</i>	3200
<i>Tundra Swan</i>	<i>Cygnus columbianus</i>	7200
<i>Twite</i>	<i>Linaria flavirostris</i>	15.4
<i>Two-barred Warbler</i>	<i>Phylloscopus plumbeitarsus</i>	9
<i>Upland Sandpiper</i>	<i>Bartramia longicauda</i>	164
<i>Wallcreeper</i>	<i>Tichodroma muraria</i>	17.6
<i>Water Pipit</i>	<i>Anthus spinoletta</i>	23.9
<i>Water Rail</i>	<i>Rallus aquaticus</i>	125
<i>Western Bonelli's Warbler</i>	<i>Phylloscopus bonelli</i>	8.9
<i>Western Olivaceous Warbler</i>	<i>Iduna opaca</i>	13
<i>Western Orphean Warbler</i>	<i>Sylvia hortensis</i>	21.9
<i>Western Reef-Heron</i>	<i>Egretta gularis</i>	400
<i>Western Sandpiper</i>	<i>Calidris mauri</i>	29.1
<i>Western Swamphen</i>	<i>Porphyrio porphyrio</i>	1091
<i>Western Yellow Wagtail</i>	<i>Motacilla flava</i>	16.6
<i>Whimbrel</i>	<i>Numenius phaeopus</i>	404
<i>Whinchat</i>	<i>Saxicola rubetra</i>	16.6
<i>Whiskered Tern</i>	<i>Chlidonias hybrida</i>	90
<i>White Stork</i>	<i>Ciconia ciconia</i>	3571
<i>White Wagtail</i>	<i>Motacilla alba</i>	21

<i>Common nam</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>White-backed Woodpecker</i>	<i>Dendrocopos leucotos</i>	108
<i>White-crowned Sparrow</i>	<i>Zonotrichia leucophrys</i>	29.4
<i>White-headed Duck</i>	<i>Oxyura leucocephala</i>	737
<i>White-rumped Sandpiper</i>	<i>Calidris fuscicollis</i>	34.7
<i>White-rumped Swift</i>	<i>Apus caffer</i>	22.1
<i>White's Thrush</i>	<i>Zoothera aurea</i>	104
<i>White-tailed Eagle</i>	<i>Haliaeetus albicilla</i>	5572
<i>White-tailed Lapwing</i>	<i>Vanellus leucurus</i>	132
<i>White-throated Dipper</i>	<i>Cinclus cinclus</i>	64.2
<i>White-throated Sparrow</i>	<i>Zonotrichia albicollis</i>	24.4
<i>White-winged Crossbill</i>	<i>Loxia leucoptera</i>	34.8
<i>White-winged Scoter</i>	<i>Melanitta deglandi</i>	1917
<i>White-winged Scoter</i>	<i>Melanitta fusca</i>	1917
<i>White-winged Snowfinch</i>	<i>Montifringilla nivalis</i>	36.9
<i>White-winged Tern</i>	<i>Chlidonias leucopterus</i>	54.2
<i>Whooper Swan</i>	<i>Cygnus cygnus</i>	9350
<i>Willet</i>	<i>Tringa semipalmata</i>	283
<i>Willow Tit</i>	<i>Poecile montanus</i>	11.1
<i>Willow Warbler</i>	<i>Phylloscopus trochilus</i>	8.7
<i>Wilson's Phalarope</i>	<i>Phalaropus tricolor</i>	68.1
<i>Wilson's Snipe</i>	<i>Gallinago delicata</i>	128
<i>Wilson's Storm-Petrel</i>	<i>Oceanites oceanicus</i>	32
<i>Wood Lark</i>	<i>Lullula arborea</i>	26.9
<i>Wood Sandpiper</i>	<i>Tringa glareola</i>	73
<i>Wood Warbler</i>	<i>Phylloscopus sibilatrix</i>	9.2
<i>Woodchat Shrike</i>	<i>Lanius senator</i>	37.4
<i>Yelkouan Shearwater</i>	<i>Puffinus yelkouan</i>	407
<i>Yellow Warbler</i>	<i>Setophaga petechia</i>	12.4
<i>Yellow-billed Cough</i>	<i>Pyrrhocorax graculus</i>	226
<i>Yellow-billed Cuckoo</i>	<i>Coccyzus americanus</i>	64
<i>Yellow-billed Loon</i>	<i>Gavia adamsii</i>	5212
<i>Yellow-breasted Bunting</i>	<i>Emberiza aureola</i>	19.6
<i>Yellow-browed Bunting</i>	<i>Emberiza chrysophrys</i>	19
<i>Yellow-browed Warbler</i>	<i>Phylloscopus inornatus</i>	6.4
<i>Yellowhammer</i>	<i>Emberiza citrinella</i>	29.7
<i>Yellow-legged Gull</i>	<i>Larus michahellis</i>	1275
<i>Zitting Cisticola</i>	<i>Cisticola juncidis</i>	7.5



## Body mass of birds of Wallis and Futuna

Common name	Scientific name	Body mass (g)
Bar-tailed Godwit	<i>Limosa lapponica</i>	332
Black Noddy	<i>Anous minutus</i>	116
Black-naped Tern	<i>Sterna sumatrana</i>	106
Blue-crowned Lorikeet	<i>Vini australis</i>	50
Bridled Tern	<i>Onychoprion anaethetus</i>	136
Bristle-thighed Curlew	<i>Numenius tahitiensis</i>	428
Brown Booby	<i>Sula leucogaster</i>	1525
Brown Noddy	<i>Anous stolidus</i>	178
Buff-banded Rail	<i>Gallirallus philippensis</i>	180
Collared Kingfisher	<i>Todiramphus chloris</i>	58.9
Common Myna	<i>Acridotheres tristis</i>	127
Crimson-crowned Fruit-Dove	<i>Ptilinopus porphyraceus</i>	105
Eastern Wattled-Honeyeater	<i>Foulehaio carunculatus</i>	37
Fiji Shrikebill	<i>Clytorhynchus vitiensis</i>	29.2
Great Crested Tern	<i>Thalasseus bergii</i>	328
Great Frigatebird	<i>Fregata minor</i>	1662
Lesser Frigatebird	<i>Fregata ariel</i>	858
Long-tailed Koel	<i>Urodynamis taitensis</i>	117
Pacific Black Duck	<i>Anas superciliosa</i>	1133
Pacific Golden-Plover	<i>Pluvialis fulva</i>	140
Pacific Imperial-Pigeon	<i>Ducula pacifica</i>	395
Pacific Reef-Heron	<i>Egretta sacra</i>	658
Polynesian Starling	<i>Aplonis tabuensis</i>	62.5
Polynesian Triller	<i>Lalage maculosa</i>	30.3
Red-footed Booby	<i>Sula sula</i>	1223
Red-tailed Tropicbird	<i>Phaethon rubricauda</i>	685
Rock Pigeon	<i>Columba livia</i>	369
Ruddy Turnstone	<i>Arenaria interpres</i>	138
Sacred Kingfisher	<i>Todiramphus sanctus</i>	43.7
Shy Ground-Dove	<i>Gallicolumba stairi</i>	171
Swamp Harrier	<i>Circus approximans</i>	870
Wandering Tattler	<i>Tringa incana</i>	116
Whimbrel	<i>Numenius phaeopus</i>	404
White Tern	<i>Gygis alba</i>	111
White-rumped Swiftlet	<i>Aerodramus spodiopygius</i>	6.8
White-tailed Tropicbird	<i>Phaethon lepturus</i>	367

## Body mass of birds of Reunion Island

Common name	Scientific name	Body mass (g)
Barau's Petrel	<i>Pterodroma baraui</i>	400
Bar-tailed Godwit	<i>Limosa lapponica</i>	332
Black-browed Albatross	<i>Thalassarche melanophris</i>	3922
Blue Quail	<i>Excalfactoria adansonii</i>	44.5
Bridled Tern	<i>Onychoprion anaethetus</i>	95.6
Broad-billed Prion	<i>Pachyptila vittata</i>	196
Broad-billed Roller	<i>Eurystomus glaucurus</i>	110
Brown Booby	<i>Sula leucogaster</i>	1525
Brown Noddy	<i>Anous stolidus</i>	178
Brown Skua	<i>Stercorarius antarcticus</i>	1935
Cape Canary	<i>Serinus canicollis</i>	15.2
Cape Petrel	<i>Daption capense</i>	452
Chinese Francolin	<i>Francolinus pintadeanus</i>	367.5
Common Greenshank	<i>Tringa nebularia</i>	187
Common Moorhen	<i>Gallinula chloropus</i>	415
Common Myna	<i>Acridotheres tristis</i>	127
Common Quail	<i>Coturnix coturnix</i>	103
Common Ringed Plover	<i>Charadrius hiaticula</i>	64.8
Common Sandpiper	<i>Actitis hypoleucos</i>	48
Common Waxbill	<i>Estrilda astrild</i>	8.8
Crab-plover	<i>Dromas ardeola</i>	325
Curlew Sandpiper	<i>Calidris ferruginea</i>	59.6
Dimorphic Egret	<i>Egretta dimorpha</i>	NA
Echo Parakeet	<i>Psittacula eques</i>	163
Eleonora's Falcon	<i>Falco eleonora</i>	390
Eurasian Curlew	<i>Numenius arquata</i>	869
Flesh-footed Shearwater	<i>Puffinus carneipes</i>	609
Garganey	<i>Anas querquedula</i>	342
Great Frigatebird	<i>Fregata minor</i>	1662
Greater Crested Tern	<i>Thalasseus bergii</i>	328
Greater Flamingo	<i>Phoenicopterus roseus</i>	3540
Greater Sand Plover	<i>Charadrius leschenaultii</i>	74.8
Grey Francolin	<i>Francolinus pondicerianus</i>	274
Grey Plover	<i>Pluvialis squatarola</i>	250
House Sparrow	<i>Passer domesticus</i>	28
Indian Yellow-nosed Albatross	<i>Thalassarche carteri</i>	2550

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Java Sparrow</i>	<i>Lonchura oryzivora</i>	24.8
<i>Jungle Bush Quail</i>	<i>Perdica asiatica</i>	69.5
<i>Lesser Crested Tern</i>	<i>Thalasseus bengalensis</i>	209
<i>Lesser Flamingo</i>	<i>Phoeniconaias minor</i>	1500
<i>Lesser Frigatebird</i>	<i>Fregata ariel</i>	858
<i>Lesser Noddy</i>	<i>Anous tenuirostris</i>	112
<i>Light-mantled Albatross</i>	<i>Phoebastria palpebrata</i>	3150
<i>Little Stint</i>	<i>Calidris minuta</i>	21.1
<i>Madagascan Buttonquail</i>	<i>Turnix nigricollis</i>	61.3
<i>Madagascan Partridge</i>	<i>Margaroperdix madagarensis</i>	245
<i>Madagascan Pratincole</i>	<i>Glareola ocularis</i>	103
<i>Malagasy Turtle Dove</i>	<i>Nesoenas picturata</i>	184
<i>Mascarene Martin</i>	<i>Phedina borbonica</i>	23.9
<i>Mascarene Paradise Flycatcher</i>	<i>Terpsiphone bourbonensis</i>	11.7
<i>Mascarene Petrel</i>	<i>Pseudobulweria aterrima</i>	232
<i>Mascarene Swiftlet</i>	<i>Aerodramus francicus</i>	8.9
<i>Masked Booby</i>	<i>Sula dactylatra</i>	2095
<i>Meller's Duck</i>	<i>Anas melleri</i>	1010
<i>Northern Giant Petrel</i>	<i>Macronectes halli</i>	4902
<i>Oriental Pratincole</i>	<i>Glareola maldivarum</i>	75.2
<i>Pin-tailed Whydah</i>	<i>Vidua macroura</i>	16
<i>Red Avadavat</i>	<i>Amandava amandava</i>	9.6
<i>Red Fody</i>	<i>Foudia madagascariensis</i>	18.2
<i>Red Junglefowl</i>	<i>Gallus gallus</i>	988
<i>Red-footed Booby</i>	<i>Sula sula</i>	1223
<i>Red-tailed Tropicbird</i>	<i>Phaethon rubricauda</i>	685
<i>Red-whiskered Bulbul</i>	<i>Pycnonotus jocosus</i>	27.4
<i>Reunion Bulbul</i>	<i>Hypsipetes borbonicus</i>	55.3
<i>Reunion Cuckooshrike</i>	<i>Coracina newtoni</i>	NA
<i>Reunion Grey White-eye</i>	<i>Zosterops borbonicus</i>	8.2
<i>Reunion Harrier</i>	<i>Circus maillardi</i>	850
<i>Reunion Olive White-eye</i>	<i>Zosterops olivaceus</i>	9.7
<i>Reunion Stonechat</i>	<i>Saxicola tectes</i>	13
<i>Rock Dove</i>	<i>Columba livia</i>	369
<i>Roseate Tern</i>	<i>Sterna dougallii</i>	112
<i>Rose-ringed Parakeet</i>	<i>Psittacula krameri</i>	126

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Ruddy Turnstone</i>	<i>Arenaria interpres</i>	138
<i>Salvin's Albatross</i>	<i>Thalassarche salvini</i>	4000
<i>Sanderling</i>	<i>Calidris alba</i>	57
<i>Scaly-breasted Munia</i>	<i>Lonchura punctulata</i>	13.6
<i>Scopoli's Shearwater</i>	<i>Calonectris diomedea</i>	535
<i>Shy Albatross</i>	<i>Thalassarche cauta</i>	4350
<i>Slender-billed Prion</i>	<i>Pachyptila belcheri</i>	145
<i>Sooty Albatross</i>	<i>Phoebastria fusca</i>	2730
<i>Sooty Falcon</i>	<i>Falco concolor</i>	250
<i>Sooty Tern</i>	<i>Onychoprion fuscatus</i>	175
<i>South Polar Skua</i>	<i>Stercorarius maccormicki</i>	1421
<i>Southern Giant Petrel</i>	<i>Macronectes giganteus</i>	4940
<i>Striated Heron</i>	<i>Butorides striata</i>	226
<i>Terek Sandpiper</i>	<i>Xenus cinereus</i>	78.8
<i>Trindade Petrel</i>	<i>Pterodroma arminjoniana</i>	394
<i>Tropical Shearwater</i>	<i>Puffinus bailloni</i>	220
<i>Village Weaver</i>	<i>Ploceus cucullatus</i>	40.5
<i>Wandering Albatross</i>	<i>Diomedea exulans</i>	9110
<i>Wedge-tailed Shearwater</i>	<i>Puffinus pacificus</i>	388
<i>Western Cattle Egret</i>	<i>Bubulcus ibis</i>	372
<i>Whimbrel</i>	<i>Numenius phaeopus</i>	404
<i>Whiskered Tern</i>	<i>Chlidonias hybrida</i>	90
<i>White Tern</i>	<i>Gygis alba</i>	111
<i>White Wagtail</i>	<i>Motacilla alba</i>	21
<i>White-bellied Storm Petrel</i>	<i>Fregetta grallaria</i>	64
<i>White-faced Whistling Duck</i>	<i>Dendrocygna viduata</i>	690
<i>White-tailed Tropicbird</i>	<i>Phaethon lepturus</i>	367
<i>White-winged Tern</i>	<i>Chlidonias leucopterus</i>	54.2
<i>Wilson's Storm Petrel</i>	<i>Oceanites oceanicus</i>	32
<i>Yellow-fronted Canary</i>	<i>Crithagra mozambica</i>	10.6
<i>Zebra Dove</i>	<i>Geopelia striata</i>	56.6

## Body mass of birds of Guadeloupe

Common name	Scientific name	Body mass (g)
<i>Alpine Swift</i>	<i>Tachymarptis melba</i>	104
<i>American Bittern</i>	<i>Botaurus lentiginosus</i>	706
<i>American Black Duck</i>	<i>Anas rubripes</i>	1400
<i>American Coot</i>	<i>Fulica americana</i>	724
<i>American Flamingo</i>	<i>Phoenicopterus ruber</i>	3100
<i>American Golden Plover</i>	<i>Pluvialis dominica</i>	154
<i>American Harrier</i>	<i>Circus hudsonius</i>	515
<i>American Herring Gull</i>	<i>Larus smithsonianus</i>	NA
<i>American Kestrel</i>	<i>Falco sparverius</i>	151
<i>American Oystercatcher</i>	<i>Haematopus palliatus</i>	638
<i>American Redstart</i>	<i>Setophaga ruticilla</i>	8.4
<i>American White Pelican</i>	<i>Pelecanus erythrorhynchos</i>	6329
<i>American Wigeon</i>	<i>Anas americana</i>	792
<i>Antillean Crested Hummingbird</i>	<i>Orthorhyncus cristatus</i>	2.7
<i>Antillean Euphonia</i>	<i>Euphonia musica</i>	13.7
<i>Arctic Tern</i>	<i>Sterna paradisaea</i>	110
<i>Audubon's Shearwater</i>	<i>Puffinus lherminieri</i>	168
<i>Baird's Sandpiper</i>	<i>Calidris bairdii</i>	43.5
<i>Baltimore Oriole</i>	<i>Icterus galbula</i>	33.9
<i>Bananaquit</i>	<i>Coereba flaveola</i>	10.8
<i>Barn Owl</i>	<i>Tyto alba</i>	612
<i>Barn Swallow</i>	<i>Hirundo rustica</i>	18.1
<i>Belted Kingfisher</i>	<i>Megasceryle alcyon</i>	148
<i>Bicknell's Thrush</i>	<i>Catharus bicknelli</i>	28.1
<i>Black Kite</i>	<i>Milvus migrans</i>	567
<i>Black Skimmer</i>	<i>Rynchops niger</i>	349
<i>Black Swift</i>	<i>Cypseloides niger</i>	45.6
<i>Black Tern</i>	<i>Chlidonias niger</i>	65.3
<i>Black-and-white Warbler</i>	<i>Mniotilta varia</i>	10.9
<i>Black-bellied Whistling-Duck</i>	<i>Dendrocygna autumnalis</i>	796
<i>Black-billed Cuckoo</i>	<i>Coccyzus erythrophthalmus</i>	50.9
<i>Blackburnian Warbler</i>	<i>Setophaga fusca</i>	10
<i>Black-capped Petrel</i>	<i>Pterodroma hasitata</i>	278
<i>Black-crowned Night-Heron</i>	<i>Nycticorax nycticorax</i>	810
<i>Black-faced Grassquit</i>	<i>Tiaris bicolor</i>	9.8
<i>Black-headed Gull</i>	<i>Chroicocephalus ridibundus</i>	284

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Black-legged Kittiwake</i>	<i>Rissa tridactyla</i>	421
<i>Black-necked Stilt</i>	<i>Himantopus mexicanus</i>	170
<i>Blackpoll Warbler</i>	<i>Setophaga striata</i>	12.3
<i>Black-rumped Waxbill</i>	<i>Estrilda troglodytes</i>	7.6
<i>Black-throated Blue Warbler</i>	<i>Setophaga caerulescens</i>	10.5
<i>Black-throated Green Warbler</i>	<i>Setophaga virens</i>	8.9
<i>Black-whiskered Vireo</i>	<i>Vireo altiloquus</i>	17.9
<i>Blue Grosbeak</i>	<i>Passerina caerulea</i>	27.8
<i>Blue-winged Teal</i>	<i>Anas discors</i>	380
<i>Blue-winged Warbler</i>	<i>Vermivora cyanoptera</i>	8.9
<i>Bobolink</i>	<i>Dolichonyx oryzivorus</i>	33.9
<i>Bonaparte's Gull</i>	<i>Chroicocephalus philadelphia</i>	222
<i>Bridled Quail-Dove</i>	<i>Geotrygon mystacea</i>	211
<i>Broad-winged Hawk</i>	<i>Buteo platypterus</i>	490
<i>Brown Booby</i>	<i>Sula leucogaster</i>	1525
<i>Brown Noddy</i>	<i>Anous stolidus</i>	178
<i>Brown Pelican</i>	<i>Pelecanus occidentalis</i>	3702
<i>Brown Trembler</i>	<i>Cinclocerthia ruficauda</i>	56.1
<i>Buff-breasted Sandpiper</i>	<i>Calidris subruficollis</i>	68.5
<i>Bulwer's Petrel</i>	<i>Bulweria bulwerii</i>	99
<i>Burrowing Owl</i>	<i>Athene cunicularia</i>	156
<i>Cabot's Tern</i>	<i>Thalasseus acuflavidus</i>	NA
<i>Canada Warbler</i>	<i>Cardellina canadensis</i>	10.3
<i>Cape May Warbler</i>	<i>Setophaga tigrina</i>	10.3
<i>Carib Grackle</i>	<i>Quiscalus lugubris</i>	72.5
<i>Caribbean coot</i>	<i>Fulica caribaea</i>	NA
<i>Caribbean Elaenia</i>	<i>Elaenia martinica</i>	22.6
<i>Caribbean Martin</i>	<i>Progne dominicensis</i>	39.6
<i>Caspian Tern</i>	<i>Hydroprogne caspia</i>	655
<i>Cedar Waxwing</i>	<i>Bombacilla cedrorum</i>	32.6
<i>Cerulean Warbler</i>	<i>Setophaga cerulea</i>	9.3
<i>Chestnut-sided Warbler</i>	<i>Setophaga pensylvanica</i>	9.5
<i>Chimney Swift</i>	<i>Chaetura pelagica</i>	23.6
<i>Chuck-will's-widow</i>	<i>Antrostomus carolinensis</i>	109
<i>Cinnamon-throated Swallow</i>	<i>Petrochelidon fulva</i>	24.2
<i>Cliff Swallow</i>	<i>Petrochelidon pyrrhonota</i>	21.6



<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Collared Plover</i>	<i>Charadrius collaris</i>	28.3
<i>Common Gallinule</i>	<i>Gallinula galeata</i>	NA
<i>Common Ground-Dove</i>	<i>Columbina passerina</i>	35.4
<i>Common Kestrel</i>	<i>Falco tinnunculus</i>	201
<i>Common Nighthawk</i>	<i>Chordeiles minor</i>	79.3
<i>Common Ringed Plover</i>	<i>Charadrius hiaticula</i>	64.8
<i>Common Tern</i>	<i>Sterna hirundo</i>	120
<i>Common Yellowthroat</i>	<i>Geothlypis trichas</i>	10.1
<i>Connecticut Warbler</i>	<i>Oporornis agilis</i>	13.3
<i>Corn Crake</i>	<i>Crex crex</i>	169
<i>Curlew Sandpiper</i>	<i>Calidris ferruginea</i>	59.6
<i>Dickcissel</i>	<i>Spiza americana</i>	28.5
<i>Double-crested Cormorant</i>	<i>Phalacrocorax auritus</i>	2089
<i>Dunlin</i>	<i>Calidris alpina</i>	59.7
<i>Eared Dove</i>	<i>Zenaida auriculata</i>	136
<i>Eskimo Curlew</i>	<i>Numenius borealis</i>	362
<i>Eurasian Collared-Dove</i>	<i>Streptopelia decaocto</i>	152
<i>Forest Thrush</i>	<i>Turdus lherminieri</i>	105
<i>Fork-tailed Flycatcher</i>	<i>Tyrannus savana</i>	31.9
<i>Forster's Tern</i>	<i>Sterna forsteri</i>	149
<i>Franklin's Gull</i>	<i>Leucophaeus pipixcan</i>	280
<i>Fulvous Whistling-Duck</i>	<i>Dendrocygna bicolor</i>	770
<i>Gadwall</i>	<i>Mareca strepera</i>	968
<i>Garganey</i>	<i>Anas querquedula</i>	342
<i>Glossy Ibis</i>	<i>Plegadis falcinellus</i>	662
<i>Grassland Yellow-Finch</i>	<i>Sicalis luteola</i>	18.9
<i>Great Black-backed Gull</i>	<i>Larus marinus</i>	1829
<i>Great Blue Heron</i>	<i>Ardea herodias</i>	2480
<i>Great Shearwater</i>	<i>Puffinus gravis</i>	849
<i>Great Skua</i>	<i>Stercorarius skua</i>	1409
<i>Greater White-fronted Goose</i>	<i>Anser albifrons</i>	3000
<i>Greater Yellowlegs</i>	<i>Tringa melanoleuca</i>	153
<i>Green Heron</i>	<i>Butorides virescens</i>	212
<i>Green-throated Carib</i>	<i>Eulampis holosericeus</i>	5.7
<i>Green-winged Teal</i>	<i>Anas carolinensis</i>	392
<i>Grey Catbird</i>	<i>Dumetella carolinensis</i>	35.3

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Grey Heron</i>	<i>Ardea cinerea</i>	1443
<i>Grey Kingbird</i>	<i>Tyrannus dominicensis</i>	46.5
<i>Grey Plover</i>	<i>Pluvialis squatarola</i>	250
<i>Grey-cheeked Thrush</i>	<i>Catharus minimus</i>	32.6
<i>Guadeloupe Woodpecker</i>	<i>Melanerpes herminieri</i>	100
<i>Gull-billed Tern</i>	<i>Gelochelidon nilotica</i>	233
<i>Hooded Merganser</i>	<i>Lophodytes cucullatus</i>	680
<i>Hooded Warbler</i>	<i>Setophaga citrina</i>	10.8
<i>House Sparrow</i>	<i>Passer domesticus</i>	28
<i>House Wren</i>	<i>Troglodytes aedon</i>	11.1
<i>Hudsonian Godwit</i>	<i>Limosa haemastica</i>	289
<i>Iceland Gull</i>	<i>Larus glaucoideus</i>	863
<i>Indigo Bunting</i>	<i>Passerina cyanea</i>	15
<i>Kentucky Warbler</i>	<i>Geothlypis formosa</i>	14
<i>Killdeer</i>	<i>Charadrius vociferus</i>	101
<i>Laughing Gull</i>	<i>Leucophaeus atricilla</i>	327
<i>Leach's Storm Petrel</i>	<i>Oceanodroma leucorhoa</i>	41.4
<i>Least Bittern</i>	<i>Ixobrychus exilis</i>	86.3
<i>Least Sandpiper</i>	<i>Calidris minutilla</i>	23.8
<i>Least Tern</i>	<i>Sternula antillarum</i>	46.9
<i>Lesser Antillean Bullfinch</i>	<i>Loxigilla noctis</i>	18.5
<i>Lesser Antillean Flycatcher</i>	<i>Myiarchus oberi</i>	41
<i>Lesser Antillean Pewee</i>	<i>Contopus latirostris</i>	10.8
<i>Lesser Antillean Saltator</i>	<i>Saltator albicollis</i>	36.9
<i>Lesser Antillean Swift</i>	<i>Chaetura martinica</i>	12.5
<i>Lesser Black-backed Gull</i>	<i>Larus fuscus</i>	880
<i>Lesser Scaup</i>	<i>Aythya affinis</i>	850
<i>Lesser Yellowlegs</i>	<i>Tringa flavipes</i>	77.5
<i>Limpkin</i>	<i>Aramus guarauna</i>	1080
<i>Little Blue Heron</i>	<i>Egretta caerulea</i>	364
<i>Little Egret</i>	<i>Egretta garzetta</i>	312
<i>Long-billed Curlew</i>	<i>Numenius americanus</i>	642
<i>Long-billed Dowitcher</i>	<i>Limnodromus scolopaceus</i>	109
<i>Long-tailed Jaeger</i>	<i>Stercorarius longicaudus</i>	307
<i>Louisiana Waterthrush</i>	<i>Parkesia motacilla</i>	19.9
<i>Magnificent Frigatebird</i>	<i>Fregata magnificens</i>	1704

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Magnolia Warbler</i>	<i>Setophaga magnolia</i>	8.4
<i>Mallard</i>	<i>Anas platyrhynchos</i>	1082
<i>Mangrove Cuckoo</i>	<i>Coccyzus minor</i>	63.9
<i>Mangrove or Clapper Rail</i>	<i>Rallus longirostris</i>	290
<i>Mangrove Warbler</i>	<i>Setophaga petechia</i>	12.4
<i>Manx Shearwater</i>	<i>Puffinus puffinus</i>	468
<i>Marbled Godwit</i>	<i>Limosa fedoa</i>	391
<i>Masked Booby</i>	<i>Sula dactylatra</i>	2095
<i>Masked Duck</i>	<i>Nomonyx dominicus</i>	385
<i>Merlin</i>	<i>Falco columbarius</i>	218
<i>Mourning Dove</i>	<i>Zenaida macroura</i>	123
<i>Myrtle Warbler</i>	<i>Setophaga coronata</i>	12.2
<i>Nashville Warbler</i>	<i>Leiothlypis ruficapilla</i>	8.3
<i>Neotropic Cormorant</i>	<i>Phalacrocorax brasilianus</i>	1393
<i>Northern Gannet</i>	<i>Morus bassanus</i>	3067
<i>Northern House-Martin</i>	<i>Delichon urbicum</i>	14.5
<i>Northern Parula</i>	<i>Setophaga americana</i>	8.6
<i>Northern Pintail</i>	<i>Anas acuta</i>	1006
<i>Northern Red Bishop</i>	<i>Euplectes franciscanus</i>	16
<i>Northern Rough-winged Swallow</i>	<i>Stelgidopteryx serripennis</i>	15.9
<i>Northern Shoveler</i>	<i>Spatula clypeata</i>	636
<i>Northern Waterthrush</i>	<i>Parkesia noveboracensis</i>	16.3
<i>Orange-cheeked Waxbill</i>	<i>Estrilda melpoda</i>	7.6
<i>Orchard Oriole</i>	<i>Icterus spurius</i>	19.9
<i>Osprey</i>	<i>Pandion haliaetus</i>	1568
<i>Ovenbird</i>	<i>Seiurus aurocapilla</i>	18.8
<i>Palm Warbler</i>	<i>Setophaga palmarum</i>	10.3
<i>Parasitic Jaeger</i>	<i>Stercorarius parasiticus</i>	478
<i>Pearly-eyed Thrasher</i>	<i>Margarops fuscatus</i>	104
<i>Pectoral Sandpiper</i>	<i>Calidris melanotos</i>	97.8
<i>Peregrine Falcon</i>	<i>Falco peregrinus</i>	1201
<i>Philadelphia Vireo</i>	<i>Vireo philadelphicus</i>	11.5
<i>Pied-billed Grebe</i>	<i>Podilymbus podiceps</i>	474
<i>Pine Warbler</i>	<i>Setophaga pinus</i>	11.9
<i>Piping Plover</i>	<i>Charadrius melodus</i>	55.2
<i>Plumbeous Warbler</i>	<i>Setophaga plumbea</i>	10.1

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Pomarine Jaeger</i>	<i>Stercorarius pomarinus</i>	741
<i>Prairie Warbler</i>	<i>Setophaga discolor</i>	8
<i>Prothonotary Warbler</i>	<i>Protonotaria citrea</i>	14.3
<i>Purple Gallinule</i>	<i>Porphyrio martinicus</i>	257
<i>Purple Martin</i>	<i>Progne subis</i>	53.5
<i>Purple-throated Carib</i>	<i>Eulampis jugularis</i>	9.3
<i>Red Avadavat</i>	<i>Amandava amandava</i>	9.6
<i>Red Junglefowl</i>	<i>Gallus gallus</i>	988
<i>Red Knot</i>	<i>Calidris canutus</i>	148
<i>Red-billed Tropicbird</i>	<i>Phaethon aethereus</i>	750
<i>Reddish Egret</i>	<i>Egretta rufescens</i>	614
<i>Red-eyed Vireo</i>	<i>Vireo olivaceus</i>	16.8
<i>Red-footed Booby</i>	<i>Sula sula</i>	1223
<i>Red-necked Phalarope</i>	<i>Phalaropus lobatus</i>	39
<i>Red-tailed Hawk</i>	<i>Buteo jamaicensis</i>	1224
<i>Ring-billed Gull</i>	<i>Larus delawarensis</i>	566
<i>Ringed Kingfisher</i>	<i>Megaceryle torquata</i>	317
<i>Ring-necked Duck</i>	<i>Aythya collaris</i>	730
<i>Rock Dove</i>	<i>Columba livia</i>	369
<i>Roseate Spoonbill</i>	<i>Platalea ajaja</i>	1490
<i>Roseate Tern</i>	<i>Sterna dougallii</i>	112
<i>Rose-breasted Grosbeak</i>	<i>Pheucticus ludovicianus</i>	42
<i>Royal Tern</i>	<i>Thalasseus maximus</i>	367
<i>Ruddy Duck</i>	<i>Oxyura jamaicensis</i>	629
<i>Ruddy Quail-Dove</i>	<i>Geotrygon montana</i>	115
<i>Ruddy Turnstone</i>	<i>Arenaria interpres</i>	138
<i>Ruff</i>	<i>Philomachus pugnax</i>	102
<i>Sand Martin</i>	<i>Riparia riparia</i>	13.9
<i>Sanderling</i>	<i>Calidris alba</i>	57
<i>Scaly-breasted Munia</i>	<i>Lonchura punctulata</i>	13.6
<i>Scaly-breasted Thrasher</i>	<i>Allenia fusca</i>	67.6
<i>Scaly-naped Pigeon</i>	<i>Patagioenas squamosa</i>	312
<i>Scarlet Ibis</i>	<i>Eudocimus ruber</i>	741
<i>Scarlet Tanager</i>	<i>Piranga olivacea</i>	28.2
<i>Scopoli's Shearwater</i>	<i>Calonectris diomedea</i>	535
<i>Semipalmated Plover</i>	<i>Charadrius semipalmatus</i>	46.1

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Semipalmated Sandpiper</i>	<i>Calidris pusilla</i>	27.5
<i>Shiny Cowbird</i>	<i>Molothrus bonariensis</i>	40
<i>Short-billed Dowitcher</i>	<i>Limnodromus griseus</i>	117
<i>Short-tailed Swift</i>	<i>Chaetura brachyura</i>	18.3
<i>Smooth-billed Ani</i>	<i>Crotophaga ani</i>	100
<i>Snow Goose</i>	<i>Anser caeruleus</i>	2847
<i>Snowy Egret</i>	<i>Egretta thula</i>	371
<i>Snowy Plover</i>	<i>Charadrius nivosus</i>	42.3
<i>Solitary Sandpiper</i>	<i>Tringa solitaria</i>	48.4
<i>Sooty Shearwater</i>	<i>Puffinus griseus</i>	787
<i>Sooty Tern</i>	<i>Onychoprion anaethetus</i>	95.6
<i>Sooty Tern</i>	<i>Onychoprion fuscatus</i>	175
<i>Sora</i>	<i>Porzana carolina</i>	74.8
<i>South Polar Skua</i>	<i>Stercorarius maccormicki</i>	1421
<i>Southern Rough-winged Swallow</i>	<i>Stelgidopteryx ruficollis</i>	16.1
<i>Spotted Crane</i>	<i>Porzana porzana</i>	87.1
<i>Spotted Redshank</i>	<i>Tringa erythropus</i>	158
<i>Spotted Sandpiper</i>	<i>Actitis macularius</i>	40.4
<i>Stilt Sandpiper</i>	<i>Calidris himantopus</i>	60.9
<i>Striated Heron</i>	<i>Butorides striata</i>	226
<i>Summer Tanager</i>	<i>Piranga rubra</i>	28.2
<i>Swainson's Thrush</i>	<i>Catharus ustulatus</i>	30.3
<i>Swallow-tailed Kite</i>	<i>Elanoides forficatus</i>	442
<i>Tennessee Warbler</i>	<i>Leiothlypis peregrina</i>	8.9
<i>Tree Swallow</i>	<i>Tachycineta bicolor</i>	21.2
<i>Tricolored Heron</i>	<i>Egretta tricolor</i>	415
<i>Tropical Mockingbird</i>	<i>Mimus gilvus</i>	58.4
<i>Upland Sandpiper</i>	<i>Bartramia longicauda</i>	164
<i>West Indian Whistling-Duck</i>	<i>Dendrocygna arborea</i>	1150
<i>Western Cattle Egret</i>	<i>Bubulcus ibis</i>	372
<i>Western Great Egret</i>	<i>Ardea alba</i>	935
<i>Western Marsh-Harrier</i>	<i>Circus aeruginosus</i>	814
<i>Western Sandpiper</i>	<i>Calidris mauri</i>	29.1
<i>Whimbrel</i>	<i>Numenius phaeopus</i>	404
<i>White-cheeked Pintail</i>	<i>Anas bahamensis</i>	535
<i>White-collared Swift</i>	<i>Streptoprocne zonaris</i>	98.1



<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>White-crowned Pigeon</i>	<i>Patagioenas leucocephala</i>	253
<i>White-eyed Vireo</i>	<i>Vireo griseus</i>	11.4
<i>White-rumped Sandpiper</i>	<i>Calidris fuscicollis</i>	34.7
<i>White-tailed Tropicbird</i>	<i>Phaethon lepturus</i>	367
<i>White-winged Dove</i>	<i>Zenaida asiatica</i>	153
<i>Willet</i>	<i>Tringa semipalmata</i>	283
<i>Wilson's Phalarope</i>	<i>Steganopus tricolor</i>	68.1
<i>Wilson's Plover</i>	<i>Charadrius wilsonia</i>	55.1
<i>Wilson's Snipe</i>	<i>Gallinago delicata</i>	128
<i>Wilson's Storm-Petrel</i>	<i>Oceanites oceanicus</i>	32
<i>Wood Duck</i>	<i>Aix sponsa</i>	681
<i>Wood Sandpiper</i>	<i>Tringa glareola</i>	73
<i>Worm-eating Warbler</i>	<i>Helmitheros vermivorum</i>	15.2
<i>Yellow-bellied Sapsucker</i>	<i>Sphyrapicus varius</i>	50.3
<i>Yellow-billed Cuckoo</i>	<i>Coccyzus americanus</i>	64
<i>Yellow-crowned Night-Heron</i>	<i>Nyctanassa violacea</i>	716
<i>Yellow-eyed Thrush</i>	<i>Turdus nudigenis</i>	63.9
<i>Yellow-throated Vireo</i>	<i>Vireo flavifrons</i>	18
<i>Yellow-throated Warbler</i>	<i>Setophaga dominica</i>	9.9
<i>Zenaida Dove</i>	<i>Zenaida aurita</i>	156

## Body mass of birds of Martinique

Common name	Scientific name	Body mass (g)
<i>Aigrette garzette</i>	<i>Egretta garzetta</i>	312
<i>American Bittern</i>	<i>Botaurus lentiginosus</i>	706
<i>American Coot</i>	<i>Fulica americana</i>	724
<i>American Golden-Plover</i>	<i>Pluvialis dominica</i>	154
<i>American Harrier</i>	<i>Circus hudsonius</i>	515
<i>American Herring Gull</i>	<i>Larus smithsonianus</i>	NA
<i>American Kestrel</i>	<i>Falco sparverius</i>	151
<i>American Oystercatcher</i>	<i>Haematopus palliatus</i>	638
<i>American Redstart</i>	<i>Setophaga ruticilla</i>	8.4
<i>American Wigeon</i>	<i>Anas americana</i>	792
<i>Antillean Crested Hummingbird</i>	<i>Orthorhyncus cristatus</i>	2.7
<i>Antillean Euphonia</i>	<i>Euphonia musica</i>	13.7
<i>Audubon's Shearwater</i>	<i>Puffinus lherminieri</i>	168
<i>Baltimore Oriole</i>	<i>Icterus galbula</i>	33.9
<i>Bananaquit</i>	<i>Coereba flaveola</i>	10.8
<i>Barn Swallow</i>	<i>Hirundo rustica</i>	18.1
<i>Belted Kingfisher</i>	<i>Megaceryle alcyon</i>	148
<i>Black Swift</i>	<i>Cypseloides niger</i>	45.6
<i>Black Tern</i>	<i>Chlidonias niger</i>	65.3
<i>Black-and-white Warbler</i>	<i>Mniotilta varia</i>	10.9
<i>Black-bellied Whistling-Duck</i>	<i>Dendrocygna autumnalis</i>	796
<i>Black-browed Albatross</i>	<i>Thalassarche melanophris</i>	3922
<i>Black-crowned Night-Heron</i>	<i>Nycticorax nycticorax</i>	810
<i>Black-faced Grassquit</i>	<i>Tiaris bicolor</i>	9.8
<i>Black-necked Stilt</i>	<i>Himantopus mexicanus</i>	170
<i>Blackpoll Warbler</i>	<i>Setophaga striata</i>	12.3
<i>Black-whiskered Vireo</i>	<i>Vireo altiloquus</i>	17.9
<i>Blue-headed Hummingbird</i>	<i>Cyanophaea bicolor</i>	4.5
<i>Blue-winged Teal</i>	<i>Spatula discors</i>	380
<i>Bobolink</i>	<i>Dolichonyx oryzivorus</i>	33.9
<i>Bonaparte's Gull</i>	<i>Chroicocephalus philadelphia</i>	222
<i>Bridled Quail-Dove</i>	<i>Geotrygon mystacea</i>	211
<i>Bridled Tern</i>	<i>Onychoprion anaethetus</i>	95.6
<i>Broad-winged Hawk</i>	<i>Buteo platypterus</i>	490
<i>Bronze Munia</i>	<i>Lonchura cucullata</i>	9.2
<i>Brown Booby</i>	<i>Sula leucogaster</i>	1525

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Brown Noddy</i>	<i>Anous stolidus</i>	178
<i>Brown Tumbler</i>	<i>Cinclocerthia ruficauda</i>	56.1
<i>Brown-throated Parakeet</i>	<i>Eupsittula pertinax</i>	84
<i>Buff-breasted Sandpiper</i>	<i>Tryngites subruficollis</i>	68.5
<i>Cabot's Tern</i>	<i>Thalasseus acuflavidus</i>	NA
<i>Cape May Warbler</i>	<i>Setophaga tigrina</i>	10.3
<i>Carib Grackle</i>	<i>Quiscalus lugubris</i>	72.5
<i>Caribbean Coot</i>	<i>Fulica caribaea</i>	NA
<i>Caribbean Elaenia</i>	<i>Elaenia martinica</i>	22.6
<i>Caribbean Martin</i>	<i>Progne dominicensis</i>	39.6
<i>Caspian Tern</i>	<i>Hydroprogne caspia</i>	655
<i>Cinnamon-throated Swallow</i>	<i>Petrochelidon fulva</i>	24.9
<i>Common Gallinule</i>	<i>Gallinula galeata</i>	NA
<i>Common Ground-Dove</i>	<i>Columbina passerina</i>	35.4
<i>Common Kestrel</i>	<i>Falco tinnunculus</i>	201
<i>Common Nighthawk</i>	<i>Chordeiles minor</i>	79.3
<i>Common Tern</i>	<i>Sterna hirundo</i>	120
<i>Common Waxbill</i>	<i>Estrilda astrild</i>	8.8
<i>Eared Dove</i>	<i>Zenaida auriculata</i>	136
<i>Eurasian Collared-Dove</i>	<i>Streptopelia decaocto</i>	152
<i>European Herring Gull</i>	<i>Larus argentatus</i>	1199
<i>Fulvous Whistling-Duck</i>	<i>Dendrocygna bicolor</i>	770
<i>Gadwall</i>	<i>Anas strepera</i>	968
<i>Glossy Ibis</i>	<i>Plegadis falcinellus</i>	662
<i>Grassland Yellow-Finch</i>	<i>Sicalis luteola</i>	15.9
<i>Great Blue Heron</i>	<i>Ardea herodias</i>	2480
<i>Great Shearwater</i>	<i>Puffinus gravis</i>	849
<i>Great Skua</i>	<i>Stercorarius skua</i>	1409
<i>Greater Yellowlegs</i>	<i>Tringa melanoleuca</i>	153
<i>Green Heron</i>	<i>Butorides virescens</i>	212
<i>Green-throated Carib</i>	<i>Eulampis holosericeus</i>	5.7
<i>Green-winged Teal</i>	<i>Anas carolinensis</i>	392
<i>Grey Heron</i>	<i>Ardea cinerea</i>	1443
<i>Grey Kingbird</i>	<i>Tyrannus dominicensis</i>	46.5
<i>Grey Plover</i>	<i>Pluvialis squatarola</i>	250
<i>Grey Tumbler</i>	<i>Cinclocerthia gutturalis</i>	69.2

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Grey-cheeked Thrush</i>	<i>Catharus minimus</i>	32.6
<i>Gull-billed Tern</i>	<i>Gelochelidon nilotica</i>	233
<i>Hooded Merganser</i>	<i>Lophodytes cucullatus</i>	680
<i>Hooded Warbler</i>	<i>Setophaga citrina</i>	10.8
<i>House. Wren</i>	<i>Troglodytes aedon</i>	11.1
<i>Hudsonian Godwit</i>	<i>Limosa haemastica</i>	289
<i>Kentucky Warbler</i>	<i>Geothlypis formosa</i>	14
<i>Killdeer</i>	<i>Charadrius vociferus</i>	101
<i>Laughing Gull</i>	<i>Leucophaeus atricilla</i>	327
<i>Leach's Storm Petrel</i>	<i>Oceanodroma leucorhoa</i>	41.4
<i>Least Sandpiper</i>	<i>Calidris minutilla</i>	23.8
<i>Least Tern</i>	<i>Sternula antillarum</i>	46.9
<i>Lesser Antillean Bullfinch</i>	<i>Loxigilla noctis</i>	18.5
<i>Lesser Antillean Flycatcher</i>	<i>Myiarchus oberi</i>	41
<i>Lesser Antillean Pewee</i>	<i>Contopus latirostris</i>	10.8
<i>Lesser Antillean Saltator</i>	<i>Saltator albicollis</i>	36.9
<i>Lesser Antillean Swift</i>	<i>Chaetura martinica</i>	12.5
<i>Lesser Scaup</i>	<i>Aythya affinis</i>	850
<i>Lesser Yellowlegs</i>	<i>Tringa flavipes</i>	77.5
<i>Little Blue Heron</i>	<i>Egretta caerulea</i>	364
<i>Long-billed Curlew</i>	<i>Numenius americanus</i>	642
<i>Long-tailed Jaeger</i>	<i>Stercorarius longicaudus</i>	307
<i>Louisiana Waterthrush</i>	<i>Parkesia motacilla</i>	19.9
<i>Magnificent Frigatebird</i>	<i>Fregata magnificens</i>	1704
<i>Mallard</i>	<i>Anas platyrhynchos</i>	1082
<i>Mangrove Warbler</i>	<i>Setophaga petechia</i>	12.4
<i>Mangrove Cuckoo</i>	<i>Coccyzus minor</i>	63.9
<i>Mangrove Rail</i>	<i>Rallus longirostris</i>	290
<i>Marbled Godwit</i>	<i>Limosa fedoa</i>	391
<i>Martinique Oriole</i>	<i>Icterus bonana</i>	29
<i>Masked Booby</i>	<i>Sula dactylatra</i>	2095
<i>Masked Duck</i>	<i>Nomonyx dominicus</i>	385
<i>Merlin</i>	<i>Falco columbarius</i>	218
<i>Northern Lapwing</i>	<i>Vanellus vanellus</i>	226
<i>Northern Parula</i>	<i>Setophaga americana</i>	8.6
<i>Northern Pintail</i>	<i>Anas acuta</i>	1006

Common name	Scientific name	Body mass (g)
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	15.9
Northern Shoveler	<i>Anas clypeata</i>	636
Northern Waterthrush	<i>Parkesia noveboracensis</i>	16.3
Orange-cheeked Waxbill	<i>Estrilda melpoda</i>	7.6
Osprey	<i>Pandion haliaetus</i>	1568
Ovenbird	<i>Seiurus aurocapilla</i>	18.8
Parasitic Jaeger	<i>Stercorarius parasiticus</i>	478
Pearly-eyed Thrasher	<i>Margarops fuscatus</i>	104
Pectoral Sandpiper	<i>Calidris melanotos</i>	97.8
Peregrine Falcon	<i>Falco peregrinus</i>	1201
Pied-billed Grebe	<i>Podilymbus podiceps</i>	474
Pine Warbler	<i>Setophaga pinus</i>	11.9
Piping Plover	<i>Charadrius melodus</i>	55.2
Pomarine Jaeger	<i>Stercorarius pomarinus</i>	740
Prairie Warbler	<i>Setophaga discolor</i>	8
Prothonotary Warbler	<i>Protonotaria citrea</i>	14.3
Purple-throated Carib	<i>Eulampis jugularis</i>	9.3
Red Knot	<i>Calidris canutus</i>	148
Red-billed Tropicbird	<i>Phaethon aethereus</i>	750
Red-cheeked Cordonbleu	<i>Uraeginthus bengalus</i>	9.9
Red-eyed Vireo	<i>Vireo olivaceus</i>	16.8
Red-footed Booby	<i>Sula sula</i>	1223
Red-legged Thrush	<i>Turdus plumbeus</i>	77.9
Ring-billed Gull	<i>Larus delawarensis</i>	566
Ringed Kingfisher	<i>Megaceryle torquata</i>	317
Ring-necked Duck	<i>Aythya collaris</i>	730
Rock Pigeon	<i>Columba livia</i>	369
Roseate Tern	<i>Sterna dougallii</i>	112
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	42
Royal Tern	<i>Thalasseus maximus</i>	367
Ruddy Quail-Dove	<i>Geotrygon montana</i>	115
Ruddy Turnstone	<i>Arenaria interpres</i>	138
Ruff	<i>Philomachus pugnax</i>	102
Rufous-throated Solitaire	<i>Myadestes genibarbis</i>	29.2
Sand Martin	<i>Riparia riparia</i>	13.9
Sanderling	<i>Calidris alba</i>	57



<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Scaly-breasted Munia</i>	<i>Lonchura punctulata</i>	13.6
<i>Scaly-breasted Thrasher</i>	<i>Alenia fusca</i>	67.6
<i>Scaly-naped Pigeon</i>	<i>Patagioenas squamosa</i>	312
<i>Scarlet Tanager</i>	<i>Piranga olivacea</i>	28.2
<i>Scopoli's Shearwater</i>	<i>Calonectris diomedea</i>	535
<i>Semipalmated Plover</i>	<i>Charadrius semipalmatus</i>	461
<i>Semipalmated Sandpiper</i>	<i>Calidris pusilla</i>	27.5
<i>Shiny Cowbird</i>	<i>Molothrus bonariensis</i>	40
<i>Short-billed Dowitcher</i>	<i>Limnodromus griseus</i>	117
<i>Smooth-billed Ani</i>	<i>Crotophaga ani</i>	100
<i>Snowy Egret</i>	<i>Egretta thula</i>	371
<i>Snowy Plover</i>	<i>Charadrius nivosus</i>	42.3
<i>Solitary Sandpiper</i>	<i>Tringa solitaria</i>	48.4
<i>Sooty Shearwater</i>	<i>Puffinus griseus</i>	787
<i>Sooty Tern</i>	<i>Onychoprion fuscatus</i>	175
<i>Sora</i>	<i>Porzana carolina</i>	74.8
<i>South Polar Skua</i>	<i>Stercorarius maccormicki</i>	1421
<i>Spotted Sandpiper</i>	<i>Actitis macularius</i>	40.4
<i>St. Lucia Warbler</i>	<i>Setophaga delicata</i>	7.4
<i>Stilt Sandpiper</i>	<i>Calidris himantopus</i>	60.9
<i>Tricolored Heron</i>	<i>Egretta tricolor</i>	415
<i>Tropical Mockingbird</i>	<i>Mimus gilvus</i>	58.4
<i>Upland sandpiper</i>	<i>Bartramia longicauda</i>	164
<i>Village Weaver</i>	<i>Ploceus cucullatus</i>	40.5
<i>West Indian Whistling-Duck</i>	<i>Dendrocygna arborea</i>	1150
<i>Western Cattle Egret</i>	<i>Bubulcus ibis</i>	372
<i>Western Great Egret</i>	<i>Ardea alba</i>	935
<i>Western Sandpiper</i>	<i>Calidris mauri</i>	29.1
<i>Whimbrel</i>	<i>Numenius phaeopus</i>	404
<i>White-breasted Thrasher</i>	<i>Ramphocinclus brachyurus</i>	50
<i>White-cheeked Pintail</i>	<i>Anas bahamensis</i>	535
<i>White-collared Swift</i>	<i>Streptoprocne zonaris</i>	98.1
<i>White-crowned Pigeon</i>	<i>Patagioenas leucocephala</i>	253
<i>White-rumped Sandpiper</i>	<i>Calidris fuscicollis</i>	34.7
<i>White-tailed Nightjar</i>	<i>Hydrosalis cayennensis</i>	35.5
<i>White-tailed Tropicbird</i>	<i>Phaethon lepturus</i>	367

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>White-winged Swallow</i>	<i>Tachycineta albiventer</i>	<i>17.7</i>
<i>Willet</i>	<i>Tringa semipalmata</i>	<i>283</i>
<i>Wilson's Phalarope</i>	<i>Phalaropus tricolor</i>	<i>68.1</i>
<i>Wilson's Plover</i>	<i>Charadrius wilsonia</i>	<i>55.1</i>
<i>Wilson's Snipe</i>	<i>Gallinago delicata</i>	<i>128</i>
<i>Wilson's Storm-Petrel</i>	<i>Oceanites oceanicus</i>	<i>32</i>
<i>Yellow-bellied Elaenia</i>	<i>Elaenia flavogaster</i>	<i>24.8</i>
<i>Yellow-billed Cuckoo</i>	<i>Coccyzus americanus</i>	<i>64</i>
<i>Yellow-crowned Night-Heron</i>	<i>Nyctanassa violacea</i>	<i>716</i>
<i>Yellow-eyed Thrush</i>	<i>Turdus nudigenis</i>	<i>63.9</i>
<i>Yellow-rumped Warbler</i>	<i>Setophaga coronata</i>	<i>12.2</i>
<i>Zenaida Dove</i>	<i>Zenaida aurita</i>	<i>156</i>

## Body mass of birds of New Caledonia

Common name	Scientific name	Body mass (g)
<i>Auckland Islands Teal</i>	<i>Anas aucklandica</i>	521
<i>Australasian Bittern</i>	<i>Botaurus poiciloptilus</i>	1353
<i>Australasian Gannet</i>	<i>Morus serrator</i>	2350
<i>Australasian Grass-Owl</i>	<i>Tyto longimembris</i>	450
<i>Australasian Grebe</i>	<i>Tachybaptus novaehollandiae</i>	219
<i>Australasian Shoveler</i>	<i>Anas rhynchotis</i>	667
<i>Australian Fairy Tern</i>	<i>Sternula nereis</i>	72.3
<i>Australian Kestrel</i>	<i>Falco cenchroides</i>	182
<i>Australian Owlet-nightjar</i>	<i>Aegotheles cristatus</i>	44
<i>Australian Pelican</i>	<i>Pelecanus conspicillatus</i>	5505
<i>Australian Pratincole</i>	<i>Stiltia isabella</i>	65.5
<i>Baillon's Crake</i>	<i>Porzana pusilla</i>	35.4
<i>Band-rumped Storm-Petrel</i>	<i>Oceanodroma castro</i>	49.2
<i>Barred Honeyeater</i>	<i>Glyciphila undulata</i>	16
<i>Bar-tailed Godwit</i>	<i>Limosa lapponica</i>	332
<i>Beach Thick-knee</i>	<i>Esacus magnirostris</i>	1032
<i>Black Kite</i>	<i>Milvus migrans</i>	567
<i>Black Noddy</i>	<i>Anous minutus</i>	116
<i>Black-backed Bittern</i>	<i>Ixobrychus dubius</i>	NA
<i>Black-bellied Plover</i>	<i>Pluvialis squatarola</i>	250
<i>Black-browed Albatross</i>	<i>Thalassarche melanophris</i>	3922
<i>Black-faced Cuckooshrike</i>	<i>Coracina novaehollandiae</i>	118
<i>Black-naped Tern</i>	<i>Sterna sumatrana</i>	106
<i>Black-winged Petrel</i>	<i>Pterodroma nigripennis</i>	163
<i>Blue-faced Parrotfinch</i>	<i>Erythrura trichroa</i>	14.8
<i>Bonin Petrel</i>	<i>Pterodroma hypoleuca</i>	176
<i>Bridled Tern</i>	<i>Onychoprion anaethetus</i>	95.6
<i>Brown Booby</i>	<i>Sula leucogaster</i>	1525
<i>Brown Goshawk</i>	<i>Accipiter fasciatus</i>	592
<i>Brown Noddy</i>	<i>Anous stolidus</i>	178
<i>Brown Skua</i>	<i>Stercorarius antarcticus</i>	1935
<i>Brown Teal</i>	<i>Anas chlorotis</i>	582
<i>Buff-banded Rail</i>	<i>Gallirallus philippensis</i>	180
<i>Buller's Albatross</i>	<i>Thalassarche bulleri</i>	2840
<i>Buller's shearwater</i>	<i>Puffinus bulleri</i>	407
<i>Canada Goose</i>	<i>Branta canadensis</i>	4858

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Cape Petrel</i>	<i>Daption capense</i>	452
<i>Cardinal Myzomela</i>	<i>Myzomela cardinalis</i>	15.4
<i>Channel-billed Cuckoo</i>	<i>Scythrops novaehollandiae</i>	684
<i>Chestnut-breasted Munia</i>	<i>Lonchura castaneothorax</i>	13.6
<i>Cloven-feathered Dove</i>	<i>Drepanoptila holosericea</i>	215
<i>Coconut Lorikeet</i>	<i>Trichoglossus moluccanus</i>	135
<i>Collared Petrel</i>	<i>Pterodroma brevipes</i>	70
<i>Common Greenshank</i>	<i>Tringa nebularia</i>	187
<i>Common Myna</i>	<i>Acridotheres tristis</i>	127
<i>Common Sandpiper</i>	<i>Actitis hypoleucos</i>	48
<i>Common Waxbill</i>	<i>Estrilda astrild</i>	8.8
<i>Cook's Petrel</i>	<i>Pterodroma cookii</i>	193
<i>Crow Honeyeater</i>	<i>Gymnomyza aubryana</i>	244
<i>Curlew Sandpiper</i>	<i>Calidris ferruginea</i>	59.6
<i>Dark-brown Honeyeater</i>	<i>Lichmera incana</i>	13.1
<i>Double-banded Plover</i>	<i>Charadrius bicinctus</i>	59.4
<i>Dusky Moorhen</i>	<i>Gallinula tenebrosa</i>	570
<i>Dusky Woodswallow</i>	<i>Artamus cyanopterus</i>	34.6
<i>Eastern Barn Owl</i>	<i>Tyto delicatula</i>	NA
<i>Eastern Cattle Egret</i>	<i>Bubulcus coromandus</i>	NA
<i>Eastern Osprey</i>	<i>Pandion cristatus</i>	1905
<i>European Starling</i>	<i>Sturnus vulgaris</i>	87.6
<i>Fan-tailed Cuckoo</i>	<i>Cacomantis flabelliformis</i>	49.8
<i>Fan-tailed Gerygone</i>	<i>Gerygone flavolateralis</i>	6.3
<i>Far Eastern Curlew</i>	<i>Numenius madagascariensis</i>	792
<i>Flesh-footed Shearwater</i>	<i>Puffinus carneipes</i>	609
<i>Fluttering shearwater</i>	<i>Puffinus gavia</i>	237
<i>Glossy Ibis</i>	<i>Plegadis falcinellus</i>	662
<i>Glossy Swiftlet</i>	<i>Collocalia esculenta</i>	8
<i>Golden Whistler</i>	<i>Pachycephala pectoralis</i>	32.7
<i>Gould's Petrel</i>	<i>Pterodroma leucoptera</i>	159
<i>Gray Fantail</i>	<i>Rhipidura albiscapa</i>	NA
<i>Gray Noddy</i>	<i>Procelsterna albivitta</i>	72.2
<i>Gray Teal</i>	<i>Anas gracilis</i>	525
<i>Gray-tailed Tattler</i>	<i>Tringa brevipes</i>	127
<i>Great Cormorant</i>	<i>Phalacrocorax carbo</i>	3240

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Great Crested Tern</i>	<i>Thalasseus bergii</i>	328
<i>Great Frigatebird</i>	<i>Fregata minor</i>	1662
<i>Great Knot</i>	<i>Calidris tenuirostris</i>	192
<i>Greater Sand-Plover</i>	<i>Charadrius leschenaultii</i>	74.8
<i>Green-backed White-eye</i>	<i>Zosterops xanthochroa</i>	10.3
<i>Grey Petrel</i>	<i>Procellaria cinerea</i>	1131
<i>Hardhead</i>	<i>Aythya australis</i>	902
<i>Herald Petrel</i>	<i>Pterodroma heraldica</i>	266
<i>Horned Parakeet</i>	<i>Eunymphicus cornutus</i>	130
<i>House Sparrow</i>	<i>Passer domesticus</i>	28
<i>Indian Peafowl</i>	<i>Pavo cristatus</i>	4766
<i>Island Thrush</i>	<i>Turdus poliocephalus</i>	61.7
<i>Kagu</i>	<i>Rhynchotus jubatus</i>	860
<i>Large Lifou White-eye</i>	<i>Zosterops inornatus</i>	NA
<i>Lesser Frigatebird</i>	<i>Fregata ariel</i>	858
<i>Lesser Sand-Plover</i>	<i>Charadrius mongolus</i>	64
<i>Light-mantled Albatross</i>	<i>Phoebastria palpebrata</i>	3150
<i>Little Bittern</i>	<i>Ixobrychus minutus</i>	118
<i>Little Black Cormorant</i>	<i>Phalacrocorax sulcirostris</i>	1100
<i>Little Curlew</i>	<i>Numenius minutus</i>	173
<i>Little Pied Cormorant</i>	<i>Microcarbo melanoleucos</i>	822
<i>Little Shearwater</i>	<i>Puffinus assimilis</i>	226
<i>Little Tern</i>	<i>Sternula albifrons</i>	57
<i>Long-tailed Jaeger</i>	<i>Stercorarius longicaudus</i>	307
<i>Long-tailed Koel</i>	<i>Urodynamis taitensis</i>	117
<i>Long-tailed Triller</i>	<i>Lalage leucopyga</i>	24.3
<i>Mallard</i>	<i>Anas platyrhynchos</i>	1082
<i>Marsh Sandpiper</i>	<i>Tringa stagnatilis</i>	77.5
<i>Masked Booby</i>	<i>Sula dactylatra</i>	2095
<i>Masked Lapwing</i>	<i>Vanellus miles</i>	387
<i>Melanesian Flycatcher</i>	<i>Myiagra caledonica</i>	10.8
<i>Metallic Pigeon</i>	<i>Columba vitiensis</i>	353
<i>Mottled Petrel</i>	<i>Pterodroma inexpectata</i>	316
<i>New Caledonia Goshawk</i>	<i>Accipiter haplochrous</i>	254
<i>New Caledonian Crow</i>	<i>Corvus moneduloides</i>	309
<i>New Caledonian Cuckooshrike</i>	<i>Coracina analis</i>	97

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>New Caledonian Friarbird</i>	<i>Philemon diemenensis</i>	74.5
<i>New Caledonian Grassbird</i>	<i>Megalurulus mariei</i>	25
<i>New Caledonian Imperial-Pigeon</i>	<i>Ducula goliath</i>	600
<i>New Caledonian Myzomela</i>	<i>Myzomela caledonica</i>	7.8
<i>New Caledonian Owlet-nightjar</i>	<i>Aegotheles savesi</i>	NA
<i>New Caledonian Parakeet</i>	<i>Cyanoramphus sailseti</i>	NA
<i>New Caledonian Rail</i>	<i>Gallirallus lafresnayanus</i>	NA
<i>New Caledonian Whistler</i>	<i>Pachycephala caledonica</i>	20.9
<i>Northern Giant-Petrel</i>	<i>Macronectes halli</i>	4902
<i>Oriental Plover</i>	<i>Charadrius veredus</i>	95
<i>Ouvea Parakeet</i>	<i>Eunymphicus uvaeensis</i>	NA
<i>Pacific Black Duck</i>	<i>Anas superciliosa</i>	1133
<i>Pacific Emerald Dove</i>	<i>Chalcophaps longirostris</i>	130
<i>Pacific Golden-Plover</i>	<i>Pluvialis fulva</i>	140
<i>Pacific Imperial-Pigeon</i>	<i>Ducula pacifica</i>	395
<i>Pacific Reef-Heron</i>	<i>Egretta sacra</i>	658
<i>Pacific Swallow</i>	<i>Hirundo tahitica</i>	17.8
<i>Painted Buttonquail</i>	<i>Turnix varius</i>	109
<i>Parasitic Jaeger</i>	<i>Stercorarius parasiticus</i>	478
<i>Peregrine Falcon</i>	<i>Falco peregrinus</i>	1201
<i>Pied Heron</i>	<i>Egretta picata</i>	259
<i>Polynesian Storm-Petrel</i>	<i>Nesofregatta fuliginosa</i>	70
<i>Polynesian Triller</i>	<i>Lalage maculosa</i>	30.3
<i>Pomarine Jaeger</i>	<i>Stercorarius pomarinus</i>	740
<i>Providence Petrel</i>	<i>Pterodroma solandri</i>	518
<i>Rainbow Lorikeet</i>	<i>Trichoglossus haematodus</i>	135
<i>Red Junglefowl</i>	<i>Gallus gallus</i>	988
<i>Red Knot</i>	<i>Calidris canutus</i>	148
<i>Red-bellied Fruit-Dove</i>	<i>Ptilinopus greyi</i>	90.5
<i>Red-footed Booby</i>	<i>Sula sula</i>	1223
<i>Red-necked Stint</i>	<i>Calidris ruficollis</i>	27.2
<i>Red-tailed Tropicbird</i>	<i>Phaethon rubricauda</i>	685
<i>Red-throated Parrotfinch</i>	<i>Erythrura psittacea</i>	11.5
<i>Red-vented Bulbul</i>	<i>Pycnonotus cafer</i>	45.8
<i>Ring-necked Pheasant</i>	<i>Phasianus colchicus</i>	1317
<i>Rock Pigeon</i>	<i>Columba livia</i>	369



<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Roseate Tern</i>	<i>Sterna dougallii</i>	112
<i>Royal Albatross</i>	<i>Diomedea epomophora</i>	10300
<i>Royal Spoonbill</i>	<i>Platalea regia</i>	1886
<i>Ruddy Turnstone</i>	<i>Arenaria interpres</i>	138
<i>Rufous Night-Heron</i>	<i>Nycticorax caledonicus</i>	856
<i>Rufous Whistler</i>	<i>Pachycephala rufiventris</i>	20.8
<i>Sacred Kingfisher</i>	<i>Todiramphus sanctus</i>	43.7
<i>Sanderling</i>	<i>Calidris alba</i>	57
<i>Scarlet Myzomela</i>	<i>Myzomela sanguinolenta</i>	8.6
<i>Semipalmated Plover</i>	<i>Charadrius semipalmatus</i>	46.1
<i>Sharp-tailed Sandpiper</i>	<i>Calidris acuminata</i>	74.4
<i>Shining Bronze-Cuckoo</i>	<i>Chrysococcyx lucidus</i>	25.1
<i>Short-tailed Shearwater</i>	<i>Puffinus tenuirostris</i>	559
<i>Silver Gull</i>	<i>Chroicocephalus novaehollandiae</i>	313
<i>Silver-eye</i>	<i>Zosterops lateralis</i>	13.7
<i>Small Lifou White-eye</i>	<i>Zosterops minutus</i>	NA
<i>Sooty shearwater</i>	<i>Puffinus griseus</i>	787
<i>Sooty Tern</i>	<i>Onychoprion fuscatus</i>	175
<i>South Island Oystercatcher</i>	<i>Haematopus finschi</i>	554
<i>South Melanesian Cuckooshrike</i>	<i>Coracina caledonica</i>	140
<i>South Polar Skua</i>	<i>Stercorarius maccormicki</i>	1421
<i>Southern Giant-Petrel</i>	<i>Macronectes giganteus</i>	4940
<i>Southern Shrikebill</i>	<i>Clytorhynchus pachycephaloides</i>	24.8
<i>Spotless Crake</i>	<i>Porzana tabuensis</i>	47.7
<i>Spotted Dove</i>	<i>Spilppelia chinensis</i>	159
<i>Streaked Fantail</i>	<i>Rhipidura verreauxi</i>	12.9
<i>Streaked Shearwater</i>	<i>Calonectris leucomelas</i>	580
<i>Striated Heron</i>	<i>Butorides striata</i>	226
<i>Striated Starling</i>	<i>Aplonis striata</i>	54.2
<i>Sunda Teal</i>	<i>Anas gibberifrons</i>	508
<i>Swamp Harrier</i>	<i>Circus approximans</i>	870
<i>Western Swampphen</i>	<i>Porphyrio porphyrio</i>	1091
<i>Tahiti Petrel</i>	<i>Pseudobulweria rostrata</i>	409
<i>Terek Sandpiper</i>	<i>Xenus cinereus</i>	78.8
<i>The wedge-tailed shearwater</i>	<i>Puffinus pacificus</i>	388
<i>Tree Martin</i>	<i>Petrochelidon nigricans</i>	15.4

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Trindade Petrel</i>	<i>Pterodroma arminjoniana</i>	394
<i>Tropical Shearwater</i>	<i>Puffinus bailloni</i>	220
<i>Uniform Swiftlet</i>	<i>Aerodramus vanikorensis</i>	10.7
<i>Wandering Albatross</i>	<i>Diomedea exulans</i>	9110
<i>Wandering Tattler</i>	<i>Tringa incana</i>	116
<i>Wandering Whistling-Duck</i>	<i>Dendrocygna arcuata</i>	866
<i>Welcome Swallow</i>	<i>Hirundo neoxena</i>	14.7
<i>Whimbrel</i>	<i>Numenius phaeopus</i>	404
<i>Whiskered Tern</i>	<i>Chlidonias hybrida</i>	90
<i>Whistling Kite</i>	<i>Haliastur sphenurus</i>	753
<i>White Tern</i>	<i>Gygis alba</i>	111
<i>White-bellied Sea-Eagle</i>	<i>Haliaeetus leucogaster</i>	3330
<i>White-bellied Storm-Petrel</i>	<i>Fregetta grallaria</i>	64
<i>White-breasted Woodswallow</i>	<i>Artamus leucorhynchus</i>	42.4
<i>White-browed Crake</i>	<i>Porzana cinerea</i>	52.1
<i>White-faced Heron</i>	<i>Egretta novaehollandiae</i>	599
<i>White-faced Storm-Petrel</i>	<i>Pelagodroma marina</i>	47.2
<i>White-necked Petrel</i>	<i>Pterodroma cervicalis</i>	445
<i>White-rumped swiftlet</i>	<i>Aerodramus spodiopygius</i>	6.8
<i>White-rumped Triller</i>	<i>Lalage leucopygialis</i>	NA
<i>White-tailed Tropicbird</i>	<i>Phaethon lepturus</i>	367
<i>White-throated Needletail</i>	<i>Hirundapus caudacutus</i>	95.5
<i>White-throated Nightjar</i>	<i>Eurostopodus mystacalis</i>	174
<i>White-winged Tern</i>	<i>Chlidonias leucopterus</i>	54.2
<i>Wild Turkey</i>	<i>Meleagris gallopavo</i>	7800
<i>Wilson's Storm-Petrel</i>	<i>Oceanites oceanicus</i>	32
<i>Yellow-bellied Flyrobin</i>	<i>Microeca flaviventris</i>	13
<i>Zebra Dove</i>	<i>Geopelia striata</i>	56.6

## Body mass of birds of Guiana

Common name	Scientific name	Body mass (g)
<i>Agami Heron</i>	<i>Agamia agami</i>	567
<i>Alpine Swift</i>	<i>Tachymarptis melba</i>	104
<i>Amazon Kingfisher</i>	<i>Chloroceryle amazona</i>	132
<i>Amazonian Antshrike</i>	<i>Thamnophilus amazonicus</i>	19.4
<i>Amazonian Barred-Woodcreeper</i>	<i>Dendrocolaptes certhia</i>	68.7
<i>Amazonian Motmot</i>	<i>Momotus momota</i>	133
<i>Amazonian Pygmy-Owl</i>	<i>Glaucidium hardyi</i>	58.3
<i>Amazonian Royal Flycatcher</i>	<i>Onychorhynchus coronatus</i>	14
<i>American Flamingo</i>	<i>Phoenicopterus ruber</i>	3100
<i>American Golden-Plover</i>	<i>Pluvialis dominica</i>	154
<i>American Herring Gull</i>	<i>Larus smithsonianus</i>	NA
<i>American Pygmy Kingfisher</i>	<i>Chloroceryle aenea</i>	14.9
<i>American Redstart</i>	<i>Setophaga ruticilla</i>	8.4
<i>American Wigeon</i>	<i>Anas americana</i>	792
<i>American Yellow Warbler</i>	<i>Setophaga petechia</i>	12.4
<i>American Yellow Warbler (aestiva)</i>	<i>Setophaga aestiva</i>	NA
<i>Amethyst Woodstar</i>	<i>Calliphlox amethystina</i>	2.8
<i>Anhinga</i>	<i>Anhinga anhinga</i>	1235
<i>Aplomado Falcon</i>	<i>Falco femoralis</i>	416
<i>Ash-throated Crane</i>	<i>Porzana albicollis</i>	100
<i>Ash-winged Antwren</i>	<i>Terenura spodioptila</i>	6.5
<i>Ashy-headed Greenlet</i>	<i>Hylophilus pectoralis</i>	11.6
<i>Audubon's Shearwater</i>	<i>Puffinus lherminieri</i>	168
<i>Azure Gallinule</i>	<i>Porphyrio flavirostris</i>	93.3
<i>Baltimore Oriole</i>	<i>Icterus galbula</i>	33.9
<i>Bananaquit</i>	<i>Coereba flaveola</i>	10.8
<i>Band-rumped Swift</i>	<i>Chaetura spinicaudus</i>	15.2
<i>Band-tailed Antshrike</i>	<i>Thamnophilus melanothorax</i>	31.8
<i>Band-tailed Nighthawk</i>	<i>Nyctiprogne leucopyga</i>	27.3
<i>Bank Swallow</i>	<i>Riparia riparia</i>	13.9
<i>Bare-necked Fruitcrow</i>	<i>Gymnoderus foetidus</i>	345
<i>Barn Owl</i>	<i>Tyto alba</i>	612
<i>Barn Swallow</i>	<i>Hirundo rustica</i>	18.1
<i>Barred Antshrike</i>	<i>Thamnophilus doliatus</i>	27.9
<i>Barred Forest-Falcon</i>	<i>Micrastur ruficollis</i>	196
<i>Bar-tailed Godwit</i>	<i>Limosa lapponica</i>	332

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Bat Falcon</i>	<i>Falco rufigularis</i>	206
<i>Bay-headed Tanager</i>	<i>Tangara gyrola</i>	21
<i>Bearded Tachuri</i>	<i>Polystictus pectoralis</i>	6.2
<i>Belted Kingfisher</i>	<i>Megaceryle alcyon</i>	148
<i>Bicolored Conebill</i>	<i>Conirostrum bicolor</i>	10.5
<i>Bicolored Hawk</i>	<i>Accipiter bicolor</i>	390
<i>Black Caracara</i>	<i>Daptrius ater</i>	365
<i>Black Curassow</i>	<i>Crax alector</i>	3300
<i>Black Hawk-Eagle</i>	<i>Spizaetus tyrannus</i>	1122
<i>Black Manakin</i>	<i>Xenopipo atronitens</i>	16
<i>Black Nunbird</i>	<i>Monasa atra</i>	90.4
<i>Black Skimmer</i>	<i>Rynchops niger</i>	349
<i>Black Tern</i>	<i>Chlidonias niger</i>	65.3
<i>Black Vulture</i>	<i>Coragyps atratus</i>	2159
<i>Black-and-white Hawk-Eagle</i>	<i>Spizaetus melanoleucus</i>	850
<i>Black-banded Owl</i>	<i>Strix huhula</i>	370
<i>Black-banded Woodcreeper</i>	<i>Dendrocolaptes picumnus</i>	92.7
<i>Black-bellied Cuckoo</i>	<i>Piaya melanogaster</i>	109
<i>Black-bellied Plover</i>	<i>Pluvialis squatarola</i>	250
<i>Black-bellied Whistling-Duck</i>	<i>Dendrocygna autumnalis</i>	796
<i>Black-capped Becard</i>	<i>Pachyramphus marginatus</i>	19.8
<i>Black-capped Donacobius</i>	<i>Donacobius atricapilla</i>	36.8
<i>Black-chinned Antbird</i>	<i>Hypocnemoides melanopogon</i>	14.1
<i>Black-collared Hawk</i>	<i>Busarellus nigricollis</i>	956
<i>Black-collared Swallow</i>	<i>Atticora melanoleuca</i>	10.8
<i>Black-crested Antshrike</i>	<i>Sakesphorus canadensis</i>	24.4
<i>Black-crowned Night-Heron</i>	<i>Nycticorax nycticorax</i>	810
<i>Black-crowned Tityra</i>	<i>Tityra inquisitor</i>	43.1
<i>Black-eared Fairy</i>	<i>Heliothryx auritus</i>	5.4
<i>Black-faced Antthrush</i>	<i>Formicarius analis</i>	62.2
<i>Black-faced Dacnis</i>	<i>Dacnis lineata</i>	11
<i>Black-faced Hawk</i>	<i>Leucopternis melanops</i>	341.5
<i>Black-faced Tanager</i>	<i>Schistochlamys melanopsis</i>	33
<i>Black-headed Antbird</i>	<i>Pernostola rufifrons</i>	26.2
<i>Black-headed Gull</i>	<i>Chroicocephalus ridibundus</i>	284
<i>Black-headed Parrot</i>	<i>Pionites melanocephalus</i>	157

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Blackish Antbird</i>	<i>Cercomacra nigrescens</i>	16.5
<i>Blackish Nightjar</i>	<i>Nyctipolus nigrescens</i>	35.7
<i>Blackish-gray Antshrike</i>	<i>Thamnophilus nigrocinereus</i>	30
<i>Black-legged Kittiwake</i>	<i>Rissa tridactyla</i>	421
<i>Black-necked Aracari</i>	<i>Pteroglossus aracari</i>	269
<i>Black-necked Stilt</i>	<i>Himantopus mexicanus</i>	170
<i>Blackpoll Warbler</i>	<i>Setophaga striata</i>	12.3
<i>Black-spotted Barbet</i>	<i>Capito niger</i>	55.2
<i>Black-tailed Leaf-tosser</i>	<i>Sclerurus caudacutus</i>	35.3
<i>Black-tailed Tityra</i>	<i>Tityra cayana</i>	68.1
<i>Black-tailed Trogon</i>	<i>Trogon melanurus</i>	114
<i>Black-throated Antbird</i>	<i>Myrmeciza atrothorax</i>	16.1
<i>Black-throated Antshrike</i>	<i>Frederickena viridis</i>	76
<i>Black-throated Mango</i>	<i>Anthracothorax nigricollis</i>	7
<i>Black-throated Trogon</i>	<i>Trogon rufus</i>	53.8
<i>Black-whiskered Vireo</i>	<i>Vireo altiloquus</i>	17.9
<i>Blue Dacnis</i>	<i>Dacnis cayana</i>	13
<i>Blue-and-white Swallow</i>	<i>Notiochelidon cyanoleuca</i>	9.7
<i>Blue-and-yellow Macaw</i>	<i>Ara ararauna</i>	1125
<i>Blue-backed Manakin</i>	<i>Chiroxiphia pareola</i>	17.4
<i>Blue-backed Tanager</i>	<i>Cyanicterus cyanicterus</i>	34
<i>Blue-black Grassquit</i>	<i>Volatinia jacarina</i>	9.7
<i>Blue-black Grosbeak</i>	<i>Cyanocompsa cyanooides</i>	32.5
<i>Blue-cheeked Parrot</i>	<i>Amazona dufresniana</i>	623
<i>Blue-chinned Sapphire</i>	<i>Chlorestes notata</i>	4.2
<i>Blue-gray Tanager</i>	<i>Thraupis episcopus</i>	35
<i>Blue-headed Parrot</i>	<i>Pionus menstruus</i>	251
<i>Blue-tailed Emerald</i>	<i>Chlorostilbon mellisugus</i>	2.8
<i>Blue-throated Piping-Guan</i>	<i>Pipile cumanensis</i>	1325
<i>Blue-winged Teal</i>	<i>Anas discors</i>	380
<i>Boat-billed Flycatcher</i>	<i>Megarynchus pitangua</i>	77
<i>Boat-billed Heron</i>	<i>Cochlearius cochlearius</i>	693
<i>Boat-billed Tody-Tyrant</i>	<i>Hemitriccus josephinae</i>	10.8
<i>Bobolink</i>	<i>Dolichonyx oryzivorus</i>	33.9
<i>Bran-colored Flycatcher</i>	<i>Myiophobus fasciatus</i>	9.9
<i>Bright-rumped Attila</i>	<i>Attila spadiceus</i>	39.1

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Broad-winged Hawk</i>	<i>Buteo platypterus</i>	490
<i>Bronzy Jacamar</i>	<i>Galbula leucogastra</i>	15.9
<i>Brown Booby</i>	<i>Sula leucogaster</i>	1525
<i>Brown Jacamar</i>	<i>Brachygalba lugubris</i>	15.9
<i>Brown Noddy</i>	<i>Anous stolidus</i>	178
<i>Brown Pelican</i>	<i>Pelecanus occidentalis</i>	3702
<i>Brown Violetear</i>	<i>Colibri delphinae</i>	6.4
<i>Brown-bellied Antwren</i>	<i>Epinecrophylla gutturalis</i>	9.2
<i>Brown-chested Martin</i>	<i>Progne tapera</i>	32
<i>Brown-crested Flycatcher</i>	<i>Myiarchus tyrannulus</i>	43.8
<i>Brown-throated Parakeet</i>	<i>Eupsittula pertinax</i>	84
<i>Brown-winged Schiffornis</i>	<i>Schiffornis turdina</i>	31.7
<i>Buff-breasted Sandpiper</i>	<i>Tryngites subruficollis</i>	68.5
<i>Buff-breasted Wren</i>	<i>Cantorchilus leucotis</i>	21
<i>Buff-cheeked Greenlet</i>	<i>Hylophilus muscicapinus</i>	11.7
<i>Buff-throated Foliage-gleaner</i>	<i>Automolus ochrolaemus</i>	40.2
<i>Buff-throated Saltator</i>	<i>Saltator maximus</i>	49.1
<i>Buff-throated Woodcreeper</i>	<i>Xiphorhynchus guttatus</i>	58.8
<i>Burnished-buff Tanager</i>	<i>Tangara cayana</i>	18
<i>Burrowing Owl</i>	<i>Athene cunicularia</i>	156
<i>Cabot's Tern</i>	<i>Thalasseus acuflavidus</i>	NA
<i>Caica Parrot</i>	<i>Pyrilia caica</i>	132
<i>Capped Heron</i>	<i>Pilherodius pileatus</i>	610
<i>Capuchinbird</i>	<i>Perissocephalus tricolor</i>	360
<i>Carib Grackle</i>	<i>Quiscalus lugubris</i>	72.5
<i>Caribbean Martin</i>	<i>Progne dominicensis</i>	39.6
<i>Cattle Egret</i>	<i>Bubulcus ibis</i>	372
<i>Cayenne Jay</i>	<i>Cyanocorax cayanus</i>	175
<i>Cayenne Nightjar</i>	<i>Setopagis maculosa</i>	NA
<i>Channel-billed Toucan</i>	<i>Ramphastos vitellinus</i>	363
<i>Chapman's Swift</i>	<i>Chaetura chapmani</i>	24.7
<i>Chestnut Woodpecker</i>	<i>Celeus elegans</i>	117
<i>Chestnut-bellied Seedeater</i>	<i>Sporophila castaneiventris</i>	7.8
<i>Chestnut-bellied Seed-Finch</i>	<i>Oryzoborus angolensis</i>	13
<i>Chestnut-belted Gnatcatcher</i>	<i>Conopophaga aurita</i>	25.5
<i>Chestnut-fronted Macaw</i>	<i>Ara severus</i>	343



<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Chestnut-rumped Woodcreeper</i>	<i>Xiphorhynchus pardalotus</i>	37
<i>Chestnut-vented Conebill</i>	<i>Conirostrum speciosum</i>	8.8
<i>Cinereous Antshrike</i>	<i>Thamnomanes caesi</i>	15.7
<i>Cinereous Becard</i>	<i>Pachyramphus rufus</i>	18.8
<i>Cinereous Mourner</i>	<i>Laniocera hypopyrra</i>	51
<i>Cinereous Tinamou</i>	<i>Crypturellus cinereus</i>	558
<i>Cinnamon Attila</i>	<i>Attila cinnamomeus</i>	38.8
<i>Cinnamon Manakin-Tyrant</i>	<i>Neopipo cinnamomea</i>	7.7
<i>Cinnamon-crested Spadebill</i>	<i>Platyrinchus saturatus</i>	10.7
<i>Cinnamon-rumped Foliage-gleaner</i>	<i>Philydor pyrrhodes</i>	30.5
<i>Cinnamon-throated Woodcreeper</i>	<i>Dendrexetastes rufigula</i>	69.6
<i>Cliff Flycatcher</i>	<i>Hirundinea ferruginea</i>	30.6
<i>Cocoa Thrush</i>	<i>Turdus fumigatus</i>	80.5
<i>Cocoi Heron</i>	<i>Ardea cocoi</i>	3200
<i>Collared Forest-Falcon</i>	<i>Micrastur semitorquatus</i>	739
<i>Collared Gnatwren</i>	<i>Microbates collaris</i>	10.2
<i>Collared Plover</i>	<i>Charadrius collaris</i>	28.3
<i>Collared Puffbird</i>	<i>Bucco capensis</i>	54
<i>Collared Trogon</i>	<i>Trogon collaris</i>	64.2
<i>Comb Duck</i>	<i>Sarkidiornis sylvicola</i>	2610
<i>Common Gallinule</i>	<i>Gallinula galeata</i>	NA
<i>Common Ground-Dove</i>	<i>Columbina passerina</i>	35.4
<i>Common Pauraque</i>	<i>Nyctidromus albicollis</i>	53.2
<i>Common Potoo</i>	<i>Nyctibius griseus</i>	185
<i>Common Scale-backed Antbird</i>	<i>Willisornis poecilinotus</i>	17
<i>Common Tern</i>	<i>Sterna hirundo</i>	120
<i>Common Tody-Flycatcher</i>	<i>Todirostrum cinereum</i>	6.4
<i>Coraya Wren</i>	<i>Pheugopedius coraya</i>	17.2
<i>Cory's Shearwater</i>	<i>Calonectris diomedea</i>	535
<i>Crane Hawk</i>	<i>Geranospiza caerulescens</i>	328
<i>Cream-colored Woodpecker</i>	<i>Celeus flavus</i>	201
<i>Crested Bobwhite</i>	<i>Colinus cristatus</i>	138
<i>Crested Caracara</i>	<i>Caracara cheriway</i>	1220
<i>Crested Eagle</i>	<i>Morphnus guianensis</i>	1750
<i>Crested Oropendola</i>	<i>Psarocolius decumanus</i>	280
<i>Crested Owl</i>	<i>Lophotrix cristata</i>	620

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Crimson Fruitcrow</i>	<i>Haematoderus militaris</i>	227
<i>Crimson Topaz</i>	<i>Topaza pella</i>	13.6
<i>Crimson-crested Woodpecker</i>	<i>Campephilus melanoleucos</i>	256
<i>Crimson-hooded Manakin</i>	<i>Pipra aureola</i>	16.5
<i>Curve-billed Scythebill</i>	<i>Campylorhamphus procurvoides</i>	33.5
<i>Dark-billed Cuckoo</i>	<i>Coccyzus melacoryphus</i>	54.2
<i>Dotted Tanager</i>	<i>Tangara varia</i>	10
<i>Dot-winged Antwren</i>	<i>Microrhopias quixensis</i>	7.9
<i>Double-banded Pygmy-Tyrant</i>	<i>Lophotriccus vitiensis</i>	6.7
<i>Double-toothed Kite</i>	<i>Harpagus bidentatus</i>	256
<i>Dusky Antbird</i>	<i>Cercomacra tyrannina</i>	16.3
<i>Dusky Parrot</i>	<i>Pionus fuscus</i>	206
<i>Dusky Purpletuft</i>	<i>Iodopleura fusca</i>	15.3
<i>Dusky-billed Parrotlet</i>	<i>Forpus modestus</i>	27.2
<i>Dusky-capped Flycatcher</i>	<i>Myiarchus tuberculifer</i>	20.1
<i>Dusky-chested Flycatcher</i>	<i>Myiozetetes luteiventris</i>	19
<i>Dusky-throated Antshrike</i>	<i>Thamnomanes ardesiacus</i>	17.7
<i>Eared Dove</i>	<i>Zenaida auriculata</i>	136
<i>Eastern Kingbird</i>	<i>Tyrannus tyrannus</i>	42.8
<i>Eastern Meadowlark</i>	<i>Sturnella magna</i>	112
<i>Epaulet Oriole</i>	<i>Icterus cayanensis</i>	29.7
<i>Euler's Flycatcher</i>	<i>Lathrotriccus euleri</i>	12
<i>Eurasian Kestrel</i>	<i>Falco tinnunculus</i>	201
<i>Fasciated Antshrike</i>	<i>Cymbilaimus lineatus</i>	35.8
<i>Fasciated Tiger-Heron</i>	<i>Tigrisoma fasciatum</i>	850
<i>Ferruginous-backed Antbird</i>	<i>Myrmeciza ferruginea</i>	26.1
<i>Fiery-tailed Aowlbill</i>	<i>Avocettula recurvirostris</i>	4.2
<i>Finsch's Euphonia</i>	<i>Euphonia finschi</i>	10.5
<i>Flame-crested Tanager</i>	<i>Tachyphonus cristatus</i>	18.8
<i>Forest Elaenia</i>	<i>Myiopagis gaimardii</i>	12.6
<i>Fork-tailed Flycatcher</i>	<i>Tyrannus savana</i>	31.9
<i>Fork-tailed Palm-Swift</i>	<i>Tachornis squamata</i>	10.3
<i>Fork-tailed Woodnymph</i>	<i>Thalurania furcata</i>	4.4
<i>Fulvous Shrike-Tanager</i>	<i>Lanio fulvus</i>	24
<i>Fulvous-crested Tanager</i>	<i>Tachyphonus surinamus</i>	19
<i>Fuscous Flycatcher</i>	<i>Cnemotriccus fuscatus</i>	13.6

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Giant Cowbird</i>	<i>Molothrus oryzivorus</i>	212
<i>Giant Snipe</i>	<i>Gallinago undulata</i>	332
<i>Glittering-throated Emerald</i>	<i>Amazilia fimbriata</i>	4.9
<i>Glossy-backed Becard</i>	<i>Pachyramphus surinamus</i>	20.9
<i>Golden-bellied Euphonia</i>	<i>Euphonia chrysopasta</i>	14
<i>Golden-collared Woodpecker</i>	<i>Veniliornis cassini</i>	34.6
<i>Golden-crowned Spadebill</i>	<i>Platyrinchus coronatus</i>	9.4
<i>Golden-green Woodpecker</i>	<i>Piculus chrysochloros</i>	88
<i>Golden-headed Manakin</i>	<i>Dixiphia erythrocephala</i>	14.1
<i>Golden-rumped Euphonia</i>	<i>Euphonia cyanocephala</i>	14
<i>Golden-sided Euphonia</i>	<i>Euphonia cayennensis</i>	14.3
<i>Golden-spangled Piculet</i>	<i>Picumnus exilis</i>	9.3
<i>Golden-winged Parakeet</i>	<i>Brotogeris chrysoptera</i>	54.5
<i>Grassland Sparrow</i>	<i>Ammodramus humeralis</i>	16.5
<i>Gray Antbird</i>	<i>Cercomacra cinerascens</i>	14.3
<i>Gray Antwren</i>	<i>Myrmotherula menetriesii</i>	8.6
<i>Gray Elaenia</i>	<i>Myiopagis caniceps</i>	10.5
<i>Gray Kingbird</i>	<i>Tyrannus dominicensis</i>	46.5
<i>Gray-bellied Hawk</i>	<i>Accipiter poliogaster</i>	NA
<i>Gray-breasted Crake</i>	<i>Laterallus exilis</i>	34.7
<i>Gray-breasted Martin</i>	<i>Progne chalybea</i>	42.9
<i>Gray-breasted Sabrewing</i>	<i>Campylopterus largipennis</i>	8.3
<i>Gray-chested Greenlet</i>	<i>Hylophilus semicinereus</i>	13
<i>Gray-cowled Wood-Rail</i>	<i>Aramides cajaneus</i>	397
<i>Gray-fronted Dove</i>	<i>Leptotila rufaxilla</i>	157
<i>Gray-headed Kite</i>	<i>Leptodon cayanensis</i>	474
<i>Gray-hooded Gull</i>	<i>Chroicocephalus cirrocephalus</i>	312
<i>Grayish Saltator</i>	<i>Saltator coerulescens</i>	54.9
<i>Gray-lined Hawk</i>	<i>Buteo nitidus</i>	628
<i>Gray-winged Trumpeter</i>	<i>Psophia crepitans</i>	1026
<i>Great Antshrike</i>	<i>Taraba major</i>	59.2
<i>Great Black Hawk</i>	<i>Buteogallus urubitinga</i>	1248
<i>Great Egret</i>	<i>Ardea alba</i>	935
<i>Great Horned Owl</i>	<i>Bubo virginianus</i>	1555
<i>Great Jacamar</i>	<i>Jacamerops aureus</i>	62.9
<i>Great Kiskadee</i>	<i>Pitangus sulphuratus</i>	61

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Great Potoo</i>	<i>Nyctibius grandis</i>	547
<i>Great Shearwater</i>	<i>Puffinus gravis</i>	849
<i>Great Skua</i>	<i>Stercorarius skua</i>	1409
<i>Great Tinamou</i>	<i>Tinamus major</i>	1097
<i>Great-billed Hermit</i>	<i>Phaethornis malaris</i>	5.9
<i>Greater Ani</i>	<i>Crotophaga major</i>	157
<i>Greater Yellow-headed Vulture</i>	<i>Cathartes melambrotus</i>	1373
<i>Greater Yellowlegs</i>	<i>Tringa melanoleuca</i>	153
<i>Green Aracari</i>	<i>Pteroglossus viridis</i>	135
<i>Green Honeycreeper</i>	<i>Chlorophanes spiza</i>	19
<i>Green Ibis</i>	<i>Mesembrinibis cayennensis</i>	756
<i>Green Kingfisher</i>	<i>Chloroceryle americana</i>	37.5
<i>Green Oropendola</i>	<i>Psarocolius viridis</i>	383
<i>Green-and-rufous Kingfisher</i>	<i>Chloroceryle inda</i>	52.1
<i>Green-backed Trogon</i>	<i>Trogon viridis</i>	89.7
<i>Green-rumped Parrotlet</i>	<i>Forpus passerinus</i>	23
<i>Green-tailed Goldenthrout</i>	<i>Polytmus theresiae</i>	3.8
<i>Green-tailed Jacamar</i>	<i>Galbula galbula</i>	23
<i>Green-throated Mango</i>	<i>Anthracothorax viridigula</i>	7.5
<i>Green-winged Teal</i>	<i>Anas carolinensis</i>	392
<i>Grey-crowned Flatbill</i>	<i>Tolmomyias poliocephalus</i>	10.8
<i>Greyish Mourner</i>	<i>Rhytipterna simplex</i>	31.8
<i>Guianan Cock-of-the-rock</i>	<i>Rupicola rupicola</i>	208
<i>Guianan Gnatcatcher</i>	<i>Poliophtila guianensis</i>	6.2
<i>Guianan Puffbird</i>	<i>Notharchus macrorhynchos</i>	95.9
<i>Guianan Red-Cotinga</i>	<i>Phoenicircus carnifex</i>	95
<i>Guianan Streaked-Antwren</i>	<i>Myrmotherula surinamensis</i>	8.3
<i>Guianan Toucanet</i>	<i>Selenidera piperivora</i>	147
<i>Guianan Trogon</i>	<i>Trogon violaceus</i>	51.5
<i>Guianan Tyrannulet</i>	<i>Zimmerius acer</i>	NA
<i>Guianan Warbling-Antbird</i>	<i>Hypocnemis cantator</i>	12.6
<i>Guianan Woodcreeper</i>	<i>Lepidocolaptes albolineatus</i>	20.3
<i>Guira Tanager</i>	<i>Hemithraupis guira</i>	12
<i>Gull-billed Tern</i>	<i>Gelochelidon nilotica</i>	233
<i>Harpy Eagle</i>	<i>Harpia harpyja</i>	8300
<i>Helmeted Pygmy-Tyrant</i>	<i>Lophotriccus galeatus</i>	6.6

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Hoatzin</i>	<i>Opisthocomus hoazin</i>	696
<i>Hooded Tanager</i>	<i>Nemosia pileata</i>	16
<i>Hook-billed Kite</i>	<i>Chondrohierax uncinatus</i>	310
<i>Horned Screamer</i>	<i>Anhima cornuta</i>	3150
<i>House Sparrow</i>	<i>Passer domesticus</i>	28
<i>House Wren</i>	<i>Troglodytes aedon</i>	11.1
<i>Hudsonian Godwit</i>	<i>Limosa haemastica</i>	289
<i>Jabiru</i>	<i>Jabiru mycteria</i>	6892
<i>Kelp Gull</i>	<i>Larus dominicanus</i>	1050
<i>King Vulture</i>	<i>Sarcoramphus papa</i>	3400
<i>Ladder-tailed Nightjar</i>	<i>Hydropsalis climacocerca</i>	46
<i>Large-billed Tern</i>	<i>Phaetusa simplex</i>	235
<i>Laughing Falcon</i>	<i>Herpetotheres cachinnans</i>	667
<i>Laughing Gull</i>	<i>Leucophaeus atricilla</i>	327
<i>Leach's Storm-Petrel</i>	<i>Oceanodroma leucorhoa</i>	41.4
<i>Least Bittern</i>	<i>Ixobrychus exilis</i>	86.3
<i>Least Grebe</i>	<i>Tachybaptus dominicus</i>	129
<i>Least Sandpiper</i>	<i>Calidris minutilla</i>	23.8
<i>Least Tern</i>	<i>Sternula antillarum</i>	46.9
<i>Lemon-chested Greenlet</i>	<i>Hylophilus thoracicus</i>	13.8
<i>Lesser Black-backed Gull</i>	<i>Larus fuscus</i>	880
<i>Lesser Elaenia</i>	<i>Elaenia chiriquensis</i>	15.4
<i>Lesser Kiskadee</i>	<i>Philohydor lictor</i>	25.5
<i>Lesser Nighthawk</i>	<i>Chordeiles acutipennis</i>	49.9
<i>Lesser Scaup</i>	<i>Aythya affinis</i>	850
<i>Lesser Swallow-tailed Swift</i>	<i>Panyptila cayennensis</i>	21.1
<i>Lesser Yellow-headed Vulture</i>	<i>Cathartes burrovianus</i>	935
<i>Lesser Yellowlegs</i>	<i>Tringa flavipes</i>	77.5
<i>Lesson's Seedeater</i>	<i>Sporophila bouvronides</i>	9.1
<i>Lilac-tailed Parrotlet</i>	<i>Touit batavicus</i>	55
<i>Limpkin</i>	<i>Aramus guarauna</i>	1080
<i>Lineated Woodpecker</i>	<i>Dryocopus lineatus</i>	194
<i>Lined Forest-Falcon</i>	<i>Micrastur gilvicollis</i>	209
<i>Lined Seedeater</i>	<i>Sporophila lineola</i>	9.8
<i>Little Blue Heron</i>	<i>Egretta caerulea</i>	364
<i>Little Cuckoo</i>	<i>Coccyua minuta</i>	39.3

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Little Egret</i>	<i>Egretta garzetta</i>	312
<i>Little Hermit</i>	<i>Phaethornis longuemareus</i>	3
<i>Little Tinamou</i>	<i>Crypturellus soui</i>	236
<i>Little Woodpecker</i>	<i>Veniliornis passerinus</i>	32.1
<i>Long-billed Dowitcher</i>	<i>Limnodromus scolopaceus</i>	109
<i>Long-billed Gnatwren</i>	<i>Ramphocaenus melanurus</i>	9.7
<i>Long-billed Woodcreeper</i>	<i>Nasica longirostris</i>	92
<i>Long-tailed Hermit</i>	<i>Phaethornis superciliosus</i>	6.3
<i>Long-tailed Jaeger</i>	<i>Stercorarius longicaudus</i>	307
<i>Long-tailed Potoo</i>	<i>Nyctibius aethereus</i>	440.5
<i>Long-tailed Tyrant</i>	<i>Colonia colonus</i>	18.3
<i>Long-tailed Woodcreeper</i>	<i>Deconychura longicauda</i>	23.8
<i>Long-winged Antwren</i>	<i>Myrmotherula longipennis</i>	9.4
<i>Long-winged Harrier</i>	<i>Circus buffoni</i>	613
<i>Magnificent Frigatebird</i>	<i>Fregata magnificens</i>	1704
<i>Maguari Stork</i>	<i>Ciconia maguari</i>	4200
<i>Mangrove Cuckoo</i>	<i>Coccyzus minor</i>	63.9
<i>Mangrove Rail</i>	<i>Rallus longirostris</i>	290
<i>Manx Shearwater</i>	<i>Puffinus puffinus</i>	468
<i>Marail Guan</i>	<i>Penelope marail</i>	904
<i>Marbled Wood-Quail</i>	<i>Odontophorus gujanensis</i>	331
<i>Masked Duck</i>	<i>Nomonyx dominicus</i>	385
<i>Masked Yellowthroat</i>	<i>Geothlypis aequinoctialis</i>	13.1
<i>McConnell's Flycatcher</i>	<i>Mionectes macconnelli</i>	13.5
<i>McConnell's Spinetail</i>	<i>Synallaxis macconnelli</i>	19.5
<i>Mealy Parrot</i>	<i>Amazona farinosa</i>	626
<i>Merlin</i>	<i>Falco columbarius</i>	218
<i>Mew Gull</i>	<i>Larus canus</i>	490
<i>Mottled Owl</i>	<i>Strix virgata</i>	336
<i>Mouse-colored Antshrike</i>	<i>Thamnophilus murinus</i>	19.3
<i>Mouse-colored Tyrannulet</i>	<i>Phaeomyias murina</i>	10
<i>Muscovy Duck</i>	<i>Cairina moschata</i>	2858
<i>Musician Wren</i>	<i>Cyphorhinus arada</i>	20.9
<i>Nacunda Nighthawk</i>	<i>Chordeiles nacunda</i>	159
<i>Neotropic Cormorant</i>	<i>Phalacrocorax brasilianus</i>	1393
<i>Northern Pintail</i>	<i>Anas acuta</i>	1006



<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Northern Scrub Flycatcher</i>	<i>Sublegatus arenarum</i>	12.3
<i>Northern Slaty-Antshrike</i>	<i>Thamnophilus punctatus</i>	19.4
<i>Northern Waterthrush</i>	<i>Parkesia noveboracensis</i>	16.3
<i>Northern Wheatear</i>	<i>Oenanthe oenanthe</i>	24
<i>Ocellated Crake</i>	<i>Micropygia schomburgkii</i>	31.2
<i>Ochre-bellied Flycatcher</i>	<i>Mionectes oleagineus</i>	12.1
<i>Ochre-lore Flatbill</i>	<i>Tolmomyias flaviventris</i>	12.2
<i>Olivaceous Flatbill</i>	<i>Rhynchocyclus olivaceus</i>	21.3
<i>Olive-backed Foliage-gleaner</i>	<i>Automolus infuscatus</i>	32.9
<i>Olive-green Tyrannulet</i>	<i>Phylloscartes virescens</i>	8.5
<i>Olive-sided Flycatcher</i>	<i>Contopus cooperi</i>	32.1
<i>Opal-rumped Tanager</i>	<i>Tangara velia</i>	21
<i>Orange-breasted Falcon</i>	<i>Falco deiroleucus</i>	623
<i>Orange-winged Parrot</i>	<i>Amazona amazonica</i>	370
<i>Ornate Hawk-Eagle</i>	<i>Spizaetus ornatus</i>	1421
<i>Osprey</i>	<i>Pandion haliaetus</i>	1568
<i>Paint-billed Crake</i>	<i>Neocrex erythrops</i>	58.3
<i>Painted Parakeet</i>	<i>Pyrrhura picta</i>	62.1
<i>Painted Tody-Flycatcher</i>	<i>Todirostrum pictum</i>	6.8
<i>Pale-breasted Spinetail</i>	<i>Synallaxis albescens</i>	11.2
<i>Pale-breasted Thrush</i>	<i>Turdus leucomelas</i>	69.1
<i>Pale-tailed Barbthroat</i>	<i>Threnetes leucurus</i>	5.6
<i>Pale-tipped Tyrannulet</i>	<i>Inezia caudata</i>	8
<i>Pale-vented Pigeon</i>	<i>Patagioenas cayennensis</i>	229
<i>Palm Tanager</i>	<i>Thraupis palmarum</i>	39
<i>Paradise Jacamar</i>	<i>Galbula dea</i>	27.4
<i>Paradise Tanager</i>	<i>Tangara chilensis</i>	23
<i>Parasitic Jaeger</i>	<i>Stercorarius parasiticus</i>	478
<i>Pavonine Cuckoo</i>	<i>Dromococcyx pavoninus</i>	46.4
<i>Pearly-breasted Cuckoo</i>	<i>Coccyzus euleri</i>	52.3
<i>Pectoral Sandpiper</i>	<i>Calidris melanotos</i>	97.8
<i>Pectoral Sparrow</i>	<i>Arremon taciturnus</i>	24.8
<i>Peregrine Falcon</i>	<i>Falco peregrinus</i>	1201
<i>Pied Lapwing</i>	<i>Hoploxypterus cayanus</i>	82
<i>Pied Puffbird</i>	<i>Notharchus tectus</i>	26.8
<i>Pied Water-Tyrant</i>	<i>Fluvicola pica</i>	12.3

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Pied-billed Grebe</i>	<i>Podilymbus podiceps</i>	474
<i>Pink-throated Becard</i>	<i>Pachyramphus minor</i>	36.6
<i>Pinnated Bittern</i>	<i>Botaurus pinnatus</i>	1047
<i>Piratic Flycatcher</i>	<i>Legatus leucophaeus</i>	22.2
<i>Plain Xenops</i>	<i>Xenops minutus</i>	10.6
<i>Plain-bellied Emerald</i>	<i>Amazilia leucogaster</i>	4.7
<i>Plain-breasted Ground-Dove</i>	<i>Columbina minuta</i>	32.9
<i>Plain-brown Woodcreeper</i>	<i>Dendrocincla fuliginosa</i>	38.7
<i>Plain-crested Elaenia</i>	<i>Elaenia cristata</i>	18.2
<i>Plain-crowned Spinetail</i>	<i>Synallaxis gujanensis</i>	18.1
<i>Plumbeous Euphonia</i>	<i>Euphonia plumbea</i>	8.9
<i>Plumbeous Kite</i>	<i>Ictinia plumbea</i>	257
<i>Plumbeous Pigeon</i>	<i>Patagioenas plumbea</i>	188
<i>Plumbeous Seedeater</i>	<i>Sporophila plumbea</i>	9.7
<i>Point-tailed Palmcreeper</i>	<i>Berlepschia rikeri</i>	37
<i>Pomarine Jaeger</i>	<i>Stercorarius pomarinus</i>	740
<i>Pompadour Cotinga</i>	<i>Xipholena punicea</i>	68.1
<i>Purple Gallinule</i>	<i>Porphyrio martinicus</i>	257
<i>Purple Honeycreeper</i>	<i>Cyanerpes caeruleus</i>	12
<i>Purple-breasted Cotinga</i>	<i>Cotinga cotinga</i>	54
<i>Purple-throated Fruitcrow</i>	<i>Querula purpurata</i>	105
<i>Pygmy Antwren</i>	<i>Myrmotherula brachyura</i>	6.4
<i>Racket-tailed Coquette</i>	<i>Discosura longicaudus</i>	3.4
<i>Red Knot</i>	<i>Calidris canutus</i>	148
<i>Red Tanager</i>	<i>Piranga flava</i>	37.7
<i>Red-and-black Grosbeak</i>	<i>Periporphyrus erythromelas</i>	48
<i>Red-and-green Macaw</i>	<i>Ara chloropterus</i>	1214
<i>Red-bellied Macaw</i>	<i>Orthopsittaca manilatus</i>	372
<i>Red-billed Pied Tanager</i>	<i>Lamprospiza melanoleuca</i>	34
<i>Red-billed Tropicbird</i>	<i>Phaethon aethereus</i>	750
<i>Red-billed Woodcreeper</i>	<i>Hylexetastes perrotii</i>	114
<i>Red-breasted Meadowlark</i>	<i>Sturnella militaris</i>	46.2
<i>Red-capped Cardinal</i>	<i>Paroaria gularis</i>	23.6
<i>Reddish Hermit</i>	<i>Phaethornis ruber</i>	2.4
<i>Red-eyed Vireo</i>	<i>Vireo olivaceus</i>	16.8
<i>Red-fan Parrot</i>	<i>Deroptyus accipitrinus</i>	246

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Red-legged Honeycreeper</i>	<i>Cyanerpes cyaneus</i>	14
<i>Red-necked Woodpecker</i>	<i>Campephilus rubricollis</i>	222
<i>Red-rumped Cacique</i>	<i>Cacicus haemorrhous</i>	102
<i>Red-shouldered Tanager</i>	<i>Tachyphonus phoenicius</i>	21
<i>Red-throated Caracara</i>	<i>Ibycter americanus</i>	624
<i>Ringed Antpipit</i>	<i>Corythopsis torquatus</i>	14.3
<i>Ringed Kingfisher</i>	<i>Megaceryle torquata</i>	317
<i>Ringed Woodpecker</i>	<i>Celeus torquatus</i>	134
<i>Riverbank Warbler</i>	<i>Myiothlypis rivularis</i>	13.5
<i>Roadside Hawk</i>	<i>Rupornis magnirostris</i>	269
<i>Rock Pigeon</i>	<i>Columba livia</i>	369
<i>Roseate Spoonbill</i>	<i>Platalea ajaja</i>	1490
<i>Rose-breasted Chat</i>	<i>Granatellus pelzelni</i>	11.2
<i>Rose-breasted Grosbeak</i>	<i>Pheucticus ludovicianus</i>	42
<i>Royal Tern</i>	<i>Thalasseus maximus</i>	367
<i>Ruby-topaz Hummingbird</i>	<i>Chrysolampis mosquitus</i>	3.9
<i>Ruddy Foliage-gleaner</i>	<i>Automolus rubiginosus</i>	39.8
<i>Ruddy Ground-Dove</i>	<i>Columbina talpacoti</i>	46.5
<i>Ruddy Pigeon</i>	<i>Patagioenas subvinacea</i>	176
<i>Ruddy Quail-Dove</i>	<i>Geotrygon montana</i>	115
<i>Ruddy Turnstone</i>	<i>Arenaria interpres</i>	138
<i>Ruddy-breasted Seedeater</i>	<i>Sporophila minuta</i>	7.8
<i>Ruddy-tailed Flycatcher</i>	<i>Terenotriccus erythrurus</i>	7.4
<i>Rufescent Tiger-Heron</i>	<i>Tigrisoma lineatum</i>	813
<i>Ruff</i>	<i>Philomachus pugnax</i>	102
<i>Rufous Crab Hawk</i>	<i>Buteogallus aequinoctialis</i>	709
<i>Rufous Potoo</i>	<i>Nyctibius bracteatus</i>	52
<i>Rufous-bellied Antwren</i>	<i>Isleria guttata</i>	11
<i>Rufous-breasted Hermit</i>	<i>Glaucis hirsutus</i>	5.9
<i>Rufous-browed Peppershrike</i>	<i>Cyclarhis gujanensis</i>	28.8
<i>Rufous-capped Antthrush</i>	<i>Formicarius colma</i>	47
<i>Rufous-collared Sparrow</i>	<i>Zonotrichia capensis</i>	21.9
<i>Rufous-crowned Elaenia</i>	<i>Elaenia ruficeps</i>	19.2
<i>Rufous-rumped Antwren</i>	<i>Terenura callinota</i>	7
<i>Rufous-rumped Foliage-gleaner</i>	<i>Philydor erythrocercum</i>	26.4
<i>Rufous-sided Crake</i>	<i>Laterallus melanophaius</i>	52.1

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Rufous-tailed Flatbill</i>	<i>Ramphotrigon ruficauda</i>	18.4
<i>Rufous-tailed Foliage-gleaner</i>	<i>Philydor ruficaudatum</i>	30.1
<i>Rufous-tailed Xenops</i>	<i>Microxenops milleri</i>	12.2
<i>Rufous-throated Antbird</i>	<i>Gymnopithys rufigula</i>	29.1
<i>Rufous-throated Sapphire</i>	<i>Hylocharis sapphirina</i>	4.4
<i>Russet-crowned Crake</i>	<i>Laterallus viridis</i>	69
<i>Rusty Tinamou</i>	<i>Crypturellus brevirostris</i>	NA
<i>Rusty-margined Flycatcher</i>	<i>Myiozetetes cayanensis</i>	25.9
<i>Sabine's Gull</i>	<i>Xema sabini</i>	198
<i>Saffron-crested Tyrant-Manakin</i>	<i>Neopelma chrysocephalum</i>	15.5
<i>Sanderling</i>	<i>Calidris alba</i>	57
<i>Sapphire-rumped Parrotlet</i>	<i>Touit purpuratus</i>	59.7
<i>Savanna Hawk</i>	<i>Buteogallus meridionalis</i>	808
<i>Scaled Pigeon</i>	<i>Patagioenas speciosa</i>	262
<i>Scarlet Ibis</i>	<i>Eudocimus ruber</i>	741
<i>Scarlet Macaw</i>	<i>Ara macao</i>	1015
<i>Scarlet Tanager</i>	<i>Piranga olivacea</i>	28.2
<i>Screaming Piha</i>	<i>Lipaugus vociferans</i>	82.2
<i>Semipalmated Plover</i>	<i>Charadrius semipalmatus</i>	46.1
<i>Semipalmated Sandpiper</i>	<i>Calidris pusilla</i>	27.5
<i>Sepia-capped Flycatcher</i>	<i>Leptopogon amaurocephalus</i>	11.7
<i>Sharpbill</i>	<i>Oxyruncus cristatus</i>	42
<i>Shiny Cowbird</i>	<i>Molothrus bonariensis</i>	40
<i>Short-billed Dowitcher</i>	<i>Limnodromus griseus</i>	117
<i>Short-billed Leafhopper</i>	<i>Sclerurus rufularis</i>	21.6
<i>Short-crested Flycatcher</i>	<i>Myiarchus ferox</i>	27.5
<i>Short-tailed Hawk</i>	<i>Buteo brachyurus</i>	583
<i>Short-tailed Nighthawk</i>	<i>Lurocalis semitorquatus</i>	75.9
<i>Short-tailed Parrot</i>	<i>Graydidascalus brachyurus</i>	159
<i>Short-tailed Pygmy-Tyrant</i>	<i>Myiornis ecaudatus</i>	6
<i>Short-tailed Swift</i>	<i>Chaetura brachyura</i>	18.3
<i>Sick's Swift</i>	<i>Chaetura meridionalis</i>	22.2
<i>Silver-beaked Tanager</i>	<i>Ramphocelus carbo</i>	28
<i>Silvered Antbird</i>	<i>Sclateria naevia</i>	24.6
<i>Slate-colored Grosbeak</i>	<i>Saltator grossus</i>	44.2
<i>Slate-colored Hawk</i>	<i>Buteogallus schistaceus</i>	1000

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Slaty-backed Forest-Falcon</i>	<i>Micrastur mirandollei</i>	549
<i>Slaty-capped Shrike-Vireo</i>	<i>Vireolanius leucotis</i>	26
<i>Slender-billed Kite</i>	<i>Helicolestes hamatus</i>	431
<i>Small-billed Elaenia</i>	<i>Elaenia parvirostris</i>	13.8
<i>Smoky-fronted Tody-Flycatcher</i>	<i>Poecilatriccus fumifrons</i>	6.6
<i>Smooth-billed Ani</i>	<i>Crotophaga ani</i>	100
<i>Snail Kite</i>	<i>Rostrhamus sociabilis</i>	446
<i>Snowy Egret</i>	<i>Egretta thula</i>	371
<i>Snowy Plover</i>	<i>Charadrius nivosus</i>	42.3
<i>Solitary Sandpiper</i>	<i>Tringa solitaria</i>	48.4
<i>Sooty Barthroat</i>	<i>Threnetes niger</i>	6
<i>Sooty Tern</i>	<i>Onychoprion fuscatus</i>	175
<i>South American Snipe</i>	<i>Gallinago paraguaiiae</i>	113
<i>Southern Beardless-Tyrannulet</i>	<i>Camptostoma obsoletum</i>	8.1
<i>Southern Lapwing</i>	<i>Vanellus chilensis</i>	327
<i>Southern Martin</i>	<i>Progne elegans</i>	50.6
<i>Southern Rough-winged Swallow</i>	<i>Stelgidopteryx ruficollis</i>	16.1
<i>Spangled Cotinga</i>	<i>Cotinga cayana</i>	61.8
<i>Speckled Spinetail</i>	<i>Cranioleuca gutturata</i>	14.9
<i>Spectacled Owl</i>	<i>Pulsatrix perspicillata</i>	908
<i>Spectacled Thrush</i>	<i>Turdus nudigenis</i>	63.9
<i>Spot-backed Antbird</i>	<i>Hylophylax naevius</i>	14.2
<i>Spot-breasted Woodpecker</i>	<i>Colaptes punctigula</i>	64
<i>Spot-tailed Antwren</i>	<i>Herpsilochmus sticturus</i>	9.5
<i>Spot-tailed Nightjar</i>	<i>Hydrosalis maculicaudus</i>	30.3
<i>Spotted Antpitta</i>	<i>Hylopezus macularius</i>	44.2
<i>Spotted Puffbird</i>	<i>Bucco tamatia</i>	35.5
<i>Spotted Rail</i>	<i>Pardirallus maculatus</i>	171
<i>Spotted Sandpiper</i>	<i>Actitis macularius</i>	40.4
<i>Spotted Tanager</i>	<i>Tangara punctata</i>	15
<i>Spotted Tody-Flycatcher</i>	<i>Todirostrum maculatum</i>	7.3
<i>Spot-throated Woodcreeper</i>	<i>Deconychura stictolaema</i>	18.5
<i>Spot-winged Antbird</i>	<i>Schistocichla leucostigma</i>	25.6
<i>Squirrel Cuckoo</i>	<i>Piaya cayana</i>	104
<i>Stilt Sandpiper</i>	<i>Calidris himantopus</i>	60.9
<i>Straight-billed Hermit</i>	<i>Phaethornis bourcieri</i>	4.3

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Straight-billed Woodcreeper</i>	<i>Dendroplex picus</i>	41.6
<i>Streaked Flycatcher</i>	<i>Myiodynastes maculatus</i>	43.2
<i>Striated Heron</i>	<i>Butorides striata</i>	226
<i>Stripe-backed Bittern</i>	<i>Ixobrychus involucris</i>	80.1
<i>Striped Cuckoo</i>	<i>Tapera naevia</i>	52.1
<i>Striped Owl</i>	<i>Pseudoscops clamator</i>	484
<i>Striped Woodcreeper</i>	<i>Xiphorhynchus obsoletus</i>	32.6
<i>Strong-billed Woodcreeper</i>	<i>Xiphocolaptes promeropirhynchus</i>	117
<i>Stygian Owl</i>	<i>Asio stygius</i>	565
<i>Sulphury Flycatcher</i>	<i>Tyrannopsis sulphurea</i>	53.6
<i>Summer Tanager</i>	<i>Piranga rubra</i>	28.2
<i>Sunbittern</i>	<i>Eurypyga helias</i>	210
<i>Sungrebe</i>	<i>Heliornis fulica</i>	132
<i>Swallow Tanager</i>	<i>Tersina viridis</i>	29
<i>Swallow-tailed Kite</i>	<i>Elanoides forficatus</i>	442
<i>Swallow-winged Puffbird</i>	<i>Chelidoptera tenebrosa</i>	35.9
<i>Tawny-bellied Screech-Owl</i>	<i>Megascops watsonii</i>	129
<i>Tawny-crowned Greenlet</i>	<i>Hylophilus ochraceiceps</i>	11.6
<i>Tawny-throated Leafhopper</i>	<i>Sclerurus mexicanus</i>	25.1
<i>Terek Sandpiper</i>	<i>Xenus cinereus</i>	78.8
<i>Thrush-like Antpitta</i>	<i>Myrmothera campanisona</i>	47
<i>Tiny Hawk</i>	<i>Accipiter superciliosus</i>	134
<i>Tiny Tyrant-Manakin</i>	<i>Tyrannetes virescens</i>	7.6
<i>Toco Toucan</i>	<i>Ramphastos toco</i>	618
<i>Todd's Antwren</i>	<i>Herpsilochmus stictocephalus</i>	8.8
<i>Tooth-billed Tanager</i>	<i>Piranga lutea</i>	34
<i>Tricolored Heron</i>	<i>Egretta tricolor</i>	415
<i>Tropical Gnatcatcher</i>	<i>Poliophtila plumbea</i>	6.1
<i>Tropical Kingbird</i>	<i>Tyrannus melancholicus</i>	37.4
<i>Tropical Mockingbird</i>	<i>Mimus gilvus</i>	58.4
<i>Tropical Parula</i>	<i>Setophaga pitayumi</i>	7.2
<i>Tropical Screech-Owl</i>	<i>Megascops choliba</i>	132
<i>Tufted Coquette</i>	<i>Lophornis ornatus</i>	2.3
<i>Turkey Vulture</i>	<i>Cathartes aura</i>	2006
<i>Turquoise Tanager</i>	<i>Tangara mexicana</i>	20.5
<i>Upland Sandpiper</i>	<i>Bartramia longicauda</i>	164



<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Variable Chachalaca</i>	<i>Ortalis motmot</i>	520
<i>Variegated Antpitta</i>	<i>Grallaria varia</i>	119
<i>Variegated Flycatcher</i>	<i>Empidonomus varius</i>	27.1
<i>Variegated Tinamou</i>	<i>Crypturellus variegatus</i>	378
<i>Violaceous Euphonia</i>	<i>Euphonia violacea</i>	15
<i>Wattled Jacana</i>	<i>Jacana jacana</i>	129
<i>Waved Woodpecker</i>	<i>Celeus undatus</i>	64.5
<i>Wedge-billed Woodcreeper</i>	<i>Glyphorynchus spirurus</i>	14.6
<i>Wedge-tailed Grass-Finch</i>	<i>Emberizoides herbicola</i>	30.1
<i>Western Sandpiper</i>	<i>Calidris mauri</i>	29.1
<i>Western Wood-Pewee</i>	<i>Contopus sordidulus</i>	13.1
<i>Whimbrel</i>	<i>Numenius phaeopus</i>	404
<i>Whiskered Flycatcher</i>	<i>Myiophobus barbatus</i>	11.4
<i>White Bellbird</i>	<i>Procnias albus</i>	210
<i>White Hawk</i>	<i>Pseudastur albicollis</i>	800
<i>White Woodpecker</i>	<i>Melanerpes candidus</i>	108
<i>White-banded Swallow</i>	<i>Atticora fasciata</i>	13
<i>White-barred Piculet</i>	<i>Picumnus cirratus</i>	10.2
<i>White-bearded Manakin</i>	<i>Manacus manacus</i>	15
<i>White-breasted Wood-Wren</i>	<i>Henicorhina leucosticta</i>	14.8
<i>White-browed Antbird</i>	<i>Myrmoborus leucophrys</i>	21.5
<i>White-cheeked Pintail</i>	<i>Anas bahamensis</i>	535
<i>White-chested Emerald</i>	<i>Amazilia brevirostris</i>	4.3
<i>White-chested Puffbird</i>	<i>Malacoptila fusca</i>	45.4
<i>White-chinned Sapphire</i>	<i>Hylocharis cyanus</i>	3.3
<i>White-chinned Swift</i>	<i>Cypseloides cryptus</i>	35.3
<i>White-chinned Woodcreeper</i>	<i>Dendrocincla merula</i>	46.6
<i>White-collared Swift</i>	<i>Streptoprocne zonaris</i>	98.1
<i>White-crested Spadebill</i>	<i>Platyrrinchus platyrhynchos</i>	12
<i>White-crowned Manakin</i>	<i>Dixiphia pipra</i>	12
<i>White-eyed Parakeet</i>	<i>Psittacara leucophthalmus</i>	158
<i>White-eyed Tody-Tyrant</i>	<i>Hemitriccus zosterops</i>	8.7
<i>White-faced Whistling-Duck</i>	<i>Dendrocygna viduata</i>	690
<i>White-flanked Antwren</i>	<i>Myrmotherula axillaris</i>	8.4
<i>White-fringed Antwren</i>	<i>Formicivora grisea</i>	9.3
<i>White-fronted Manakin</i>	<i>Lepidothrix serena</i>	11.4

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>White-headed Marsh Tyrant</i>	<i>Arundinicola leucocephala</i>	13.8
<i>White-lined Tanager</i>	<i>Tachyphonus rufus</i>	34.4
<i>White-lored Tyrannulet</i>	<i>Ornithion inerme</i>	7
<i>White-necked Jacobin</i>	<i>Florisuga mellivora</i>	7.4
<i>White-necked Thrush</i>	<i>Turdus albicollis</i>	54
<i>White-plumed Antbird</i>	<i>Pithys albifrons</i>	20.4
<i>White-rumped Sandpiper</i>	<i>Calidris fuscicollis</i>	34.7
<i>White-shouldered Tanager</i>	<i>Tachyphonus luctuosus</i>	13
<i>White-tailed Hawk</i>	<i>Geranoaetus albicaudatus</i>	928
<i>White-tailed Kite</i>	<i>Elanus leucurus</i>	346
<i>White-tailed Nightjar</i>	<i>Hydropsalis cayennensis</i>	35.5
<i>White-thighed Swallow</i>	<i>Neochelidon tibialis</i>	10.6
<i>White-throated Manakin</i>	<i>Corapipo gutturalis</i>	8.2
<i>White-throated Pewee</i>	<i>Contopus albogularis</i>	9.6
<i>White-throated Toucan</i>	<i>Ramphastos tucanus</i>	595
<i>White-tipped Dove</i>	<i>Leptotila verreauxi</i>	161
<i>White-vented Euphonia</i>	<i>Euphonia minuta</i>	10
<i>White-winged Becard</i>	<i>Pachyramphus polychopterus</i>	20.8
<i>White-winged Potoo</i>	<i>Nyctibius leucopterus</i>	86.4
<i>White-winged Swallow</i>	<i>Tachycineta albiventer</i>	17.7
<i>Willet</i>	<i>Tringa semipalmata</i>	283
<i>Wilson's Plover</i>	<i>Charadrius wilsonia</i>	55.1
<i>Wilson's Snipe</i>	<i>Gallinago delicata</i>	128
<i>Wilson's Storm-Petrel</i>	<i>Oceanites oceanicus</i>	32
<i>Wing-banded Antbird</i>	<i>Myrmornis torquata</i>	46.7
<i>Wing-banded Wren</i>	<i>Microcerculus bambla</i>	19.1
<i>Wing-barred Piprites</i>	<i>Piprites chloris</i>	16
<i>Wing-barred Seedeater</i>	<i>Sporophila americana</i>	12
<i>Wood Stork</i>	<i>Mycteria americana</i>	2702
<i>Yellow Oriole</i>	<i>Icterus nigrogularis</i>	40.2
<i>Yellow Tyrannulet</i>	<i>Capsiempis flaveola</i>	7.7
<i>Yellow-backed Tanager</i>	<i>Hemithraupis flavicollis</i>	12.8
<i>Yellow-bellied Elaenia</i>	<i>Elaenia flavogaster</i>	24.8
<i>Yellow-billed Cuckoo</i>	<i>Coccyzus americanus</i>	64
<i>Yellow-billed Jacamar</i>	<i>Galbula albirostris</i>	22.1
<i>Yellow-billed Tern</i>	<i>Sternula superciliaris</i>	46.4

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Yellow-breasted Crake</i>	<i>Porzana flaviventer</i>	26.1
<i>Yellow-chinned Spinetail</i>	<i>Certhiaxis cinnamomeus</i>	15.2
<i>Yellow-crowned Amazon</i>	<i>Amazona ochrocephala</i>	440
<i>Yellow-crowned Elaenia</i>	<i>Myiopagis flavivertex</i>	12.3
<i>Yellow-crowned Night-Heron</i>	<i>Nyctanassa violacea</i>	716
<i>Yellow-crowned Tyrannulet</i>	<i>Tyrannulus elatus</i>	7
<i>Yellow-green Grosbeak</i>	<i>Caryothraustes canadensis</i>	34.5
<i>Yellow-headed Caracara</i>	<i>Milvago chimachima</i>	329
<i>Yellow-hooded Blackbird</i>	<i>Chrysomus icterocephalus</i>	35.4
<i>Yellowish Pipit</i>	<i>Anthus lutescens</i>	15.5
<i>Yellow-margined Flycatcher</i>	<i>Tolmomyias assimilis</i>	17
<i>Yellow-nosed Albatross</i>	<i>Thalassarche chlororhynchos</i>	2200
<i>Yellow-olive Flatbill</i>	<i>Tolmomyias sulphurescens</i>	14.3
<i>Yellow-rumped Cacique</i>	<i>Cacicus cela</i>	106
<i>Yellow-throated Flycatcher</i>	<i>Conopias parvus</i>	21
<i>Yellow-throated Woodpecker</i>	<i>Piculus flavigula</i>	55
<i>Yellow-tufted Woodpecker</i>	<i>Melanerpes cruentatus</i>	58.1
<i>Zigzag Heron</i>	<i>Zebrilus undulatus</i>	123
<i>Zone-tailed Hawk</i>	<i>Buteo albonotatus</i>	886

## Body mass of birds of Polynesia

Common name	Scientific name	Body mass (g)
Atoll Fruit-Dove	<i>Ptilinopus coralensis</i>	84.5
Band-rumped Storm-Petrel	<i>Oceanodroma castro</i>	49.2
Bank Swallow	<i>Riparia riparia</i>	13.9
Barn Swallow	<i>Hirundo rustica</i>	18.1
Black Noddy	<i>Anous minutus</i>	116
Black-bellied Plover	<i>Pluvialis squatarola</i>	250
Black-browed Albatross	<i>Thalassarche melanophris</i>	3922
Black-winged Petrel	<i>Pterodroma nigripennis</i>	163
Blue Lorieet	<i>Vini peruviana</i>	29
Blue Petrel	<i>Halobaena caerulea</i>	202
Blue-gray Noddy	<i>Procelsterna cerulea</i>	53
Bristle-thighed Curlew	<i>Numenius tahitiensis</i>	428
Brown Booby	<i>Sula leucogaster</i>	1525
Brown Noddy	<i>Anous stolidus</i>	178
Buff-breasted Sandpiper	<i>Tryngites subruficollis</i>	68.5
Bulwer's Petrel	<i>Bulweria bulwerii</i>	99
Cape Petrel	<i>Daption capense</i>	452
Cattle Egret	<i>Bubulcus ibis</i>	372
Chattering Kingfisher	<i>Todiramphus tutus</i>	44.9
Chestnut-breasted Munia	<i>Lonchura castaneothorax</i>	13.6
Christmas Shearwater	<i>Puffinus nativitatis</i>	356
Common Myna	<i>Acridotheres tristis</i>	127
Common Waxbill	<i>Estrilda astrild</i>	8.8
Cook's Petrel	<i>Pterodroma cookii</i>	193
Crimson-backed Tanager	<i>Ramphocelus dimidiatus</i>	28
Eastern Cattle Egret	<i>Bubulcus coromandus</i>	NA
Fatuhiva Monarch	<i>Pomarea whitneyi</i>	42.5
Franklin's Gull	<i>Leucophaeus pipixcan</i>	280
Gray Petrel	<i>Procellaria cinerea</i>	1131
Gray-backed Tern	<i>Onychoprion lunatus</i>	146
Gray-green Fruit-Dove	<i>Ptilinopus purpuratus</i>	87.5
Gray-tailed Tattler	<i>Tringa brevipes</i>	127
Great Blue Heron	<i>Ardea herodias</i>	2480
Great Crested Tern	<i>Thalasseus bergii</i>	328
Great Egret	<i>Ardea alba</i>	935
Great Frigatebird	<i>Fregata minor</i>	1662

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Great Horned Owl</i>	<i>Bubo virginianus</i>	1555
<i>Great-winged Petrel</i>	<i>Pterodroma macroptera</i>	560
<i>Henderson Petrel</i>	<i>Pterodroma atrata</i>	NA
<i>Herald Petrel</i>	<i>Pterodroma heraldica</i>	266
<i>Iphis Monarch</i>	<i>Pomarea iphis</i>	23.9
<i>Juan Fernandez Petrel</i>	<i>Pterodroma externa</i>	428
<i>Kermadec Petrel</i>	<i>Pterodroma neglecta</i>	501
<i>Kuhl's Lorikeet</i>	<i>Vini kuhlii</i>	NA
<i>Laughing Gull</i>	<i>Leucophaeus atricilla</i>	327
<i>Leach's Storm-Petrel</i>	<i>Oceanodroma leucorhoa</i>	41.4
<i>Lesser Frigatebird</i>	<i>Fregata ariel</i>	858
<i>Lesser Yellowlegs</i>	<i>Tringa flavipes</i>	77.5
<i>Little Shearwater</i>	<i>Puffinus assimilis</i>	226
<i>Long-tailed Koel</i>	<i>Urodynamis taitensis</i>	117
<i>Makatea Fruit-Dove</i>	<i>Ptilinopus chalcurus</i>	NA
<i>Mangareva Kingfisher</i>	<i>Todiramphus gambieri</i>	NA
<i>Marquesan Swiftlet</i>	<i>Aerodramus ocistus</i>	NA
<i>Marquesas Ground-Dove</i>	<i>Gallicolumba rubescens</i>	60
<i>Marquesas Imperial-Pigeon</i>	<i>Ducula galeata</i>	NA
<i>Marquesas Kingfisher</i>	<i>Todiramphus godeffroyi</i>	NA
<i>Marquesas Monarch</i>	<i>Pomarea mendozae</i>	29.6
<i>Masked Booby</i>	<i>Sula dactylatra</i>	2095
<i>Mottled Petrel</i>	<i>Pterodroma inexpectata</i>	316
<i>Murphy's Petrel</i>	<i>Pterodroma ultima</i>	360
<i>Northern Marquesan Reed Warbler</i>	<i>Acrocephalus percernis</i>	NA
<i>Northern Pintail</i>	<i>Anas acuta</i>	1006
<i>Northern Royal Albatross</i>	<i>Diomedea sanfordi</i>	6400
<i>Northern Shoveler</i>	<i>Anas clypeata</i>	636
<i>Northern Wheatear</i>	<i>Oenanthe oenanthe</i>	24
<i>Pacific Black Duck</i>	<i>Anas superciliosa</i>	1133
<i>Pacific Golden-Plover</i>	<i>Pluvialis fulva</i>	140
<i>Pacific Imperial-Pigeon</i>	<i>Ducula pacifica</i>	395
<i>Pacific Reef-Heron</i>	<i>Egretta sacra</i>	658
<i>Pacific Swallow</i>	<i>Hirundo tahitica</i>	17.8
<i>Parasitic Jaeger</i>	<i>Stercorarius parasiticus</i>	478
<i>Pectoral Sandpiper</i>	<i>Calidris melanotos</i>	97.8

Common name	Scientific name	Body mass (g)
Phoenix Petrel	<i>Pterodroma alba</i>	259
Pink-footed Shearwater	<i>Puffinus creatopus</i>	744
Polynesian Ground-Dove	<i>Gallicolumba erythroptera</i>	113.5
Polynesian Imperial-Pigeon	<i>Ducula aurorae</i>	NA
Polynesian Storm-Petrel	<i>Nesofregatta fuliginosa</i>	70
Polynesian Swiftlet	<i>Aerodramus leucophaeus</i>	NA
Pomarine Jaeger	<i>Stercorarius pomarinus</i>	740
Rapa Fruit-Dove	<i>Ptilinopus huttoni</i>	130
Red Junglefowl	<i>Gallus gallus</i>	988
Red-billed Tropicbird	<i>Phaethon aethereus</i>	750
Red-browed Firetail	<i>Neochmia temporalis</i>	11.4
Red-footed Booby	<i>Sula sula</i>	1223
Red-moustached Fruit-Dove	<i>Ptilinopus mercierii</i>	NA
Red-tailed Tropicbird	<i>Phaethon rubricauda</i>	685
Red-vented Bulbul	<i>Pycnonotus cafer</i>	45.8
Rimitara Reed Warbler	<i>Acrocephalus rimitarae</i>	26.5
Ring-billed Gull	<i>Larus delawarensis</i>	566
Ring-necked Pheasant	<i>Phasianus colchicus</i>	1317
Rock Pigeon	<i>Columba livia</i>	369
Royal Albatross	<i>Diomedea epomophora</i>	10300
Ruddy Turnstone	<i>Arenaria interpres</i>	138
Ruff	<i>Philomachus pugnax</i>	102
Sanderling	<i>Calidris alba</i>	57
Semipalmated Plover	<i>Charadrius semipalmatus</i>	46.1
Short-tailed Shearwater	<i>Puffinus tenuirostris</i>	559
Silver-eye	<i>Zosterops lateralis</i>	13.7
Society Kingfisher	<i>Todiramphus veneratus</i>	NA
Sooty Shearwater	<i>Puffinus griseus</i>	787
Sooty Tern	<i>Onychoprion fuscatus</i>	175
Southern Giant-Petrel	<i>Macronectes giganteus</i>	4940
Southern Marquesan Reed Warbler	<i>Acrocephalus mendanae</i>	NA
Spotless Crake	<i>Porzana tabuensis</i>	47.7
Striated Heron	<i>Butorides striata</i>	226
Swamp Harrier	<i>Circus approximans</i>	870
Tahiti Monarch	<i>Pomarea nigra</i>	25.4
Tahiti Petrel	<i>Pseudobulweria rostrata</i>	409

<i>Common name</i>	<i>Scientific name</i>	<i>Body mass (g)</i>
<i>Tahiti Reed Warbler</i>	<i>Acrocephalus caffer</i>	NA
<i>Trindade Petrel</i>	<i>Pterodroma arminjoniana</i>	394
<i>Tropical Shearwater</i>	<i>Puffinus bailloni</i>	220
<i>Tuamotu Reed Warbler</i>	<i>Acrocephalus atyphus</i>	NA
<i>Tuamotu Sandpiper</i>	<i>Prosobonia parvirostris</i>	36
<i>Ultramarine Lorikeet</i>	<i>Vini ultramarina</i>	NA
<i>Wandering Albatross</i>	<i>Diomedea exulans</i>	9110
<i>Wandering Tattler</i>	<i>Tringa incana</i>	116
<i>Wedge-tailed Shearwater</i>	<i>Puffinus pacificus</i>	388
<i>Western Swamphen</i>	<i>Porphyrio porphyrio</i>	1091
<i>White Tern</i>	<i>Gygis alba</i>	111
<i>White Wagtail</i>	<i>Motacilla alba</i>	21
<i>White-bellied Storm-Petrel</i>	<i>Fregetta grallaria</i>	64
<i>White-capped Fruit Dove</i>	<i>Ptilinopus dupetithouarsii</i>	100
<i>White-faced Storm-Petrel</i>	<i>Pelagodroma marina</i>	47.2
<i>White-headed Petrel</i>	<i>Pterodroma lessonii</i>	698
<i>White-tailed Tropicbird</i>	<i>Phaethon lepturus</i>	367
<i>White-winged Sandpiper</i>	<i>Prosobonia leucoptera</i>	NA
<i>Zebra Dove</i>	<i>Geopelia striata</i>	56.6





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# Memo on the assessment of wildlife at aerodromes

## 1. Prerequisites

Method of assessing the hazard as part of a wildlife strike hazard prevention programme	Availability and training of staff	Perimeter of analysis	Strike notification system and wildlife observations	Coordination between services
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## 2. Wildlife hazard measurement (STAC's method)

**STRIKE RISK LEVEL (NRC) = FREQUENCY X SEVERITY**

(wildlife species) (aerodrome airspaces)  
NRC level ranging from 1 to 3 calculated using



**Frequency:** average of the number of strikes recorded on the aerodrome over three years.

**Severity:** percentage of strikes with damage, calculated at national level, over a period of three years.

Severity	Frequency				
	Very high	High	Moderate	Low	Very low
Very high	3	3	3	2	2
High	3	3	3	2	2
Moderate	3	3	2	1	1
Low	2	2	1	1	1
Very low	1	1	1	1	1

**WILDLIFE HAZARD LEVEL (NDA) = FREQUENCY X SEVERITY**

(wildlife species) (aerodrome airspaces)  
NDA level ranging from 1 to 3 measured thanks to scaring operations and field observations.

**Frequency:** number of weeks during which the wildlife species has been observed over 1 year (regular, occasional, rare).

**Severity:** average number of individuals observed per group, combined with the average mass of the wildlife species.

Severity of the hazard	Frequency of the hazard		
	Regular	Occasional	Rare
Very high/high	3	3	2
Moderate	3	2	1
Low/very low	2	1	1

**WILDLIFE RISK LEVEL (NRA) (wildlife species) ( aerodrome airspace) = COMBINATION OF NRC AND NDA**

Strike risk level (NRC)	Wildlife hazard level (NDA)			
	3	2	1	
3	3	3	2	
2	3	2	1	
1	2	1	1	
NR *	2	1	1	

NRC → (points to row 2)      NDA → (points to column 3)

NRA represented by the wildlife species

■ Level 1: low risk   ■ Level 2: high risk   ■ Level 3: very high risk

**3. Wildlife hazard analysis** (search for the source of the wildlife hazard for the wildlife species ranked as being at risk level 2 or 3).

**4. Implementation of a plan to mitigate the wildlife hazard and monitoring of the measures.**

# PICA AND AQUILA<sub>IMA</sub>

## TWO INFORMATICS TOOLS INTENDED FOR WILDLIFE RISK ANALYSIS ON AERODROMES



PICA, wildlife strikes information program, provides the access to statistical data on the evolution and the distribution of wildlife strikes notified at national level by aerodrome operators and airlines.

PICA allows the calculation of the wildlife risk level (NRA) on every aerodrome from strike data entry and wildlife observations carried out on and near the aerodrome by the wildlife hazard prevention personnel. Its use requires an access code issued by the STAC on request at the following address:

[stac-picaweb@aviation-civile.gouv.fr](mailto:stac-picaweb@aviation-civile.gouv.fr)

PICA is compatible with European and international strikes notification systems ( ECCAIRS and IBIS).



AQUILA<sub>IMA</sub> is an informatics application developed by the STAC which provides assistance to aerodrome personnel for its daily task of management and evaluation of wildlife risk. The software AQUILA<sub>IMA</sub> is a complete tool available on tablet or on informatics server allowing to:

- notify wildlife hazard operations and manage stocks of different materials,
- entry wildlife strikes and automatically notify them to PICA and to all involved organizations ( local civil aviation authority, airport manager: SMS personnel and Wildlife Hazard Unit),
- entry and map wildlife observations and wildlife phenomena,
- map airport environment according to CORINE BIOTOPE European nomenclature, as well as areas which could present a danger for aviation safety,
- automatically and continuously measure wildlife risk via a bridge with the software PICA,
- create reports on the wildlife risk prevention activity.

Further information can be obtained from the STAC at the following address:

[stac-picaweb@aviation-civile.gouv.fr](mailto:stac-picaweb@aviation-civile.gouv.fr)

# List of functional mailboxes addresses

## for notification of aviation safety occurrences (including wildlife strikes)

- ▶ Wildlife strikes notification to be sent to local civil aviation authority (DSAC-IR) and to civil aviation technical service (STAC)
- ▶ Wildlife strike notification form should follow the indications given by the CRESAG and the CRESA. Wildlife collision report should be compliant with ICAO standards ( see Annex 1)
- ▶ More information available at the following address: <https://www.ecologique-solidaire.gouv.fr/notifier-incident>

**STAC – Service Technique de l’Aviation Civile Prévention du risque animalier**  
1 avenue du Dr Grynfoegel  
BP 53584  
31035 TOULOUSE CEDEX  
e-mail: [stac-picaweb@aviation-civile.gouv.fr](mailto:stac-picaweb@aviation-civile.gouv.fr)

**DSAC Centre-Est**  
210 rue d'Allemagne  
69125 AÉROPORT DE LYON SAINT-EXUPÉRY  
e-mail: [incidents-ap.dsac-ce@aviation-civile.gouv.fr](mailto:incidents-ap.dsac-ce@aviation-civile.gouv.fr)

**DSAC Nord**  
9 rue de Champagne  
91200 ATHIS-MONS  
e-mail: [incidents-dac-nord.DAC-N@aviation-civile.gouv.fr](mailto:incidents-dac-nord.DAC-N@aviation-civile.gouv.fr)

**DSAC Nord-Est**  
Aéroport de Strasbourg-Entzheim  
CS 60003 ENTZHEIM  
67836 TANNERIES CEDEX  
e-mail: [incidents-dac-ne@aviation-civile.gouv.fr](mailto:incidents-dac-ne@aviation-civile.gouv.fr)

**DSAC Ouest**  
Aérodrome de Brest Bretagne BP 56  
29490 GUIPAVAS  
e-mail: [incidents-aer-dac-ouest@aviation-civile.gouv.fr](mailto:incidents-aer-dac-ouest@aviation-civile.gouv.fr)

**DSAC Sud**  
Allée St-Exupéry  
BP 60100  
31703 BLAGNAC CEDEX  
e-mail: [dsac-s-incidents@aviation-civile.gouv.fr](mailto:dsac-s-incidents@aviation-civile.gouv.fr)

**DSAC Sud-Est**  
1 rue Vincent Auriol  
13617 AIX-EN-PROVENCE CEDEX 1  
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