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WSH (II) 01/21	INTRODUZIONE	I
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Il presente WSH (Wildlife Strike Handbook) è parte integrante del volume "WILDLIFE STRIKE - Guida per il pilota di linea", scritto da Andrea Bomben e edito da IBN, testo al quale si rimanda per gli approfondimenti del caso. Lo scopo di questo file è di raccogliere tutto il materiale inerente la problematica e di presentarlo in un formato agile e di immediata consultazione durante le operazioni di volo; a questo scopo il documento è stato dotato di un indice elettronico, agevolmente accessibile tramite i software dedicati al formato pdf. Si sottolinea in ogni caso che tutte le informazioni qui contenute (così come quelle reperibili sul testo di riferimento), sebbene basate su pratiche ben documentate e consolidate negli anni, intendono integrare e non sostituire o contraddire le procedure contenute nei manuali operativi delle compagnie aeree e dei costruttori degli aeromobili.

Con bird strike - anche definito birdstrike, bird ingestion (per un motore) o bird hit - si intende generalmente la collisione tra un veicolo (principalmente un aeromobile, sia esso civile o militare, ad ala fissa od ala rotante) contro uno o più volatili come gli uccelli o i mammiferi volanti (chiroteri, più comunemente noti come pipistrelli), che trasforma gran parte della sua energia cinetica in lavoro di deformazione della propria struttura e/o di quella del/dei volatili. La collisione può avvenire in qualunque fase del volo, decollo, salita, crociera, discesa, avvicinamento o atterraggio.

Il termine è comunemente considerato un sinonimo del più esaustivo termine "wildlife strike" (w/s) - che comprende anche gli eventi di impatto tra aeromobili e fauna più o meno selvatica non volante (mammiferi, rettili, ecc. ecc.) - visto e considerato che gli impatti tra aeromobili e volatili rappresentano la stragrande maggioranza (più del 97%) degli eventi riportati nelle statistiche.

Se da una parte la collisione porta alla morte dell'animale/i, dall'altra parte l'aeromobile colpito può subire minori o maggiori danni alla cellula e/o ai motori; si va dalle tracce di sangue, ammaccature e piccoli fori sulla cellula, passando per danni sostanziali a componenti della cellula e dei motori, fino a conseguenze catastrofiche, con la perdita completa dell'aeromobile e di vite umane a bordo e a terra.

Siamo in presenza di un wildlife strike quando:

- un pilota ne riporta uno o più;
- il personale di manutenzione di una aviolinea rinviene sull'aeromobile la/e carcassa/e (o parti di essa/e) di uno o più animali e/o riporti danni riconducibili all'impatto con uno o più animali;
- il personale a terra riporti di aver osservato l'impatto di un aeromobile con la fauna selvatica;
- siano stati rinvenuti resti di fauna selvatica nell'area di manovra e/o entro 200 piedi dalla pista, a meno che non venga identificata un'altra ragione del decesso.

Il termine "Bird strike" rientra all'interno della più grande famiglia del "FOD" (Foreign Object Debris); più del 90% del FOD è attribuibile a volatili

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O Impatto confermato:

quando l'equipaggio vede la fauna molto vicina e:

- a. osserva l'impatto sulla cellula/parabrezza e/o visualizza i resti della fauna sul parabrezza e/o riscontra danni al parabrezza, o
- b. percepisce rumore (dell'impatto o del danno da esso provocato, es. stallo del motore, radome danneggiato, cellula penetrata, perdita di pressurizzazione), o
- c. osserva o percepisce una temporanea o permanente variazione del suono o dei parametri del/dei motore (EPR, N1, EGT, FF, stallo/sovraccarico del compressore, vibrazioni N1 e/o N2), o
- d. percepisce vibrazioni aerodinamiche o un'anomala manovrabilità dell'aeromobile, o
- e. osserva una perdita o una significativa variazione dei parametri degli strumenti di volo per danni a sensori di velocità o angolo d'attacco, o
- f. osserva o percepisce fumo, odori o puzza di carne bruciata, o
- g. riscontra danni alle antenne di comunicazione e navigazione, a cavi e condutture idrauliche esposte o alle luci d'atterraggio o
- h. dopo il decollo o l'atterraggio vengono rinvenuti resti di fauna selvatica sulla pista o nelle sue vicinanze (a 200 piedi o meno).

O Impatto sospetto:

quando l'equipaggio vede la fauna molto vicina ma non c'è conferma dell'impatto (nessun rumore di impatto, nessuna variazione del suono del motore e dei suoi parametri, ecc. ecc. Vedi sopra).

O Quasi impatto (near miss):

quando la distanza tra l'aeromobile in movimento e la fauna selvatica è inferiore a 50m, rappresentando un pericolo per l'a/m.

O Avvistamento:

quando l'equipaggio vede che la fauna selvatica interessa installazioni aeroportuali e/o inviluppi di volo tali da rappresentare un pericolo per la sicurezza del volo.

This checklist is designed to be used during normal operations, both in the planning phase and in the flight phases, in order to reduce the probability and severity of impacts with wildlife. The suggested practices are grouped by flight phases, starting from the planning phase, passing through taxiing, take-off roll, climb, cruise, descent, approach, and landing roll phases.

In case of wildlife observed during any fase of flight, report to ATC and other pilots (See "Report avvistamento/impatto fauna selvatica").

In case of wildlife avoidance is needed, apply "WILDLIFE IDENTIFICATION & AVOIDANCE CK LIST".

In case of strike during any fase of flight, apply the "WILDLIFE STRIKE CK LIST".

It should be noted that the information present in this check list and in the reference book, although based on well documented and consolidated practices over the years in the aviation industry, intends only to integrate and not replace or contradict the procedures contained in the airlines and aircraft manufacturers Operating Manuals.

WILDLIFE BEHAVIOR: SOME FACTS

- Although many bird species are active mainly during the daytime, many birds such as owls and migratory waterfowl fly regularly at night;
- Despite widespread belief, bird fly also in low visibility condition (clouds, fog, rain or snow);
- Many birds tend to be more active during sunrise and evening twilight, such as species that move to food sources at sunrise and return to the nest at dusk;
- In the Northern Hemisphere there are three bird strike risk peaks during the year:
 - a) Spring migration in March and April
 - b) July and August, when there are many species of young and inexperienced birds and there are many adult with decreased flight skills due to moulting change;
 - c) Autumn migration in September and October.
- During the hot summer days, many species of birds such as birds of prey and seagulls exploit the thermals to climb to even high heights;
- Bird's size is inversely proportional to the frequency of the flapping of the wings: the lower the frequency, the larger the size and the greater the damage in the event of an impact.
Remember: large birds and flocks of birds represent a considerable risk for aircraft, flocks of large birds are extremely dangerous;
- The most effective way to avoid birds could be to climb above them at a safe speed, as biologists have observed that some birds, if frightened, turn or dive, as they do not have enough energy to attempt a sudden climb. Other recent studies indicate that some birds (especially if young and inexperienced), if perceive planes at a safe distance could interpret them as immobile objects (trees, buildings, etc.) and move away from them with a slow turn;
- It is important to know that birds may not perceive the arrival of a silent aircraft in time to avoid it;
- Many birds remain on the asphalt or concrete to warm up and have a good view of predators; among them the seagulls, which having a gray or black back, blend easily with runways and taxiways;
- Taking off or landing against the sun at sunrise or sunset, makes almost impossible to identify even large flocks of birds on the runway or along the take-off or go around path;
- Be aware that the preceding aircraft at take-off could frighten and make wildlife move towards the runway or take-off path;
- Birds, like airplanes, take off and land into the wind and therefore will not see an aircraft coming from behind;
- There is no scientific evidence that birds are frightened by the spirals drawn on the engine fans/propellers and by the noise and colors of the airplanes.

WSH (I)	WILDLIFE STRIKE PREVENTION CK LIST	2/4
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PLANNING	
Briefing.....Perform <i>Review the emergency procedures and consider the actions to be taken following an impact, with particular attention to the take-off interruption procedure and the engine failure procedures.</i>	
Noise Abatement Take Off technique (ICAO NADP 1, former NADP A).....Apply <i>It allows to:</i> • cross as quickly as possible the zero-three thousand feet height zone (where 90-95% of the impacts with wildlife occur); • reduces the damages in case of impact; • climb near the airport border, where wildlife activity is monitored and managed.	
Speed below 10.000 ft AGL.....≤ 250 Kts <i>To reduces the damages in case of impact.</i>	
Take off Thrust.....Minimum allowed by performance <i>A Lower N1/N2 setting (Derated or Flex) reduces damages in case of ingestion.</i>	
Runway lenght.....Max available <i>Using the maximum available runway length (no intermediate Take-off points) results in lower thrust settings, that reduces damages in case of ingestion.</i>	
TAXI	
Wildlife activity.....Search Wildlife reports by ATC/ATIS/pilots/NOTAM.....Obtain On small or less busy airports (if more than 15' from last movement): • RWY inspection.....Verify/Request • Back track of the RWY (If BCU not available).....Perform	
In case of wildlife seen or reported on/near the RWY or along the take off path: • Take off.....Delay • BCU (Bird Control Unit) operation.....Request • RWY change (if necessary and available).....Request	
In case of reported or forecast wildlife activity and/or on airports with impact index greater than 10 impacts every 10,000 movements: • ENG IGN.....ON • APU START.....Consider <i>For electrical back up in case of ingestion</i> • FLAP SETTING.....MAX AVAILABLE <i>High flap settings result in lower Vr and V2, which means:</i> ▪ Less damage in the event of an impact; ▪ Shorter RWY distances; ▪ Lower attitude angles, which lead to better external visibility, useful for detect birds more easily and promptly;	

WSH (I)	WILDLIFE STRIKE PREVENTION CK LIST	3/4
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TAKE OFF

Landing lights.....**ON**
Keeping the lights on up to 10000 feet AGL, could make the plane more visible to wildlife

Weather radar.....**as RQD**
There is no scientific evidence that weather radar is effective against wildlife

CLIMB

Wildlife activity.....**Search Wildlife**
Speed below 10.000ft AGL.....**≤250 Kts**
Although some operators and some States do not prohibit to increase speed below 10.000 ft AGL, remember that this technique, in addition to increasing the severity of the impact, increases its probability, because during the acceleration phase the climb rate decreases, consequently increasing time at altitude where the presence of birds is greater. Impacts above 3000ft AGL occur less frequently but most of them involve large birds (they tend to fly at higher altitudes to take advantage of thermal upwinds) that due to their mass (higher than certification weight) often cause significant damage.

CRUISE/DESCENT

Wildlife reports by ATC and/or pilots.....**Obtain**
In order to be constantly updated on bird activity at destination and alternate airports

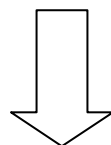
APPROACH/LANDING

Wildlife reports by ATC/ATIS/pilots/NOTAM.....**Obtain**
Wildlife activity.....**Search Wildlife**
Wildlife.....**Be ready to avoid**

On small and less busy airports (If more than 15' from last movement):
 RWY inspection.....**Verify/Request**

In case of wildlife seen or reported on/near the RWY or along the landing path:

- **Approach**.....**Delay**
- **BCU (Bird Control Unit) operation**.....**Request**
- **RWY change (if necessary and available)**.....**Request**



WSH (I)	WILDLIFE STRIKE PREVENTION CK LIST	4/4
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Overflight of areas of known/reported/forecast wildlife activity.....Avoid
(e.g. rivers, nature reserves, swamps, lakes, marshes, coastlines and estuaries)

**In case of reported or forecast wildlife activity and/or on airports with impact
index greater than 10 impacts every 10,000 movements:**

- **Speed.....Reduce**
- **Visual circuit or Circling (if possible).....Avoid**
To Minimize level flight below 3000 ft AGL.
- **Reverse.....Plan not to use**
In case of ingestion, reverse use may increase engine damage
- **ENG IGN.....ON**
- **APU START.....Consider**
For electrical back up in case of ingestion
- **FLAP SETTING.....MAX AVAILABLE**
*High flap settings result in lower landing speed, which means shorter RWY
distances and less damage in the event of an impact.*

Below 10.000ft AGL:

- **Speed.....≤250 Kts**
*Although some operators and some States do not prohibit to maintain speed
higher than 250 Kts below 10.000 ft AGL, remember that this technique
increases the severity of the impact. Impacts above 3000ft AGL occur less
frequently but most of them involve large birds (they tend to fly at higher
altitudes to take advantage of thermal upwinds) that due to their mass (higher
than certification weight) often cause significant damage.*
- **Landing lights.....ON**
*Keeping the lights on below 10000 feet AGL, could make the plane more
visible to wildlife.*
- **Weather radar.....as RQD**
There is no scientific evidence that weather radar is effective against wildlife.
- **Continuous descent technique.....Apply**
Minimize level flight, especially below 3000 ft AGL (suggested glide path 3°).

In case of unavoidable strike with birds during approach/final/landing:

- **Low altitude evasive maneuvers (<1500 ft AGL).....Minimize/Avoid**
- **Go Around.....Avoid**
- **Flock of birds.....Fly through**
- **Engine Ignition.....ON**
- **Thrust setting.....As low as possible**
- **Reverse.....Do not use**
In case of ingestion, reverse use may increase engine damage.
- **Landing roll deceleration.....Consider max**

END

To promptly and effectively avoid impacts with wildlife during the different flight phases, the pilots shall:

- ☐ actively seek the presence of wildlife, mainly below 10,000 ft AGL;
- ☐ once the wildlife has been identified, use a standard phraseology to share information with each other and the ATC. Effective communication will allow:
 - the PM to alert the PF, allowing him to take the avoidance actions compatible with the flight phase;
 - the PF to alert the PM in view of subsequent avoidance actions;
 - the PM to inform the ATC during the avoidance actions.
- ☐ use standard avoidance procedures.

This ck list has been designed to provide pilots with useful guidelines to accomplish these task.

It should be noted that the information present in this check list, although based on well documented and consolidated practices over the years in the aviation industry, intends only to integrate and not replace or contradict the procedures contained in the airlines and aircraft manufacturers Operating Manuals.

IDENTIFICATION CK LIST

The first pilot who identifies potentially dangerous wildlife, shall report it with the following callouts:

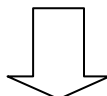
- **"Bird(s)"**
- **"XX o'clock"**
Position relative to the aircraft's heading
- **"Left to right" or "right to left"**
Direction of movement relative to the aircraft's heading
- **"Level", "climbing" or "descending"**
Altitude variation of birds relative to aircraft altitude

e.g. "Birds, eleven o'clock, left to right, descending"

AVOIDANCE CK LIST

CAUTION

In case of expected strike with birds during the approach, carry out a go-around ONLY if certain to avoid them. Vice versa, if not sure to avoid impact, it is preferable to pass through the flock and continue for landing, avoiding or minimizing evasive maneuvers at low altitude and keeping the lowest possible thrust setting. At typical thrust / rotation settings of approach and landing, birds are more likely to pass through the fan without affecting the hot part of the engine, causing less damage. In this regard, do not forget that many serious inconveniences and fatal accidents were caused by the decision to start a go-around in conditions of low kinetic energy, exposing the engines to serious damage resulting from the impact of birds with fan blades and compressor vanes rotating at the very high rpm typical of the go-around phase.



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If a wildlife strike is expected and:

- the flight phase permits and
- only if reasonably sure to avoid wildlife

apply the following avoidance procedure:

☐ During Take off roll, if speed $\leq$ 100 Kts.....Stop T.O

☐ During Take off roll before Vr, if needed to avoid birds:

"Bird(s), I have control".....PF

Rotation.....Delay (PF)

Rotation can be delayed until Vr + 20 kts but not beyond the Vr of the PTOW of the RWY. In any case do not exceed the AOM Maximum tire speed.

☐ After Take off (> 400 ft AGL) or during Approach (> 1500 ft AGL):

"Bird(s), I have control".....PF

"AUTO PILOT OFF".....PF

And other callouts if requested by the AOM

AOM procedure to disengage Auto pilot.....Follow (PF/PM)

Flight path.....Change (PF)

Change the lateral and/or vertical profile to avoid birds, according to the performance and the maximum pitch and bank angle values specified in the AOM. The most effective way to avoid birds could be to climb above them at a safe speed, as biologists have observed that some birds, if frightened, turn or dive, as they do not have enough energy to attempt a sudden climb. Other recent studies indicate that some birds (especially if young and inexperienced), could interpret airplanes as immobile objects (trees, buildings, etc.) and move away with a slow turn, if perceive them at a safe distance.

ATC.....Report (PM)

When clear of wildlife:

• Resume normal operation.....PF/PM

• ATC.....Report (PM)

☐ During Approach, at or below 1500 ft AGL:

Go around.....Perform (PF)

ATC.....Report (PM)

END

This checklist is designed to be used in case of wildlife strike. The actions to be taken in the event of an impact are divided according to the various phases of the flight: take-off roll, climb / cruise / descent / approach and landing roll. In order to assist in making the most appropriate decision after a wildlife strike, the following distinction between confirmed and suspected strike has been introduced:

- A confirmed strike should be considered if the flight crew sees wildlife very close by, and:
 - a. observe the impact on the airframe/ windshield and/or view remains of the wildlife on the windshield and/or detects damage to the windshield, or
 - b. perceives noise (of the impact or damage caused by it, e.g. engine stall/surge, damaged radome, penetrated cell, loss of pressurization), or
 - c. observes or perceives a temporary or permanent change in the engine parameters (EPR, N1, EGT, FF, compressor stall/surge, N1 and/or N2 vibrations), or
 - d. perceives aerodynamic vibrations or abnormal maneuverability of the aircraft, or
 - e. observe a loss or significant variation in flight instrument parameters due to damage to speed or angle of attack sensors, or
 - f. observe or perceive smoke, smells or stink of burnt meat, or
 - g. finds damage to communication and navigation antennas, exposed cables and hydraulic lines, or landing lights, or
 - h. after take-off or landing, wildlife remains are found on the runway or in its vicinity (200 feet or less).
- A suspected strike should be considered if the flight crew sees wildlife very close by, but there is no confirmation (no change in the engine sound, no parameter fluctuations, no sound of strike, no wildlife remains are found on the runway or in its vicinity).

The checklist is organized with the flowchart concept, with a reference line interrupted by a decision symbol ♦ that directs the flow of actions in two or more alternatives. Once the required actions have been completed, the word END will be encountered or, if other actions are required, the indications of the arrow → must be followed. The actions enclosed in a boxed area are intended as Memory Items.

It should be noted that the information present in this check list, although based on well documented and consolidated practices over the years in the aviation industry, intends only to integrate and not replace or contradict the procedures contained in the airlines and aircraft manufacturers Operating Manuals.

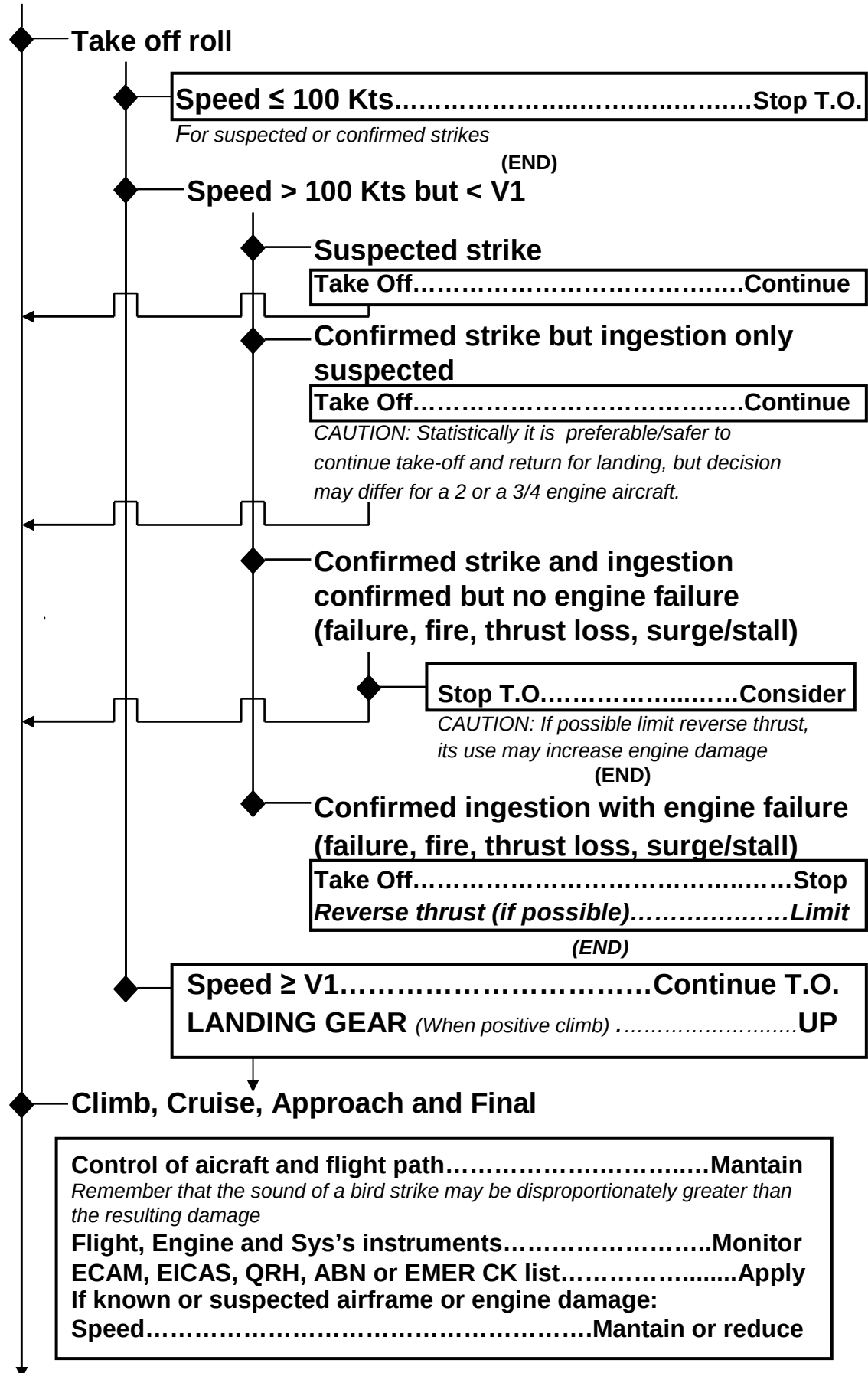
CAUTION

Report any strike in the ATL and have the aircraft inspected by the maintenance.

In case of any near miss, suspected or confirmed strike:

- **report to ATS (See “Report avvistamento/impatto fauna selvatica”);**
- **File a Wildlife Strike Report.**

STRIKE during:



Airframe and engines conditions.....Check
Climb/Cruise/Approach and Land performance.....Determine
In case of:

◆ Suspected or confirmed engine ingestion with indications normal
Air turnback or diversion.....Consider
Especially in case of ETOPS, Long haul and over water flights, because damage or performance degradation may manifest later during the flight.

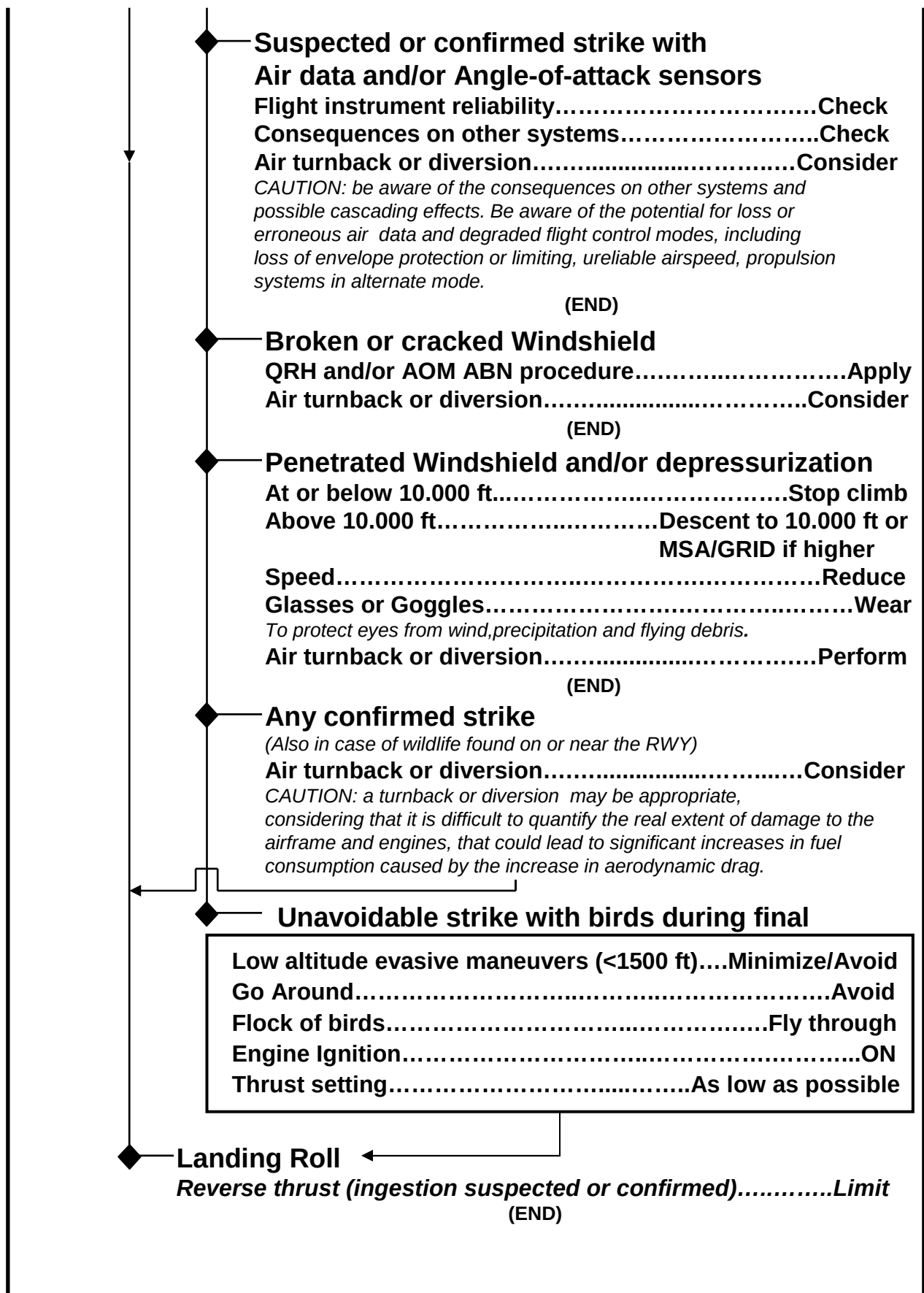
◆ Single or multiple eng ingestion and indication abnormal (EPR, N1/N2, EGT, FF)
Thrust reduction.....Consider
In case of strong engine vibration, thrust reduction will often reduce vibration
Engine Ignition.....ON
APU.....ON
Air turnback or diversion.....Perform

◆ Suspected or confirmed strike with large flocking birds (ex. Canada geese)
Air turnback or diversion.....Consider
CAUTION: damage may effect aerodynamic lift and drag, subsequent fuel burn and ability to complete the flight safely.
(END)

◆ Suspected or confirmed strike with Flap, Slat or Flight Controls
Configuration changes.....Minimize
If strike confirmed:
Air turnback or diversion.....Perform
App/Land Speed corrections.....Consider
Landing performance.....Assess
Aircraft controllability ck before landing.....Consider
CAUTION: On fly-by-wire aircraft, where there is no direct connection between surfaces and flight controls and the feedback to the pilots is consequently lacking, any damage and vibration may not be evident.
(END)

◆ Suspected or confirmed strike with Landing Gear
Damage to L/G and associated systems (Electrical, Hydraulic and pneumatic).....Assess
Brake and steer capability.....Assess
Landing performance.....Assess
Air turnback or diversion.....Consider
(END)

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- 1) **NOMINATIVO DEL VOLO**
- 2) **ANTEPORRE "PIREP" ALLA COMUNICAZIONE**
- 3) **"Rischio fauna selvatica" [Wildlife hazard]**
- 4) **STIMA NUMERO ESEMPLARI**
- 5) **STIMA DELLA SPECIE O DELLA TAGLIA**
- 6) **POSIZIONE DELLA FAUNA**
- 7) **DIREZIONE DELLA FAUNA**
- 8) **ALTEZZA DELLA FAUNA**
- 9) **STIMA DELLA PROBABILITA' D'IMPATTO**

Legenda

- 1) Per essere certi che i controllori di volo sappiano di dover inoltrare il riporto agli altri aeromobili, è opportuno utilizzare il prefisso "PIREP".
- 4) Stima del numero di esemplari.
 - ☐ **Singolo** [singular].
 - ☐ **Numero di animali** [number of animals].
 - ☐ **Stormo piccolo** [small flock]: difficile da individuare anche quando la posizione è nota.
 - ☐ **Stormo medio** [medium flock]: facile da individuare quando la posizione è nota.
 - ☐ **Stormo grande** [large flock]: facile da individuare anche se la posizione è ignota.
- 5) Stima della specie o della taglia.
 - ☐ **Specie (es. piccione, passero).**
 - ☐ **Uccello/animale di taglia piccola** [small bird/s or animal/s]:
massa < 700 g (vedi scheda fauna). Danni all'aeromobile improbabili.
 - ☐ **Uccello/animale di taglia media** [medium bird/s or animal/s]:
massa tra i 700 e 1800 g (vedi scheda fauna). Danni all'aeromobile probabili.
 - ☐ **Uccello/animale di taglia grande** [large bird/s or animal/s]:
massa > 1800 g (vedi scheda fauna). Danni all'aeromobile molto probabili.
- 6) Posizione della fauna.
 - ☐ **Sopravento** [upwind].
 - ☐ **Controbase** [crosswind].
 - ☐ **Sottovento** [downwind].
 - ☐ **Base** [base].
 - ☐ **Finale** [final].
 - ☐ **In pista** [on the RWY].

- ☐ **Via di rullaggio** [taxiway] (e intersezioni con vie di rullaggio e piste).
- ☐ **Decollo** [take off].
- ☐ **In relazione all'aeroporto** (punti cardinali e distanza).

7) Direzione della fauna.

- ☐ Es. **da SX a DX, da DX a SX** (rispetto alla prua dell'A/M).
- ☐ Da un punto cardinale all'altro (es. **da est a ovest**).
- ☐ **Stazionario a terra/volo, in salita o discesa, in circuitazione** [circling].

8) Altezza della fauna.

- ☐ **Al suolo** [On the ground].
- ☐ **Altezza in piedi** [height in feet].

Per quanto riguarda l'altezza degli impatti, si ricorda che in Italia la competenza del gestore aeroportuale si limita alla fascia compresa dal terreno fino a 300 ft, mentre in altre parti del mondo, in omaggio alle disposizioni dell'ICAO, la fascia di competenza dell'operatore aeroportuale è tra il terreno e i 200 ft in atterraggio e tra il terreno e i 500 ft in decollo.

9) Stima della probabilità d'impatto.

- ☐ **Impatto possibile** [Possible strike threat]: la minaccia è vicina e il rischio è basso.
- ☐ **Impatto probabile** [Probable strike threat]: la minaccia è vicina e il rischio è alto.
- ☐ **Impatto quasi sicuro** [Almost certain strike threat]: la minaccia è vicina e il rischio è estremo.

A seguire alcuni esempi di riporto avvistamento di fauna selvatica

- a) *Airline 234, PIREP, wildlife hazard, a large flock of small birds, 2 miles to the south of the field travelling in a northerly direction at 1,500 ft, possible strike threat on approach to runway 01.*
- b) *Airline 234, PIREP, wildlife hazard, medium flock of large birds, along the Take off path of RWY 32, circling at 200ft, probable strike threat.*
- c) *Airline 234, PIREP, wildlife hazard, a large flock of white Ibis, 3 miles on final to runway 19 at one thousand feet, level and circling, almost certain strike threat.*
- d) *Airline 234, PIREP, wildlife hazard, small number of large dogs, at the intersection of runway 19 and taxiway A4 and stationary, almost certain strike threat.*

Attenzione

Durante le fasi ad alto carico di lavoro, in caso di impatto o near miss (distanza <50m), limitarsi a riportare la frase "impatto con volatile/i [**Bird strike**]", "impatto con fauna selvatica [**Wildlife strike**]" o "quasi impatto con volatile/i /fauna selvatica [**Bird/wildlife near-miss**]", comunicando il riporto completo quando il carico di lavoro lo permetterà. Anche durante le operazioni su aeroporti nazionali, valutare l'utilizzo della fonia inglese, a beneficio di traffici stranieri.

- 1) NOMINATIVO DEL VOLO**
- 2) ANTEPORRE "PIREP" ALLA COMUNICAZIONE**
- 3) TIPOLOGIA DI RIPORTO**
 - ☐ **Impatto con fauna selvatica [Wildlife strike]**
 - ☐ **Quasi impatto fauna selvatica [Wildlife near-miss]**
- 4) STIMA NUMERO ESEMPLARI**
- 5) STIMA DELLA SPECIE O DELLA TAGLIA**
- 6) LUOGO DELL'IMPATTO**
- 7) ALTEZZA DELL'IMPATTO**
- 8) DIREZIONE DELLA FAUNA**

Legenda

- 1) Per essere certi che i controllori di volo sappiano di dover inoltrare il riporto agli altri aeromobili, è opportuno utilizzare il prefisso "**PIREP**".
- 4) Stima del numero di esemplari
 - ☐ **Singolo** [singular].
 - ☐ **Numero di animali** [number of animals].
 - ☐ **Stormo piccolo** [small flock]: difficile da individuare anche quando la posizione è nota.
 - ☐ **Stormo medio** [medium flock]: facile da individuare quando la posizione è nota.
 - ☐ **Stormo grande** [large flock]: facile da individuare anche se la posizione è ignota.
- 5) Stima della specie o della taglia.
 - ☐ **Specie (es. piccione, passero)**
 - ☐ **Uccello/animale di taglia piccola** [small bird/s or animal/s]:
massa < 700 g (vedi scheda fauna). Danni all'aeromobile improbabili.
 - ☐ **Uccello/animale di taglia media** [medium bird/s or animal/s]:
massa tra i 700 e 1800 g, (vedi scheda fauna). Danni all'aeromobile probabili.

- ☐ **Uccello/animale di taglia grande** [large bird/s or animal/s]:
massa > 1800 g (vedi scheda fauna). Danni all'aeromobile molto probabili.

6) Luogo dell'impatto.

- ☐ **Sopravento** [upwind].
- ☐ **Controbase** [crosswind].
- ☐ **Sottovento** [downwind].
- ☐ **Base** [base].
- ☐ **Finale** [final].
- ☐ **In pista** [on the RWY].
- ☐ **Via di rullaggio** [taxiway] (e intersezioni con vie di rullaggio e piste).
- ☐ **Decollo** [take off].
- ☐ **In relazione all'aeroporto** (punti cardinali e distanza).

7) Altezza dell'impatto.

- ☐ **Al suolo** [on the ground].
- ☐ **Altezza in piedi** [height in feet].

Per quanto riguarda l'altezza degli impatti, si ricorda che in Italia la competenza del gestore aeroportuale si limita alla fascia compresa dal terreno fino a 300 ft, mentre in altre parti del mondo, in omaggio alle disposizioni dell'ICAO, la fascia di competenza dell'operatore aeroportuale è tra il terreno e i 200 ft in atterraggio e tra il terreno e i 500 ft in decollo.

8) Direzione della fauna.

- ☐ Es. **da SX a DX, da DX a SX** (rispetto alla prua dell'A/M).
- ☐ Da un punto cardinale all'altro (es. **da est a ovest**).
- ☐ **Stazionario a terra/volo, in salita o discesa, in circuitazione** [circling].

A seguire alcuni esempi di riporto di impatto fauna selvatica

- a) *Airline 234, PIREP, wildlife strike with a large flock of small birds, 2 miles to the south of the field at 1,500 ft.*
- b) *Airline 234, PIREP, wildlife near-miss with a medium flock of large birds, along the Take off path of RWY 32, at 200ft, birds direction from left to right, climbing.*
- c) *Airline 234, PIREP, wildlife strike with a large flock of white Ibis, 3 miles on final to runway 19 at one thousand feet, birds level and circling.*
- d) *Airline 234, PIREP, wildlife near miss with a small number of large dogs, at the intersection of runway 19 and taxiway A4 and stationary.*

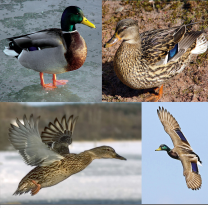
Italiano

- Airone bianco maggiore (Great egret) E5
- Airone cenerino (Grey heron) F1
- Airone guardiabuoï (Cattle egret) C4
- Airone rosso (Purple heron) D3
- Allocco (Tawny owl) D1
- Aquila di mare coda bianca (White tail eagle) G3
- Aquila di mare testa bianca (Bald eagle) G2
- Balestruccio (House martin).....A1
- Chiurlo maggiore (Curlew) E1
- Cicogna bianca (White stork)F5
- Cicogna nera (Black stork)F2
- Cigno (Swan)G4
- Cormorano (Great cormorant)F6
- Cornacchia grigia (Hooded crow) B6
- Corriere grosso (Ringed plover)A4
- Corvo comune (Rook)C5
- Fagiano comune (Common pheasant)E6
- Falco pellegrino (Peregrine falcon).....D5
- Fenicottero (Flamingo)F3
- Gabbiano comune (Black-headed gull) C1
- Gabbiano reale (Yellow-legged gull) E4
- Gabbiano reale nordico (European herring gull)E3
- Garzetta (Little egret).....C6
- Gazza (Eurasian magpie) B3
- Germano reale (Mallard).....E2
- Gheppio comune (Common kestrel) B4
- Gufo (Long-eared owl)C3
- Lepre (Hare) G5
- Nibbio bruno (Black kite) D2
- Nibbio reale (Red kite)D6
- Oca del Canada (Canada goose) G1
- Oca selvatica (Greylag goose)F4
- Pavoncella (Northern lapwing) B5
- Piccione (Rock dove) C2
- Piovanello (Curlew sandpiper)A5
- Poiana comune (Common buzzard) D4
- Rondine (Barn swallow) A3
- Rondone (Common swift)A2
- Sturno (Starling)A6
- Sturno nero (Spotless starling) B1
- Taccola (Eurasian jackdaw) B2
- Volpe (Fox) G6

Inglese

- Bald eagle (Aquila di mare testa bianca).....G2
- Barn swallow (Rondine)..... A3
- Black kite (Nibbio bruno)..... D2
- Black stork (Cicogna nera)F2
- Black-headed gull (Gabbiano comune)..... C1
- Canada goose (Oca del Canada)..... G1
- Cattle egret (Airone guardiabuo)..... C4
- Common buzzard (Poiana comune)..... D4
- Common kestrel (Gheppio comune)..... B4
- Common pheasant (Fagiano comune).....E6
- Common swift (Rondone).....A2
- Curlew (Chiurlo maggiore) E1
- Curlew sandpiper (Piovanello)A5
- Eurasian jackdaw (Taccola)..... B2
- Eurasian magpie (Gazza)..... B3
- European herring gull (Gabbiano reale nordico).....E3
- Flamingo (Fenicottero)..... F3
- Fox (Volpe)..... G6
- Great cormorant (Cormorano)..... F6
- Great egret (Airone bianco maggiore)..... E5
- Grey heron (Airone cenerino) F1
- Greylag goose (Oca selvatica)..... F4
- Hare (Lepre)..... G5
- Hooded crow (Cornacchia grigia)..... B6
- House martin (Balestruccio).....A1
- Little egret (Garzetta)..... C6
- Long-eared owl (Gufo)..... C3
- Mallard (Germano reale).....E2
- Northern lapwing (Pavoncella)..... B5
- Peregrine falcon (Falco pellegrino).....D5
- Purple heron (Airone rosso)..... D3
- Red kite (Nibbio reale).....D6
- Ringed plover (Corriere grosso).....A4
- Rock dove (Piccione)..... C2
- Rook (Corvo comune)..... C5
- Spotless starling (Storno nero)..... B1
- Starling (Storno).....A6
- Swan (Cigno).....G4
- Tawny owl (Allocco)..... D1
- White stork (Cicogna bianca)..... F5
- White tail eagle (Aquila di mare coda bianca).....G3
- Yellow-legged gull (Gabbiano reale)..... E4

WILDLIFE IDENTIFICATION

			1	2	3	4	5	6	
S I Z E	S M A L L	A	Balestruccio (House martin) A1 	Rondone (Common swift) A2 	Rondine (Barn swallow) A3 	Corriere grosso (Ringed plover) A4 	Piovanello (Curlew sandpiper) A5 	Sturno (Starling) A6 	
		B	Sturno nero (Spotless starling) B1 	Taccola (Eurasian jackdaw) B2 	Gazza (Eurasian magpie) B3 	Gheppio comune (Common kestrel) B4 	Pavoncella (Northern lapwing) B5 	Cornacchia grigia (Hooded crow) B6 	
		C	Gabbiano comune (Black-headed gull) C1 	Piccione (Rock dove) C2 	Gufo (Long-eared owl) C3 	Airone guardabuoi (Cattle egret) C4 	Corvo comune (Rook) C5 	Garzetta (Little egret) C6 	
		M E D I U M	D	Allocco (Tawny Owl) D1 	Nibbio bruno (Black kite) D2 	Airone rosso (Purple heron) D3 	Poiana comune (Common buzzard) D4 	Falco pellegrino (Peregrine falcon) D5 	Nibbio reale (Red kite) D6 
			E	Chiurlo maggiore (Curlew) E1 	Germano reale (Mallard) E2 	Gabbiano reale nordico (European herring gull) E3 	Gabbiano reale (Yellow-legged gull) E4 	Airone bianco maggiore (Great egret) E5 	Fagiano comune (Common pheasant) E6 
			L A R G E	F	Airone cenerino (Grey heron) F1 	Cicogna nera (Black stork) F2 	Fenicottero (Flamingo) F3 	Oca selvatica (Greylag goose) F4 	Cicogna bianca (White stork) F5 
	G	Oca del Canada (Canada goose) G1 		Aquila di mare testabianca (Bald eagle) G2 	Aquila di mare coda bianca o aquila grigia (White-tailed eagle) G3 	Cigno (Swan) G4 	Lepre (Hare) G5 	Volpe (Fox) G6 	

	1		2		3		4		5		6	
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WSH (II)	INDICI D'IMPATTO AEROPORTI ITALIANI	X
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Aeroporto			Anno 2019			Ispezioni gionaliere*	Indice d'impatto	
			N. movimenti	N. impatti	Indice		Trend	Media nei tre anni
Alghero	LIEA	AHO	10.943	18	16,4	C	↑↑	11,0
Ancona	LIPY	AOI	11.652	5	4,3	C	→	7,2
Bari	LIBD	BRI	45.885	7	1,5	6-8	↓	3,0
Bergamo	LIME	BGY	95.377	45	4,7	6-10	↓	5,7
Bologna	LIPE	BLQ	77.126	33	4,3	C	→	4,4
Bolzano	LIPB	BZO	13.229	3	2,3	4	→	2,2
Brescia	LIPO	VBS	10.950	14	12,8	C	↑	9,3
Brindisi	LIBR	BRD	21.792	6	2,8	6-8	→	2,4
Cagliari	LIEE	CAG	39.692	28	7,1	C	→	7,7
Catania	LICC	CTA	81.706	50	6,1	C	↓	6,1
Comiso	LICB	CIY	2.987	19	63,6	C	↑↑	34,2
Cuneo	LIMZ	CUF	4.450	2	4,5	3-6	→	3,6
Firenze	LIRQ	FLR	36.137	20	5,5	4-6	↓	7,5
Genova	LIMJ	GOA	20.785	27	13,0	C	↑	9,4
Lamezia T.	LICA	SUF	25.458	22	8,6	4	→	9,7
Lampedusa	LICD	LMP	6.039	4	6,6	2+Prevolo	↑	5,4
Milano L.	LIML	LIN	85.720	31	3,6	C	→	3,4
Milano M.	LIMC	MLP	234.026	87	3,7	C	→	3,2
Napoli	LIRN	NAP	85.704	34	4,0	C	→	4,8
Olbia	LIEO	OLB	34.008	15	4,4	C	→	3,1
Palermo	LICJ	PMO	54.243	21	3,9	C	→	4,7
Pantelleria	LICG	PNL	3.120	2	6,4	2+Prevolo	↓↓	15,0
Parma	LIMP	PMF	3.838	4	10,4	C	↑	5,7
Perugia	LIRZ	PEG	3.850	6	15,6	6	↑	8,3
Pescara	LIBP	PSR	12.880	4	3,1	3	→	4,4
Pisa	LIRP	PSA	45.412	50	11,0	C	↓	10,1
Reggio Calabria	LICR	REG	5.539	8	14,4	Giornaliera (?)	↑↑	5,8
Rimini	LIPR	RMI	4.934	8	16,2	4	→	10,4
Roma Ciampino	LIRA	CIA	52.253	15	2,9	C	→	2,4
Roma Fiumicino	LIRF	FCO	310.459	107	3,4	C	→	2,6
Torino	LIMF	TRN	43.655	22	5,0	C	↑	3,2
Trapani	LICT	TPS	5.322	11	20,7	C	↑	17,6
Treviso	LIPH	TSF	24.116	24	10,0	C	↓	12,6
Trieste	LIPQ	TRS	13.810	8	5,8	C	↓	6,5
Venezia	LIPZ	VCE	95.232	34	3,6	C	→	4,4
Verona	LIPX	VRN	31.139	32	10,3	C	↓	13,3
ITALIA			1.653.468	826	5,0		→	4,9

* C → Ispezioni continue.

	Probabilità bassa		Probabilità media		Probabilità elevata
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