

OBSERVATIONS AND COMMENTS ON THE BSCI 2017 ANNUAL REPORT

The Bird Strike Committee Italy (BSCI), a CAA's branch, released the annual report on the wildlife strikes in Italian airports in 2017, a report that is the most important document on this topic at a national level.

As usual, we will therefore analyse the most relevant aspects, adding our observations and comments.

We will use the same data, sometimes grouping them in a general view, sometimes analysing them using a different reading key.

The BSCI states that in 2017 there was a **clear decrease in the number of total wildlife strike events** compared to the previous year, with 773 reports of impacts below 300 ft. (998 in 2016) and 52 above 300 ft. (315 in 2016), for a total of **825 reports** (1313 in 2016).

ENAC attributes such a surprising fall to the *"growing attention devoted to this issue, to the study of attractive sources and the implementation of deterrent strategies that reduce or keep the presence of wildlife under control as much as possible"*.

In a global scenario that sees the number of strikes continuously increasing, and in Italy a *"further improvement in reporting activity, through the increasingly widespread implementation of the eEMOR system"*, as confirmed by BSCI, a **reduction of 37% of impact** appears really incredible, even if another decrease, much less relevant, had already occurred in 2011 compared to 2010. In fact, an improvement in the reporting activity generally corresponds to an increase in reports, and not the opposite.

All we can do, however, is to be happy for the good result and hope - albeit with all due caution - that it is the beginning of a descending parabola.

As regards the species most involved in 2017, swift (often identified as **swallow**, 23.93%), **kestrel** (20.7%), **gull** (various species, 13.97%) and **pigeon** (6.60%) appear first. Very few other species exceed 1% of the total impacts: the **hooded crow** (2.72%) and the **Italian sparrow** (2.33%).

Swifts, gulls and pigeons, are gregarious birds that normally tend to gather in flocks and therefore are among the most insidious for flight operations.

Even more insidious for their size and mass are **herons** (grey herons and cattle egrets) that have caused 15 strikes. If statistically they appear to be a relatively negligible occurrence (1.94%), in absolute terms that figure is important and worthy of attention.

Fortunately, the decline in strikes with gulls continues, and it can probably be related to the closure of the landfills of Scarpino (Genoa) and Malagrotta (Rome) located near their respective airports.

As usual, the BSCI report presents the situation of airports in an analytical way. We think to do useful work by presenting a single synoptic table summarizing the main data of the Italian airports.

AIRPORT	STRIKES 2017	STRIKES 2016	BRI ₂ 2017	BRI ₂ 2016	DAILY INSPECTIONS	MOVEM.	RATE X 10K MVT 2017
ALGHERO	4	8	0,05	0,08	CONTINUOUS	9.982	4
ANCONA	6	1	0,07	0,06	CONTINUOUS	11.856	5
BARI	20	21	0,16	0,23	10	40.530	5
BERGAMO	42+20	25+13	0,31	0,33	8-10	86.113	7
BOLOGNA	35+4	24+12	0,09	0,12	6	71.876	5
BOLZANO	3+1	0+2	0,14	0,14	4	12.205	3
BRESCIA	3+4	0+3	0,08	0,07	CONTINUOUS	7.999	9
BRINDISI	3	9	0,07	0,06	7	18.840	2
CAGLIARI	23	21+2	0,02	0,07	CONTINUOUS	35.813	6
CATANIA	56	34	0,17	0,10	CONTINUOUS	68.075	8
COMISO	9	4	0,09	0,02	CONTINUOS	3.820	24
CUNEO	2+1	5	0,06	0,12	3-6	4.900	6
FIRENZE	34+1	18	0,13	0,12	6	35.490	10
FOGGIA	=	=	0	0	4	664	0
GENOVA	18	11	0,27	0,29	CONTINUOUS	18.979	9
LAMEZIA T.	15+3	33	0,07	0,12	4	21.823	8
LAMPEDUSA	2	4	0,03	0,09	2+prevolo	4.947	4
MIL. LINATE	14+7	33+5	0,11	0,16	CONTINUOUS	117.283	2
MIL.MALPENSA	15+1	35	0,09	0,08	CONTINUOUS	178.817	1
NAPOLI	41+1	35	0,14	0,14	CONTINUOUS	76.651	5
OLBIA	12	8	0,11	0,10	CONTINUOUS	34.078	4
PALERMO	18	21	0,11	0,18	CONTINUOUS	46.627	4
PANTELLERIA	9	6	0,16	0,11	2+prevolo	3.120	3
PARMA	2	2	0,05	0,04	CONTINUOUS	5.729	3
PERUGIA	3	1	0,07	0,01	CONTINUOUS	4.233	7
PESCARA	5	4	n.d.	0,08	3	12.998	4
PISA	71	34	0,06	0,04	CONTINUOUS	46.775	15
R. CALABRIA	2	6	0,04	0,15	DAILY	5.419	4
RIMINI	6	6	0,08	0,05	4	3.982	15
RM. CIAMPINO	12	3	0,01	0,02	CONTINUOUS	54.237	2
RM.FIUMICINO	71+2	52+2	0,09	0,04	CONTINUOUS	297.491	2
TORINO	10+2	18	0,07	0,18	5-8	47.885	3
TRAPANI	15	32+2	0,12	0,17	CONTINUOUS	13.009	12
TREVISO	36+2	19+2	0,11	0,08	CONTINUOUS	21.265	18
TRIESTE	11+2	9+2	0,07	0,07	CONTINUOUS	15.538	8
VENEZIA	51+6	65+4	0,22	0,41	CONTINUOUS	115.396	5
VERONA	31+6	19+2	0,12	0,08	5	28.159	13

(Tab. 1)

NOTE: the BRI₂ is a risk index calculated on different predictive parameters that allows a more detailed analysis of the wildlife risk situation in an airport. It replaces the old n / 10k mvt index based solely on the number of reported impacts.

The BRI₂ data that exceed the rate of 0.25 are shown in red, while the “attention (and action) threshold” is set at 0.50. We have to remember that **no Italian airport in 2017 had a risk index beyond that threshold**. The number of strikes for 10,000 movements that exceed the “critical” threshold of 5,00 are also shown in red. This is a rather old risk assessment methodology, based solely on one datum, which absolutely cannot represent the situation of an airport. However, since the BSCI continues to use it, albeit marginally, it has been reported in the table above as an indicative value.

We never get tired of highlighting one of the critical points of the BRI₂ index, which, in our opinion, is suitable for more or less conscious manipulation. Airport managers are responsible for the reliability of the data but very often they delegate this task to a third party who also materially carries out the bird control service, so actually **measures its own work**. Furthermore, data collection and processing are carried out by a plurality of different subjects, i.e. the airports, often with different criteria and methods, reason why the comparison between the indexes is often arduous and misleading.

Let us look, for example, at the case of Pisa airport. 71 strikes were reported in 2017, out of about 47,000 movements, that raise the old index to three times the attention threshold. Furthermore, the number of strikes has doubled with regard to 2016. However, it shows a risk index of 0.06, lower than that of Ancona, which had instead 6 strikes and that of Turin, which had 12 (with the same number of flights).

The BSCI attributes this apparent incongruity to some factors of the BRI₂ index and to the fact that the majority of strikes was caused by swallows and swifts. However, it also lists the species that are attracted by the factors present on the airport and its surroundings: kestrels, crows, gulls, herons and magpies, not exactly small and harmless passerines.

The table below shows the first three airports with the highest risk index, always bearing in mind that these data are well below the threshold of attention and unacceptability (0.50).

AIRPORT	2017	2016
BERGAMO	0,31	0,33
GENOVA	0,27	0,29
VENEZIA	0,22	0,41

(Tab. 2)

The report does not indicate the national average BRI₂ datum (reported instead for each airport); however the BSCI shows the national average rate of strikes out of 10,000 movements (including general aviation) which is 5.22 (8.49 in 2016); if applied to commercial aviation only, the rate rises to 6.05 (9.85 in 2016).

We recall that the "alarm threshold", in the past identified by ENAC with this old assessment index, was 5.00 and that **this excess continues from 2009**.

It is true that this old index, based only on the number of strikes, cannot absolutely replace those based on risk matrixes, nor other systems like the BRI₂, but in any case it represents a value to be taken into account even if at a just indicative level.

Coming to the effects caused to aircraft by wildlife strikes, the report very opportunely shows a summary table that illustrates in numerical terms their consequences and effects (under 300 ft.) on flight in the last 15 years; we report some data relating only to the 2014-2017 period:

YEAR	DAMAGING STRIKES	MULTIPLE STRIKES	STRIKES WITH INGESTION	IMPACTS WITH EFFECTS ON FLIGHT (EOF)
2014	20	64	20	8
2015	37	92	18	30
2016	41	81	27	32
2017	14	84	24	8

(Tab. 3)

Consistently with the other data, also in this case three types of impact out of four show decreases, with the exception of the multiple strikes that remain stable.

The problem of bird concentrations and the strategies to avoid them or to reduce the damage seem to be the new frontier of prevention systems. From remote sensing, to new certification requirements, to means of dispersal, these should be the goals to be reached in the immediate future.

The permanent presence of a team dedicated to observation, inspection and wildlife dispersal constitutes the fundamental protection to guarantee the air operations safety. This organization called **BCU (Bird Control Unit)** and expressly required by ENAC regulation, is now present in various forms in all Italian airports. The typical BCU action is the inspection of the airport areas. The Tab. 1 showed the number of daily inspections on the movement and manoeuvring areas, as declared by the Italian airports. The same data are shown in the tab. 4 in absolute value and in percentage as follows:

Number of daily inspections (36 airports)	2017
From 3 to 6 (*)	10 = 28%
From 6 to 10	4 = 11%
Continuous inspections	21 = 58%
Data not available (°)	1 = 3%
TOTAL	36 = 100%

(Tab. 4)

(*) Including two airports that carry out also pre-flight inspections.

(°) It's difficult to interpret the meaning of the term "daily" with regard to the airport of Reggio Calabria.

Fortunately, the number of Italian airports that have a BCU team always active on the ground is well over 50%. There are however airports, including important ones, that still have a limited number of daily inspections.

Some of these also, perhaps because of this, present a greater number of strikes and higher risk indexes than others. This seems to confirm the assumption that there is a relationship between the number of the BCU inspections and the risk level.

AIRPORT	DAILY INSPECTIONS	IMPACTS 2017	BRI ₂
BERGAMO	8-10	42+20	0,31
VERONA	5	31+6	0,12
FIRENZE	6	35	0,13

(Tab. 5)

In general, we emphasise the opportunity to apply the recommendation of the International Bird Strike Committee (now WBA) according to which, the BCU should be present on the airfield for at least 15' prior to any aircraft departure or arrival. Thus, if aircrafts are landing or taking off at intervals of less than 15' there should be a continuous presence on the airfield. Furthermore, the BCU personnel should not be required to undertake any duties other than bird control during this time.

As for the dispersal devices, the most used is still the **distress call**, in its fixed and mobile variants. The system is effective but highly depending on how it is used and on the user's skill.

Firearms and rescue vehicle sirens follow. Gas cannons and falconry endure. The list shown by BSCI continues with other various dispersal means, from the most primitive to the most modern (LRAD), in a frankly **excessive, and above all, unregulated fragmentation of devices**.

The BSCI (and the airports) still insists on considering 4X4 vehicles as a deterrent system. Actually, vehicles, as well as electronic data recording supports, have no deterrent function and should be excluded from the list of dissuasive devices.

As usual, we complete the BSCI report adding a list of the most significant wildlife strike events that occurred in Italy in 2017.

The case of the Pakistani B777 at Malpensa could regard a bird but also a drone, a device that recently created several problems, mainly security problems, at some British airports.

The event that involved the Volotea B717 in Genoa is unfortunately a story already lived: in 1989 a similar event occurred to a TNT Bae146, which suffered serious damages, fortunately managing to safely return with three engines out of order. The case was then taken to a civil Court and gave rise to a very long legal dispute.

None of these events has been so far investigated by ANSV.

DATE	PLACE	AIRLINE AND ACFT	DESCRIPTION
28.01.2017	Milan Malpensa	PIA B777	During the approach hit a bird or other not identified object that caused a light damage to the rudder; next legs delayed for 24 hours
02.02.2017	Ronchi del L. (Trieste)	Lufthansa CRJ900	Rejected take off and returned to the parking area due to a suspect bird strike
03.05.2017	Naples	Aer Lingus A320	During the initial climb flew through a flock of birds and one of them was ingested into an engine; landed back after about 40'. According to some sources, both engines ingested birds.
05.11.2017	Genoa	Volotea B717	During the take-off run a flock of gulls settling on the runway rose up; one of them impacted the rightside windshield; the crew decided to reject take-off at high speed (125 kts) without further problems.
14.11.2017	Alghero	Ryanair B737	During the approach an engine ingested a gull; the next flight was delayed for 6,5 hours.

In conclusion, the 2017 BSCI report presents a significant, unexpected and in some way surprising decline in strikes, in contrast with what is happening in the rest of the world. One can only hope that this trend will stabilize even if the total elimination of the phenomenon does not belong to the world of possible things.

As usual, from an ornithological point of view the report is accurate, well documented and exhaustive, for the simple reason that it was written by an expert ornithologist.

However, we must not forget that wildlife strikes are basically a matter of **aviation safety** and as such should be treated, i.e. at an **interdisciplinary level** among all the stakeholders of the aviation system, and not left (one could perhaps say “abandoned”) in the hands of biologists. They certainly carry out an invaluable consulting work, but should not be the only point of reference.

In fact, what is missing in this annual presentation of the national “state of the art” on the issue (but also in those of other countries) are topics that one would expect to find and that should involve also other actors of the aviation-system, indeed in an interdisciplinary perspective.

For example, what is the policy on flight **crew training** in order to deal with serious wildlife events? We have recently commented on two investigations following accidents in which the human factor following the unforeseen event was crucial, one occurred in Italy, and both emphasized the need for more and better training (1).

What is the position of the Regulators as regards the **involvement of the ATC service** in the “prevention loop”? Do they deem it necessary to intervene in their ATM manuals following the ICAO recommendations? In particular, do they deem it necessary to ensure that ATC staff (both civilian and military) are properly trained in accordance with the latest ICAO directives (DOC 9137) (2)?

What is the position of our civil aviation with regard to the introduction in Italy of the **avian radars**, devices that are now spreading everywhere but almost unknown here?

Again, will it be possible to have in Italy (but not only) a reliable calculation of the costs suffered by airlines due to the wildlife strikes and that only with a large approximation have been estimated in 40 million Euros per year?

Finally, will it be possible to have a unique standard for publishing in AIP information about wildlife at airports or surrounding areas, currently showing remarks ranging from utter vagueness to ultra-detailed lists?

Questions, perhaps too many and perhaps all together, but which certainly do not intend to diminish the function and work of BSCI and the national Authority, that at an international level appear to be instead an example to be imitated. A long way they have come and our Country is at the top in this field. However, there is still a long way to go and these comments above - in our own little way - want to be a stimulus.

(1) The investigations we are referring to are those that followed the accident of 29.7.2017, occurred to a Cavok Air Antonov An-74, and that of 11.10.2008 to a Ryanair B737. Both, with comments, are published on this website (year 2019)

(2) The Doc ICAO 9137 Part 3^A literally states: *12.3.4 Clear and precise procedures should be developed for air traffic control, and controllers should be trained such that they are able to give specific and timely information to pilots and wildlife control crews to avoid identified hazards.*