AVIATION SAFETY WORKSHOP

WILDLIFE STRIKE: ESPERIENZA DI UN OPERATORE

SAFETY DEPARTMENT

15 MAY 2018

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WILDLIFE STRIKE DATA ANALYSIS

PERIOD 2010-2017

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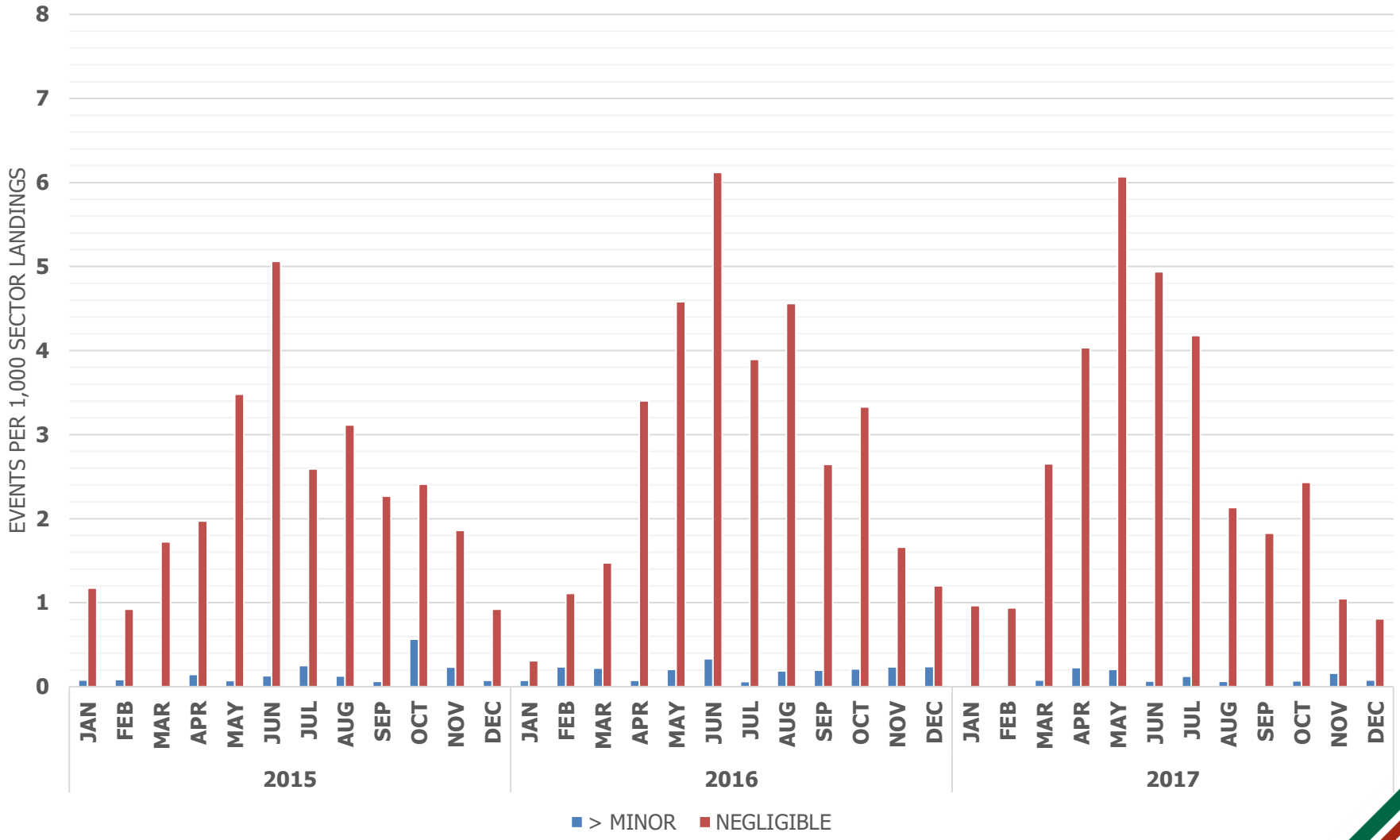
WILDLIFE STRIKE DATA ANALYSIS

WILDLIFE STRIKE PER SEVERITY (MONTHLY 2015-2017)



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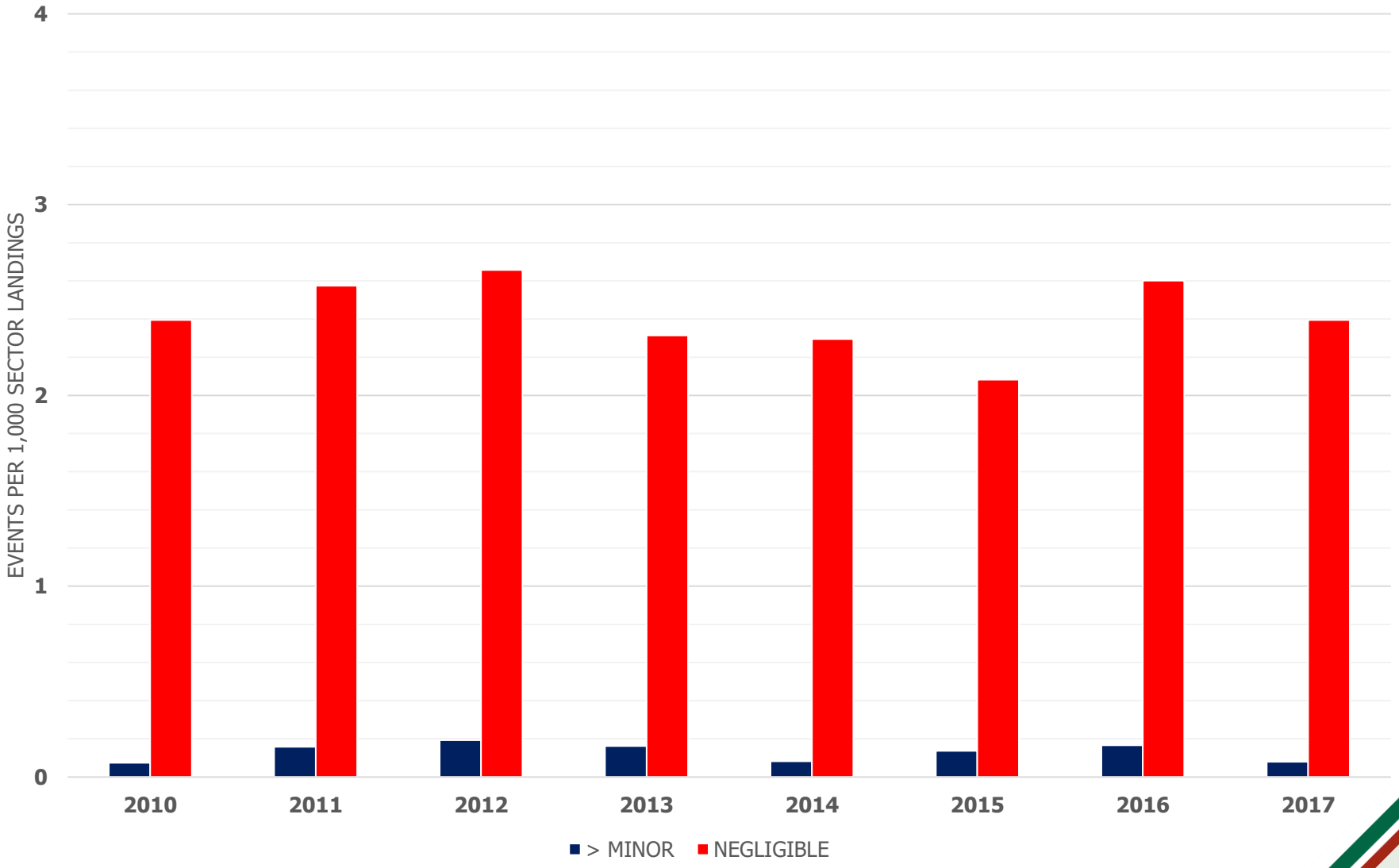
WILDLIFE STRIKE DATA ANALYSIS

WILDLIFE STRIKE PER SEVERITY (YEARLY 2010-2017)



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WILDLIFE STRIKE DATA ANALYSIS

WILDLIFE STRIKE PER AIRCRAFT TYPE (YEARLY 2015-2017)

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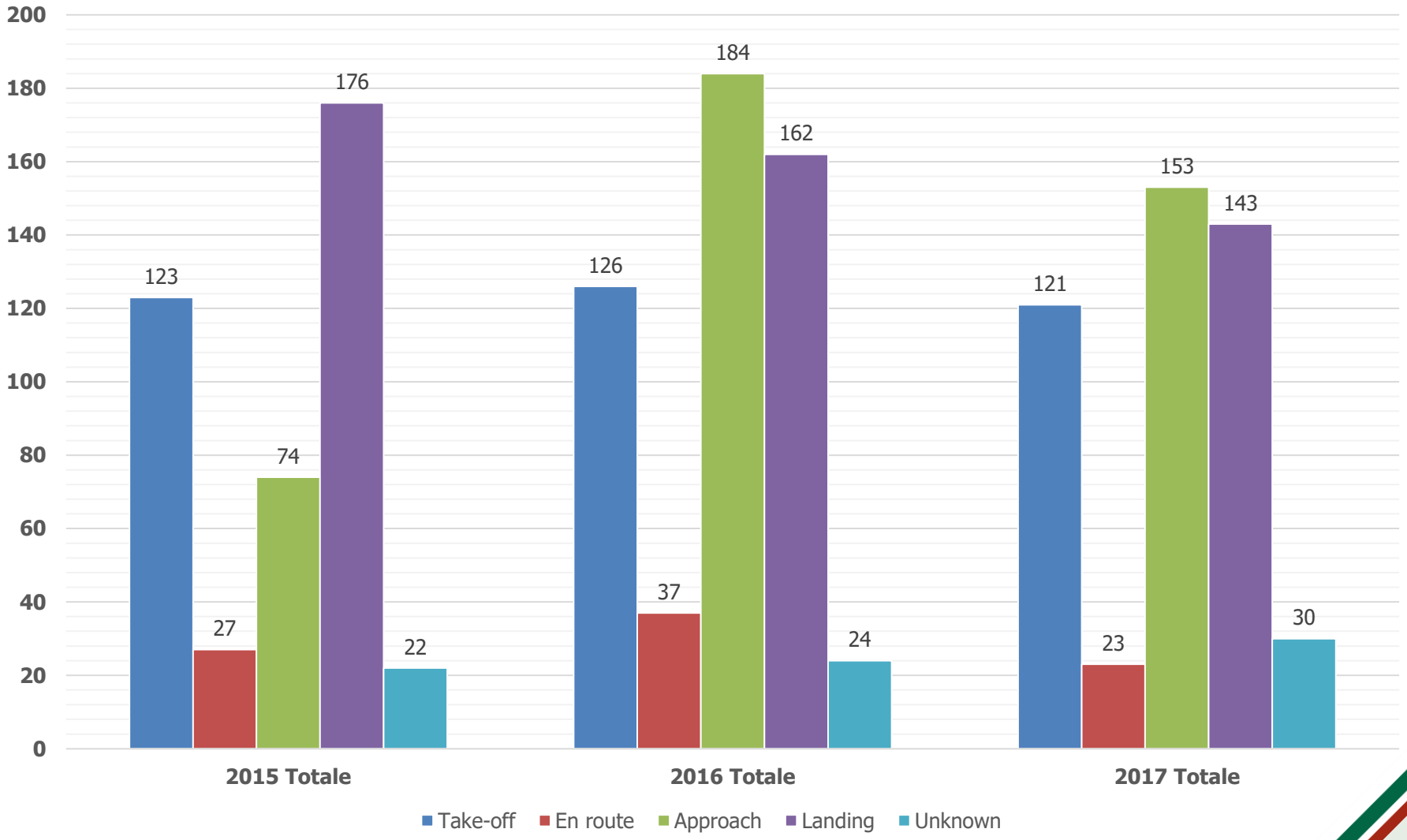
WILDLIFE STRIKE DATA ANALYSIS

WILDLIFE STRIKE PER FLIGHT PHASE (YEARLY 2015-2017)



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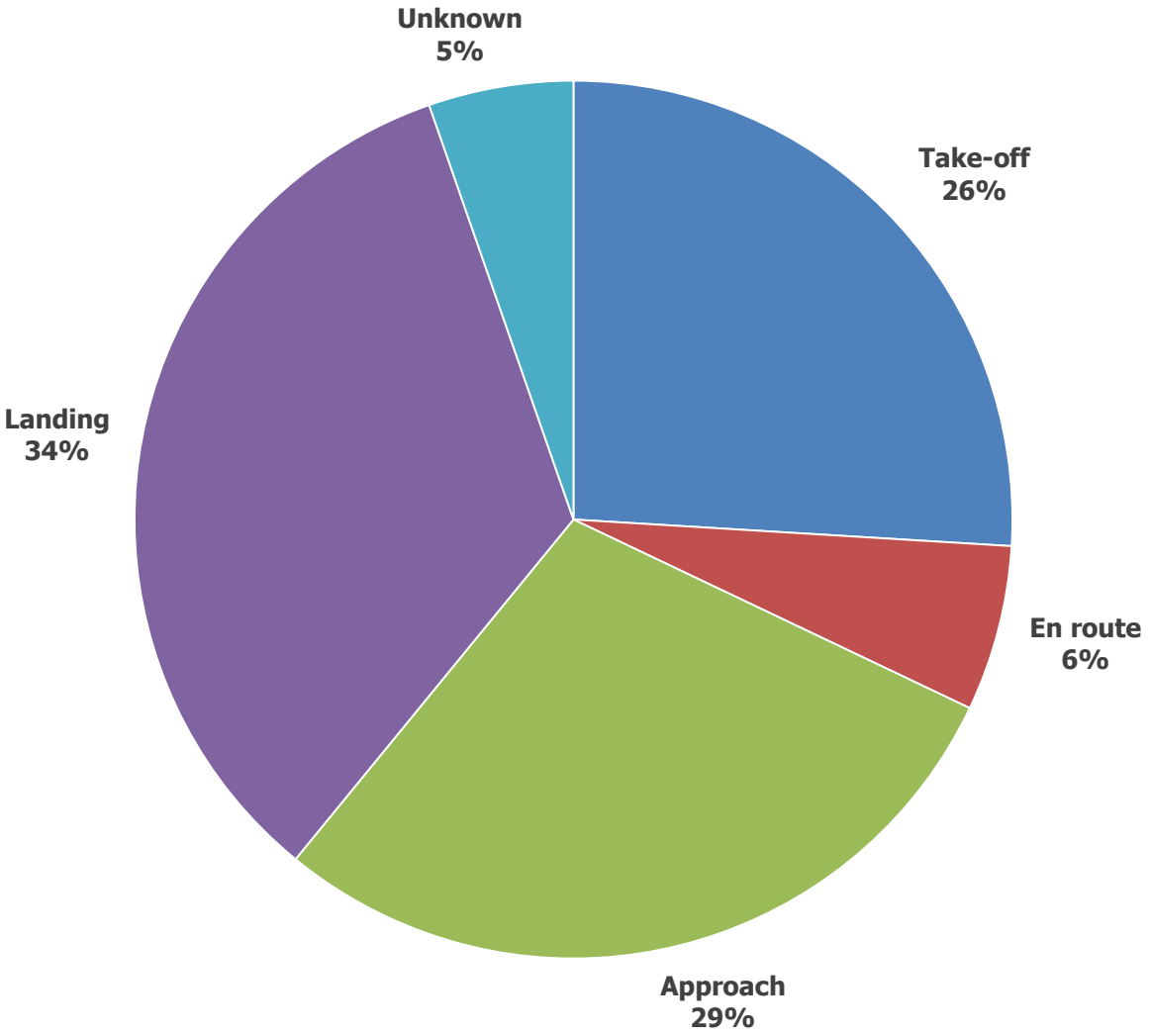
WILDLIFE STRIKE DATA ANALYSIS

WILDLIFE STRIKE PER FLIGHT PHASE (2015-2017)



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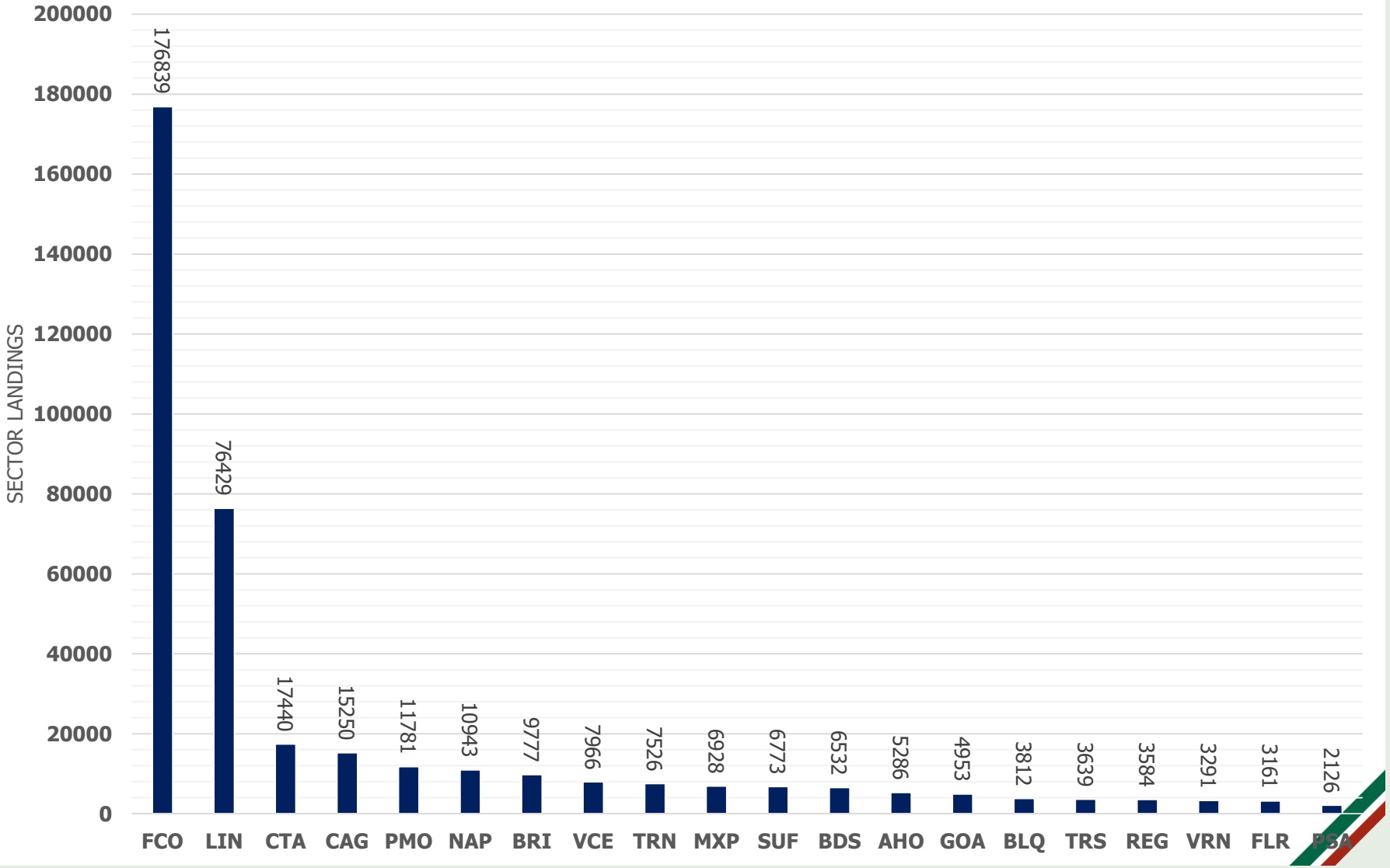
WILDLIFE STRIKE DATA ANALYSIS

OPERATIONAL ACTIVITY (2015-2017)



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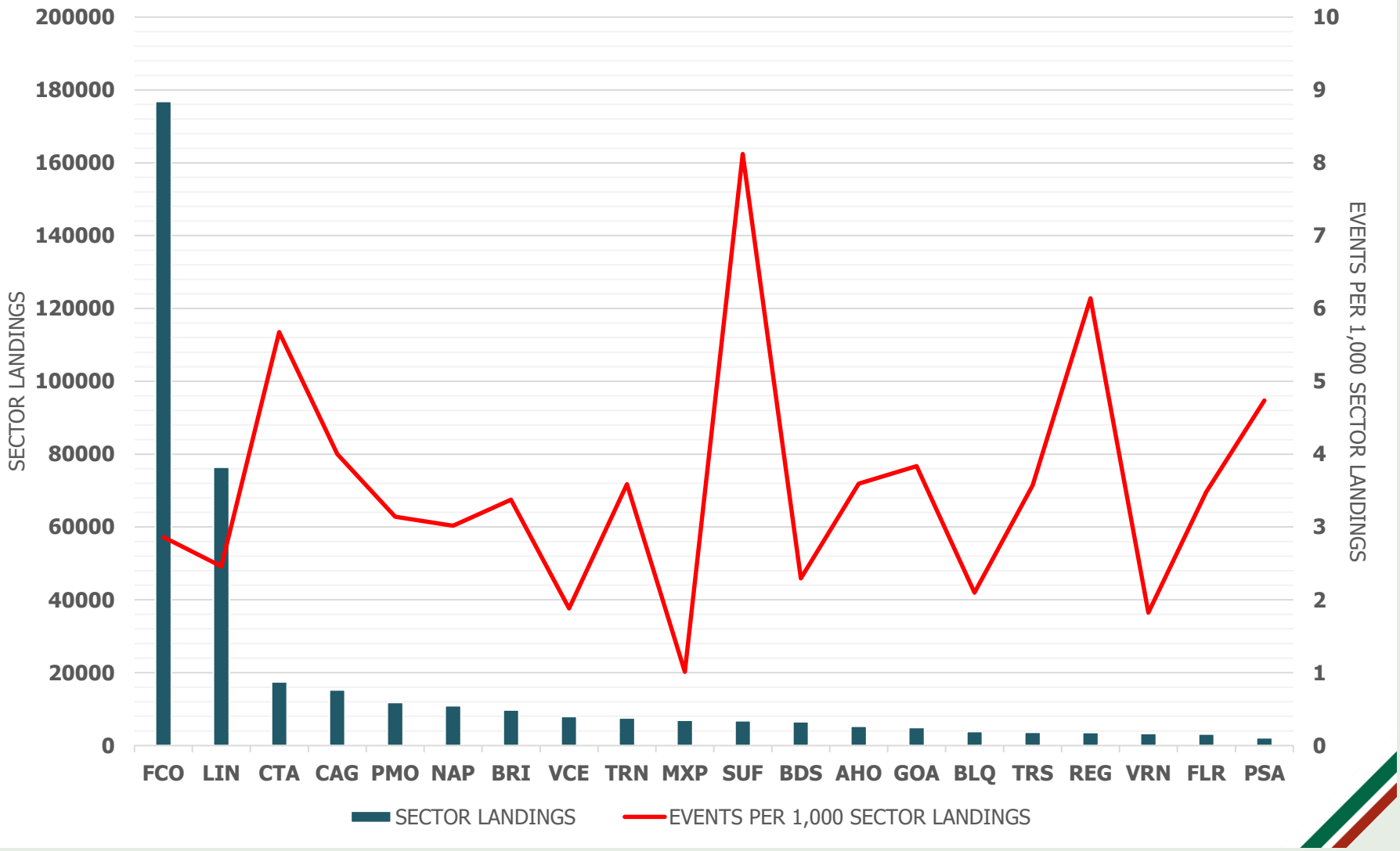
WILDLIFE STRIKE DATA ANALYSIS

WILDIFE STRIKE PER LOCATION (2015-2017)



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WILDLIFE STRIKE DATA ANALYSIS

WILDLIFE STRIKE PER LOCATION (2015-2017)

SUMMARY OF WILDLIFE STRIKE DATA ANALYSIS

- ✓ Seasonal event.
- ✓ Trendlines steady during last 8-years period.
- ✓ The ratio of Negligible's events to Other's with consequences is 20 to 1.
- ✓ Approach and Landing represent the most critical phases with more than 60% of reported events.
- ✓ Coastal aerodromes are more exposed to the phenomenon.

PROSPERO EU FP7

AN EXAMPLE OF PREDICTIVE APPROACH

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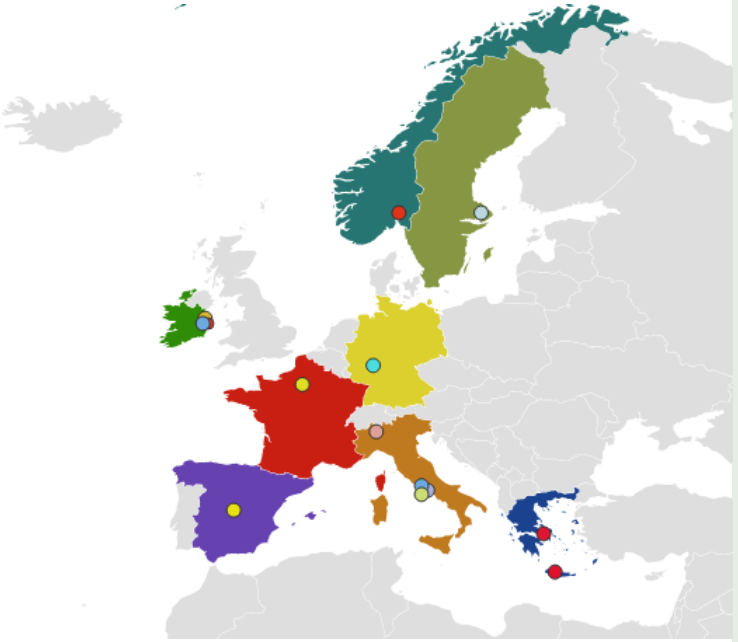
PROSPERO EU FP7: AN EXAMPLE OF PREDICTIVE APPROACH

DESCRIPTION

PROSPERO

PROSPERO (PROactive Safety PERformance for Operations) is a European 7th Framework project that runs from 2012 through 2015 and comprises 14 partner organisations across 7 countries. The consortium includes end-users, industry, SMEs and academic partners.



PROSPERO expected to develop, implement and evaluate a prototype management system for identifying and actively managing systemic risks, including complex interactions, in the Air Transport System.

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PROSPERO EU FP7: AN EXAMPLE OF PREDICTIVE APPROACH

MOVING INTO PREDICTIVE APPROACH

Reactive (Past)

- Respond to events that have already happened such as incidents and accidents.

Proactive (Present)

- Identify hazards before they materialise into incidents or accidents and taking the necessary actions to reduce the safety risks.

Predictive (Future)

- Capability to anticipate and prevent incidents through the support of extensive data with the aim to intercept a risk pattern, or set of pre-conditions, physically or temporarily present within an operational risk scenario.

EXAMPLE OF RISK PATTERN

Example of a segment of risk patterns behind birdstrike events in red a risky configuration (data simplified for GDPM 2018).

Variables						
Month	T.o.D. (Light conditions)	Altitude at first event (Aircraft altitude)	Number seen	Size of birds	Part(s) of Aircraft Struck	Predicted probability
ott	Night/dark	99,3	11+	Small	Windshield/Cockpit	,06698
ott	Night/dark	1913,8	1	Small	Wing/s	,03059
ott	Night/moonlight	397,1	1	Small	Wing/s	,68594
ott	Daylight	3000,0	2-10	Medium	Multiple	,21994
ott	Daylight	,0	1	Large	Fuselage	,05139

Baranzini, D., & Zanin, M. (2015). Risk prediction and risk intelligence in aviation—the next generation of aviation risk concepts from PROSPERO FP7 project. *Safety and Reliability of Complex Engineered Systems,* 1917-1920. doi:10.1201/b19094-249

CONCLUSION

- ✓ Data highlighted that phenomenon is steady over the years and under control.
- ✓ Develop techniques to make predictions about future events for improving crew alertness.
- ✓ PROSPERO EU Project has somehow demonstrated the importance to have the capability to anticipate and prevent incidents through the support of extensive data, integrating operational database from different stakeholders.

THANK YOU

GRAZIE