Wildlife Strike management at Italian Airports:
practices, regulations & biodiversity

Alessandro Montemaggiori PhD
alessandro.montemaggiori@gmail.com

Bird Strike Committee Italy - ENAC (Italian CAA)
Viale Castro Pretorio, 118 - 00185 Roma, Italy

IMPEL
European Union Network for the Implementation and Enforcement of Environmental Law

Birds Directive @ Aerodromes Conference
20-22 November 2024 - Paris Orly Int Airport

Italian airports
Year 2024

107 AIRPORTS

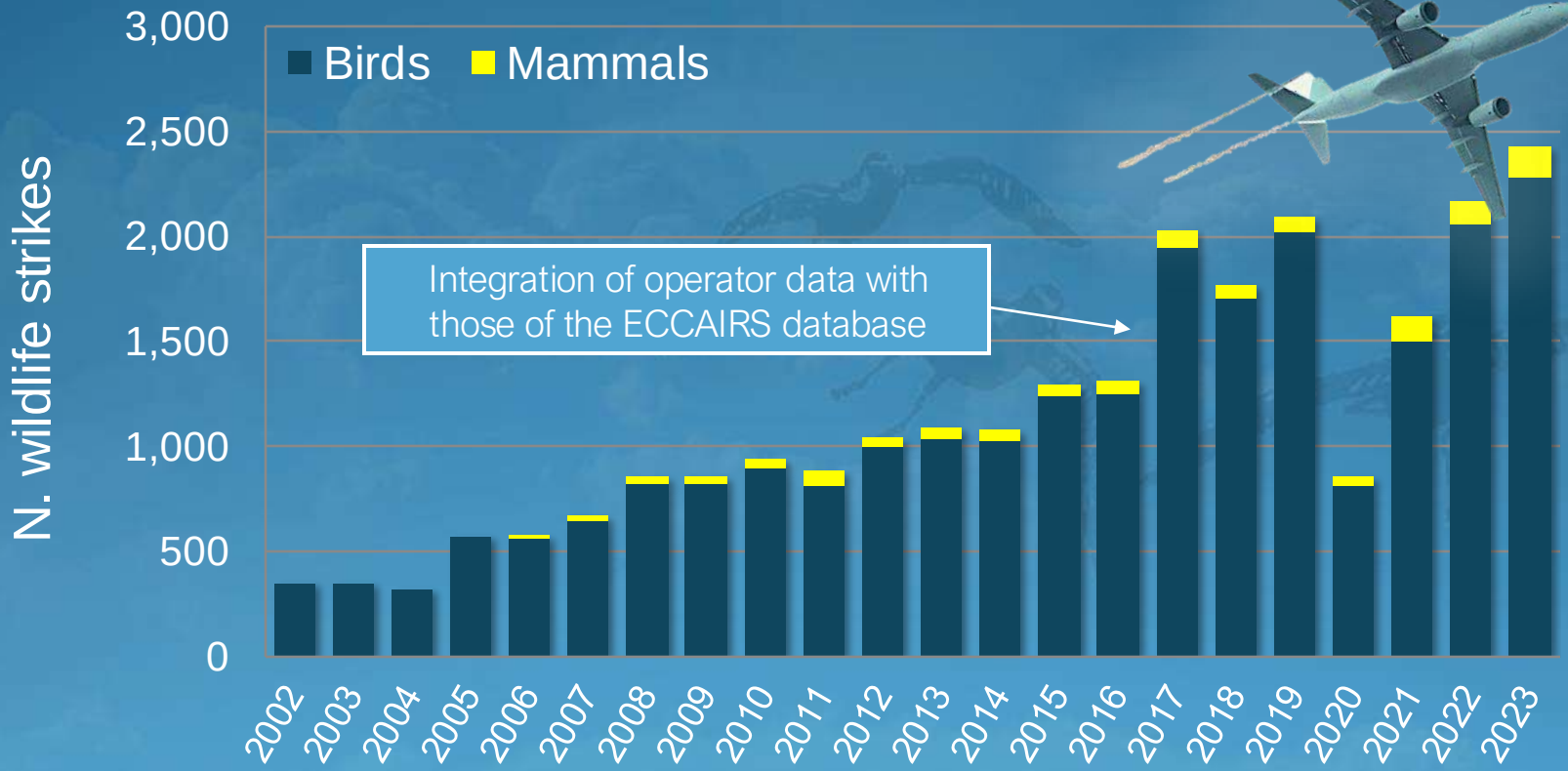
45 certified by ENAC (CAA)

39 regularly operative

- 12 Small: < 20 flights/day
- 16 Medium: 21-100 flights/day
- 8 Large: 101-200 flights/day
- 3 Very Large: >200 flights/day

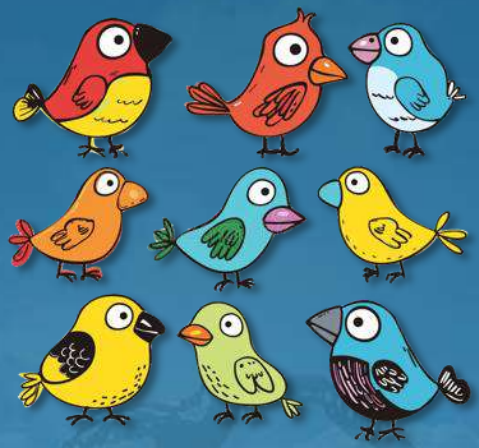
Wildlife strikes in ITALY (civil aviation)

N = 25.189 - Years 2002-2023



= € 2,1M/Year

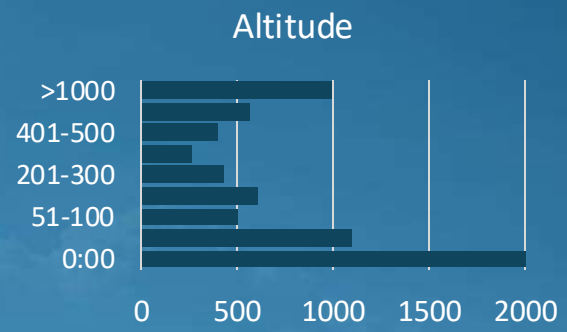
Italian Biodiversity Context

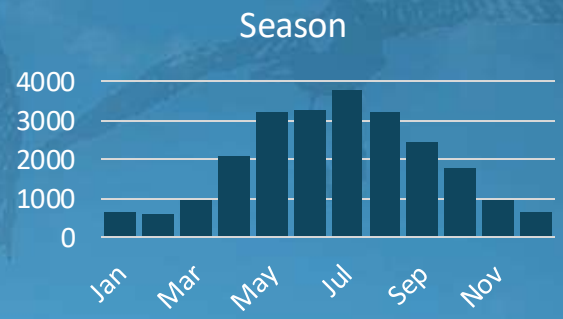


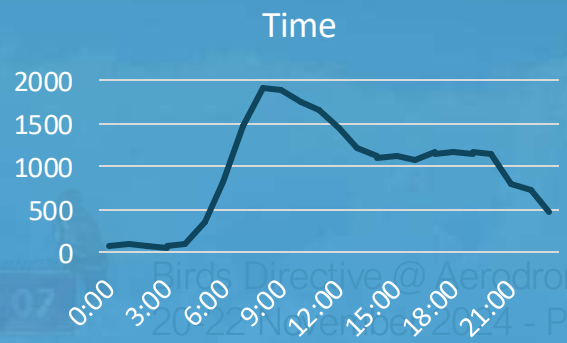
- Highest no. of animal sp. in Europe
- Geographic bridge between Europe and Africa
- 549 bird species recorded
  - 260 breeding sp.
  - 350+ migratory sp.
- Diverse habitats: rivers, lakes, marshes, etc.

Key Statistics *(2006-2023)*

- Total strikes: 23,527
- 95% involved birds
- 5% involved other
- 80% occurred below 500 ft
- Peak months: May-Aug
- Peak time: 8:00-9:00 AM

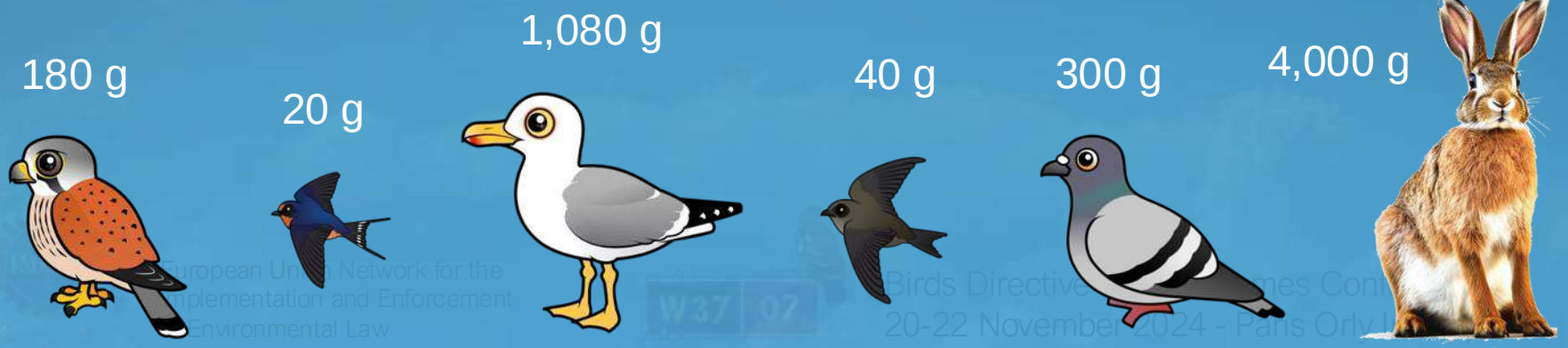






Most common struck sp. *(2006-2023)*

1. Eurasian kestrel **(2,401 strikes)**
2. Barn swallow **(2,187)**
3. Yellow-legged gull **(1,984)**
4. Common swift **(1,841)**
5. Feral pigeon **(834)**
6. European Hare **(801)**



Raptors *(2006-2023)*

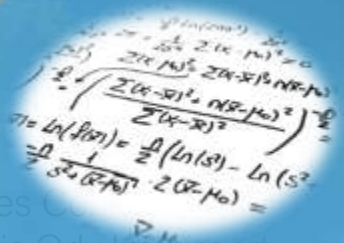
Regulatory Framework

ENAC/BSCI oversees national wildlife strike prevention.

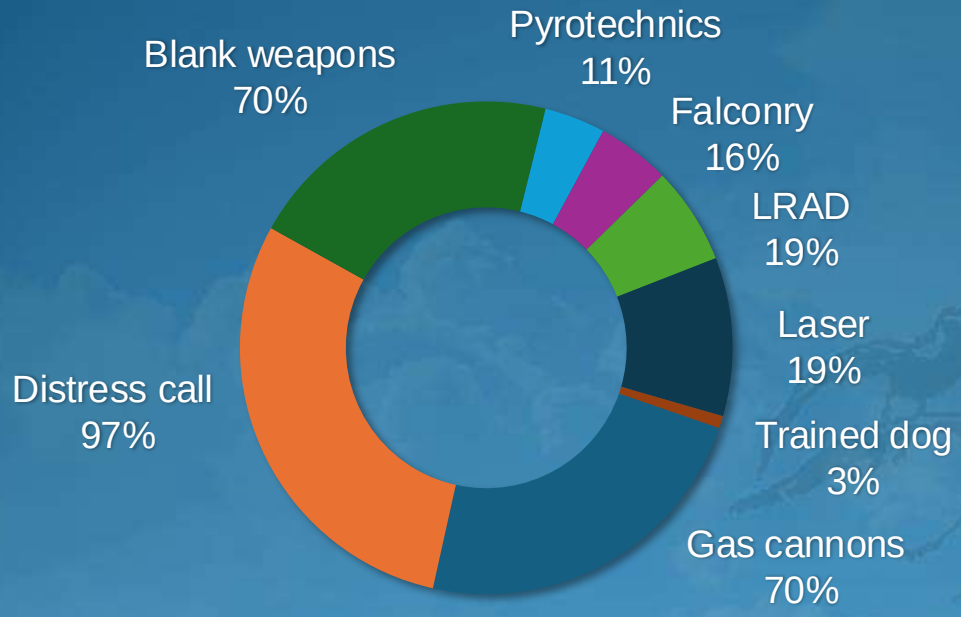
- Each airport must:
  - Conduct an environmental assessment
  - Monitor within 13km radius
  - Report all strikes
  - Implement a wildlife control plan
  - Maintain a Bird Control Unit (BCU)
  - Calculate the risk assesment





Active deterrent systems 2023



Passive deterrent systems 2023

- Tall/poor grass policy and night mowing - 65%
- Buildings protection with nets/pins - 22%
- Insecticides/rodenticides - 30%
- Cutting of attractive trees and hedges - 30%
- Capture and/or translocation of fauna - 14%
- Absence of attractive crops - 100%

The Birdstrike Risk Index (BRI2)

Soldatini et al. (2011) Wildlife Strike Risk Assessment in Several Italian Airports: Lessons from BRI and a New Methodology Implementation. *PLoS ONE* 6(12)

The historical risk associated to a species, or Group Factor (***GF***$_i$)

$$GF_i = \overline{W}_i \cdot Ag_i \cdot \frac{BS_i}{TFN} \cdot EOF_i^{95}$$

The actual Group Specific Risk (***GSR***$_i$)

$$GSR_i = \frac{GF_i}{\sum_{i=1,N} GF_i} \cdot DB_i$$

The ***BRI*** (version 2)

$$BRI2 = \left(\frac{\sum_{i=1,N} GSR_i \cdot DF}{\overline{TFN}} \right)$$

SCAN ME

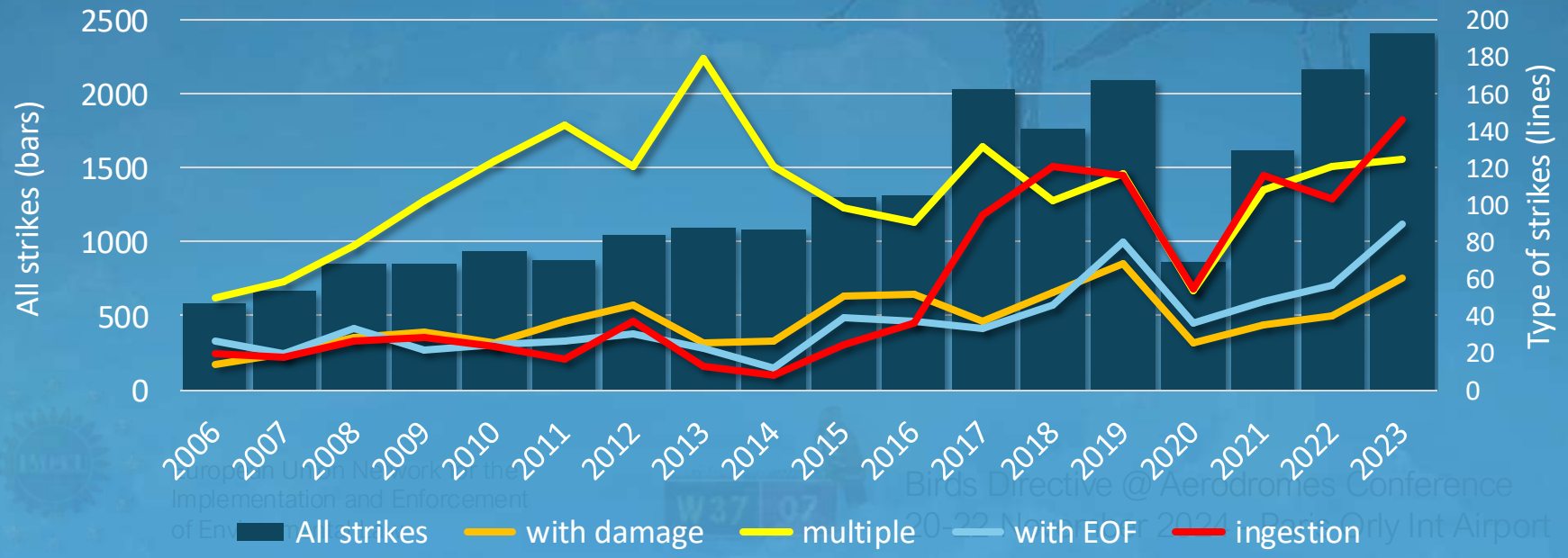
- $_i$ indicates a species group;
- N is the group total;
- $\overline{W}$ the average weight of the ith group;
- Ag the group specific aggregation index;
- BS is the mean value of impacts recorded per year;
- TFN is the mean value of flights per year;
- $\overline{TFN}$ is its monthly average;
- DB_i represents the mean daily number of birds of the ith group;
- DF is the mean daily flight traffic calculated on a monthly basis;
- EOF^{95}_i is the 95th percentile of the EOF (Effect On Flight).

Future Initiatives

- Interactive digital portal development
- Enhanced surroundings management
- Updated regulations
- International collaboration
- Improved monitoring systems
- Research
- Meetings and operational courses

Conclusions

- Increasing trend in strikes correlates with traffic growth
- Strong reporting system
- Comprehensive prevention framework
- Focus on ecosystem management
- Continuous improvement needed




Thank you
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attention