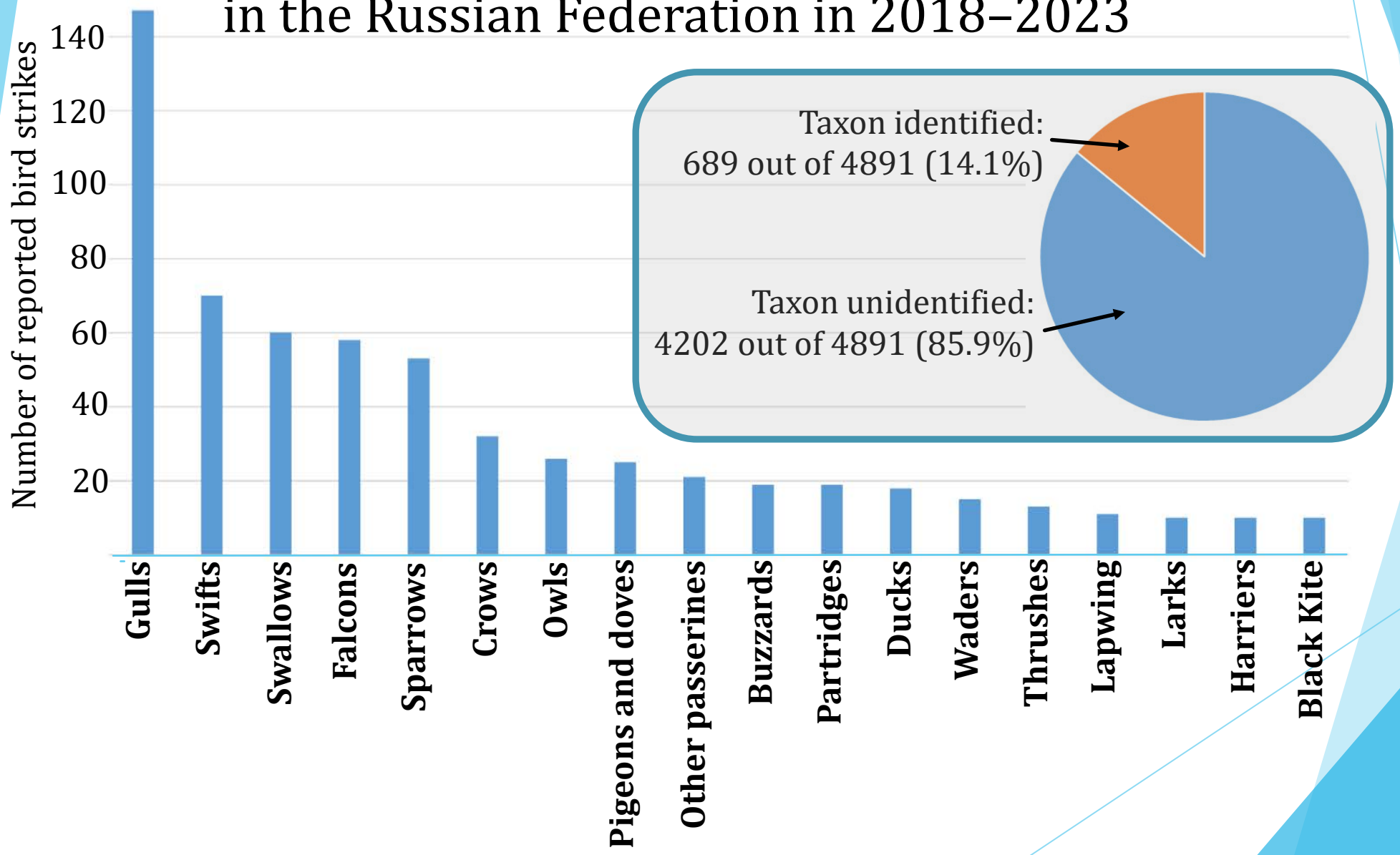
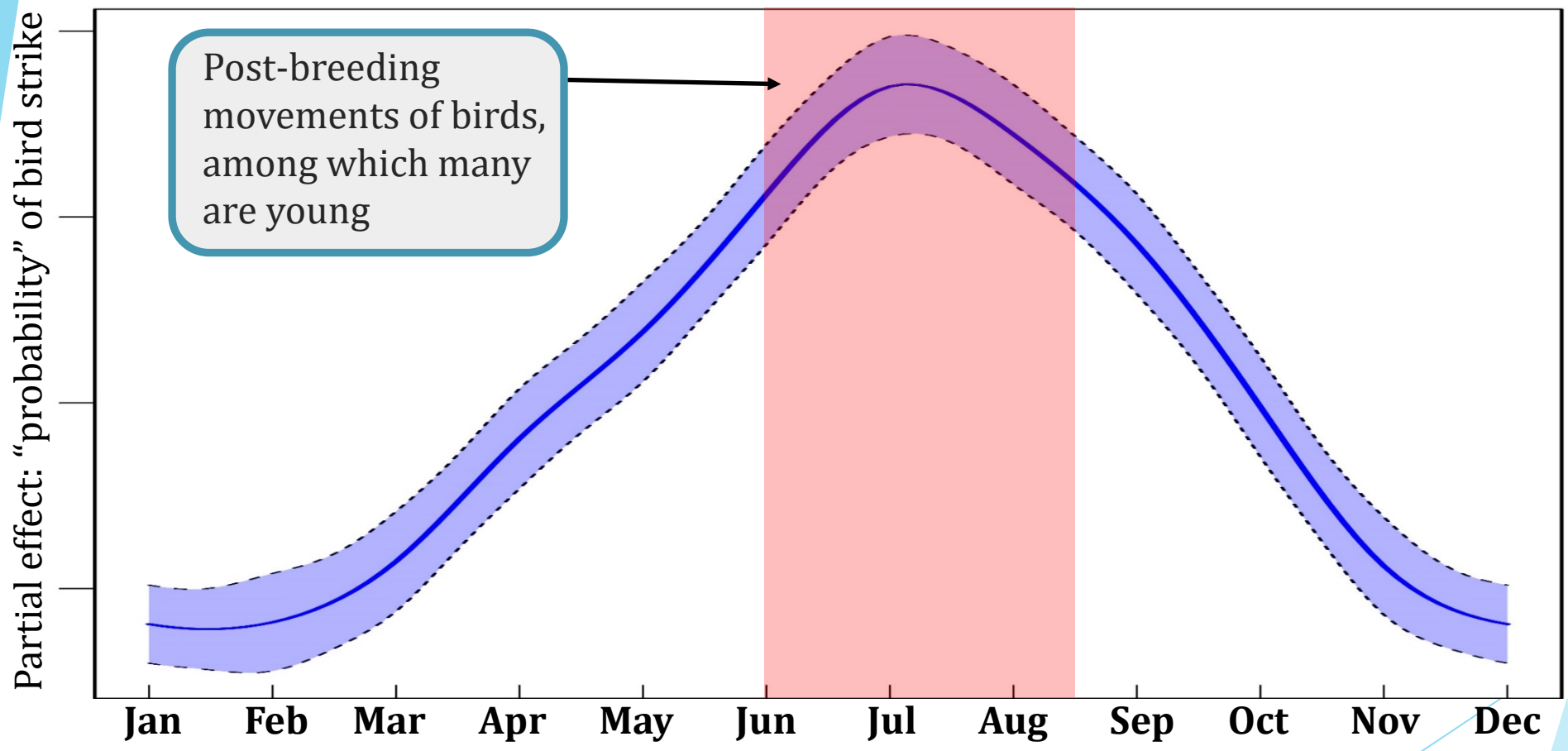
Combining bird strike data analysis and bird monitoring near airports to prevent bird-aircraft collisions

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Identified bird groups, or species, that were involved in aircraft-bird strikes in the Russian Federation in 2018–2023



Seasonal distribution of bird strikes in the Russian Federation in 2018–2023



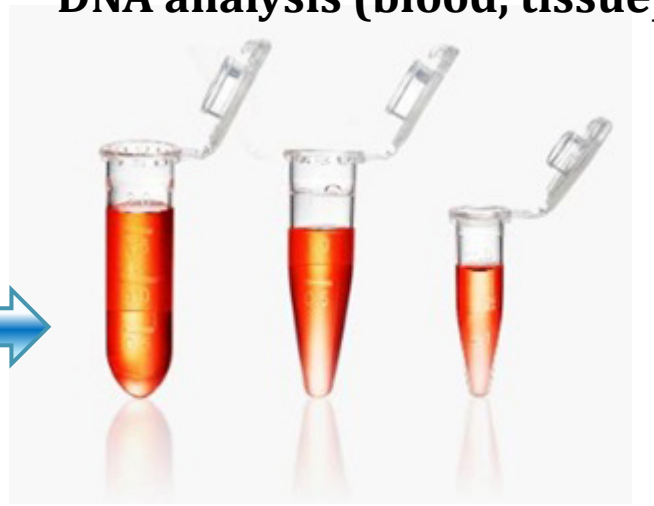
Emergency landing of Airbus A321 in a cornfield near Moscow, after ingesting a flock of Herring gulls into both engines on **August 15**, 2009



Data collection: identification of bird remains



DNA analysis (blood, tissue)



Feather



Data reporting: an ornithologist's view

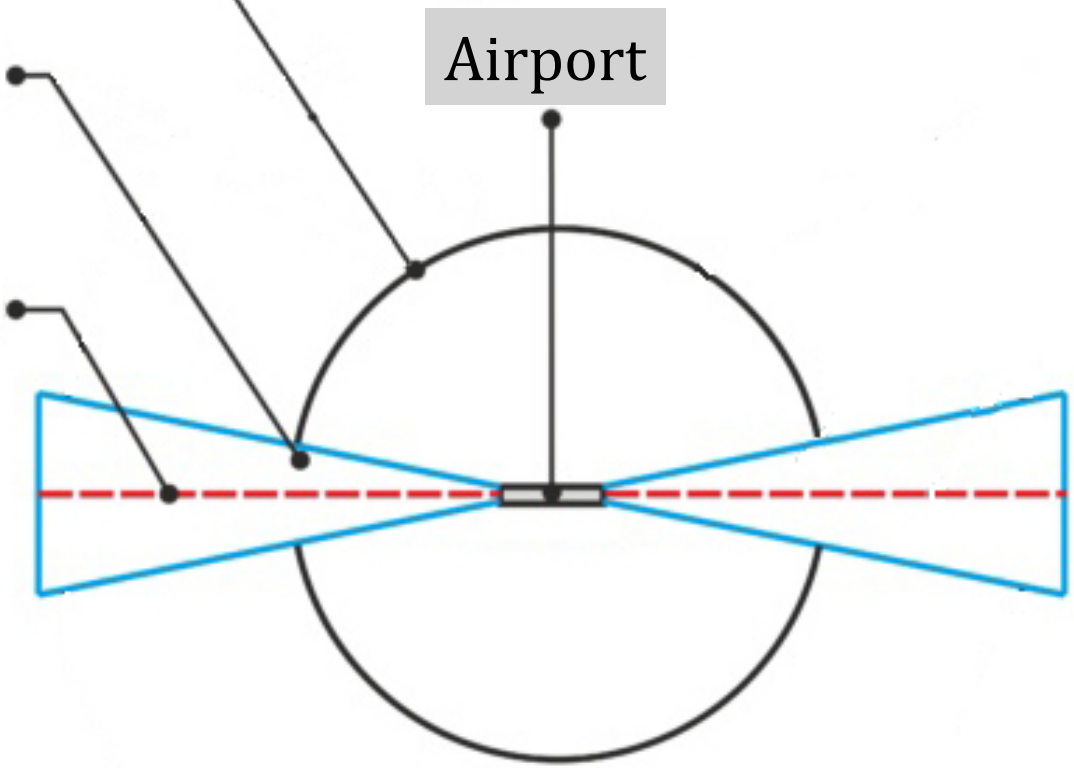
1. **Bird**: taxon identity and number of individuals.
2. **Date and time**, including whether a strike happened during daytime or night-time.
3. **Location**: airport name, altitude, coordinates, phase of flight, and aircraft speed.
4. **Aicraft**: aircraft type, flight number and destination, damage absence / presence, including severity on a scale, and aircraft component being damaged.
5. Number of flight operations at an airport for **risk assessment**.

Mitigation measures at and near airports

15-km radius

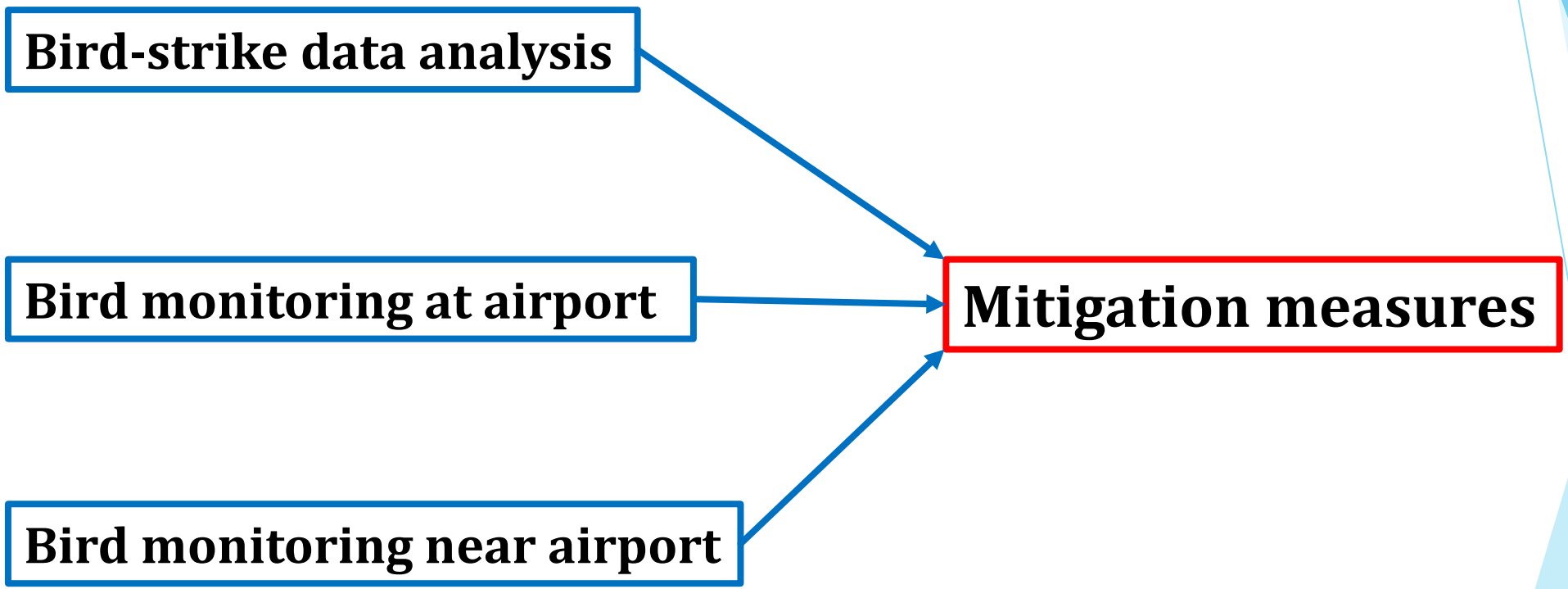
Approach path

Landing (takeoff) heading





Summarizing, before providing an example



"A problem that is not well defined cannot be properly managed" (Dolbeer et al. 2021)

Case example: NW of Russian Federation



Taxon identified (*n*=41):
Gulls 58.5%
Others 41.5%

Bird-strike data

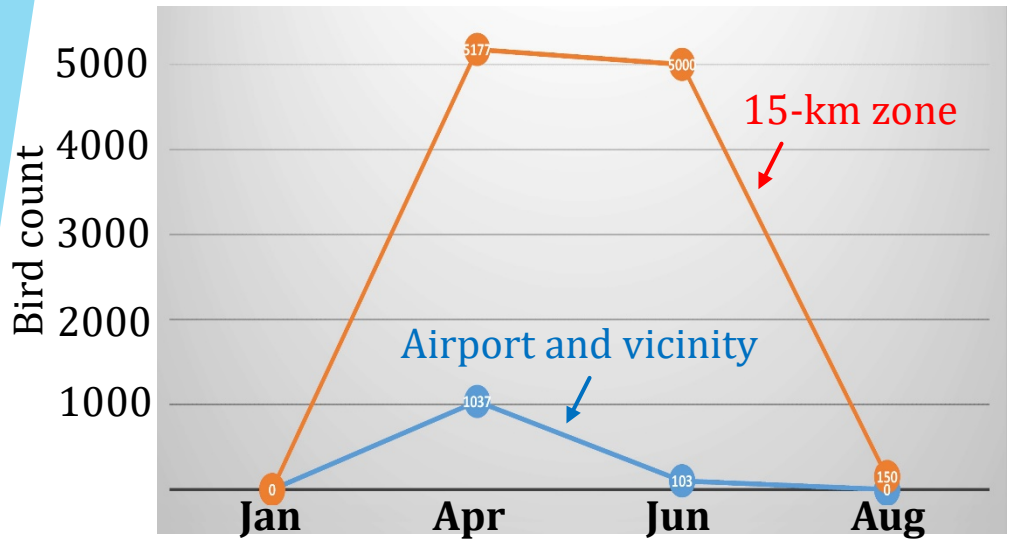


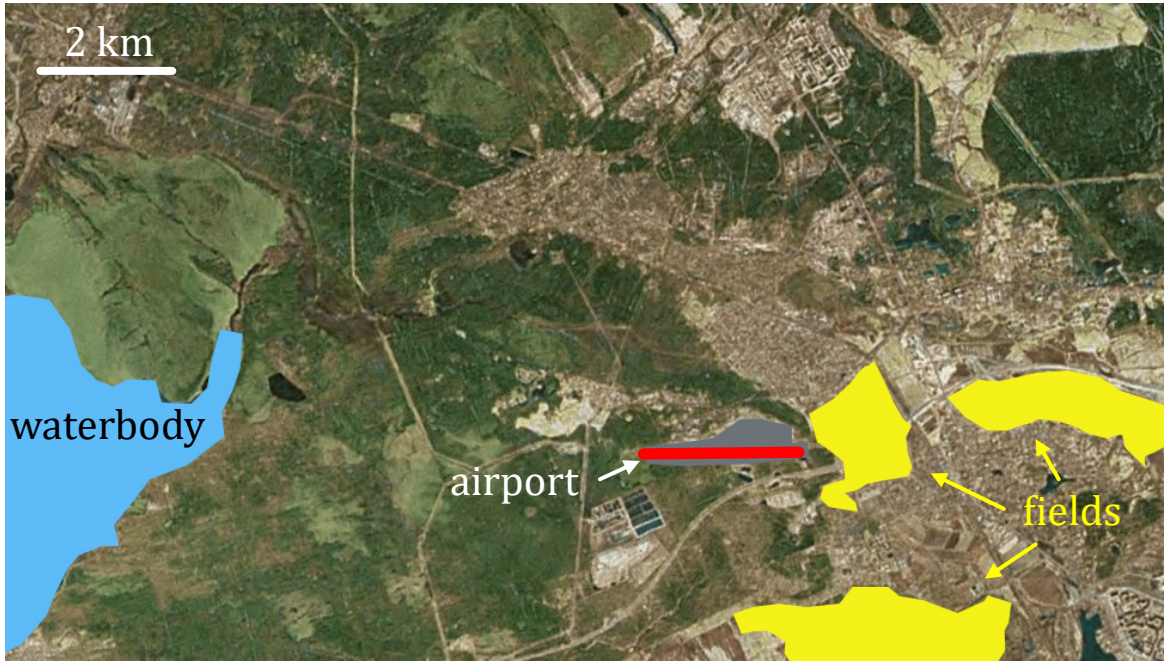
Herring gull
Larus argentatus



Black-headed gull
Larus ridibundus

Black-headed gull (*Larus ridibundus*)

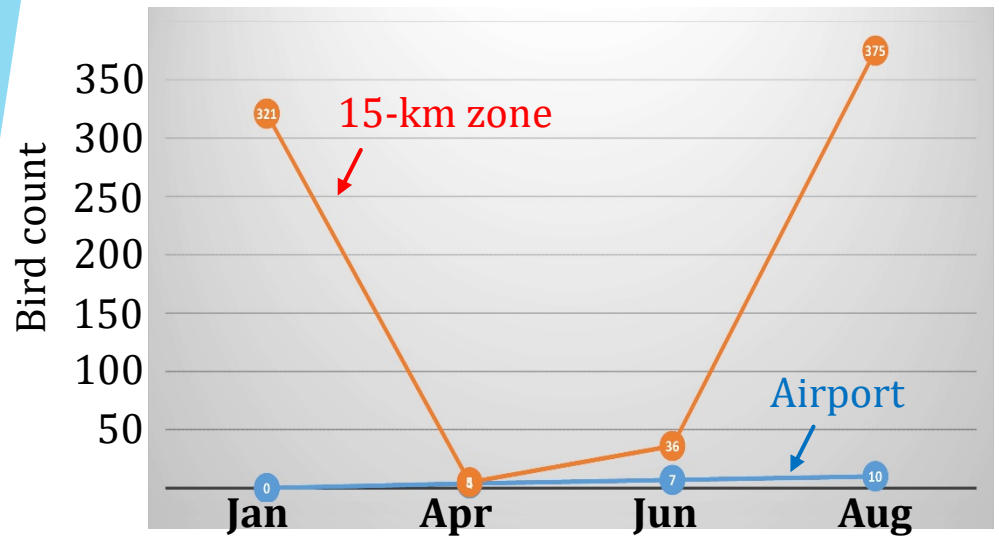


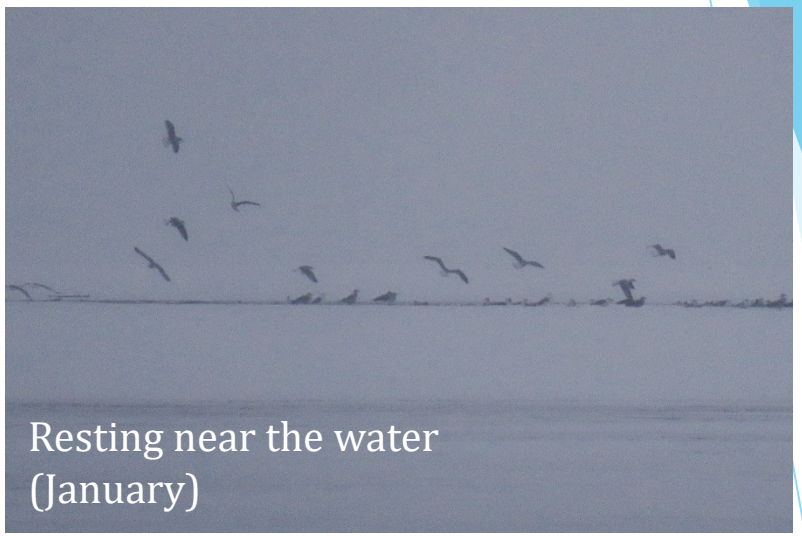


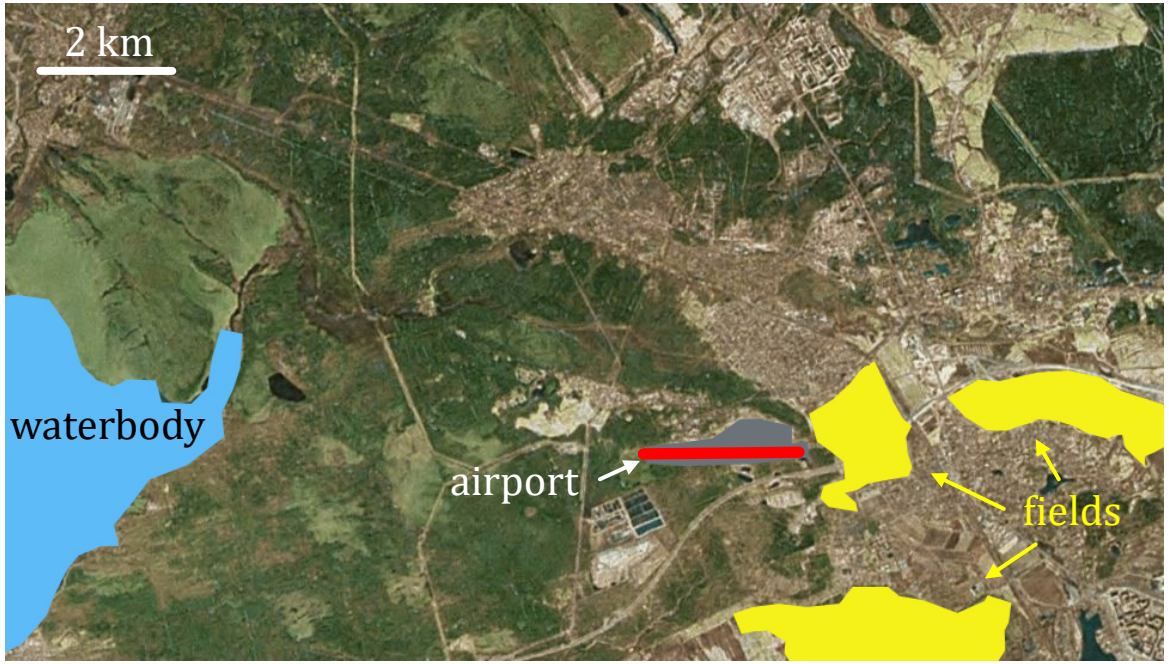




Herring gull (*Larus argentatus*)









The Herring gull can fly farther and higher than Black-headed gull



Field management practices can reduce gull attractiveness to agricultural fields near airports in certain times of the year

April



August

Cabbage field



Silage field



If we know the details, we can do more!

Identifying the problem → bird-strike data analysis
Identifying the reasons for the problem → seasonal bird monitoring at and around an airport
The possible solution to mitigate the risk: combining bird strike data and bird monitoring

Thank you for your attention!

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