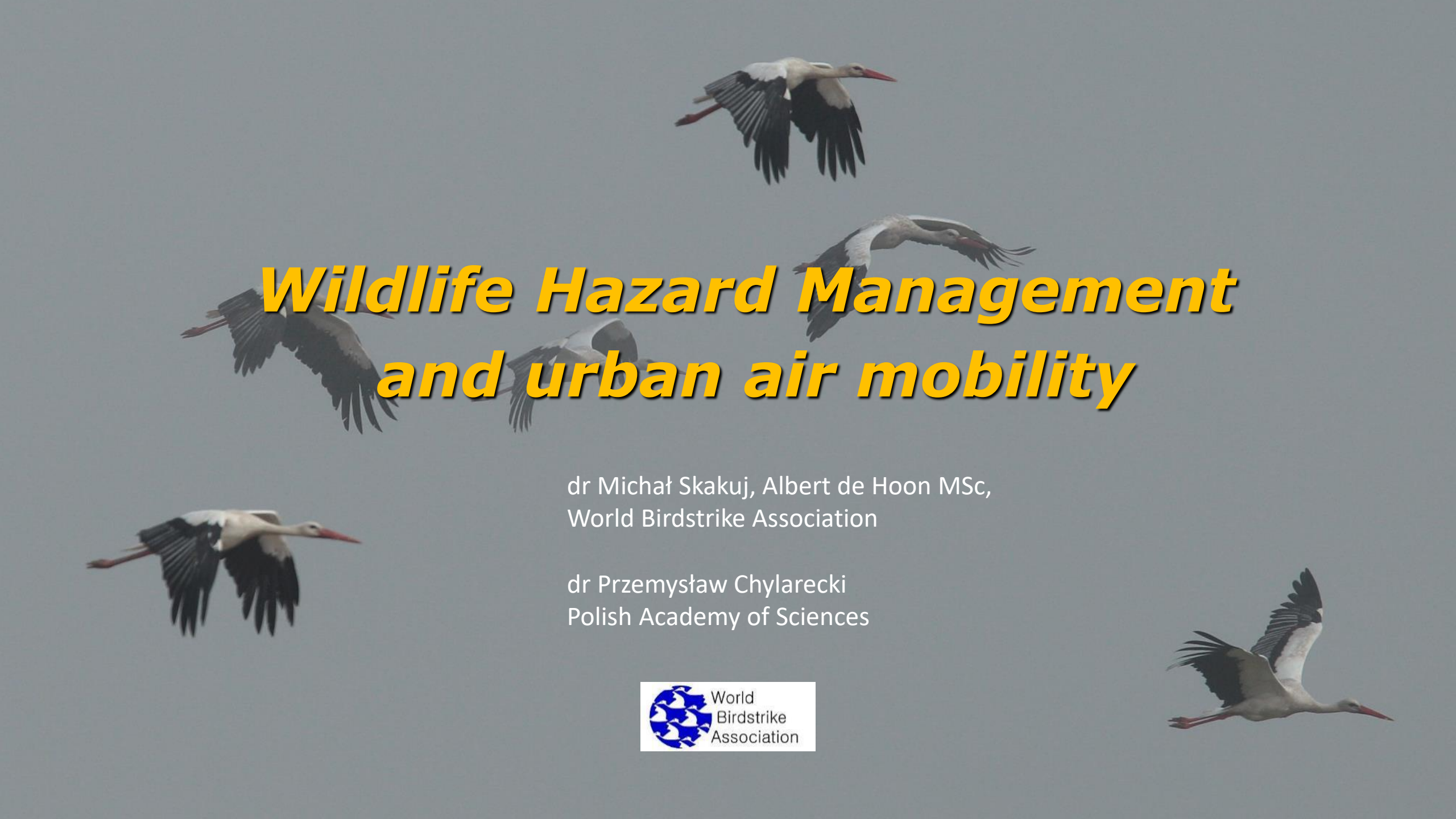


Wildlife Hazard Management and urban air mobility

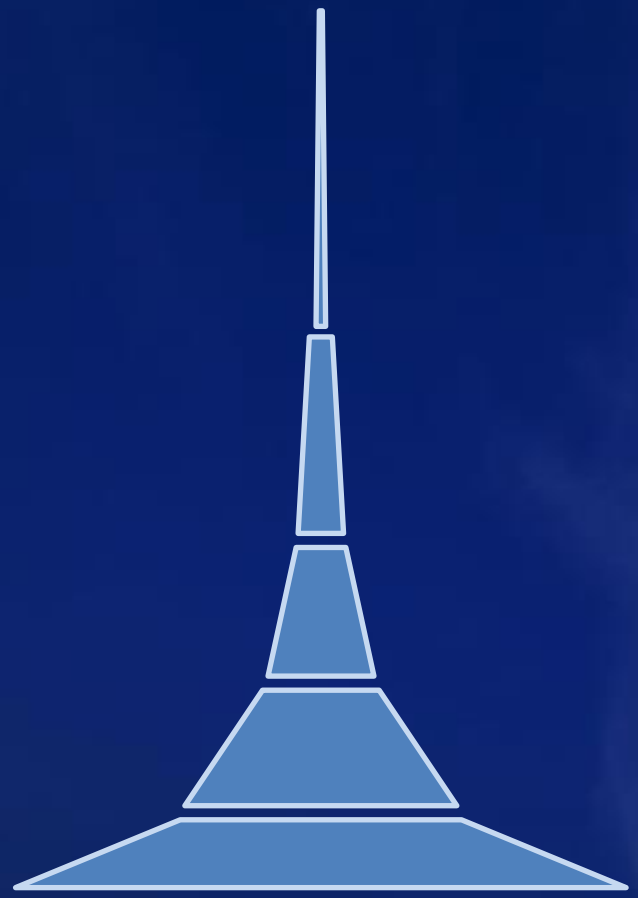
dr Michał Skakuj, Albert de Hoon MSc,
World Birdstrike Association

dr Przemysław Chylarecki
Polish Academy of Sciences

World Birdstrike Association

BIRD HAZARD AND AVIATION

Bird strikes in aviation – an altitude factor



World wide – ca 50 000 BS/yr

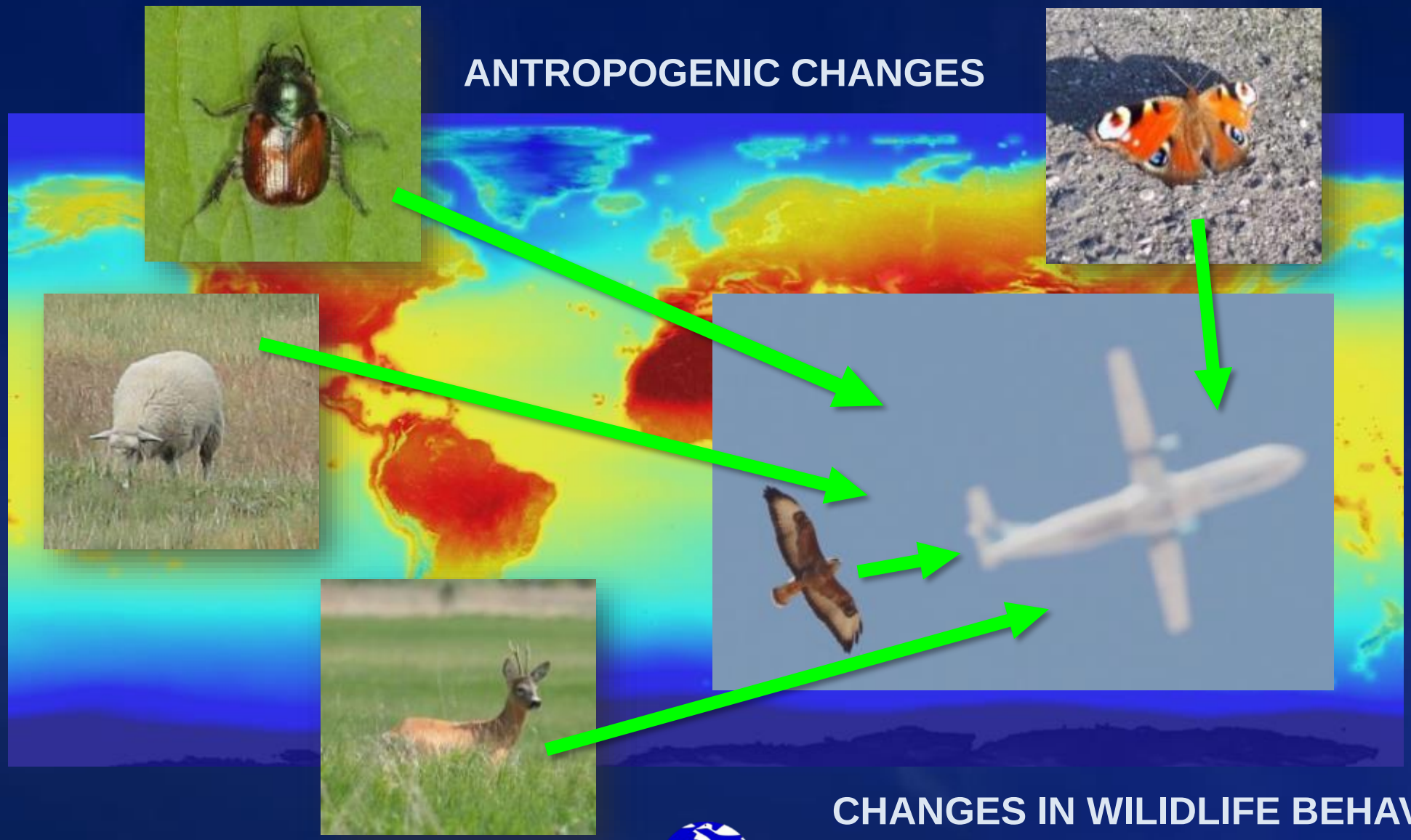
Direct costs > > $ 2,5 bilions

(1905-2021) wildlife strikes

Hull loss:
618

casualties
534

injuries
286



Phot. Kinga Tchurz

World Birdstrike Association

DYNAMIC SITUATION

Current

- Large bird migration to agricultural area's
- Shifting wintering area's more north
- habituation
- **Increased risk**

2030

- Changes in dynamic large scale migration
- Increased wintering close to urban areas
- Increase habituation
- **Increased risk**

INCREASING RISK DUE TO ANTROPOGENIC CHANGES

Phot. Kinga Tchurz

UAV AND BIRDS

UAVs have various challenges with:

- Birds of Prey
- Gulls
- Pigeons
- Crows

https://www.avionews.it/

https://www.theguardian.com/

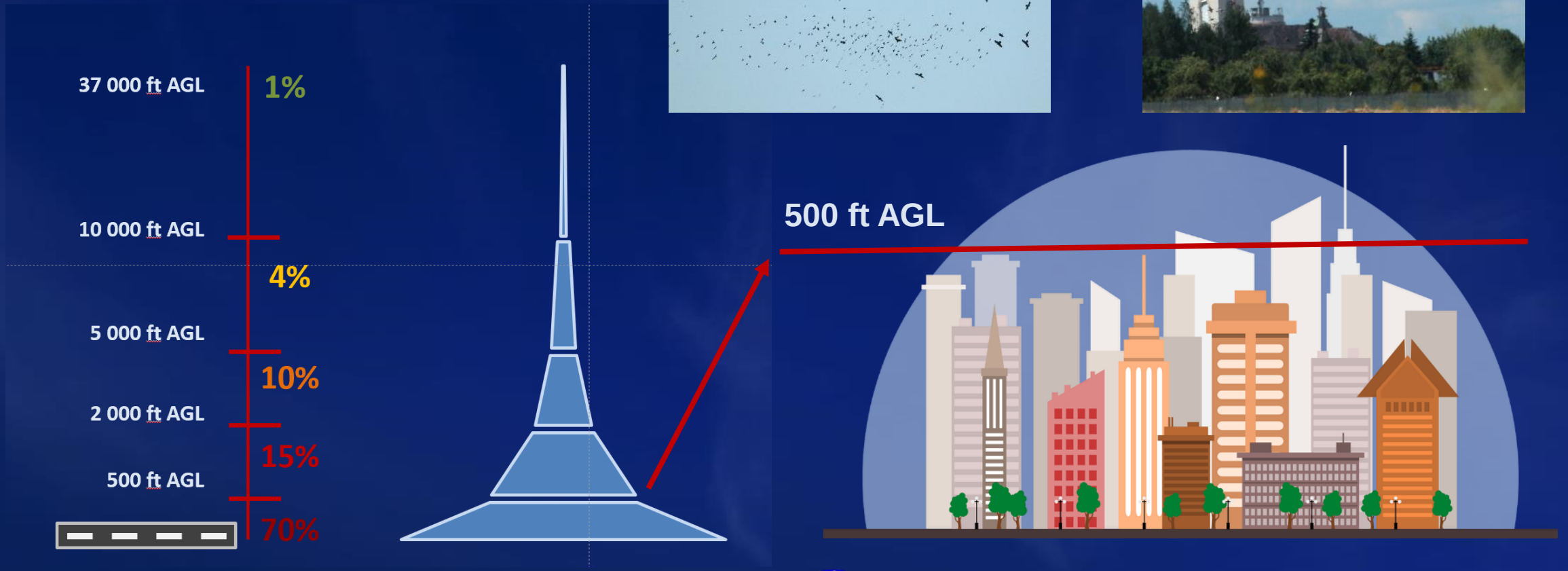
Many hazardous species inhabit urban areas

Only 2 catastrophies in Poland after bird strikes;

* both in urban areas

* both with Feral Pigeons – a typical urban bird species

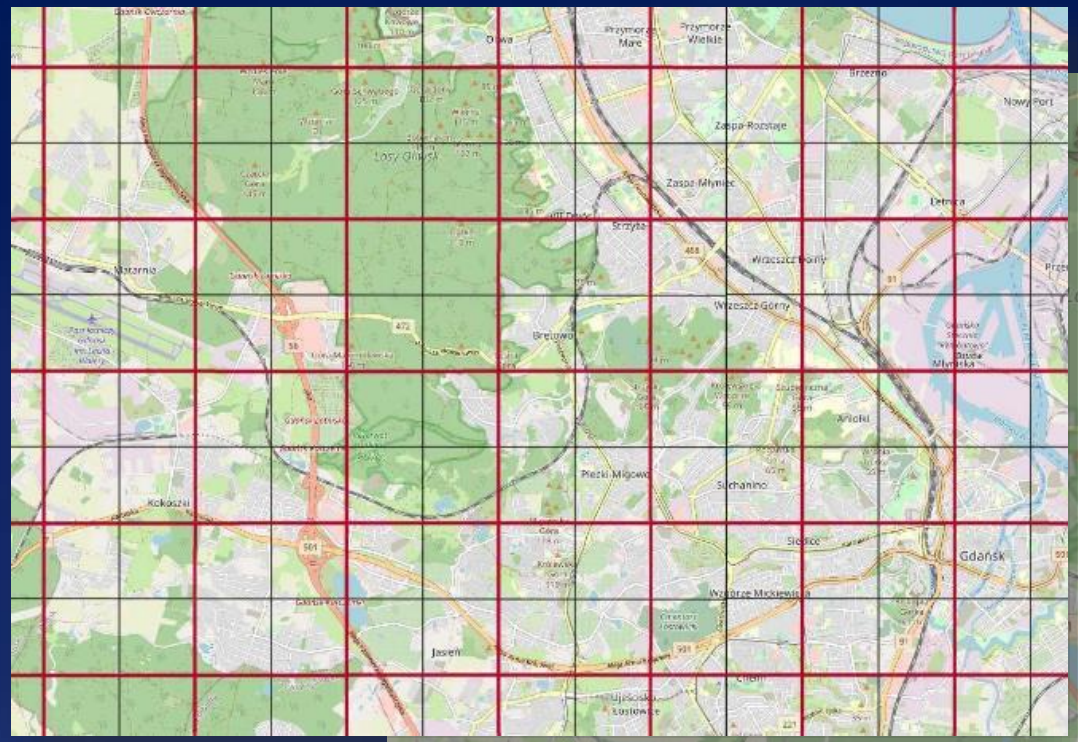
Bird strikes and altitude

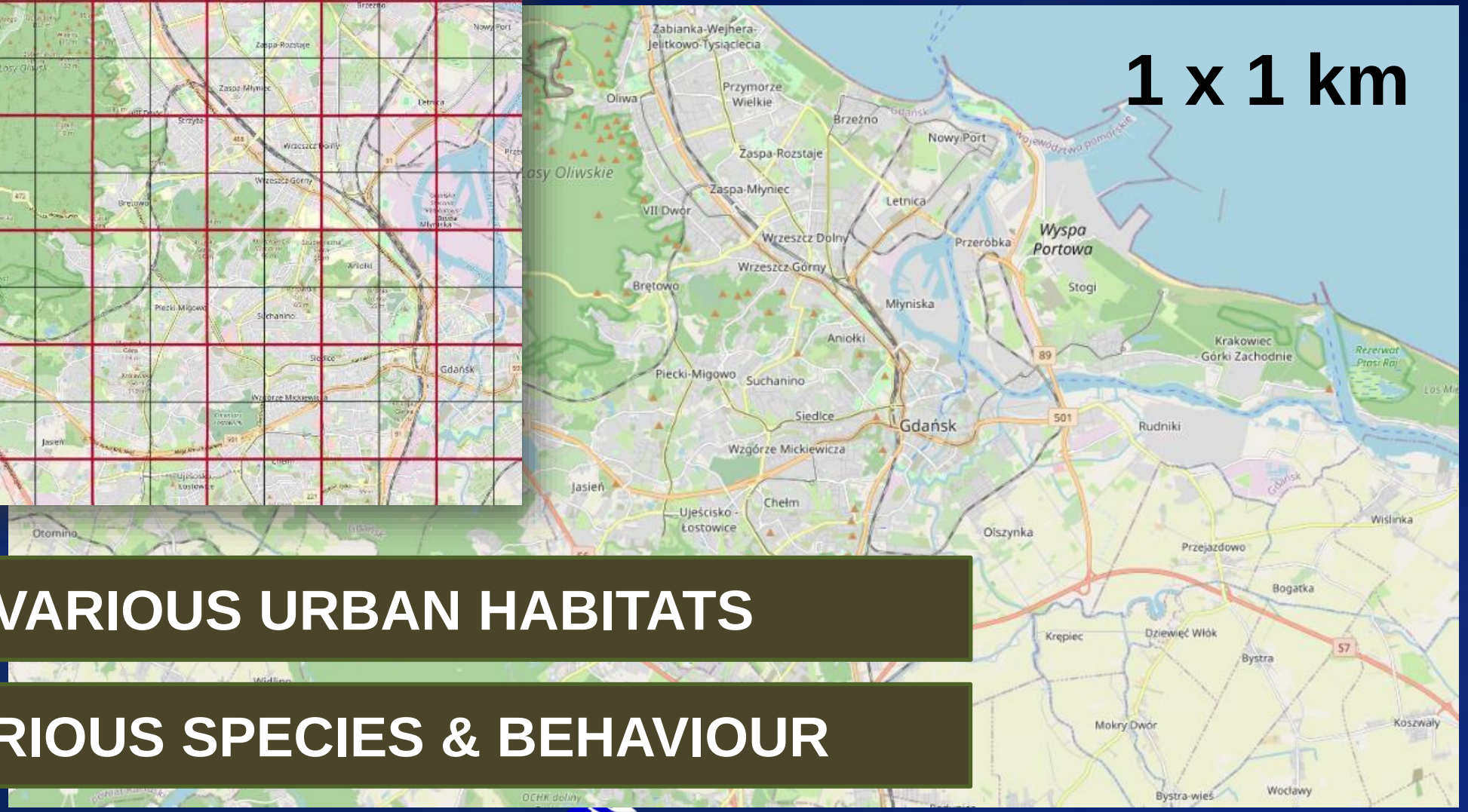


LESS VULNERABLE – LOWER RISK	MORE VULNERABLE – HIGHER RISK
Certified aircraft (commercial air transport)	**Non-Certified aircraft (mostly GA, UAV)**
Slower air speed	Higher air speed
Two engines (commercial air transport)	One engine, **multiple engines (UAV, Urban Air Transport)**
High altitude (above 10 000’)	**Lower altitude (below 2 000’)**

https://medium.com

BIRD ACTIVITY MONITORING





VARIOUS URBAN HABITATS

VARIOUS SPECIES & BEHAVIOUR

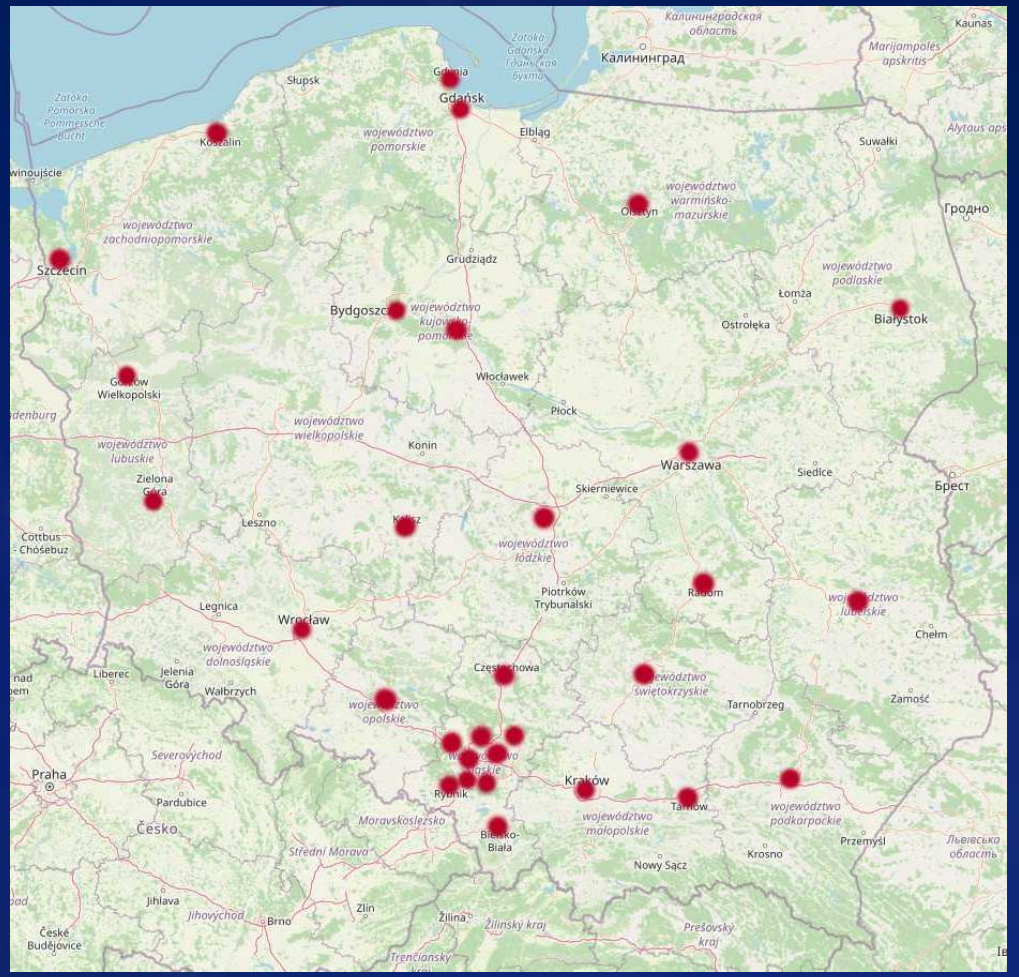
Case study Poland:

Central Environmental Monitoring organized by
Chief Inspectorate for Environmental Protection (GIOŚ)

since 2021:
Common Birds Monitoring in Cities (MPPM)

250 sample plots 1x1 km
in 38 cities >100 tys. residents

Sample plot:
12 counting points,
2 counts in breeding season (April – May)



Everything starts with bird monitoring

in urban areas…

WHM and urban air mobility

spring (breeding) season monitoring

50 European Union cities

Standardize:

- urban habitats
- bird activity / density

50 EU CITIES

1 SEASON MONITORING

RESULTS ANALYSIS

In cooperation with SME, ATC, pilots

Set standards for flight planning hazard / risk analysis concerning particular urban habitats as:

- bird activity index
- BS hazard level

In a future:

additional information

- weather radars
- bird radars

BIRDS & HABITATS → **BIRD ACTIVITY INDEX** → **BS HAZARDD LEVEL**

URBAN HABITATS – BS HAZARD

ROUND TABLE

- Growing low-altitude air transport in urban areas poses new challenge for flight safety management

- Currently, there are no methods for BS Hazard assessment for urban areas, for low-level below 2,000 ft AGL flights

BS Hazard Assessment for urban air transportation:

- should it be used for safer UAV flight planning?
- could it reduce the risk of serious or catastrophic incidents?
- will it be included in procedures/regulation?

Is anybody involved in preparing of UAV regulations/procedures?

Which could be more effective:

- Cooperating to set standards
- Working on „one city – different approach”

Thank you very much for your attention

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