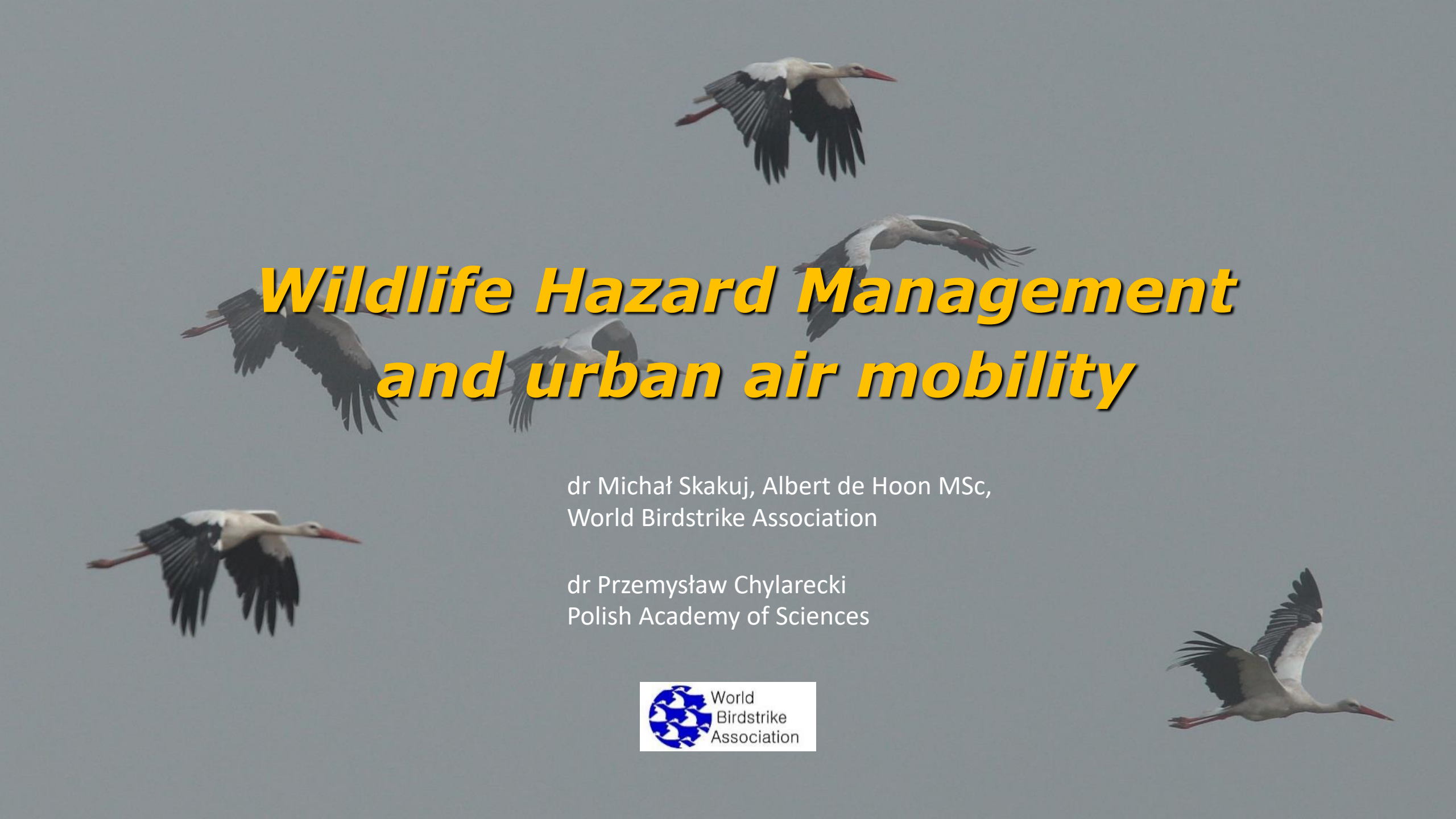


Wildlife Hazard Management and urban air mobility

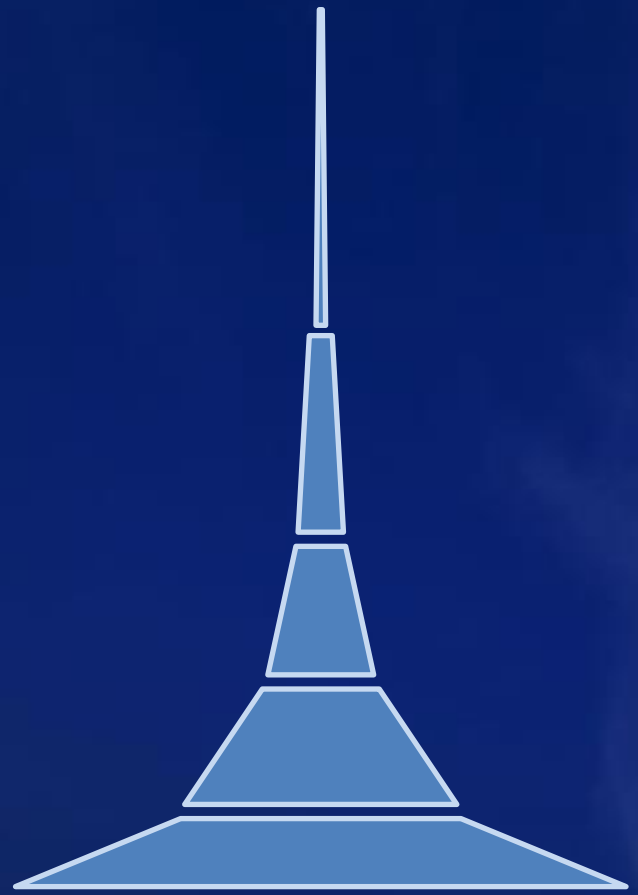
dr Michał Skakuj, Albert de Hoon MSc,
World Birdstrike Association

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 > ca $ 2 bilions

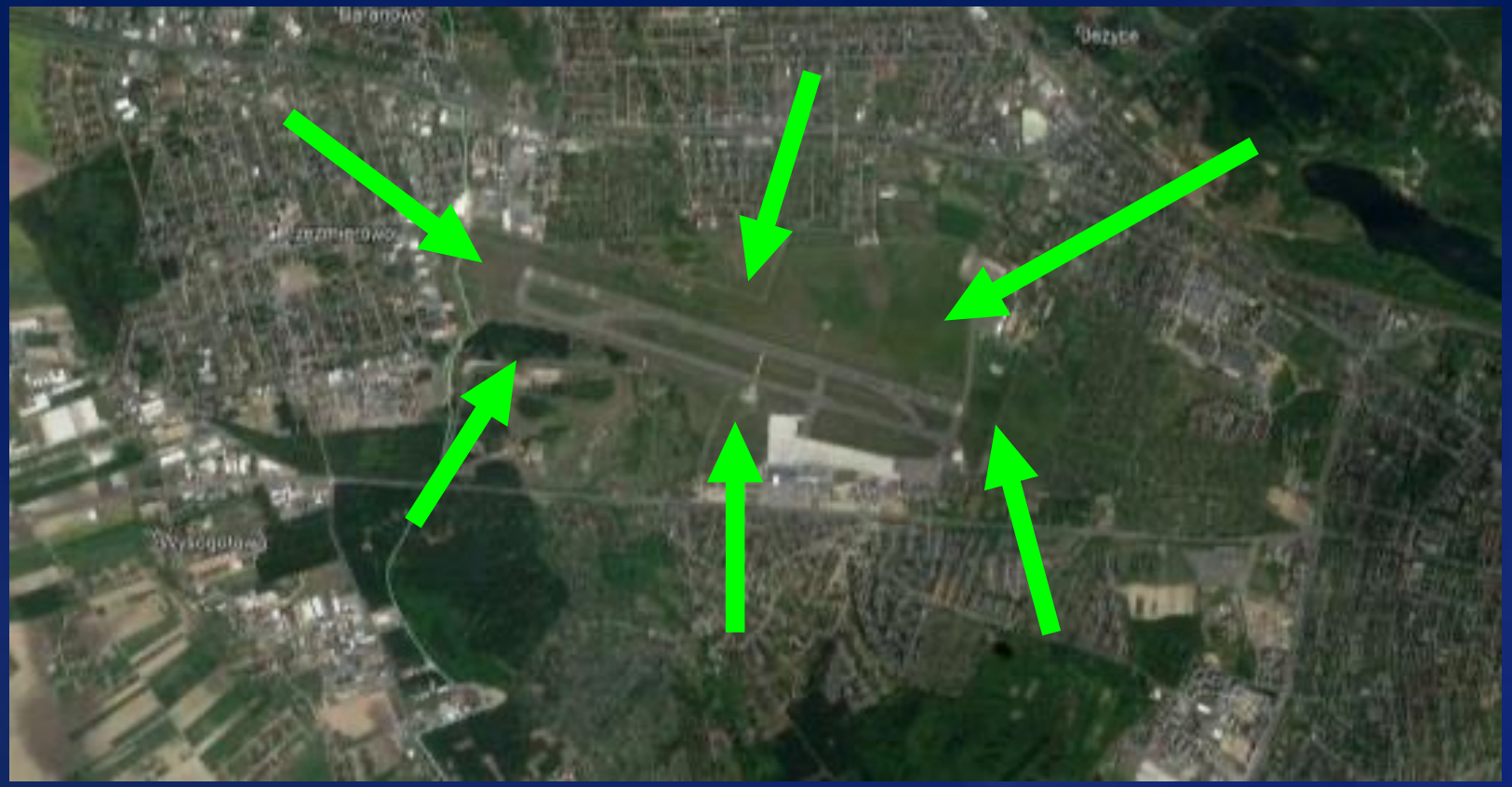
(1905-2021) wildlife strikes

Hull loss:
618

casualties
534

injuries
286

Aerodromes are attractive to various wildlife species



ca 250 bird species recorded on aerodromes in Poland

Analysis and investigations show great need of detailed information on species level

Phot. Kinga Tchurz

UAV AND BIRDS

WHM and urban air mobility

UAV have various challenges with:

- Birds of Prey
- Gulls
- Pigeons
- Crows

Most of these species inhabit urban areas

https://www.avionews.it/

https://www.theguardian.com/

WHM and urban air mobility

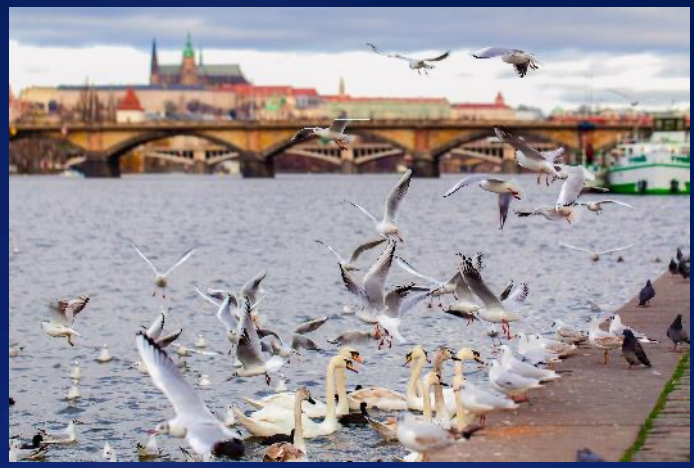
Only 2 catastrophies in Poland due to bird strikes;

* both in urban areas

* both with Feral Pigeons – a typical urban bird species

WHM and urban air mobility

Many bird species inhabitat urban areas



WHM and urban air mobility

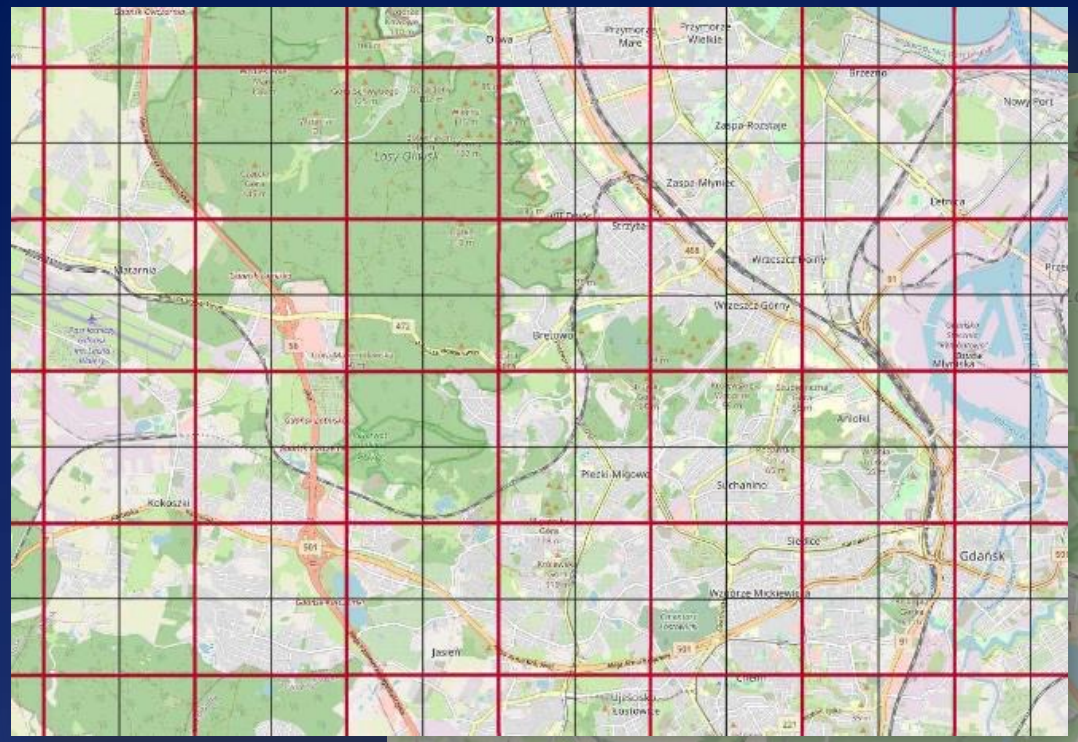
WHM and urban air mobility

LESS VOLNURABLE – LOWER RISK	MORE VOLNURABLE – HIGHER RISK
Certified aircraft (commercial air transport)	**Non-Certified aircraft (mostly GA, UAV)**
Slower air speed	Higer 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://www.sesarju.eu

https://medium.com

BIRD ACTIVITY MONITORING



VARIOUS URBAN HABITATS

VARIOUS SPECIES & BEHAVIOUR

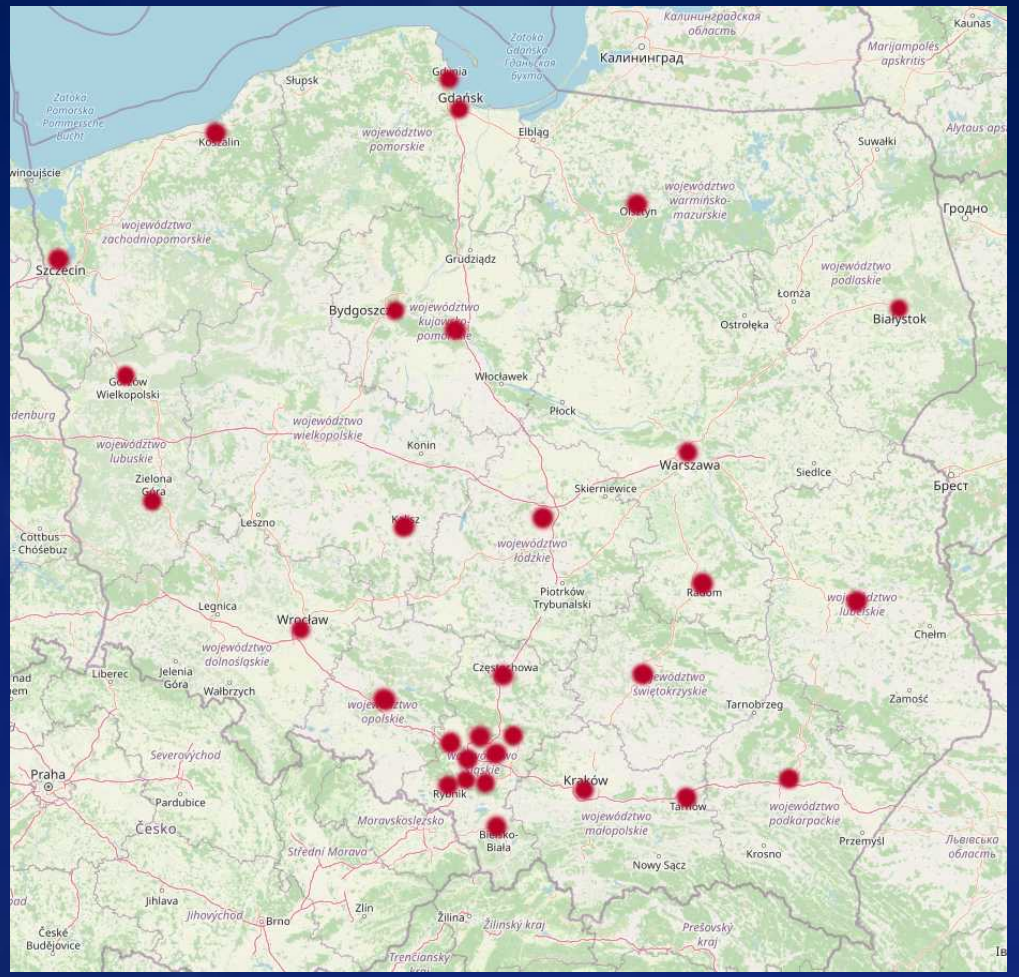
Case study Poland:

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)



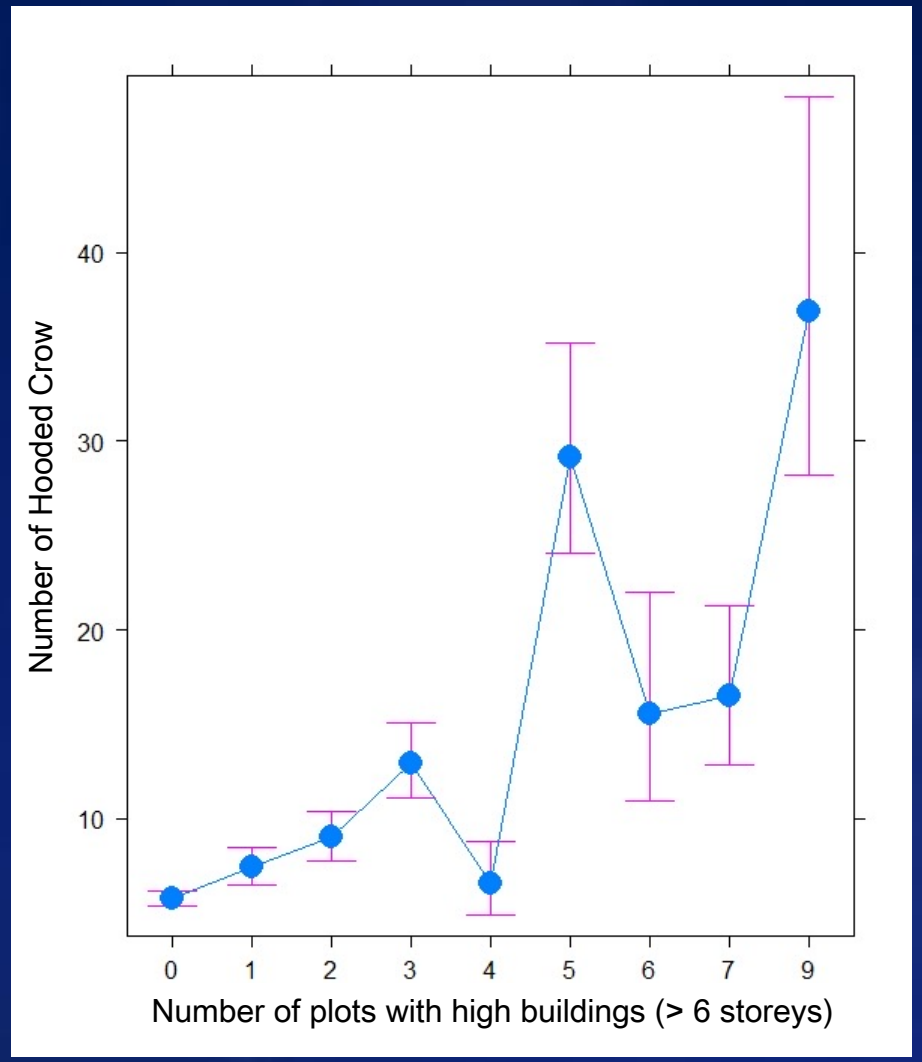
Common Birds Monitoring in Cities **2021 Results**

18 urban habitats types

151 bird species,
Most common (birds per sample plot):

- Feral Pigeon(54),
- Swift (50),

The number of birds strongly depends on the types of urban habitats (buildings, greenery, roads)



Starting with bird monitoring in urban areas…

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

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

URBAN HABITATS – BS HAZARD

In future additional information could be used:

- FlySafe military project
- Bird radars
- Visual system data
- other bird monitoring

BIRDS & HABITATS

BIRD ACTIVITY INDEX

BS HAZARDD LEVEL

URBAN HABITATS – BS HAZARD

SUMMARY

WHM and urban air mobility

- Growing low-altitude air transport in urban areas poses new challenges for flight safety management
- Currently, there are no methods for BS Hazard assessment for urban areas, low-level 2,000 ft AGL flight
- Based on bird monitoring in cities, we offer a solution for BS hazard assessment in urban areas
- These data can be used in existing systems for UAV risk analysis and planning (e.g. GRAy platform)
- It could be supported from existing programs of meteorological (e.g. FlySafe, AHAS) and bird radars
- Setting standards for BS Hazard in urban areas will reduce the risk of serious or catastrophic incidents
- It may set standards for BS Hazard assessment for low-level outside urban areas for GA as well

We are looking for cooperation with:

- ATC, UAV, BSH Management experts (BS hazard assesment and reduction)
- Universities, Instututes (data analysis, bird monitoring organizing)
- Nature protection authorities and orgnization (bird monitoring in urban areas across EU)
- Aviation Authorities and organizactions (BS Hazard in operational use)
- European Union (helping in financial monitoring)

Science / Industry & Professional Collaboration
Toward Sustainable Solutions and
Effective Hazard Reduction

INVITATION FOR INTERNATIONAL REGIONAL PROJECT ON TESTING NEW SOLUTIONS FOR WHM

Contact: vanja.svetina@siol.net

triglav

KONTROLA ZRAČNEGA PROMETA SLOVENIJE

Thank you very much for your attention

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Museum and Institute of Zoology
Polish Academy of Sciences