

SDOD from BIOSECO BPS practice. Examples from operating wind farms: case studies from around the Europe



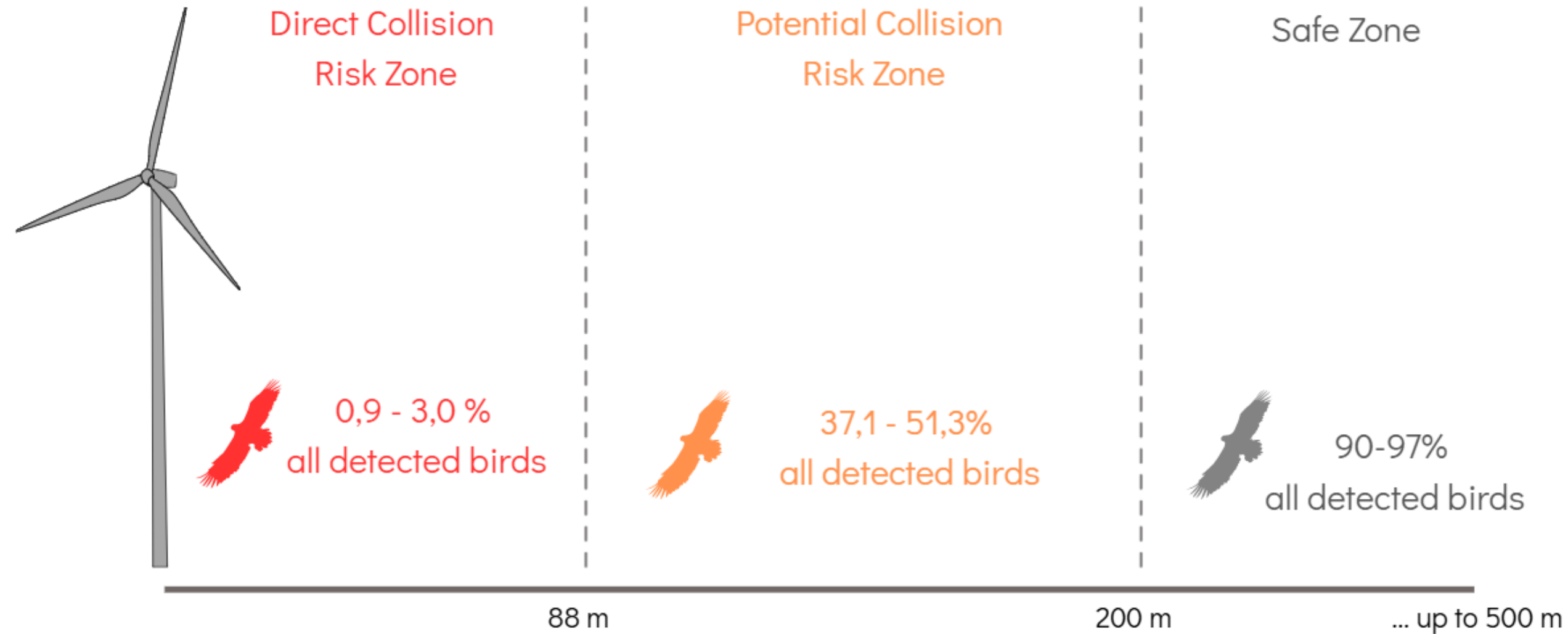
Seminario sobre
Sistemas Shut Down on Demand
em Parques Eólicos

Aleksandra Szurlej-Kielańska

tactus

1. WHAT WE KNOW ABOUT BIRDS BEHAVIOUR NEAR THE TURBINES?
 - BASING ON CASE STUDIES FROM BPS SYSTEMS
2. REAL CASE STUDIES FROM AROUND THE EUROPE
 - REAL STOPS DEPENDS FROM THE LOCATION (SITE SPECIFIC, SPECIES SPECIFIC CONDITIONS)
3. CONCLUSSIONS – LESSONS TO BE LEARNT FOR FUTURE

WHAT WE KNOW ABOUT BIRDS BEHAVIOUR NEAR THE TURBINES?



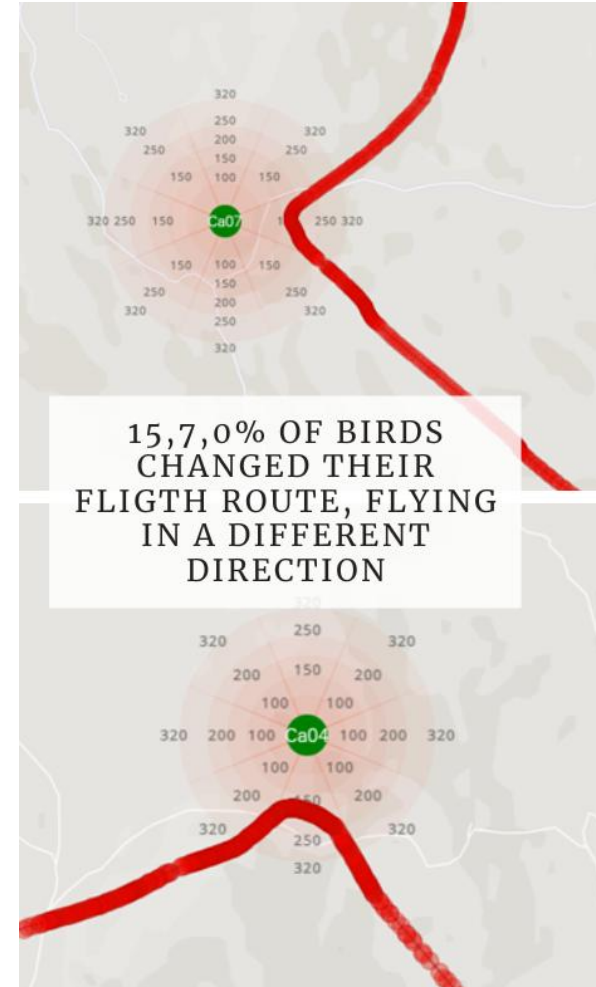
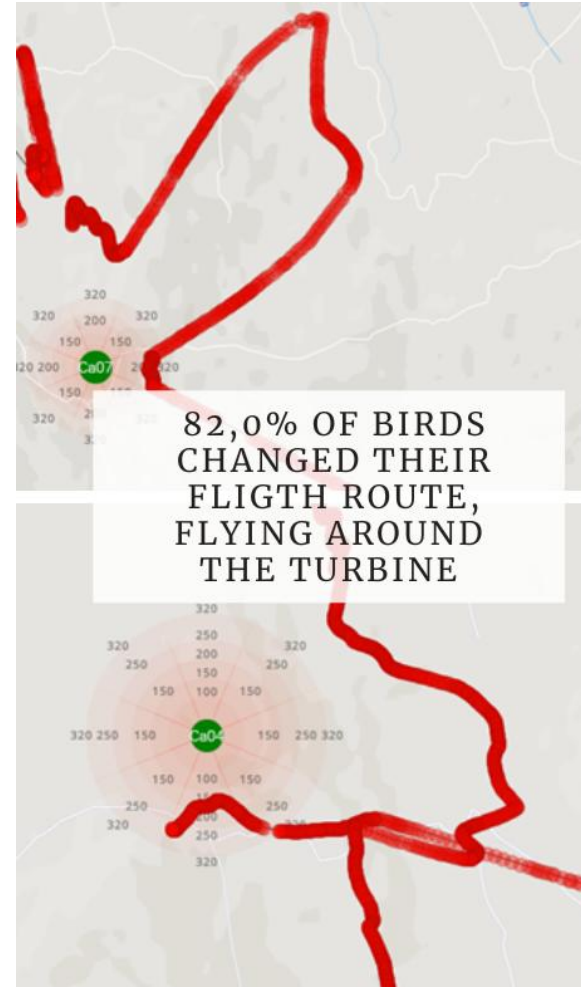
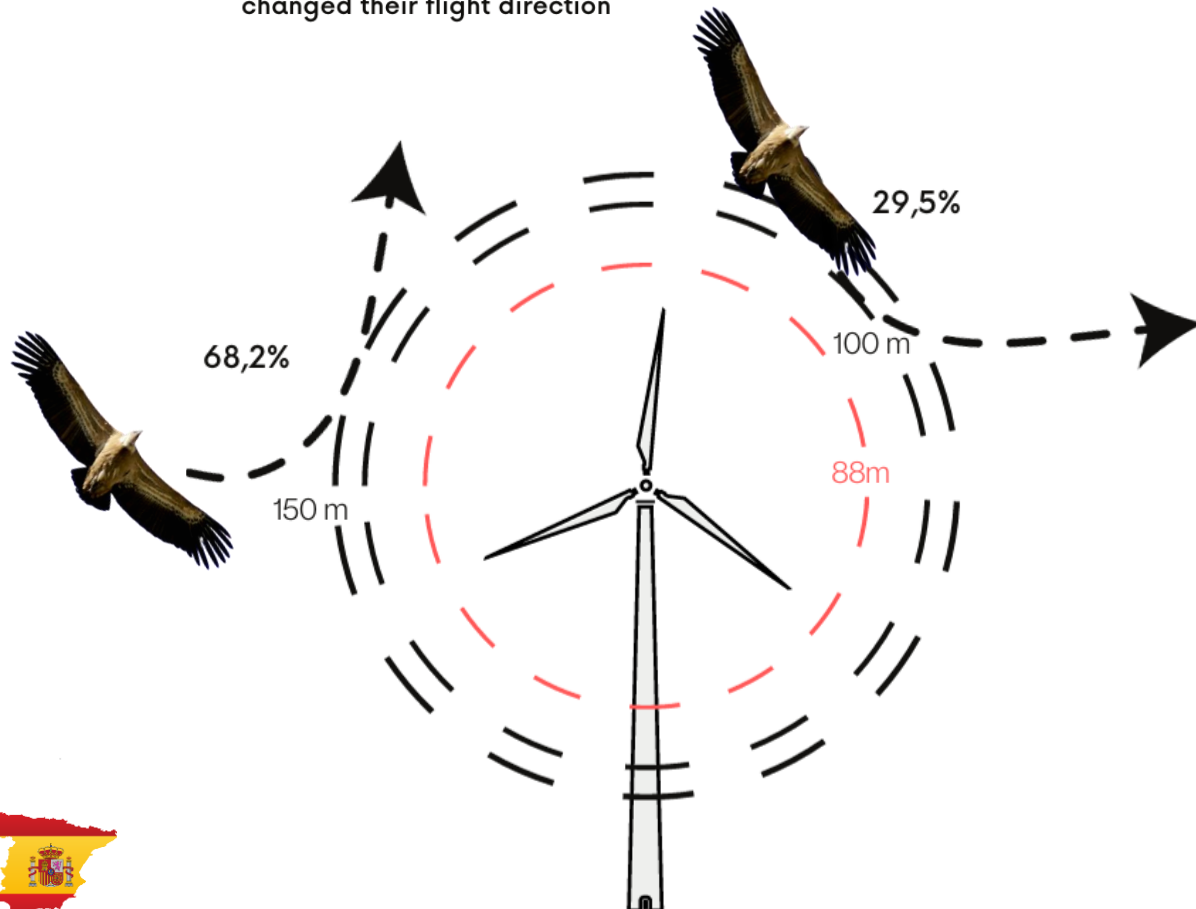
SUMMARIZED RESULTS BASING ON 2 ANALYSED CASE STUDY FROM FW IN N, SPAIN.
DCRS IS BASING ON ROTOR DIAMETER



WHAT WE KNOW ABOUT BIRDS BEHAVIOUR NEAR THE TURBINES?

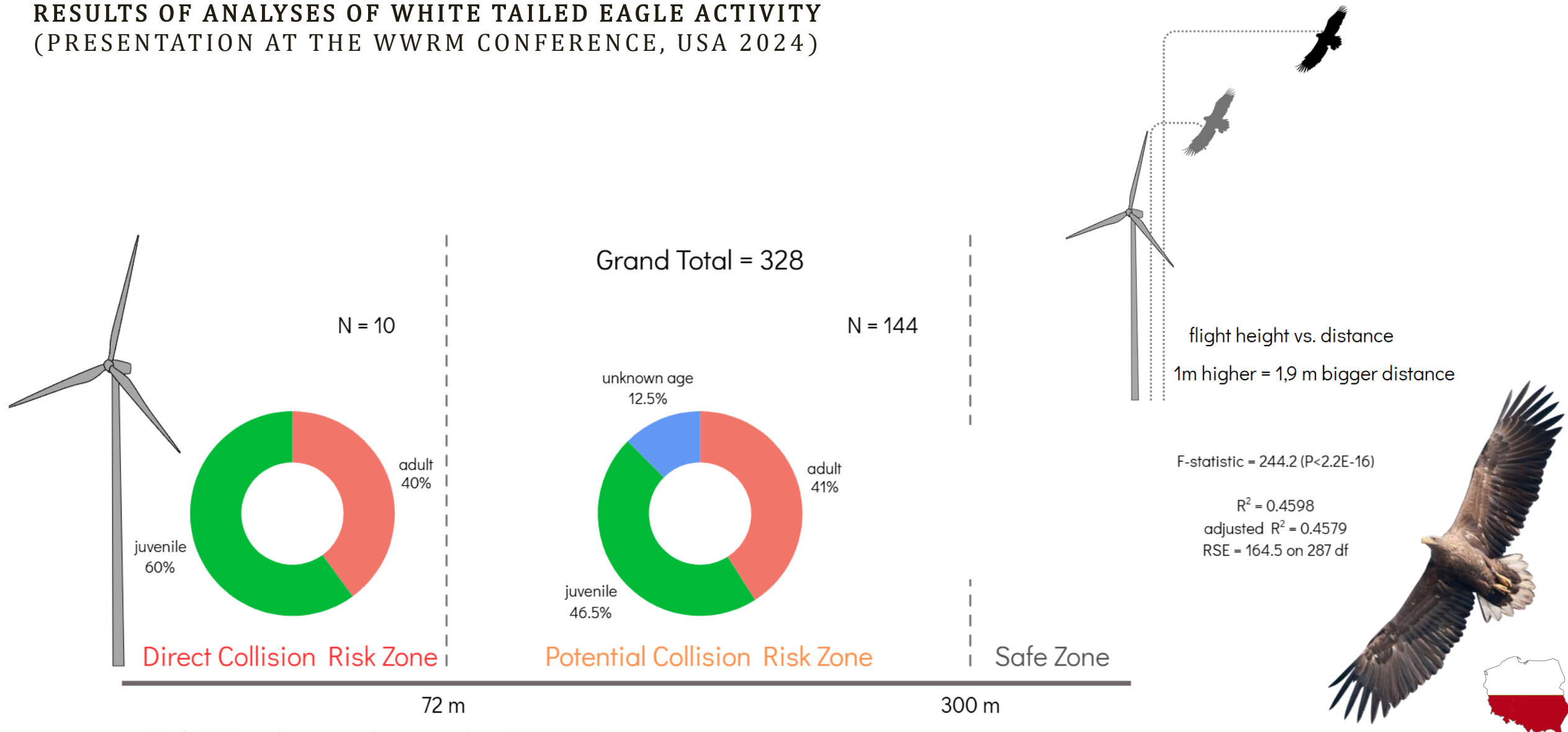
RESULTS OF AUDIO AND STROBE SIGNALS OR JUST REACTION ON WT?
(PRESENTATION AT THE CWW CONFERENCE, CROATIA 2023)

97,7% of birds from PCRS
changed their flight direction

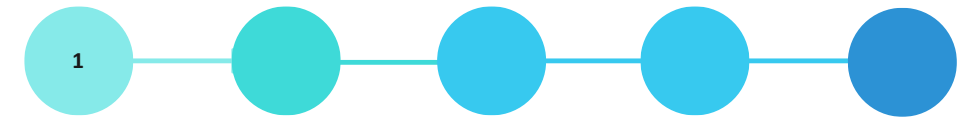


WHAT WE KNOW ABOUT BIRDS BEHAVIOUR NEAR THE TURBINES?

RESULTS OF ANALYSES OF WHITE TAILED EAGLE ACTIVITY (PRESENTATION AT THE WWRM CONFERENCE, USA 2024)

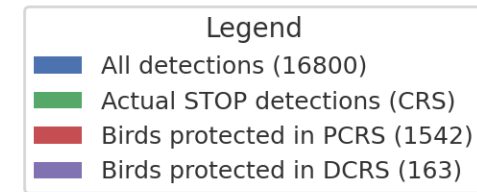
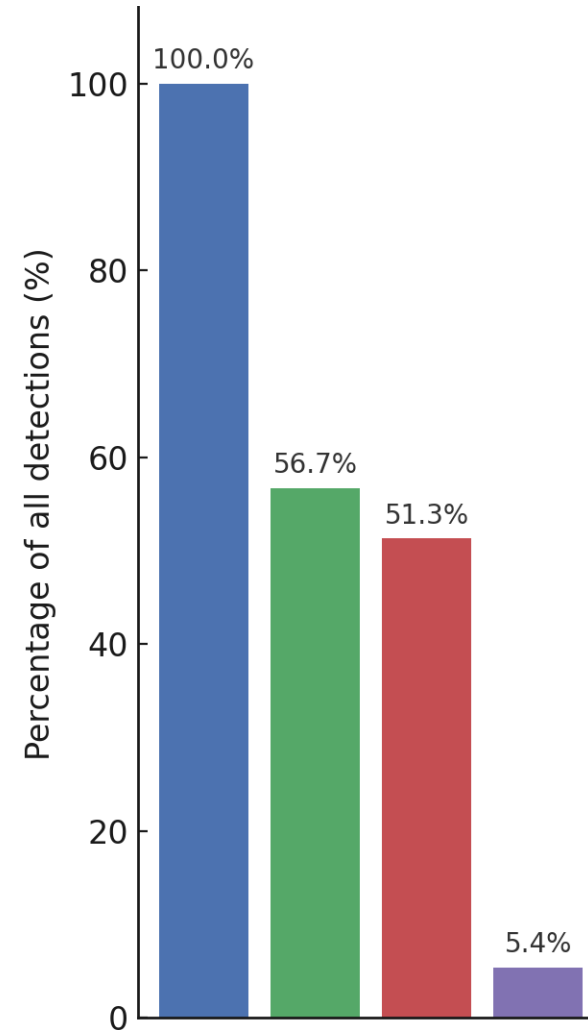


MAIN PROBLEMS – REAL CASE STUDIES



**FLYING ROUTE BETWEEN BREADING
AND FEEDING AREAS,
BIRDS ARE FLYING AT HIGH ALTITUDES ,**

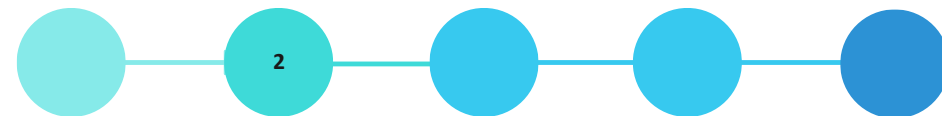
IMPLEMENTING THE MINIMIZATION
DUE TO THE RECORDED MOTARTALITY



False positives: 0.7

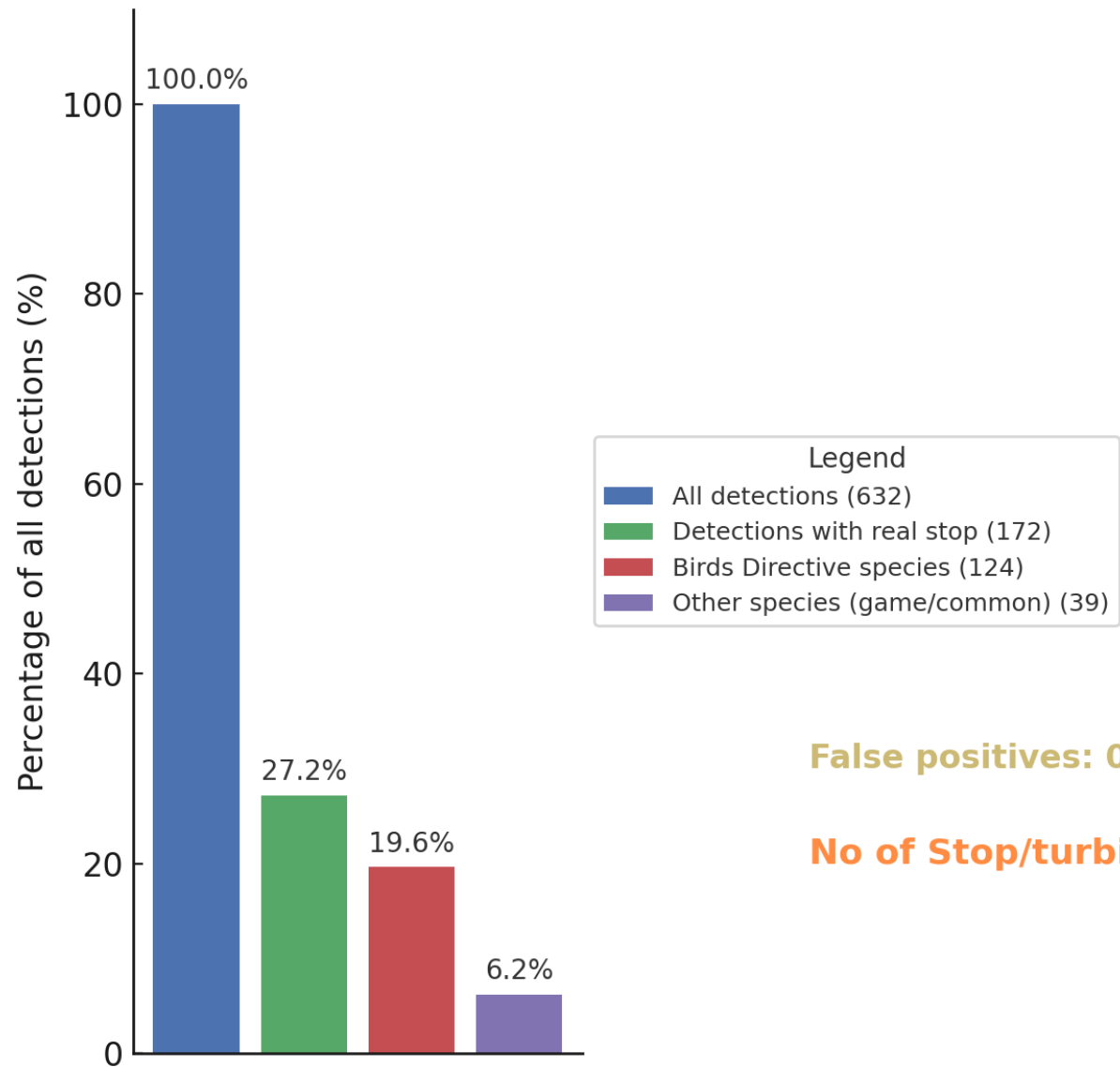
No of Stop/turbine/day: 1.5

MAIN PROBLEMS – REAL CASE STUDIES



IMPORTANT BREADING AREA
DIRECT FLYING ROUT:
BETWEEN BREADING AND FEEDING
AREAS

IMPLEMENTING THE MINIMIZATION
DUE TO THE RECORDED MOTARTALITY

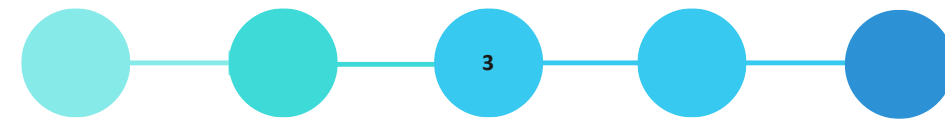


False positives: 0.95%

No of Stop/turbine/day: 12.3

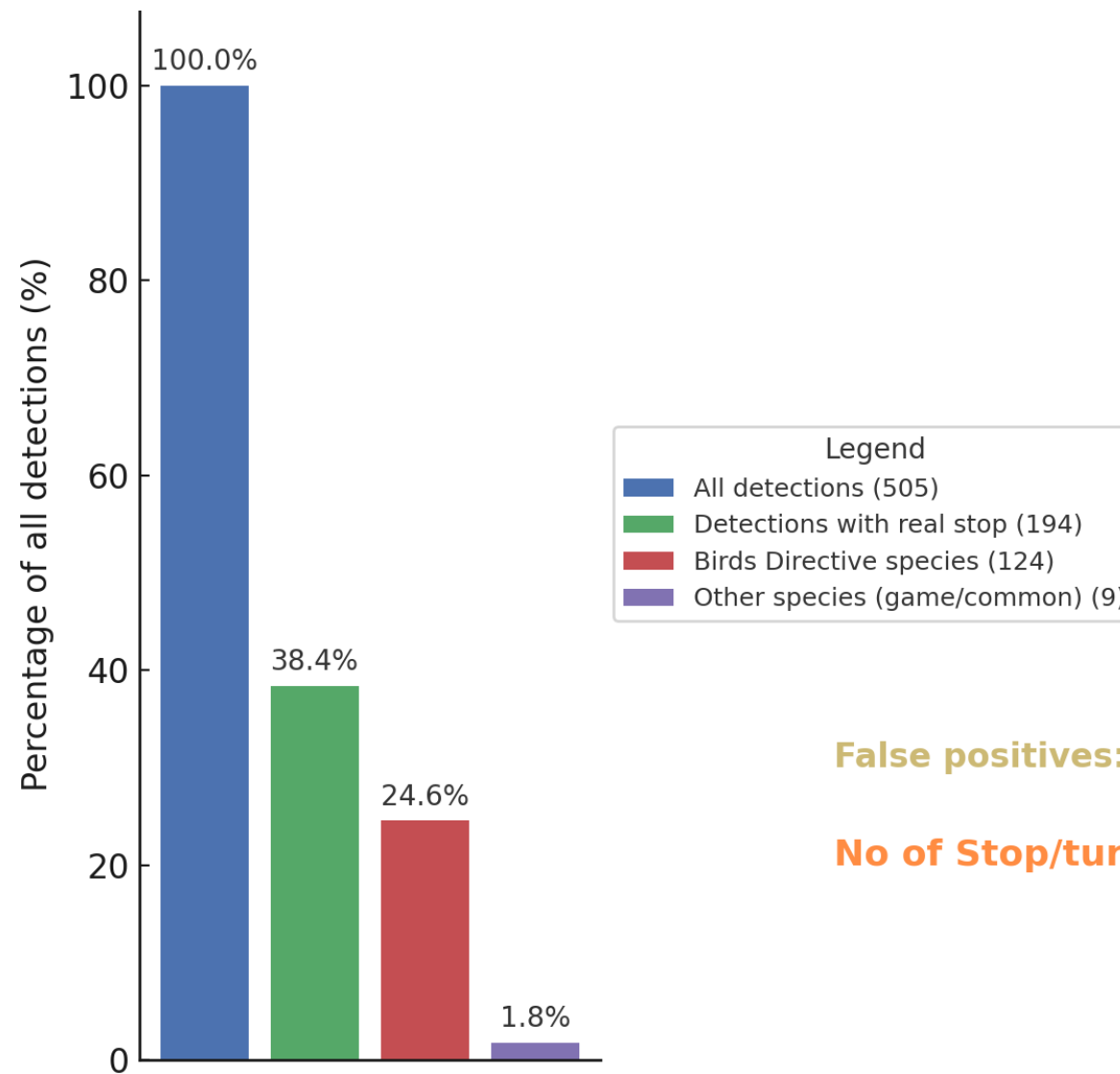


MAIN PROBLEMS – REAL CASE STUDIES



VERY IMPORTANT FLYING ROUTE DURING MIGRATION PERIOD

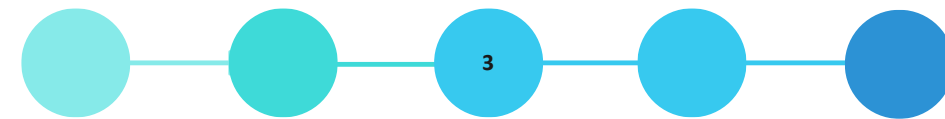
IMPLEMENTING THE MINIMIZATION
DUE TO THE RECORDED MORTALITY



False positives: 0.02%

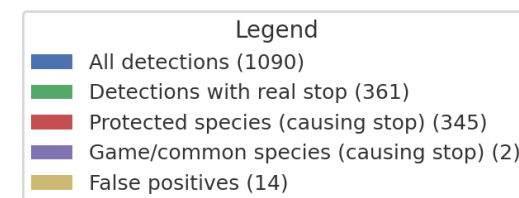
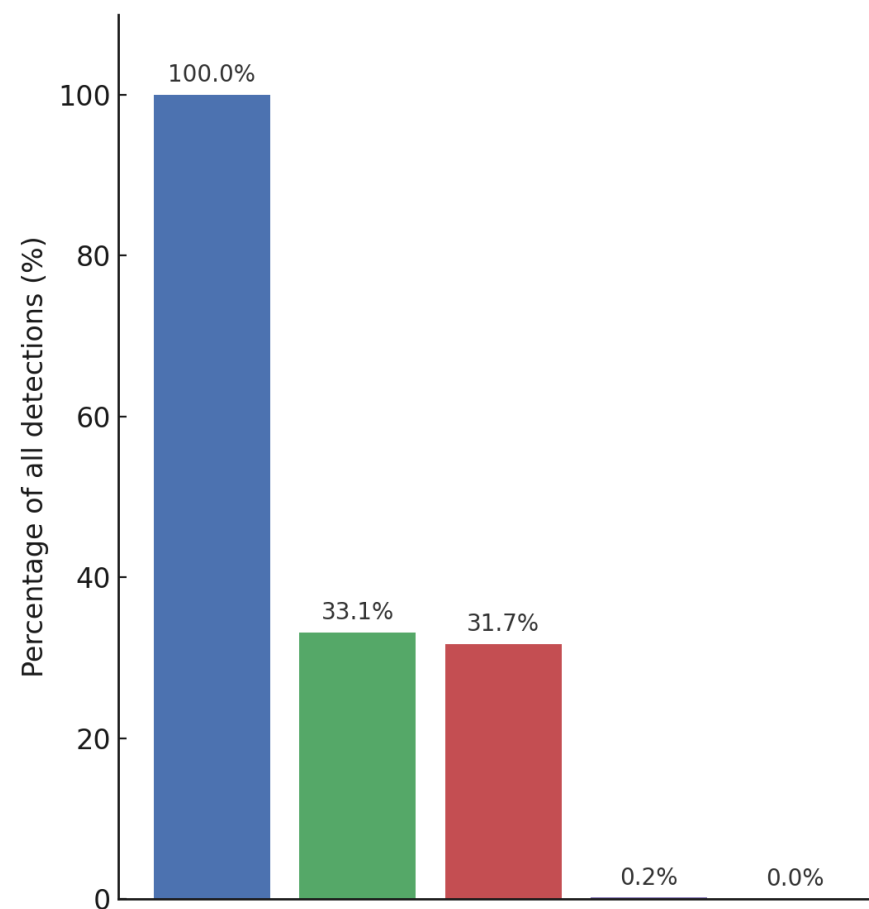
No of Stop/turbine/day: 13.8

MAIN PROBLEMS – REAL CASE STUDIES



FEEDING AREA
FLYING ROUTE BETWEEN BREADING AND
FEEDING AREAS,

IMPLEMENTING THE MINIMIZATION
DUE TO THE RECORDED MOTARTALITY



False positives/day: 1

No of Stop/turbine/day: 25.7

CONCLUSSIONS – LESSONS TO BE LEARNT FOR FUTURE

1. THE CASE STUDIES SHOW THAT THE NUMBER OF TURBINE STOPS AND DETECTION RATES STRONGLY DEPEND ON HOW BIRDS USE THE AREA — WHETHER IT IS A MIGRATION CORRIDOR, FEEDING GROUND, OR BREEDING AREA
2. THE FREQUENCY OF TURBINE STOPS RANGED FROM 1.5 TO 25.7 PER TURBINE PER DAY, INCREASING WITH THE INTENSITY OF BIRD ACTIVITY NEAR THE TURBINES
3. THE SHARE OF PROTECTED SPECIES (BIRDS DIRECTIVE) AMONG DETECTIONS LEADING TO STOPS VARIED BETWEEN 20–50%, CONFIRMING EFFECTIVE SPECIES PRIORITIZATION
4. COMMON OR HUNTABLE SPECIES REPRESENTED ONLY 0.2–6% OF STOPS, INDICATING A LOW RATE OF UNNECESSARY EXCLUSIONS
5. FALSE POSITIVES REMAINED VERY LOW (<1%), ENSURING MINIMAL IMPACT ON ENERGY PRODUCTION.



CONCLUSIONS

1. PLAN TURBINES BASED ON BIRD ACTIVITY.
FEEDING AND BREEDING AREAS REQUIRE SPECIAL ATTENTION OR MITIGATION SYSTEMS LIKE SDOD.
2. INTEGRATE REAL-TIME MONITORING.
ADAPTIVE SYSTEMS EFFECTIVELY PROTECT BIRDS WHILE MAINTAINING ENERGY PRODUCTION.
3. USE DATA-DRIVEN SITE SELECTION.
COMBINING ENVIRONMENTAL AND OPERATIONAL DATA SUPPORTS BALANCED DEVELOPMENT.
4. TECHNOLOGY ENABLES COEXISTENCE.
LOW FALSE POSITIVES AND MINIMAL DOWNTIME PROVE WIND ENERGY AND BIODIVERSITY CAN COEXIST.

