

## Panel summaries

### **Panel 1: Unlocking the path to a bird-friendly energy transition: Key factors and strategies**

Moderated by Olivier Feix of Elia Group, the discussion showcased successful bird-friendly energy projects and offer practical strategies for integrating biodiversity protection into power grid and renewable energy development. Experts, including Lisa Garnier-Durand from RTE and Guillaume Marchais from EDP Renewables France, shared insights on mitigating risks to bird populations around the power grid and onshore wind farms in France. José Tavares of the Vulture Conservation Foundation discussed the challenges that vultures face near wind farms and grid networks, alongside other legislative topics. While Stefania Charisiadou from DG Environment highlighted the role of European policies and initiatives in protecting biodiversity to support the success of energy transition. Participants gained valuable, actionable insights to shape future energy projects that prioritise both wildlife and the acceleration of the deployment of energy infrastructure.

### **Panel 2: From science to practice: Translating scientific findings into legislation and effective implementation of measures**

Moderated by Frank Vassen of DG Environment at the European Commission, the panel focused on the importance of effectively translating scientific research into legislation and practical solutions for wind energy and power grid infrastructure to protect birds. Experts like Dr Constance Blary shared insights on bird sensory ecology and how to implement effectively finding into mitigation strategies, while Dr Ricardo Martins introduced the existing collaboration in Portugal between research institutions and REN, the national transmission system operator. Liam Innis discussed the upcoming review document on the effectiveness of bird flight diverters and the challenges of finding comparable studies on industry practices. Finally, Anouk Puymartin provided examples of successful advocacy initiatives for stronger bird protections through policy and shared the role and challenges of civil society, like BirdLife Europe, to ensure scientific findings are successfully translated into policy. Attendees learned how partnerships between researchers, civil society, industry, and policymakers can lead to effective biodiversity conservation in renewable energy projects.

### **Panel 3: Balancing nature-positive with the acceleration of renewable energy development: Pathways to success**

Moderated by Liam Innis of the Renewables Grid Initiative, the panel explored how to balance biodiversity conservation as a whole with the necessary expansion of renewable energy infrastructure. Panellists shared insights from real-world projects, discussing the challenges of meeting renewable energy goals while reaching nature-positive. Key topics include the successful approaches, where energy projects contribute positively to nature, and how conservation strategies can be integrated into operations. The panel also examined regulatory frameworks like the Nature Restoration Law and the Renewable Energy Directive (RED III). Attendees gained practical insights on tools, metrics, and best practices for achieving nature-positive energy infrastructure.

# Presentation abstracts

## Preventing wildlife electrocution, global best practices

- Brian J. McGowan
- Founder and Managing Director, Scientias-Energy  
Convenor of “Methods of reducing electrocution of birds from power lines”

Wildlife electrocution is a global challenge, predominantly evident on overhead distributions lines and in open substations. Hundreds of millions of birds and small animals are electrocuted or maimed on power lines every year often causing costly power outages and equipment damage. This presentation summarize the causes and consequences of wildlife electrocution and communicate the key principles underpinning global best practices for both:

- A. Design principles for wildlife safe infrastructure.
- B. The use of retrofittable insulation and guards to prevent electrocution

The presentation will also address utility concerns and expectations of utilities which must be met in order to qualify any solution a success; wildlife protection, power continuity, asset protection, fire risk prevention and long durable life time.

## Probabilistic predictions of bird collisions at wind turbines and power lines

- Dr. Moritz Mercker
- Managing Director at Bionum GmbH and researcher at the Heidelberg University, Institute of Applied Mathematics

Bird collisions with wind turbines are a controversial issue. While wind power expansion is essential to combat climate change, it also raises the risk of bird collisions, particularly for large birds and birds of prey. The specific risks, such as the distance from breeding sites or the landscape’s impact on collision likelihood, are often unclear, leading to uncertainties in species conservation assessments during approval processes. The recently developed “RKR model” addresses these uncertainties by mathematically analyzing extensive bird movement data. Applied to red kites during the breeding season, it reliably predicts land use and collision risks for planned projects. This scientific approach not only ensures transparent results but also shortens the approval process. Currently, we are also adapting the model to address bird collisions with power lines.

## Conservation of endangered bird species through the insulation of dangerous overhead power lines around the Burgas Lakes

- Lyubka Vasileva
- Team leader of Innovations and EU funded projects, Elektrorazpredelenie Yug EAD

The project “Conservation of endangered bird species through the insulation of dangerous overhead power lines around the Burgas Lakes” (LIFE20 NAT/BG/001234) aims to protect bird populations threatened at the European level. These include nesting, wintering, and migrating birds at risk of unnatural mortality due to electrocution and collision with power lines in the Burgas Lakes area – a key migration route between Europe and Africa.

The project contributes to the EU's Biodiversity Strategy and the European Green Deal by mitigating biodiversity loss. Key activities include developing a GIS database for medium-voltage power lines and bird species distribution, identifying high-risk areas, replacing 58 km of overhead lines with underground cables, and installing bird diverters to reduce collision risks. Monitoring and evaluating the project's ecological and socio-economic impacts are also central. The project runs from September 2021 to September 2026 and involves several partners, including EVN and the Bulgarian Society for the Protection of Birds, with funding from the EU's LIFE program.

## Video monitoring in Austria and Germany – bird behaviour around power lines

- Rainhard Raab
- Deputy CEO, TB Raab GmbH

Power lines can be dangerous and even fatal obstacles for birds due to electrocution and collisions. Death by electrocution or collision affects a wide range of bird species. In December 2012, TB Raab began video-based monitoring of power lines. Studies have since been carried out to analyse bird flight activity on various power lines in Austria and Germany. Thousands of power line crossings by individuals and flocks have been analysed. Collisions mainly involved the mute swan. However, collisions of cormorants, ospreys and mallards were also recorded.

## Mitigating bird-caused electrical faults in a transmission grid increasingly used by nesting white storks: the successful Portuguese case study

- Dr. Joana Bernardino
- Researcher, BIOPOLIS/CIBIO

In Portugal, the white-stork *Ciconia ciconia* population has significantly increased since the mid-1980's, along with the number of nests in the transmission grid managed by REN (Rede Eléctrica Nacional, S.A.). Breeding on transmission pylons (particularly at  $\geq 150$  kV) is a major concern due to electrical faults caused by nest material or bird droppings. Therefore, in the mid-1990s REN started a nest management program including annual monitoring and translocation/removal of nests in hazardous locations of pylons, installation of deterrents (mainly “anemometers”) in those locations and nesting-platforms in safe locations of pylons.

In this work, framed in the partnership between REN and BIOPOLIS/CIBIO research centre, we evaluated the overall success of the nest-management program in reducing bird-related fault rates in the 2001–2018 period, despite a 3-fold increase in the number of stork-nests on transmission pylons. We also evaluated the effectiveness of “anemometers” (alone) in preventing nest-reconstruction and found opportunities for reducing nest-management efforts.

## **AVISTEP: a sensitivity mapping tool to improve bird conservation in energy planning**

- Bruna Arbo Meneses
- Science Officer, Birds and Energy at BirdLife International

To meet renewable energy targets in a nature-safe manner, it is essential to integrate information on biodiversity early in the planning process. No wildlife group is more sensitive to renewable energy infrastructure and overhead powerlines than birds. As a result, the creation of avian sensitivity maps is increasingly seen as an essential precursor to large-scale renewable energy expansion. Launched in 2022, AVISTEP: the Avian Sensitivity Tool for Energy Planning ([avistep.birdlife.org](http://avistep.birdlife.org)) provides detailed assessments of avian sensitivity concerning a range of energy infrastructure types, namely wind energy (both on- and offshore), solar photovoltaics, and powerlines (both high voltage transmission lines and lower voltage distribution lines). Initially covering India, Nepal, Thailand and Vietnam, it expanded to Uzbekistan, Kenya, Egypt, Laos in September 2024. BirdLife's aim is to rapidly expand AVISTEP to become the preeminent planning tool providing information on bird and biodiversity sensitivity to inform the responsible expansion of renewable energy worldwide.

## **Development of avian sensitivity maps to rank the risks of collision and electrocution for avifauna and prioritise the lines to be neutralised in France**

- Ingrid Marchand
- SafeLines4Birds project coordinator, LPO France

The network of power lines constitutes an obstacle on the aerial grid and is the cause of fatal collisions and electrocutions for avifauna. Some sectors are particularly sensitive, either because of the diversity of species that frequent them, or because of the presence of species that are highly sensitive to these risks. For this reason, one of the actions of the LIFE SafeLines4Birds project is to develop a tool for spatially prioritising the sensitivity of avifauna to the risk of collision and electrocution in France. This tool is based on naturalist field data and supplemented by statistical modelling and spatial processing in order to build up a homogeneous knowledge base on the distribution of sensitive bird species that nest and winter in France. These sensitivity maps will enable DSOs and TSOs to create an intervention strategy to reduce the impact of the power lines on avifauna.

## Habitat use & influence of the grid infrastructure on the Great Bustard population

- Mgr. Soňa Svetlíková, PhD.
- Research assistant, Comenius University, Faculty of Natural Sciences, Bratislava

The Great Bustard (*Otis tarda*) is a prominent example of a globally threatened bird whose survival is almost exclusively restricted to agricultural land and largely depends on habitat conservation measures. However, with increasing intensification and the development of renewable energy sources, the pressure on existing habitats still persists. The main objective of this study was therefore to examine more than 179,614 bustard observations together with more than 20 habitat variables that operate in a human-altered world. The main aim was to understand the critical habitats for bustard survival along with identifying the most important stepping stones by mapping potential movement corridors between suitable habitats. The results of this study can provide new insights into the habitat use of the bustard, which is essential information for the implementation of conservation measures to mitigate the risk of extinction of this large agricultural bird.

## Results of mortality of red kite in Europe

- Dr. Rainer Raab
- CEO, TB Raab

Impacts of human activities on wildlife are undeniable, however, major threats often remain unclear and how these differ across geopolitical borders. We used state-of-the-art GPS satellite telemetry to detect red kite (*Milvus milvus*) mortality events and their causes across Europe. By tracking 2,346 red kites throughout their continental range between 2013 and 2022, we obtained data for 979 mortality events of which 821 were conclusive. For 624 post-fledgling birds, for which mortality causes were conclusive, human-related mortality accounted for 69.1% of deaths. Among them, major mortality causes included poisoning (25.2%), road (10.9%) and rail (5.4%) collisions, shooting/trapping (8.7%), collisions with or electrocution on power lines (9.9%), and collisions with wind turbines (3.8%). Predation was the most prevalent natural mortality cause totaling 25.3% of all cases. We see significant potential for policy-makers and businesses involved with the transition toward renewable energy to reduce anthropogenic mortality in raptors.

## SafeLines4Birds – Reducing bird mortality along power lines

- Manon Quetstroey
- Manager Energy & Nature, Renewables Grid Initiative

LIFE [SafeLines4Birds](#) is a 6-year project which aims to reduce the mortality of 13 bird species around power lines in France, Belgium, and Portugal. The project relies on four objectives: reduce bird collision, electrocution and disturbance, and improve and share knowledge across Europe.

To tackle collision risk, existing anti-collision devices will be installed, and new devices will be tested, such as the American ultra-violet Avian Collision System Avoidance. The performance of these installed devices will be evaluated using cameras.

To reduce electrocution, dangerous power poles will be retrofitted and insulated, and deterrence devices, platforms, and perches to protect roosting and nesting individuals will be installed.

Finally, grid maintenance methodology will be adapted to avoid disturbance and nest abandonment during the breeding season.

## LIFE Great Bustard

- Mag. Dr. Rainer Raab
- CEO, TB Raab Gmb

Austria and Hungary have been very active in Great Bustard conservation for more than 20 years. Based on the positive effects of the measures taken within the former LIFE projects, one of the objectives of LIFE Great Bustard is to reduce the threat of collision with power lines – for many years the number one mortality factor for immature and adult Great Bustards.

Not only the world population, but also the population of Europe has declined by more than 30 % in 11 years. However, thanks to the conservation efforts and the cooperation with farmers and hunters, the West Pannonian population of Great Bustards (including parts of Austria, Hungary and Slovakia) increased from 286 individuals in 2005 to 681 in 2024.

Between 2005 and 2023 a total of 293 km medium voltage power lines were removed, and 162 km high voltage power lines were marked in Austria and Hungary.

## Collaboration between nature NGOs and Elia, the Belgian TSO

- Olivia Geels, Environment Expert, Elia
- Jean-Yves Paquet, Director of Studies Department, Natagora

Elia, the Belgian TSO, collaborates with nature organizations to understand how to reduce bird mortality along power lines. Natuurpunt and Natagora, the two BirdLife partners in Belgium, joined forces to create in 2012 the first sensitivity map for bird collision. The whole Belgian grid was then given a collision risk score, that Elia uses to plan mitigation actions (identify on which lines and spans to place bird deterring devices). New versions of the risk map were produced in 2015 and 2021 from most recent bird distribution derived from citizen science monitoring.

In the meantime, Elia introduced the objective of marking all the most dangerous lines for birds (200 km in Belgium) in its “ActNow” sustainability program. For more than 10 years, Natagora and Natuurpunt have kept bringing their expertise to Elia, including to identify the best way to equip power lines. The presentation will focus on this successful collaboration.

## LIFE EUROKITE

- Mag. Dr. Rainer Raab
- TB Raab GmbH, CEO

The main goal of the LIFE EUROKITE project is to reduce anthropogenic causes of mortality of the red kite in Europe. The efficient protection of the red kite requires the detailed understanding of overall mortality reasons, especially focusing on those caused by legal and illegal human activities. The LIFE EUROKITE project focuses on a Europe-wide representative sample which is achieved by using high-resolution GPS telemetry tracking of more than 3,000 tagged red kites from 15 European countries, allowing fast and exact locating of dead birds. This considerable database is only possible through cooperation and data exchange with multiple international partners. Within the LIFE EUROKITE project different actions are carried out. One of them is the underground cabling and marking. With the help of the telemetry data of tagged red kites we selected most relevant sections of power lines and made them safer by underground cabling in Austria. This measure also saves the lives of other bird species.

## The Great Unknown – impact of energy infrastructure on vultures and other wild-life in Africa

- André Botha
- Vultures for Africa Programme Manager, Endangered Wildlife Trust, South Africa

More than 60% of the human population in Africa does not have regular or reliable access to electrical power and there are various large-scale plans to address this ever-growing need across the continent over the next 30 years. Existing energy generation and transmission systems are often outdated and pose a significant risk of electrocution on and collision with infrastructure to vultures and other large soaring birds. Despite this known risk, there has been limited effort across the continent to monitor and assess the impact of existing networks and to implement measures to ensure that planned developments are done within acceptable environmental guidelines and policies. There are however a few excellent examples from Africa of multi-sector cooperation and engagement to reduce the risk and mitigate the risk posed by energy infrastructure. We will share some examples of this and make suggestions on how this can be expanded across the continent.

## Impact of Overhead Powerlines on Avifauna of Important Bird Areas in Coastal Taluka (Abdasa) of Kutch district, Gujarat, India

- Vidhi Modi
- PhD candidate at M.K. Bhavnagar University & Senior Research Fellow at The Corbett Foundation

From 2021 to 2023, we studied bird mortalities from powerline collisions in saltpans and coastal grasslands in Western India, a part of the Central Asian Flyway. The area hosts ~390 migratory and resident avian species, including two critically endangered bustard species. We assessed the

persistence rate and efficacy of four types of Bird Flight Diverters (BFDs) on 11kV and 66kV powerlines. We also studied bird crossings, carcass searches and carcass persistence rates. The BFD persistence revealed that 72% of the total installed BFDs (n=747) became non-functional within 18 months. The observations of ~2400 hours revealed 33,000 individuals of 113 bird species crossing the powerlines. A total of 58 bird mortalities, belonging to 25 species, were found. Annual mortalities of 759 birds-km for 11kV and 140 birds-km for 66kV were estimated. Considering the area's ecological significance, it is imperative to mitigate the threat of powerline-induced avian mortalities.

## The EUFLYNET COST Action - coordinating research for the protection of migratory landbirds

- Ivan Maggini
- Scientific Coordinator Austrian Ornithological Centre – University of Veterinary Medicine Vienna, Austria

The EUFLYNET COST Action was officially launched in November 2023 with the goal of creating a network of researchers to coordinate efforts for the effective conservation of migrant landbirds in Europe and beyond. During the four years of the Action, we hope to achieve the preparation of multiple Species Action Plans to be submitted to the relevant authorities. One of the main aims is to put together the scientific community and the relevant stakeholders to address common issues and find sustainable solutions. Therefore, we are addressing partners in the energy sector, as well as in the policy-making, economy, agroforestry, and education sectors. In this presentation, I will introduce the Action hoping to provide a chance of starting a dialogue that may be brought forward by scientists and energy providers together.

## Mapping priority areas for reducing bird electrocution: a case study of the Lear's Macaw

- Dr. Larissa Biasotto
- BirdLife International. Science Officer, Birds & Energy

Installing new powerlines is fundamental to transporting energy and supplying the growing demand, reaching remote human communities without energy access. However, the expansion of the distribution grid is not devoid of biodiversity impacts, notably bird electrocutions. It is urgent to identify and mitigate powerlines that threaten bird populations and advocate for more bird-friendly powerlines. In this presentation, I will share some preliminary outcomes by using a model approach to assess the risk of electrocution and spatially prioritize mitigation efforts, using Lear's Macaw as an example. Lear's Macaw is endemic to Caatinga, Brazil, and is classified as Endangered in the IUCN Red List. Due to unique morphological and behavioural characteristics, its population has been jeopardized by numerous events of electrocutions. Our approach demonstrates the ability to identify priority areas for electrocution mitigation, encouraging energy companies to systematize the implementation of mitigation measures, even when data is scarce.



## Poster list

### **The importance of high-quality data about wind energy infrastructures for biodiversity conservation**

- Jacopo Cerri, PhD
- Postdoc researcher, Department of Veterinary Medicine, University of Sassari

Reconciling wind energy development with biodiversity conservation requires accurate maps.

We used satellite images from Google to assess the accuracy of three publicly available maps at portraying onshore turbines in Sardinia (Italy). Then we overlapped these maps with feeding events ( $n = 1,562$ ) of Griffon Vultures (*Gyps fulvus*), to quantify existing bias in collision risk estimation.

We mapped 1,155 turbines, far more than those reported by other datasets. Collision risk calculated with these datasets was lower than that obtained from truly operative turbines. Planned wind farms would increase turbines by 89% and in turn significantly raise collision risk.

Our findings raise serious questions about bias in wind energy maps and highlight that such bias might in turn affect collision risks estimates. Developing transparent and reliable maps of wind energy infrastructures is a priority for biodiversity protection.

### **Conservation of threatened birds through retrofitting of hazardous overhead powerlines in Natura 2000 sites in Western Bulgaria**

- Mariya Georgieva
- Project manager, Electrodistribution Grid West, Head of sector “Ecology”

The high expectations that today’s consumers have for electricity distribution companies, the need to ensure quality and safe power supply, as well as the highly developed responsibility for the protection of endangered bird species, leads to the implementation of various measures to secure the risk poles and overhead power lines.

Part of the set goals of EDG West for the protection of birds are achieved through the implementation of the LIFE BIRD ON POWER LINES project, in partnership with the Bulgarian Society for the Protection of birds.

The main actions are related to conducting field surveys, because of which the riskiest power lines for birds are identified and subsequently secured.

The development of bird-friendly pole and its installation on site is the project’s greatest achievement.

The monitoring shows that the implemented activities have a high positive effect and minimize bird mortality caused by electrocution, nest ignition and/or collision with overhead power lines.

## Cumulative impact of wind energy on red kite population in Wallonia and feedback on the use of two automatic bird detection systems

- Arnaud Beckers
- Senior project manager, CSD Engineers

The impact of wind energy on European raptor populations is a matter of concern considering the high number of carcasses found under wind turbines. We studied the impact of existing and planned wind turbines in Wallonia (Belgium) on the European-endemic red kite through systematic carcass searches and population viability analysis (PVA). Results of the PVA are highly dependent on the estimated carrying capacity and initial population growth rate. If wind energy capacity is multiplied by 3.4 as planned by the regional government, and if current red kite population growth continues, the population trend is expected to remain positive and the population in 2052 would be 4-12% smaller than what we would expect without new wind turbines. The population trend would start to decrease if population growth rate decreases to 1-3% (without the impact of new turbines). Finally, we present 2 bird detection systems that can help to reduce this conflict.

## Effects of wind turbine dimensions on the collision risk of raptors: a simulation approach based on flight height distributions

- Dr. Tonio Schaub
- Mediterranean Institute of marine and terrestrial Biodiversity and Ecology (France) / ENGIE Lab CRIGEN (France) / University of Groningen (Netherlands) / Dutch Montagu's Harrier Foundation (Netherlands); postdoctoral researcher

Informed selection of wind turbine dimensions could mitigate the collision risk of birds. Using a simulation approach based on flight height distributions and a collision risk model, we showed that turbine dimensions indeed had substantial effects on collision risk in six European raptor species. With increasing ground clearance of wind turbines, collision risk decreased in the five species showing flight height distributions with a low mode (< 30 m agl; e.g. Red Kite), while it increased in Short-toed Eagles (mode between 120-260 m agl). Moreover, when the rotor diameter increased at fixed ground clearance, the collision risk per MW decreased in the species with low mode. Given these species-specific effects, wind energy planning should consider the composition of the local bird community when selecting wind turbine dimensions. An online tool allowing practitioners to apply our simulation approach for wind energy projects is currently under development.

## We make the power lines along the Danube River safe for birds

- RNDr. Marek Gális, PhD.
- Scientific coordinator LIFE project Danube Free Sky, Raptor Protection of Slovakia

One of the biggest threats for many bird species is electrocution and collisions with power lines causing thousands of avoidable deaths and injuries. These impacts are targeted by the LIFE Danube Free Sky project, representing a unique example of wide transnational cooperation of 15

partners from Austria, Slovakia, Hungary, Croatia, Serbia, Bulgaria, and Romania, along one of the most important migration corridors, stop-over sites, and wintering places for many bird species in Europe - the Danube River. Over 80 field assistants carried out a field survey (01/2021 - 10/2022), that covered almost 1,580 km of power lines and 12,535 poles in project area, including 25 SPAs and 9 IBAs. 2,098 bird carcasses (103 bird species) were identified. Under the project almost 270 km of power lines identified as a top-priority will be marked with bird flight diverters and more than 4,000 poles were selected for measures to avoid electrocution.

## **Toward a better understanding of avian collision causes in wind farms using data from Automatic Detection Systems**

- Dr. Charlène Gémard
- Postdoctoral fellow at CEFE-CNRS (Montpellier, France)

Wind energy facilities (WEFs) are flourishing worldwide, but this rapid expansion has direct negative impacts on biodiversity, including on avifauna through collisions with turbines. To further our understanding of the causes of bird collisions, we examined multiple species, sites, factors, and years together to simultaneously assess the effects of behavioral and environmental factors on bird sensitivity (presence of birds in the risk zone around the rotor) and exposure (frequency with which birds fly inside the WEF) to collision risks. To do this, we used, for the first time, data from 14 WEFs in Europe, recorded by automatic detection systems (ADS) between 2018 and 2023. As expected, the results show that bird sensitivity and exposure were higher during periods of high activity and in conditions that reduce birds' visual perception of turbines. In addition, sensitivity and exposure varied with factors related to flight height (temperature, wind speed).

## **Mitigating Bird Electrocution: Conservation Efforts and Successes in Andalusia, southern Spain**

- Jose Rafael Garrido & Victor Fiscal, Agencia de Medio Ambiente y Agua, Junta de Andalucia
- Devica Russ, BOKU University

In Andalusia, southern Spain, there are 150,000 potentially dangerous power line supports for birds. Up until 2015, these caused an estimated mortality of 4,000 birds annually, nearly driving endangered species such as the Spanish imperial eagle to extinction and constituting the primary limiting factor for Bonelli's eagle populations. Since then, a synergistic approach involving the identification of priority intervention points through an updated database of electrocutions, along with cooperation with electric companies, has enabled the detection and retrofitting of the most dangerous points. Consequently, the supports where mortality was concentrated have been identified and retrofitted, constituting 20% of the total, effectively eliminating this mortality cause as a threat to bird populations. We estimate that by 2027, we will have all major mortality hotspots under control and no species will be threatened with extinction due to electrocution on power lines. We have also developed programs for cooperation to identify and minimize these impacts in in North Africa, promoting the conservation of European birds also in their migration and wintering areas.

## The value of cooperation and knowledge transfer to reduce raptor mortality due to power lines in the Western Mediterranean

- Helena Clavero-Sousa<sup>1</sup> & Justo Martín-Martín<sup>2</sup>
- <sup>1</sup> Biodiversity Knowledge and Action Programme Officer - IUCN Centre for Mediterranean Cooperation, Spain
- <sup>2</sup> JMM Consultant, Spain - Consultant on biodiversity conservation and IUCN advisor

Bird electrocution and collision on power lines may represent a conservation problem for certain species, some of which are threatened in the western Mediterranean. IUCN-Med has been working in collaboration with other actors, such as the Spanish or Andalusian governments, the competent authorities and NGOs in North-West Africa to promote cooperation and knowledge transfer in identifying and minimising these impacts. First hotspots of high mortality and high-risk areas have been identified in Morocco, field work has been promoted to improve knowledge of the populations and their threats, NGOs have started to work on monitoring these threats, training and experience exchange workshops have been held between electricity companies, authorities and civil society in Morocco, Tunisia and Algeria, with Spanish and international experts, among others. Thanks to this joint work, Red Lists and conservation strategies have been developed, as well as a toolkit with technical guidelines and an app for data collection.

## Predict to protect: developing trait-based vulnerability indices to wind energy development for birds and bats

- Arnaud Vansteenkiste
- PhD student, University of Liège

The impact of wind farms on biodiversity, especially birds and bats, requires urgent solutions at local and global scales. In particular, we need data to assess the impact of projects on species based on their vulnerability. We also need to assess whether current policies are protecting the vulnerable species. The main goal of my PhD project is to propose new tools to mitigate mortality caused to birds and bats by wind power development (onshore and offshore). These tools are vulnerability indexes to identify the most vulnerable species, and risk maps to identify the most sensitive areas. I will implement my approach on two territories: the European Union and the USA. Moreover, I will assess the different protection policies frameworks between the two continents. These tools will help consulting firms, wind energy developers and decision makers to act in the best interests of birds, bats and humans.

## Effective collaboration method between NGOs and Grid operators in Spain

- Alfonso Godino Ruiz
- AMUS-Acción por el Mundo Salvaje, LIFE EUROKITE Project Coordinator

The reinforcement of the red kite's population in SW of Spain is an action implemented by AMUS in the framework of the Eurokite LIFE project to promote the long-term conservation of the small and threatened population of red kite in that region. To minimize one of the main threats for the species, the electrocution, a collaboration with E-Distribución (the main electric company present in the releasing area) was focused on the correction of electric pylons, and specially in those areas frequently used by the released red kites. This company corrected and isolated 582 electric pylons during the period 2020-2023 and it is planned to correct 117 pylons during 2023-2027. As a result, no red kites were electrocuted in the releasing area (50.000 ha), being this action a practical measure to reduce the mortality, one of the main aims of this LIFE project, but also for all the birds in the area, specially raptors.