

**STUDY ON THE MORTALITY OF BIRDS CAUSED
BY ELECTROCUTION AND COLLISION WITH POWER LINES IN
DRINO VALLEY,
GJIROKASTRA, ALBANIA 2020.**



Photo: K. Bashmili / AOS

TECHNICAL REPORT
Under action A3 of the Egyptian Vulture New LIFE project
(LIFE16 NAT/BG/000874)

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Background: The Drino Valley represents an important corridor for migratory birds, mentioning here the Lesser Kestrel (*Falco naumanni*), the Short-toed Eagle (*Circaetus gallicus*), the European Honey Buzzard (*Pernis apivorus*), and many other migratory birds. Most importantly, Drino Valley is home for the Egyptian Vulture (*Neophron percnopterus*). Most of the Egyptian Vulture population in Albania uses this valley as a feeding ground.

However, the dangers that birds may face in this valley are numerous - one of the potential dangers posed to birds is the electrocution and collision with power lines. During the last two years, AOS has been monitoring the power lines across the Drino valley in order to identify the most dangerous pylons and power lines and to further suggest mitigation measures to this problem.

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Summary

The survey on bird mortality caused by electrocution and collision with power lines in Drino valley, took place in two different seasons of the year, in Spring 2020 and in Autumn 2020, corresponding to the two birds migration seasons. A total of 16 transects were monitored, with a total length of circa 44.2 km. The aim of this study was to identify the dangerous poles and power lines across Drino valley in order to further develop a mitigation plan for this problem. This study concludes that the most dangerous power lines are considered those in the open field, perpendicular to the valley, and transects near the roosting site of the Lesser Kestrel (*Falco naumanni*). During the power lines monitoring, we recorded feathers and remains of a Lesser Kestrel (*Falco naumanni*) killed from electrocution and a Magpie (*Pica pica*) which is thought to be collided with power lines. In this situation it is recommended to: continue monitoring bird mortality rate in the coming years during the migration seasons in order to assess all the threats in the area; identify dangerous poles; and increase cooperation with the responsible institutions for the management of the electricity power distribution grid, OST and OSHEE.

Key words: *bird, energy, infrastructure, hazardous, egyptian vulture, Drino Valley*

Introduction

The Important Bird and Biodiversity Area of Gjirokastra (IBA) lies almost throughout all Drino Valley. This area has a surface of circa 36.79 ha, with a mostly plain and hilly relief. The land in the valley is divided into three main categories: a) Agricultural land; b) Land for urban and rural development; and c) Natural area.

The presence of the Egyptian Vulture (*Neophron percnopterus*) and of the largest roosting site in Europe of the Lesser Kestrel (*Falco naumanni*) are the reasons that this valley has the status of the Important Bird & Biodiversity Area. The Drino valley, as part of Vjosa River Basin, is one of the most important corridors for migratory birds who use this valley each year to migrate from Europe to Africa and vice versa.

Considering the importance of this area, the AOS team within the EVNewLIFE project has been monitoring the bird mortality rate caused by electrocution and collision with power lines in this valley, for two years now. Therefore, this study is of great importance in terms of identifying the dangerous pylons and power lines and suggesting effective solutions to mitigate this threat in the future.

Methodology

Monitoring period

The monitoring of power lines in Drino Valley took place in two different seasons the year, in Spring and in Autumn, corresponding to the two birds migration seasons. Specifically, in spring were conducted two field visits - the first on May 5, 2020, and the second on July 24, 2020. During these first visits circa 6 km of power lines were monitored. While, in autumn was conducted one field visit. This visit took place on 17 - 18 September 2020, and a total of circa 38.5 km of power lines were monitored.

Monitoring area

The monitoring of bird mortality rate caused by electrocution and collision was focused on Drino Valley, near the EV territories, and the largest roosting site in Europe of the Lesser Kestrel. A total of 16 transects were monitored, with a total length of circa 44.2 km, and width of 5-10 m. Low, medium, and high voltage power lines were monitored. In this survey, it was given priority to the transects located in open areas, without tall vegetation, as well as to those transects which are located close to the territories of the Egyptian Vulture and the roosting site of the Lesser Kestrel.

The map below shows all the power lines monitored for 2020 by AOS in Drino Valley, Gjirokastra.

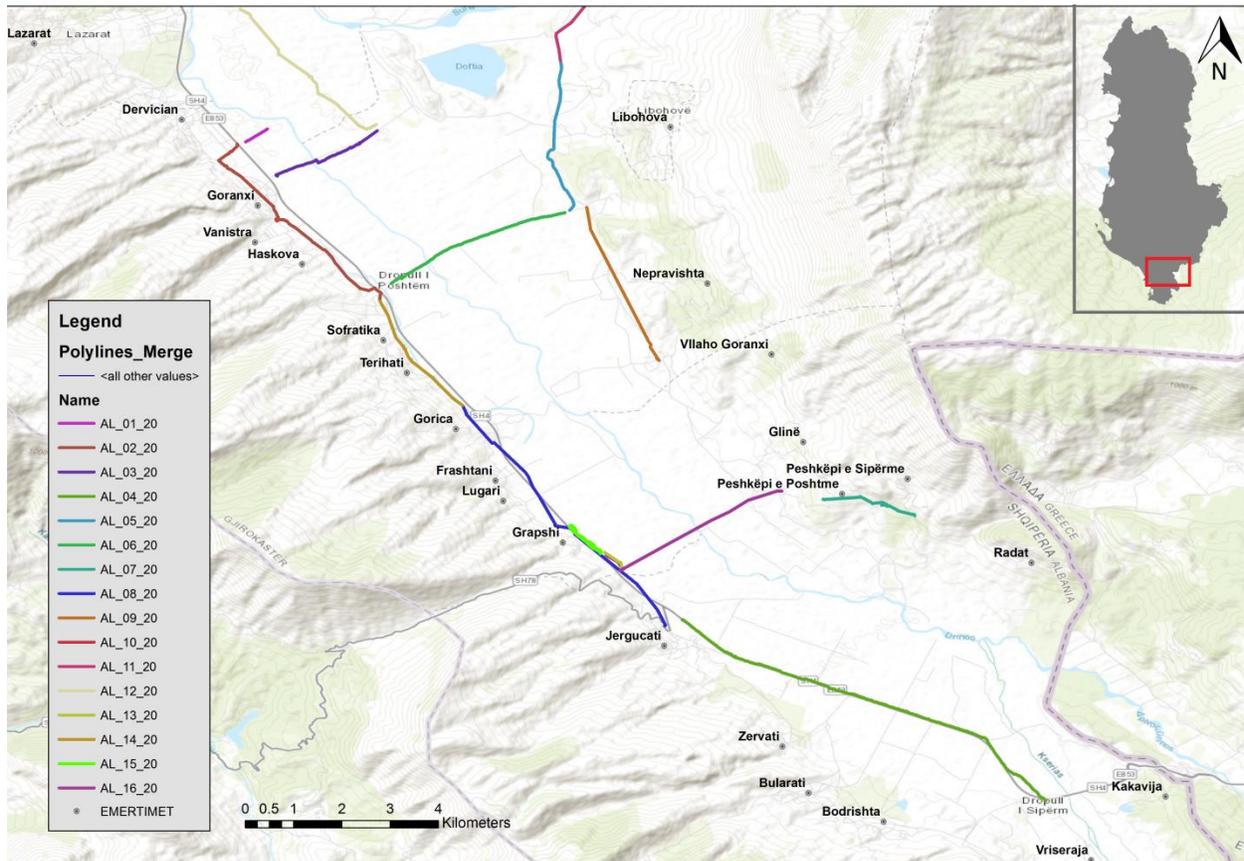


Figure 1. Power lines monitored by AOS in the Drino Valley, 2020.

Team

This survey was conducted by the AOS staff, supported by the students of “Asim Zeneli” high school (members of CYC-Gjirokastra), and their teacher Dr. Gentjan Hyka.

The first field monitoring was carried out by 17 people: 12 CYC members, 1 teacher, and 4 persons from the AOS staff. While, in the monitoring carried out in September participated 4 people: 3 persons from the AOS staff, and an AOS volunteer.

The monitoring was carried out in two separate groups, monitoring the entire selected transect by walking, in a width of 5-10 m. Since the land along transects was usually covered by vegetation,

mostly low vegetation (shrubs), it was difficult for us to see in a distance for cases of electrocuted or collided birds, thus walking the entire transect was the most suitable method for us.

Data collection

For data collection we used apps (*ObsMapp*) and GPS installed on smartphones. *ObsMapp* was the application we used to record transects and the data on bird mortality rate caused by electrocution and collision with power lines. This application creates itineraries with an error rate of 1-3 meters and allows the entry of pixel data in cases when dead birds were found, or simply recording birds that use power lines / poles.

Subsequently, all transects were casted in ArcGis 10.5 program, from where processed data were obtained, and attribute tables and high quality maps were extracted.

The main objectives of the field team were: a) monitoring the power lines, b) identifying dangerous poles, and c) finding possible cases of electrocuted and / or collided birds.

Results

Monitoring of power lines

As noted above, 16 transects along power lines in Drino valley were monitored, with a total length of circa 44.2 km.

During the field monitoring, we recorded feathers and remains of a Lesser Kestrel (*Falco naumanni*) and a Magpie (*Pica pica*) – possibly collided or electrocuted.

The first recorded case by our team were the remains of a Lesser Kestrel (*Falco naumanni*) under the energy pole, which is located near the village of Glina, along the transect with Id: AL_16_20, with point coordinate: Lat: 39 ° 57'48.35 "Lon: 20 ° 17'0.20 ".



Figure 2. Findings from field monitoring, remains of a Lesser kestrel

While the second recorded case were the feathers of a Magpie (*Pica pica*) found below the power lines, near Bulo, along the transect Id: AL_11_20, with point coordinates: Lat: 40 ° 3'4.03 " - Lon: 20 ° 14'57.83 ".



Figure 3. Findings from field monitoring, feathers of a Magpie

Hazardous power poles identified

A very important aspect during the monitoring of the lines was also the identification of dangerous poles. This assessment was based on the methodology provided by the EVNewLIFE project, which according to the pylon typology can assess the danger rate of the pylon.

In Drino Valley, circa 24 different types of electricity pylons have been identified (figure below). The pylons belong to 3 different categories: the low voltage pylons, the medium voltage pylons, and the high voltage pylons.

The assessment shows that the most problematic pylons in terms of the possibility of electrocution in birds are: LV_04, LV_06, LV_07, LV_08, LV_09, LV_10, LV_11, LV_12, LV_13, LV_14, LV_15, MV_02, MV_05. While medium and high voltage poles appear safer. Specifically, the least hazardous are: HV_01, MV_01, MV_03, MV_04 and MV_06.



Figure 4. Hazardous power poles identified

Conclusion

In conclusion, it is important to note that power lines in Drino Valley remain a potential threat to the Egyptian Vulture population, the Lesser Kestrel population and all birds present in the area, mainly predators, perching in these power lines.

The most problematic lines are those perpendicular to the Drino valley and the power lines that are close to the Lesser Kestrel roosting site. It is therefore very important to take mitigation measures precisely for these power lines and pylons, consisting mainly in insulation of dangerous pylons in order to prevent electroshock to birds.

The following map (*Figure 5*) shows the assessed dangerous power lines that must be encapsulated in order to prevent electrocution, especially for the Egyptian Vulture, the last breeding vulture in Albania. The most priority transects to intervene with the encapsulation of the pylons and bird diverters are: AL_16_20, AL_08_20 AND AL_15_20.

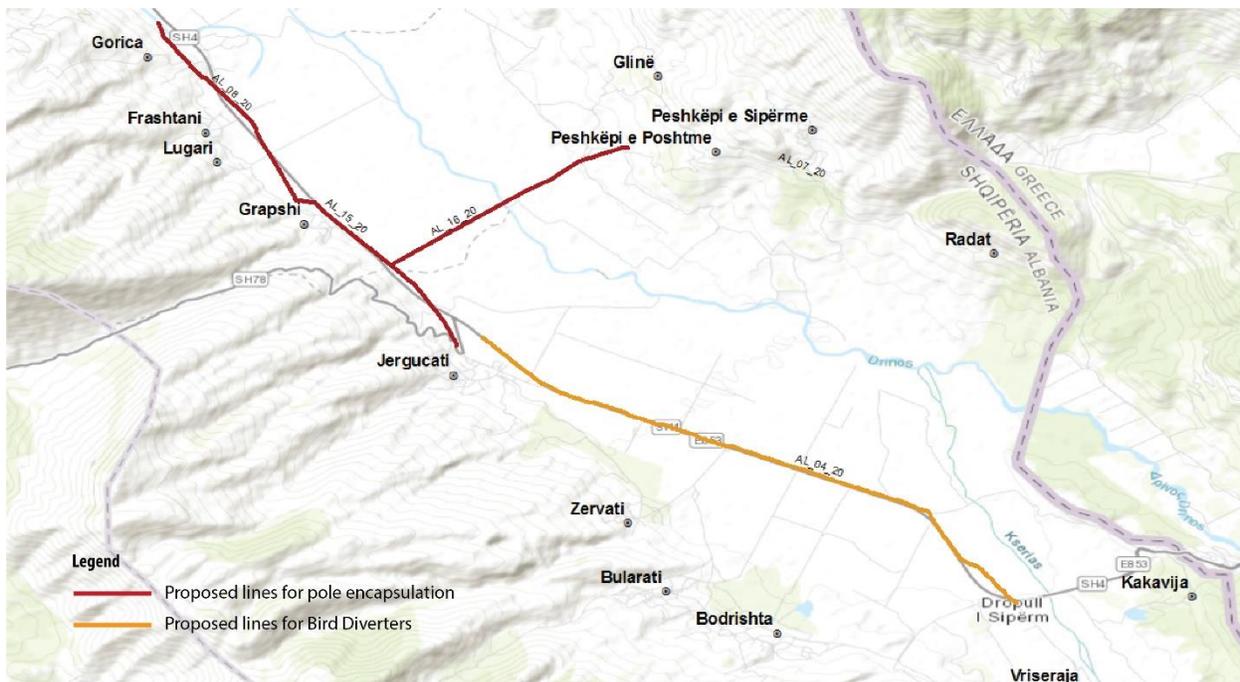


Figure 5. Lines which need to encapsulate the poles.

Recommendation

In order to mitigate the risk posed to birds by power lines in Drino Valley, we recommend:

1. Retrofitting of electricity poles assessed as dangerous in this study, specifically the pylons in the power lines with ID: AL_16_20 and AL_08_20 (*Figure 5*). These types of poles are shown in *Figure 4* (Pylon type ID: LV_03, LV_04, LV_05 and LV_06).
2. Installation of bird diverters along the power line with ID: AL_04_20 (*Figure 5*).
3. Increase the cooperation with the responsible authorities for the management of the distribution power grid, OSHEE, and OST, in order to conduct the retrofitting of the poles and to take other mitigation measures in the future, constructing and installing bird friendly electric pylons.
4. Continuing the monitoring of the power lines in Drino Valley and expanding the power lines monitoring in other areas where the territories of the Egyptian vulture are located.

Anex: Photos from the monitoring

Figure 6. Birds observed along power lines









Figure 7. Photo from the field visit











