

MOST COMMON MORTALITY CAUSES AND LESIONS OF THE GRIFFON VULTURE (*GYPS FULVUS*) IN THE IBERIAN PENINSULA

INTRODUCTION

Over 90% of the European griffon vulture (Fig. 1) population lies in the Iberian Peninsula. It is not considered an endangered species although it currently faces several threats, mostly from an anthropogenic origin. It is thought that such threats may eventually result in a declination of its population.



Figure 1. Specimens of griffon vulture.

OBJECTIVES

The aim of this study is:

- To identify the most common causes of death of griffon vultures in the Iberian Peninsula and the main threats they are currently facing.
- To determine the most common histopathological findings and their relationship with death causes.
- To analyse possible patterns of mortality considering geographical distribution of the animals, their age or sex.

MATERIAL AND METHODS

The present study has been realized through a complete and thorough analysis of a data base containing information related to 297 dead griffon vultures during the 2017-2019 period. In addition, histopathological studies of 157 individuals have been performed.

RESULTS

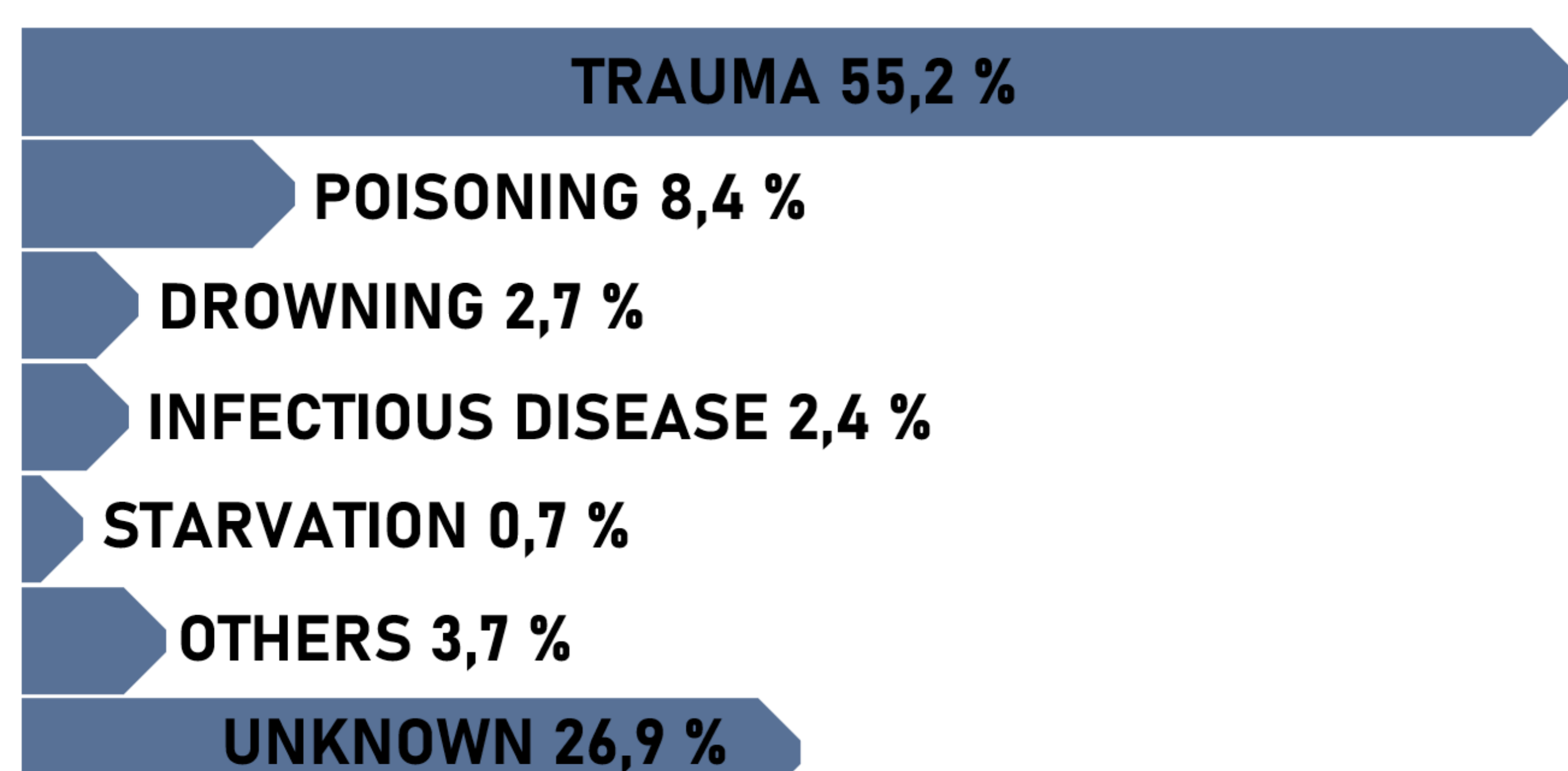


Figure 2. Most common mortality causes of a population of 297 griffon vultures in the Iberian Peninsula from 2017 to 2019.

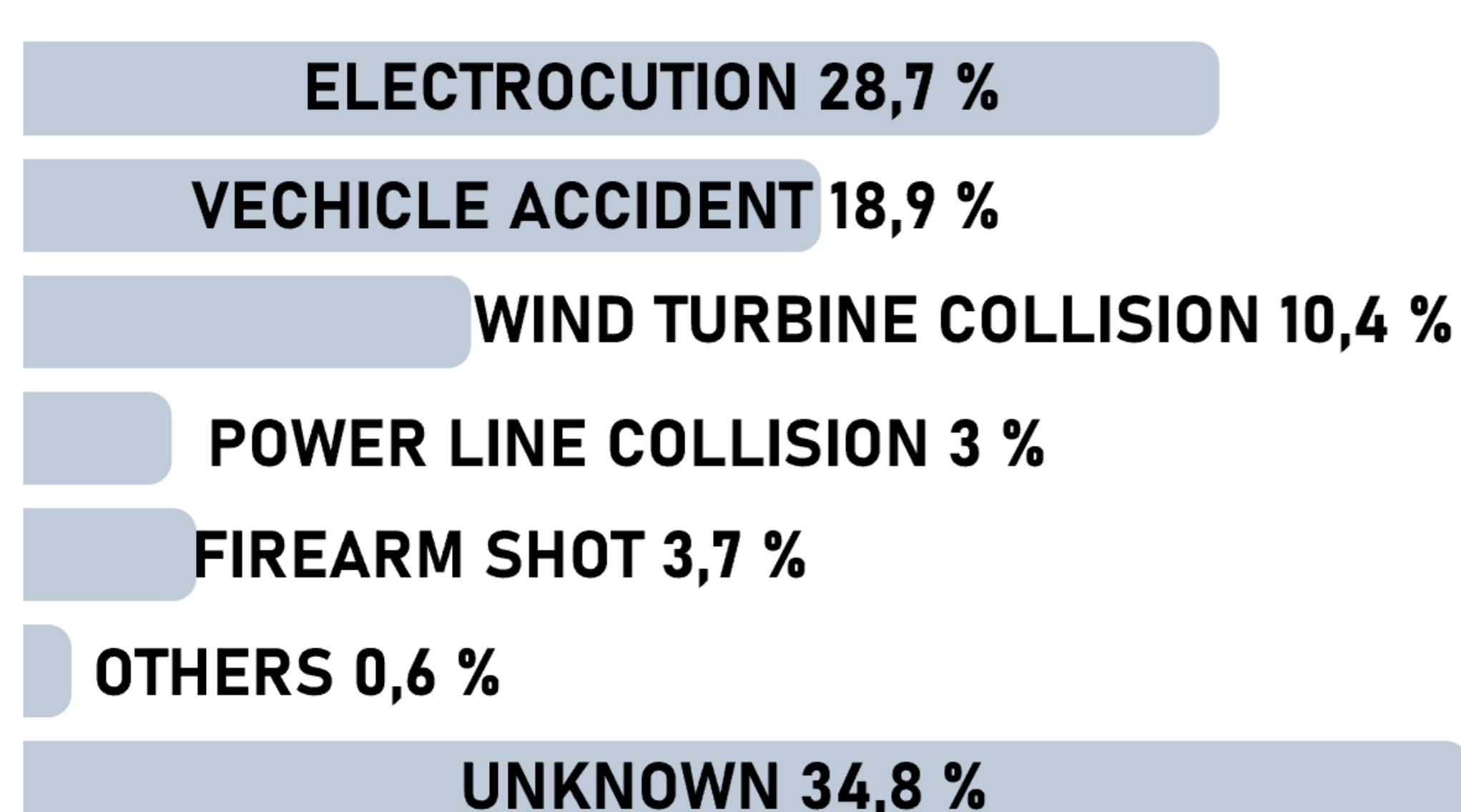


Figure 3. Types of traumatic injuries that caused death in griffon vultures and their frequency.

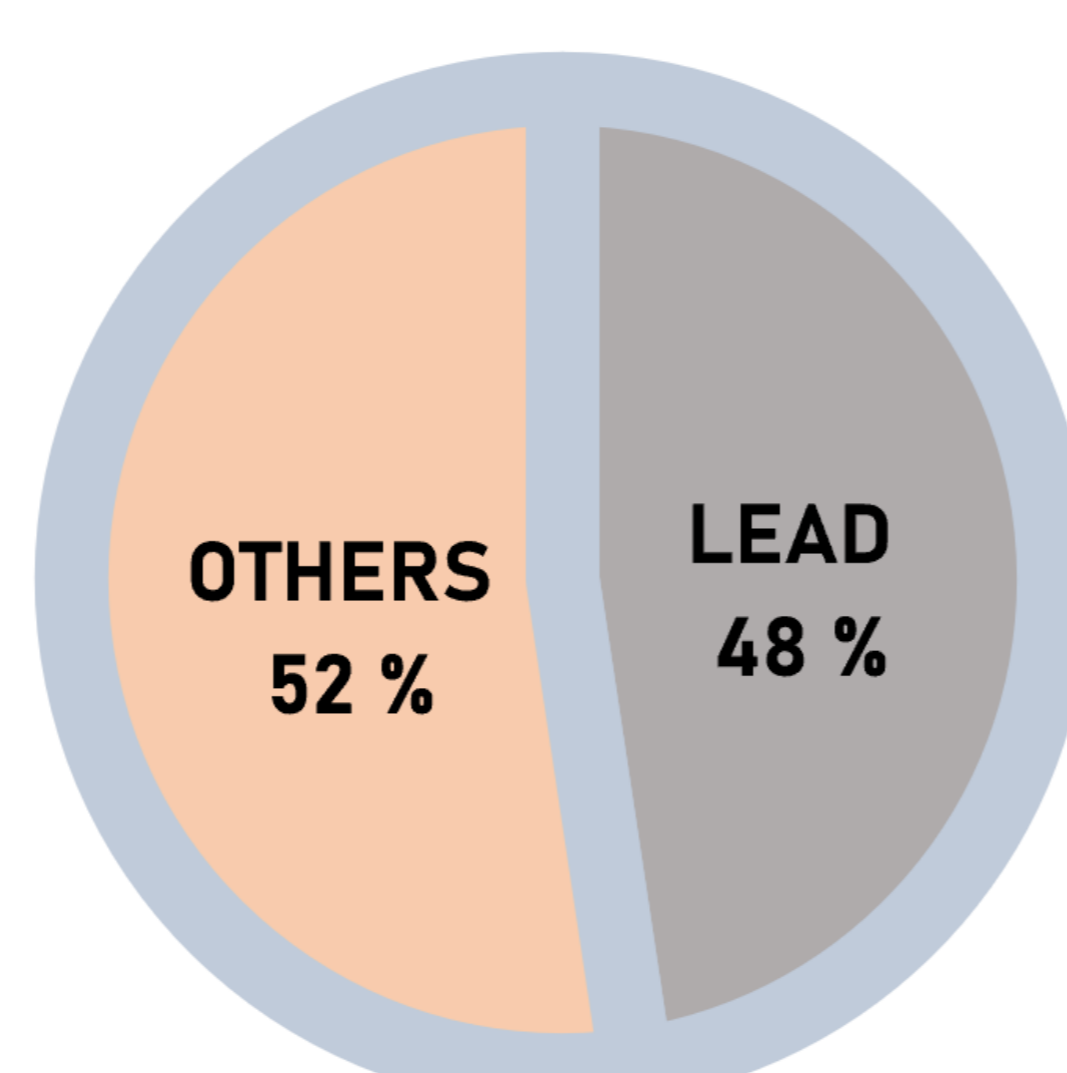


Figure 4. Poisoning agents that cause mortality in griffon vultures.

No relationship has been established between the cause of death and the geographical origin or sex of the individuals. However, age has proved to be a determining factor since young animals have shown higher mortality rates than the older ones.

The most significant histopathological lesions observed were hepatic hemosiderosis (Fig. 3a), being more severe in older animals, and tubular degeneration (Fig. 3b), which was more frequent in juvenile specimens.

Lesions	n° indv.
Hepatic and/or splenic hemosiderosis	38
Tubular degeneration with urate crystals	19
Mild tubular mineralization	6
Lesions compatible with infectious processes	17
Muscular degeneration	5

Table 1. Frequencies for the most frequent histopathologic lesions observed.

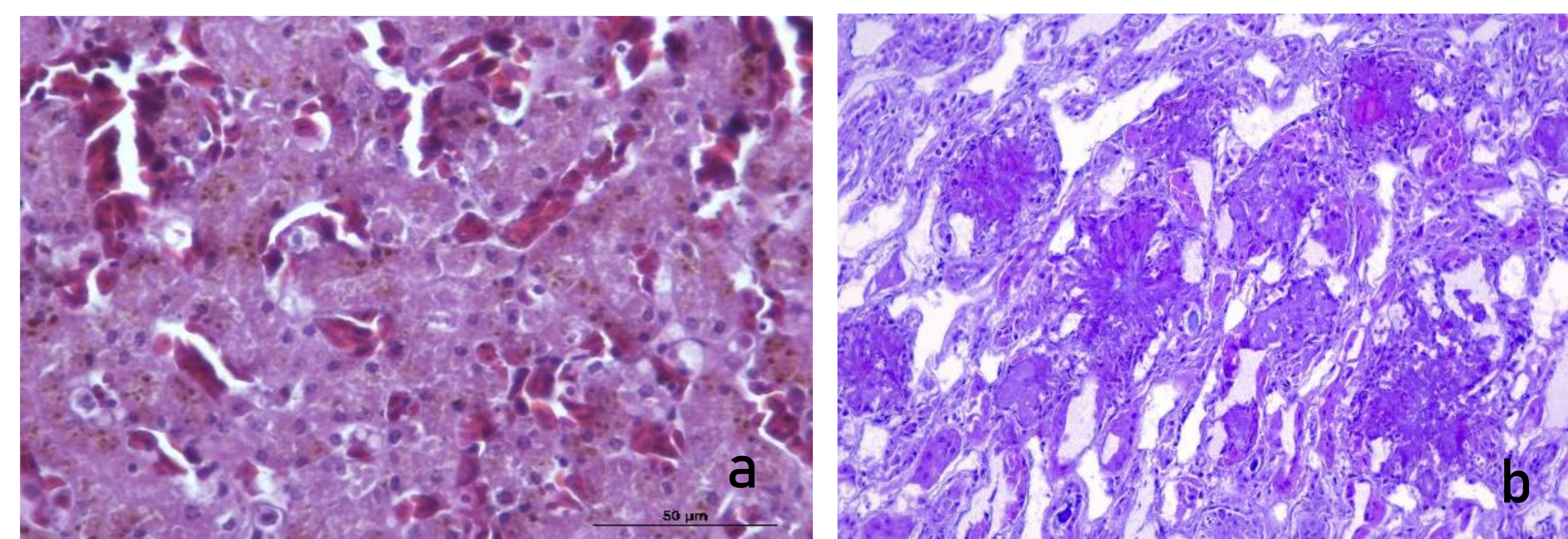


Figure 5. Histopathological findings. (a) High amount of Kupffer cells with intracytoplasmic hemosiderin. (b) Intense multifocal renal tubular degeneration associated with the presence of uric acid crystals.

DISCUSSION AND CONCLUSIONS

- ✓ This study has showed that the main threats griffon vultures face in the Iberian Peninsula are traumas (mostly electrocution and vehicle accidents) and poisoning. In the literature reviewed, griffon vultures are the most prone species to suffering electrocutions, vehicle accidents and wind turbine collisions.
- ✓ Poisoning cases have been much lower than expected. However, the number of lead intoxicated animals is high despite not having analysed lead blood levels of many individuals.
- ✓ New unexpected threats have been detected: carcasses of domestic animals that reach the food chain may contain agents derived from veterinary medicine (mostly NSAIDs and euthanasia drugs), which might, in turn, cause poisoning in vultures.
- ✓ The histological findings observed are quite unspecific, since they could be related to lead poisoning, infectious processes or dehydration episodes, among others.
- ✓ Juvenile specimens are far more inexperienced, which can explain their higher mortality rates. However, sex has not been found a determining factor.
- ✓ The geographic distribution of the death causes has not been successfully assessed, since the available information is biased considering the different implication of the several wildlife centres that have participated in this study.