

FIRST DOCUMENTED CASE OF THE KILLING OF AN EGYPTIAN VULTURE (*NEOPHRON PERCNOPTERUS*) FOR BELIEF-BASED PRACTICES IN WESTERN AFRICA

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ABSTRACT. – The Egyptian vulture is a globally endangered species showing a population decline in the Balkans of ~7% per year. A juvenile individual was tagged with a satellite transmitter in Greece and tracked to its wintering ground in Niger and Nigeria. Based on telemetry data, the bird was indicated as having died and two simultaneous investigations in both countries were done to reveal its fate. Local people were interviewed and we documented a case of an Egyptian vulture that was killed in Niger by a Nigerian hunter to be sold at a fetish market in Nigeria. Information about used techniques to capture vultures, the prices of vulture parts at fetish markets and their use in belief-based practices was collected. Different attitudes towards vultures were observed between Niger and Nigeria. In Niger, the attitude was more likely to be negative but there was no utilisation of vultures, while in Nigeria, vultures represented a commercial interest due to the belief that vulture meat can bestow magical power. Although vultures are protected in both countries, there is an ongoing persecution of the birds by Nigerian hunters for trading purposes. More explicit investigation using a careful approach combined with appropriate awareness campaigns could be the ‘game-changer’ to stop this problem with its deep-rooted cultural basis.

INTRODUCTION

High numbers of raptor species, especially large scavengers such as vultures, have declined dramatically throughout the world (Botha *et al.* 2017). The Egyptian vulture (*Neophron percnopterus*), which is a migratory species and the smallest of the four European vultures, has been declining throughout its broad distributional range within the Palearctic and North Africa. As a consequence the species is currently listed as globally ‘Endangered’ (BirdLife International 2016). At present there are only a few stable populations in Western Europe but the opposite is true in Eastern Europe, particularly in the Balkans where the species has been declining at a rate of ~7 % per year over the last several decades (Velevski *et al.* 2015). The cause of the decline in populations of the Egyptian vulture is a complex issue involving a combination of several human-induced threats, amongst which the major ones are poisoning, electrocution and collision with energy infrastructure, direct persecution in the breeding grounds and along the flyway (Nikolov *et al.* 2016). Shooting is one of the main documented forms of direct persecution in Europe and North Africa, where it is done mainly for sport (Ogada *et al.* 2017). In Western and Southern Africa, shooting along with intentional

poisoning are done mainly to obtain vulture parts for use in belief-based practices (Buij *et al.* 2015, Ogada *et al.* 2017). This is considered to be an additional threat for which there are only a few documented efforts to tackle the problem in those areas (Mander *et al.* 2007, Bello 2014). In the Balkans, there have been specific documented cases of Egyptian vultures that were shot including 15 to 17 birds shot in the period 1983-2002 in FYR of Macedonia (Grubač *et al.* 2014) and 3 birds shot in Bulgaria in the period 2008-2012 (Saravia *et al.* 2016). Moreover, in Central Asia, shepherds shoot Egyptian vulture or destroy their nests because they consider them to be predators of lambs (Kashkarov & Lanovenko 2011).

From 2011 to 2016, there was a joint initiative of the BSPB (Bulgarian Society for the Protection of Birds / BirdLife Bulgaria), HOS (Hellenic Ornithological Society / BirdLife Greece), WWF Greece (World Wide Fund for Nature) and the RSPB (Royal Society for the Protection of Birds / BirdLife UK) to prevent the extinction of the Egyptian vulture in the Balkans within the framework of a LIFE+ project “The Return of the Neophron” (www.LifeNeophron.eu). Investigation of the causes of mortality along the flyway was one of the many objectives of the project.

In order to contribute to efforts for the Egyptian vulture conservation along the flyway, the main objectives of our manuscript were: (a) communicating the species killing for belief-based use in Western Africa; (b) understanding the main drivers of this illegal practice; (c) pointing out the potential magnitude of this threat and its serious implications on the species conservation.

MATERIALS AND METHODS

Telemetry: A juvenile Egyptian vulture was tagged with a satellite transmitter (45g solar-powered GPS PTT by Microwave Telemetry Inc.) and ringed with a metal ring (code K000456) in 2013 in the Dadia-Lefkimi-Soufli Forest National Park, North-eastern Greece (Kret 2013). The bird was tagged in the nest at an approximate age of 65 days. The transmitter was attached to the birds using a Teflon ribbon harness in a backpack configura-

tion. The entire transmitter equipment did not exceed 3 % of the birds' body mass, and was unlikely to influence the mortality of a soaring migrant (Klaassen *et al.* 2014). The satellite transmitter was set to record the location of the bird with GPS accuracy every 2 h between 04:00 and 22:00 h daily over a period of several years. Data were downloaded via the ARGOS satellite system and stored in Movebank (www.movebank.org) as Neophron percnopterus Bulgaria/Greece project.

The tagged individual was found to start migrating on the 8th of September 2013. In five days, it reached the island of Crete where it rested for two nights and then it covered a distance of 400 km in only 10 hours by flying above the sea to land on the coast of Egypt. On the 20th of September, the bird reached Niger and it seemed to winter in a region between the countries of Nigeria and Niger (Fig. 1).

At the end of February 2014 (27th of February), the last signal in the wild was made from the bird's transmitter in a location in Niger, situated about 115 km north-east of the city of Zinder

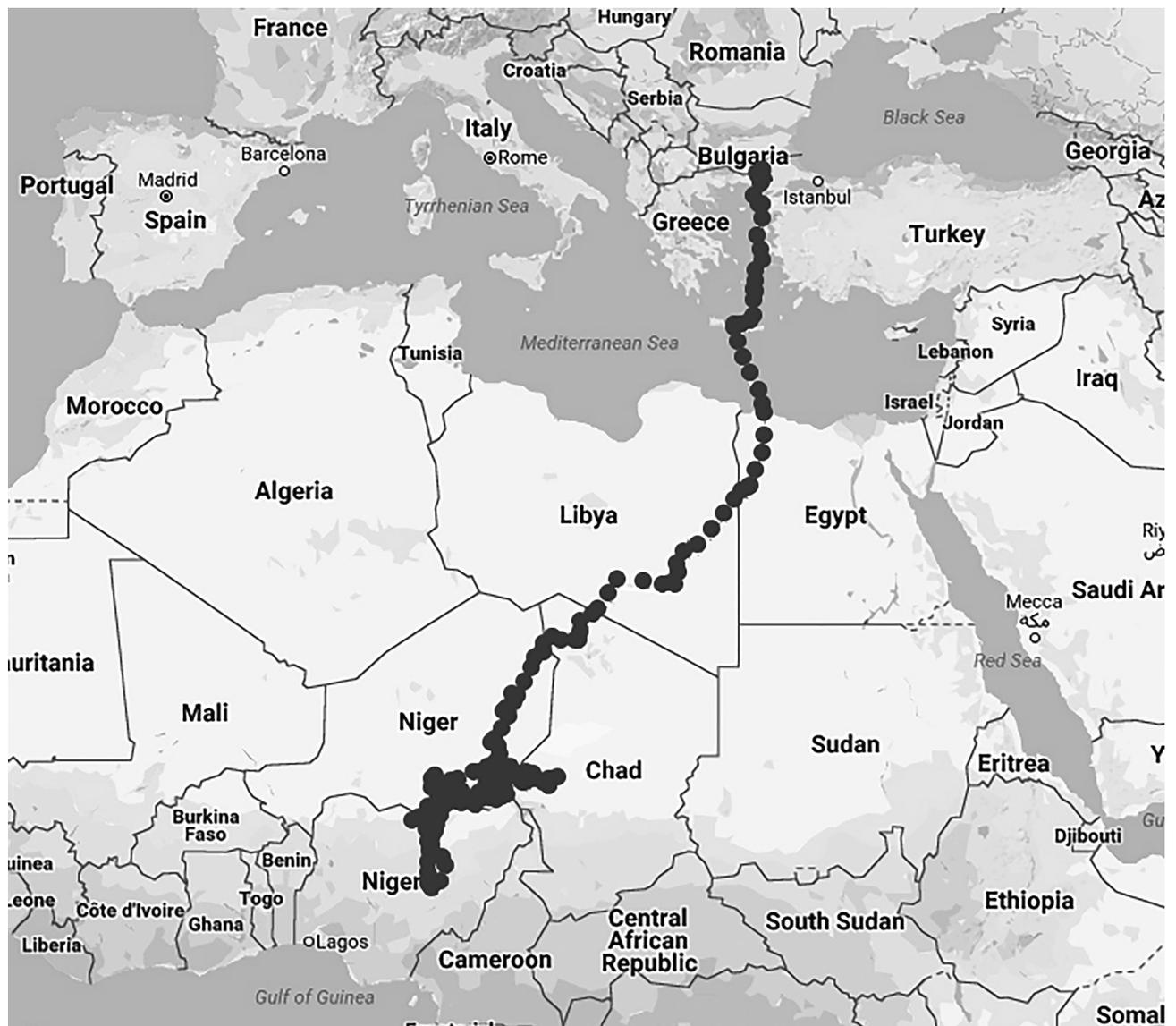


Fig. 1. – Migration route and wintering grounds of the juvenile Egyptian vulture (K000456).

and about 140 km from the border between Niger and Nigeria. Subsequently, a series of consecutive signals were transmitted from the site of a settlement in a neighboring village in Niger followed by the disappearance of any signal. After a few days, on the 3rd of March, the transmitter started transmitting a signal again, first showing the same settlement followed by movement towards Nigeria along the lines of particular roads. The very last signal was made from Nigeria on the 4th of March, in a settlement 17 km north-east of the city of Kano and 8 km south west of the town of Minjibir (Nikolov 2014).

Field visits and interviews: Two simultaneous investigations were carried out, in Niger by SCF (Sahara Conservation Fund) and one in Nigeria by APLORI (A. P. Leventis Ornithological Research Institute) to reveal the fate of the vulture. Fieldwork was done in Niger during 22-23 March 2014 (Zinder region), and in Nigeria on the 20th and 29th March (Minjibir) and on the 17th May 2014 (Maigatari). The aim was to visit the sites shown by the last signals of the transmitter in order to collect evidence relating to the tagged bird or its transmitter and to interview local communities using semi-structured questionnaires. We aimed at collecting qualitative rather than quantitative information, thus mainly opinion makers were targeted for interviews (*e.g.* local chiefs or leaders).

RESULTS

Investigation in Niger

The last transmitter signals were found to occur around the village of Damou Kadi (14°26'43.80"N, 9°47'37.21"E), which is inhabited by ca. 500 people. Following visits to all of these locations, the precise cause of death and subsequent fate of the tagged Egyptian vulture were revealed. Interviews with local people (n = 8 people) revealed that they do not consume vulture meat because as the birds feed on carcasses, they are considered to be dirty and they are also viewed as being ugly, so they are generally not seen in favorable terms. However, the evidence gathered revealed that there is a network of about 10 Nigerian hunters who regularly visit the border area in Niger, where they spend months hunting raptors, including vultures as well as crows/ravens, in order to trade the carcasses back in Nigeria. The tagged Egyptian vulture was found to have been shot by a particular Nigerian hunter in order to be sold for witchcraft ceremonies in Nigeria locally known as “*Juju*” (Nikolov 2014). The transmitter was supposed to have also been sold but this would be a by-product and not itself directly associated with the death of the Egyptian vulture. Once killed, the feathers of the bird are removed and the meat is cut into small pieces to dry. The vulture’s head and parts of the skeleton are kept to prove to customers (*e.g.* traditional healers in Nigeria) that the meat belongs to a vulture.

Information was collected on the following vulture capture techniques: (1) shooting with primitive fire guns (Fig. 2); (2) putting tobacco in the waste from slaughterhouses, where the consumption of this mixture makes birds disorientated and unable to fly and, according to the local people, this is the most effective technique to capture vultures alive; (3) using string traps, where a string is tied around a heavy weight inside which some meat is placed and when the vulture tries to eat the meat, the string falls on the back of its neck so that, when the bird flies upwards to get rid of the string, it tightens around its neck (this trapping method is used mainly around slaughterhouses) and (4) collecting chicks or eggs directly from nests.

The hunter who killed the tagged bird used to camp and hunt in the area on a regular basis and, during his last expedition, he succeeded in shooting the tagged bird along with seven other vultures (no data about exact species) and 43 corvids. The hunting spot he selected was a Sahel type wetland of about 10 ha in extent during the rainy season, which is surrounded by rich vegetation, and is the only one of its kind in the area of the Koutous massif. The rocky massif creates a suitable habitat for many raptors, including vultures. The presence of water, that might persist for up to 7-8 months depending on the abundance of rain in conjunction with the other features of the landscape, results in large congregations of animals in the hot and dry season (Fig. 3). The wetland hosts an impressive number of bird species including: Egyptian vulture, Hooded vulture (*Necrosyrtes monachus*), Montagu’s harrier (*Circus pygargus*), Marsh harrier (*Circus aeruginosus*), Cattle egret (*Bubulcus ibis*), Pied crow (*Corvus albus*) and Brown-necked raven (*Corvus ruficollis*).



Fig. 2. – Hand-made rifles used by Nigerian hunters to kill vultures.



Fig. 3. – Sahel type wetland in the area of the Koutous massif, Niger, with large congregations of livestock (left) and biodiversity (right) in the hot and dry season.

Investigation in Nigeria

After several investigative trips, both the damaged transmitter and the metal ring from the Egyptian vulture were provided by a Nigerian hunter (Fig. 4). Interviews ($n = 8$) with local hunters (incl. renowned hunter leaders) revealed that they are very well aware that vultures are a source of money and that it is only hunters from Nigeria who kill vultures (incl. by hunting them in neighboring countries). The techniques used to capture vultures are as follows: (1) shooting, which is the commonest method; (2) poisoning, which is done by putting poison in carcasses and this is used especially if the birds are congregated to feed and (3) doping with tobacco and salt, which when mixed with the meat that vultures consume impedes their ability to fly.

Hunters primarily sell vulture products in local markets (e.g. Gujungu market in Jigawa) and prices reported for the eggs, head and body parts were ca. \$310, \$7, and \$2, respectively. Vulture parts are then taken to regional markets (e.g. Galadima road, Sabon Gari) in Kano. Generally, Egyptian vulture products are rarely seen in the markets. Local people do not consume vultures for food



Fig. 4. – The Egyptian vulture satellite transmitter, heavily damaged, and metal ring provided by a Nigerian hunter.

but use some parts of them for belief-based purposes such as magic (*Juju*). For instance, vulture droppings and nest materials are believed to cure epilepsy and give protection against metal objects (knives, etc.), while the head is used in *Juju* magic. An urgent need of vulture parts for these purposes results in high demand for vultures in the markets.

DISCUSSION

A contrast in attitudes towards vultures was observed between Niger and Nigeria and this was rooted in the different use of these birds by the separate local communities. It seems that in Niger, the attitude was more likely to be negative and there was no utilisation of vultures. However, a very recent case (October 2017) provided a new evidence of an Egyptian vulture tagged with a satellite transmitter which was killed and eaten by local traditional hunters in Niger (Mourtala 2017). In Nigeria, vultures have commercial interest due to the belief that vulture meat can bestow magical powers when consumed. Similarly, interviewees in Niger talked openly about the various issues connected with hunting vultures, indicating that they are not aware that this is a crime. In contrast, the interviewees in Nigeria were not keen on providing information and refused to answer many questions. People in Niger were also indifferent to the tags. Even though the local communities saw a satellite transmitter for the first time, they seemed not to show any interest in such devices. There have been cases of identification rings found, but they were simply thrown out (Nikolov 2014). However, in Nigeria, such devices are seen on the one hand as potential subjects of trade (i.e. financial income) and on the other hand as a threat (e.g. in the current study the transmitter was destroyed).

In both countries, vultures are protected by legislation. Niger has signed most of the international conventions for the protection of wildlife (*e.g.* MAPUTO, Bonn, Convention of Biological Diversity, Ramsar, CITES, the World Heritage Convention) (Nikolov 2014). The rules concerning hunting and wildlife protection in Niger are managed under Law 98-07 (29 April 1998) where under Art. 21, List I, all vulture species are given legal protection. The doping and poisoning techniques as well as the guns used to hunt vultures and crows are not permitted under Decree No98-295/PRN/MH/E (20 October 1998). In Nigeria, killing vultures and the importation of their parts into the country are totally prohibited by the Endangered Species (control of international trade and traffic) Act (Decree No. 11, 1985). Crows are not protected in Nigeria.

Based on the information collected, it is evident that mortality due to direct persecution might be a serious threat to the Egyptian vulture, especially in relation to critically endangered populations such as the Balkan one. For instance, the individual of this study was the only one out of ten other tagged juveniles that attempted to cross the Mediterranean and succeeded in safely reaching Africa (Oppel *et al.* 2015). Vulture persecution for commercial purposes is thought to be a significant cause of mortality for some species and populations in West Africa and particularly in Nigeria (Thiollay 2006, Ogada *et al.* 2017). Although the trade and import of vulture parts is illegal in Nigeria, it is prevalent in the fetish markets, particularly in the southwest part of the country (Buij *et al.* 2015). The area in which vultures are hunted was shown to be between Niger and Nigeria. It is also worth mentioning that there is fragmentary information about use of poison (strychnine) in the same area (Nikolov 2014).

In 2014, the SCF conducted a public campaign involving Nigerian wildlife authorities to raise awareness at local, regional and national levels about the decline of vulture populations and the main threats that they face. Throughout the campaign, the main traditional rulers, including the Sultan of Zinder, butchers in the markets, slaughterhouse employees and hundreds of hunters were sensitized. The campaign was supported by local and national radios highlighting the significant role of vultures as scavengers, which they provide to ecosystem services (Bello 2014). In Nigeria, fetish market survey, awareness campaigns, advocacy and policy activities against vulture parts trade have been implemented since 2017 (Nigerian Conservation Fund/ BirdLife Nigeria unpublished data). However, still there is a need for research on the population status of vultures in the area between Niger and Nigeria by providing information on the numbers occurring there during different periods of the year. It is essential to investigate thoroughly both the risks from and magnitude of the illegal killing of Egyptian vulture for the purposes of use in belief-based practices. The issues of trade for fetish-marketing should be approached carefully to under-

stand initially the nature and extent of the demand for vulture parts as well as the “marketing” network including trans-border traffic and to identify potential information providers of benefit to the local communities.

Although vultures are protected explicitly under legislation in both countries, there is an ongoing persecution by Nigerian hunters for use in trading purposes in their country. Due to cultural belief and practices among many African societies, any interventions by suitable authorities are unlikely to succeed unless they are supported by preliminary and appropriate awareness campaigns in hotspot areas. Firstly, target groups should be identified to include local groups (*e.g.* traditional hunters, nomad livestock breeders, slaughterhouse owners and villagers), national agencies authorities (*e.g.* state ministries, forest and wildlife services, conservationists) as well as specific opinion-makers (*e.g.* traditional healers, local chiefs, hunter leaders, religious leaders, etc.), who would be used further as conservation “ambassadors”. There is a need to organise awareness workshops dealing with the current status and problems of endangered vultures as well as to show the benefits of vulture services to local communities (both in ecological and cultural terms) and the potential consequences arising from the disappearance of vultures.

It is now more urgent than ever to expand and strengthen international cooperation for the conservation and protection of vultures and to bring the Sahel countries into the framework of both the Egyptian vulture Flyway Action Plan (Nikolov *et al.* 2016) and the Multi-species Action Plan to conserve African-Eurasian Vultures (Botha *et al.* 2017). Last but not least, vultures seem to have an important sanitary function and can provide a key ecosystem role for livestock keepers. This function arises because during the Sahel dry season, vultures congregate in areas with temporary water pools alongside concentrations of livestock where they rapidly remove unwanted carcasses and thereby maintain good water quality. Quantifying this natural benefit for local communities and explaining this function to local chiefs could be the “game-changer” in resolving the deep-rooted cultural problem associated with vulture persecution in the region.

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