
SHORT METHODOLOGICAL GUIDELINES
FOR SURVEYING EGYPTIAN VULTURES
(*NEOPHRON PERCNOPTERUS*)



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AIM:

Build capacity to support the conservation of migratory Egyptian Vultures (Neophron percnopterus) from the Western Palearctic on their wintering grounds in Africa.

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1. METHODOLOGIES FOR SURVEYING WINTERING EGYPTIAN VULTURES

1.1. COUNTING OF ROOSTING EGYPTIAN VULTURES

Steps:

- A. Defining the study area
- B. Study period and timing
- C. Census techniques

A. Defining the study area:

The very first thing before the real counting is to determine the study area. The ideal situation is to use data from tagged birds wintering in a certain region. All available data on the area should be collected and should be considered as well. Generally because the lack of vegetation and appropriate cliffs in the main wintering areas of Egyptian vultures (in Ethiopia and Sudan) they prefer to roost on an artificial infrastructure made by people like the electricity pylons. Electricity pylons ensure the Egyptian vultures with a perfect substrate for roosting and of course many roosting places on each single pylon needed for the high number of birds using it. Excluding the different size of the pylons, they are usually situated along the main roads which connect different villages and states. Considering this, most of the pylons with potentially roosting Egyptian vultures should be searched along the main roads.

B. Study period and timing:

Period: November – February.

Timing: Counting of roosting Egyptian vultures has to start in the afternoon but not before 15:30 because during the day birds are dispersed searching for food in the open lands and along the settlements. Counting should continue till dark.

C. Census techniques:

Transects: Transects along roads is the most appropriate method to be applied (Bibby et al., 2000). The survey has to be implemented by a vehicle. Vehicle will drive on the road and counters have to choose the counting points. Counting points are selected subjectively. They should be consecutively, they should provide a good visibility to the counter towards the pylons and they are selected by the counter. Usually because of the terrain and the specifics of counting, the distance between counting points can't be greater than 4 km which means that one counting point includes pylons in radius of 1-2 km. Vehicle stops at each counting point. One counting point should be used for counting as many pylons as possible from the point in order to count and define the age of the birds appropriately. When finishing with the first counting point the team is moving forward and stops on the next counting point. The second counting point is situated so that the counter can clearly see the last counted pylon from the first point and as many pylons as possible way ahead. Then it comes the third counting point and the team implements the same operation again. Also the distance to every single pylon from the counting point should be measured with the GPS options.

Counting will be finished when the light is too weak to distinguish the number and the age of the birds. In the end of the counting the length of transect should be written down.

Weather conditions: Study should be conducted only during appropriate weather conditions (with good visibility - without fog, heavy rain, etc.). Weather conditions should be good because all the roosting birds on the pylons should be counted and aged following Clark and Schmitt (1998). At the starting point, the weather conditions should be recorded. If the weather conditions change during the survey, this should be mentioned at the counting point where this was observed.

Coordinates: At all counting points coordinates should be recorded and the track of the transect should also be recorded by GPS devices. GPS devices have to be set in decimal coordinates and the track log has to be switched on.

Team: Two persons per team are needed for this survey. One person is counting the Egyptian vultures on the pylons, and the second one is writing the information in the field protocol

Bird counts: Total number of the Egyptian vultures in different age classes should be written per each pylon. If birds on a pylon are already counted but leave the pylon they are subtracted and those who are alighting are added.

Pylons and habitat description: The main type of habitat per each pylon has to be written down as well. Different types of electricity pylons have to be shot with camera. If the Egyptian vulture are roosting on a substrate different from a electricity pylon a description and coordinates of the substrate are needed.

Field protocol: All the data have to be filled in a field blank and after that in a Excel table (**see Annex 5.1**).

NB: Following the same methodology other vulture species can be counted as well especially Hooded vultures (*Necrosyrtes monachus*) which use to roost on a Communication towers in the settlements.

1.2. ROAD COUNTS OF EGYPTIAN VULTURES AND OTHER BIRDS OF PREY

Road counts should be conducted as follows, in order to standardize between countries:

- Counters will start at a set point, note down weather conditions, and zero the odometer.
- Vehicles will drive at a standard 30 km/hr, but up to 40 km/hr on public roads where there are fewer large raptors but more vehicles. Stops will be made for most raptor sightings, so the overall average will be 20-25 kph in parks, 30-35 outside; but of course nearby easily-identified birds can be counted on move. After stopping, common sense should be used to only include those birds you would have probably seen. If you get down from the vehicle to identify a flock of birds or an individual (although there is nothing wrong in having "Unidentified raptor"), then:

- Do not count raptors behind the vehicle, unless they are flying in that direction from the front of the vehicle;
- You may count the birds you see in FRONT of the vehicle or in the arc above 9 and 3 o'clock of the vehicle, but you MUST be aware of double counting;
- You MUST restrict your count time to only 3 minutes from when you stopped;
- For consistency, surveys should start at 8.30 AM and finish at either 4.30 or 5.00 PM depending on the season;
- The route will be recorded on GPS and counts will be done in sections of c. 50 km each (estimated on odometer);
- The field vehicle should have roof access;
- A minimum of two observers should be seated on vehicle roofs in protected areas, or observing through roof hatches / pop-up roofs on public highways;
- Observations of all raptors and vultures, should be made in width bands of 100 / 200 / 500 and >500 metres. Perched and flying birds should be recorded separately. Flying bird distances are recorded at the point when first observed;
- Raptor numbers will be expressed as birds per 100 km;
- The predominant land use/habitat within a circle of 100m radius of where the bird is seen will be recorded for each observation;

The data should be filled in field protocols and after that in a Excel Table. (*see Annex 5.2*).

1.3. COUNTS AT RUBBISH DUMPS AND CARCASSES

Rubbish dumps and carcasses are the most common place where vultures gather. Finding such places is an occasional event especially for the carcasses. For counting vultures on a rubbish dumps or carcasses an observation point should be set on a distance avoiding disturbance of the birds. After that all the birds should be counted and their age has to be defined. In order to count total number of the vultures, arriving and leaving birds will be add or subtract. A GPS point and a picture should be taken both for the counting point and the rubbish dump or carcass. The date, start time and end time of counting also has to be noted. (*see Annex 5.3*)

2. METHODOLOGIES FOR SURVEYING NESTING EGYPTIAN VULTURES IN AFRICA

2.1. SEARCHING AND MONITORING EGYPTIAN VULTURE NEST SITES IN AFRICA

The first step is collecting of all the data available for the area that is planned to be surveyed in order to mark the appropriate nesting sites. For the Egyptian vulture these sites represent gorges, canyons, big single cliffs, etc. Searching for nests should be based on observation points close to big cliffs. The observer is setting an observation point and starts scanning the cliff with a scope. The cliff should be carefully checked for perching and roosting birds, birds flying around the cliff and white washes, which usually indicates roosting places and nests. The bigger is the cliff the longer observer should stay on the observation point but not less than 2 hours. Vultures are very social and the presence of other vulture species on the cliff is a good indicator for possible presence of Egyptian vultures. If the observer see Egyptian vulture/s he or she has to watch closely the birds as long as possible in order to see them if they alight in some niche, crack, hole, etc. If a nest is found the observer has to try to understand if the nest

is occupied. If it is, the observer has to try to identify the status of the pair – successful or not. If the pair is successful the observer has to count the chick/s. A GPS point should be taken for the observation point (OP). A picture of the nesting cliff and the part with the nest is needed also. The date, start time and end time of counting also has to be noted. Except for the Egyptian vulture the same data can be collected for other cliff nesting species while searching for Egyptian vulture nests. The data should be filled in an Excel table (*see Annex 5.4*).

2.2. COLLECTING DATA FOR OBSERVED VULTURES AND OTHER RAPTOR SPECIES

Vultures and raptors are an indicator for the ecosystem. That's why is very important to collect data for the distribution of the vultures and raptors. All observations of vulture and raptor species have to be written. The date, time and the coordinates are needed for every observation. If the observer finds a nest he/she has to take coordinates of the nest, to write type of the substrate and the number of chicks (if present).

3. SURVEYING MAIN THREATS TO EGYPTIAN VULTURES

3.1. POISONING

3.1.1. Background

Poisoning is known to be the main cause for vulture decline in a list of countries across Africa: South Africa, Namibia, Botswana, Kenya, Tanzania, Burkina Faso, Nigeria, Siera Leone, Algeria, Tunisia, Morocco (ARN 2010), Sudan (Wilson 1982), Niger (Dragesco-Joffe 1993).

Egyptian vultures can be poisoned unintentionally after:

- Poisoning against wild carnivores or stray dogs;
- Poisoning with pesticides in the agriculture;
- Food contaminated with lead and other heavy metals;
- Consuming food with antibiotics and veterinary drugs;
- Deratization or contamination at rubbish dumps;

OR intentionally for the use in:

- Traditional medicine;
- Magic rituals (e.g. ju-ju).

3.1.2. Poisoning after consumption of poison baits placed for wild carnivores or secondary poisoning after consuming poisoned wild carnivores.

Poisoning is usually practiced by livestock owners to defend their livestock from terrestrial predators such as lions, hyenas, stray dogs. This is achieved by scattering poison baits or even animal carcasses sprinkled with poison.

Different poisons are used but mainly:

- Carbofuran;
- Strychnine;
- Metaldehyde;
- Zinc phosphide;
- Organophosphates etc.

Usually vultures become incidental victims of campaigns against predators by finding and eating poisoned carcasses and baits (Mundy et al 1992) or eating the animals which have died of poisoning. Egyptian vultures are even more susceptible to this kind of poisoning because they scavenge on smaller items and can easily detect and consume even small poison baits scattered in the field. Following Whitfield et al. (2003) a poisoning incident involved evidence of the use (or intention of use) of a chemical as a poison in an attempt to kill a scavenging or predatory animal. Information on vulture poisoning cases can be obtained from authorities or local people by the means of questionnaires (*see Annex 5.5*), or this kind of study can be combined with an assessment study of protected areas.

When poisoned vultures are found information for the incident will be collected. In the protocol (*see Annex 5.6*) fill all the possible data which can be obtained:

- Date;
- Observers;
- GPS coordinates of the place where vultures are found;
- Poison nature;
- Type of poison baits (e.g. dead livestock, dead predator, dead wild animal, fat, pieces of meat);
- Reasons for poisoning;
- Target species;
- All the species that are found poisoned (vultures and other birds of prey, mammals) and their number.

3.1.4. Poisoning at rubbish dumps

- Roots of the problem: Big numbers of Egyptian vultures very often congregate and use rubbish dumps as predictable source of food. The attractiveness of the rubbish dump for scavengers depends on the amount of organic waste that is regularly dumped. They are very important stepping stones in vulture's migration and also visited in the wintering grounds. On the other hand they pose very high risks to vulture's health and life.

- Nature of the problem: Egyptian vultures and other scavenging birds may become victims of contaminated food or massive poison campaigns against stray dogs and rats at rubbish dumps in some African countries.
- Data collection: Collecting information on the issue can be combined with regular rubbish dump counts. The same information as in **Section 1.1** could be collected and filled in field protocols (*see Annex 5.6*) and later on in an Excel table.

3.2. DIRECT PERSECUTION FOR USING DEAD VULTURES IN TRADITIONAL MEDICINE OR FOR MAGIC

- Roots of the problem: There is a widely held belief in many African cultures that health, disease, success or misfortune are not chance events but the result of the active influence of individuals or ancestral spirits (Berglund 1976). Traditional medicines represent herbal, animal and mineral material used for physiological as well as symbolic/psychological purposes (Cunningham 1991). Vultures are believed to be important for traditional medicine and magic rituals in South and West Africa but there are still gaps in our knowledge on the issue and more studies have to be conducted in order to understand its significance for the vulture decline.
- Nature of the problem: Vultures are shot or poisoned and then whole birds or their parts are traded in fetish markets. To assess the importance of this issue a depth study is needed.
- Data collection: The first step is to gather all available information about the fetish markets in the study area. Then visits and inspections of every fetish market have to be done in order to collect information on the products that are on sale. All vultures or parts of them have to be counted and described. If possible, speak with the traders and ask about the price, the use and the origin of the birds (*see the Questionnaire II in Annex 5.7*). After every market visit fill summarized data for every interviewed trader separately in the protocol (*see Annex 5.8*).

3.3. ELECTROCUTION

- Roots of the problem: The Egyptian vultures quite often use electricity poles as resting or roosting sites – in their breeding territories, during migration and in the winter grounds.
- Nature of the problem: This behaviour can have fatal consequences as some poles of the low-voltage (20KW) network in particular are extremely hazardous for the birds – when perching, or taking off they can be electrocuted.
- Data collection: This issue is not well studied in Africa. Further research is needed especially in areas with big congregation of wintering Egyptian vultures. In such places ground surveys under dangerous power lines need to be conducted. First study area has to be chosen. With priority are areas where big numbers of Egyptian vultures are known to be wintering – from satellite telemetry or scientific papers. The survey is best to be conducted not earlier than the beginning of November and not later than the beginning of February in accordance with the migration of the species. The ground survey includes walking under the power line and checking for dead birds. Pylons inside villages and towns have to be excluded. For every transect use a separate field protocol. Surveyors

have to choose a start point, set their GPS devices in decimal coordinates and write down date, names of the surveyors and weather conditions. Every pylon requires GPS point. Pictures have to be taken of every new type of pylons. Every pylon is later identified by its GPS point and code which have to be related to the type of the pylon. Habitat for every pylon also has to be described. Birds found in a radius of about 5-7m around the pylon to be considered as died from electrocution. Birds found farer under the wires to be considered as died from collision. For every dead bird the following information will be filled in the field protocol – species, number, sex and age if possible, age of the carcass, reason for mortality (electrocution/collision) (**see Annex 5.9**).

4. REFERENCES

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5. ANNEXES: follow

ANNEX 5.1. Field protocol for counting roosting Egyptian vultures

Date	Start time	End time	Weather			Counters			Track name		Track length	
Counting point	Number of pylon	Type of pylon	Habitat	Distance to point	juveniles	2nd plumage	3rd plumage	4th plumage	5th plumage	adults	Unidentified	Comments

ANNEX 5.2. Field protocol for road counts

Date	Start time	End time	Weather			Counters		Track name	Track length
Time Observation	Observation point	Specie	Number	distance band(100/200/500/>500)		Age	Flying/Perching	Habitat	Comments

ANNEX 5.3. Field protocol for rubbish dump/ carcass count

Date	Start time	End time	Weather		Counters	
Observation point coordinates	Carcass/rubbish dump coordinates	Species	Number	Age	Comments	

ANNEX 5.4. Field protocol for observation of vultures and nests

Date	Start time	End time	Weather			Observers	
Time	OP coordinates	Species	Number	Species_coordinates	nest(Y/N)	Chicks_munber	Comments

ANNEX 5.5. QUESTIONNAIRES WITH LOCAL STAKEHOLDERS

QUESTIONNAIRES WITH LOCAL PEOPLE FOR THE PRESENCE AND THREATS FOR THE EGYPTIAN VULTURE	
1	<p>Question: Do you know this bird?</p> <div style="display: flex; justify-content: space-around;">   </div>
2	When did you see this bird for the last time?
3	Can you show us where usually do you see Egyptian vultures?
4	Have you observed decline or increase in the number of Egyptian vultures? What are the reasons?
5	Is there any problem with predators in your area?
6	Have you ever found dead Egyptian vulture or other vultures? Why it was dead?
7	Are you aware of any threats to this bird?
8	What is the attitude of the people here to the Egyptian vulture?
9	Have you ever seen birds with rings or satellite transmitters? What is the attitude of the locals for these birds?
10	Can you tell us any interesting story about the Egyptian vulture?
<p><i>If the space is not enough, please continue to the back...</i></p>	

ANNEX 5.7. QUESTIONNAIRE FOR FETISH TRADERS
(according to Mander et al. 2007)

I. General information

1. Date
2. Name of the interviewer
3. Location/market

II. Trader information

1. Gender
2. Ethnicity
3. Name (optional)

III. Demand trends

4. Why do customers want vultures for? What are they used for?
5. What part of vulture do you sell (entire body, parts of the skull only, head and neck, parts of the body only, wings only)
6. What vultures do you prefer to trade (show picture of the different species – Egyptian, Hooded, White-headed, Rueppells, White-backed, Lappet-faced vulture)
7. Have requests for vulture parts increased? Are there more frequent requests this year compared to previous years? – Yes, No, The same
8. What are the beliefs in regard to vultures

IV. Supply trends

1. How many vultures or vulture parts do you buy/get in a month

Entire body	Head	Feet	Wings	Other

2. What price do you pay for vultures

Entire body	Head	Feet	Wings	Other

3. What price do you sell vulture parts for
4. Who do you get the vultures from?
5. Is it getting easier or more difficult to find vultures? What are the reasons
6. If vultures are scarce what can be done about this problem?
7. Do you know how the vultures that you trade are killed? How?
8. Does it matter if the vultures are poisoned?
9. Are there other animals that you can use instead of vultures that do the same job?

ANNEX 5.8. PROTOCOL FOR SUMMARIZED DATA FOR EVERY INTERVIEWED TRADER

Date	Location				
Species	Trader 1				
	Entire body	Head	Feet	Wings	Other
Egyptian vulture					
Hooded vulture					
White-backed vulture					
Lapped-faced vulture					
White-headed vulture					
Rueppells Vulture					

ANNEX 5.9. FIELD PROTOCOL FOR MARKED ELECTRIC PYLONS AND FOUND ELECTROCUTED BIRDS

Date	Start time	End time	Weather	Participants					
GPS Coordinates	Type of the pylon	Habitat	Dead birds (Y/N)	Species	Age/sex of the bird	Age of the carcass	Reason for mortality	Name of the picture	Comments