

**Technical-scientific order for the analysis of diet of Egyptian Vulture
(*Neophron percnopterus*) in the Douro Canyon**

[Encargo científico-tècnico para el análisis de la dieta del alimoche (*Neophron percnopterus*) en el Cañón del Duero]

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Background and motivation

The present study is addressed to analyze the food remains of several nests of Egyptian Vulture from the Douro Canyon. It has been carried out in the framework of **Life Rupis – Conservation of Egyptian Vulture and Bonelli's Eagle in the Douro Valley' (LIFE14 NAT/PT/000855)**, a transboundary conservation project, with a duration of 4 years (2015 – 2019), co-financed by the European Union through the **LIFE Programme** funding instrument. The project, which takes place on the Portuguese-Spanish border, across the protected areas of the International Douro River, the valley of Águeda River, and Arribes del Duero, aims to strengthen the populations of Egyptian Vulture and Bonelli's Eagle in these areas by reducing mortality and improving breeding success. Among the actions of the project, it is **planned "Monitoring the feeding habits and behaviours of the target species" (ACTION D.2)**, which includes the **analysis of food remains in ten nests of Egyptian vulture** (*Neophron percnopterus*).

The study was ordered by **ATNatureza**, a non-governmental organization initially dedicated to the protection of the endangered cliff-nesting birds that currently extends its activity to the protection of the region's natural heritage in NW Iberian Peninsula through ecological restoration and development from a regional scope. ATNatureza is involved as local partner in Life Rupis and it is in charge of conducting the ACTION D.2.

In this context, ATNatureza requested **Dr. Antonio Hernández Matías** to carry out the analysis of food remains of 10 nests (Technical-scientific order for the analysis of diet of Egyptian Vulture (*Neophron percnopterus*) in the Douro Canyon). Dr. Antonio Hernández Matías is member of the Equip de Biologia de la Conservació at the Departament de Biologia Evolutiva, Ecologia i Ciències Ambientals, and at the Institut de Recerca en Biodiversitat of the **Universitat de Barcelona**. He holds extensive experience in the study of raptors and, specifically, in Egyptian vulture, which also includes the analyses of diet based on food remains obtained from the nests. He has also participated in several previous studies on endangered raptors in the area of the Douro Canyon.

This document correspond to the final report of the Technical-scientific order for the analysis of diet of Egyptian Vulture (*Neophron percnopterus*) in the Douro Canyon. It shows the results of the analysis of food remains of all 10 territories that have been studied: NP-BE-50, Rasica (2016), Rasica (2017), Cozcurrita, NP-BE-20, NP-BE-35, NP-HU, NP-SA, NP-SA-230 and NP-SA-240. The report summarizes the information in the form of tables and figures from these nests, and it is also complemented by an excel file called *RUPIS_EGYPTIAN_VULTURE_DIET_2019_UB.xlsx*. The report also briefly describes the methods used to describe the diet from food remains.

Methods

ATNatureza provided to Dr. Antonio Hernández-Matías the food remains sampled at several nests of Egyptian Vulture in the Douro Canyon. So, information of the methods used for sampling are not provided in this report.

Methods for food remains identification were similar to those used by Tauler-Ametller et al. (2018). Food components were identified to the lowest possible taxonomic level by consulting collections in the Barcelona Museum of Natural Sciences, the Centre de Recursos de Biodiversitat Animal (Biology Faculty, Barcelona University), the collection of the Equip de Biologia de la Conservació (Dr. J. Real) and a reference guides (see *References* section). Counts of items were carried out following (Milchev et al. 2012). For all types of food resources it was

recorded the number of bones or skeletal fragments, as well as the minimum number of individuals. It is worth to mention, though, that while this method is very reliable for invertebrates and small- and medium-sized vertebrates, it must show a biased minimum number of individuals for carnivores and ungulates (Tauler-Ametller et al. 2018). Food components were categorized into six taxonomic categories (mammals not ungulates, mammals ungulates, birds, reptiles, amphibians and fishes) and four sources of origin (wild, domestic, extensive farming and landfill). In this sense, the category “landfill” may also include food resources coming from vulture restaurants. To differentiate between extensive livestock remains and landfill remains, cut bones or bones with traces of butchery or cooking were assumed to have been obtained from landfills (Milchev et al. 2012), while the rest of the livestock remains were assumed to have been found as extensive livestock carcasses in the field. In the case of remains of *Oryctolagus cuniculus* and *Sus scrofa* we classified them as landfill origin when they had signs of butchery, while the rest were considered wild individuals. Regarding hair remains, white rabbits were considered domestic as there are not white rabbits in the wild and hair samples of brown rabbits were classified using a collection that allowed us to identify their origin according to their length (wild rabbits present longer hair than domestic). When we had doubts about its origin, we classified it as undetermined.

Results

In the next, for each territory/nest analysed the main results are provided in tables. For each species or taxon determined at the lowest possible level it is provided the description (species or taxon name), the taxon category at which it was assigned, the origin of the food resource, the number of fragments (either bones, feathers or hair) and the minimum number of individuals (Tables 1-10). In addition, three figures are provided for each territory summarizing the taxonomic categories at which the species determined belong (Figures 1, 4, 7, 10, 13, 16, 19, 21, 24 and 27) and the origin of the food resource according both to the number of fragments (Figures 2, 5, 8, 11, 14, 17, 20, 22, 25 and 28) and to the number of minimum individuals (Figures 3, 6, 9, 12, 15, 18, 21, 23, 26 and 29).

Territory NP-BE-50

Food remains sampled at the nest of territory NP-BE-50 showed a high proportion of mammals (54% of species detected) and birds, either from wild (20%) and domestic origin (13%); reptiles were also present and fishes represented an important fraction of the diet (Table 1 and Figure 1). The origin of food resources was mainly from the wild (78% of pieces or fragments) (Figure 2). In terms of minimum number of individuals, most food resources come from the wild (65%), but domestic animals (8%) and extensive farming (12%) were also relevant (Figure 3). It is remarkable that it was found a domestic pigeon marked with a ring.

Table 1. Description of prey remains sampled at the nest of the territory NP-EB-50 of Egyptian vulture *Neophron percnopterus*. Prey were determined at the minimum taxonomic level (species when it was possible). Taxonomic categories considered were Mammals (not ungulates), Mammals (ungulates), Birds, Reptiles, Amphibians and Fishes. Remains were classified according to its origin considering the categories: Unknown, Wild, Domestic, Extensive farming and Landfill. For each species/taxon it is provided the number of fragments (including feathers, hair or bones among other) and the minimum number of individuals (MNI).

Species/Taxon	Taxonomic category	Origin	No. fragments	MNI
Not determined	Unknown	Unknown	12	9
<i>Erinaceus europaeus</i>	Mammals (not ungulates)	Wild	2	1
<i>Lepus granatensis</i>	Mammals (not ungulates)	Wild	9	3
<i>Oryctolagus cuniculus</i>	Mammals (not ungulates)	Wild	11	5
<i>Vulpes vulpes</i>	Mammals (not ungulates)	Wild	2	2
<i>Bos taurus</i>	Ungulates	Landfill	1	1
<i>Capra hircus</i>	Ungulates	Extensive farming	3	3
<i>Ovis aries</i>	Ungulates	Extensive farming	4	3
<i>Sus scrofa domestica</i>	Ungulates	Extensive farming	2	2
<i>Columba palumbus</i>	Birds	Wild	8	6
<i>Garrulus glandarius</i>	Birds	Wild	2	2
<i>Turdus merula</i>	Birds	Wild	1	1
<i>Columba livia domestica</i>	Birds	Domestic	2	1
<i>Gallus domestica</i>	Birds	Domestic	6	4
<i>Cyprinus carpio</i>	Fishes	Wild	70	21
<i>Timon lepidus</i>	Reptiles	Wild	1	1
Total			136	65

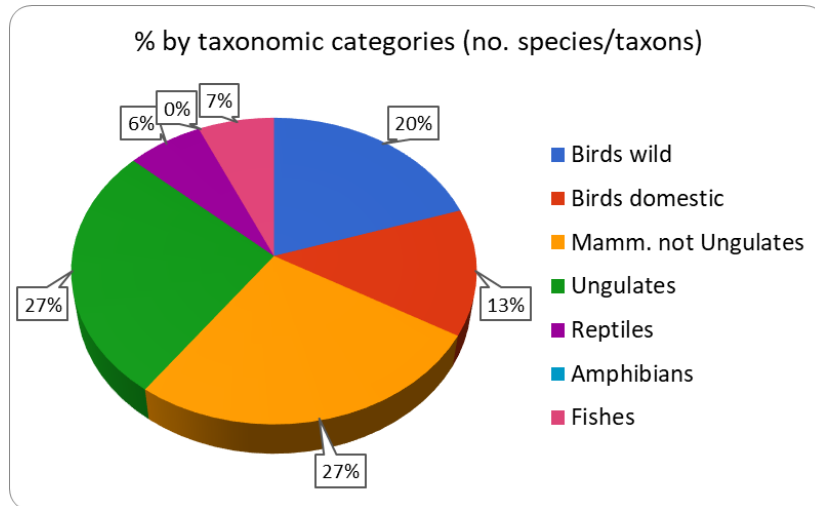


Figure 1. Percentage of species/taxons for the taxonomic categories considered from the food remains sampled at nest of the territory NP-EB-50 of Egyptian vulture *Neophron percnopterus*.

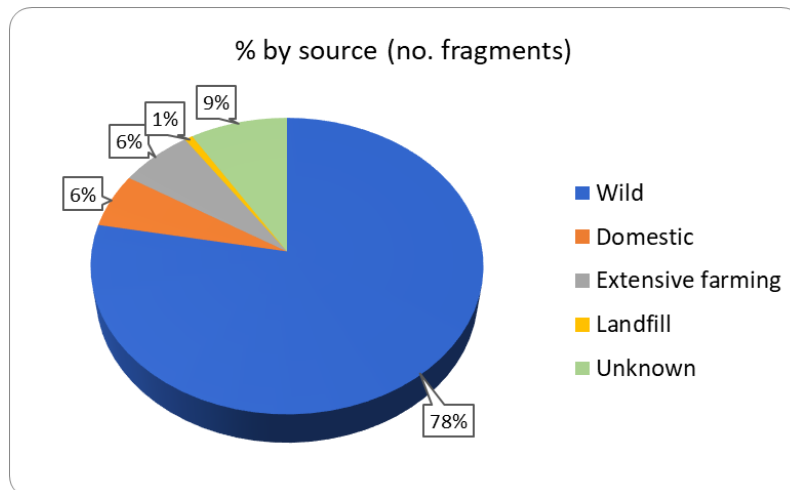


Figure 2. Percentage of number of fragments according to the origin (source) from the food remains sampled at nest of the territory NP-EB-50 of Egyptian vulture *Neophron percnopterus*.

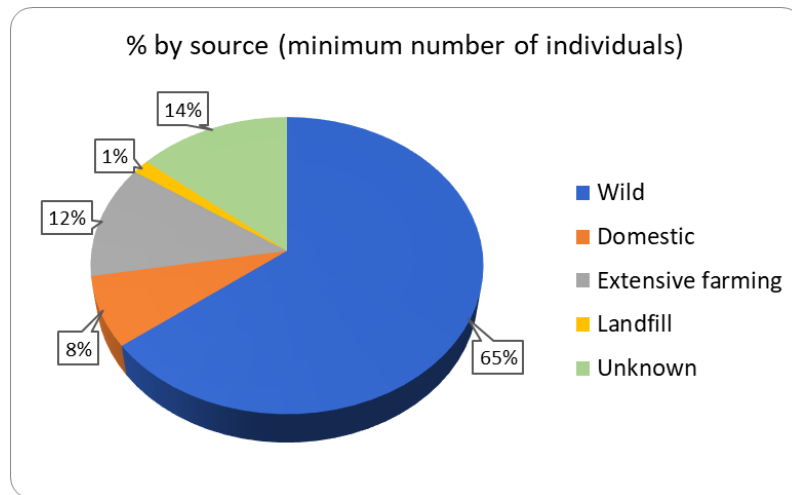


Figure 3. Percentage of the minimum number of individuals according to the origin (source) from the food remains sampled at nest of the territory NP-EB-50 of Egyptian vulture *Neophron percnopterus*.

Territory Rasica (2016)

Food remains sampled at the nest of the territory of Rasica in 2016 also showed a high proportion of mammals (55% of species detected) and wild birds (34%), but any of domestic origin; fishes represented about 11% of consumed species (Table 2 and Figure 4). In this nest, food resources from the wild were comparatively less important (51% of pieces or fragments and 36% of minimum number of individuals), and domestic animals (5 and 7%, respectively) and especially livestock from extensive farming (22 and 33% of pieces/fragments and minimum number of individuals, respectively) also represented an important fraction of resources (Figures 5 and 6). Remains of domestic pigs showed cut bones or traces of butchery suggesting that they were from landfills or vulture restaurants. It is remarkable that remains of two Egyptian vultures were found (growing feathers). In addition, numerous remains of plants and insects were found.

Table 2. Description of prey remains sampled at the nest of the territory Rasica in 2016 of Egyptian vulture *Neophron percnopterus*. Prey were determined at the minimum taxonomic level (species when it was possible). Taxonomic categories considered were Mammals (not ungulates), Mammals (ungulates), Birds, Reptiles, Amphibians and Fishes. Remains were classified according to its origin considering the categories: Unknown, Wild, Domestic, Extensive farming and Landfill. For each species/taxon it is provided the number of fragments (including feathers, hair or bones among other) and the minimum number of individuals (MNI). Other remains not corresponding to prey are also reported. Remains of growing feathers of two Egyptian vultures were also found.

Species/Taxon	Taxonomic category	Origin	No. fragments	MNI
Not determined	Unknown	Unknown	6	6
<i>Oryctolagus cuniculus</i>	Mammals (not Ungulates)	Wild	8	5
<i>Canis lupus familiaris</i>	Mammals (not ungulates)	Domestic	2	2
<i>Capra hircus</i>	Ungulates	Extensive farming	2	2
<i>Ovis aries</i>	Ungulates	Extensive farming	8	7
<i>Sus scrofa domestica</i>	Ungulates	Landfill	4	2
Hirundinidae	Birds	Wild	2	1
Sylvidae	Birds	Wild	2	2
<i>Cyprinus carpio</i>	Fishes	Wild	11	3
Total			45	30
Other remains (not prey)				
Species/Taxon/Type of remain	Taxonomic category	Origin	No. fragments	MNI
<i>Neophron percnopterus</i>	Birds	-	2	2
Coleoptera	Insects	-	1	1
Himenoptera	Insects	-	2	2
Poaceae	Plants	-	4	3
<i>Quercus ilex/suber</i>	Plants	-	2	2
Asteraceae	Plants	-	2	2
Artificial material	Inorganic matter	-	2	2

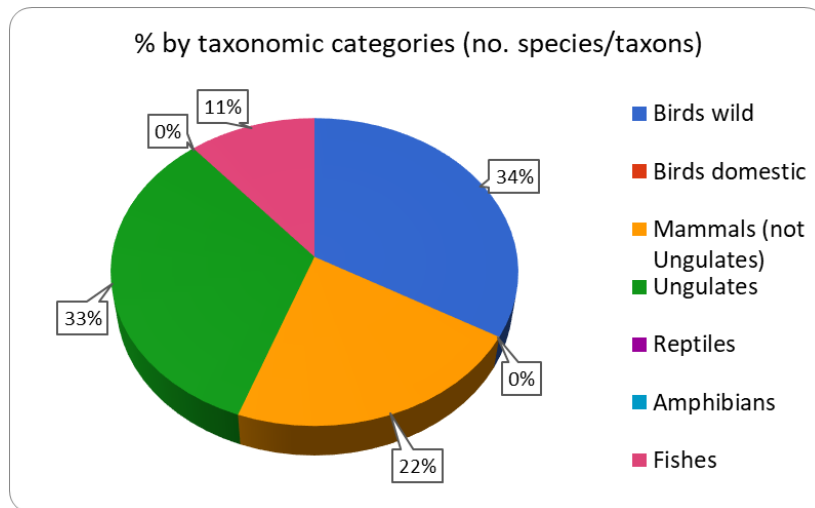


Figure 4. Percentage of species/taxons for the taxonomic categories considered from the food remains sampled at nest of the territory Rasica in 2016 of Egyptian vulture *Neophron percnopterus*.

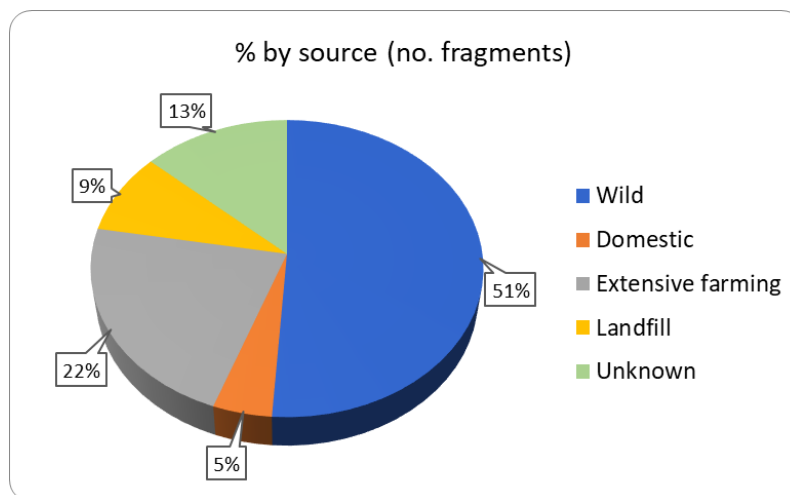


Figure 2. Percentage of number of fragments according to the origin (source) from the food remains sampled at nest of the territory Rasica in 2016 of Egyptian vulture *Neophron percnopterus*.

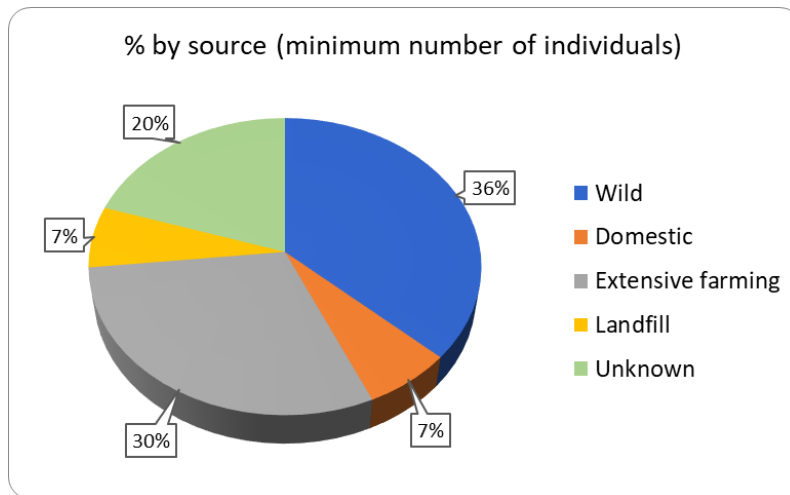


Figure 6. Percentage of the minimum number of individuals according to the origin (source) from the food remains sampled at nest of the territory of Rasica in 2016 of Egyptian vulture *Neophron percnopterus*.

Territory Rasica (2017)

Food remains sampled at the nest of the territory of Rasica in 2017 also showed a very high proportion of mammals (89% of species detected), but no birds; although it is worth to mention that the number of individuals in this territory and year was relatively small (n=17) (Table 3 and Figure 7). Again, fishes represented about 11% of consumed species and represented a relevant fraction of consumed minimum number of individuals. In this nest, food resources from the wild were also very important (82% of pieces or fragments and 70% of minimum number of individuals), while extensive farming represented 13 and 18% of pieces/fragments and minimum number of individuals, respectively (Figures 8 and 9). Remains of cows showed cut bones or traces of butchery suggesting that they were from landfills or vulture restaurants. It is remarkable that remains of plants and insects were also found, as well as artificial materials carried by the vultures to the nest such as fragments of raffia and clothes.

Table 3. Description of prey remains sampled at the nest of the territory Rasica in 2017 of Egyptian vulture *Neophron percnopterus*. Prey were determined at the minimum taxonomic level (species when it was possible). Taxonomic categories considered were Mammals (not ungulates), Mammals (ungulates), Birds, Reptiles, Amphibians and Fishes. Remains were classified according to its origin considering the categories: Unknown, Wild, Domestic, Extensive farming and Landfill. For each species/taxon it is provided the number of fragments (including feathers, hair or bones among other) and the minimum number of individuals (MNI). Other remains not corresponding to prey are also reported.

Species/Taxon	Taxonomic category	Origin	No. fragments	MNI
NI	Unknown	Unknown	1	1
<i>Lepus granatensis</i>	Mammals (not Ungulates)	Wild	1	1
<i>Microtus agrestis</i>	Mammals (not Ungulates)	Wild	4	1
<i>Oryctolagus cuniculus</i>	Mammals (not Ungulates)	Wild	9	3
<i>Vulpes vulpes</i>	Mammals (not Ungulates)	Wild	1	1
<i>Capreolus capreolus</i>	Ungulates	Wild	1	1
<i>Bos Taurus</i>	Ungulates	Landfill	1	1
<i>Capra hircus</i>	Ungulates	Extensive farming	1	1
<i>Ovis aries</i>	Ungulates	Extensive farming	4	2
<i>Cyprinus carpio</i>	Fishes	Wild	16	5
Total			39	17
Other remains (not prey)				
Species/Taxon/Type of remain	Taxonomic category	Origin	No. fragments	MNI
Coleoptera	Insects	-	1	1
Poaceae	Plants	-	4	3
<i>Malus domestica</i>	Plants	-	1	1
<i>Quercus ilex/suber</i>	Plants	-	2	2
Stone	Inorganic matter	-	2	2
Raffia	Inorganic matter	-	1	1
Clothes	Inorganic matter	-	1	1

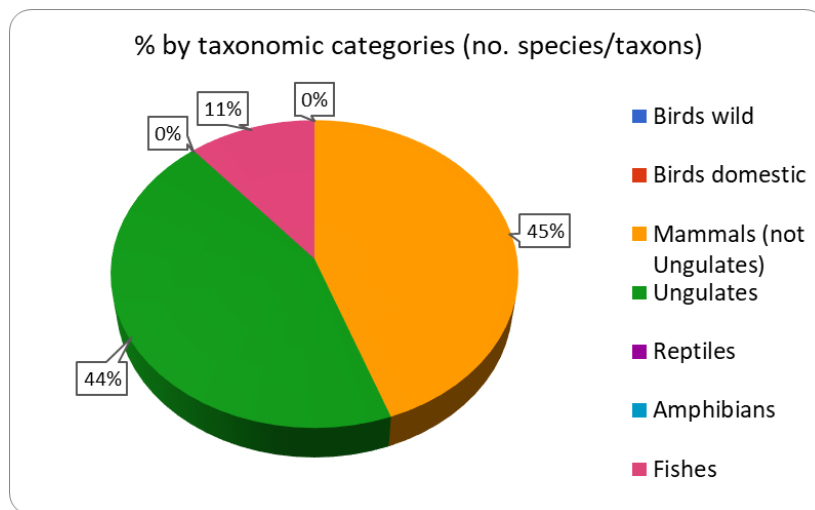


Figure 7. Percentage of species/taxons for the taxonomic categories considered from the food remains sampled at nest of the territory of Rasica in 2017 of Egyptian vulture *Neophron percnopterus*.

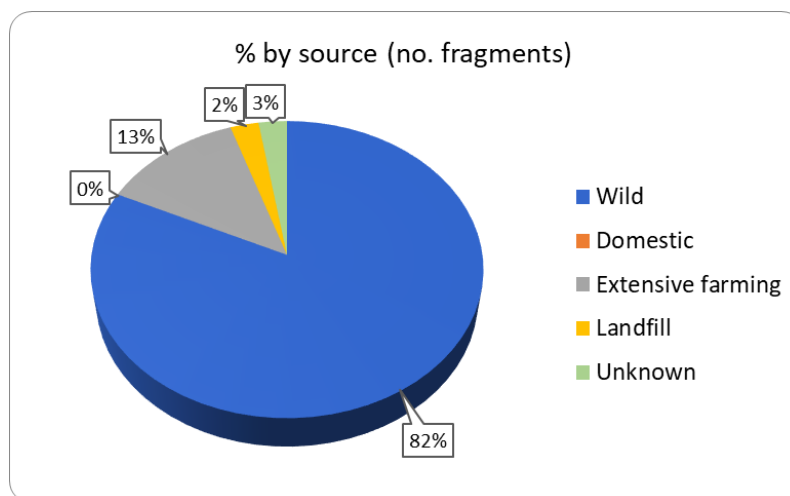


Figure 8. Percentage of number of fragments according to the origin (source) from the food remains sampled at nest of Rasica in 2017 of Egyptian vulture *Neophron percnopterus*.

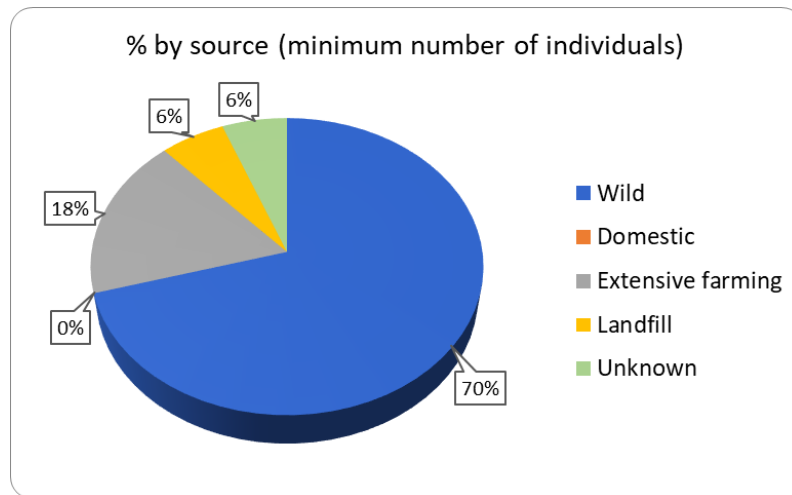


Figure 9. Percentage of the minimum number of individuals according to the origin (source) from the food remains sampled at nest of the territory of Rasica in 2017 of Egyptian vulture *Neophron percnopterus*.

Territory Cozcurrita

Food remains sampled at the nest of the territory of Cozcurrita showed a high proportion of mammals (69% of species detected), both ungulates (23%) and not ungulates (46%). Birds were also present, both wild (8%) and domestic (15% of species). And fishes represented about 8% of consumed species (Table 4 and Figure 10). Food resources from the wild were relatively important (56% of pieces or fragments and 52% of minimum number of individuals), but much less than in NP-BE-50 and in Rasica in 2017 (Figures 11 and 12); and domestic animals (5 and 7% of pieces/fragments and minimum number of individuals, respectively) and especially extensive farming (22 and 27%, respectively) constituted an important food resource. In this nest, pigs and chickens from landfills or vulture restaurants were more present than in previous nests (17 and 14% of pieces/fragments and minimum number of individuals, respectively). It is remarkable that remains of plants were also found, as well as artificial materials carried by the vultures to the nest such as fragments of raffia and one tetrabrick package. Finally, one excrement was found in the nest.

Table 4. Description of prey remains sampled at the nest of the territory Cozcurrita of Egyptian vulture *Neophron percnopterus*. Prey were determined at the minimum taxonomic level (species when it was possible). Taxonomic categories considered were Mammals (not ungulates), Mammals (ungulates), Birds, Reptiles, Amphibians and Fishes. Remains were classified according to its origin considering the categories: Unknown, Wild, Domestic, Extensive farming and Landfill. For each species/taxon it is provided the number of fragments (including feathers, hair or bones among other) and the minimum number of individuals (MNI). Other remains not corresponding to prey are also reported.

Species/Taxon	Taxonomic category	Origin	No. fragments	MNI
<i>Apodemus sylvaticus</i>	Mammals (not Ungulates)	Wild	1	1
<i>Lepus granatensis</i>	Mammals (not Ungulates)	Wild	2	1
<i>Mus sp</i>	Mammals (not Ungulates)	Wild	2	2
<i>Oryctolagus cuniculus</i>	Mammals (not Ungulates)	Wild	7	6
<i>Sciurus vulgaris</i>	Mammals (not Ungulates)	Wild	1	1
<i>Felis catus</i>	Mammals (not Ungulates)	Domestic	1	1
<i>O. aries</i> / <i>C. hircus</i>	Ungulates	Extensive farming	1	1
<i>Ovis aries</i>	Ungulates	Extensive farming	7	7
<i>Sus scrofa</i>	Ungulates	Landfill	4	2
Passeriforme	Birds	Wild	4	2
<i>Cairina moschata</i>	Birds	Domestic	1	1
<i>Gallus domestica</i>	Birds	Landfill	2	2
<i>Cyprinus carpio</i>	Fishes	Wild	3	2
Total			36	29
Other remains (not prey)				
Species/Taxon/Type of remain	Taxonomic category	Origin	No. fragments	MNI
<i>Ficus carica</i>	Plants	-	1	1
Poaceae	Plants	-	2	2
<i>Malus domestica</i>	Plants	-	1	1
<i>Quercus ilex/suber</i>	Plants	-	1	1
Excrement	Organic matter	-	1	1
Stone	Inorganic matter	-	1	1
Raffia	Inorganic matter	-	1	1
Tetrabrick	Inorganic matter	-	1	1

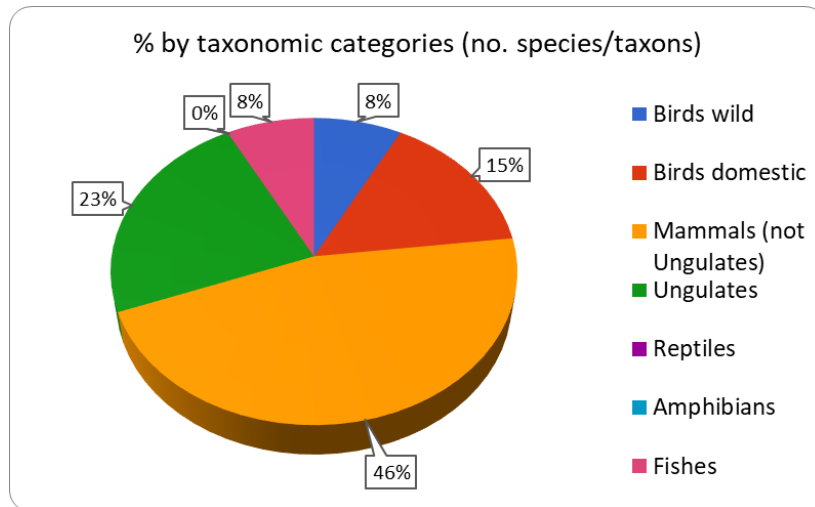


Figure 10. Percentage of species/taxons for the taxonomic categories considered from the food remains sampled at nest of the territory of Cozcurreta of Egyptian vulture *Neophron percnopterus*.

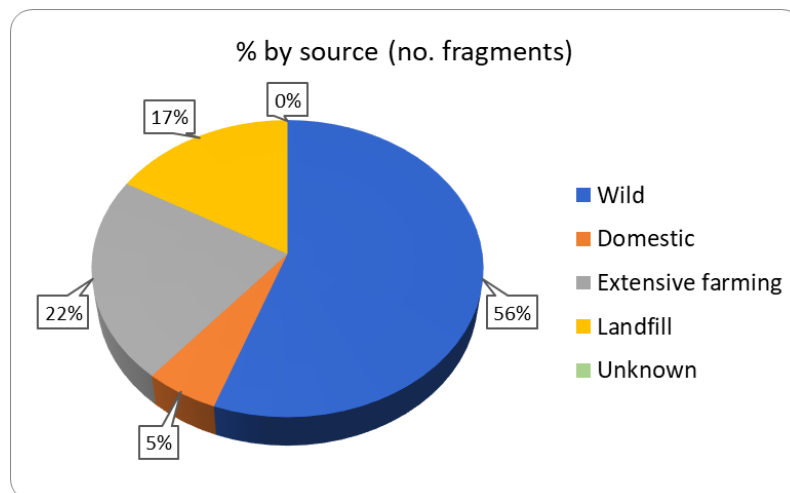


Figure 11. Percentage of number of fragments according to the origin (source) from the food remains sampled at nest of the territory of Cozcurreta of Egyptian vulture *Neophron percnopterus*.

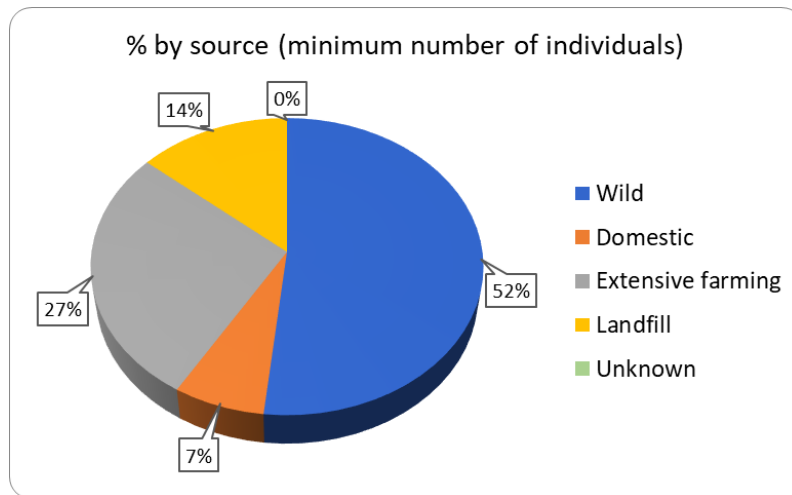


Figure 12. Percentage of the minimum number of individuals according to the origin (source) from the food remains sampled at nest of the territory of Cozcurreta of Egyptian vulture *Neophron percnopterus*.

Territory NP-BE-20

Food remains sampled at the nest of territory NP-BE-20 showed a quite high diversity of prey. Again mammals represented an important proportion of consumed species (52%); wild and domestic birds were also important (18 and 9%, respectively), but reptiles (9%), amphibians (4%) and fishes (4%) were also present (Table 5 and Figure 13). and invertebrates (4%). The origin of food resources was mainly from the wild (69% of pieces or fragments), but also domestic (12%), from landfill (6%) and extensive farming (4%) were present (Figure 14). In terms of minimum number of individuals, most food resources come from the wild (61%), but domestic animals (15%) and food from landfill (7%) were also relevant (Figure 15). Remains of an egg shell of Egyptian vulture, as well as adult and chick feathers were found in the nest.

Table 5. Description of prey remains sampled at the nest of the territory NP-BE-20 of Egyptian vulture *Neophron percnopterus*. Prey were determined at the minimum taxonomic level. Taxonomic categories considered were Mammals (not ungulates), Mammals (ungulates), Birds, Reptiles, Amphibians and Fishes. Remains were classified according to its origin considering the categories: Unknown, Wild, Domestic, Extensive farming and Landfill. For each species/taxon it is provided the number of fragments (including feathers, hair or bones among other) and the minimum number of individuals (MNI).

Species/Taxon	Taxonomic category	Origin	No. fragments	MNI
Not determined	Unknown	Unknown	7	7
<i>Lepus granatensis</i>	Mammals (not ungulates)	Wild	1	1
<i>Oryctolagus cuniculus</i>	Mammals (not ungulates)	Wild	10	8
<i>Oryctolagus / Lepus</i>	Mammals (not ungulates)	Wild	1	1
<i>Vulpes vulpes</i>	Mammals (not ungulates)	Wild	9	6
<i>Meles meles</i>	Mammals (not ungulates)	Wild	5	2
<i>Canis lupus familiaris</i>	Mammals (not ungulates)	Domestic	6	5
<i>Felis catus</i>	Mammals (not ungulates)	Domestic	3	3
<i>Vulpes / Canis l. familiaris</i>	Mammals (not ungulates)	Unknown	2	2
Not determined	Mammals (not ungulates)	Unknown	1	1
<i>Ovis aries</i>	Ungulates	Extensive farming	4	3
<i>Sus scrofa</i>	Ungulates	Wild	4	4
<i>Sus scrofa domestica</i>	Ungulates	Landfill	3	3
<i>Columba palumbus</i>	Birds	Wild	1	1
<i>Alectoris rufa</i>	Birds	Wild	1	1
<i>Buteo buteo</i>	Birds	Wild	1	1
<i>Gyps fulvus</i>	Birds	Wild	6	4
<i>Columba livia domestica</i>	Birds	Domestic	2	2
<i>Meleagris gallopavo</i>	Birds	Landfill	3	2
<i>Sauria</i>	Reptiles	Wild	1	1
<i>Ophidia</i>	Reptiles	Wild	1	1
<i>Bufo sp</i>	Amphibians	Wild	1	1
<i>Cyprinus carpio</i>	Fishes	Wild	21	6
Total			94	66
Other remains (not prey)				
Species/Taxon/Type of remain	Taxonomic category	Origin	No. fragments	MNI
Poaceae	Plants	-	2	2
Tree	Plants	-	1	1
Wood	Plants	-	1	1
Grip	Inorganic matter	-	1	1
Raffia	Inorganic matter	-	1	1
Ribbon	Inorganic matter	-	1	1
Total			101	73

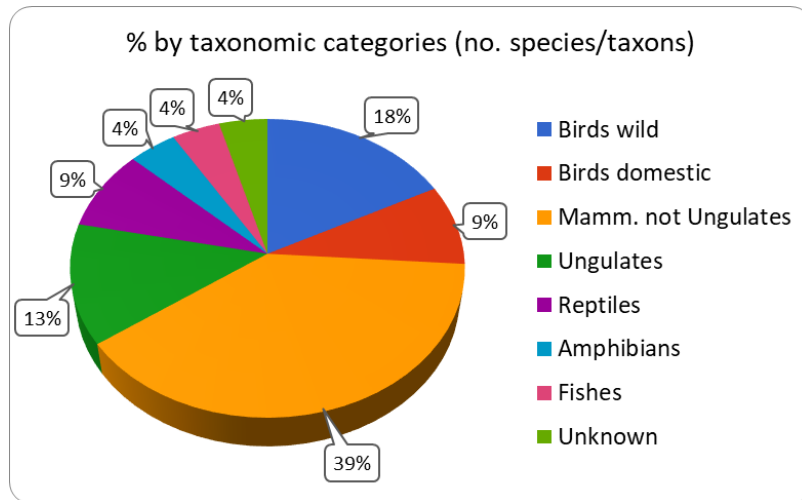


Figure 13. Percentage of species/taxons for the taxonomic categories considered from the food remains sampled at nest of the territory NP-BE-20 of Egyptian vulture *Neophron percnopterus*.

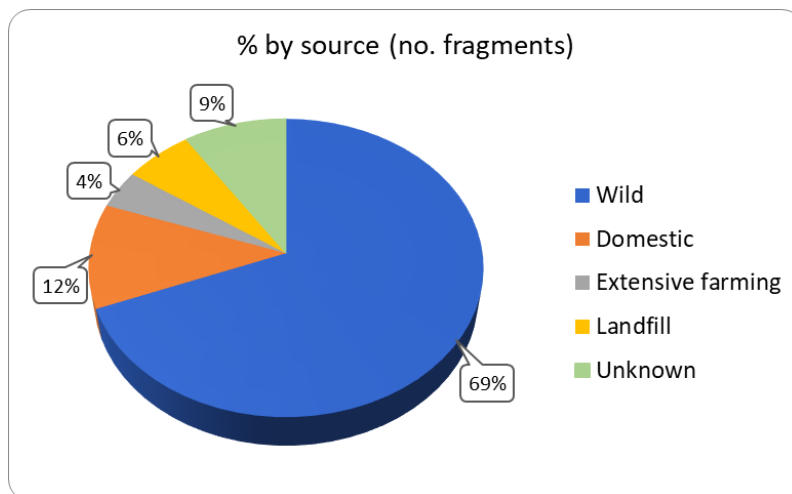


Figure 14. Percentage of number of fragments according to the origin (source) from the food remains sampled at nest of the territory NP-BE-20 of Egyptian vulture *Neophron percnopterus*.

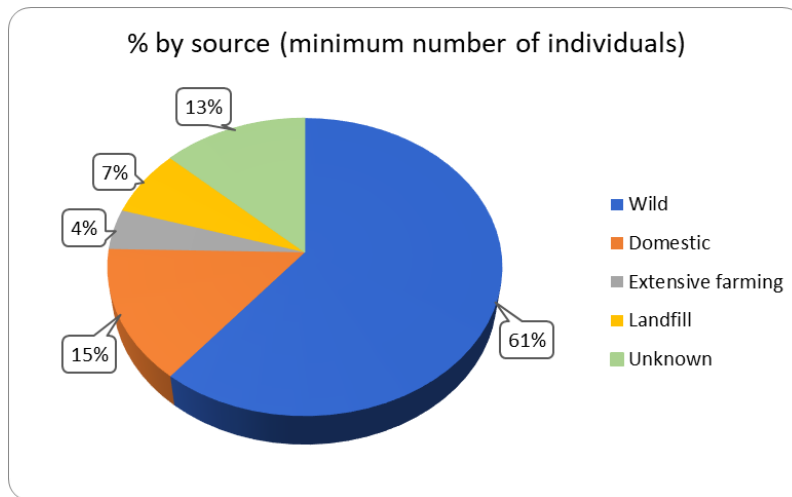


Figure 15. Percentage of the minimum number of individuals according to the origin (source) from the food remains sampled at nest of the territory NP-BE-20 of Egyptian vulture *Neophron percnopterus*.

Territory NP-BE-35

Food remains sampled at the nest of territory NP-BE-35 showed a high proportion of bird species, either wild (33%) and domestic (17%); and a relatively low proportion of mammal species (39%); fish species also represented a relevant proportion of consumed species (11%) (Table 6 and Figure 16). Food resources came in higher proportion from the wild (58% of consumed items), but domestic (15%), extensive farming (15%) and landfill (10%) also were very relevant (Figure 17). Consumed items were also majorly from the wild in terms of the minimum number of individuals (54%), but again items from domestic (16%) and extensive farming origin (16%), together with those from landfills (11%) represented an important fraction of the diet (Figure 18). Feathers from Egyptian vulture were also found in the remains, probably as a result of the moult.

Table 6. Description of prey remains sampled at the nest of the territory NP-BE-35 of Egyptian vulture *Neophron percnopterus*. Prey were determined at the minimum taxonomic level (species when it was possible). Taxonomic categories considered were Mammals (not ungulates), Mammals (ungulates), Birds, Reptiles, Amphibians and Fishes. Remains were classified according to its origin considering the categories: Unknown, Wild, Domestic, Extensive farming and Landfill. For each species/taxon it is provided the number of fragments (including feathers, hair or bones among other) and the minimum number of individuals (MNI).

Species/Taxon	Taxonomic category	Origin	No. fragments	MNI
<i>Oryctolagus cuniculus</i>	Mammals (not ungulates)	Wild	4	3
<i>Oryctolagus / Lepus</i>	Mammals (not ungulates)	Wild	1	1
<i>Vulpes vulpes</i>	Mammals (not ungulates)	Wild	3	3
<i>Canis lupus familiaris</i>	Mammals (not ungulates)	Domestic	5	4
<i>Felis catus</i>	Mammals (not ungulates)	Domestic	1	1
<i>Ovis aries</i>	Ungulates	Extensive farming	4	3
<i>Sus scrofa</i>	Ungulates	Wild	4	3
<i>Athene noctua</i>	Birds	Wild	1	1
<i>Tyto alba</i>	Birds	Wild	5	2
<i>Gyps fulvus</i>	Birds	Wild	2	1
<i>Turdus merula</i>	Birds	Wild	4	3
<i>Pica pica</i>	Birds	Wild	1	1
<i>Passeriformes</i>	Birds	Wild	2	2
Not determined	Birds	Unknown	1	1
<i>Columba livia domestica</i>	Birds	Domestic	2	1
<i>Gallus domestica</i>	Birds	Landfill	4	3
<i>Meleagris gallopavo</i>	Birds	Landfill	1	1
<i>Cyprinus carpio</i>	Fishes	Wild	6	2
Teleostei	Fishes	Wild	1	1
Total			52	37

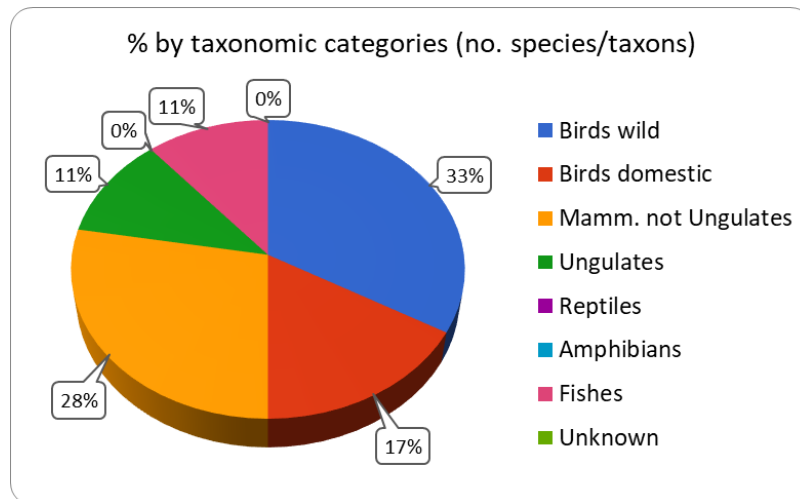


Figure 16. Percentage of species/taxons for the taxonomic categories considered from the food remains sampled at nest of the territory NP-BE-35 of Egyptian vulture *Neophron percnopterus*.

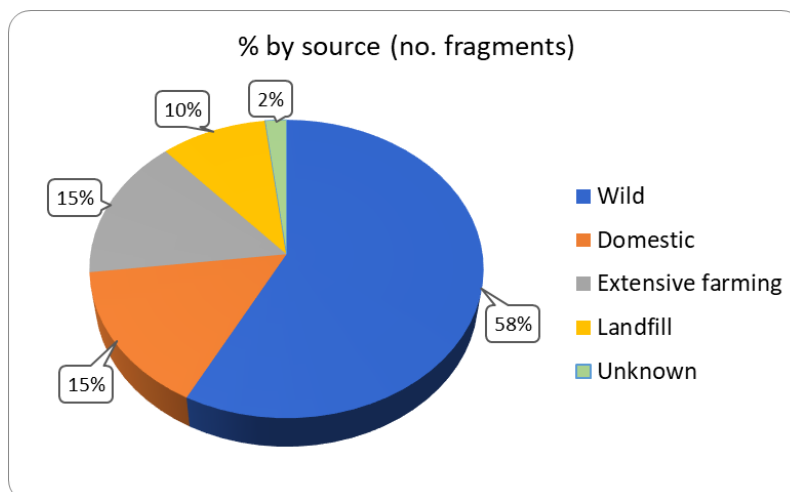


Figure 17. Percentage of number of fragments according to the origin (source) from the food remains sampled at nest of the territory NP-BE-35 of Egyptian vulture *Neophron percnopterus*.

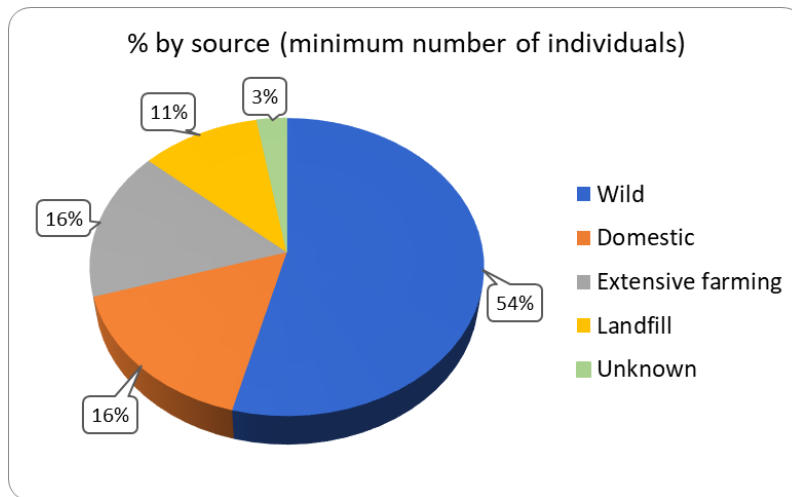


Figure 18. Percentage of the minimum number of individuals according to the origin (source) from the food remains sampled at nest of the territory NP-BE-35 of Egyptian vulture *Neophron percnopterus*.

Territory NP-HU

Food remains sampled at the nest of territory NP-HU showed a high proportion of mammals (58% of species detected), while birds represented a relatively lower proportion than in other territories, either domestic (5%) or wild origin (10%); amphibians, reptiles and fish species were not present, but interestingly appeared two invertebrate species undoubtedly taken in landfills (11%) (Table 7 and Figure 19). The origin of food resources was mainly from extensive farming (46% of pieces or fragments), while items from wild species only represented 23% of pieces; the origin could not be determined a relevant fraction of items (12%) (Figure 20). In terms of minimum number of individuals, percentages were similar to those explained for the number of pieces or fragments, most consumed individuals coming from extensive farming (38%) followed by individuals from wild species (28%), domestic species (10%) and landfill (8%) (Figure 21). Flight and cover feathers of Egyptian vulture were also found in this nest.

Table 7. Description of prey remains sampled at the nest of the territory NP-HU of Egyptian vulture *Neophron percnopterus*. Prey were determined at the minimum taxonomic level (species when it was possible). Taxonomic categories considered were Mammals (not ungulates), Mammals (ungulates), Birds, Reptiles, Amphibians and Fishes. Remains were classified according to its origin considering the categories: Unknown, Wild, Domestic, Extensive farming and Landfill. For each species/taxon it is provided the number of fragments (including feathers, hair or bones among other) and the minimum number of individuals (MNI).

Species/Taxon	Taxonomic category	Origin	No. fragments	MNI
Not determined	Unknown	Unknown	7	7
Not determined	Unknown	Wild	1	1
<i>Lepus granatensis</i>	Mammals (not ungulates)	Wild	2	2
<i>Oryctolagus cuniculus</i>	Mammals (not ungulates)	Wild	2	2
<i>Vulpes vulpes</i>	Mammals (not ungulates)	Wild	5	4
<i>Meles meles</i>	Mammals (not ungulates)	Wild	1	1
<i>Canis lupus familiaris</i>	Mammals (not ungulates)	Domestic	6	3
<i>Felis catus</i>	Mammals (not ungulates)	Domestic	2	2
<i>Sus scrofa</i>	Ungulates	Wild	2	2
<i>Ovis aries</i>	Ungulates	Extensive farming	20	11
<i>Capra hircus</i>	Ungulates	Extensive farming	7	5
<i>Sus scrofa domestica</i>	Ungulates	Extensive farming	2	2
<i>Equus sp</i>	Ungulates	Extensive farming	1	1
Mammal	Unknown	Unknown	1	1
<i>Anas platyrhynchos</i>	Birds	Wild	1	1
<i>Turdus philomelos</i>	Birds	Wild	1	1
<i>Gallus domestica</i>	Birds	Landfill	1	1
<i>Meretrix lyrata</i>	Invertebrates	Landfill	2	2
<i>Mytilus edulis</i>	Invertebrates	Landfill	1	1
Total			65	50
Other remains (not prey)				
Species/Taxon/Type of remain	Taxonomic category	Origin	No. fragments	MNI
Cormofita	Plants	-	1	1
Ribbon	Inorganic matter	-	1	1
Total			67	52

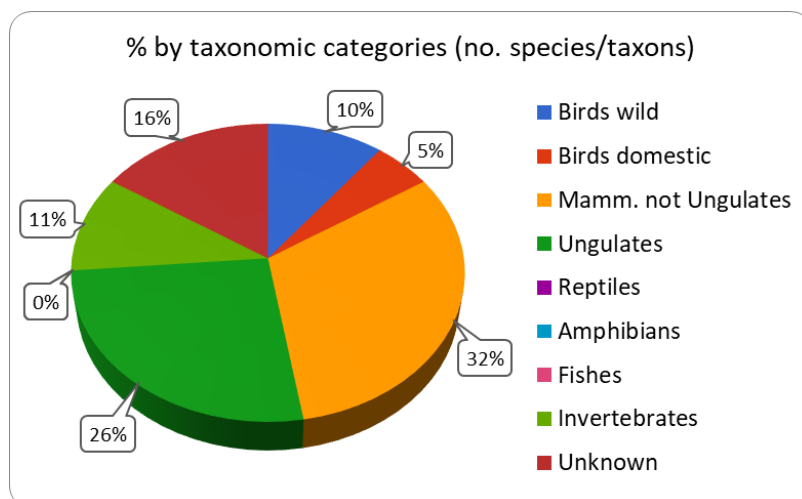


Figure 19. Percentage of species/taxons for the taxonomic categories considered from the food remains sampled at nest of the territory NP-HU of Egyptian vulture *Neophron percnopterus*.

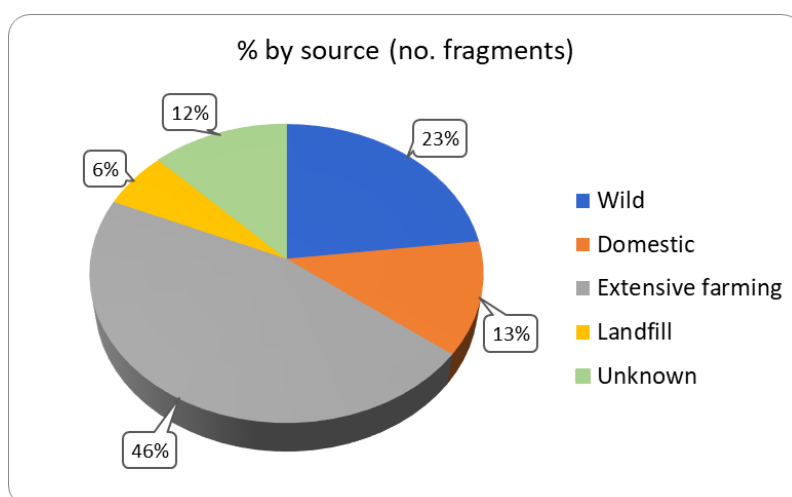


Figure 20. Percentage of number of fragments according to the origin (source) from the food remains sampled at nest of the territory NP-HU of Egyptian vulture *Neophron percnopterus*.

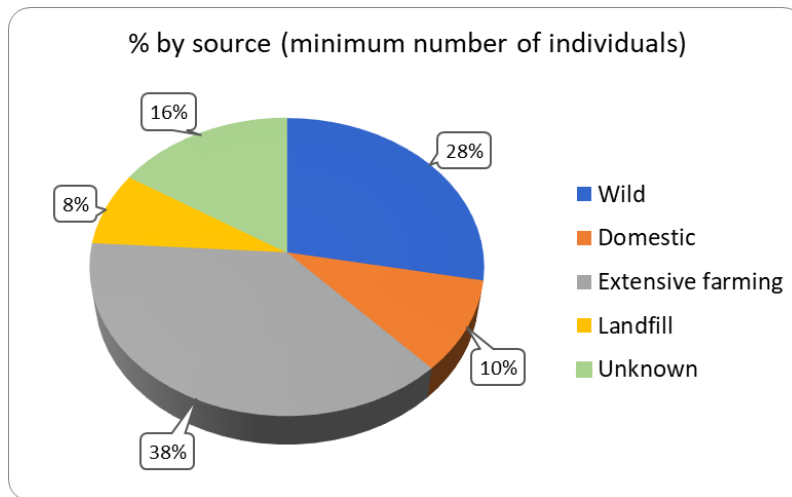


Figure 21. Percentage of the minimum number of individuals according to the origin (source) from the food remains sampled at nest of the territory NP-HU of Egyptian vulture *Neophron percnopterus*.

Territory NP-SA

Food remains sampled at the nest of territory NP-SA showed a high proportion of mammals (65% of species detected), particularly ungulates. Wild birds were not present domestic bird species only represented a small fraction of species (7%); reptile (14%) and fish species (7%) were also present (Table 8 and Figure 22). Most consumed items came from wild species (72%) that were complemented with food from extensive farming (11%), landfills (7%) and domestic origin (5%) (Figure 23). This picture was similar when considering the minimum number of individuals consumed (Figure 24). It is remarkable the importance of wild boars as a food resource in this nest.

Table 8. Description of prey remains sampled at the nest of the territory NP-SA of Egyptian vulture *Neophron percnopterus*. Prey were determined at the minimum taxonomic level (species when it was possible). Taxonomic categories considered were Mammals (not ungulates), Mammals (ungulates), Birds, Reptiles, Amphibians and Fishes. Remains were classified according to its origin considering the categories: Unknown, Wild, Domestic, Extensive farming and Landfill. For each species/taxon it is provided the number of fragments (including feathers, hair or bones among other) and the minimum number of individuals (MNI).

Species/Taxon	Taxonomic category	Origin	No. fragments	MNI
Not determined	Unknown	Unknown	2	2
<i>Lepus granatensis</i>	Mammals (not ungulates)	Wild	2	2
<i>Vulpes vulpes</i>	Mammals (not ungulates)	Wild	1	1
<i>Canis lupus familiaris</i>	Mammals (not ungulates)	Domestic	1	1
<i>Sus scrofa</i>	Ungulates	Wild	20	11
<i>Capreolus capreolus</i>	Ungulates	Wild	1	1
<i>Ovis aries</i>	Ungulates	Extensive farming	1	1
<i>Capra hircus</i>	Ungulates	Extensive farming	4	4
<i>Sus scrofa domestica</i>	Ungulates	Extensive farming	2	2
<i>Bos taurus</i>	Ungulates	Extensive farming	1	1
Mammal	Unknown	Unknown	1	1
<i>Columbia livia domestica</i>	Birds	Domestic	1	1
<i>Timon lepidus</i>	Reptiles	Wild	2	2
Sauria	Reptiles	Wild	1	1
<i>Cyprinus carpio</i>	Fishes	Wild	2	2
Coleoptera	Invertebrates	Wild	1	1
Total			43	34
Other remains (not prey)				
Species/Taxon/Type of remain	Taxonomic category	Origin	No. fragments	MNI
Cormofita	Plants	-	6	3
Poacea	Plants	-	1	1
<i>Olea europaea</i>	Plants	-	5	4
Total			55	42

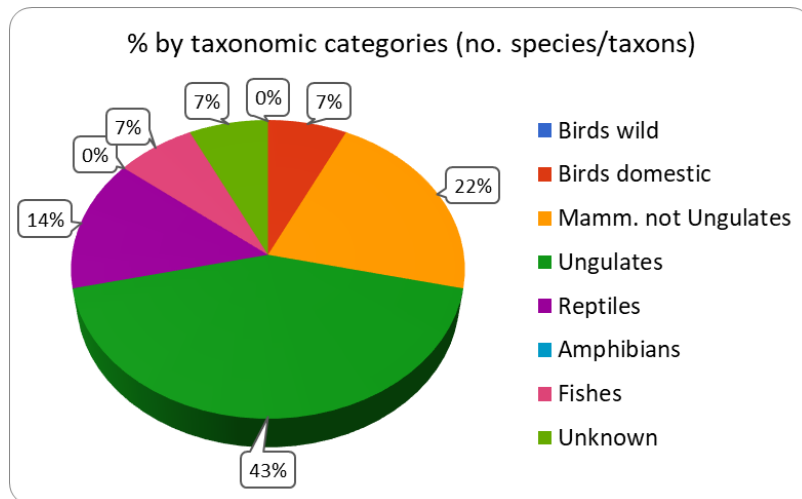


Figure 22. Percentage of species/taxons for the taxonomic categories considered from the food remains sampled at nest of the territory NP-SA of Egyptian vulture *Neophron percnopterus*.

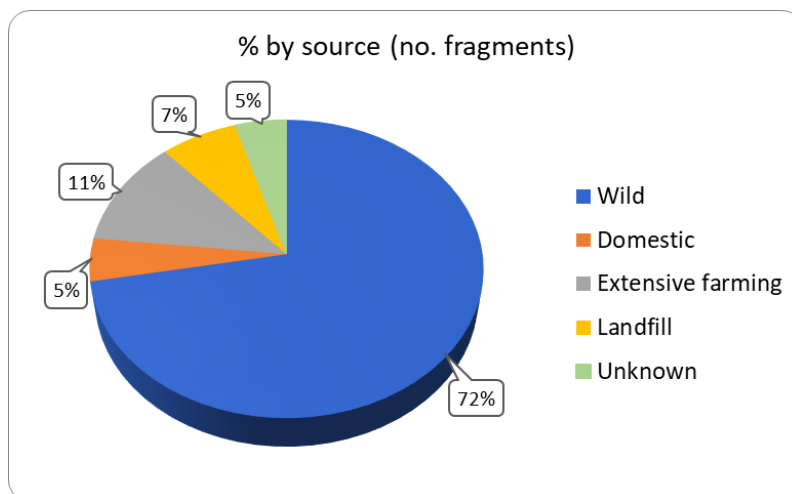


Figure 23. Percentage of number of fragments according to the origin (source) from the food remains sampled at nest of the territory NP-SA of Egyptian vulture *Neophron percnopterus*.

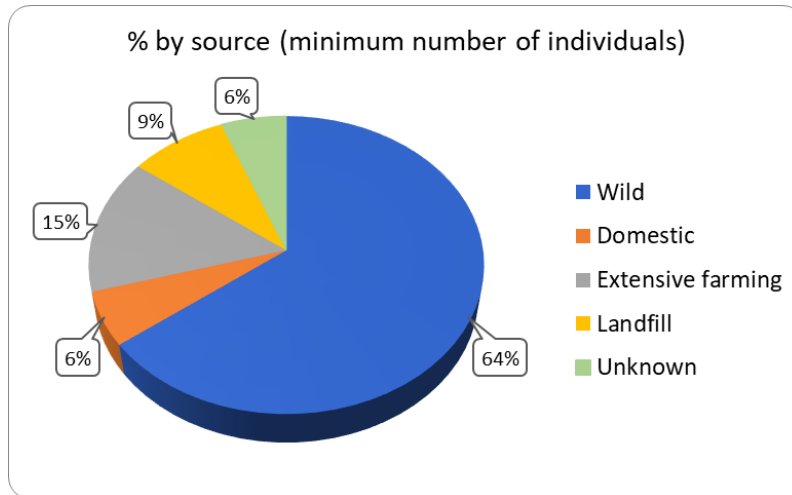


Figure 24. Percentage of the minimum number of individuals according to the origin (source) from the food remains sampled at nest of the territory NP-SA of Egyptian vulture *Neophron percnopterus*.

Territory NP-SA-230

Food remains sampled at the nest of territory NP-SA-230 showed a high diversity of species, including mammals (41% of species detected), wild (23%) and domestic bird species (12%), reptiles (6%), fishes (6%) and invertebrates (6%) (Table 9 and Figure 25). Regarding the origin of food resources, it is remarkable that 34% of items came from landfill, although the most frequent category corresponded to wild species (41% of pieces or fragments); items from domestic (13%) and extensive farming origin (6%) completed the studied sample (Figure 26). In terms of minimum number of individuals, the category of wild species represented a higher proportion of consumed items (52%), followed by landfill (17%), domestic (13%) and extensive farming (9%) (Figure 27). Similar to nest NP-HU it is worth to mention the consumption of bivalve molluscs undoubtedly taken from landfills or similar feeding sites.

Table 9. Description of prey remains sampled at the nest of the territory NP-SA-230 of Egyptian vulture *Neophron percnopterus*. Prey were determined at the minimum taxonomic level (species when it was possible). Taxonomic categories considered were Mammals (not ungulates), Mammals (ungulates), Birds, Reptiles, Amphibians and Fishes. Remains were classified according to its origin considering the categories: Unknown, Wild, Domestic, Extensive farming and Landfill. For each species/taxon it is provided the number of fragments (including feathers, hair or bones among other) and the minimum number of individuals (MNI).

Species/Taxon	Taxonomic category	Origin	No. fragments	MNI
Not determined	Unknown	Unknown	1	1
<i>Lepus granatensis</i>	Mammals (not ungulates)	Wild	3	2
<i>Vulpes vulpes</i>	Mammals (not ungulates)	Wild	2	2
<i>Canis lupus familiaris</i>	Mammals (not ungulates)	Domestic	2	1
<i>Vulpes / Canis l. familiaris</i>	Mammals (not ungulates)	Unknown	1	1
<i>Ovis aries</i>	Ungulates	Extensive farming	1	1
<i>Capra hircus</i>	Ungulates	Extensive farming	1	1
<i>Sus scrofa domestica</i>	Ungulates	Landfill	9	2
<i>Turdus merula</i>	Birds	Wild	2	2
<i>Linaria cannabina</i>	Birds	Wild	1	1
<i>Passer domesticus</i>	Birds	Wild	1	1
Passeriforme	Birds	Wild	1	1
<i>Columbia livia domestica</i>	Birds	Domestic	2	2
<i>Meleagris gallopavo</i>	Birds	Landfill	1	1
<i>Timon lepidus</i>	Reptiles	Wild	1	1
<i>Cyprinus carpio</i>	Fishes	Wild	2	2
<i>Meretrix lyrata</i>	Invertebrates	Landfill	1	1
Total			32	23
Other remains (not prey)				
Species/Taxon/Type of remain	Taxonomic category	Origin	No. fragments	MNI
<i>Quercus sp</i>	Plants	-	1	1
Clothes	Inorganic matter	-	1	1
Ribbon	Inorganic matter	-	1	1
Total			35	26

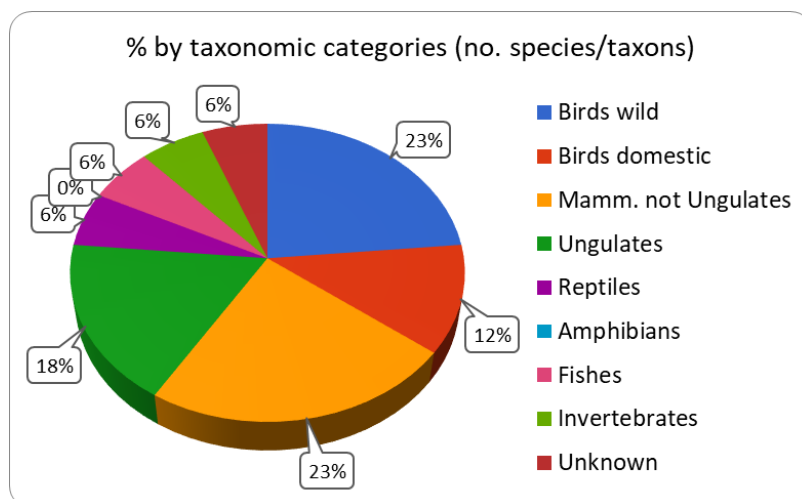


Figure 25. Percentage of species/taxons for the taxonomic categories considered from the food remains sampled at nest of the territory NP-SA-230 of Egyptian vulture *Neophron percnopterus*.

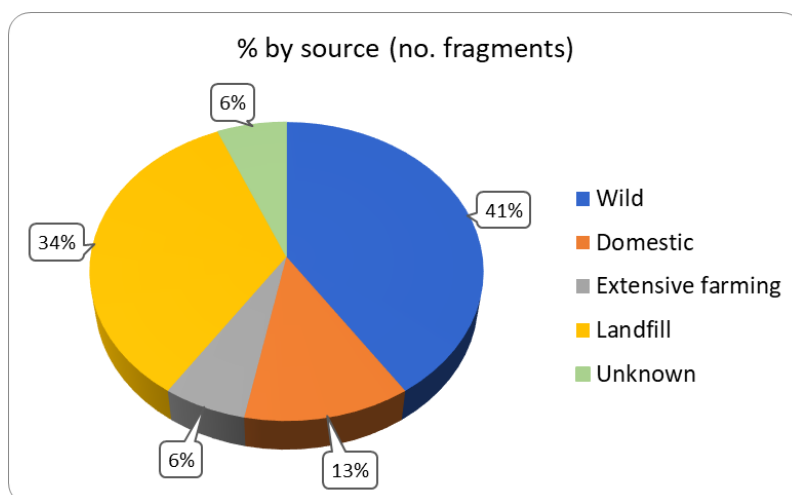


Figure 26. Percentage of number of fragments according to the origin (source) from the food remains sampled at nest of the territory NP-SA-230 of Egyptian vulture *Neophron percnopterus*.

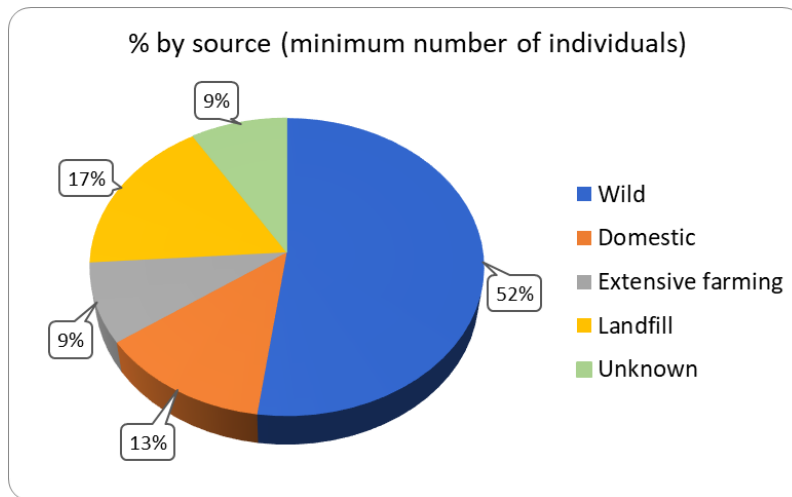


Figure 27. Percentage of the minimum number of individuals according to the origin (source) from the food remains sampled at nest of the territory NP-SA-230 of Egyptian vulture *Neophron percnopterus*.

Territory NP-SA-240

Food remains sampled at the nest of territory NP-SA-240 were mainly composed by mammal (52%) and bird species (42% of species detected). Reptile (4%), amphibian (4%) and fish species (4%) were also present (Table 10 and Figure 28). Wild species (42% of pieces or fragments) and food resources obtained in landfills (36%) represented the main proportion of consumed items; which were completed with items from species of domestic origin (9%) and extensive farming (8%) (Figure 29). Similarly, wild species (46%) and individuals consumed in landfills (33%) were the most important categories of consumed resources in terms of minimum number of individuals; in this case, domestic and extensive farming species represented 8% and 7% of the diet, respectively (Figure 30). Cover feathers of Egyptian vulture also appeared in this nest.

Table 10. Description of prey remains sampled at the nest of the territory NP-SA-240 of Egyptian vulture *Neophron percnopterus*. Prey were determined at the minimum taxonomic level (species when it was possible). Taxonomic categories considered were Mammals (not ungulates), Mammals (ungulates), Birds, Reptiles, Amphibians and Fishes. Remains were classified according to its origin considering the categories: Unknown, Wild, Domestic, Extensive farming and Landfill. For each species/taxon it is provided the number of fragments (including feathers, hair or bones among other) and the minimum number of individuals (MNI).

Species/Taxon	Taxonomic category	Origin	No. fragments	MNI
Not determined	Unknown	Unknown	4	4
<i>Lepus granatensis</i>	Mammals (not ungulates)	Wild	3	3
<i>Lepus / Oryctolagus</i>	Mammals (not ungulates)	Wild	1	1
<i>Vulpes vulpes</i>	Mammals (not ungulates)	Wild	3	3
<i>Meles meles</i>	Mammals (not ungulates)	Wild	1	1
<i>Canis lupus familiaris</i>	Mammals (not ungulates)	Domestic	2	2
<i>Felis catus</i>	Mammals (not ungulates)	Domestic	3	2
<i>Ovis aries</i>	Ungulates	Extensive farming	1	1
<i>Capra hircus</i>	Ungulates	Extensive farming	1	1
<i>Sus scrofa domestica</i>	Ungulates	Landfill	9	2
<i>Turdus merula</i>	Birds	Wild	2	2
<i>Linaria cannabina</i>	Birds	Wild	1	1
<i>Passer domesticus</i>	Birds	Wild	1	1
Passeriforme	Birds	Wild	1	1
<i>Columba livia domestica</i>	Birds	Domestic	2	2
<i>Meleagris gallopavo</i>	Birds	Landfill	1	1
<i>Timon lepidus</i>	Reptiles	Wild	1	1
<i>Cyprinus carpio</i>	Fishes	Wild	2	2
<i>Meretrix lyrata</i>	Invertebrates	Landfill	1	1
Total			32	23
Other remains (not prey)				
Species/Taxon/Type of remain	Taxonomic category	Origin	No. fragments	MNI
<i>Quercus sp</i>	Plants	-	1	1
Clothes	Inorganic matter	-	1	1
Ribbon	Inorganic matter	-	1	1
Total			35	26

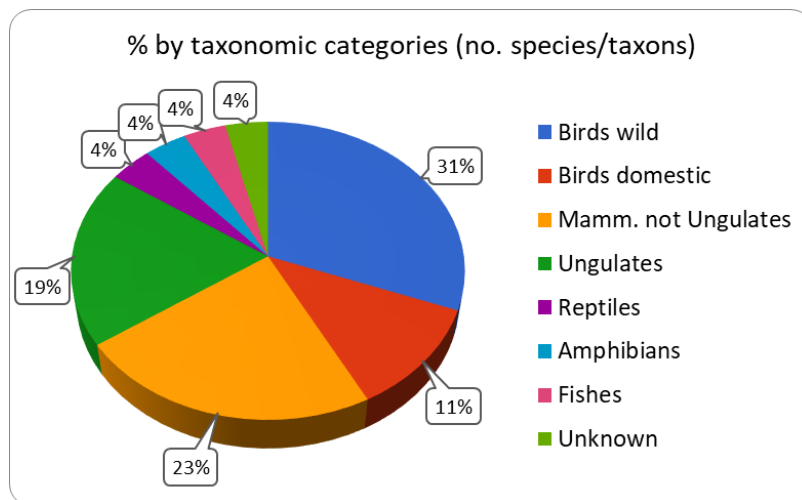


Figure 28. Percentage of species/taxons for the taxonomic categories considered from the food remains sampled at nest of the territory NP-SA-240 of Egyptian vulture *Neophron percnopterus*.

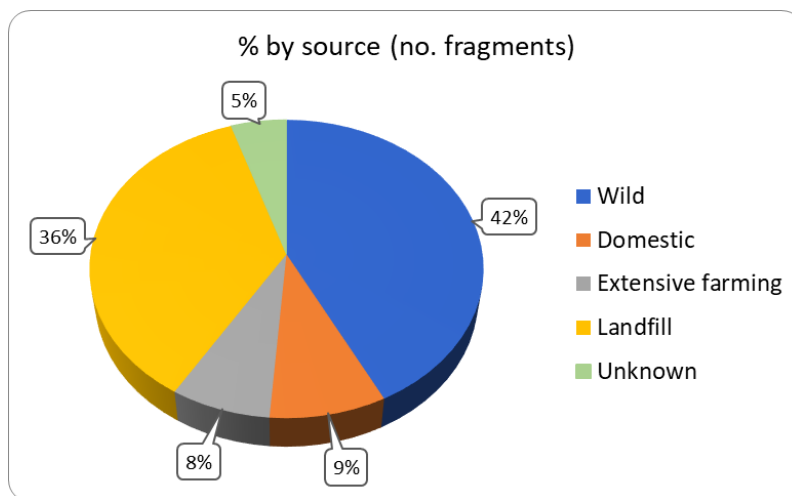


Figure 29. Percentage of number of fragments according to the origin (source) from the food remains sampled at nest of the territory NP-SA-240 of Egyptian vulture *Neophron percnopterus*.

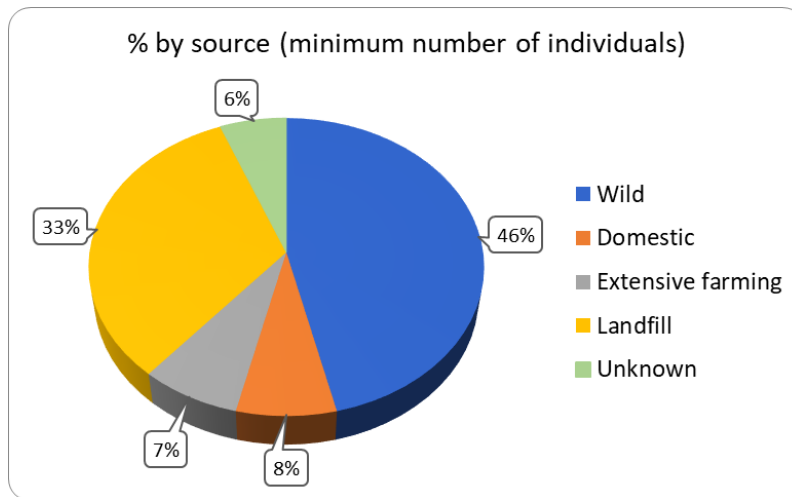


Figure 30. Percentage of the minimum number of individuals according to the origin (source) from the food remains sampled at nest of the territory NP-SA-240 of Egyptian vulture *Neophron percnopterus*.

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