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Flyway Action Plan for the Conservation of the Balkan and Central Asian Populations of the Egyptian Vulture *Neophron percnopterus* (EVFAP)

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Preface: The preliminary draft was developed in July 2015 as a background source for participants of the EVFAP Workshop in Bulgaria (6-8th July 2015, Sofia; Barov et al. 2015). Based on EVFAP Workshop outputs, the first draft was improved and circulated for comments to Range States through a public consultation exercise in February 2017. The revised second draft was integrated as a key component of the Multi-species Action Plan to conserve African-Eurasian Vultures (Vulture MsAP) which is due to be submitted for adoption at CMS COP12, scheduled to be held in October 2017.

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Geographical scope: Balkans, Central Asia, Caucasus region, Middle East, Central and East Africa

FAP range states: Albania, Armenia, Azerbaijan, Bulgaria, Central African Republic, Chad, Djibouti, Egypt, Ethiopia, Eritrea, FYR of Macedonia, Georgia, Greece, Iran, Iraq, Israel, Jordan, Kazakhstan, Lebanon, Niger, Nigeria, Oman, Romania, Russia, Saudi Arabia, Serbia, Sudan, Syria, Turkey, Turkmenistan, UAE, Uzbekistan and Yemen.

Reviews: It is envisaged that the EVFAP will be implemented over a 10-year period (2017 – 2026). The EVFAP should be reviewed every five years (first review of implementation in 2021), and updated every 10 years (first update in 2026). An emergency review will be undertaken if there is a sudden major change liable to affect the target population.

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Contents

0. EXECUTIVE SUMMARY

The Egyptian vulture – a species under threat

The Egyptian vulture (*Neophron percnopterus*) is recognized as globally 'Endangered'(EN). It was uplisted in 2007 due to rapid population declines in most of its range, especially across Europe, Africa and India. It is listed in the EU Birds Directive (Annex I), the Bern Convention (Appendix II), the CMS (Appendix II), and the CITES (Appendix II).

Range and focus of Action Plan

The Egyptian vulture is a long distance migrant, and is found throughout Eurasia and Africa. The population that is targeted by this Action Plan breeds across the Balkans, Central Asia and Caucasian region, and migrates to wintering grounds that largely overlap with the range of the resident population of the same species in the Middle East, Central and East Africa.

The major threats along the flyway that are addressed by this plan are poisoning, electrocution and collisions with energy infrastructure, and direct persecution. Mostly, the drivers pushing the different stakeholders' activities that threaten the species are economic; most (if not all) stakeholder groups lacked awareness of the affect of their activities have on the conservation status of the Egyptian vultures.

The Action Plan seeks to consider the following needs: long-term research and monitoring; designation of protected areas (non-EU); building conservation capacity; improving exchange of information; coordination of NGO driven initiatives; partnerships with industry (e.g. energy, agriculture); and improving awareness-raising and publicity.

Framework for action

The overall long-term goal of the Action Plan is to improve the conservation status of the Egyptian vulture, leading initially to its downlisting to Vulnerable and eventually achieving a favorable conservation status of the species across FAP range. In shorter term, by 2026 the EVFAP seeks to halt the downward trends in the declining meta-populations while maintaining stable or increasing trends for the healthy ones. More specifically, through 67 actions the EVFAP aims to significantly reduce Egyptian vulture mortality in the FAP range due to poisoning, illegal killing, electrocution and collision with energy infrastructures; enhance the size and productivity of breeding populations; and ensure endorsement and effective implementation of the the EVFAP by all Range States.

Delivery and coordination

It is envisaged that the EVFAP will be implemented over a 10-year period (2017 – 2026). It should be reviewed every five years (with the first review in 2021), and updated every 10 years (first update due in 2026). An emergency review will be undertaken if there is a sudden major change liable to affect one of the populations.

1. BIOLOGICAL ASSESSMENT

1.1. Identification

The Egyptian vulture (*Neophron percnopterus*) is the smallest among the Eurasian vulture species, with body length 47–65 cm, and the wingspan 163–172 cm (Ferguson-Lee & Christie 2001, Forsman 2003, Rasmussen & Anderton 2005). Males have generally smaller wings and tails, but there is much overlap (470–536 mm, 220–251 mm in males, and 460–545 mm, 240–267 mm in females, respectively; Ferguson-Lee & Christie 2001). The weight is up to 2.4 kg (Ferguson-Lee & Christie 2001). The bare face and slender bill is diagnostic. In flight, the Egyptian vulture shows a relatively long and thin beak compared to other vultures (giving the impression of a narrow and pointed head), long and rectangular wings, and a long wedge-shaped tail (Forsman 2003). Five progressive plumages from juvenile to adult can be identified (Lehtiniemi 2003). Typically, adults can be identified by their black-and-white plumage and bare, yellow face. Juvenile and immature birds have overall a darker plumage, , whitish face, while the subadults are very similar to the adults with some unmolted immature plumage giving them a mottled appearance (Clark & Schmitt 1998). Sexes are morphologically similar, but at the beginning of the breeding season a slight difference in the pigmentation of the face is sometimes seen - more orange in most males and yellowish in the females (Cavallo *et al*. 1997).

1.2. Taxonomy and biogeographic populations

Kingdom:	Animalia
Phylum:	Chordata
Class:	Aves
Order:	Accipitriiformes
Family:	Accipitridae
Genus:	*Neophron*
Species:	*Neophron percnopterus (Linnaeus, 1758)*

Neophron is a monotypic genus, with three recognized subspecies: *N. p. percnopterus* (Linnaeus 1758), *N. p. ginginianus* (Latham 1970) and *N. p. majorensis* (Donázar *et al*. 2002), which differ in size, bill color and distribution (Ferguson-Lee & Christie 2001, Donázar *et al*. 2002). The nominate subspecies is distributed in Southern Europe, Middle East, north Africa, Cape Verde Islands and the Sahel zone to north Tanzania, south-west Angola, north-west Namibia (the equatorial zone being avoided), and south-west and central Asia, east to Tien Shan and Pakistan. The subspecies *N. p. majorensis* is endemic to the Canary Islands, limited to the eastern islands, Lanzarote, Fuerteventura and Alegranza. *N. p. ginginianus* is restricted to Nepal and India (except NW) (Iñigo *et al*. 2008). The biogeographical population of the migratory *N. p. percnopterus,* except for the Iberian, Italian and French birds, is a subject of this Action Plan (hereafter the "*EVFAP population*"; *for the EVFAP range see* ***Figure 1***).

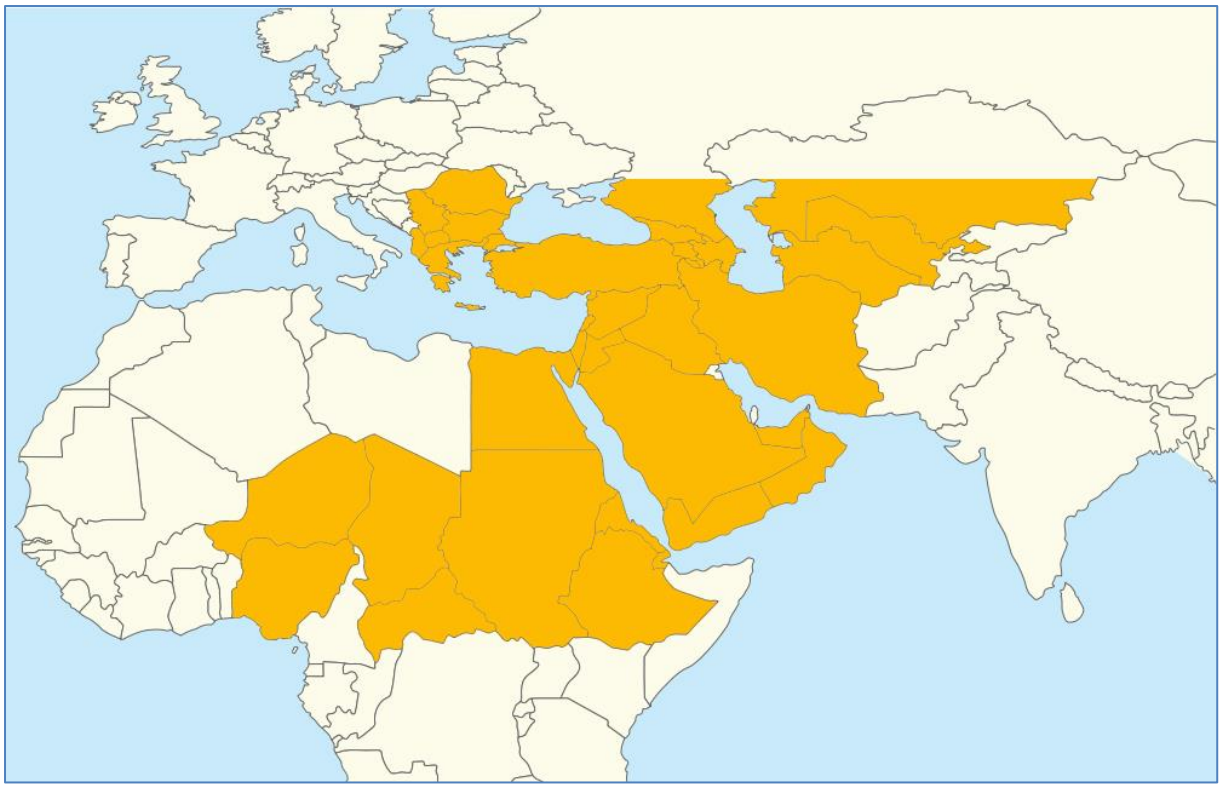

Figure 1. *Map of EVFAP range (marked orange), covering 33 states in the Balkans, Central Asia, Caucasus, Middle East and Africa.*

1.3. Distribution throughout the annual cycle

The Egyptian vulture is a Palearctic, Afrotropical and western Indohimalayan species (Ferguson-Lees et al. 2001). The population subject of EVFAP breeds across the Balkans, Anatolia and the Middle East (from the Caucasus east to Central Asia and south to Pakistan). It migrates to wintering grounds that largely overlap with the range of the resident population of the same species in West Africa, Sahel, East Africa and the Middle East (Cramp & Simmons 1980, Meyburg *et al*. 2004, Buechley & Sekercioglu 2013, Oppel *et al*. 2015). A resident population occurs in the Sahel, Ethiopia and East Africa, the Middle East and the Indian Subcontinent (Cramp & Simmons 1980). Egyptian vultures migrate alone or in small groups, and follow the main raptor migration routes (Oppel *et al*. 2014). Autumn migration takes place between July and October, with numbers peaking in September (BirdLife International 2015a).

Adult birds spend about 6-7 months on the breeding grounds (March-September), and the rest of the year along the flyway and on the wintering grounds. After the first migration (August-October), juvenile Egyptian vultures usually remain in the wintering regions for at least 1.5 years (in some case up to 3 years), and do not attempt spring migration in the year after leaving natal sites (Oppel *et al*. 2015; www.LifeNeophron.eu; Hatzofe, unpubl. data). Birds that migrate successfully arrive in the wintering regions between the last days of September and end of November.

For the Balkan population, the average distance travelled on migration is 5275 km (SD ± 930; N = 19), and migration takes on average 35 days with a mean migration speed of 172 km/day (the longest known distance travelled per day is 507 km; Oppel et al. 2015). Birds from eastern Turkey winter mainly in nothreastern Ethiopia, and a bird tagged in Armenia wintered as far south as N Kenya (Buechley et al. in review).

Egyptian vultures breeding in the Balkans and western Turkey migrate along the western coast of the Black Sea and the eastern coast of the Mediterranean (but some birds from western Balkans, maily juveniles, migrate over the sea, Oppel *et al*. 2015), together with other raptors (Michev *et al*. 2011). Along this migration route, some bottlenecks are well-known (*see* ***Figure 2***): e.g. at the Bourgas bay (Bulgaria), Bosphorus, Dardanelles, Belen Pass (Turkey), Eilat (Israel) and Suez (Egypt) (Sutherland & Brooks 1981, Porter & Beaman 1985, Frumkin *et al*. 1995, Michev *et al*. 2011). There are two main bottlenecks that birds from the Balkans use to migrate toward the wintering grounds in Africa, the Dardanelles and the Bosphorus (Oppel *et al*. 2015). Other Egyptian vultures from the FAP targeted population use three main bottlenecks to reach Africa – Suez (Egypt), Eilat (Israel) and Bab el Mandeb (Yemen), where hundreds (up to 1,167 individuals) have been observed migrating (Yom-Tov 1984, Dovrat 1985, Goodman & Meininger 1989, Yosef 1995, 1996a, 1996b, Yosef & Alon 1997, Megalli & Hilgerloch 2013, Welch & Welch 1988, 1998, McGrady *et al*. 2013, Buechley & Sekercioglu 2013, Buechley et al. in review). In spring, birds that pass throug Suez (Egypt), eastern Upper Gallilee and western Somaria hills (Isreal), and occasionally Bab el Mandeb (Bougain & Oppel 2016, Buechley & Sekercioglu 2013, Buechley *et al. in review,* Hatzofe unpubl. data). Few data exist about the migration of the population from Central Asia: one ring recovery from 1981 and two observations were made of *N. p. ginginianus* in Ethiopia and Socotra Island (Angelov *et al*. 2012, Porter & Suleiman 2012) suggest that birds from the eastern part of Central Asia migrate to East Africa (Mundy 2014).

Egyptian vultures can form large congregations in places with abundant food in the breeding season and during wintering (Cramp & Simmons 1980, Levy & Mendelssohn 1989, Levy 1990, Mundy *et al*. 1992, Donázar *et al*. 1996, Chhangani 2009). During autumn an increase in the number of Egyptian vultures is observed throughout the Middle East and large congregations of more than 400 birds can be observed around the Muscat (Al Multaq) municipal landfill in Oman (Al Fazari & McGrady 2016). Congregations are also reported in Ta'izz Province, Yemen, where numbers increase during the winter and the birds gather around dump sites (David Stanton, unpubl. data). Large congregations (>100 ind.) are reported in Africa during the winter, consisting of birds from Eurasia (Mundy *et al*. 1992, Buechley & Sekercioglu 2013, Arkumarev *et al*. 2014, Oppel *et al*. 2015) and possibly some resident birds from Africa as well. Congregations in the past have been reported in Chad, Sudan, Ethiopia and Kenya, where birds from the Balkans and eastern Turkey overwinter (Meinertzhagen 1954, Salvan 1967, Levy & Mendelssohn 1989, Mundy *et al*. 1992, Sigismondi & Politano 1996, Buechley & Sekercioglu 2013, Oppel *et al*. 2015). Currently, large congregations are reported in Ethiopia and Djibouti, which appear to be the most important wintering areas for the species in East Africa (McGrady *et al*. 2013, Arkumarev *et al*. 2014). Although the provenance of birds at these congregations is unavailable, information on tracked vultures from eastern Turkey (Buechley & Sekercioglu 2013) suggests that a substential portion of birds probably originates from Turkey, Caucasus and the Middle

East (Hatzofe, unpubl. data). Three individuals tagged on the Balkans also overwintered in Ethiopia (Oppel *et al.* 2015, BSPB unpubl. data).

For the most important sites for the species along the flyway see ***Annex 1, Table 1.9***.

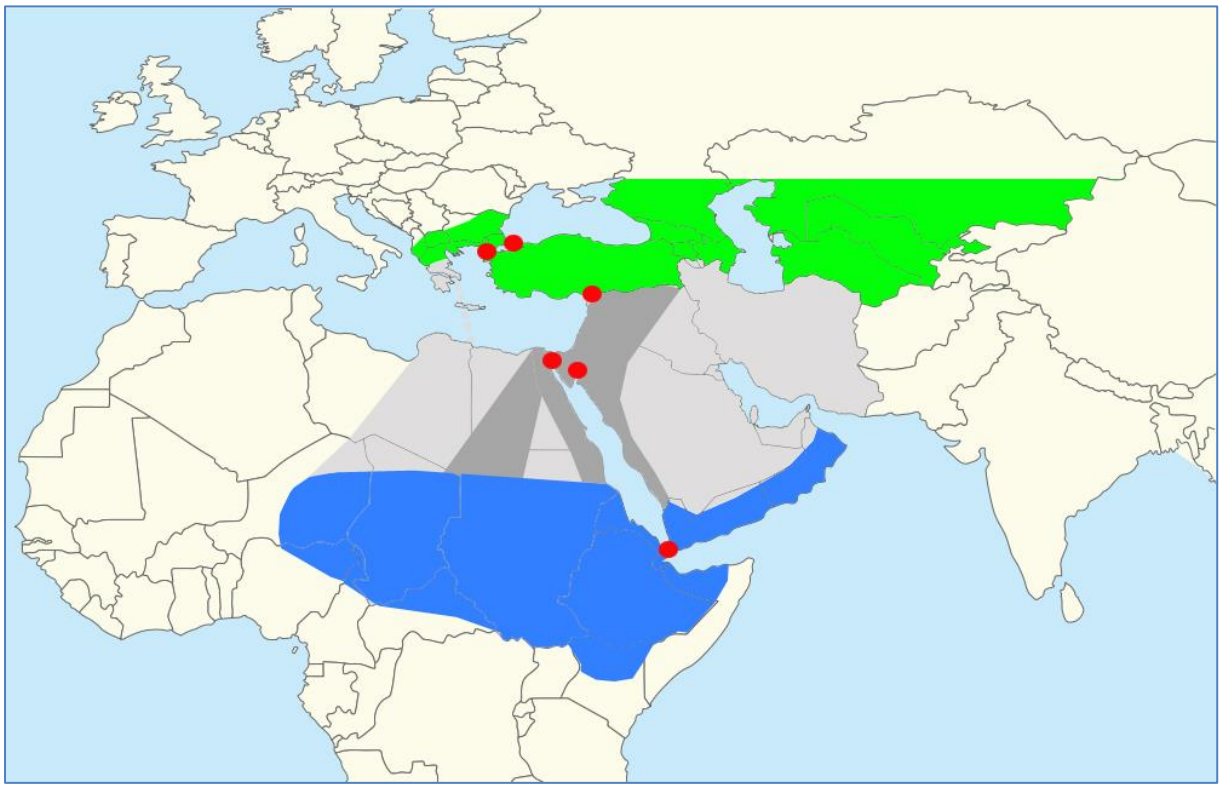

Figure 2. *Map of breeding (green), migration (light grey) and wintering (blue) areas of Egyptian vultures from the FAP range (based on 43 tagged birds in 2010-2017 from the Balkans, Turkey and Caucasus; LIFE10 NAT/BG/000152 unpubl. data; E. Buechley unpubl. data & literature review). Dark grey indicates areas of concentrated migration, red dots indicate migration bottlenecks and broken grey line indicate crossing the sea.*

1.4. Diet

1.4.1. General overview of diet

The Egyptian vulture is a scavenger, with a much wider diet spectrum than the larger vultures, ranging from carcasses and feces of vertebrates, to human refuse, eggs, invertebrates and some slow-moving small vertebrates that it captures alive (Cramp & Simmons 1980, Levy & Mendelssohn 1989, Ceballos & Donázar 1990, Levy 1990, Nergo *et al*. 2002). When attending a large carcass, Egyptian vultures will usually wait on the periphery for bigger scavengers to leave. The species is more often seen at rubbish dumps, village edges and markets, and nomad encampments. It forages by low gliding or higher soaring flight over mainly short distances, monitoring the activities of other vultures and people. It also forages from a perch, by walking on the ground (Ferguson-Lees & Christie 2001, Kurtev

et al. 2008, Arkumarev *et al.* 2014) or lifting and dropping tortoises in order to crack their carapace open (Stoyanova & Stefanov 1993). It is one of the few bird species that use tools, throwing stones at eggs to break their shell (van Lawick-Goodall & van Lawick-Goodall 1966). Despite the dietary plasticity of the Egyptian vulture, livestock is identified as the key food source for the species in Western Europe (Donázar 1993, Cabrera-Garcia 2012). Based on satellite telemetry, Egyptian vultures in Bulgaria are known to regularly fly > 12 km from the nest in search of food during the breeding season; juveniles can fly over 50 kilometers from the nest (BSPB, unpublished data: www.LifeNeophron.eu). They often visit supplementary feeding sites, when available (Gradev et al. 2012).

The species' diet has been studied in detail in relation to productivity, density and habitat selection in Western Europe (Donázar & Ceballos 1988, Margalida & Boudet 2003, Sara & Di Vittorio 2003, Margalida *et al*. 2012) and on the Balkan Peninsula (Simeonov *et al*. 1990, Vlachos *et al*. 1998, Stoyanov & Boev 2009, Milchev *et al*. 2012, Dobrev *et al*. 2016), but there are still large knowledge gaps about its diet in Central Asia, Middle East and Africa. A 9-year study of food remains, collected from Egyptian vulture nests in Bulgaria and Greece, revealed that 137 species from 32 orders and 8 classes of vertebrates were consumed (Dobrev *et al*. 2016). Most remains were from mammals (48%), followed by reptiles (29%) and birds (22%). Wild animals contributed approximately 70% to the species' diet. The most abundant species in the Egyptian vulture diet were tortoises (*Eurotestudo hermanni* and *Testudo graeca,* both constituting about 25% of the diet), and domestic chicken (*Gallus gallus domestica, 7%*). However, the importance of some food sources (e.g. from large animals) is likely underestimated because Egyptian vultures may consume primarily soft tissue from them (Dobrev *et al*. 2016). In Israel, during three years of study (1987-1989), direct observations and collection of food remains from nests and under it, including under several communal roost-sites, revealed ca. 60 species of insects, 10 species of reptiles, 30 species of birds and 20 species of mammals, altogether ca. 120 species (Levy 1990, Hatzofe unpubl. data). Quantitative data on the diet of the rest of the EVFAP population is not available. However, in an active nest in Armenia remnants from mammals, fish, birds, reptiles, amphibians and insects have been found (ASPB, unpubl. data). On the wintering grounds of Africa and the Middle East, Egyptian vulture feeds mainly on waste disposal found in the vicinity of human settlements, slaughterhouses and dump sites (Gallagher 1989, Levy & Mendelssohn 1989, Mundy *et al*. 1992, Sigismondi & Politano 1996, Cunningham 2002, McGrady 2013, Al Fazari & McGrady 2016, Arkumarev *et al*. 2014).

For overview of diet at country level see ***Annex 1, Table 1.1.***

1.4.2. Variations in dietary diversity

On the Balkans, some intra-country regional differences in dietary diversity exist (e.g. Northern vs. Southern Bulgaria), but such differences are not apparent at an international scale on the breeding grounds (e.g. Bulgaria vs. Greece; Dobrev *et al*. 2016). There was no significant difference in dietary diversity over time, but marginal changes in the proportions of tortoises (decreasing) and livestock (increasing) was found between 2006 and 2013 in Bulgaria (Dobrev *et al*. 2016).

There is a lack of data on geographical or temporal variation in the dietary diversity in the other range states.

1.4.3. Food availability and implications for conservation

Changes in food availability and diversity have been associated with territory abandonment and poor reproductive performance of Egyptian vultures in the Iberian population (Carrete *et al*. 2007, Margalida *et al*. 2012). Evidence from the Balkans shows that diet is not related to productivity, but to territory occupancy –in territories that had been abandoned diet was broader and with a higher proportion of wild animals, while occupancy rate increased with high proportion of livestock in the diet (Dobrev *et al*. 2016).

1.5. Habitat requirements

1.5.1. Breeding sites

In breeding areas, Egyptian vulture is found in mountainous open country, lowlands with canyons or plateau, often in arid regions, but also along beaches, rivers and wetland edges, and frequently near human habitations. During winter it is often seen along desert edges, Sahel, high rocky plains and ravines, steppes and other grasslands, open savannah (but not dense woodland), cultivations, rubbish dumps, harbors and villages. It can be seen at elevations from sea level (in Judea desert, Israel it actually breeds below the sea level at about -200 m; Hatzofe, unpubl. data) to about 2,000 m (occasionally above 3,000 m: at 3,600 m in the Caucasus, 3,800 m in the Himalayas, and 4,500 m in Ethiopia; Ferguson-Lees & Christie 2001).

There are few data regarding the habitat use at nesting sites of the EVFAP population. However, this subject has been widely studied in Italy and Spain (Carrete *et al*. 2007, Sara & Di Vittorio 2003). Egyptian vultures from the Balkans, Africa, the Middle East and Asia often visit local community dump sites or other constant food sources, such as vulture restaurants (Grubač et al. 2014, Arkumarev et al. 2014, Gallagher 1989, Porter & Suleiman 2012, Kurtev et al. 2008, Şen et al. 2011, Cunningham 2002, AlFazari & McGrady 2016).

Egyptian vultures typically nest on cliff ledges or caves (Sarà & Di Vittorio 2003, Kurtev *et al.* 2008, Iñigo *et al.* 2008); crags and rocky outcrops, occasionally on cliffs along the sea coast (Raikov 1965); large trees in Somalia, Sudan, Pakistan, Oman, India and the Balkans (Butler 1905, Archer & Godman 1937, Arabadzhiev 1962, Gallagher 1989, Naoroji 2006, BSPB unpubl. data, HOS unpubl. data); and on buildings (mainly in the distant past, for example, in the 19th century, hundreds of pairs have been recorded living in large cities in many countries, including Turkey (Istanbul), Bulgaria (Plovdiv), Syria (Damascus), Egypt (Cairo) and Sudan (Khartoum, Wad Medani) (Nikolov *et al.* 2013), while in ancient Egypt the species bred on the pyramids (Heuglin 1869, Nikolaus 1984, Baumgart *et al.* 1995). Birds also nest on electric pylons (Naoroji 2006) and, exceptionally, on the ground (Paynter 1924, Gangoso & Palacios 2005, Jennings 2010, Nikolov *et al.* 2013). A study (2005-2013) on the nest sites of the Egyptian vulture in Bulgaria showed that it prefers to use deep niches in cliffs. In high

quality territories and when there are not enough nesting sites available, the birds can successfully breed and raise their chicks in shallow rock niches or even on edges (Arkumarev 2014). The same study showed that most nests face south-southwest, but the highest productivity was found in nests facing east.

For overview of breeding habitat at country level see ***Annex 1, Table 1.2***.

1.5.2. Migration and stopover sites

Most of the places used during migration as stopover sites are communal dumps or places with abundant food resources, such as regions with many domestic animals or wild ungulates. Migrating Egyptian vultures appear to try to reach wintering areas as fast as possible, often not using specific stopover sites (Oppel *et al*. 2015). Data from vultures tracked via satellite (Oppel et al. 2015, Meyburg *et al*. 2004 and unpublished data of two adult birds), indicates that a high proportion of the EVFAP population migrates through Iskenderun bottleneck in Southern Turkey (Oppel *et al*. 2014).

For overview of habitat during migration and at stopover sites at country level see ***Annex 1, Table 1.2***.

1.5.3. Wintering sites

High quality telemetry data exist only from juvenile Egyptian vultures (N=19) from the Balkans (Oppel *et al*. 2015) that wintered across a vast range of the Sahel and East Africa, and had large winter home ranges (*see below*) with core use areas at intermediate elevations. The areas used during the wintering period are generally arid, with very low primary productivity. Vultures appear to spend more time in savannah and croplands than in grasslands or the desert, a pattern that is consistent with findings of other studies (Meyburg *et al*. 2004, Garcia-Ripolles *et al*. 2010). These areas are likely to be inhabited by semi-nomadic livestock herders or resident subsistence farmers whose livestock may provide a valuable and relatively predictable food source when they die (Kendall *et al*. 2014).

Juvenile Egyptian vultures winter across a vast range of the Sahel, East Africa and south part of Arabian Peninsula, and range over large areas (individual wintering home ranges sizes: 5,000 - 90,000 sq. km), with average core 50% utilization distribution 27,137 sq. km (SD ± 28,327; N = 9) at intermediate elevations in savannah, cropland or desert.

A study of Egyptian vultures wintering in Afar, Ethiopia (Arkumarev *et al*. 2014) counted over 1,000 individuals in 2009, 2010 and 2013. Nearly half of the birds were adults and the majority roosted on bird-safe types of electricity pylons. Most of the Egyptian vultures were found below 500 m above sea level, in open savannas or grasslands, and their abundance was negatively related to the amount of cover of bush vegetation. The distribution of roosting birds was not affected by distance to human settlements.

For overview of wintering habitat at country level see ***Annex 1, Table 1.2***.

1.5.4. Congregation sites

During the breeding season, Egyptian vulture congregations are formed by non-breeding individuals or those that attempted to breed and failed, usually around predictable food sources (dump sites, vulture restaurants, etc.). In the pre-migration period fledglings and adults join these congregations (Ceballos & Donázar 1990, Levy & Mendelssohn, 1989, Levy 1990). Congregation sites are known for the Balkans, both contemporary and historic (Kurtev et al. 2008, Grubač et al. 2014) but detailed studies on this subject are unavailable (just unpublished fragmentary data). About the western population plenty of data exist about many congregations that form during migration or communal roosts of non-breeding individuals (Cramp & Simmons 1980, Congost & Muntaner 1974; Donázar 1993). Since 1986 14 communal roosts of Egyptian vultures have been found in Northern Spain and Southern France, roosting mainly on trees (tall, dead trees situated < 3 km from predictable food resources are preferred; Ceballos & Donázar 1990; Margalida & Boudet 2003), but in some places also on cliffs. In Israel, in the pre-migration period, fledglings and adults congregate at roosting sites on cliffs (Levy 1990).

Based on satellite telemetry, the formation of territorial pairs and holding of a breeding territory in Egyptian vultures in Bulgaria may occur before reaching full maturity (Gradev *et al*. 2012). Floaters (non-breeding adults) and immature Egyptian vultures fly over vast areas in the breeding range (sometimes visiting their natal area) (Gradev *et al*. 2012; BSPB, unpublished data: www.LifeNeophron.eu), and these movements may be linked to recruitment.

For overview of habitat in congregation and roosting sites at country level see ***Annex 1, Table 1.2.***

1.6. Productivity and survival

1.6.1. Breeding

As a k-selected species, Egyptian vulture lives long, matures late (after its 5th year), and has relatively low productivity – successful pairs raise only 1 or 2 chicks (Cramp & Simmons 1980). The species is monogamous but seeks a replacement if it loses its partner (Carette *et al.* 2007). The species maintains exclusive breeding territories (Elosegi 1989), shows considerable fidelity to the breeding site and defends vigorously its territory against other conspecifics (Levy 1990, Dobrev 2010).

In the Balkans, Turkey, Caucasus and Central Asia the breeding season starts in March and lasts until September. Birds perform an energetic display flight with their mate (Elosegui 1989, Dobrev 2010). Breeding Egyptian vultures usually use the same nest each year, but alternative nests could be used as well (Cramp & Simmons 1980). In a study in Spain (2003-2008) 33% out of 28 pairs with several nests in the territory changed the nest from year to year. Nests are initially small and shallow heaps of twigs and little branches, covered with a layer of rags, matted hair, skin, mammal dung, wool, paper and other rubbish. The clutch comprises 1 to 3 eggs, and incubation lasts for about 42 days. Under extreme conditions (e.g. unfavorable weather, predation) the Egyptian vulture may use alternative nests for

clutch replacement (Martinez & Blanco 2002). The fledglings leave the nest when between 70 and 90 days old, and are dependent on the adults for at least one month post fledging (Ferguson-Lees & Christie 2001, Kurtev *et al*. 2008).

Unusual polyandry, involving two or three males has been observed in Israel (Levy & Mendelssohn 1988), Spain (Tella 1993) and France (Braillon 1979).

1.6.2. Productivity and factors affecting this demographic parameter

Breeding parameters are well studied in the Balkans because of regular monitoring schemes, implemented at the national level in recent decades (Velevski *et al*. 2015):

- ✓ In FYR of Macedonia, during 2006 – 2011 the proportion of territorial pairs that laid eggs was 0.9, productivity was 0.84 fledglings per monitored pair; breeding success was 0.93 fledglings per incubating pair; and fledgling rate was 1.19 fledglings per successful pair (N = 122 breeding attempts; Grubač *et al*. 2014).
- ✓ In Greece, during 1984-1994 the breeding success was 0.76, and the fledgling rate 1.59 (Vlachos *et al*. 1998). The most recent study in 2012-2016 under the LIFE+ project "The Return of the Neophron"(www.LifeNeophron.eu) revealed that the proportion of territorial pairs that laid eggs was 0.81, the proportion of successful pairs was 0.73, fledgling productivity was 0.68, fledgling rate was 1.15 (N = 46 breeding attempts of 12 pairs; 100% of the Greek breeding population; Kret 2013a, 2013b, LIFE10 NAT/BG/000152 unpubl. data).
- ✓ In Bulgaria, the fledgling rate in the 1980s was estimated at 1.5 by Baumgart (1991). A more recent study between 2005-2013 of 213 breeding attempts by 38 pairs showed the average brood size was 1.3±0.11; in 70.1% (N = 184) of the cases the brood consisted of two nestlings; no broods of three were recorded (Arkumarev 2014). Current data (2012-2016) revealed that the proportion of territorial pairs that laid eggs was 0.86, the proportion of successful pairs was 0.86, fledgling productivity was 0.93, fledgling rate was 1.26 (N = 134 breeding attempts of 29 pairs – i.e. 100% of the Bulgarian breeding population; LIFE10 NAT/BG/000152 unpubl. data).

According to Dobrev et al. (2016c), the average percentage of unsuccessful pairs per year in Bulgaria and Greece is 38% (n = 366 breeding attempts), with 37% per year for Bulgaria (2006-2015) and 48% for Greece (2011-2015). In total, 54% of unsuccessful pairs (n = 132) did not initiate breeding attempt at all, while 46% initiated a breeding attempt but failed in different stages of breeding (60% of the failures occur during incubation). In terms of known causes of breeding failure (n = 16), natural drivers were represented by lack of experience in birds (25%), predation (25%), diseases (12.5%) and weather conditions (6%), while human-induced causes were represented by persecution (19%) and poisoning (12.5%).

Compared to the population in Western Europe (e.g. Italy, France and Spain) the breeding performance in the Balkans is high (Liberatori & Penteriani 2001, Kobierzycki 2012, Del Moral 2009). Based on a PVA for FYR of Macedonia, the productivity rates have little influence on the persistence of Egyptian vulture population in the Balkans (Velevski *et al*. 2014) and it is hypothesized that, like other birds the drivers of population declines threats that reduce survival rates of adult and immature birds (Velevski *et al*. 2014, 2015; See Stahl & Oli 2006). Most likely reduced survival is due to poisoning, electrocution, food shortages

through changes in land use, reductions in the extensive pastoral systems, some veterinary and sanition practices and direct persecution (Velevski *et al*. 2015), with an emphasis on poisoning and the loss of birds outside the breeding territories (Grubač *et al*. 2014).

Relatively few data can be found for the breeding performance of the Egyptian vulture in the rest of FAP range. In Armenia, the local productivity in Khosrov reserve vaired between 1.0 (2010; N = 3 nests) and 1.25 (2002; N = 4 nests) (Ghasabyan 2011). In Northern Israel (the Golan Heights), monitoring of 6 breeding pairs in Gamla nature reserve during the years 2006-2016 (without year 2007 and 2010) revealed that brood size was 1.3±0.3, with 100% success for all nests (N = 35) that hatching occured (N = 39 breeding attamps; Hatzofe, unpubl. data). A recent study in Turkey, in a core breeding area close to Ankara, established that the breeding success was 1.00 and the productivity was 1.65 in 2010, but these parameters were lower in 2011, when breeding success was 0.7 and productivity was 0.86. The difference between the years might have been due to food shortages, as a rubbish dump used regularly by the vultures was closed in 2011 (N = 37 nests; Şen *et al*. 2011). In 2012, breeding of the non-migratory population on Masirah Island, Oman was studied, and the lowest reproductive rates ever were recorded – productivity was 0.46, breeding success was 0.82 and fledgling rate was 1.13 (N = 39 monitored nests; Angelov *et al*. 2013c; this could be due to density dependent effect as this is the second highest density population recorded in the world).

Some conservation measures, notably supplementary feeding and nest guardling, were implemented to increase productivity, as has in other obligatory or opportunistic scavengers (González et al. 2006, Oro et al. 2008). However, evidence showing significant positive impact of these measures on the Egyptian vulture reproduction is still not available (Vlachos 1998, Oppel et al. 2016).

For overview of productivity at country level see ***Annex 1, Table 1.3***.

1.6.3. Age-specific annual survival and factors affecting this demographic parameter

From the EVFAP range, data on survival rates exist only for juveniles from the Balkans (N = 19; Oppel et al. 2015): the average monthly survival probability (0.75) of juveniles in August–October was lower than after the first autumn migration had been completed; the annual survival probability was very low during their first year of life (0.3), but increased during their second year (0.6); 6% of juveniles died near natal territory before starting to migrate, 47% - on their first migration and 47% successfully completed their first autumn migration to Africa. The annual juvenile survival of Egyptian vultures in the Balkans is much lower than in the Iberian population (0.75 according to Grande *et al*. 2009). The low juvenile survival probability is unlikely to be sufficient for a stable population (Grande *et al*. 2009) and may contribute to the population declines.

Juvenile Egyptian vultures have lower survival probabilities than adults, and island populations (e.g. in Menorca, Spain and Socotra, Yemen) show much higher survival probabilities than mainland migrant populations due to the low levels of human-related mortality (Porter & Suleiman 2012, Sanz-Anguilar *et al*. 2015). These between-population comparisons suggest that survival of the young in migrant populations may be influenced

mostly by mortality factors in wintering areas, while adult survival most probably depends on threats in the breeding areas (Sanz-Anguilar *et al*. 2015).

For overview of survival at country level see ***Annex 1, Table 1.4.***

1.7. Status, population size and trend

The population is generally decreasing throughout its range (BirdLife International 2017), except for some isolated island populations in the southwestern part of Asia (Ferguson-Lees *et al*. 2001, Porter & Suleyman 2012, Angelov *et al*. 2013c).

1.7.1. Global status

The global population estimate is 12,000-38,000 mature individuals (BirdLife International 2017). The EVFAP target population consists of ca. 4,000 pairs with the most significant national population occuring in Turkey (Iñigo *et al*. 2008, Şen *et al*. 2012).

For overview of status, population size and trend at region/country level see ***Annex 1, Tables 1.5 – 1.8.***

1.7.2. Balkans

Population size: 70 pairs; several dozens ind. migrate through Greece and Turkey; occasionally few wintering individuals

Population trend: Declining (breeding population - 7% per year, for the last 30 years)

Precision of estimate: Good

Background: Once numerous over the Balkans, with hundreds of pairs recorded in the former Yugoslavia, Greece, Romania and Bulgaria (Handrinos & Akriotis 1997, Kelemen *et al*. 2006, Patev 1950), but has rapidly declined across the whole peninsula – in Bulgaria (Kurtev *et al*. 2007), Greece (Vlachos *et al*. 1998, Skartsi *et al.* 2010, Poirazidis *et al.* 2011) and the FYR of Macedonia (Grubač *et al*. 2014). As a result, Egyptian vulture has been extirpated in Croatia (Sušić 1993), Montenegro (Ljucović 1995), Bosnia and Herzegovina (Marinković *et al*. 2007), and probably Serbia (Grubač 1999), and has declined to only about 70 pairs (Velevski *et al*. 2015). Currently, there are 28 pairs in **Bulgaria**, 21-22 in **FYR of Macedonia**, 7 in **Albania**, 5 in **Greece** and 3-4 in the **European part of Turkey** (LIFE10 NAT/BG/000152, unpubl. data).

1.7.3. Central Asia and Caucasus

Population size: 700-1,300 pairs; > 500 individuals migrating over the region annually; occasionally a few wintering individuals

Population trend: Stable (or possibly declining)

Precision of estimate: Poor to medium

Background: Abuladze & Shergalin (1998) reported 48 nests in the Caucasus region and 90 all together for the Caucasus region, Tajikistan and Kazakhstan. The same authors mentioned a

decline in Moldavia and Ukraine from tens of pairs in the 20th century to only 1-2 nowadays. In the rest of the Caucasus, the status is as follows: **Russia** (Caucasian region) – overall status unknown, but the species was confirmed as breeding, with more than 30 pairs registered in the southwest of the country in the end of the 1980s and 120 – 140 pairs for the north Caucasian republics (Abuladze & Shergalin 1998), with at least 40-50 pairs in Dagestan (Dzhamirzoev & Bukreev 2008); **Georgia** – declined by about 60% from 150 breeding pairs prior to the 1990s (Abuladze 1979, 1994) to 30-50 pairs today (SABUKO, unpubl. data); **Azerbaijan** – the population is stable with the current population estimated at 200-500 breeding pairs (Sultanov *et al*. 2011, Sarukhanova 2012); **Armenia** – the species is uncommon (Adamian & Klem 1999) with a stable population currently estimated at 35 – 60 pairs (ASPB, unpubl. data); **Kazakhstan** – probably declining, with population estimated at 80 - 100 pairs (Sklyarenko & Katzner 2012); **Turkmenistan** – status unknown with population estimated at minimum 60-80 pairs (Rustamov *et al*. unpubl. data); **Uzbekistan** – population is declining (stable in the central part of the country, in southern parts there is a decline of about 26% and in western Tian Shan a large decline), and estimated at about 135 pairs in 2010 (Kashkarov & Lanovenko 2011); **Tadzhikistan** – rare, with numbers estimated between 25 and 30 pairs (Abuladze & Shergalin 1998), **Kyrgyzstan** – rather widely distributed, with population estimated at several hundreds of breeding pairs (Abuladze & Shergalin 1998).

1.7.4. Middle East

Population size: 3,000 pairs; > 2,000 individuals migrating over the region annually; > 1,000 wintering individuals

Population trend: Stable

Precision of estimate: Poor to medium

Background: According to BirdLife International (2015a), the Middle East breeding population (excluding Turkey) holds about 1,000 pairs, but recent data provided for Socotra (Yemen) and Masirah Islands (Oman) (Porter & Suleiman 2012, Angelov *et al*. 2013c), and data provided by the EVFAP questionnaires show that at least 1,500 pairs may exist. Overall population declines are reported in the region (Gallagher 1989, Levy 1996, Shobrak 2003, Jennings 2010), except for Oman (Al Bulushi *et al*. 2013) and Yemen, where the species is reported stable and increasing in the resident island populations of Socotra and Masirah (Porter & Suleyman 2012, Angelov *et al*. 2013c). The species became extinct as breeder in Jordan in the 1960s (Khoury 2000), in Lebanon (Jaradi *et al*. 2008) and probably in the United Arab Emirates (Cunningham 2002). The current status for individual countries is as follows: **Turkey** – population in decline, but probably underestimated; current population estimated at 1,500 – 3,000 pairs (Şen *et al*. 2012), while Vaasen & Aykurt (2003) report a sharp decline (75%) and population size 1,500 – 2,500 pairs; **Syria** – declining from 50 - 100 pairs in the 1990s (Levy, 1996) to only about 5 pairs nowadays (Murdoch & Betton 2008, Al Hayek, unpubl. data); **Cyprus** – only few migrating ind. per year (BirdLife Cyprus in litt.); **Israel** – large decline, from 100 – 140 pairs in the mid-1990s (Levy 1996) to ca. 55 pairs nowadays (INPA, unpubl. data); **Iran** – trend unknown, with population currently estimated at 200-400 pairs (150-200 pairs on Qeshm Island and several hundred pairs in the rest of the country; Zadegan, unpubl. data); **Iraq** – trend unknown, with population currently estimated at minimum 250 pairs (Ministry of Environment & Nature Iraq, unpubl. data; K. Ararat & R.F.

Porter, unpubl. data); **Yemen** – stable, with population density assumed to be one on the highest in the world, with the Socotra island population estimated at about 800 pairs (Porter & Suleiman 2012); **Oman** – trend unknown, with 65-80 pairs on Masirah island where population is locally increasing (Angelov *et al*. 2013c), 100 breeding pairs estimated by Jennings (2010) almost certainly too low.

The Middle East is also an important flyway for migrating Egyptian vultures, however a large decline is reported at migration observation points: **Turkey** – large decline in the last 30 years (Sutherland & Brooks 1981, Porter & Beaman 1985), with current number of individuals migrating through the country estimated at c. 1,000 (at Iskenderun Gulf, 552 individuals in autumn 2013; Oppel *et al*. 2013); **Israel** – large decline in the number of migrating individuals (autumn averages: 244 ind. in 1981-1989; 115 ind. in 1990-1999; 53 ind. in 2000-2009; 22 ind. in 2010-2014; IOC Autumn Northern Valley Migration Survey 1981-2014, unpubl. data), with an estimate of the current number of migrating Egyptian vultures at only a few dozen. For most of the other middle-eastern countries data for migration is not available. Significant numbers of Egyptian vultures winter in southern part of Arabian Peninsua (Al Fazari & McGrady 2016), however there is lack of data on overall numbers and origin of the birds.

1.7.5. Africa

Population size: unknown number of breeding pairs; > 2,000 migrating and wintering individuals annually.

Population trend: Unknown (probably declining)

Precision of estimate: Poor

Background: Africa has a resident population and is the main wintering grounds of the EVFAP population. The current status in the African EVFAP range states is as follows: **Sudan** – declining, the species no longer occurs in Khartoum region (Nikolaus 1987, 2006), and the known congregation in first half of 20th century of c. 200 individuals in the region of Port Sudan (Meinertzhagen 1954) has not been recorded over the last 2 decades (Nikolaus 2006); it is assumed that a considerable part of the Balkan population winters in south Darfur and south Kordofan areas (Hashim 2013, Oppel *et al*. 2015), Nikolaus (1984) mentioned that the species has a major breeding population in Northern Sudan but there is lack of information in recent times; **Ethiopia** – reported as a resident breeder in the Rift Valley, though no numbers are reported (Vittery 1983). The country holds probably the largest congregation of wintering Egyptian vultures in East Africa, with over 1,000 individuals annually, however a decline in these numbers has been reported over the last 5 years (Arkumarev *et al*. 2014); **Egypt** –estimated breeding population of 10 – 100 pairs in 1990s (Levy, 1996), while the current status is unknown, with a few dozen (probably hundreds) migrating individuals annually (Gabel Al-Zayt, unpubl. data); **Chad** – status unknown with only fragmentary data available (e.g. Wacher *et al*. 2013), although the country represents one of the main wintering grounds for the Balkan population (Oppel *et al*. 2015), reported as breeder in the Tibesti massif and Ennedi plateau (Mundy *et al.* 1992), the region of Abeche (Salvan 1967) and Lake Chad (Scholte 1998); **Niger** – status unknown with only fragmentary data available; some of the birds from Balkans winter in the country (Meyburg *et al*. 2004, Oppel *et al*.

2015); often seen in the Termit & Tin Toumma National Nature Reserve (Wacher *et al*. 2013), and around Malan Kudi and Dingas towns (Nikolov *et al*. 2014); **Nigeria** – status unknown, but some of the birds from the Balkans winter in northern part of the country (Meyburg *et al*. 2004, Nikolov *et al*. 2014, Oppel *et al*. 2015); **Djibouti** – status of breeding population unknown, but the country is along one of main migration corridors from the Arabian Peninsula to Africa - Bab el Mandeb - with over 1,100 individuals observed migrating in only a week during the spring 2013 (McGrady *et al*. 2013); **Somalia** – in the past the species is mentioned as common and widespread resident breeder north of 8°N but nowadays the status is unknown (Ash & Miskell 1998); **Eritrea** – status unknown, but at leat small number of migrants and wintering individuals pass through (unpublished data under the LIFE10 NAT/BG/000152 project).

2. THREATS

2.1. General overview of threats

2.1.1. Threats causing direct mortality

2.1.1.1. Human-induced causes

✓ Poisoning

Poisoning is the most important threat across the EVFAP range. It seems that in most cases vultures are not the targeted species, but rather victims of the intentional poisoning of predators or other animals causing economic damage; wildlife poisoning is a widespread practice in all countries along the flyway. Even though poisoning campaigns against predators have been banned in most of EVFAP rage states, the illegal use of poisoned baits by individuals is still common (Rondeau & Thiollay 2004, Bailey 2006, Kurtev *et al*. 2007, Kashkarov & Lanovenko 2011, Korbeti & Politis 2012, Abuladze 2013, Stoynov 2013, Bodin 2014, Skartsi *et al*. 2014, Velevski *et al*. 2015). Many cases go unreported, and the effect on vultures can be very serious. Among wild predators, the targeted species for poisoning include wolves, foxes, jackals, leopards, hyenas and jackals, targeted birds include crows and other corvid species. Among domestic animals, dogs are the most frequently targeted species (shepherd dogs, hunting dogs, stray or feral dogs) in the Balkan region (Kurtev *et al.* 2007, Korbeti & Politis 2012, Skartsi *et al*. 2014). Analyses of poisoned baits and animals suggest the most common active substances used in baits are: Methomyl, Carbofuran, cyanides, organophosphates and organochlorines. Less commonly used are: Fenthion, Methamidophos, Methyl parathion, Sulphur Malathion and Endosulfan (Korbeti & Politis 2012, Persian Leopard Newsletter No 03 – 2010, Horowitz *et al.* 2014).

Also, unintentional secondary poisoning resulting from the legal intensive use of rodenticides has had a negative impact on vultures (Mendelssohn 1973, Ostrowski & Shobrak 2001, Gradinarov & Difova 2014, Ogada, 2014, Skartsi *et al*. 2014). The effect of pesticides can be amplified if they are applied on a large scale in order to decrease the risk of some diseases affecting humans and domestic animals (Shobrak 2003, Ogada 2014). In 2014-2015, in Armenia, Egyptian vultures were observed to forage immobilized insects and rodents on a site treated with agriculturals pesticides by aircraft (ASPB unpubl. data).

In recent years poachers have poisoned carcasses of elephant or rhinoceroses to kill vultures whose behaviour might alert authorities of illegal kills (Botha 2013, Bodin 2014). There is also evidence that in some African countries (e.g. Ethiopia, which holds one of the largest known wintering congregations of the species in East Africa; Arkumarev *et al*. 2014) the large-scale poisoning (often by strychnine) of feral dogs is common to reduce risk of rabies (Abebe 2013).

✓ Hunting

Hunting vultures is an illegal practice. Hunting for economic reasons is a serious threat maily in Africa, as Egyptian vultures and other vultures are killed, and sold in black markets to be

used for superstición practices. Vulture fat, brains, heads, feet and feathers are widely apllied as 'cures' for ailments such as rheumatism and diarrhoea, and in various powders and potions to impart clairvoyance and increase intelligence in children or improve success in gambling (Ogada *et al*. 2012, Ogada 2014). Vultures are hunted for food (Koeni 2006, Wacher *et al*. 2013), and for taxidermy (Aghababyan *et al*. 2011). Vultures are also trapped and sold in markets alive (Heredia 2006, Grubač *et al*. 2014), while their nests are robbed by traders for eggs and chicks (Tewes *at al*. 2004, Sarukhanova 2011, BSPB unpubl. data). Also, see Shooting section below.

- ✓ Shooting (persecution)

Intentional and unintentional shooting is a serious threat in Africa and the Middle East, where armed people kill raptors for personal gratification (Rondeau & Thiollay 2004, Heredia 2006, Hashim 2013). In the Balkans, shooting is also a threat but at less extent (Grubač et al. 2014: 15-17 birds shot in the period 1983-2002 in FYR of Macedonia; Saravia et al. 2016: 3 birds shot in Bulgaria in the period 2008-2012). In Central Asia shepherds shoot Egyptian vultures or destroy their nests because they consider them predators of lambs (Kashkarov *et al*. 2011). Hunting tourism is an increasing business and new threat in some countries in the Mediterranean e.g. Egypt (Baha el Din 2005). Shooting incidents across the range are almost certainly under-reported.

- ✓ Electrocution

Electrocution on medium voltage power poles not designed with large birds in mind is a significant threat in breeding, migratory and wintering countries (Angelov *et al*. 2013a, Saravia *et al.* 2016). In recent years, initiatives to identify, insulate and modify "dangerous" poles, as well as to advice on bird safe designs for new power infrastructure has begun, and is an important conservation measure (e.g. the insulation of the killer power line in Port Sudan; BirdLife International 2013).

- ✓ Collision

Collision with power lines and wind farms is an increasing potential threat to the breeding and migrating birds, mainly in the Balkans where the development of wind farms has been increasing since 2000 (Iñigo *et al*. 2008, WWF Greece 2013, Xirouchakis 2014, Vasilakis *et al.* 2016) but also along the flyway where wind power industry is developing and rapidly and many wind farms are built or planed (e.g. Jordan, Israel and Egypt).

- ✓ Road kill

Locally, Egyptian vultures are victims of roadkill as the are hit by vehicles as they feed on dead animals (Shobrak 2003, Porter & Suleiman 2012, Wacher *et al*. 2013). There are reports from Saudi Arabia of Egyptian vultures being trapped in the tar on asphalt roads during high temperatures (Shobrak 2003).

2.1.1.2. Natural causes

✓ Predation

Predation of eggs and juveniles by corvids, eagle owls or mammals is generally considered a medium or low threat (Iñigo *et al*. 2008), but is important for near-extirpated populations, such as the one in Greece (Vlachos *et al.* 1998, Kret 2013).

✓ Natural barriers

Mortality of migrating, juvenile Egyptians in the Mediterranean Sea was confirmed as an important issue based on satellite telemetry study of birds from the Balkan region (Oppel *et al*. 2015): out of 19 tagged birds, 10 flew over the Mediterranean, of which nine died into the sea during their first autumn migration. Presumably this is related to the inexperience of the migrants and perhaps the lack of experienced vultures for them to follow. The success of the one vulture that did cross the Mediterranean was probably due to strong tailwinds (Oppel *et al*. 2015, Vidal-Mateo *et al*. 2016).

2.1.2. Threats resulting in decreased productivity

✓ Disturbance

Disturbance by humans significantly affects Egyptian vulture productivity by reducing the availability of nesting sites and increasing breeding failures (Zubergoita *et al*. 2008). Human activities, particularly in close proximity to the nest, influence Egyptian vulture behavior, particularly the probability of the nest being left unused/unattended, thereby increasing the possibility of nest failure (Milchev & Georgiev 2014, Zubergoita *et al*. 2014). Recreational activities, like hiking, climbing, and paragliding during the breeding season and in proximity to the nest can have a significant negative impact on breeding activities. Similar impacts result from non-recreational human activities, including logging, honey collecting, treasure hunting and mining, and construction (i.e. roads, dams, wind farms, quarries, trail construction, etc.). Most of these activities lead to increased disturbance for birds of prey, including the Egyptian vulture, and post construction effects can occur as projects move into an operational phase by increasing access. Military activity is a commonly recorded factor that can increase disturbance of breeding pairs, and negatively affecting productivity (Velevski *et al*. 2003, Balley 2006, Thiollay 2006, Iñigo *et al*. 2008, Shurulinkov *et al*. 2008, Sidiropoulos & Tsiakiris 2008, Velevski *et al*. 2010, Xirouchakis 2014). Egyptian vultures may be disturbed by low flying aircraft (BSPB, unpubl. data).

✓ Food shortage

Food shortages due to changes in land use, pastoral systems (incl. abatement of livestock breeding), veterinary and sanitation practices (reducing the mortality rate of free ranging livestock, and the requirement to farmers to bury livestock carcasses, as well as the closure of waste dumps), reduction in numbers of wild ungulates and other wild mammals, have most likely contributed to population declines in Western Europe (Tucker & Evans 1997, Bahat 2001, Baumgart 2001, Gallaro & Penteriani 2001, Iñigo et al. 2008, Donázar et al. 2009), and EVFAP range (Vaassen & Aykurt 2003, Bailey 2006, Thiollay 2006, Iñigo *et al*.

2008, Kurtev et al. 2008, Karakaş 2010, Velevski *et al*. 2010, Kashkarov *et al*. 2011, Grubač *et al*. 2014, Xirouchakis 2014, Velevski *et al*. 2015, Website of Acopian Centre for the environment 2015, Velevski et al. 2015), and also impacts heavily on breeding success. (). Nevertheless, the Egyptian vulture is better adapted than other scavenger species to address food shortages (Vlachos *et al*. 1998, Donázar *et al*. 2010, Margalida *et al*. 2012), as it has a more varied diet based not only on carcasses, but also on insects, larvae, frogs, lizards and tortoises (Dobrev *et al*. 2016). However, food shortage is not relevant as a threat for the whole EVFAP range (e.g. for Armenia; ASPB unpubl. data).

✓ Habitat loss and degradation

Habitat loss and degradation can affect Egyptian vulture occupancy and productivity. Agricultural intensification that results in the destruction of pastures and meadows, and the abandonment of more traditional agricultural practices is a main force in loss of habitat for vultures. Land use, and particularly land cover and livestock management changes (i.e. species compositon and density of livestock in the area) play a key role in determining Egyptian vulture distribution (Mateo-Tomas & Olea 2015). Abandonment of agro-pastoral practices (i.e. < 15–20 sheep and goats/km^2) is expected to negatively influence the habitats of the species. Typically agricultural intensification results in reduced biodiversity, leading, in turn to less abundant food for Egyptian vultures. Habitat loss and degradation can be a result from mining activities and the development of infrastructure such as roads, quarries, solar parks and wind farms. Apart from foraging habitat destruction, these activities can seriously affect the nesting habitat of the Egyptian vulture (Velevski *et al*. 2003, Iñigo *et al*. 2008).

✓ Competition

Competition with other species that nest in rocky areas (e.g. ravens) can possibly increase the rate of breeding failures in Egyptian vulture (Vlachos *et al*. 1998, Xirouchakis 2014, Arkumarev 2014). Breeding pairs under this type of stress may continue to occupy the nest site but fail to breed, or they might move to a nesting site of lower quality, which may affect productivity. During 2003-2007 in the Eastern Rhodopes, pairs not suffering from interspecific competition comprised 68% of the pairs that laid eggs (N = 187), but produced 91% of fledglings (Kurtev *et al*. 2008).

In addition to interspecific competition for nests, Egyptian vultures sometimes move from first-choice nests because of potential predation by mammals, eagle owls and corvids, and this may result in breeding failures (Stoyanova & Stefanov 1993, Vlachos *et al*. 1998).

✓ Low population density

Another parameter that possibly affects breeding success is the low population density, e.g. that the Balkan population is considered critically low (Velevski et al. 2015). This, combined with strong philopatry, can have two distinct impacts regarding productivity: increased inbreeding that in turn reduces fecundity and birth rates (Caro & Laurenson 1994, Gaggiotti 2003); and decreasing possibility of individuals at breeding age finding suitable partners in order to form a successful breeding pair (Xirouchakis 2014).

2.1.3. Threats affecting individual health

✓ Dangerous veterinary medicinal products

The widespread use of antibiotics and other veterinary medicinal products (VMPs) in livestock poses a serious threat to the health status of vultures. Diclofenac is a globally widely available non-steroidal anti-inflammatory drug (NSAID) that is well known for its high toxicity to *Gyps* vultures, and has caused the crash of vulture populations on the Indian subcontinent (Oaks *et al*. 2004, Green *et al*. 2004, Swan *et al*. 2006). Although populations their have started to recover since the ban in India on the sale of Diclofenac in 2006 (Galligan *et al*. 2014), it still remains a threat to vultures, including Egyptian vultures, in areas where it is still in use, such as the Middle East and Africa (Rondeau & Thiollay 2004, Bailey 2006, McGrady & Gavashelishvili 2006, Wacher *et al.* 2013). Its approval for use in Europe is a recent additional threat which requires urgent attention, and is currently under examination by the European Medicines Agency (Margalida *et al*. 2014). There is no imminent expectation that Diclofenac will be banned in Europe. Apart from Diclofenac, other NSAIDs pose a potential threat to vultures: Aceclofenac, which is structurally and pharmacologically similar to Diclofenac (Sharma 2012), Ketoprofen (Naidoo *et al*. 2010), which seems to be widely used as VMP in some of the Balkan countries (e.g. Bulgaria, BSPB unpubl. data), and Flunixin (Zorrilla 2014) which has been detected in dead vultures suffering symptoms to those arising from Diclofenac. Aspirin (acetylsalicylic acid) has been detected at a concentration of 0.067 mg/kg in Egyptian vultures from Greece during 2012-2013, but the ecotoxicological risk is considered low and there are no data on its toxicity to wild birds (Andevski & Delgado 2015).

✓ Lead poisoning

Lead from ammunition, particularly in carcasses or remains of all hunted animals can be ingested by vultures and poisoning them. Exposure to high concentrations of this highly toxic heavy metal can cause death, while chronic exposure can have sub-lethal negative effects, especially on a long-lived species, such as the Egyptian vulture, because lead can accumulate. Sub-lethal saturism can affect productivity, behavior, immune response and physiology of birds (Pain *et al*. 2009, Rodriguez-Ramos *et al*. 2009, Mateo 2009). Specifically, for the Egyptian vulture, lead accumulation can have long term effect by altering bone composition - the mineralization degree decreases with increasing lead concentration levels (Gangoso *et al*. 2009). A recent case of lead poisoning of Egyptian vulture was evidenced in the Balkans (Bounas et al. 2016).

✓ Diseases

There is little information about diseases threatening vultures and more research is needed to assess this threat. In Bulgaria, Kurtev *et al*. (2008) record symptoms of avian pox in Egyptian vultures, but the potential impact this has on the population is unknown. Since 2001, 3 individuals collected in Israel are suspected as having botulism after drinking in swage oxidation ponds (INPA, unpubl. data). In total, 49 individuals (mainly fledglings) from territories in Bulgaria and Greece were sampled for pathogens during 2012-2013 (Andevski & Delgado 2015), and analyses suggest they were in good health condition and unaffected by any obvious pathogen. The viruses Avian Adenovirus, Avian Circovirus and Newcastle

were found in low or very low concentrations, meaning that the sampled individuals had contact with these viruses, but were not sick. While these results imply nothing about vultures elsewhere in the Balkans or during other periods of time, it suggests that disease may not be a significant immediate threat to juvenile Egyptian vultures in Bulgaria and Greece. In 2014, an adult bird was severely sick when collected in the wild in Israel with blood parasite identified as Hepatozoon spp. (INPA, unpubl. data).

- ✓ Loss of genetic diversity

More research is needed to understand the impact of these processes on the conservation of the species, although preliminary results on the genetics of the Greek-Bulgarian population show fluctuations in the allelic frequency but no major loss of allelic diversity (Méndez *et al*. 2016). There is therefore currently little cause to consider this a serious threat.

2.1.4. Environmental and demographic stochasticity due to small population size

In a decling population, such as that of Egyptian vulture, every random loss of an individual is of great importance, especially in areas sheltering isolated pairs because philopatry can hinder recolonization of abandoned territories and lead to local extirpations. In addition, stochasticity that affects the sex ratio within the population (Melbourne & Hastings 2008) can make finding a mate difficult, thus leading to greater declines.

2.2. Stakeholders associated with the main threats and their drivers

For the purpose of threat analysis and to develop focused conservation actions, a stakeholder analysis was carried out (*see* ***Annex 5***). The main stakeholder groups affecting the survival of the Egyptian vulture are employed in the primary sector of the economy. These are namely livestock breeders, shepherds, farmers and hunters (the latter group should not be considered always as part of the primary sector group). Stakeholders from private and public sector business are related to the threats of habitat loss, energy infrastructure, ammunition, national pesticides'regulatory system, etc. These stakeholders, together with public administration – whether local, regional, national and international - are present in all countries along the species flyway, making them the most important stakeholder groups to be addressed for the conservation of the species. Other stakeholders, such as traditional healers in Nigeria or armed people in some countries in the Middle East, may play a significant role in certain regions or countries,

A large majority of stakeholder groups do not have a direct involvement with the species, and their activities affect Egyptian vultures only in a collateral manner. For instance, most poisoning of Egyptian vultures (a major threat in many of the flyway countries) is secondary in nature from poison baits set by livestock breeders or shepherds and aimed at predators (wolves, jackals, crows, etc.) which points out to the livestock-predator conflict as a root cause. Also, sanitation regulations that require the removal of livestock carcasses from the countryside result in reduced food availability for vultures. Nevertheless some stakeholders' activities do directly target Egyptian vultures. Such is the case of vulture use in superstitious

practices in some areas of Africa. A large illegal market in animal body parts lies behind this practice and involves different stakeholder groups, including hunters, the healers or medicine people, and the customers that believe in the power of muti. Another example of stakeholders that deliberately persecute the vultures is taxidermists and egg collectors.

2.3. Overview of major threats at regional level and problem trees

2.3.1. Identification and evaluation of the direct threats

Preliminary information on threats was collected by questionnaires for EVFAP reange states (N = 30) and literature sources. Direct threats to the target populations of Egyptian vultures were then discussed and evaluated during the EVFAP Workshop held on 5-8 July 2015, in Sofia, Bulgaria. 70 participants from 33 of the Range Countries attended the workshop (Barov et al. 2015).

For general overview of the threats at country level see ***Annex 2, Table 2.1.***

2.3.2. Balkans and Turkey (breeding)

Since 1997, in Bulgaria and Greece, a total of 61 cases of Egyptian vulture deaths (with reliable source of information/confirmation) were recorded and human-induced deaths were more frequent (57%) than natural reasons (18%) (Saravia et al. 2016). Mortality in adults and immature Egyptian vultures was mostly due to human-induced causes (poisoning in 88% of cases), while mortality in hatchlings, fledglings and juveniles was mostly due to natural causes.

On the Balkans and Turkey, **poisoning** is considered the most significant threat (Bourdakis 2003, Iñigo et al. 2008, Kurtev et al. 2008, Sidiropoulos & Tsiakiris 2009, Skartsi et al. 2010, Tsiakiris 2010, Sidiropoulos et al. 2011, Korbeti & Politis 2012, Kret et al. 2016, Saravia et al. 2016). Poisoning was identified as a critical threat in 96% of Natura 2000 sites (N = 27) for the Egyptian vulture in Bulgaria and Greece (Kret et al. 2016), and 86% of known cases of human induced mortality are due to poisoning in these countries (Saravia et al. 2016). The illegal use of poison baits is a common and the most serious threat for the breeding population in FYR of Macedonia – 60-70 individuals were poisoned on a single incident on a waste dump in 1993 (Velevski et al. 2003, Velevski et al. 2010, Grubač, 1989, Grubač et al. 2014, Velevski et al. 2015) and Albania – ca. 50% of interviewed local people in the breeding areas of the species confirm occurrence of poisoning (PPNEA unpubl. data).

Other major threats in the region were **electrocution and collisions**. Incidents of electrocution occur in Bulgaria – 1 case in 2012, and in Greece – 1 case in 2008 (Kurtev et al. 2008, Tsiakiris & Sidiropoulos 2009, Saravia et al. 2016). The threat is considered serious in FYR of Macedonia (Grubač et al. 2014) and Albania based on dangerous types of pylons in proximity to active nests (BSPB, unpubl. data).

Although there is no recorded mortality of Egyptian vultures from collisions with wind turbines in Greece, this is a potential threat in 7% of Natura 2000 sites for the species in the country (Kret et al. 2016), as griffon (*Gyps fulvus*), cinereous vultures (*Aegypius monachus*) and other large raptors have died from collisions in important Egyptian vulture areas – e.g. Crete and Evros (Xirouchakis et al. 2009, Carcamo et al., 2011, Vassilakis et al. 2011). In the

FYR of Macedonia, collision with wind turbines is considered a potentially highly important threat (Iñigo et al. 2008), and for the breeding population in Turkey, e.g. in Anatolia, as well (DD, unpubl. data).

Illegal shooting is considered a serious threat to Egyptian vulture in FYR of Macedonia - 15-17 birds shot in the period 1983-2002 (Grubač et al. 2014), Albania (Tewes et al. 2004, PPNEA unpubl. data) and Bulgaria – 3 cases since 2008 (Saravia *et al.* 2016), where birds are being killed mainly for taxidermy purposes (Kurtev et al. 2008). Cases of nest robbing have been recorded in these countries and also in Greece (Kurtev et al. 2008, Iñigo et al. 2008, Stoynov et al. 2013, Xirouchakis 2014). Illegal shooting and nest robbing were recognized as major threats in respectively 30% and 22% of Natura 2000 SPAs for the species in Bulgaria (Kret et al. 2016). However, due to the intensive national nest-guarding schemes implemented since 2012 (Dobrev et al. 2016b), nowadays this threat is not so critical in Bulgaria and Greece.

In most Balkan countries, **food shortage** has been identified as another major threat affecting Egyptian vultures – e.g. identified in 44% of Natura 2000 SPAs for the species in Bulgaria and Greece (Kret et al. 2016). It is caused by abandonment of traditional pastoralism and intensification of livestock (which results also in habitat heterogeneity loss occurring in 33% of of Natura 2000 SPAs for the species in Greece; Kret et al. 2016), as well as stricter sanitation and veterinary controls, all resulting in the reduction in available carcasses (Iñigo et al. 2008, Xirouchakis 2014, Mateo-Tomas & Olea 2015, Kret et al. 2016; but see Dobrev et al. 2016). Closures of waste dumps (Iñigo et al. 2008, Xirouchakis 2014) and the decline in tortoises (*Testudo* sp.) populations have also affected food availability for vultures (Xirouchakis 2014).

Human **disturbance**, includingrecreational activities (e.g. rock climbing) near breeding sites, is a significant threat in 37% of Natura 2000 SPAs for the species in Bulgaria and Greece (Iñigo et al. 2008, Kret et al. 2016).

Drowning in the Mediterranean Sea during the first autumn migration has been identified recently as a critical threat to juveniles from the Western Balkans (Oppel et al. 2015). Out of 23 tagged juveniles since 2010, 9 juveniles (43% of mortalities) died because of poor navigation leading to drowning in the Mediterranean Sea (Oppel et al. 2016c).

Predation of eggs and juveniles by corvids, eagle owls or mammals, and **bad health condition** are other frequent natural causes of reduced productivity and mortality mortality, explaining respectively 7% and 5% of mortality cases (since 1997) in Bulgaria and Greece (Saravia et al. 2016). These threats are considered serious also in FYR of Macedonia (Iñigo et al. 2008, Oppel et al. 2016c).

For problem tree of the main human-induced direct threats for this region see ***Figure 3***.

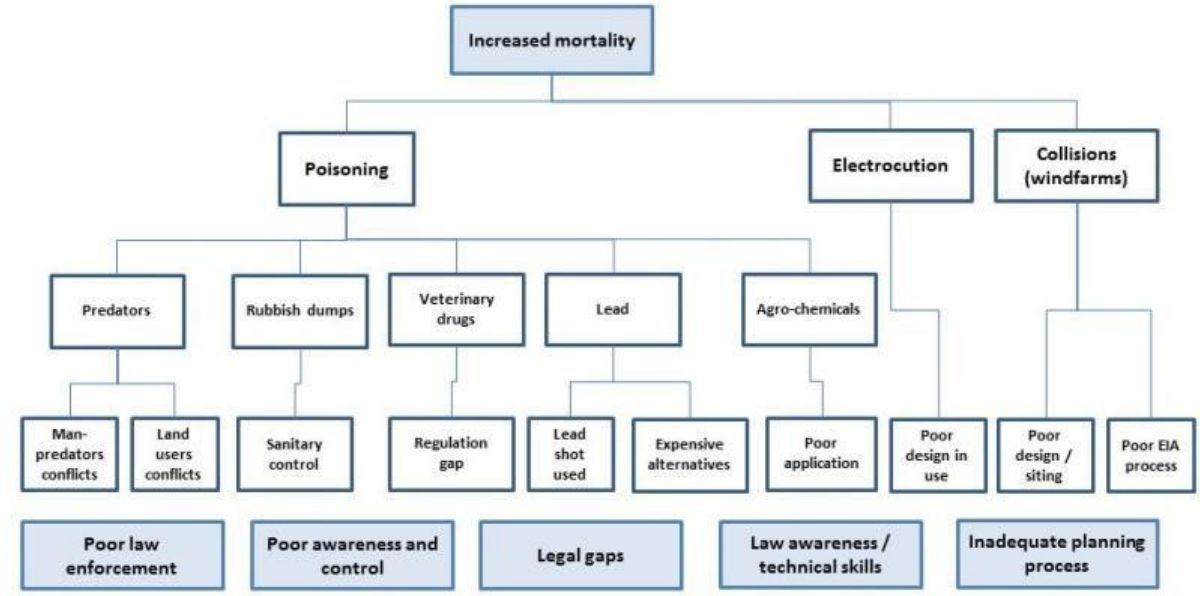

***Figure 3**. Problem Tree for the Balkans and Turkey (breeding).*

2.3.3. Central Asia and Caucasus (breeding)

Illegal killing is the main cause of mortality of the Egyptian vultures in Caucasus, and there are several records of death in traps (Abuladze 2013). In Uzbekistan, shepherds assume that Egyptian vultures kill lambs, and shoot the birds whenever possible and destroy their nests (Kashkarov et al. 2011). Shooting is considered the main cause of mortality of the Egyptian vultures in Kazakhstan (Abuladze & Shergalin 1998, Red Data Book of Kazakhstan 1978) and Turkmenistan (Rustamov, unpubl. data).

Poisoned baits against rodents, cats and dogs used in garbage sites near large urban areas in Uzbekistan represent a real danger for birds (Kashkarov et al. 2011). Poisoning is also considered to be a significant limiting factor for the breeding population in Kazakhstan (ACBK, unpubl. data) and in Caucasus (Abuladze 2013).

Disturbance and **nest robbing** are considered other significant threats in the region. Human disturbance is reported to compromise Egyptian vulture breeding in Uzbekistan (Lanovenko 2006), Armenia (ASPB, unpubl. data), and overall in Caucasus (Abulazde 2013). In Caucasus, nest robbing is considered among the main threats for the species (Abuladze 2013).

Food shortage due to the decline in livestock, intensification in animal husbandry methods, and the dramatic reduction in tortoise numbers due to commercial exploitation negatively affect the food base and reproductive potential of the Egyptian vulture in Uzbekistan (UzSPB, unpubl. data). In Turkmenistan, food shortage is related to decline in number of wild ungulates and small livestock (Rustamov, unpubl. data).

Locally, **electrocution** is considered a serious threat in Kazakhstan (Lasch et al. 2010).

Overall the data from the region is insufficient and results are based on expert opinion (*for problem tree for this region see **Figure 4***).

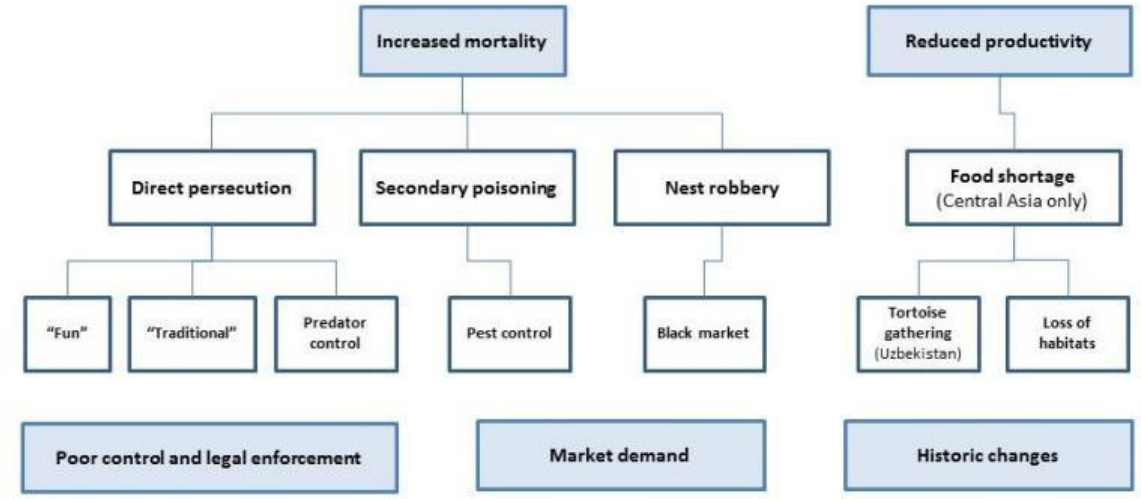

Figure 4. *Problem Tree for Central Asia and Caucasus (breeding).*

2.3.4. Middle East and Turkey (migratory)

The main threats in the region are considered illegal shooting, poisoning (direct and secondary poisoning, and also lead poisoning), followed by electrocution and collisions, and at lesser extent disturbance, road accidents, diseases (e.g. Botulism in Isreal; INPA unpubl. data) and habitat loss.

In Israel, the use of **poison baits** in the past for the control of rabies and jackal populations led to the decrease of griffon vulture populations in 1960s (Mendelssohn 1973). Although now prohibited, some farmers and livestock breeders continue to use poison for the control of wild canids, feral dogs, wild boars and hyenas. In 2015, two poisoning events of 9 Griffon, 2 Cinereous vultures and one adult Egyptian vulture were recorded in the northern part of the country (INPA unpubl. data). The illegal use of poison baits against large predators and feral dogs constitutes a critical threat in Turkey too (Iñigo et al. 200, DD unpubl. data).

Illegal killing is a negative factor in Turkey (Iñigo et al. 2008, DD, unpubl. data), Lebanon (SPNL, unpubl. data) and Syria (SSCW, unpubl. data).

Electrocution and **collision** is considered a threat in Turkey (DD unpubl. data) and Israel (INPA, unpubl. data). Bougain and Oppel (2016) identified 10 wind farms (with 5 to hundreds wind-turbines) located in the migration bottleneck sites in Turkey (e.g. in Gulf of Iskenderun and Central Anatolia).

In Turkey there is a rapid process of **habitat loss** and **food shortage**, i.e. intensive change in land uses from pastures/grasslands to irrigated agriculture and the abandonment of traditional land use practices (such as traditional husbandry and transhumance) (Karakaş 2010) resulting in lower availability of carcasses. Construction of large dams, hydroelectric powers plants and mines negatively impacts Egyptian vulture in the country (Shurulinkov et al. 2008, Biricik & Karakaş 2012, Şen 2012). Changes in dump site types are also considered an important threat in relation to food availability (Arkumarev et al. 2012).

Little evidence regarding threats was found for the rest of the Middle Eastern countries. *For problem tree for this region see* ***Figure 5***).

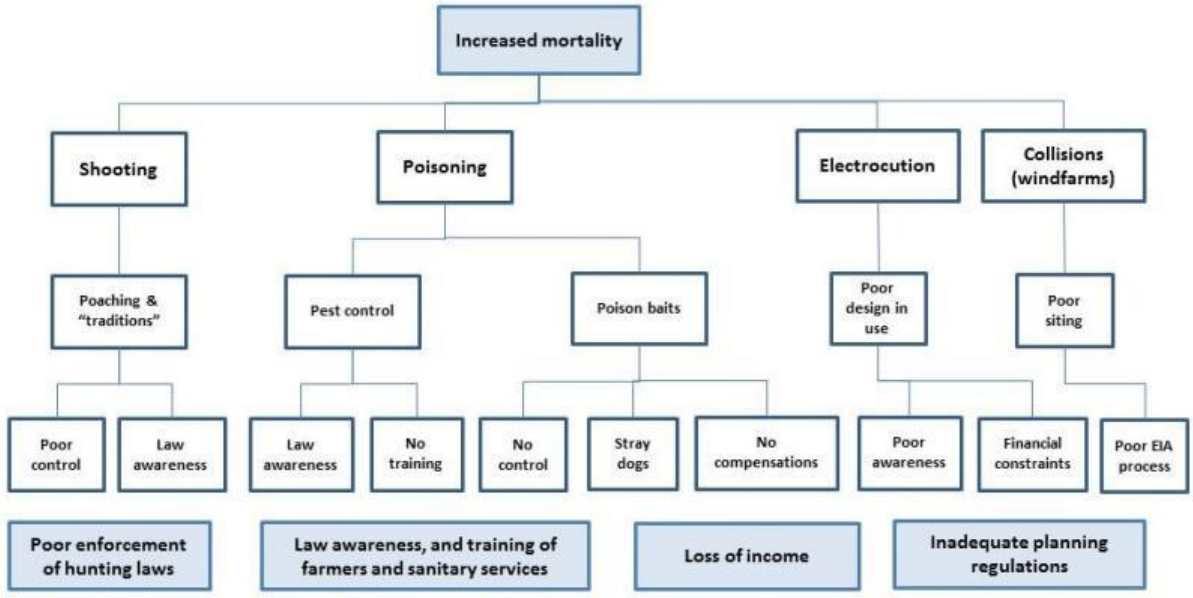

Figure 5. *Problem Tree for the Middle East and Turkey (migratory).*

2.3.5. Africa (non-breeding)

NB: Only the migrating populations were considered here, not resident ones.

Poisoning is considered a major threat for the Egyptian vultures in Africa. Nomads protecting their livestock from predators (e.g. jackals and hyenas) use poison baits that have caused large declines in scavenging bird numbers (Thiollay 2006). In some African countries (e.g. Ethiopia) poisoning is used to control feral dogs and reduce rabies (Abebe 2013).

Whereas **Diclofenac** is less established in Africa (Rondeau *et al.* 2004, Wacher *et al.* 2013), it is supposed that other NSAIDs with the same nephrotoxic properties are in use (Thiollay 2006).

Electrocution in Sudan, due to poorly designed power poles, is proven to be a critical threat for the survival of the species as both adults and juveniles are severely affected (Angelov et al. 2013). This threat is very likely to be prevalent elsewhere in Africa, and is a key current knowledge gap that needs to be addressed.

Egyptian vultures are being **persecuted** for use in superstitious practices and for the traditional medicine market (Ogada et al. 2012, 2014, Wacher et al. 2013).

Despite early complete lack of data from the region the threats were analysed by best expert opinion. F*or problem tree for this region* see ***Figure 6***.

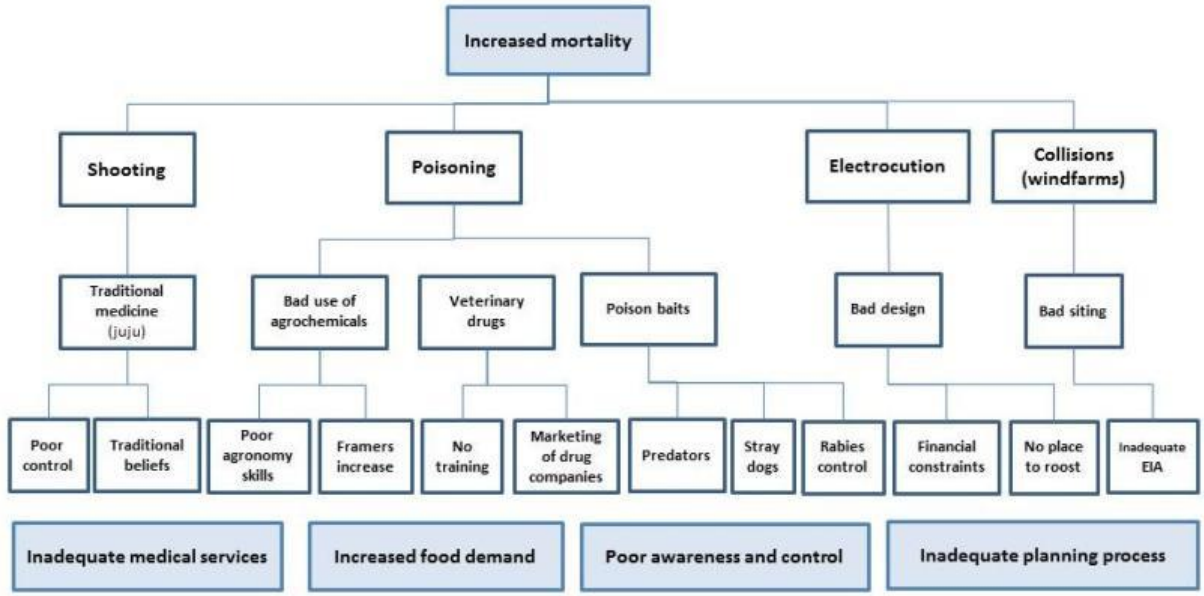

Figure 6. *Problem Tree for Africa (non-breeding).*

<u>Conclusion:</u> The major common threats along the flyway are poisoning, electrocution, collisions, and illegal killing.

2.4. Population Viability Analysis

The PVA carried out for the FYR of Macedonia indicates high probability of total species extinction in the country within 50 years (Velevski *et al*. 2014). Productivity rates do not affect significantly the persistence of the population and actions aiming in reducing mortality of adults should be conducted not only in breeding sites, but also along the flyway. Supplementation of population could be considered (with releasing 4-8 juveniles per year to achieve a positive effect on the viability of the population), only if the programme is accomplished together with *in-situ* conservation measures to mitigate the threats (Velevski et al. 2014).

PVAs for similar small and isolated Egyptian vultures populations in Spain suggest that:

- ✓ Only by combining different management actions in the breeding area, especially the removal of the most important causes of human-related mortality (poisoning and collisions on wind farms), will the population grow and persist in the long term. Population supplementation may also have positive effects but only in combination with addressing the causes of non-natural mortality (Sanz-Aguilar et al. 2015b);
- ✓ Because it has the greatest influence on population dynamics, conservation efforts will be more effective if concentrated on improving adult survival. A continuous influx of birds will support the positive trend of the population (the number of pairs in this region increased from one to 22 in the period 1988–2012; Tauler et al. 2015).

3. POLICIES AND LEGISLATION RELEVANT TO MANAGEMENT

3.1. International conservation and legal status

3.1.1. International legislation and policies

Global status (IUCN)	EU Birds Directive	Bern Convention	Bonn Convention	CITES
Endangered	Annex I	Annex II	Annex II	Annex II

The Egyptian Vulture was uplisted to the IUCN Red List category globally "Endangered" (EN) in 2007 due to the rapid population decline in most of its range especially across Europe, Africa and India (Birdlife International 2015b).

- ***Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention - CMS)***

Category: Appendix I

Aim: Comprises migratory species that have been assessed as being in danger of extinction throughout all or a significant portion of their range. Parties that are a Range State to a migratory species listed in Appendix I shall endeavour to strictly protect them by: prohibiting the taking of such species, with very restricted scope for exceptions; conserving and where appropriate restoring their habitats; preventing, removing or mitigating obstacles to their migration and controlling other factors that might endanger them.

Existing instruments:

- ✓ CMS Resolution 11.15 – Preventing Poisoning of Migratory Birds;
- ✓ CMS Resolution 11.16 – Preventing 'IKB' (migratory birds);
- ✓ CMS Resolution 11.27 – Multi-stakeholder Energy Task Force.

- ***Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)***

Category: Appendix II

Aim: To ensure that international trade in specimens of wild animals and plants does not threaten their survival. Appendix II includes all species that although are not necessarily under immediate threat of extinction may become so unless trade in species is subject to strict regulation.

- ***Convention on the Conservation of Biodiversity (CBD)***

Aim: To contribute to the conservation of endangered species through the development and realization of Action Plans and other strategic tools.

- ***Directive 2009/147/EC of the European Parliament and of the Council on the Conservation of Wild Birds (EU Birds Directive)***

Category: Annex I

Aim: to protect wild birds and their habitats, e.g. through the designation of Special Protection Areas (SPA). The directive states that species listed in Annex I 'shall be subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution' and that 'Member States shall classify in particular the most suitable territories in number and size as special protection areas for the conservation of these species, taking into account their protection requirements in the geographical sea and land area where this Directive applies '.

Existing instruments:

- ✓ EU LIFE Programme (can include actions outside of the EU).

- ***European Community (1992) Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (EU Habitats Directive)***

Although bird protection is not subject directly to this Directive, the Habitats Directive (together with the Birds Directive) forms the cornerstone of Europe's nature conservation policy. It requires special conservation measures concerning the habitats of bird species listed in Annex I of the Birds Directive (including the Egyptian vulture) in order to ensure their survival and reproduction. The Habitats Directive is built around two pillars: the Natura 2000 network of protected sites and the strict system of species protection. In its entirety the Directive protects over 1,000 animals (excluding bird species) and plant species and over 200 'habitat types' (e.g. special types of forests, meadows, wetlands, etc.) of European importance (breeding sites of Egyptian vulture in the Balkans often refer to habitats listed in Annex I of this Dirrective).

- ***Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)***

Category: Appendix II

Aim: to maintain populations of wild flora and fauna with particular emphasis on endangered and vulnerable species, including migratory species. Each Contracting Party shall take appropriate and necessary legislative and administrative measures to ensure the special protection of the wild fauna species specified in Appendix II.

3.1.2. Relevant policy instruments for cross regional cooperation (north-south)

- ***Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia (Raptors MoU)***

Category: Annex I

Aim: to conserve terrestrial, aquatic and avian migratory species throughout their range. It is an intergovernmental treaty concluded under the aegis of the United Nations Environment Programme. It concerns the conservation of wildlife and habitats on a global scale.

The Egyptian vulture is listed under Annex I. Annex I includes strictly protected fauna species. The migratory route of the Egyptian vulture population covered by this Flyway Action Plan coincides with the geographical scope of the Range States and territories listed in Annex II.

- ***EU African Wildlife Strategy: Opportunities for migratory birds and vulture conservation in Africa***

The European Union is in the initial stage of developing a well-rounded strategy to protect African wildlife. The strategic approach developed herein primarily aims to conserve large functioning ecosystems or landscapes supporting key African wildlife populations. It contributes to wider goals of biodiversity conservation by, for example, protecting many small areas of outstanding importance to particular threatened taxa where those small areas fall within larger conservation landscapes. A secondary tactic supporting wider biodiversity goals is to make conservation funds available to agencies and projects protecting small important sites that cannot be contained in the larger key landscapes identified. A technical document outlining the design of the strategy has been published (AGRER 2014).

- ***Capacity Development for Flyway Conservation in the Mediterranean (Mediterranean Flyway Strategy, BirdLife - MAVA project)***

The Capacity Development for Flyway Conservation in the Mediterranean project aims to strengthen a dynamic network of conservation NGOs that work effectively with local people, national governments, and the international community to protect key migratory species, sites and habitats in the Mediterranean region.

http://www.birdlife.org/worldwide/projects/working-together-protect-migratory-birds-mediterranean

3.2. National legislation and policies

The Egyptian vulture is protected by national legislation in 16 of the EVFAP range states but has no legal protection in Chad, Djibouti, Iraq, Nigeria and Turkmenistan, and its legal status is uncertain in Egypt, Ethiopia and Sudan (***Annex 3, Table 3.1***).

In the Range States with full legal protection, the maximum financial penalties for taking and killing range from 330 USD (Lebanon) to 33,000 USD (Greece). Imprisonment of offenders is also given as a possible punishment in Greece, Kazakhstan, Lebanon and Niger, with terms ranging from one month (Lebanon) to 6 years (Niger).

3.3. Key sectoral programmes and ongoing activities relevant to management

An overview of the key sectoral programmes that may be relevant to the conservation of the Egyptian vulture is included in ***Annex 3, Table 3.1.***

The species is affected by the European policies on agriculture, particularly regarding the livestock sector and veterinary regulations. The Pillar II measures of the Common Agricultural Policy related to sustainable land management (Less Favored Areas Compensatory payments, agro-environmental measures and support for diversification of economic activities in rural areas) could play a key role in addressing the threats affecting the species. The recent significant increase in wind farms triggered by the regional (e.g. EU) and national renewable energy policies has led to the increase in collision incidents. Infrastructure development planning and impact assessment is another policy area affecting the species and its habitats.

The species is affected, but to a lesser extent, by forestry policies, in particular reforestation schemes that reduc foraging habitats; disturbance caused by forestry operations in proximity to nest sites can cause nest abandonment and breeding failure.

3.4. Species Action Plans

- ✓ **Regional SAPs**

EU SAP (Iñigo et al. 2008):

In 2008, after the up-listing of the Egyptian vulture to Endangered, the EU SAP was initiated by BirdLife International and SEO (BirdLife Spain) and developed with the help of contributions from European experts. The overall Goal of the European Species Action Plan was to improve the conservation status of the Egyptian vulture globally and in Europe, leading to its down listing to Least Concern and eventually achieving a favorable conservation status of the species across its European range. The Objective of the action plan was to achieve the down listing of the European population to Vulnerable at European level by 2018 following a population increase after 2015. The indicators used to assess the success of the action plan were: (1) The trend of the breeding population size stabilizes or becomes positive by 2015 as evidenced by national and regional monitoring programmes; (2) Population growth rates of key national populations, as evidenced by local and national monitoring programmes, are positive and above the mean annual rate of 3%, at least in the following countries: Portugal, Spain, France, Bulgaria, Greece and FYR of Macedonia. The expected results were: (1) Reduced Egyptian vulture mortality in Europe to levels allowing population growth; (2) Improved food availability and habitat quality for the species in its European range; (3) Updated and precise knowledge about population numbers and trends from all European countries with breeding populations.

In 2015, the CU Raptors MOU commissioned VCF to review and evaluate implementation of the existing EU SAP. In conclusion: (1) The species continues to decline in Europe; (2) Overall, the EU SAP implementation was not very good; (3) Per countries analysis showed good implementation in Spain, France and Bulgaria; (4) The EU SAP implementation seems to be

effective in terms of tackling poison, food availability and disturbance; (5) The EU SAP implementation was significantly better in countries where EU funding was available; (6) At EU level, there were no differences in the level of threats and their prioritization for the period of implementation.

BVAP (Andevski 2013):

The vulture populations of the Balkan Peninsula and surrounding regions reached a critical conservation status arond the end of the 20th century - beginning of the 21st, despite attempts in some countries to reverse trends. Of the four species, the Bearded Vulture (*Gypaetus barbatus*) and the Black Vulture (*Aegypius monachus*) are now on the edge of regional extinction. The main cause for this decline and critical limiting factor for their recovery is the use of poisons against wild predators that affect (or hypothetically affect) human activities (mainly livestock farming and hunting). This is not the only threat affecting the vultures in the region, as they also face a lack of food and loss of habitat. In terms of collisions with energy infrastructure, the development of wind turbines in sensitive areas is a new and increasing threat. Much conservation work has been initiated in relation to the BVAP (financially supported by the BVCF/VCF & FZS) to mitigate the main threats and coordinate research and conservation efforts for vulture conservation at a Pan-Balkan level.

- ✓ **National SAPs:**

In most EVFAP Range States, national SAPs have not been developed (*see* ***Annex 4, Table 4.1***). In the Balkans, a government endorsed national SAP is available only in Bulgaria (Kurtev et al. 2008), while in Greece the national SAP is ready (Xirouchakis in prep.) but not yet endorsed. In Central Asia and Caucasus a national SAP is available only for Uzbekistan (Kashkarov et al. 2011). There are no national SAPs in the Range States of the Middle East and Africa.

3.5. Identified legislation gaps

While the Egyptian vulture is fully protected in 16 Range States, it has only partial protection in two countries and no legal protection in 5 of the range states to which FAP applies. It is therefore a priority for the species to be safeguarded with the necessary legal protection throughout its range.

In many countries that have a penalty system in place, it is clear that these penalties are neither adequate to prevent persecution of the species, nor effectively enforced. A priority of this action plan must be that penalty systems be rigorously enforced and made effective.

The status of the Egyptian vulture is uncertain in three states that completed a questionnaire, and eight states that did not return the questionnaire. The legal protection status in these states must be identified, and action taken where necessary.

4. CONSERVATION BACKGROUND

4.1. Cultural value and attitude toward the species

In general, the public attitude towards the Egyptian vulture in the Balkan countries is good (Stara *et al.* 2016), in Central Asia and Caucasus is mostly unknown (but locally negative), in the Middle East the attitude is mostly neutral or unknown (but locally negative or there is ignorance of authorities towards conservation in action), and in Africa the attitude is mostly unknown (but again, locally again there is lack of political will for conservation in action).

The cultural value of the Egyptian vulture is a key issue related to both the motivation and challenges to conserve the species. It is one of few emblematic species of major cultural value – a real living legend in Europe, much of Asia and Africa. There are many local myths, legends and beliefs related to the species, which contribute to the the overall positive attitude in some local communities and therefore towards conservation opportunities: the bird is considered sacred, bringer of spring, as a Pharaoh's chicken, a symbol of wisdom, purity and motherhood, etc. On the other hand, vultures are used in superstitious practices in parts of Africa (because of the beliefs that they provide protection against evil, enhance fertility, magic, combat malaria, endow clairvoyance and facilitate contact with deceased ancestors). Locally, the Egyptian vulture is related to negative attitude of local communities in some countries in Central Asia due to the belief that species attacks livestock (Uzbekistan and Turkmenistan; Kashkarov *et al.* 2011) and in the Middle East because of the association with death or as it is seen as lazy and unclean as it feeds on rubbish dumps (Oman; Angelov *et al.* 2013c). In Oman, at least, this negative view does not necessarily translate into persecution, rather indifference about their fate (McGrady, in litt.).

4.2. Recent research and conservation actions

- ✓ **Research and monitoring**

In the Balkans, there has been an intensive monitoring programme of the Egyptian vulture population over the last 14 years, and the distribution, population size and trends are known (Velevski et al. 2015), as well as its breeding parameters (Oppel et al. 2016). Locally, research has been conducted on population viability (Velevski et al. 2014), diet (Dobrev et al. 2016), migration (Meyburg et al. 2004, Gradev et al. 2012, Oppel et al. 2015), threats (Gradinarov & Difova 2014, Skartsi et al. 2014, Kret et al. 2016), mortality factors in the breeding grounds (Saravia et al. 2016), along the flyway and in wintering grounds (Angelov et al. 2013c, Arkumarev et al. 2014, Oppel et al. 2015), toxicology and bacteriology (Andevski & Delgado 2015), genetics (Mendez et al. 2016) and habitat use (Oppel et al. 2016b). Furthermore, there was an effort to test the effectiveness of some traditional conservation actions, such as supplementary feeding and nest guarding (Oppel et al. 2016).

The ongoing efforts are focused on the following objectives and activities:

- ✓ Monitoring population status
  - Breeding territory occupancy and productivty

- Habitat use, diet and health status

✓ Increase knowledge of current status of the population
- Identification of temporary settlement areas, dispersal, migration patterns and wintering areas using satellite telemetry

✓ Arresting population decline (through increasing breeding success and reducing mortality on the breeding grounds)
- Supplementary feeding
- Nest guarding
- Insulation of dangerous power lines
- Study the reasons for breeding failures and mortality factors
- Application of measures to mitigate/resolve human-carnivore conflict
- Work against wildlife crime
- Agri-environmental measures

✓ Raising public awareness
- Communication activities and awareness programmes aimed at local stakeholders

In Central Asia and Caucasus, field research has been conducted mostly to determine distribution and breeding population size – e.g. in Azerbaijan (Sarukhanova 2012) and in Uzbekistan (Kashkarov et al. 2011).

The ongoing efforts are focused on the following objectives and activities:

✓ Increase knowledge about current status of the population
- Identify population distribution, numbers and breeding parameters
- Study the key limiting factors and threats

✓ Safeguard the species (locally)
- Appropriate management of dump sites
- Supplementary feeding
- Identification of IBAs for the species

✓ Raising public awareness

In the Middle East, there are published results research activities on the species in very few countries. This is mostly related with local studies on migration (Buechley & Sekercioglu 2013) and bottlenecks (Oppel et al. 2014), the monitoring of the breeding population and productivity in Turkey (Şen & Tavares 2010, Şen et al. 2011, Şen et al. 2012),), Israel (annual breeding surveys, tagging of nestlings, etc.) and Oman (Angelov et al. 2013c), and the monitoring of species numbers (e.g. in Lebanon and UAE and Oman; Al Fazari & McGrady 2016). Satellite radio tracking (egyptianvultureoman.blogspot.com) and rubbish dump counts (ESO unpubl. data) have been undertaken in Oman.

The ongoing efforts are focused on the following objectives and activities:

✓ Monitoring of population status
- Monitoring of population numbers and breeding parameters
- Monitoring of dumpsites

✓ Increase the knowledge of current status of the population

- Satellite tagging (study of movements, feeding behavior and threats)

✓ Population decline halted
- Work to decrease illegal shooting
- Insulating dangerous electricity pylons
- Supplementary feeding
- Identifying IBAs for the species and creation of protected areas
- Reducing human-carnivore conflict by appropriate sanitation practices (collecting most of the livestock carcasses to reduce numbers of feral dogs and predators)
- Reintroduction: captive breeding, acclimatization and release

✓ Raising public awareness
- Presentations and meetings with local stakeholders
- Initiation of socio-economic incentives related to EV

Recent research in **Africa** with relevance to the Balkan, Central Asian and Caucasian populations of Egyptian vulture is fragmentary and was mostly focused on the migration and wintering of the species (Meyburg et al. 2004, McGrady et al. 2013, Arkumarev et al. 2014, Oppel et al. 2015), threats (Angelov et al. 2013b) and mapping of the species distribution (Wacher at al. 2013, ARDB 2016).

The ongoing efforts are focused on the following objectives and activities:

✓ Increase the knowledge on current status of the population
- Identify distribution and numbers of breeding, migration, wintering population

✓ Population decline halted
- Develop policies/legislation for protection
- Applying shutdown on demand system
- Post construction monitoring
- Identifying IBAs for the species and declaring of protected areas

✓ Raising public awareness

✓ **Conservation actions**

In the **Balkans**, conservation actions in the last 10 years have been broad-scale and diverse. These include mostly awareness activities, maintenance of a network of supplementary feeding stations – so called “vulture restaurants”(in Bulgaria, Greece and FYR of Macedonia), supplementary feeding of individual pairs and nest guarding (Bulgaria and Greece), anti-poison work (Greece and FYR of Macedonia), development on agri-environmental measures for the species, insulation of dangerous powerlines, efforts to strengthen the prevention of wildlife crime and creating captive stock for future breeding programmes (Bulgaria).

In **Central Asia and Caucasus**, there are very few, mostly indirect conservation efforts related mostly to the inclusion of the species in national Red Data Books (Azerbaijan and Turkmenistan) and the development of national SAPs (Uzbekistan). In the IBA Noravank (Armenia) Egyptian vultures are regularly provided supplamentery food during the breeding season (ASPB unpubl. data).

In the **Middle East**, conservation activities are mostly related to raising public awareness (Lebanon, Israel, and Oman) but also supplementary feeding, insulation of dangerous power lines, controlling low altitude military and civil flights in breeding area, captive breeding and reintroduction programmes (Israel).

In **Africa** there have been only very few conservation actions, mainly related to awareness campaigns (Niger), securing dangerous powerlines (Sudan), and EIA studies at wind farm projects along the flyway (Egypt).

For details about research and conservation activities per Range State over the last 10 years, see ***Annex 4, Table 4.1*** and for details about ongoing activities see ***Annex 4, Table 4.2.***

4.3. Proposed strategic direction for conservation

- ✓ **Conservation priorities:**
  - Reduce threats from all types of poisoning
  - Reduce illegal killing, trade and disturbance
  - Prevent electrocution and collisions (turbines)
  - Build capacity in Central Asia, Africa and Middle East
  - Promote research
  - Improve exchange of information
- ✓ **Mechanisms to promote conservation priorities**
  - Coordination mechanism(s)
  - Information exchange
  - Support of MEAs, Governments, NGOs, etc.
- ✓ **Existing instruments**
  - Convention on Biological Diversity (CBD) – National SAPs
  - CITES (International Consortium on Combating Wildlife Crime)
  - Convention on Migratory Species (CMS) - Raptors MoU
  - CMS Resolution 11.15 – Preventing poisoning of migratory birds
  - CMS Resolution 11.16 – Preventing illegal killing of migratory birds
  - CMS Resolution 11.27 – Multi-stakeholder Energy Task Force
  - EU LIFE Programme (can include actions outside of the EU)
  - EU African Wildlife Strategy (European Commission DG DEVCO)
  - Bilateral donors, GEF, Foundations, Grants, etc.
- ✓ **Needs:**
  - Long-term research and monitoring
  - Designation of protected areas (outside the EU)
  - Building conservation capacity
  - Improving exchange of information
  - Coordination of NGO driven initiatives
  - Partnerships with industry (e.g. energy, agriculture)
  - Improving awareness-raising and publicity

5. FRAMEWORK FOR ACTION

5.1. Goal, purpose, objectives, expected results and actions of the EVFAP

GOAL					
The overall long-term goal of the Action Plan is to improve the conservation status of the Egyptian vulture, leading initially to its downlisting to Vulnerable and eventually achieving a favorable conservation status of the species across the FAP range.					
PURPOSE					
By 2026 halt the downward trends in the declining meta-populations while maintaining stable or increasing trends for the healthy ones.					
OBJECTIVES					
Objective 1: Significantly reduce mortality due to poisoning					
Objective 2: Significanltly reduce mortality due to illegal killing					
Objective 3: Significantly reduce the risks of electrocution and collision with energy infrastructures					
Objective 4: Enhance the size and productivity of breeding populations					
Objective 5: Ensure endorsement and effective implementation of the the EVFAP by all Range States					
EXPECTED RESULTS AND ACTIONS	**Priority**	**Time scale**	**Region**	**Organizations responsible**	**Budget estimation**
Expected result 1: Effective surveylance, prevention, investigation and enforcement of anti-poison work carried out in all range states.					
1.1. Improve detection methods, capabilities and understanding of the causes and occurrence of poisoning: 1.1.1. Adapt common survey methods and protocols, enhance exchange of information and know-how, and increase capabilities for monitoring. Investigate the motives for illegal poison use; 1.1.2. Establish a centralized database to store systematic data on mortality, poison use and toxicology analyses; 1.1.3. Establish specialized toxicology labs with qualified personnel where feasible; 1.1.4. Study the effect of NSAIDs and lead poisoning on health status and population productivity.	High	Medium	All	✓ Relevant national authorities; ✓ Conservation GOs and NGOs; ✓ Research organisations, Universities, consultants.	€€€
1.2. Introduce preventive anti-poison measures: 1.2.1. Introduce Anti-poison dog patrols in key sites for the	High	Medium	Balkans	✓ National governments; ✓ Relevant national authorities; ✓ Conservation GOs and NGOs.	€€€€

species; 1.2.2. Introduce dedicated Wildlife Crime Units in relevant authorities. Incentivize reporting and successful persecution violation; 1.2.3. Increase the use of preventative measures to reduce wildlife conflicts with livestock (e.g. shepherd dogs, fences, etc.). Where appropriate, introduce wildlife damage compensation schemes.					
1.3. Law enforcement relevant to anti-poison work: 1.3.1. Strengthen the control of agro-chemicals on the market (nationally) and at the individual farms (locally). Introduce amnesty for handling over illegal pesticieds in stock; 1.3.2. Improve the control over pest control measures; 1.3.3. Penalize land owners/managers when poisoning incidents occur on their land; 1.3.4. Strengthen legal control over the use of poisonous substances in line with the CMS Resolution 11.15 and Bern Convention.	Essential	Long	All	✓ National governments ✓ Relevant national authorities.	€€€€
Expected result 2: Improved legal protection, prevention, control and judicial response to illegal killing ensured in all range states.					
2.1. Improve detection methods and understanding of the motives of illegal killing: 2.1.1. Improve survey methods and protocols for monitoring illegal killing. Maintain adequate records and exchange information; 2.1.2. Improve understanding of motivation of illegal shooters in order to develop adequate response actions (e.g. awareness raising, stakeholder engagement, etc).	Medium	Medium	Central Asia & Caucasus, Middle East, Balkans	✓ Relevant national authorities; ✓ Conservation GOs and NGOs; ✓ Research organisations, Universities, consultants.	€€
2.2. Introduce measures to prevent illegal killing: 2.2.1. Establish and train dedicated Wildlife Crime Units in relevant authorities. Ensure shooting patrols at	Medium	Medium	Middle East	✓ Relevant national authorities; ✓ Conservation GOs and NGOs.	€€€€

bottleneck sites and hot spots of illegal shooting. Incentivize reporting and successful persecution of violators; 2.2.2. Promote alternative hobbies to leisure shooting (e.g. wildlife photography).					
2.3. Improve legislation and law enforcement to mitigate illegal killing: 2.3.1. Strengthen the legal protection of the species (where necessary reinforce penalties), including through designation of new protected areas. 2.3.2. Improve the control on fire arms and hunting licenses where necessary; 2.3.3. Improve border controls and CITES regulations enforcement to prevent trade of specimens; 2.3.4. Close down illegal animal trades on black markets..	Medium	Long	Central Asia & Caucasus, Middle East, Africa	✓ National governments; ✓ Relevant national authorities.	€€€€
Expected result 3: Effective planning, mitigation and retrofitting measures implemented on energy infrastructures in sensitive areas through implementation of CMS Resolution 10.11 by all range states.					
3.1. Improve detection methods and knowledge on the sensible areas for electrocution and collision with energy infrastructures: 3.1.1. Adopt common survey methods and protocols for monitoring electrocution and collision with power infrastructure. Organize regular exchange of knowhow and information among utility companies; 3.1.2. Collect and analyse evidence on mortality due to electrocution and collisions (incl. online database, pre- and post- implementation assessments) and publish results; 3.1.3. Identify migration bottleneck and congregation sites. Produce sensitivity maps for wind farm and powerline siting: map, assess and prioritize the powerlines and wind farms for electrocution and collision risks;	High	Short	Balkans, Middle East, Africa	✓ Relevant national authorities; ✓ Conservation GOs and NGOs; ✓ Research organisations, Universities, consultants; ✓ Electric utility companies; ✓ Infrastructure developers.	€€

3.1.4. Identify appropriate mitigation measures (incl. explore new approaches) to reduce collision and electrocution risk of birds with energy infrastructure and monitor their effect.					
3.2. Implement mitigation and retrofitting measures on energy infrastructures in sensitive areas: 3.2.1. Replace/retrofit dangerous infrastructure as appropriate (underground, insulation, diverters, etc.); 3.2.2. Adapt siting and design of new energy infrastructure at planning stage to take into account sensitivity maps (incl. apply new approaches to reduce collision and electrocution risk).	Essential	Long	Balkans, Middle East, Africa	✓ National governments; ✓ Relevant national authorities; ✓ Electric utility companies; ✓ Infrastructure developers; ✓ Conservation GOs and NGOs.	€€€€
3.3. Law enforcement to mitigate electrocution and collision with energy infrastructures: 3.3.1. Improve control of EIA and SEA procedures and the quality of mitigation measures (where necessary); 3.3.2. Encourage sign up to MEAs and international treaties (where needed);	High	Long	Balkans, Middle East, Africa	✓ International organisations; ✓ National governments; ✓ Relevant national authorities; ✓ Electric utility companies; ✓ Conservation GOs and NGOs.	€€€
Expected result 4: Effective conservation programmes are in place in all range states.					
4.1. Monitor, record and share of information on breeding pairs, productivity and success rate: 4.1.1. Exchange information, common survey methods and protocols; 4.1.2. Map and monitor nests (representative sample where population is large); 4.1.3. Identify population and productivity trends; 4.1.4. Develop and publish sensitivity maps for the most important sites and habitats of the species; 4.1.5. Better understand the populations' connectivity; 4.1.6. Map (available) predictable/reliable food sources (e.g. dump sites);	Low	Long	Balkans, Central Asia & Caucasus	✓ Relevant national authorities; ✓ Conservation GOs and NGOs; ✓ Research organisations, Universities, consultants.	€€€€

4.1.7. Test methods to increase the productivity of wild populations (at least in countries with low productivity, e.g. individual feeding of pairs and nest guarding); 4.1.8. Assess feasibility of reintroduction (where appropriate); 4.1.9. Test potential to improve 'head-start' of juveniles to avoid mortality due to natural barriers; 4.1.10. Assess how the migrating individuals use ships in Mediterranean with the aim to assess the potential of using artificial islands in Mediterranean.					
4.2. Secure breeding sites and high quality foraging habitats within the home range of the pairs: 4.2.1. Create a network of "Safe zones" around the core breeding areas; 4.2.2. Provide intensive conservation care (e.g. nest guarding, supplementary feeding) in breeding territories of core importance and high risk. 4.2.3. Improve the size and quality of foraging habitats available to the breeding pairs through appropriate land management (pastoralism, small scale farming, etc.); 4.2.4. Create and manage networks of supplementary feeding stations in core breeding areas (and along the flyway); 4.2.5. Encourage agri-environmental schemes, habitat management schemes and livestock enhancing policies; 4.2.6. Allow vulture-friendly carcass management use (e.g. disposal of animal waste in nature under safe conditions); 4.2.7. Improve management and guarding of protected areas with Egyptian vulture populations	Medium	Long	Balkans, Central Asia & Caucasus	✓ Relevant national authorities; ✓ Conservation GOs and NGOs; ✓ Local stakeholders (e.g. farmers, livestock breeders).	€€€€
4.3. Ensure successful Ex situ Egyptian Vulture Endangered Species Programm: 4.3.1. Adhere to best practice and cooperate within European Endangered Species Programme;	Low	Long	Balkans	✓ Relevant national authorities; ✓ Conservation NGOs; ✓ Zoos and breeding centers.	€€€€

4.3.2. Ensure, in the long term, birds for release programmes.					
Expected result 5: Awareness about the value of vultures and in relation to the most important threats is raised among the key stakeholder groups.					
5.1. Increase the awareness of shepherds, farmers, hunters and enforcement authorities against poisoning: 5.1.1. Implement awareness campaign on the legal regime and effects of use of poison baits, improper and inappropriate use of dangerous substances, the use of lead ammunition; 5.1.2. Develop alternative vulture friendly methods for crop and livestock protection (e.g. appropriate local predator control methods, pest control measures, improved veterinary care etc.); 5.1.3. Organise trainings and workshops for stakeholders (vets, farmers, hunters and authorities); 5.1.4. Increase stakeholders' involvement in conservation and promote the establishment of local anti-poison networks in hotspot areas.	Essential	Long	All	✓ Relevant national authorities; ✓ Conservation GOs and NGOs.	€€€€
5.2. Raise awareness among risk groups and enforcement authorities against illegal killing: 5.2.1. Increase awareness of local communities regarding the protected status of the species and the negative effect of illegal shooting – i.e. promote vultures as natural sanitary service and best practices to mitigate the illegal killing (local events, media, printed materials, etc.); 5.2.2. Develop alternative livelihoods to encourage local communities to value the species (e.g. develop ecotourism to create jobs); 5.2.3. Organize public events, training s and workshops; 5.2.4. Involve farmers and huntersd in the conservation activities.	Medium	Long	Central Asia & Caucasus, Middle East, Africa	✓ Relevant national authorities; ✓ Conservation GOs and NGOs.	€€€€
5.3. Raise awareness among planners and developers against dangerous energy infrastructure:	Essential	Long	Balkans, Middle	✓ International organisations; ✓ National governments;	€€€€

5.3.1. Increase awareness regarding the impacts of electrocution and collisions with infrastructure; 5.3.2. Seek and promote collaboration with engineers and technical companies to develop improved design of infrastructure; 5.3.3. Produce and promote guidance for good practice and design of the relevant infrastructure; 5.3.4. Trainings and workshops (for electricity companies and other relevant stakeholders); 5.3.5. Involve electricity companies, investors and authorities in conservation.			East, Africa	✓ Relevant national authorities; ✓ Electric utility companies; ✓ Conservation GOs and NGOs.	
Expected result 6: The Action Plan implementation, monitoring and adaptive management is ensured for the entire period of the plan.					
6.1. Establish a coordination structure (Working Group) with clear role and transparent decision making, recognized by relevant stakeholders.	Essential	Immediate	All	✓ EVFAP WG ✓ Relevant national authorities ✓ Conservation GOs and NGOs.	€
6.2. Adaptive Management of the EVFAP: 6.2.1. Plan: Make an inventory, define/refine the problems, threats and analyse the pertaining situation. Establish goals and objectives, including targets and indicators, and set priorities. 6.2.2. Design: Design actions and a monitoring plan based on priorities. Plan a data management system. Develop a Working Plan, timeline and budget for actions and for monitoring. 6.2.3. Act: Implement priority actions, document progress and note deviations. 6.2.4. Monitor: Implement monitoring plan to assess effectiveness, document progress and note deviations (applied options depend mainly on the parameters of the monitored area and on the capacity of the monitoring organisations). 6.2.5. Evaluate: Prepare, analyse, synthesize and evaluate data	Essential	Long	All	✓ EVFAP WG ✓ Relevant national authorities ✓ Conservation GOs and NGOs.	€

	collected through monitoring. Apply data in integrated landscape management, forecasting trends, predicting changes in space and time, risk assessment and decision making.					
6.2.6.	Adjust: Adapt strategic plan and adjust management, as necessary.					
6.2.7.	Share: Share knowledge and lessons learned, and communicate current understanding with stakeholders (document and share learning through networking).					

LEGEND:

- **Priority scale of actions:**

Essential – Action needed to prevent a large decline in the population which could lead to the species or sub-species extinction.
High – Action needed to prevent a decline of ≥20 % of the population in < 20 years.
Medium – Action needed to prevent a decline of <20% of the population in < 20 years.
Low – Action needed to prevent local population declines or which is likely to have only a small impact on the population across the range.

- **Timescale scale:**

Immediate – Action completed within the next year.
Short – Action completed within the next 3 years.
Medium – Action completed within the next 5 years.
Long – Action completed within the next 10 years.
Ongoing – Action that is currently being implemented and should continue.

- **Budget estimation scale:**

€ – < 10,000 €
€€ – 10,000 to 50,000 €
€€€ – 50,000 to 100,000 €
€€€€ – > 100,000 €

5.2. Recovery strategy and criteria

Logical framework	Monitoring indicators	Sources of verification	Assumptions
Goal: Improve the conservation status of the Egyptian vulture in the FAP range	✓ Global population status assessment showing stable and recovering subpopulations. ✓ The species is down-listed by IUCN to globally Vulnerable by 2026 and eventually achieving a favorable conservation status across its range by 2036.	✓ IUCN Red List assessments in 2026 and 2036. ✓ EVFAP reviews of implementation in 2026 and 2036. ✓ CMS reports. ✓ CITES reports.	✓ EVFAP WG is operating effectively. ✓ Range States endorse the EVFAP and start implementing it. ✓ Stakeholders are cooperative and comply with relevant international and national legislation, policies and guidelines. ✓ Force major circumstances (e.g. climate change) do not have a significant impact on the global population of the species.
Purpose: By 2026 halt the downward trends in the declining meta-populations while maintaining stable or increasing trends for the healthy ones.	✓ Annual adult survival over 90% by 2026. ✓ Mortality cases due to poisoning, direct persecution, electrocution and collisions with energy infrastructures reduced by 20% by 2026.	✓ National monitoring and thematic survey reports. ✓ Project reports and scientific papers.	✓ No major omissions and contradictions between MEAs and national law. National laws ensure the implementation of the EVFAP. ✓ Legal protection of the Egyptian vulture is in place in Range States and effectively enforced. ✓ Legal protection of the main sites and habitats for Egyptian vulture is in place and effectively enforced in Range States ✓ Conservation and management activities for the species and its habitats are implemented by national governments in line with the EVFAP.

Objective 1: Significantly reduce mortality due to poisoning	✓ Incentives reviewed, alternatives promoted and public awareness on the problem is raised. ✓ Enforced control on the marketing, storage and use of substances dangerous for vultures (incl. agro-chemicals and NSAIDs). ✓ Direct conservation actions implemented (e.g. anti-poison dog units, wildlife crime units, etc.) in Ranges States to reduce this threat.	✓ National survey, monitoring reports and DB on the use of substances dangerous for vultures. ✓ EVFAP implementation reports. ✓ Project reports.	✓ Authorities and governmental bodies are willing to cooperate to improve the legislation if needed (e.g. ban substances dangerous to vultures, promote and apply alternatives). ✓ Legislative consequences for the violations of the law (in terms of illegal use of poisons) are effectively implemented.
Objective 2: Significanltly reduce mortality due to illegal killing	✓ Incentives reviewed, alternatives promoted and public awareness on the problem is raised. ✓ Improve legislation and law enforcement in the Range States. ✓ Direct conservation actions implemented in Range States to reduce this threat.	✓ National survey and monitoring reports on the illegal killing on MSB. ✓ EVFAP implementation reports. ✓ Project reports.	✓ Legal protection of the Egyptian vulture is in place in Range States and effectively enforced. ✓ Legislative consequences for law violations (in terms of illegal shooting, illegal traffic of animals and their parts, etc.) are effectively implemented.
Objective 3: Significantly reduce the risks of electrocution and collision with energy infrastructures	✓ All powerlines and wind farms at sites important for the target populations mapped, assessed and categorized according to electrocution and collision risk. ✓ Identify appropriate mitigation measures and apply them at 10% of critical energy infrastructure in the important sites (e.g. bottlenecks, congregation areas, etc.) for the target Egyptian vulture populations by 2026. ✓ Assure correct siting and design for all new energy infrastructures in the important sites for the target populations from 2017 onward.	✓ National survey and monitoring reports on the reconstruction and mitigation of medium-voltage electric lines and wind farms. ✓ EVFAP implementation reports. ✓ Project reports.	✓ Legal and policy obligations for bird-friendly existing and new energy infrastructure are in place and effectively enforced. ✓ Energy business and governments are open for collaboration.
Objective 4: Enhance the size and productivity of	✓ Average productivity of target populations kept over 0.9 fledglings per occupied territory. ✓ Increase the survival of juveniles by 30%.	✓ National survey and monitoring reports on the population status and productivity.	✓ Supplementary feeding and availability of safe food have a positive effect on survival of adult

breeding populations	✓ Maintain and improve species foraging habitats. ✓ Establish network of "Safe zones" and vulture restaurants. ✓ Intensify captive breeding programmes and start reintroduction/restocking programmes by 2026 where needed.	✓ EVFAP implementation reports. ✓ Project reports and scientific publications.	birds and productivity. ✓ By 2026, threats mitigated at level that makes possible implementation of restocking or reintroduction programmes.
Objective 5: Ensure endorsement and effective implementation of the the EVFAP by all Range States	✓ The EVFAP delivery and coordination mechanism is established and operates from 2017 and onwards. ✓ Increase in collaborative IGO, GO and NGOs, business and the private sector, and significantly increase the number of international and national stakeholders' meetings, workshops and training events. ✓ Significantly increase the number of awareness raising publications and events. ✓ Increase stakeholders' involvement in the conservation of the Egyptian vulture and the management of its habitats. ✓ Many of the knowledge gaps addressed, leading to publication in peer reviewed scientific journals.	✓ EVFAP WG reports. ✓ EVFAP implementation reports. ✓ National research and monitoring reports. ✓ Meeting, workshop and training reports. ✓ Project reports and scientific publications.	✓ Stakeholders are willing to cooperate in order to fully implement the EVFAP. ✓ Available funding for field monitoring, research and conservation of the species. ✓ Any research and monitoring is of a high standard, suitable for publication.

5.3. EVFAP delivery and coordination mechanism

Description of proposed Working Group, Coordination Group and Chair:

It is proposed that an international Working Group should be established, consisting of all EVFAP Workshop attendees (held in July 2015 in Sofia, Bulgaria), but also other experts and representatives of relevant authorities in all Range States covered by the plan, who did not have the opportunity to participate, but are willing to contribute to the implementation of the EVFAP.

The Working Group may be facilitated and coordinated by Officers representing all of the targeted regions (from organizations or institutions with experience in the conservation of the species). The Officers proposed to serve in the Coordination group are as follows:

- ✓ Lead facilitating organization – Coordinating Unit of Raptors MoU, represented by Nick P. Williams;
- ✓ Coordinating organization for the Balkans and Turkey, the migratory population - BSPB / Birdlife Bulgaria, represented by Stoyan Nikolov;
- ✓ Coordinating organization for the Middle East and Turkey, the breeding population - BirdLife Middle East, represented by Sharif Jbour;
- ✓ Coordinating organization for Central Asia – ACBK / BirdLife Kazakhstan, represented by Sergey Sklyarenko;
- ✓ Coordinating organization for Africa – BirdLife Africa, represented by Masumi Gudka.

Once established (when the EV FAP is finalized), the Working Group should elect a Chair and Vice-chair, ideally a government official from a key EVFAP Range State.

NB: Draft Terms of Reference will be provided additionally in ***Annex 5*** and may be revised based on comments received during the consultation exercise. The Terms of Reference will be finalized once the EVFAP is published.

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7. ANNEXES

ANNEX 0. Technical information

0.1. List of abbreviations

ACBK	–	Association for the Conservation of Biodiversity of Kazakhstan (BirdLife Kazakhstan)
AOS	–	Azerbaijan Ornithological Society
APLORI	–	A. P. Leventis Ornithological Research Institute
ASPB	–	Armenian Society for the protection of Birds (BirdLife Armenia)
BPSSS	–	Bird Protection and Study Society of Serbia
BSPB	–	Bulgarian Society for the Protection of Birds / BirdLife Bulgaria
BVAP	–	Balkan Vulture Action Plan
BVCF	–	Black Vulture Conservation Foundation
CITES	–	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS	–	Convention on the Conservation of Migratory Species of Wild Animals
COP	–	Conference of Parties
CSIC	–	Spanish Council for Scientific Research
CU Raptors MoU	–	Coordinating Unit of the Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia
DB	–	Data base
DD	–	Doğa Dernegi (BirdLife Turkey)
DFC/AP	–	The Department of wildlife, hunting and protected areas in Niger
EAD	–	Environment Agency - Abu Dhabi
EEAA	–	Egyptian Environmental Affairs Agency
EIA	–	Environmental Impact Assessment
ESO	–	Environment Society of Oman
EU	–	European Union
EVFAP	–	Flyway Action Plan for the Conservation of the Balkan and Central Asian Populations of the Egyptian Vulture (*Neophron percnopterus*)
EWNHS	–	Ethiopian Wildlife and Natural History Society (BirdLife Ethiopia)
EWCA	–	Ethiopian Wildlife Conservation Authority
FWFF	–	Fund for Wildlife Flora and Fauna
FYR of Macedonia	–	Former Yugoslav Republic of Macedonia
FZS	–	Frankfurt Zoological Society
GEDN	–	Government Environment Department of Niger
GTRS	–	Sicilian Group for Raptors Protection
GO	–	Governmental organisation
HOS	–	Hellenic Ornithological Society / BirdLife Greece
IAR	–	International Avian Research
IBA	–	Important Bird Area
IEC	–	Israel Electric Company
ind.	–	individuals
INPA	–	Israel Nature and Parks Authority
IOC	–	Israel Ornithological Center
IOCN	–	Iraqi Organization for Conservation of Nature
IUCN	–	International Union for Conservation of Nature
KBA	–	Key Biodiversity Area
LPO	–	Ligue pour la Protection des Oiseaux (BirdLife France)
MEA	–	Multilateral Environmental Agreement
MES	–	Macedonian Ecological Society

MME	–	Hungarian Ornithological and Nature Conservation Society (BirdLife Hungary)
MSB	–	Migratory Soaring Birds
MSEA	–	Ministry of State for Environmental Affairs / Syrian Arab Republic
NABU	–	Nature and Biodiversity Conservation Union (BirdLife Germany)
NGO	–	Non-governmental organisation
NMNH	–	National Museum of Natural History (FYR of Macedonia)
NSAID	–	Non-steroidal anti-inflammatory drug
PA	–	Protected area
PCBR	–	Partnership for biodiversity conservation in the National Reserve Termit & Tin Toumma
PPNEA	–	Association for Protection and Preservation of Naturals Environment in Albania
PVA	–	Population Viability Analysis
RSCN	–	Royal Society for the Conservation of Nature (BirdLife Jordan)
RSPB	–	Royal Society for the Protection of Birds (BirdLife UK)
SABUKO	–	Society for Nature Conservation (BirdLife Georgia)
SAP	–	Species Action Plan
SCF	–	Sahara Conservation Fund
SEA	–	Strategic Environmental Assessment
SEO	–	Sociedad Española de Ornitología/BirdLife Spain
SFS	–	Supplementary Feeding Station
SPA	–	Special Protection Area
SPNI	–	Society for the Protection of Nature in Israel
SPNL	–	Society for the Protection of Nature in Lebanon (BirdLife Lebanon)
SSCW	–	Syrian Society for the Conservation of Wildlife
SWS	–	Sudanese Wildlife Society
UAE	–	United Arab Emirates
UzSPB	–	Uzbekistan Society for the Protection of Birds (BirdLife Uzbekistan)
VCF	–	Vulture Conservation Foundation
VMP	–	Veterinary medicinal product
Vulture MsAP	–	Multi-species Action Plan to conserve African-Eurasian Vultures
WG	–	Working Group
WWF	–	World Wildlife Fund

0.2. List of figures

0.3. List of contributors

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ANNEX 1. Biological assessment

Table 1.1. Diet

Region	Range country (in Alphabet order)	Diet	References
Balkans	Albania	NSR (often feeds on carcasses and tortoises)	M. Topi (unpubl. data)
	Bulgaria	The food includes wide range of items, including much organic rubbish. A study from SW Bulgaria (1990 – 2001; N = 4 nests), revealed predominance of the mammals (67.5%), followed by birds (15.6%) and reptiles (14.3%). A national-wide study on the diet (2006-2013; N = 40 breeding territories) confirms that the mammals represented the highest proportion in the diet (48.9%) followed by reptiles (28.3%) and birds (21.5%). Although mammals as a group comprised the largest proportion of the diet, the most common species in the Egyptian vulture's diet were the Greek tortoise *Testudo graeca* (13.2%), the Herman's tortoise *Eurotestudo hermanni* (11.4%), and the domestic chicken *Gallus gallus domestica* (7.1%). Overall, wild animals contributed approximately 70% to the diet.	Cramp & Simmons (1980); Milchev et al. (2012); Dobrev et al. (2015)
	FYR of Macedonia	NSR (frequently feeds on tortoises, livestock remains, reptiles, slaughter-house offal form rubbish dumps)	M. Velevski (unpubl. data)
	Greece	41,5% of the diet is based on tortoises (*Testudo hermanii* and *Testudo graeca*), while 42% is based on mammals, mainly livestock (cows, sheep and goats), pigs, hedgehogs, stray dogs and foxes (last three groups probably originating from road kills).	Boev et al. (2014)
Central Asia and Caucasus	Armenia	Scavenges, carrion, small vertebrates (Brown Rat, Common Vole, Gray Hamster, Persian Jird, Skylark), birds (Eurasian Nightjar, Eurasian Blackbird, Black-Billed Magpie, Grey Partridge, Hooded Crow, Blue-Rock Thrush), occasionally locusts.	Leister & Sosnin.(1942); Dal (1954); Geilikman (1959); Adamian & Klem (1999); ASPB (unpubl. data)
	Azerbaijan	NSR (dead agricultural animals as cow, sheep etc.)	AOS (unpubl. data)
	Georgia	Main diet on sheep and cattle carcasses, herbivore feces, eggs, tortoises.	Gavashelishvili (2005)
	Kazakhstan	Food waste, carrion, sometimes lizards, snakes and small tortoises.	Korelov (1962)
	Turkmenistan	Carrion (wild and domestic ungulates) and slow small animals (small tortoises, ill rodents). In result of decrease in populations of wild ungulates food waste, carrion of domestic grazing animals and other items (e.g. road kill, lizards, snakes, hedgehogs, cats, jackals, chicken and small birds) are found more often in the Egyptian vulture diet. Often visits rubbish sites around private farms.	Rustamov et al. (unpubl. data)

	Uzbekistan	Main food is invertebrates, reptiles and small mammals, often found dead. In the pellets of Egyptian vulture population in Kyzyl-Kum desert, the main items are rodents, reptiles, invertebrates such as scorpions and insects, and birds. Regular food source is slaughter waste in areas of livestock breeding. Important food element is also road kill of different small vertebrates such as tortoises and other reptiles, hedgehogs, gerbils, sousliks, hairs and small carnivores.	Korelov (1962); Ishunin & Pavlenko (1966); Mitropolskii et al. (1987); Kashkarov & Lanovenko (2011)
Middle East	Iran	NSR (depended on carcass and mainly found around the garbage damps, especially slaughterhouse waste damps; the feeding status is not in a favorable condition, especially from the view point of sanitary).	S. Zadegan (unpubl. data)
	Iraq	NSR (used to be found around the slaughtaries, dump-sites, and poultry farms).	M. Salim (unpubl. data)
	Israel	NSR (in most areas EVs visit on a daily basis the supplementary feeding sites)	O. Hatzofe (unpubl. data)
	Jordan	N/A	-
	Lebanon	N/A	-
	Oman	Prey remains from 10 nests were collected from Masirah Island in 2012, all containing fish and domestic livestock remains. Remains were also found of gulls, a domestic cat and a Brown-necked raven during that same survey. There is also one nest reported (2010) on Masirah Island that included the remains of two species of lizards. An Egyptian vulture was recorded feeding on a dead fox in Jabal Al Akhdar in April 2015. Feeds on rubbish dumps in significant numbers (mostly in winter).	Jennings (2010); Angelov et al. (2013); G. Barrett (unpubl. data) Al Fazari & McGrady (2016)
	Syria	N/A	-
	Turkey	NSR (dead chickens from chicken farms, carcasses from road kill - magpie, roller, hedgehog, common tortoise etc.; dead sheep, remains form dogs).	DD (unpubl. data)
	UAE	NSR (offals and carcasses of animals)	EAD (unpubl. data)
Africa	Chad	N/A	-
	Djibouti	N/A	-
	Egypt	NSR (feeds on dead animals and residue of slaughtered animals by local people)	O. El-Gebaly (unpubl. data)
	Ethiopia	NSR (organic scraps at town/village dumps, local abattoirs, insects, seeds)	Y. Abebe (unpubl. data)
	Niger	Mainly livestock (goats, cattle, sheep and camels) but also Dorcas gazelles. Often feeds around slaughter houses.	SCF (unpubl. data)
	Nigeria	Carrion, meat scraps of any kind, birds' eggs, refuse and human excrement.	Brown et al. (1982)
	Sudan	N/A	-

Table 1.2. Habitat use

Region	Range country (in Alphabet order)	Breeding sites	Regions of passage and stopover sites	Areas of wintering	Congregation sites	References
Balkans	Albania	Hilly and mountainous habitats with rocks and cliffs. The vegetation is mainly shrubby and grassy (pastures grazed mainly by sheep).	-	-	N/A	B. Hallman (unpubl. data); M. Topi (unpubl. data)
	Bulgaria	Breeds in vast open areas in hilly, low-mountain and lowland areas. Most of the breeding pairs survive in the Eastern Rhodopes where the extensive livestock breeding is still operating and supports the mosaic character of the low mountain forest and open habitats cut by rocky river valleys. Often forages in wide river valleys and close to villages.	Mainly along the Black Sea coast.	-	Mainly feeding stations or dump sites.	Iankov (1978); Simeonov et al. (1990); Kurtev et al. (2008); Green Balkans (2009)
	FYR of Macedonia	Dry, predominantly open regions up to 700 m asl (with exception of one pair, 1100 m asl), with calcareous or granite cliffs used for breeding.	-	-	Mainly feeding stations or dump sites	Velevski (2013)
	Greece	Breeding areas are usually located in forested areas (frequently deciduous, but can be found also in perennial forests), associated to open agriculture lands used for traditional non-intensive livestock grazing, in either low hills and plains, sub-mountainous areas but also in more alpine areas. Nesting sites are located on cliffs (small caves or even ledges) or rocky areas with steep slopes, usually close to water bodies	Regions of passage and stopover sites include islands and islets in the Aegean (breeding sites are all concentrated in continental Greece), which are usually characterized by a low scrubland and maquis type of vegetation.	-	-	Handrinos & Akriotis (1997); www.LifeNeophron.eu Xirouchakis (in prep); Kret (2011)

		and also over shepherds' huts and pens, and always less than 1000m altitude.				
Central Asia and Caucasus	Armenia	Mountainous steppe with rocky outcrops, deep gorges with numerous depressions, cliffs and crags.	Steppe habitat, plateaus, valleys at fruit orchards, vineyards and gardens.	-	Dump sites and landfills.	Adamian & Klem (1999); ASPB (unpubl. data)
	Azerbaijan	Holes and caves in mountains on elevation from 200-300 up to 1500 m above sea level and higher.	Along Caspian Sea and along line Zaghatala-Ganja- Nakhchivan (western migration flyway).	-	N/A	AOS (unpubl. data)
	Georgia	Low cliffs in semi-arid and drylands, higher cliffs in the foothills of Greater Caucasus at the East.	Black Sea coast during autumn migration. Lack of data for the rest of the country.	-	N/A	Gavashelishvili (2005); SABUKO (unpubl. data)
	Kazakhstan	Mostly dry, rocky and semi-desert areas at low elevation, but sometimes inhabits also mountainous valleys. Important element of breeding habitat is the availability of open landscapes with pasturelands and settlements where the species can find food.	Migrates on wide front, and could be found in different places and habitats where could find food (including the surroundings of settlements, rubbish dumps, high mountain pasturelands, etc.).	-	No regular congregation sites. Could be found in small groups in areas of abundant livestock, mostly in semi desert mountainous foothills.	Korelov (1962)
	Turkmenistan	Mainly mountainous and hilly areas, but sometimes in lowland valleys, at elevation 100 – 1000 m a.s.l.	Same areas as breeding, but could be found in Karakum desert as well.	Very rarely in areas rich of livestock.	Rarely, up to 10 ind.	Rustamov et al. (unpubl. data)
	Uzbekistan	Mountainous and foothill landscapes, in deserts with well-presented relief, up to 2000 m a.s.l. Important element of breeding habitat is the availability of open	No significant difference in the habitat between breeding, migration, wintering and	No significant difference in the habitat between breeding, migration, wintering and settlement areas.	No significant difference in the habitat between breeding, migration, wintering and settlement areas.	Korelov (1962); Ishunin & Pavlenko (1966); Mitropolskii et al. (1987);

		landscapes with pasturelands and settlements where the species can find food.	settlement areas.			Kashkarov & Lanovenko (2011)
Middle East	Iran	Unknown (Qeshm Island is a known key site in country)	N/A	N/A	N/A	-
	Iraq	Mountainous areas, mainly cliffs	Open, arid areas, mainly desert and semi-desert areas	N/A	Open, arid areas, mainly desert and semi-desert areas	M. Salim (unpubl. data)
	Israel	Formerly bred on cliffs throughout the country - from Mediterranean habitat, Irano-Turanian currentlysteppe to deserts. Currently most pairs breed in the southern - desert arid areas, with only few pairs left in the north (Galilee & Golan Heights).	In autumn pass through central mountain ranges, central and western Negev. In spring pass through southern and eastern parts along the Rift Valley – Arava, Eilat and Dead Sea.	In recent years a non-migratory population was established in Mt. Carmel. In addition, in some years single birds winter in Southern Israel, mainly Judean desert, central Negev and Golan heights.	Main site in Biq'at Ztin, Negev desert (the Central Negev Desert Highlands)	Levy (1990) O. Hatzsofe (unpubl. data)
	Jordan	N/A	N/A	N/A	N/A	-
	Lebanon	N/A	N/A	N/A	N/A	-
	Oman	Usually chooses nest sites that provide shade during at least part of the day, on cliffs in crevices or ledges, often with an overhang, or in a small cave. It nests mostly on inaccessible cliffs on mainland but also on accessible slopes on islands devoid of land predators such as Masirah Island.	Settlements, food rich sites such as refuse areas, markets, animal pens, abattoirs, chicken farms and the places where fishermen sort their catch.	Human sites, traditionally food rich sites such as refuse areas, markets, animal pens, abattoirs, chicken farms and the places where fishermen sort their catch.	Human sites, traditionally food rich sites such as refuse areas, markets, animal pens, abattoirs, chicken farms and the places where fishermen sort their catch.	Jennings (2010); Angelov et al. (2013)
	Syria	N/A	N/A	N/A	N/A	-
	Turkey	Calcareous rocks and deep valleys (Southern Taurus Mountains).	Amanos Mountains and Eastern Taurus Mountains, Bosphorus Bottlenecek.	N/A	NSR (often gathers at dump sites – several dozen of ind.)	DD (unpubl. data); Arkumarev (2014) Oppel et al. (2014); Oppel et al. (2015)
	UAE	Mountains of Jebel Hafeet	N/A	Mountain area and valleys in and around	Cliffs, telecom towers	EAD (unpubl. data)

				Jebel Hafeet		
Africa	Chad	N/A	NSR (the area east of N'Djamena to lake Fitri and south-east to Haraze - CAR border).	Wintering juv. and imm. primarily inhabit medium elevations (< 500 m a.s.l.) in savannah, desert or croplands.	Sahelian habitats: relatively wide, flat plains or undulating fixed dunes characteristic of the ancient greater Lake Chad Basin and its margins.	Wacher et al. (2013) Oppel et al. (2015)
	Djibouti	Goda Massif/Forêt du Day/Mabla Massif	Goda Massif/Forêt du Day/Mabla Massif	Goda Massif/Forêt du Day/Mabla Massif	N/A	H. Rayaleh (unpubl. data)
	Egypt	Rocky hills (Wadi Egat)	South Sinai, Gabel Al-Zayt, Red sea coast, Garbage dump at Aswan and Lake Nasser shores)	Garbage dump at Aswan	Sharm El-Sheikh sewage ponds, Aswan dump sites	O. El-Gebaly (unpubl. data)
	Ethiopia	Rocly plateaus and canyons	Semi desert areas	N/A	Mostly below 500 m asl, in bare areas, open savannas or grasslands, and the abundance is negatively related to the amount of cover of bush vegetation. The distribution of roosting birds was not affected by distance to human settlements.	Abebe et al. (2014); Arkumarev et al. (2014); www.LifeNeophron.eu
	Niger	Koutous Massif	N/A	Saharan or Sahelian massifs with wadis	Saharan or Sahelian massifs with wadis	SCF (unpubl. data) Nikolov et al. (2014)
	Nigeria	Yankari Game Reserve	N/A	Desert, sub-deserts and arid savannah.	N/A	APLORI (unpubl. data)
	Sudan	N/A	N/A	Mainly in Darfur. Wintering juv. and imm. primarily inhabit medium elevations (< 500 m a.s.l.) in savannah, desert or croplands.	N/A	Hashim (2013) Oppel et al. (2015)

Table 1.3. Productivity

Region	Range country (in Alphabet order)	Productivity	References
Balkans	Albania	N/A	-
	Bulgaria	2003 – 2007: productivity 0.76 (0.65 - 0.90), fledgling rate 1.34 (1.24 - 1.55); 2012 – 2016: ratio of laying pairs 0.86, productivity 0.93, fledgling rate 1.26.	Kurtev et al. (2008); LIFE10 NAT/BG/000152
	FYR of Macedonia	2006-2011: productivity 0.84, breeding success 0.93 and fledging rate 1.19.	Grubač et al. (2014)
	Greece	2012-2016: ratio of laying pairs 0.81, productivity 0.68, fledgling rate 1.15	LIFE10 NAT/BG/000152
Central Asia and Caucasus	Armenia	2002: productivity 1.25 (N = 4 nests); 2010: productivity 1.0 (N = 3 nests)	Ghasabyan (2011)
	Azerbaijan	N/A	-
	Georgia	0.74 successful nestings and 0.84 fledglings per successful nest (1978-1983).	Abuladze & Shergalin (1998)
	Kazakhstan	N/A	-
	Turkmenistan	N/A (only raw data for Central Kopetdat)	Efimenko (unpubl. data)
	Uzbekistan	N/A	-
Middle East	Iran	N/A (productivity status probably good)	S. Zadegan (unpubl. data)
	Iraq	N/A	-
	Israel	90% of nesting attempts are succefuly; 1.3 fledglings per nest (2006-2016)	O. Hatzofe (unpubl. data)
	Jordan	N/A	-
	Lebanon	N/A	-
	Oman	Masirah Island: productivity 0.4, breeding success 0.82 and fledging rate 1.13.	Angelov et al. (2013)
	Syria	N/A	-
	Turkey	Beypazari: 0,850	DD (unpubl. data)
	UAE	N/A	-
Africa	Chad	N/A	-
	Djibouti	N/A	-
	Egypt	N/A (observation of juveniles in Wadi Egat in 2008, 2009 and 2013)	Awsan PA Office (unpubl. data)
	Ethiopia	N/A	-
	Niger	N/A	-
	Nigeria	N/A	-
	Sudan	N/A	-

Table 1.4. Survival

Region	Range country (in Alphabet order)	Survival	References
Balkans	Albania	N/A	-
	Bulgaria	Monthly survival of juveniles: during the first migration (Aug–Oct) is 0.750; during first winter (after Oct) is 0.958; Annual survival during year 1 is 0.297; Annual survival (year 2) is 0.611. The survival of adult birds and turnover rates unknown, but average growth rate is 0.951 (data from 2003-2013).	Oppel et al. (2015) Velevski et al. (2015)
	FYR of Macedonia	Turnover rates unknown, but average growth rate λ = 0.940 (data from 2003-2013)	Velevski et al. (2015)
	Greece	Turnover rates unknown, but average growth rate λ =0.920 (data from 2008-2013)	Velevski et al. (2015)
Central Asia and Caucasus	Armenia	N/A	-
	Azerbaijan	N/A	-
	Georgia	N/A	-
	Kazakhstan	N/A	-
	Turkmenistan	N/A (only raw data for Central Kopetdat)	Efimenko (unpubl. data)
	Uzbekistan	N/A	-
Middle East	Iran	N/A (probably good)	S. Zadegan (unpubl. data)
	Iraq	N/A	-
	Israel	N/A	-
	Jordan	N/A	-
	Lebanon	N/A	-
	Oman	N/A	-
	Syria	N/A	-
	Turkey	N/A	-
	UAE	N/A	-
Africa	Chad	N/A	-
	Djibouti	N/A	-
	Egypt	N/A	-
	Ethiopia	N/A	-
	Niger	N/A	-
	Nigeria	N/A	-
	Sudan	N/A	-

Table 1.5. General overview of the status

Region	Range country (in Alphabet order)	Breeding	Migration	Wintering
Balkans	Albania	Yes	No	No
	Bulgaria	Yes (regular)	Yes (regular)	No
	FYR of Macedonia	Yes (regular)	No	No
	Greece	Yes (regular)	Yes (regular)	Yes (occasional)
Central Asia and Caucasus	Armenia	Yes	Yes (regular)	Yes (occasional)
	Azerbaijan	Yes	Yes	No
	Georgia	Yes (regular)	Yes (regular)	No
	Kazakhstan	Yes (regular)	Yes (breeding population)	No
	Turkmenistan	Yes (regular)	Yes (regular)	Yes (occasional)
	Uzbekistan	Yes (regular)	Yes (regular)	Yes (occasional)
Middle East	Iran	Yes (regular)	Yes (regular)	Yes (regular)
	Iraq	Yes (regular)	Yes (regular)	Unknown
	Israel	Yes	Yes (regular)	Yes (very rarely)
	Jordan	No	Yes (regular)	No
	Lebanon	Extinct	Yes (regular)	No
	Oman	Yes (regular / Masirah isl.)	Yes	Yes
	Syria	Yes (occasional)	Yes (regular)	Yes (occasional)
	Turkey	Yes (regular)	Yes (regular)	No
	UAE	Yes	Unknown	Unknown
Africa	Chad	Unknown	Yes (regular)	Yes (regular)
	Djibouti	Yes	Yes	Yes
	Egypt	Yes	Yes (regular)	Yes (occasional)
	Ethiopia	Yes	Unknown	Yes (regular)
	Niger	Yes	Yes (regular)	Yes (regular)
	Nigeria	Unknown	Unknown	Yes (occasional)
	Sudan	Unknown	Yes (regular)	Yes (regular)

Table 1.6. Breeding status, population size and trend

Region	Range country (in Alphabet order)	Breeding	Observed breeding pairs	Data Quality	Estimated breeding population size	Data Quality	Breeding population trend in the last 10 years	References
Balkans	Albania	Yes	6 (2013-2014)	GO	11 (2014)	ME	Large decline	Hallman (unpubl. data); www.LifeNeophron.eu
	Bulgaria	Yes (regular)	28 (2016)	GO	28 (2016)	GO	Large decline (-45%)	Velevski et al. (2015), www.LifeNeophron.eu
	FYR of Macedonia	Yes (regular)	20 (2014)	GO	20-21 (2014)	GO	Large decline (-48%)	Grubač et al. (2014); Velevski et al. (2015)
	Greece	Yes (regular)	5 (2016)	GO	7 (2016)	GO	Large decline	Velevski et al. (2015) www.LifeNeophron.eu
Central Asia and Caucasus	Armenia	Yes	2 (2014-2015)	GE	35-60 (2015)	ME	Stable	ASPB (unpubl. data)
	Azerbaijan	Yes	80 (2010)	GO	200-500 (2010)	ME	Stable	Sultanov et al. (2011)
	Georgia	Yes (regular)	4 (2015)	ME	30-50 (2015)	ME	Large decline	Brecht Verhelst (unpubl. data); Abuladze & Shergalin (1998)
	Kazakhstan	Yes (regular)	20 (2003)	ME/MI	80-100 (2015)	ME/MI	Probably declining	Sklyarenko & Katzner (2012) Kolbincev (2004) Karyakin et al. (2004) Pestov & Nurmuhambetov (2012)
	Turkmenistan	Yes (regular)	Unknown	U	60-70 (2012-2014)	ME	Probably declining	Rustamov et al. (unpubl. data)
	Uzbekistan	Yes (regular)	135 (2010)	GE	135 (2010)	GE	Stable (Central Uz); Moderate Decline (S Uz); Large Decline (W Tian Shan)	Mitropolskii et al. (1987) Abdunazarov (1990) Beljalova (2006) Kashkarkov (2006) Lanovenko (2006) Sklyarenko (2006) Kashkarkov & Lanovenko (2011) Kashkarkov (2015)
Middle East	Iran	Yes (regular)	6 in Qeshm Island (2015)	ME	Several hundred pairs (150-200 only in Qeshm Island) (2015)	MI	Unknown (probably declining)	Field survey during Raptors Meeting in Qeshm Island March 2015

	Iraq	Yes (regular)	89 pairs (2009-2013)	GE	250-500 pairs (2013)	MI	Unknown	DB for the KBAs of Iraq (Ministry of Environment & Nature Iraq, unpubl. data); K. Ararat & R.F. Porter (unpubl. data)
	Israel	Yes	38 (2013-2015)	GO	50-55 (2015)	GO	Stable	2013-2014 INPA & SPNI survey, the INPA Ecological Database, Scientific Data Department
	Jordan	No	-	-	-	-	-	-
	Lebanon	Extinct	No breeding pairs observed since 1970	GO	-	-	-	Benson (1970); Kumerloeve (1962); Tohmé & Neushwander (1974)
	Oman	Yes (regular/ Masirah isl.)	52 pairs (2012)	GO	>100 pairs	GE	Unknown (Increase in Masirah isl.)	Jennings (2010) Angelov et al. (2013)
	Syria	Yes (occasional)	4 pairs (2011)	GE	5 pairs (2011)	GE	Stable	MSEA (unpubl. data)
	Turkey	Yes (regular)	129 pairs	GO	1500	ME	Small decline	DD (unpubl. data)
	UAE	Yes	2-5 (2014; 2017)	GO	N/A	N/A	N/A	Napier A & Williams N. (unpubl. data)
Africa	Chad	Unknown	N/A	N/A	N/A	N/A	N/A	Wacher et al. (2013)
	Djibouti	Yes	Unknown	P	Unknown	P	Unknown	H. Rayaleh (unpubl. data)
	Egypt	Yes	5 (2008 - 2009)	ME	Unknown	P	Unknown	O. El-Gebaly (unpubl. data)
	Ethiopia	Yes	3 (2013)	ME	30 (2013)	MI	Unknown (probably declining)	Abebe et al. (2013) Arkumarev et al. (2014)
	Niger	Yes	2 (2015)	GO	Unknown	U	Unknown	SCF (unpubl. data) http://www.4vultures.org/2015/08/17/egyptian-vultures-found-breeding-in-niger/
	Nigeria	Unknown	Unknown	U	Unknown	U	Unknown	-
	Sudan	Unknown	Unknown	U	Unknown	U	Unknown	-

Table 1.7. Migration status, migratory population size and trend

Region	Range country (in Alphabet order)	Migration	Observed individuals during migration per year	Data Quality	Estimated minimum numbers during migration per year	Data Quality	Trend in the numbers of passage individuals in last 10 years	References
Balkans	Albania	No	-	-	-	-	-	-
	Bulgaria	No	-	-	-	-	-	-
	FYR of Macedonia	No	-	-	-	-	-	-
	Greece	Yes (regular)	13 (2009)	GO	Several dozens	U	Unknown	Tsiakiris (2010)
Central Asia	Armenia	Yes (regular)	30-50 (2009-2015)	P	Unknown	U	Unknown	ASPB (unpubl. data)
and Caucasus	Azerbaijan	Yes	100-200 (general estimation)	P	200-400	P	Stable	AOS (unpubl. data)
	Georgia	Yes (regular)	E Black Sea Route: 12 (2008); 12 (2009); 19 (2010); 40 (2011); 26 (2012); 42 (2013); 21 (2014)	GE	600	GE	Large increase (maybe due to stronger effort in monitoring)	J. Wehrnmann (unpubl. data)
	Kazakhstan	Unknown	Unknown	N/A	Unknown	N/A	Unknown	-
	Turkmenistan	Yes(regular)	Unknown	P	Unknown	P	Probably declining	Rustamov et al. (unpubl. data)
	Uzbekistan	Yes(regular)	Unknown	**U**	100-110	MI	Moderate decline	Kashkarkov & Lanovenko (2011)
Middle East	Iran	Yes (regular)	NSR (probably hundreds Individuals)	P	Hundreds Individuals	P	Unknown (perhaps declining)	-
	Iraq	Yes regular	9 (2003-2013)	GO	150	MI	Unknown	IOCN (unpubl. data)
	Israel	Yes (regular)	Autumn average: 244 (1981-1989) 115 (1990-1999)	GO/GE	29 (2014)	GO	Autumn migration – Large decrease (-50%) ; Spring	IOC Autumn Northern Valley Migration Survey (1981-2014); Shirihai et al. (2000)

			53 (2000-2009) 22 (2010-2014) Spring: 403 (1997)				migration - have to check more recent data (probably the same trend).	
	Jordan	Yes (regular)	Unknown	U	Unknown	U	Unknown	N/A
	Lebanon	Yes (regular)	16 (2014-2015)	GO	7	GO	Moderate decline (10-29%)	Ramdan-Jaradi et al. (2008)
	Oman	Yes	1039 (November 2014)	GO	Hundreds	MI	Unknown (probably declining)	Env. Society of Oman (unpubl. data)
	Syria	Yes (regular)	60 (2013)	ME	100	ME	Moderate decline	Buechley & Sekercioglu (2013) Oppel et al. (2015) B. Al-Hayek (unpubl. data)
	Turkey	Yes (regular)	552 (2013)	GO	1000	ME	Unknown	Oppel et al. (2013) DD (unpubl. data)
	UAE	Unknown	Unknown	N/A	Unknown	N/A	Unknown	-
Africa	Chad	Yes (regular)	Few tagged ind. (2001-2014)	GO	Unknown	N/A	Unknown (probably declining: 1960s, 400 ind. in Abéché, Salvan 1968)	Meyburg et al. (2004) Oppel et al. (2015) www.LifeNeophron.eu
	Djibouti	Yes	1167 (2013)	GO	Unknown	-	Unknown	McGrady et al. (2013)
	Egypt	Yes (regular)	50 (general estimation)	GE	25	GE	Stable	Gradev et al. (2012) www.LifeNeophron.eu EEAA (unpubl. data)
	Ethiopia	Unknown	Unknown	N/A	Unknown	N/A	Unknown	-
	Niger	Yes (regular)	6 (2014)	ME	Unknown	N/A	Unknown	SCF (unpubl. data) www.LifeNeophron.eu Meyburg et al. (2004)
	Nigeria	Unknown	Unknown	N/A	Unknown	N/A	Unknown	-
	Sudan	Yes (regular)	17 ind. found dead (2010); Few tagged ind. (2001, 2012-2016)	GO	Unknown	N/A	Unknown (probably declining)	Meyburg et al. (2004) Angelov et al. (2013) Oppel et al. (2015)

Table 1.8. Wintering status, wintering population size and trend

Region	Range country (in Alphabet order)	Wintering	Observed numbers of wintering birds per year	Data Quality	Estimated minimum numbers of wintering birds per year	Data Quality	Trend in the numbers of wintering individuals in last 10 years	References
Balkans	Albania	No	-	-	-	-	-	-
	Bulgaria	No	-	-	-	-	-	-
	FYR of Macedonia	No	-	-	-	-	-	-
	Greece	Yes (occasional)	1-2 (general estimation)	GO	N/A	-	N/A	Tsiakiris (2010); Handrinos & Akriotis (1997); Sidiropoulos & Tsiakiris (2009); Sidiropoulos & Tsiakiris (2009b)
Central Asia and Caucasus	Armenia	Yes (occasional)	1 (1980)	P	N/A	-	N/A	ASPB (unpubl. data)
	Azerbaijan	No	-	-	-	-	-	-
	Georgia	No	-	-	-	-	-	-
	Kazakhstan	No	-	-	-	-	-	-
	Turkmenistan	Yes (occasional)	1-2 (in warm winters)	P	N/A	-	N/A	Rustamov et al. (unpubl. data)
	Uzbekistan	Yes (occasional)	N/A	-	< 10 (1970)	P	N/A	Kashkarkov & Lanovenko (2011)
Middle East	Iran	Yes (regular)	Hundreds Individuals (No systematic survey)	P	Hundreds Individuals	P	N/A (probably declining)	-
	Iraq	N/A	N/A	-	N/A	-	N/A	-
	Israel	Yes	5 (2014/2015)	GO	0	GO	Unknown	the INPA Ecological DB, Scientific Data Department (unpubl. data)
	Jordan	No	-	-	-	-	-	-
	Lebanon	No	-	-	-	-	-	-
	Oman	Yes	1039 (November 2014)	GO	Hundreds	MI	N/A (probably declining as migrant	Env. Society of Oman (unpubl. data)

							populations have declined)	
	Syria	Yes (occasional)	3 (2011)	GE	20 (2011)	ME	Moderate decline	B. Al-Hayek (unpubl. data)
	Turkey	No	-	-	-	-	-	-
	UAE	N/A	N/A	-	N/A	-	N/A	-
Africa	Chad	Yes (regular)	25 (2011)	GE	N/A	-	N/A	Wacher et al. (2013)
	Djibouti	Yes	N/A	P	N/A	-	N/A	H. Rayaleh (unpubl. data)
	Egypt	Yes (occasional)	Dozens (general estimation)	ME	N/A	-	Stable	Aswan Protected Areas office (unpubl. data) www.LifeNeophron.eu
	Ethiopia	Yes (regular)	1473 (1994) 1424 (Dec 2009) 1400 (Dec 2010) 1082 (Jan 2013)	GE	N/A	-	N/A (but most probably moderate decline)	Arkumarev et al. (2014)
	Niger	Yes (regular)	Regular sightings (2007-2011); 2 satellite tagged individuals (2013-2014)	GO	N/A	-	Small decline in Termit & Tin Toumma National Nature Reserve	Wacher et al. (2013) Oppel et al. (2015)
	Nigeria	Yes (occasional)	2 satellite tagged individuals (2002; 2014)	GO	N/A	-	N/A	Meyburg et al. (2004) Oppel et al. (2015)
	Sudan	Yes (regular)	7 ind. (C & W Darfur; 2013); Few tagged birds (2001, 2012-2014)	GO	N/A	-	N/A (probably declining)	Meyburg et al. (2004) Hashim (2013) Oppel et al. (2015)

Table 1.9. The most important areas or sites along the flyway

Range State (in Alphabet order)	Area or Site name	Season	Area or Site size (km^2)	Location in the country (coordinates / WGS84)	Estimated population size (pairs/ind.)		Year	Data quality	References
					Min	Max			
Albania	Tepelenë & Mallakaster	B	607	40° 18′ 0″ N 20° 1′ 0″ E	2 pairs	3 pairs	2014	ME	PPNEA (unpubl. data)
	Gjirokastër	B	515	40° 4′ 0″ N 20° 8′ 0″ E	3 pairs	4 pairs	2014	ME	PPNEA (unpubl. data)
	Delvinë	B	244	39° 57′ 0″ N 20° 6′ 0″ E	1 pair	2 pairs	2014	ME	PPNEA (unpubl. data)
	Vlorë	B	947	40° 27′ 54″ N 19° 29′ 6″ E	0 pairs	4 pairs	2014	ME	PPNEA (unpubl. data)
Armenia	Syunik region	B, M	400	39°29'46.55"N 46°21'27.87"E	10 pairs 17 ind (M)	15 pairs- 32 ind (M)	2009-2015	ME	ASPB (unpubl. data)
	Armavir region	M	30	40° 7'49.06"N 43°39'39.41"E	11 ind	21 ind	2011, 2013	ME	ASPB (unpubl. data)
Azerbaijan	Turianchay and Goychay IBAs and surroundings	B	300-400	40° 42′ 21″ N 47° 32′ 32″ E	30 pairs	60 pairs	N/A	U	Sultanov et al. (2011)
	Nakhchivan Autonomous Republic	B	1,000	39° 20′ 57′′ N 45° 44′91′′ E	20 pairs	50 pairs	N/A	U	Sultanov et al. (2011)
	Gobustan areas near Baku city	B	100	40° 5′ 3″ N 49° 24′ 57″ E	5 pairs	10 pairs	N/A	U	Sultanov et al. (2011)
	Dashkesan district	B	100	40° 29′ 41″ N 46° 4′ 38″ E	8 pairs	16 pairs	N/A	U	Sultanov et al. (2011)
Bulgaria	Madzharovo IBA	B	355	41° 38 15″ N 25° 54′ 7″ E	6 pairs	6 pairs	2014	GO	Velevski et al. (2015)
	Studen Kladenets IBA	B	1,560	40° 29′ 41″ N 25° 31′ 55″ E	5 pairs	5 pairs	2014	GO	Velevski et al. (2015)
	Most Arda IBA	B	1,502	41° 37′ 20″ N 25° 46′ 12″ E	3 pairs	3 pairs	2014	GO	Velevski et al. (2015)
	Provadiysko - Royaksko plato IBA	B	5,016	43° 10′ 19″ N 27° 16′ 28″ E	3 pairs	3 pairs	2014	GO	Velevski et al. (2015)

	Kamchiyska planina IBA	B	8,890	42° 56′ 35″ N 27° 35′ 30″ E	2 pairs	3 pairs	2014	GO	Velevski et al. (2015)
	Byala reka IBA	B, V	4,463	41° 24′ 5″ N 25° 57′ 51″ E	1 pairs 1 ind.	2 pairs 23 ind.	2014 2009	GO	Green Balkans (2009); Velevski et al. (2015)
	Atanasovsko ezero IBA	M	721	42° 35′ 11″ N 27° 27′ 15″ E	0 ind.	10 ind.	2011	ME	Michev et al. (2011)
Chad	The area east of N'Djamena to lake Fitri and south-east to Haraze (CAR border)	W	N/A	11° 3′ 35″ N 17° 55′ 59″ E	N/A (few tagged ind.)	N/A	2012-2014	GO	Oppel et al (2015) www.LifeNeohron.eu
	Ouadi Rimé – Ouadi Achim Faunal Reserve	W	77,950	15° 30′ 59.76″ N 19° 39′ 59.76″ E	9 ind. (2011)	22 ind. (2013)	2013	GO	Wacher et al. (2013)
Djibouti	Day Forest (Goda Mountains)	A	139	11° 51' 36.00" N 42° 47' 24.00" E	N/A	N/A	N/A	P	H. Rayaleh (unpubl. data)
	Godoria / Doumeira	A	N/A	12° 13' 00" N 43° 24' 00" E	N/A	N/A	N/A	P	H. Rayaleh (unpubl. data)
	Haramous / Layada	A	N/A	11° 33' 07" N 43° 11' 20" E	N/A	N/A	N/A	P	H. Rayaleh (unpubl. data)
	Moucha and Maskali Islands	A	N/A	11° 42' 59" N 43° 12' 22" E	N/A	N/A	N/A	P	H. Rayaleh (unpubl. data)
	Seven Brothers Islands	A	N/A	12° 27′ 38.16″ N 43° 25′ 27.12″ E	N/A	N/A	N/A	P	H. Rayaleh (unpubl. data)
	Lake Abbe	A	N/A	11° 10′ 0″ N 41° 47′ 0″ E	N/A	N/A	N/A	P	H. Rayaleh (unpubl. data)
	Mabla Massif	A	N/A	11° 56′ 42″ N 43° 2′ 34.8″ E	N/A	N/A	N/A	P	H. Rayaleh (unpubl. data)
Egypt	Ras Mohammed National Park	B, M	480	27° 43′ 20″ N 34° 15′ 14″ E	5 ind.	10 ind.	1998 - 2009-2015	ME	O. El-Gebaly (unpubl. data)
	Sharm El-Sheikh	B, M	N/A	27° 54′ 44″ N 34° 19′ 47″ E	5 ind.	10 ind.	2015	P	O. El-Gebaly (unpubl. data)

	Gabel Al-Zayt, Red sea coast	B, M	80	N/A	25 ind.	51 ind.	2013-215	GE	MSB project (unpubl. data)
	Garbage Dump at Aswan	A	4	24° 5′ 20″ N 32° 53′ 59″ E	4 ind.	4 ind.	2014	ME	Aswan Protected Areas office (unpubl. data)
	Lake Nasser shores at Wadi Allaqi Biosphere Reserve	A	20	20° 20' to 22° 10'N; 32° 40' to 33° 40'E	4 ind.	8 ind.	2010-14	ME	O. El-Gebaly (unpubl. data)
	Wadi Egat	A	100	N/A	10 ind.	20 ind.	2008-13	ME	O. El-Gebaly (unpubl. data)
Ethiopia	Afar Region (between Awash station and Serdo)	W	40,000	11° 49′ 0″ N 41° 25′ 0″ E	1,082 ind.	1,200 ind.	Jan 2013	GE	Arkumarev et al. (2014)
	Gondar	W	100	12° 35' 41.54" N 37° 27' 20.21" E	3 ind.	4 ind.	Nov 2015	GE	Tzazu (unpubl. data)
	Debre Libanos	B	40	9° 42' 43.39" N 38° 50' 50.45" E	2 pairs	10 pairs	Oct 2014	GE	Abebe et al. (2013)
FYR of Macedonia	IBA Mariovo	B	632	21° 42′34.41" N 41° 09′46.93" E	3 pairs	3 pairs	2014	GO	M. Velevski (unpubl. data)
	IBA Lake Tikves	B	267	21° 57′28.87" N 41° 18′36.30"	3 pairs	3 pairs	2014	GO	M .Velevski (unpubl. data)
	IBA Babuna-Topolka-Bregalnica Rivers	B	277	21° 54′27.65" N 41° 40′43.23" E	4 pairs	4 pairs	2014	GO	M. Velevski (unpubl. data)
	IBA Raec River Valley	B	198	21° 47′41.52" N 41° 23′43.90" E	2 pairs	2 pairs	2014	GO	M. Velevski (unpubl. data)
Georgia	Kakheti Region	B	300,000	41° 14' 7.95"N 45° 59' 36.81"E	5 pairs	18 pairs	2015	*GE*	B. Verhelst, B. Demulanaer, G. Mayor (unpubl. data)
	Khashuri-Mtskheta and Akhaltsikhe	B	100,000	42° 0' 14.63"N 43° 59' 57.69"E	4 pairs	8 pairs	2015	GE	B. Verhelst (unpubl. data)
	Eastern Great Caucasus	B	900,000	42° 19' 43.14"N 45° 24' 10.67"E	3 pairs	15 pairs	2015	MI	B. Verhelst (unpubl. data)
	Batumi Bottleneck IBA	M	30,000	41° 41' 34.22"N 41° 43' 50.22"E	12 ind.	50 ind.	2015	GE	J. Wehrnmann (unpubl. data)
	South Tbilisi	B	30,000	41° 40' 12.78"N 44° 47' 3.78"E	3 pairs	6 pairs	2015	GE	B. Verhelst, G. Mayor (unpubl. data)

Greece	Dadia National Park (Thrace)	B	428	41° 07′ 19.82″N 26° 13′ 42.89″E	4 pairs	4 pairs	2014	GO	LIFE10 NAT/BG/152 Internal Report 2014.
	SPA Meteora – Chasia – Antichasia (Thessaly)	B	720	39° 44' 28.60"N 21° 45' 33.13"E	2 pairs	3 pairs	2014	GO	LIFE10 NAT/BG/152 Internal Report 2014.
Iran	Qeshm Island (Hormozgan Province)	A	1,491	26° 47' 52" N 55° 53' 15" E	200 pairs	500 pairs	2015	ME	Field survey during Raptors Meeting in Qeshm Island March 2015
Iraq	Chami Rezan	B	N/A	35° 47' 56.98" N 44° 58' 38.43" E	N/A	10 pairs	2007-2010	GO	Nature Iraq (2010)
	Peramagroon Mountain	B	100	35° 45' 37" N 45° 14' 22" E	3 pairs	6 pairs	2007-2010	GO	Nature Iraq (2010)
	De Lezha	B	81	35º 27′ 37″ N 45º 11′ 40″ E	4 pairs	8 pairs	2007-2010	GO	Nature Iraq (2010)
	Qara Dagh	B	311	35° 19′ 52″ N 45° 17′ 25″ E	6 pairs	11 pairs	2007-2010	GO	Nature Iraq (2010)
	Ahmed Awa	B	6,5	35° 17′ 59″ N 46° 4′ 41″ E	3 pairs	6 pairs	2007-2010	GO	Nature Iraq (2010)
	Sheeb Abu & Wadi Al-Weir	M	N/A	N/A	N/A	4 pairs	2005-2013)	GO	Nature Iraq (2010)
	Al-Dheba'i	M	N/A	N/A	N/A	4 pairs	2014	GO	Nature Iraq (unpubl. data)
Israel	Golan Heights	B, M	890	32° 58′ 54″ N 35° 44′ 58″ E	8 pairs	11 pairs	2015	GO	INPA
	Eastern Galilee	B, M	300	32° 45′ 36″ N 35° 31′ 37.2″ E	1 pairs	4 pairs	2015	GO	INPA
	Carmel Mount	A, V	130	32° 43′ 48″ N 35° 3′ 0″ E	0 pairs	8 pairs	2015	GO	INPA
	Judaean desert	B, M	1,851	31° 42′ 0″ N 35° 18′ 0″ E	10 ind.	15 ind.	2015	GO	INPA
	Negev Mountains	B, M	3,078	30° 30′ 10″ N 34° 38′ 21″ E	30 ind.	45 ind.	2015	GO	INPA
	Eilat Mountains	B, M	1,175	29° 40′ 2″ N 34° 54′ 51″ E	1 pair	8 pairs	2015	GO	INPA

Jordan	Central and Southern Rift Margins and Eastern Desert	M	N/A	N/A	Small numbers	Small numbers	N/A	P	T. Qaneer (unpubl. data)
Kazakhstan	Ustyurt Plateau	B	3,500	43° 17′ 0″ N 55° 33′ 0″ E	20 pairs	30 pairs	2003, 2011	GE	Sklyarenko & Katzner (2012) Karyakin et al. (2004) Pestov & Nurmuhambetov (2012)
	Karatau Mountains	B	12,000	42° 53′ 20″ N 69° 58′ 50″ E	15 pairs	15 pairs	2003	GE	Kolbincev (2004)
Lebanon	Oudine area	M	12	34° 34' 34.65"N 36° 19' 10.75"E	2 ind.	3 ind.	2014	GE	G. Ramdan-Jaradi (unpubl. data)
	Turbol area	M	15	34° 26' 44.37"N 35° 56' 33.78"E	3 ind.	3 ind.	2014	GE	G. Ramdan-Jaradi (unpubl. data)
	Aley area	M	8	33° 47' 47.51"N 35° 38' 35.04"E	2 ind.	6 ind.	2014	GE	G. Ramdan-Jaradi (unpubl. data)
	Ibl Al Saqi area	M	11	33° 21' 48.22"N 35° 35' 22.42"E	2 ind.	4 ind.	2013	GE	G. Ramdan-Jaradi (unpubl. data)
Niger	Termit massif	W, M	5,500	16° 2′ 31″ N 11° 20′ 42″ E	N/A	N/A	N/A	P	SCF (unpubl. data)
	Koutous massif	W, M	2,500	14°30'0" N 10°0'0" E	N/A	N/A	N/A	P	SCF (unpubl. data)
	Aïr massif	W, M	65,000	18° 16′ 48″ N 8° 0′ 0″ E	N/A	N/A	N/A	P	SCF (unpubl. data)
Nigeria	Kazaure	U	N/A	12° 39′ 10″ N 8° 24′ 43″ E	N/A	N/A	N/A	U	Elgood et al. (1994)
	Lake Chad	U	N/A	13° 0′ 0″ N 14° 0′ 0″ E	N/A	N/A	N/A	U	Elgood et al. (1994)
	Yola	U	N/A	9° 13′ 48″ N 12° 27′ 36″ E	N/A	N/A	N/A	U	Elgood et al. (1994)
	Numan	U	N/A	9° 28′ 1″ N 12° 1′ 58″ E	N/A	N/A	N/A	U	Elgood et al. (1994)
	Wase Rock	U	N/A	9° 4′ 33.4″ N 9° 57′ 30.3″ E	N/A	N/A	N/A	U	Elgood et al. (1994)
	Ibi	U	N/A	8° 19′ 0″ N 9° 51′ 0″ E	N/A	N/A	N/A	U	Elgood et al. (1994)

	Hadejia-Nguru Wetlands	U	N/A	12° 39′ 0″ N 10° 35′ 30″ E	N/A	N/A	N/A	U	Elgood et al. (1994)
Oman	Al Multaqa (aka 'New Al Amerat') Dumpsite	M, W	6,000	23° 20' 34.84"N 58° 27' 39.83"E	19 ind (Mar 2015)	458 ind (Nov 2013)	2013-2015	GO	Al Fazari & McGrady (2016)
	Ibra Dumpsite	M, W	5,000	22° 44' 29.78"N 58° 32' 42.88"E	1 ind	164 ind	2014	GO	Env. Society of Oman (unpubl. data)
	Qurayat Dumpsite	M, W	2,700	23° 12' 11.35"N 58° 55' 57.51"E	9 ind	22 ind	2014	GO	Env. Society of Oman (unpubl. data)
	Wadi al Tayeen Dumpsite	M, W	1,200	22° 58' 54.77"N 58° 43' 50.50"E	43 ind	53	2014	GO	Env. Society of Oman (unpubl. data)
	Wadi Bani Khalid Dumpsite	M, W	2,000	22° 33' 42.31"N 58° 2' 47.24"E	46 ind	149	2014	GO	Env. Society of Oman (unpubl. data)
	Manah Dumpsite	M, W	2,500	22° 43' 6.76"N 57° 40' 11.11"E	0 ind	350 ind	2014	GO	Env. Society of Oman (unpubl. data)
	Sur Dumpsite	M, W	Unknown	22° 21' 32.22"N 59° 20' 54.79"E	46 ind	149 ind	2014	GO	Env. Society of Oman (unpubl. data)
	Masirah Dumpsite	M, W	4,000	20° 34' 23.67"N 58° 52' 54.03"E	7 ind	80 ind	2014	GO	Env. Society of Oman (unpubl. data)
	Masirah Island	B	649	20° 28' 16"N 58° 48' 55"E	260 ind	386 ind	2012	GE	Angelov et al. (2013)
Sudan	Darfur (comprising 5 states)	W	250,000	N/A	7 ind	N/A	2013	P	Hashim (2013) www.LifeNeophron.eu
Syria	Palmyra Mountains	B, M	N/A	34° 33′ 5″ N 38° 16′ 5″ E	4 ind.	10 ind.	2011	GE	MSEA (unpubl. data)
	Jabal Al-Bilas Mountains	M	400	34° 55′ 00' N 37° 35′ 00' E	2 ind.	20 ind.	1993	ME	MSEA (unpubl. data)
	Abu Qubays Mount	M	110	35° 14′ 10″ N 36° 18′ 52″ E	1 ind.	15 ind.	2009	GE	MSEA (unpubl. data)
	Al-Jawlan Heights	M	N/A	32° 46′ 52″ N 35° 56′ 5″ E	10 ind.	60 ind.	1991	GE	MSEA (unpubl. data)
	Jabal Al-Shuh	M	14	N/A (Lattakia / Hama)	1 ind.	15 ind.	2009	GE	MSEA (unpubl. data)
	Jabal Abdul-Aziz	B, M	490	36°25'40.61" N 40°19'53.07" E	20 ind.	45 ind.	2009	GE	MSEA (unpubl. data)
	Wadi Al-Azib	M	N/A	N/A (Hama)	1 ind.	10 ind.	2006	ME	MSEA (unpubl. data)

	Umm Al-Tuyyur	M	10	35° 7′ 49″ N 36° 32′ 3″ E	1 ind.	5 ind.	2004	ME	MSEA (unpubl. data)
Turkey	Ankara	B	N/A	39° 56′ 0″ N 32° 52′ 0″ E	120 pairs	200 pairs	2015	GO	DD (unpubl. data)
	Göreme	B	N/A	38° 40′ 0.012′′ N 34° 51′ 0′′ E	N/A	N/A	2015	GO	DD (unpubl. data)
	Çorum	B	N/A	40° 33′ 0″ N 34° 57′ 14″ E	33 pairs	40 pairs	2015	GO	DD (unpubl. data)
	Kars - Iğdır	B	N/A	39° 55′ 15″ N 44° 2′ 40″ E	8 pairs	15 pairs	2015	GO	DD (unpubl. data)
	Eskişehir	B	N/A	39° 46′ 36″ N 30° 31′ 14″ E	N/A	N/A	N/A	U	DD (unpubl. data)
	Sarımazı	B	N/A	36° 58' 00" N 35° 58' 00" E	600 ind.	1,000 ind.	2013	GO	DD (unpubl. data)
Turkmenistan	IBA Gurykhovudan (Central Kopet Dag)	B	190	37° 46.42' N 58° 37.00' E	1 pair	3 pairs	2012-2013	GO	Efimenko (pers. obs.)
	IBA Sumbar (SW Kopet Dag)	B	2,114	38° 24.20' N 56° 25.13' E	4 pairs	6 pairs	1997-2007	GO	Rustamov & Hodjamuradov (unpubl. data)
	IBA Kurendag – Garagoz (NW Kopet Dag)	B (?)	1,195	39° 30.13' N 55° 27.19' E	1-2 ind.	N/A	2008	GO	Efimenko (unpubl. data)
	Chink Tarimgaja (North Turkmenisthan)	B	40	N/A	1 pair	3 pairs	2011-2015	GO	Atadjanov (unpubl. data)
	IBA Akjagaya	B	165	41° 4.57' N 58° 15.21' E	1 pair	1 pair	2009	ME	Rustamov (unpubl. data)
	IBA Garashor	B	925	40° 49.90' N 56° 48.30' E	1 pair	2 pairs	2009	ME	Rustamov (unpubl. data)
	IBA Uzboy	B	614	39° 49.00' N 55° 37.29' E	2 pairs	4 pairs	2009	MI	Rustamov (unpubl. data)
	IBA Tekejik - Biynekyr	B	152	40° 11.19' N 55° 35.14' E	1 pair	2 pairs	2009	MI	Rustamov (unpubl. data)
	IBA Depmechay	B (?)	658	41° 13.32' N 55° 28.27' E	1-2 ind.	N/A	2009	MI	Rustamov (unpubl. data)

	IBA Koymat - Begarslan	B	387	40° 21.20' N 55° 55.20' E	2 pairs	4 pairs	2009	MI	Rustamov (unpubl. data)
	IBA Ersarybaba - Akkyr	B	1,576	40° 58.17' N 54° 44.47' E	2 pairs	6 pairs	2009	MI	Rustamov (unpubl. data)
	IBA Badhyz	B	2,007	35° 43.10' N 61° 36.10' E	4 pairs	8 pairs	2013-2014	ME	Rustamov (unpubl. data)
	Karabil	B	150	35°55' N, 63°16' E	2 pairs	3 pairs	2009	ME	Rustamov (unpubl. data)
	IBA Koytendag	B	752	37° 44.25' N 66° 28.36' E	4 pairs	10 pairs	2013-2014	ME	Rustamov (unpubl. data)
UAE	Jebel Hafeet	A	81	24° 3′ 31″ N 55° 46′ 39″ E	5 ind.	54 ind.	2013	GO	EAD (unpubl. data)
Uzbekistan	Chatkal, Pskem and Kurama Mountain Ranges	B	4,500	41°30' N 70°15' E	18 pairs	18 pairs	2010	ME	Lanovenko (2006) Kashkarkov & Lanovenko (2011) Kashkarkov (2015)
	Nuratau Mountains	B	4,500	40°20' N 67°00' E	12 pairs	12 pairs	2010	ME	Kashkarkov & Lanovenko (2011)
	Kyzylkum Desert (central part)	B	17,000	42°20' N 64°00' E	11 pairs	20 pairs	2010	ME	Lanovenko (2006) Kashkarkov & Lanovenko (2011) Kashkarkov (2015)
	Gissar Mountain Range	B	3,000	38°30' N 67°30' E	25 pairs	25 pairs	2006	ME	Lanovenko (2006) Kashkarkov & Lanovenko (2011) Kashkarkov (2015)
	Baysun-Tau Mountains	B	1,500	38°00' N 67°00' E	15 pairs	15 pairs	2006	ME	Lanovenko (2006) Kashkarkov & Lanovenko (2011) Kashkarkov (2015)
	Kugitang and Babatag Mountain Ranges	B	6,000	38°00' N 67°30' E	37 pairs	37 pairs	2006	ME	Lanovenko (2006) Kashkarkov & Lanovenko (2011) Kashkarkov (2015)

LEGEND:

- **Estimated breeding population size / Population Min - Max**: *For breeding ('season' column), figures are usually given in pairs; for other seasons (***Observed / estimated numbers during migration or wintering***), figures are given in individuals.*
- **Season:**
    - ***B*** *– Breeding*
    - ***V*** *- Non breeding visitor*
    - ***M*** *- Migration*
    - ***W*** *– Wintering*
    - ***A*** *– All seasons*
- **Data quality**:
    - **Good Observed (GO)=***Reliable or representative quantitative data are available through complete counts or comprehensive measurements for the whole period and country.*
    - **Good Estimated (GE)** = *Reliable quantitative or representative data are available through sampling or interpolation for the whole period and country.*
    - **Medium Estimated (ME)** = *Only incomplete quantitative data are available through sampling or interpolation.*
    - **Medium Inferred (MI)** = *Only poor or incomplete quantitative data are available derived from indirect evidence.*
    - **Poor (P)** = *Poorly known with no quantitative data are available and with guesses derived from circumstantial evidence.*
    - **Unknown (U)** = *information on quality not available*.
- **Trends in the last 10 years**.
    - **Large decline** (≥30%), **Moderate decline** (10-29%), **Small decline** (0-9%),
    - **Stable**,
    - **Small increase** (0-9%), **Moderate increase** (10-29%), **Large increase** (≥30%),
    - **Unknown** (insufficient data).

NSR – No systematic research

N/A – Data not available

ANNEX 2 - Threats importance at population/country level

Table 2.1. General overview of threats, their impact and importance at country level.

Region	Range country (in Alphabet order)	Threat Scores per country				
		Habitat Loss/Degradation (human induced)	High mortality/loss	Missing or ineffective policies, laws and enforcement	Low public and stakeholder awareness	Others
Balkans	Albania	Low	Unknown	Unknown	Unknown	Unknown
	Bulgaria	Local	Critical	Local	Low	Low
	FYR of Macedonia	Medium	Critical	High	Unknown	Unknown
	Greece	High	Critical	Critical	High	Unknown
Central Asia and Caucasus	Armenia	Medium	Medium	Low	Local	Unknown
	Azerbaijan	Local	Local	Local	Local	Local
	Georgia	Local	Critical	High	Critical	Unknown
	Kazakhstan	Unknown	Local	Local	Unknown	Unknown
	Turkmenistan	Critical	Unknown	Low	Local	High
	Uzbekistan	High	Critical	Medium	Medium	Medium
Middle East	Iran	High	Low	Medium	High	Unknown
	Iraq	Unknown	Unknown	High	High	Unknown
	Israel	Local	Low	Low	Low	Unknown
	Jordan	Unknown	Unknown	Low	Unknown	Unknown
	Lebanon	Unknown	Critical	High	Medium	Unknown
	Oman	Local	Low	Unknown	Local	Unknown
	Syria	High	High	Medium	Local	Unknown
	Turkey	Critical	Unknown	High	Unknown	Unknown
	UAE	Low	Unknown	Local	Medium	Unknown
Africa	Chad	Unknown	Unknown	Unknown	Unknown	Unknown
	Djibouti	Unknown	Unknown	Unknown	Unknown	Unknown
	Egypt	Critical	Unknown	Medium	Medium	Unknown
	Ethiopia	Local	Unknown	Critical	High	Medium
	Niger	Unknown	Unknown	Medium	Medium	High
	Nigeria	Critical	Critical	Unknown	Critical	Unknown
	Sudan	Unknown	Unknown	Critical	Critical	Low

LEGEND:

- ✓ The description of Threats reflects the actual (2014) understanding of the situation regarding the species, according to the latest available knowledge.
- ✓ Threats are not hierarchical, but clustered according to type of effect.
- ✓ Threat score (this ranking reflects IUCN extinction risk assessments):
    - **Critical:** a factor causing or likely to ***cause very rapid declines*** (>30% over 10 years);
    - **High:** a factor causing or likely to ***cause rapid declines*** (20-30% over 10 years);
    - **Medium:** a factor causing or likely to ***cause relatively slow, but significant, declines*** (10-20% over 10 years);
    - **Low:** a factor causing or likely to ***cause fluctuations***;
    - **Local:** a factor causing or likely to ***cause negligible declines***;
    - **Unknown:** a factor that is likely to ***affect the species but it is unknown to what extent.***

ANNEX 3 - Policies and legislation relevant for management

Table 3.1. National policies, legislation and sectoral programmes

Country	Current protection status (since year)	Status in national Red Data Book	Legal protection from taking and killing (Penalties for illegal taking, killing or nest destruction in $US)	Legal protection from intentional/non intentional poisoning	Highest responsible national authority	National nature conservation and related legislation	Key sectoral programmes (e.g. rural development plans, forestry development plans, etc.) which contain measures that may be relevant to the conservation of the Egyptian vulture
Albania	Protected	Vulnerable	Yes (taking, killing): the penalty varies from 300 000 - 500 000 ALL (equivalent to 2356 - 3927 USD).	Yes (use of poisons)	Ministry of Environment	Law No. 10 431, date 9.6.2011 for Protection of Environment Law No. 8906, date 6.6.2002 for "Protected Areas"; Law No. 9587, date 20.7.2006, for "Protection of Biodiversity"; Law No. 866, date 10.12.2014, for "Approving the list of natural habitat types, plants, animals and birds, with interest for European Union"; Law on Wildlife Protection (2008); Law on Hunting (2010)	Law. 709, date 29.10.2014 for "Approving the intersectoral strategy for rural and agriculture development 2014-2020"
Armenia	Protected (2010)	Endangered (2009)	Yes Penalty- 835 USD per individual	-	Ministry of Nature Protection/ Armenian Government	Egyptian vulture is listed in Red Data Book of Armenia and considered as "Endangered" A2bcde+3bcde+4bcde; Protected by the Law of Wildlife animals, since 2010; Different national laws where the species protection is considered, as Environmental Impact Assessment, Specially Protected Natural Areas, Forest Code, Land Code, Environmental and Nature Use Charges and national law on Fauna.	-
Azerbaijan	Protected (2013)	Red Data Book of Azerbaijan	Yes	-	Ministry of Ecology and Rational use	Law about Nature Protection	-

Country	Current protection status (since year)	Status in national Red Data Book	Legal protection from taking and killing (Penalties for illegal taking, killing or nest destruction in $US)	Legal protection from intentional/non intentional poisoning	Highest responsible national authority	National nature conservation and related legislation	Key sectoral programmes (e.g. rural development plans, forestry development plans, etc.) which contain measures that may be relevant to the conservation of the Egyptian vulture
					of Nature Resources		
Bulgaria	Protected (2001)	Critically Endangered	Yes (taking, killing) up to 10000 US	Yes (use of poisons)	Ministry of Environment and Waters	1. Nature Conservation Act 2. Biodiversity Act 3. Protected Sites Act 4. Hunting and game protection Act 5. Forestry Act	National Rural Development Programme - Measure 10 „Agrienvironment and climate“, Direction „Maintenance of habitats of the Imperial eagle and the Egyptian vulture in arable lands with ornithological value“;
Central African Republic	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Chad	-	Unknown	-	-	Unknown	In Chad there are no laws related to the conservation of vultures The National Parks Conservation Department is looking for funding to the vulture species	Our regulations relating to the management of forests, fauna and fisheries does not mention this species, but work should be done to review all species to create a plan to include the vulture
Djibouti	-	Unknown	-	-	Association Djibouti Nature	Law No. 45 / AN / 04 / 5th L of 27/03/04 establishing Protected Areas for land and sea. Decree No. 2004-0065 / PR / MHUEAT 22 / 04.04 with protecting biodiversity and the ratification of the Ramsar Convention, the agreement on the conservation of water birds African-Eurasian, and the Convention on the Conservation of migratory Species of Wild Animals.	-
Egypt	Unknown	Endangered	Yes	Yes	Unknown	Law No. 102 -1983 (protected area	New and renewable energy

Country	Current protection status (since year)	Status in national Red Data Book	Legal protection from taking and killing (Penalties for illegal taking, killing or nest destruction in $US)	Legal protection from intentional/non intentional poisoning	Highest responsible national authority	National nature conservation and related legislation	Key sectoral programmes (e.g. rural development plans, forestry development plans, etc.) which contain measures that may be relevant to the conservation of the Egyptian vulture
						law); Law No. 4 – 1994 (Environmental law); EEAA requirements for projects (energy projects – waste management projects –tourism projects) that cause potential harm to soaring birds.	Authority management measures by applying shutdown on demand and pre and post construction monitoring programs
Ethiopia	Undetermined	Unknown	-	-	Ethiopian Wildlife Conservation Authority	-	-
Eritrea	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
FYR of Macedonia	Strictly protected (2011), Protected game species (1996)	-	Yes (taking, killing): Penalties by the Law on hunting: for legal entity: 6000-8000 eur, plus 4000-6000 eur for the responsible person in the legal entity for private person: 1500-3000 eur	Yes (use of poisons)	Ministry of Environment and Physical Planning	Law on Nature Protection (2004, with lot of amendments); Law for establishing the lists of strictly protected and protected wild species, since 2011; Law on Hunting; Law on animal by-products; Law on chemicals; Law on veterinary health	Biodiversity Strategy and Action Plan (in final stage of preparation); National strategy for agriculture and rural development (in final stage of preparation); IPARD programme
Georgia	Legally protected	Vulnerable D1	Yes, amount of penalty is unknown	N/A	Ministry of Environmental Protection	No national conservation policies, legislation or ongoing activities on the Egyptian vulture	N/A
Greece	Protected (1985)	Critically Endangered (CR – A2ac, C1))	Yes By detention or a fine or by both penalties. Anybody who	Yes (use of poisons)	Ministry of Reconstruction of Production, Environment	JMD 33318/3028 / 11-12-1998 (Government Gazette 1289 / B / 28.12.98) "Establishment of measures and procedures for the conservation of natural habitats (habitat) and of wild	Rural Development Programme 2014-2020; Prioritized Action Framework 2014-2020

Country	Current protection status (since year)	Status in national Red Data Book	Legal protection from taking and killing (Penalties for illegal taking, killing or nest destruction in $US)	Legal protection from intentional/non intentional poisoning	Highest responsible national authority	National nature conservation and related legislation	Key sectoral programmes (e.g. rural development plans, forestry development plans, etc.) which contain measures that may be relevant to the conservation of the Egyptian vulture
			owns, imports, distributes, sells in any way unlicensed or with a fake license may be punished with imprisonment from two (2) months to one (1) year and in case of relapse by imprisonment of two (2) years. Fine: 1,600 USD – 33,000 USD		and Energy	fauna and flora"; JMD US 14849/853 / E103 / 04.04.2008 (Government Gazette 645 / B / 4.11.08) "Change in no. 33318/3028/1998 joint ministerial decisions (V1289) and no. 29459 / 1510/2005 joint Ministerial Decisions (V992), in compliance with the provisions of Directive 2006/105 of the Council of 20 November 2006 of the European Union; MD 414 985 / 29.11.85 (Gov. V757) "Management measures of wild birds'; JMD 37338/1807/E.103/2010 “Determination of measures and procedures for preserving wild avifauna and its ecotypes/ habitats, in compliance with the provisions of Council Directive 79/409/EEC of 2 April 1979, on the conservation of wild birds, as codified by Directive 2009/147/EC”, Government Gazette, Series II, No 1495/2010.; JMD 8353/276/E103/17-2-2012 (Official Gazette Issue 415/B/2012) “Amendment and supplementation of 37338/1807/2010 Joint Ministerial Decision on the “Establishment of measures and procedures for the conservation of wild avifauna and their ecotopes/habitats in compliance with Directive 79/409/EEC …” (B΄ 1495), in	

Country	Current protection status (since year)	Status in national Red Data Book	Legal protection from taking and killing (Penalties for illegal taking, killing or nest destruction in $US)	Legal protection from intentional/non intentional poisoning	Highest responsible national authority	National nature conservation and related legislation	Key sectoral programmes (e.g. rural development plans, forestry development plans, etc.) which contain measures that may be relevant to the conservation of the Egyptian vulture
						compliance with the provisions of the first section of the paragraph 1 of the Article 4 of Directive 79/409/EEC "On the conservation of wild birds" of the European Council of April, 2 1979, as codified by Directive 2009/147 / EC"; LAW No. 3937/2011 Conservation of biodiversity and other provisions; National Action Plan for the Sustainable Use of Pesticides (Official Gazette Issue 1883/01-08-13); National Action Plan of Egyptian Vulture (in prep.).	
Iran	Protected	Protected species (category no.2)	Yes (killing) - Current penalty rate is for: 700$ - Proposed penalty rate for around 2,000$	Yes (use of poisons) Should apply as similar as the previous box	Department of Environment	Article 50 of the Constitution is the most important accredited existing legal statement concerning protection of the environment and preventing its pollution and degradation. It states that all legal and real persons have a duty to protect the environment. The Constitution prohibits all activities, economic or otherwise, that may result in irreparable damage to the environment.; According to Hunting and Trapping Law (1967); CITES signed in 1977; Convention on Biological Diversity signed in 1996; Convention on Migratory Species signed on 2007; Many Protected Areas have been	-

Country	Current protection status (since year)	Status in national Red Data Book	Legal protection from taking and killing (Penalties for illegal taking, killing or nest destruction in $US)	Legal protection from intentional/non intentional poisoning	Highest responsible national authority	National nature conservation and related legislation	Key sectoral programmes (e.g. rural development plans, forestry development plans, etc.) which contain measures that may be relevant to the conservation of the Egyptian vulture
						designated by the Department of Environment which Egyptian vulture (within breeding and wintering areas) are benefited. Breeding, migrant and wintering birds are monitored through bi-annual wildlife census in the Protected Areas Network.	
Iraq	-	-	-	-	The Ministry of Environment	• Environment Protection Law • Protected Areas Legislation	N/A
Israel	Fully protected (1955)	VU	Fully protected. Even a having a single feather is considered as an illegal)	Fully protected	Nature and Parks Authority	In Israel, the nature conservation law, "Wildlife Protection Law, 1955" (http://www.sviva.gov.il/English/Legislation/Documents/Wildlife%20Protection%20Laws%20and%20Regulations/WildlifeProtectionLaw1955.pdf) gives full protection to most terrestrial vertebrates, including Egyptian vulture all over the territory of Israel with no exception. Even the disturbance of a protected species from its natural activity Violates the law. The law is enforced by the Nature & Parks Authority.	-
Jordan	Protected	Annex 1 for illegal hunting list	Yes (taking, killing)	Yes (use of poisons)	-	According to agricultural law, all wild species except for game species, are prohibited to be hunted, traded or even kept for personal items, this includes the Egyptian vulture. New developed guidelines for the energy development projects (wind farms) are in the process to be adopted	Within the EIA studies, Bird monitoring hours has been considered the passage of birds during their migration across the country, this includes avoiding bird collisions in the future, which hopefully being adopted by the gov. In the near

Country	Current protection status (since year)	Status in national Red Data Book	Legal protection from taking and killing (Penalties for illegal taking, killing or nest destruction in $US)	Legal protection from intentional/non intentional poisoning	Highest responsible national authority	National nature conservation and related legislation	Key sectoral programmes (e.g. rural development plans, forestry development plans, etc.) which contain measures that may be relevant to the conservation of the Egyptian vulture
						by the gov. In order to sustain the protection of wildlife species including the Egyptian vulture species.	future to sustain protection of different species of birds including the Egyptian vulture.
Kazakhstan	Protected (1978)	Category III ("rare species with decreasing population")	Yes. The penalty for each individual is about 1,050 USD; for a ruined or destroyed nest - about 105 USD, and + this for each egg - 50% of the penalty for an adult bird that is about 525 dollars. This is called the "repayment of the damage", regardless of the court decision. In addition to this, imprisonment of up to 3 years can be awarded by the court for the unlawful taking of a rare species.	No special protection. There is a liability for intentional / deliberate actions that cause the death of a rare species	Committee for Forestry and Fauna of the Ministry of Agriculture of the Republic of Kazakhstan	Law of the Republic of Kazakhstan "On protection, reproduction and use of fauna" (as amended in 2012) Environmental Code of the Republic of Kazakhstan The Criminal Code of the Republic of Kazakhstan "The dimensions of compensation for damage caused, reproduction and use of wildlife in violation of the protection of the law" (approved by the resolution of Kazakhstan Government dated September 4, 2001 N 1140) Resolution of the Government of the Republic of Kazakhstan dated October 31, 2006 № 1034 "On approval of the list of rare and endangered species of animals and plants"	At present, the sectoral program "Zhasyl Damu" ("Green Development") has completed (it was for 2011-2014). The new program has not yet been approved.
Lebanon	Protected	No National Red Data Book	Yes 330 USD + jail for one month. Doubled if repeated	Yes protected against intentional poisoning and not protected	Ministry of Environment Ministry of Interior Ministry of	-	-

Country	Current protection status (since year)	Status in national Red Data Book	Legal protection from taking and killing (Penalties for illegal taking, killing or nest destruction in $US)	Legal protection from intentional/non intentional poisoning	Highest responsible national authority	National nature conservation and related legislation	Key sectoral programmes (e.g. rural development plans, forestry development plans, etc.) which contain measures that may be relevant to the conservation of the Egyptian vulture
				from non-intentional poisoning.	Justice		
Niger	Fully protected (1998)	Threatened. Annex 1	Any hunting sentenced with 2 months to 6 years in prison with 80 to 8,000 USD penalty	Yes	Ministry of Environment	- Law 98-07 of 29 April 1998 laying down the regime of hunting and wildlife protection; Egyptian vulture is listed in Annex 1 - Law 98-042 of 7 December 1998 concerning the regime of fishing; - Order 98-295 / PRN / MH / E of 29 October 1998 laying down detailed rules for applying the Act 98-07; - Law 2004-040 of 8 July 2004 on the Forest Plan in Niger Law for the protection of the environment Law on green spaces	National Strategy for Biodiversity Conservation, Medium Term Plan of Action Development plan of the reserves and parks of Niger
Nigeria	-	Unknown	Unknown	Unknown	Unknown	-	-
Oman	Protected (2003)	Unknown	Yes. Penalty between 2600 USD and 13000 USD. Further enforcement needed.	No direct mention to poisoning in the legislation.	Ministry of Environment and Climate Affairs	National Biodiversity Strategy and Action Plan (NBSAP), Ministry of Environment and Climate Affairs; Royal Decree 6/2003 Issuing The Law On Nature Reserves And Wildlife Conservation.	Modernization of dumpsites in Oman, Oman Environmental Services Holding Company; Expansion of electricity transmission infrastructure
Romania	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Russia	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Saudi Arabia	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Serbia	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Sudan	Unknown	Unknown	Yes	Yes	Wildlife Conservation General	-	-

Country	Current protection status (since year)	Status in national Red Data Book	Legal protection from taking and killing (Penalties for illegal taking, killing or nest destruction in $US)	Legal protection from intentional/non intentional poisoning	Highest responsible national authority	National nature conservation and related legislation	Key sectoral programmes (e.g. rural development plans, forestry development plans, etc.) which contain measures that may be relevant to the conservation of the Egyptian vulture
					Administration		
Syria	Protected (1994)	Unknown	Yes, 1000$	Yes (use of poisons)	Higher Council for Hunting, MAAR, MSEA	Hunting Law No 152 of 1970. Environment Law No 12 of 2012. Hunting Ban Decision of 1994 and its renewals Legislative orders No. 58 & 64 & 65 of year 2002 for joining AEWA, CMS and adopting CITES criteria. Signing the Raptors MOU 22/12/2014	Forestry protection and development orders Rangeland protection and development orders Biodiversity Conservation Plans and Strategy National Strategy of Environment Conservation
Turkey	Hunting restricted	No National Red Data Book	Yes (Both)	Yes	Ministry of Forestry and Water Affairs	Act on Terrestrial Hunting Some of its breeding locations are situated in legally protected sites designated by the Turkish Ministry of Environment and Forestry.	-
Turkmenistan	-	Endangered (II)	-	Unintentional, accidental, in rare cases	Ministry of Nature Protection	Turkmenistan adopted the laws "On Specially Protected Natural Areas" (2012), "On the animal world" (2013), "On Environmental Protection" (2014)	Management plans for State Nature Reserves Syunt-Hasardag (2014), Badkhyz (2015) and Koytendag (2015) have been developed, but not yet implemented
UAE	Protected	National Red Data Book not available	Yes	Unknown	Ministry of Environment & Water, Environment Agency Abu Dhabi	-	-
Ukraine	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Uzbekistan	Protected from trapping and shooting (2006) along with	-	Yes (1500 USD)	Yes (1500 USD)	State Inspection of the Republic of Uzbekistan	Uzbekistan ratified the CBD in 1995; National action plan for the protection of Egyptian vultures in the Republic of Uzbekistan 2011;	-

Country	Current protection status (since year)	Status in national Red Data Book	Legal protection from taking and killing (Penalties for illegal taking, killing or nest destruction in $US)	Legal protection from intentional/non intentional poisoning	Highest responsible national authority	National nature conservation and related legislation	Key sectoral programmes (e.g. rural development plans, forestry development plans, etc.) which contain measures that may be relevant to the conservation of the Egyptian vulture
	other birds of prey in Uzbekistan				on guard and rational use of animal and vegetative world	The species is protected by the following laws: "On Nature Conservation" (1992), "On Conservation and Use of Wildlife" (1997), "On Conservation Areas (2004) and Special Government Enactments on Conservation of Biodiversity" – "On National Strategy and Action Plan of the Republic of Uzbekistan on Conservation of Biodiversity" (1998) and "On Increase of Control of Rational Use of Biological Resources and the Import and Export of them to or from the Territory Located Outside of the Republic of Uzbekistan" (2004). Resolution of the Cabinet of Ministers № 508 from 28.10.2004) Regulation for hunting and fishing in the Republic of Uzbekistan "(2006)	
Yemen	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown

ANNEX 4 – Monitoring, research and conservation

Table 4.1. Research activities and conservation efforts (including earlier species action plans) over the last 10 years.

RESEARCH ACTIVITIES				CONSERVATION ACTIVITIES		
Brief summary of research activities	**Monitoring programme in PAs**	**Protocols for informing national authorities about results**	**National coordinator and/or monitoring organisation**	**National SAP**	**Brief summary of conservation activities**	**Organisations Responsible**
BALKANS						
Albania						
Vulture Surveys and Conservation Assessment in Albania (2004); Vulture monitoring in Albanian and Greek Epiros (2007); Vulture monitoring in Southern Albania (2014) – LIFE10 NAT/BG/152	Yes (since 2012)	Yes	PPNEA (contact@ppnea.org)	No	No	N/A
Bulgaria						
Distribution and demography (2003 – 2007); Distribution, demography, health status, threats, migration, wintering areas, nest guarding, artificial feeding (2007 – 2011) LIFE+ The Return of the Neophron Actions (2011 – 2016)	Yes, in SPAs	Yes	BSPB (www.birds.bg)	Yes	Supplementary feeding and maintenance of „vulture restaurants“ (2003 – 2015); Nest guarding (2009 – 2015); Development and implementation of Agri-environmental measures (2012 – 2015); Insulation of hazardous power lines (2013 -2015)	BSPB/BirdLife Bulgaria,Green Balkans, FWFF BSPB/BirdLife BSPB/BirdLife BSPB/BirdLife Bulgaria,Green Balkans, FWFF
FYR of Macedonia						
Monitoring of the occupancy and breeding parameters	Yes	No, but informed via	Metodija Velevski, MES,	No	Supplementary feeding on 2-3 locations, Training of veterinarians and inspectors	MES – Vulture Conservation Project in FYR of Macedonia

		reporting	(velevski@mes.org.mk)		to act upon poisoning cases; Education of locals	
Greece						
Monitoring and assessment of the population at a national scale – BVCF-Chrysaetos- HOS (2008-2011); Monitoring of the population in the Dadia National Park – WWF Greece (2005-2011); Research activities implemented in the framework of the LIFE+ project LIFE10 NAT/BG/152	No	No	No	In prep.	Survey and supplementary feeding in the SFS, Pinovo Mountain, Aridea (2005-2006); Public Awareness Information events and campaign, including organisation of volunteer camp on Kaimaktsalan Mt, supplementary feeding in the artificial feeding place, Pinovo Mountain, Aridea & Monitoring of the trans-border mountain range(2007-2008); Survey of the three breeding strongholds, location of breeding pairs and assessment of threats (2008); Survey, location of breeding pairs, assessment of threats, increase of public awareness & selection of possible supplementary feeding sites (2009-2011); Operation of a feeding site in the Dadia National Park; Conservation actions implemented in the framework of the LIFE+ project LIFE10 NAT/BG/152 (2012-2015).	BVCF & Chrysaetos - Transboundary public awareness and monitoring actions of the four vulture species in the mountain range of Aridea (Greece) and Kavadartzi (F.Y.R.O.M.) (2005) http://www.balkanvultures.net/Projects/187?page=2 BVCF & Chrysaetos - Trans-boundary Public Awareness, Conservation and Monitoring Actions for the Four Vulture Species in the Mountain Range of Almopia-Kavadartzi http://www.balkanvultures.net/Projects/187?page=1 Black Vulture Conservation Foundation & HOS - Rapid Assessment of the Egyptian Vulture Population in Greece http://www.balkanvultures.net/Projects/187?page=1 Black Vulture Conservation Foundation & HOS - Assessment and monitoring of the Egyptian vulture http://www.balkanvultures.net/Projects/187?page=1

						Regional Unity of Evros, WWF & Management Body of Dadia National Park HOS & WWF – www.LifeNeophron.eu
CENTRAL ASIA AND CAUCASUS						
Armenia						
No	Yes	Yes	No	No	No	N/A
Azerbaijan						
Field research for assessment of breeding population (2009-2010)	Only in Turianchay State Nature reserve in (2010-2015)	No	No	No	Egyptian vulture is included in Red Data Book of Azerbaijan since 2013.	Ministry of Ecology and Rational use of Nature Resources (see website www.eco.gov.az). Really only Azerbaijan ornithological Society do efforts in this direction (www.aos.az).
Georgia						
Only unofficial counts and breeding surveys have been done in the last ten years: During the years 2011-2014; During the present year 2015.	Yes (2012-2015)	Yes (official letters and reports)	A. Abuladze (2011-2014) SABUKO (2015) (www.birdlife.ge)	No	No	N/A
Kazakhstan						
No	No	No	N/A	No	No	N/A
Turkmenistan						
Monitoring of the population – mainly in Central Kopedag (1975-2015).	No	No	E. Rustamov	No	Egyptian vulture is included in Red Data Book of Turkmenistan since 2011.	N/A
Uzbekistan						
Field work and assessment of the current status of the species (2005-2006)	Yes	Yes	State inspection of the Republic of Uzbekistan on guard and rational use of	Yes	SAP development (2010-2011); Awareness programme (2012-2015).	UzSPB

			animal and vegetative world/ph. +99871 2157936; fax +99871 2157935; e-mail: gosbiocontrol-uz@mail.ru; gbk@uznature.uz			
MIDDLE EAST						
Iran						
No	Yes (but a general census of Wildlife 2 times per year)	Yes (through sending official letters to the provincial offices)	Mr. Sadegh Sadeghi Zadegan (National Contact Person for Raptors MoU)	No	Regular increasing on penalty rates	Department of Environment
Iraq						
No	No (but planned)	No	N/A	No	No	N/A
Israel						
No (but previously yes, 1986-1990)	Yes (1986/2014)	No (the authority itself implement the monitoring)	Ohad Hatzofe (INPA)	No	Yes	INPA (study by Levy, N - Deparment of Zoology, Tel-Aviv University)
Jordan						
No	No	No	Tareq Qaneer (RSCN)	No	No	N/A
Lebanon						
Point count and transect studies	No	No	N/A	No	Raising awareness among people to	SPNL

along the flyways and the within the rocky habitats targeting Egyptian vulture as well as other raptors.					appreciate the value of the Egyptian vulture (since 2007).	
Oman						
Monitoring of rubbish dumps in mainland and monitoring of breeding population on Masirah island.	No	Yes	Maia S. Willson (ESO)	No	Yes	ESO
Syria						
No	Yes (up to 2013)	No	SSCW	No	No	Eng. Bilal Al-Hayek (MSEA); Dr. Nabegh Ghazal Asswad (SSCW): nabegh@yahoo.co.uk Eng. Adnan Saad, Damascus: sscw.cepa@gmail.com (Mainstreaming the conservation of MSB into productive sectors).
Turkey						
Monitoring Beypazari population; A master thesis is being prepared about Eskişehir population	No (no protected areas triggered by EV)	No	DD / BirdLife Turkey	No	No	N/A
UAE						
Monitoring numbers of the species through monthly monitoring and satellite tracking	Yes	No (but written reports)	EAD	No	No	N/A
AFRICA						
Chad						
No	No	No	N/A	No	No	N/A
Djibouti						
Field report on migration counts at Ras Siyyan-Bab el Mandb strait,	No	No	Djibouti Nature	No	No	McGrady et al. (2013)

Djibouti (2013)						
Egypt						
No	No	No	N/A	No	EIA studies for Migratory Soaring Birds at wind farm projects along the flyway.	N/A
Ethiopia						
Counts and survey of Afar Region	No	No	EWNHS	No	No	EWCA
Niger						
No specific studies (except usual records by SCF team in Niger)	Yes(in Termit & Tin Toumma National Nature Reserve)	Yes	N/A	No	A sensitization campaign was carried out in 2014 with the aim of stopping poaching and inform local leaders and hunters, and workers in the markets and abattoirs about the role of vultures in the ecosystem.	Thomas Rabeil (SCF), Abdoulaye Harouna (PCBR), Hamissou Garba (DFC/AP)
Nigeria						
No	No	No	N/A	No	No	N/A
Sudan						
Study on electrocution in Port Sudan (2010)	No	No	N/A	No	Disconnection of the killer power line in Port Sudan (2014)	N/A

Table 4.2. Ongoing, research, conservation and management actions for the species

Objective	Action	Coverage	Period	Organisations Responsible
BALKANS				
Albania				
Project LIFE10 NAT/BG/000152				
✓ Identify population trend	Monitoring of breeding territories	Local	2012-2014	PPNEA (www.ppnea.org); BSPB (www.bspb.org); HOS (www.ornithologiki.gr)
Project "Land of Eagles and Castles" (CEPF 62721)				
✓ Monitoring, identifying threats and taking direct conservation measures	Monitoring of breeding territories; Creation of SFS; Insulation of dangerous pylons.	Local	2016-2017	PPNEA (www.ppnea.org)
Bulgaria				
Project LIFE10 NAT/BG/000152				
✓ Monitor population status, habitat preferences, diet, migration and health status	Monitoring of the breeding population parameters: number of breeding pairs, breeding success.	National	2003 - 2015	BSPB (www.birds.bg)
	Identify reasons causing breeding failure and increased mortality associated with the health status.	National	2008 - 2014	BSPB (www.birds.bg)
	Identify new nest sites, temporary settlement areas, dispersal, migration patterns and wintering areas using satellite telemetry.	National	2003 - 2015	BSPB (www.birds.bg)
	Analyse breeding habitat, evaluate relative food abundance in existing and recent Egyptian vulture nesting sites and study the diet of the species to inform conservation actions linked to supplementary feeding.	National	2006 - 2014	BSPB (www.birds.bg)
✓ Increase breeding success and reduce mortality in the breeding grounds	Maintenance of supplementary feeding stations.	National	Since 90es	BSPB, Green Balkans, FWFF
	Insulation of dangerous power lines.	National	Started in 2012	BSPB, Green Balkans, FWFF
	Individual supplementary feeding.	National	Started in 2009	BSPB
	Nest guarding.	National	Started in 2009	BSPB
	Study the mortality factors at project sites with specific accent on the historic and recent use of	National	2012-2014	BSPB

	poison, and their impacts to inform conservation actions and dissemination actions.			
FYR of Macedonia				
✓ Trend of the population known	Monitoring of the breeding population parameters: number of breeding pairs, breeding success	National	2003-2014	MES (www.mes.org.mk)
✓ Increased breeding success, reduced poisoning risk	Maintenance of supplementary feeding action	Regional	2003-2014	NGO Aquila-Kavadarci
✓ Decreased poison use	Training & Educational activities, shepherd dog donations	Regional	2006-2009	MES
Greece				
Project LIFE10 NAT/BG/000152				
✓ Covering gaps in knowledge & studying main threats for the species	Monitoring of the breeding population parameters: number of breeding pairs, breeding success.	Local (Selected SPA)	2012-2016	HOS & WWF Greece
	Monitoring through satellite telemetry	National / International	2012-2016	HOS & WWF Greece
	Study of Egyptian vulture diet	National	2012-2014	HOS & WWF Greece
	Assessment of poison bait use in the rural areas	National	2012-2014	HOS & WWF Greece
✓ Increase breeding success & Reduce mortality due to the illegal use of poison	Supplementary feeding at nests and feeding sites	Local (Selected SPA)	2012-2016	HOS & WWF Greece
✓ Reduce human disturbance at nests	Guarding of nests	Local (Selected SPA)	2012-2016	HOS & WWF Greece
✓ Reduce mortality due to the illegal use of poison	Antipoison Task Force lobbying for actions against the illegal use of poison	National	2012-2016	HOS & WWF Greece
	Creation of Local Antipoison Network (network of people in rural areas informed against the use of poison baits)	Regional	2012-2016	HOS & WWF Greece
	Antipoison Dog Units – Dog Units especially trained to detect poison baits and poisoned animals	Local (Selected SPA)	2014-2016	HOS & WWF Greece
✓ Reduce mortality due to electrocution	Insulation of assessed dangerous pylons	Local (Selected SPA)	2015-2016	HOS & WWF Greece
✓ Reduce mortality due to Bird	Implementation of training seminars for	National	2012-2016	HOS & WWF Greece

Crime	Custom officers on the matter of Bird Crime and CITES			
✓ Increase public awareness	Dissemination of knowledge and information regarding the conservation of the species among the general public	National	2012-2016	HOS & WWF Greece
Project LIFE12 NAT/GR/000784				
✓ Reduce the use of poison baits	Antipoison Dog Units – Dog Units especially trained to detect poison baits and poisoned animals	Local (Selected SPA)	2015-2017	Callisto
Feeding station at Dadia National Park				
✓ Increase breeding success & Reduce mortality due to the illegal use of poison	Operation of feeding station	Local	Ongoing	Prefecture of Thrace
CENTRAL ASIA AND CAUCASUS				
Armenia				
✓ Prevent population decline	Monitoring of the breeding population: population estimate, distribution in the country, breeding success. Study the key limiting factors and threats in the country.	Local	2015	ASPB / BirdLife Armenia
✓ Safeguard EV in Armenia	Raising public awareness. Cooperation with local governmental agencies in order for better management in dump sites. Supplementary feeding.	Local	Ongoing	ASPB / BirdLife Armenia
Azerbaijan				
✓ N/A	N/A	N/A	N/A	N/A
Georgia				
✓ Updated Population Assessment	Survey of known and historical breeding areas	National	2015	SABUKO
	Species action plan	National	Pending	SABUKO
Kazakhstan				
✓ N/A	N/A	N/A	N/A	N/A
Turkmenistan				
✓ N/A	N/A	N/A	N/A	N/A
Uzbekistan				

IBA Programme for Uzbekistan				
✓ Conservation and sustainable management of habitats	Identifying IBAs for the species	National	Since 2005	UzSPB (www.uzspb.uz)
National SAP - The Birdfair/RSPB Research Fund for Endangered Birds in Uzbekistan				
✓ Identification of numbers and distribution of Egyptian vulture in Uzbekistan	Study the current number and distribution of Egyptian vulture in Uzbekistan, as well as natural and anthropogenic threats. The obtained data were used for preparation of the National SAP.	National	2010	UzSPB (www.uzspb.uz)
MIDDLE EAST				
Iran				
✓ Wildlife Management	Monitoring of population (general wildlife census, twice per year)	All protected areas	Since 6 years	Department of Environment
✓ Population decline halted	Decrease illegal shooting to the bird	National	Since 60es	Department of Environment
Iraq				
✓ N/A	N/A	N/A	N/A	N/A
Israel				
✓ Population decline halted	Supplementary feeding only with food free from medications at ca. 20 sites	National	1968	INPA (since 1996 as joint project "Porsim Canaf" with the SPNI & the IEC)
	Monitoring of the breeding population parameters: number of breeding pairs	National	1999	INPA & IOC, SPNI (since 1996 as joint project "Porsim Canaf" with the SPNI & the IEC)
	Insulating dangerous electricity pylons	National	1996	INPA (since 1996 as joint project "Porsim Canaf" with the SPNI & the IEC)
✓ Reintroduction to Mt. Carmel	Captive breeding, acclimatization and release	Regional	2005	INPA in collaboration with SPNI & the IEC
✓ Sanitation	Collecting of most of the livestock carcasses in order to reduce carrying capacity for feral dogs and predators (to reduce motivation for poisoning)	Regional	2008	INPA
Jordan				
✓ N/A	N/A	N/A	N/A	N/A
Lebanon				
✓ N/A	N/A	N/A	N/A	N/A
Oman				
Project: Conservation of the Egyptian vulture in Oman – Phase I				

✓ Surveys of Egyptian vulture	Surveying of breeding population on Masirah Isl. including parameters such as number of breeding pairs, breeding success and feeding behavior.	Local	May 2012	ESO (Maïa S. Willson - Conservation of the Egyptian Vulture in Oman)
	Surveying 9 dumpsites in Oman	Local	October 2012	ESO
✓ Initiation of socio-economic incentives related to EV	Training of women from the Omani Women Association on Masirah Isl. on the development of hand-made products with Egyptian vulture themes	Local	2012	ESO
✓ Awareness raising	Public talks and presentations on Masirah Isl.	Local	2012	ESO
	Public talks and presentation in different parts of Oman to local communities	Regional	2012	ESO
Project: Conservation of the Egyptian vulture in Oman – Phase II				
✓ Continued surveys of Egyptian vulture	Continued surveys on 19 dumpsites in Oman	Regional	2014	ESO
	Monthly monitoring on Masirah Isl.	Local	Started in 2013	ESO
✓ Development of socio-economic incentives related to EV	Continued training of women from the Omani Women Association on Masirah Island on the development of hand-made products with Egyptian vulture themes	Local	2014	ESO
✓ Awareness raising	Public talks and presentations on Masirah Isl.	Local	2012	ESO
	Public talks and presentations in different parts of Oman to local communities	Regional	2012	ESO
✓ Satellite tagging of Egyptian Vultures	Satellite tagging of four juvenile Egyptian vultures from Amerat dumpsite	Local	Since 2014	IAR (Dr. Mike Mc Grady) http://egyptianvultureoman.blogspot.com/
Syria				
✓ N/A	N/A	N/A	N/A	N/A
Turkey				
✓ No official action plan is prepared, individual practices are being conducted by NGOs and Academia.				
UAE				
✓ Monitoring & Conservation	Monitoring of the resident birds	Entire area	2006	EAD
	The area where birds a regularly seen has been proposed to be declared as protected area	81 km^2	2006	EAD
✓ Improved understanding on movement, dispersal &	Supplemental feeding to lure birds Capture and tagging of few individuals	Local	2014-2015	EAD

potential breeding				
✓ Increase food availability	Supplementary feeding	Local	2015-2016	Al Ain Zoo
AFRICA				
Chad				
✓ N/A	N/A	N/A	N/A	N/A
Djibouti				
✓ N/A	N/A	N/A	N/A	N/A
Egypt				
MSB Project				
✓ Conservation of Egyptian vulture	Applying shutdown on demand system Post construction monitoring	Gabel Al-Zayt	2014	EEAA/ MSB
	Rehabilitation of sewage ponds	Sharm El-Sheikh	2015	EEAA/ MSB
Ethiopia				
✓ Conservation of Egyptian vulture	Creation of awareness	Local	Ongoing	EWNHS
	Develop policies/legislation for protection	National	Ongoing	EWNHS
	Increased knowledge of Egyptian vulture, breeding, total numbers, migration etc.	National	Ongoing	EWNHS
Niger				
Project Wildlife Monitoring in Niger				
✓ Vulture species monitoring.	Records of vulture species in the framework of wildlife monitoring in the main biodiversity hotspots in Niger (Gadabedji Game Reserve, Aïr massif, Termit & Tin Toumma National Nature Reserve, Tadress & Gadafawa areas)	Local	Started in 2007	SCF & GEDN
	Monitoring of the Lappet faced vulture breeding population in Termit massif	Local	Started in 2008	SCF, Noé Conservation & GEDN
	Termit massif has been designated an Important Bird Area by Birdlife in 2014	Local	2014	SCF, Noé Conservation & GEDN
Nigeria				
✓ N/A	N/A	N/A	N/A	N/A
Sudan				
✓ N/A	N/A	N/A	N/A	N/A

ANNEX 5 – Drivers for stakeholders behaviour

On most occasions, the main driver of stakeholders' activities that threaten Egyptian vultures is economic (*see **Figures A5.1-8***). This can work at a localised level (e.g. an Egyptian vulture may be poisoned as a result of a shepherd wanting to avoid losing sheep to wolves or it may be shot because a hunter wanted to sell it to a taxidermist), or at a much larger scale (e.g. hundreds of Egyptian vultures being electrocuted along a section of the electricity grid where vultures perch and power poles are poorly desiged or insulated, reduced food availability on breeding grounds due to agricultural intensification and changes in traditional pastoral systems, or extractive acitivities like wind farms and quarries that can alter habitat). Other important drivers exist too. Cultural beliefs, the practice of "traditional" medicine in Africa, are driving to extinction many species including Egyptian vulture. Human disturbance at breeding sites caused by recreational activities (e.g. hikers, climbers and treasure hunters) or military activity can affect Egyptian vultures and may result in breeding or foraging habitat loss.

Most (if not all) stakeholder groups have a common trait: lack of awareness of the consequences of their activities relative to conservation of Egyptian vultures.

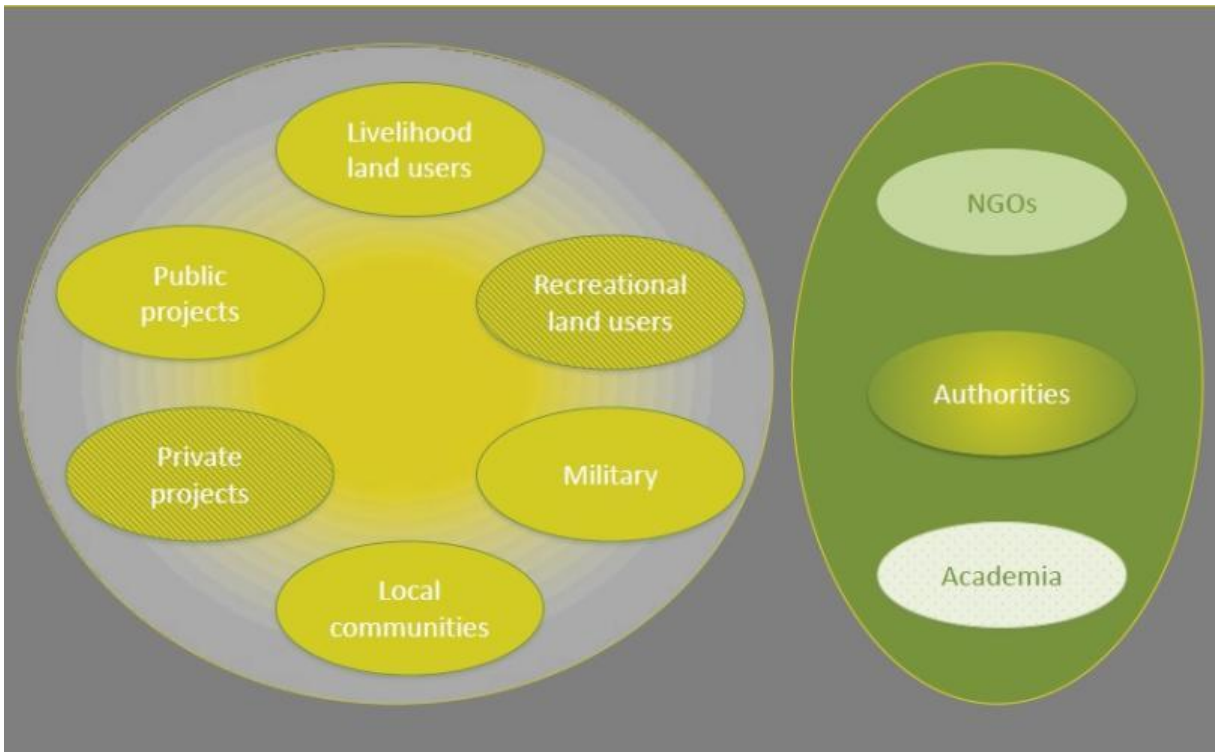

Figure A5.1. *Stakeholders associated with the main threats to the Egyptian vulture. The group on the left consists of stakeholders whose activities impact (negatively or positively) Egyptian vultures. Stakholders in this group are often unaware of the impacts. The group on the right consists of stakeholders directly involved in conservation actions for the species.*

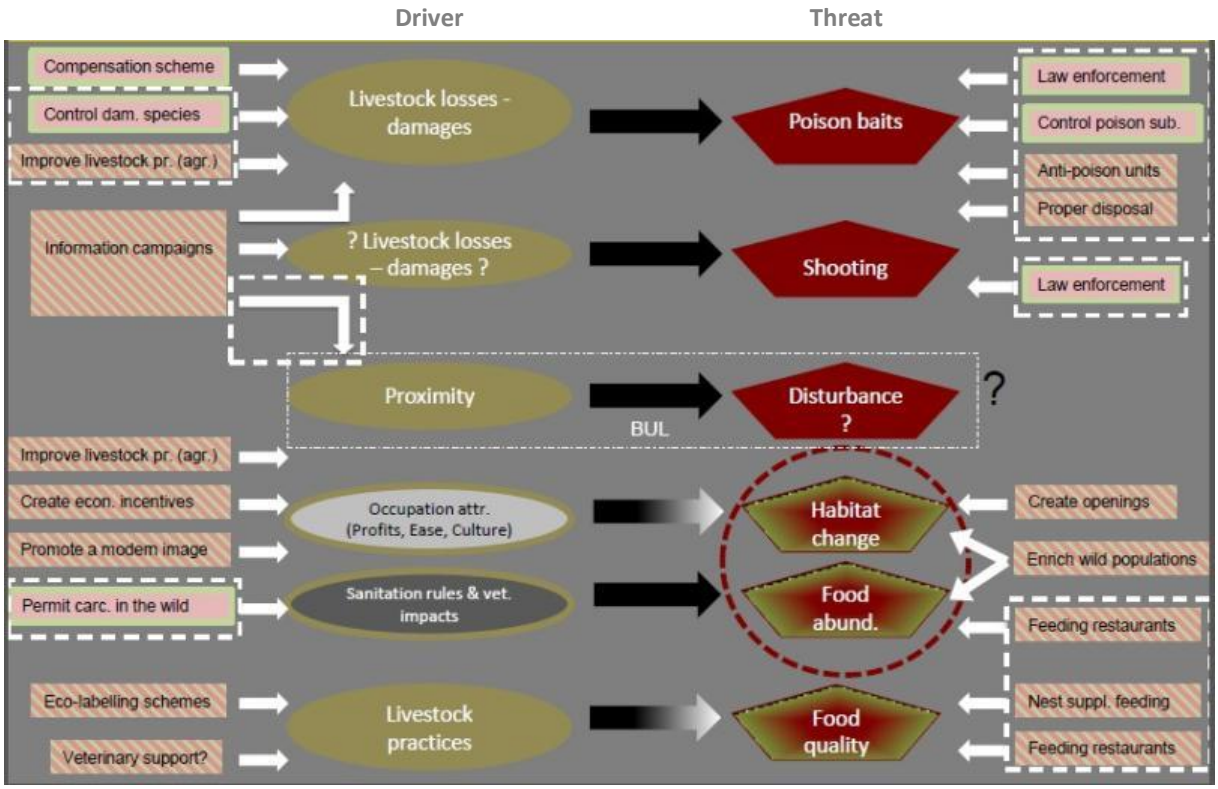

Figure A5.2. *Main drivers for stakeholder's behavior: Livelihood land users - livestock breeders/shepherds.*

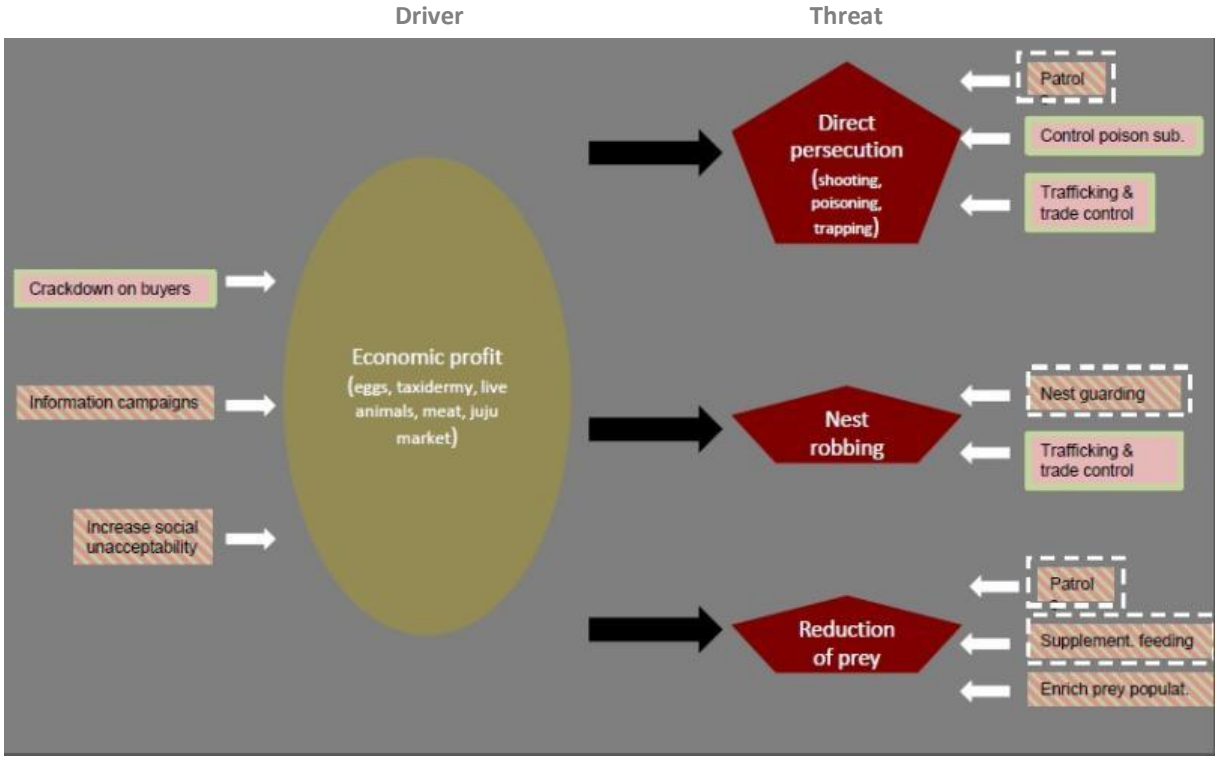

Figure A5.3. *Main drivers for stakeholder's behavior: Livelihood land users - poachers.*

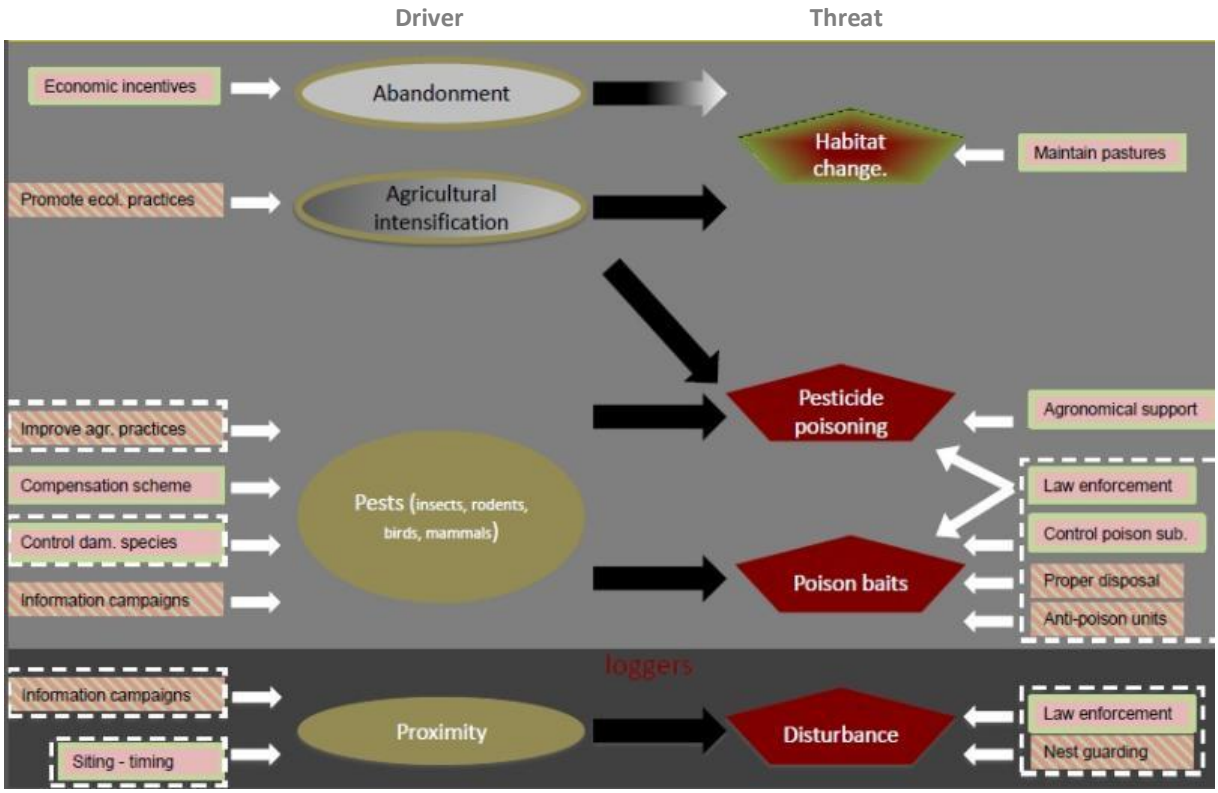

Figure A5.4. *Main drivers for stakeholder's behavior: Livelihood land users - farmers and loggers.*

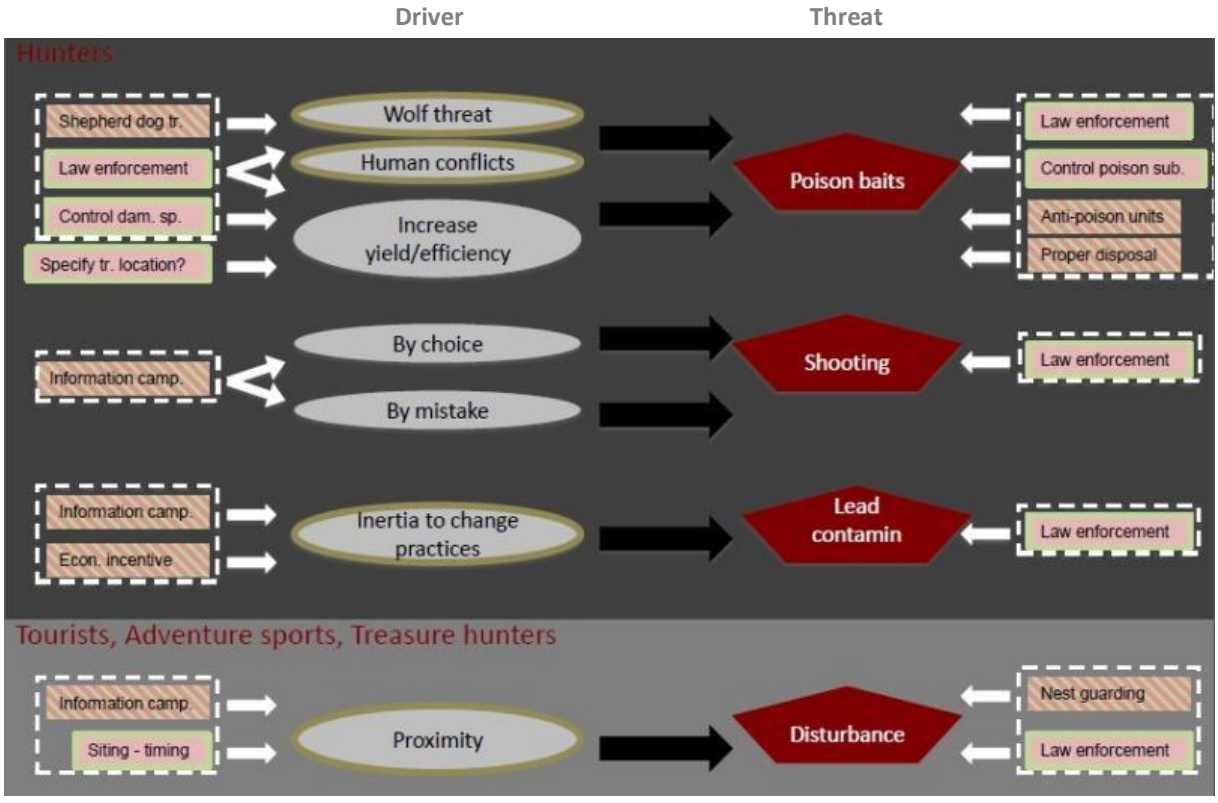

Figure A5.5. *Main drivers for stakeholder's behavior: Recreational land users.*

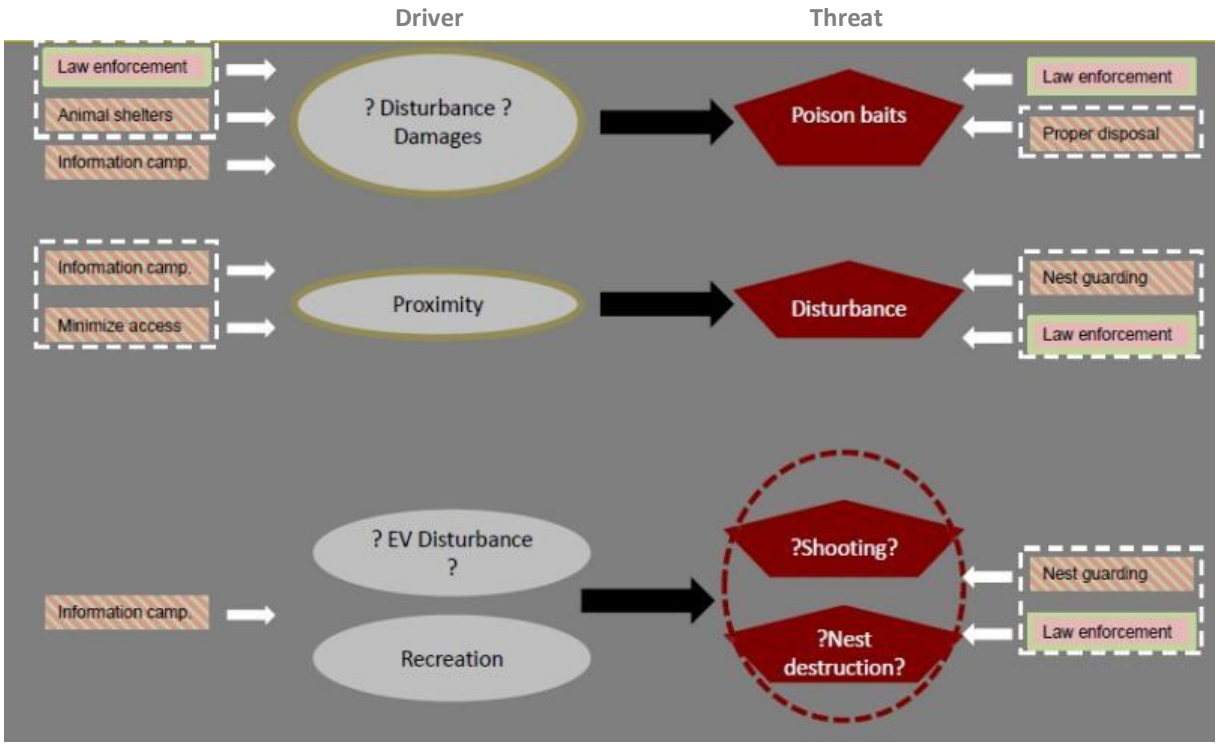

Figure A5.6. *Main drivers for stakeholder's behavior: Public -lLocal communities.*

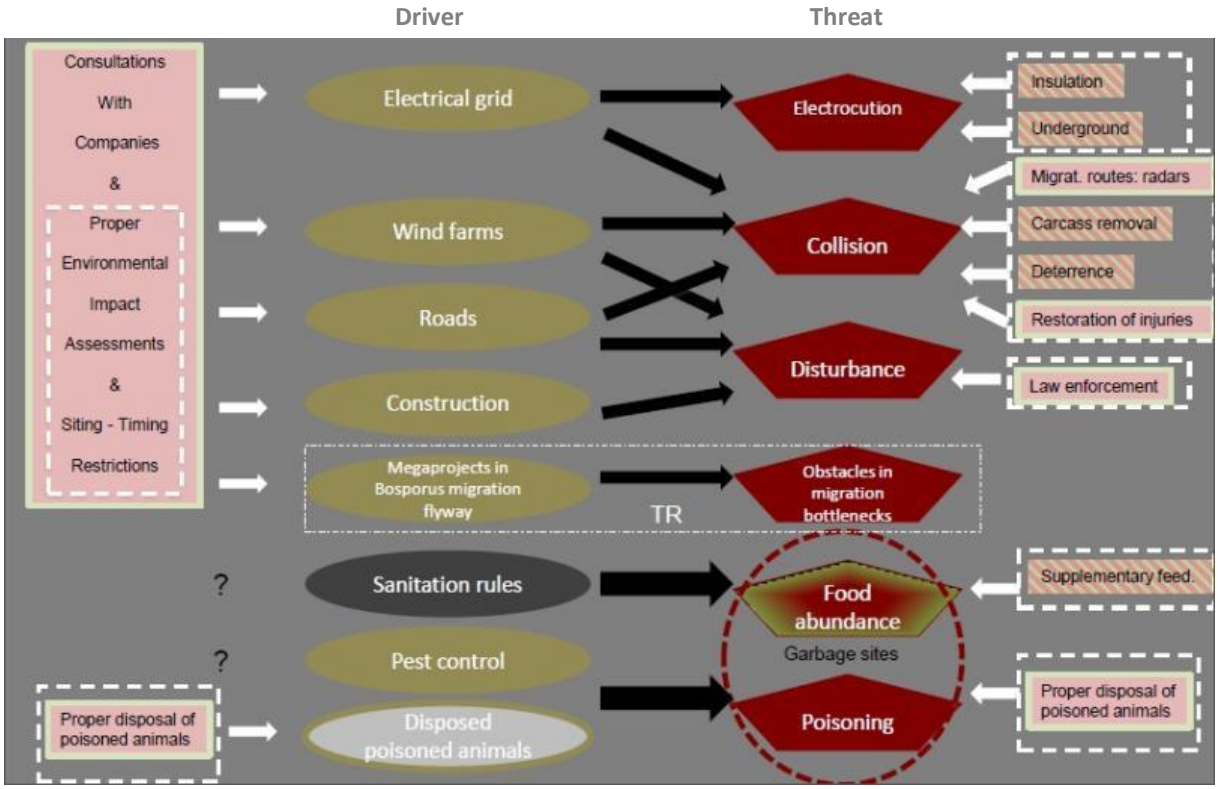

Figure A5.7. *Main drivers for stakeholder's behavior: Public - private projects.*

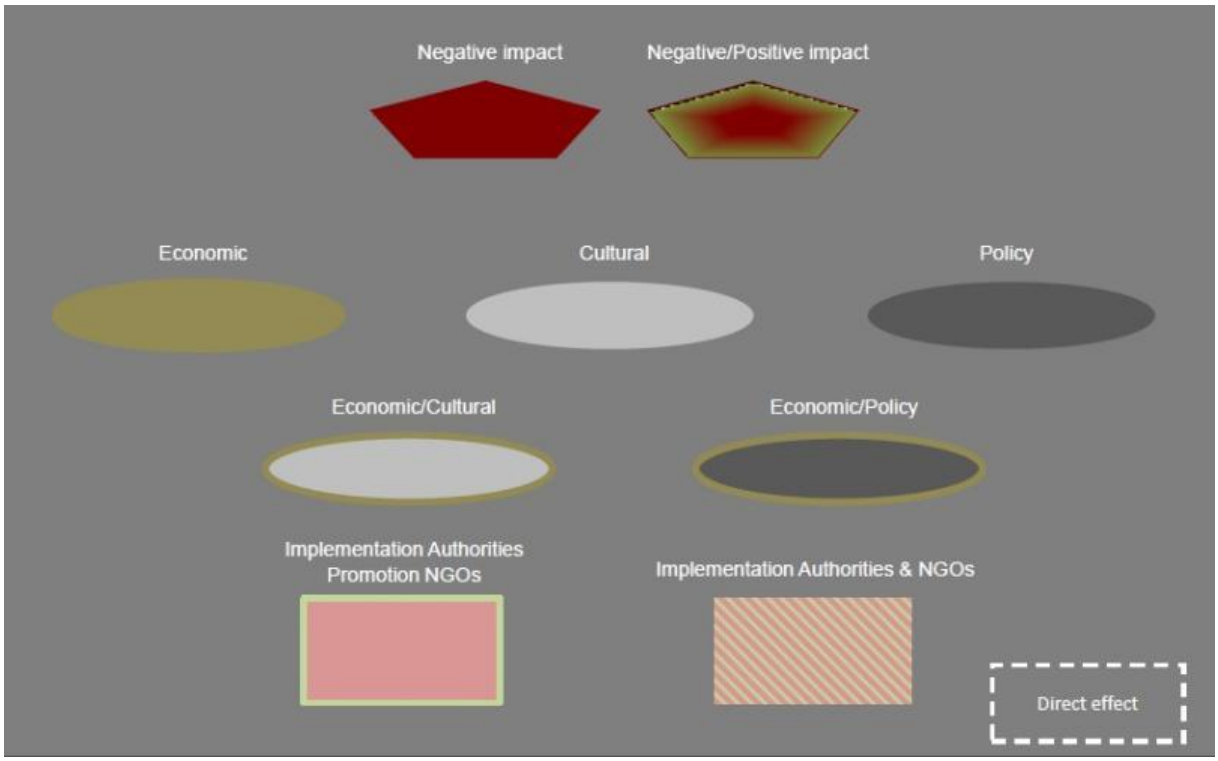

Figure A5.8. *Legend: Determination of shapes, colours and lines of the Figures above (A5.2-7).*