FLYWAY ACTION PLAN FOR THE CONSERVATION OF THE CINEREOUS VULTURE *AEGYPIUS MONACHUS*

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VCF Vulture Conservation Foundation

Vulture MsAP

Adopting Frameworks: The Flyway Action Plan for the Conservation of the Cinereous Vulture (CVFAP) was prepared by the Vulture Conservation Foundation (VCF) under a contract with the Coordinating Unit of the Convention on Migratory Species (CMS) Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia (Raptors MoU), financial contribution was also provided by Planckendael Zoo, Belgium – coordinator of the CV European Endangered Species Programme (EEP). This Action Plan was developed in parallel with the Multi-species Action Plan to Conserve African-Eurasian Vultures (Vulture MsAP), and alongside the development of the European Species Action Plan (SAP) for the Cinereous Vulture through EuroSAP Project: LIFE14 PRE UK 002 "Coordinated Efforts for International Species Recovery EuroSAP"[1], co-financed by the EU LIFE fund.

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Milestones in the production of the Plan:

- Vulture MsAP online questionnaire: August 2016
- Development of Species Status Report for Europe (Life EuroSAP): October 2016
- European Vulture MsAP Workshop in Monfragüe, Spain: October 2016
- Asian Regional Workshop in Mumbai, India: 29-30 November 2016
- EU SAP review online questionnaire: December 2016
- Middle East Regional Workshop in Sharjah, UAE: 6-9 February 2017
- Review of existing EU Species Plan: March 2017
- First draft of the new EU SAP: May 2017
- Workshop session at the Vulture Conservation Foundation scientific board meeting: April 2017
- First draft of the CVFAP: May 2017
- Final draft of the CVFAP: October 2017 – Public consultation

Geographical scope:
Global range of distribution for the species, all Range States (64): Afghanistan, Albania, Algeria, Armenia, Austria, Azerbaijan, Bangladesh, Belgium, Bhutan, Bosnia and Herzegovina, Bulgaria, Cambodia, China (People's Republic of), Croatia, Cyprus, Egypt, Estonia, France, Georgia, Germany, Greece, India, Iran (Islamic Republic of), Iraq, Israel, Italy, Japan, Jordan, Kazakhstan, Korea (Democratic People's Republic of), Korea (Republic of), Kyrgyzstan, Latvia, Lebanon, Macedonia (The FYR of), Moldova, Mongolia, Morocco, Myanmar, Nepal, Netherlands, Oman, Pakistan, Philippines, Poland, Portugal, Qatar, Romania, Russia, Saudi Arabia, Senegal, Serbia, Slovakia, Spain, Switzerland, Syrian Arab Republic, Tajikistan, Tunisia, Turkey, Turkmenistan, Ukraine, United Arab Emirates, Uzbekistan and Yemen.

Lifespan of Plan: this Flyway Action Plan is for implementation over 12 years, and should be reviewed and updated half way through the implementation period (after 6 years) in 2024/25.

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[1] http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=5184&docType=pdf

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Executive Summary

The global IUCN Red List Category for Cinereous Vulture (Aegypius monachus) is Near Threatened (C1), as the species has a moderately small population which appears to be suffering an ongoing decline in its Asiatic strongholds, even though numbers are now increasing in parts of Europe. In this continent, the species does not meet regional IUCN Red List criteria, and its European Threat Status is Rare (BirdLife International, 2017). The species is listed in Annex I of the European Union Birds Directive and in Appendix II of the Bern Convention.

According to recently collected data for this study (2016/17 - through the Vulture MsAP questionnaire and during the Vulture MsAP development process), we estimate the global Cinereous Vulture population to be between 9,657 and 12,306 breeding pairs, of which Europe contributes 2,536 to 2,838 breeding pairs. A positive or increasing population trend has been recorded in the European range countries, but the trend across Asia is believed to be a decline, although there is a lack of quantitative data.

A total of 64 countries are considered as Range States for the Cinereous Vulture: breeding in 19, vagrant or wintering visitor in 41, and considered to be extinct as a breeding species in 15 countries (although in 11 of these it still occurs as a non-breeding visitor or vagrant).

The main strongholds for Cinereous Vulture are: Mongolia, which holds approximately 50% of the species global population, and Spain which hosts more than 20% of the global population (90% of the European population). These facts have been considered during the identification and assessment of the global threats that affect the species and during the development of the action framework proposed.

Apart from the biological assessment of the species, the CVFAP clearly defines all identified threats to the Cinereous Vulture. Some cause the direct mortality of individuals, but others negatively impact on the reproduction of the birds or influence the distribution of the species. Poisoning is the most severe threat to vulture species, including the Cinereous Vulture. This is typically unintentional, with vultures being secondary or tertiary victims of poison used against predators (foxes, wolves, feral dogs, etc.) that are in conflict with human activities such as livestock farming and hunting. Other key threats with strong negative impacts on populations are: electrocution and collision with power generation and transmission infrastructures, decline of food availability (due to the decrease of wildlife and/or livestock), disturbance caused by human activities, habitat degradation and deliberate killing, this last threat being more relevant for the Asian part of the species distribution range.

The CVFAP aims to precisely address these threats by proposing 68 conservation actions under 12 detailed objectives, foreseen to be implemented within the next 12 years (2018-2029).

The CVFAP main goal is to halt current population declines, and to restore the Cinereous Vulture to its original geographic range with all populations in a favorable conservation status.

The CVFAP high level objective is to enhance recolonization of the former range by reducing threats in all relevant Range States and establishing safe corridors and links between populations.

The only existing International Action Plan for the conservation of the species is the European SAP for the Cinereous Vulture (Heredia, 1996), developed in 1993 and adopted in 1996 by the European Union and the Bern Convention. Its implementation has been reviewed four times (the latest available in section 6.1) and in all four, it was concluded to be well implemented.

The effectiveness and the positive results of this European SAP are evident, with the European population of the Cinereous Vulture registering a remarkable increase since its adoption. Nevertheless, the European SAP covers only 20 - 25% of the global species' population, corresponding precisely to the part of the population showing a positive trend.

Therefore, this Flyway Action Plan aims to integrate the European action framework, including implementation best practice experience, into the global picture and to propose a coordinated and coherent framework for conservation of the Cinereous Vulture in its entire distribution range.

Approach and Methodology 2

The Flyway Action for the Conservation of the Cinereous Vulture (CVFAP) was prepared alongside with the Multi-species Action Plan to Conserve African-Eurasian Vultures and the development of an updated European Species Action Plan for the Cinereous Vulture. The three Action Plans are fully compatible and have been developed in parallel through the following steps:

The Vulture MsAP Questionnaire was circulated in mid-August 2016, to collate information about the biology, status, threats and conservation effort for all the African-Eurasian vulture species. Within a period of two months we received 208 responses, of which 93 provided relevant information about the Cinereous Vulture (questionnaire respondents are listed in Annex II, Table 3.

Four Regional Workshops were organized during the development of the Vulture MsAP: African Regional Workshop in Dakar, Senegal in October 2016; European Regional Workshop in Monfragüe, Spain in October 2016; Asian Regional Workshop in Mumbai, India - November 2016 and the Middle East Regional Workshop in Sharjah, UAE - February 2017. The overall aims of these workshops were to gather up-to-date information on species' distributions, populations and trends; to fully understand the reasons for vulture declines (threat identification); and, to develop a comprehensive framework for conservation action. The European Regional Workshop outcomes contributed most significantly to this CVFAP, as the European Vulture MsAP range also included the countries from Central Asia (Total of 58 Range States), covering most of the distribution range of the Cinereous Vulture. However, relevant information was also gathered at the other regional workshops and have been incorporated into this FAP.

The development of a revised and updated European Species Action Plan for the Cinereous Vulture, basically involved: preparation of the Species Status Report for the Cinereous Vulture (produced in November 2016, just after the European Regional Vulture MsAP Workshop), an Implementation Review of existing European SAP (a specific questionnaire was distributed in December 2016, report produced in March 2017) and development of the 1st draft of the new European SAP for the Cinereous Vulture (April 2017).

While the original intention was to produce a single document that could serve as a European Species Action Plan and Flyway Action Plan, operational reasons related to specific project outputs led the EU to request a separate European Species Action Plan. However, this was developed in concert with, and is closely aligned to, the Flyway Action Plan.

3.1 Identification

The Cinereous Vulture is believed to be the largest bird of prey in the world, together with the Andean Condor (*Vultur gryphus*) males (Houston et al. 2017, Meyburg et al. 2017). Females are slightly larger than males. This huge bird measures 98–120 cm (3 ft. 3 in–3 ft. 11 in) long with a 2.5–3.1 m (8 ft. 2 in–10 ft. 2 in) wingspan. Males can weigh from 6.3 to 11.5 kg (14 to 25 lb), whereas females can weigh from 7.5 to 14 kg (17 to 31 lb). It is thus one of the world's heaviest flying birds. Among standard measurements, the wing chord is 73–89 cm (29–35 in), the tail is 33–41 cm (13–16 in) and the tarsus is 12–14.6 cm (4.7–5.7 in) (Brown and Amadon 1986, Ferguson-Lee and Christie 2001).

It is a dark brown bird, has broad wings which have a serrated appearance to their trailing edges, owing to the pointed tips of the secondary feathers (Clark 1999). In flight, the tips of the wings show seven deeply splayed 'fingers', and this species has a short, slightly wedge-shaped tail (Del Hoyo et al. 1994). The bare skin on the head and neck is blue-grey, and there is some darkly-coloured down on the head (Del Hoyo et al. 1994) and a brown 'Elizabethan' ruff of feathers around the hind neck (Clark 1999). This ruff is paler in older individuals (Del Hoyo et al. 1994) giving the Cinereous Vulture its alternative name of 'monk vulture', as it is thought to resemble a monk's hood. It has a very powerful bill, which is mostly dark but has a lighter area at the base. The legs and feet of this species are pale in colour (Clark 1999).

Juvenile Cinereous Vultures are darker than adults and often look almost black. They also lack the pale line on the underside of the wing, and have pinkish to pale grey skin on the head (Del Hoyo et al. 1994, Clark 1999). As the juvenile Cinereous Vulture approaches maturity, the down on its head gets paler and its eyes change from dark brown to a reddish-brown (Clark 1999). Individuals fly with slow, powerful wingbeats and soar with flat wings (Clark 1999).

3.2 Taxonomy and biogeographic populations

Kingdom:	Animalia
Phylum:	Chordata
Class:	Aves
Order:	Accipitriformes
Family:	Accipitridae
Subfamily:	Aegypiinae
Genus:	Aegypius
Species:	*Aegypius monachus* (Linnaeus, 1766)

The species belongs to the Accipitridae family, and is the only species in the genus Aegypius. Scientific name: Aegypius monachus (Linnaeus, 1766). Common names: Cinereous Vulture, Eurasian Black Vulture, European Black Vulture, Monk Vulture. No subspecies are identified (Global Raptor Information Network 2016), although there is evidence of an East-West clinal distribution of different lineages but with a low overall genetic variability. Populations of the Iberian Peninsula, the Balkans, the Caucasus and Central Asia can be considered evolutionary significant units (Poulalakis et al. 2008). Body size increases from west to east, with the birds from south-west Europe being about 10% smaller on average than in Central Asia (Ferguson-Lees et al. 2001).

3.3 Distribution throughout the annual cycle

The Cinereous Vulture has a large distribution range across Europe, Asia and North Africa. It breeds in Portugal (recent

recolonization), Spain (including the only island population in Mallorca), France (reintroduced population, now self-sustaining), Greece, Turkey, Armenia, Azerbaijan, Georgia, Ukraine, Russia, Uzbekistan, Kazakhstan, Tajikistan, Turkmenistan, Kyrgyzstan, Iran, Afghanistan, northern Pakistan (Khan, Parveen and Yasmeen in lit. 2005), Mongolia and mainland China (Heredia 1996, Heredia et al. 1997, Skartsi et al. 2008, Skartsi et al. 2010, V. Galushin in lit. 1999). The wintering range includes additional states to the south of the breeding range, in Saudi Arabia, Iran, northern India, Nepal, Bhutan, Bangladesh, DPR Korea and Republic of Korea. It appears to be very rare and of irregular occurrence in Africa (e.g. Egypt: Goodman and Meininger 1989), with no reliable records in Sudan (Nikolaus 1987). Detailed information regarding Range States and status of the species in each one of them is available in **Table 1**.

3.3.1 Movements

The species is a partial migrant (Bildstein 2006). Sedentary in some areas, but many individuals winter south of the breeding range, and there is a considerable degree of nomadism. Gavashelishvili and McGrady (2006) recorded long range movements by a bird that fledged in Georgia, travelled south to Saudi Arabia, and then headed north into Russia. All juvenile and immature individuals marked in this study migrated in the autumn after hatching, wintered in Iran and Saudi Arabia, and then migrated north the following spring, initiating spring migration about the time of hatching of Cinereous Vultures in the Caucasus (March–April) (Gavashelishvili et al. 2012).

Many adults and juveniles in Mongolia apparently migrate in autumn to wintering areas in the Republic of Korea (South Korea) (Batbayar 2004, Batbayar *et al.* 2006), while birds from central Asia migrate to the Indian subcontinent, southern China, Russian far East, and the Republic of Korea (Batbayar 2006). In Europe, the adults are mostly sedentary while the juvenile birds disperse over larger areas. In Spain, the movements of the juveniles are mainly limited to the western and central part of the Iberian Peninsula and in the surroundings of the breeding colonies (Moreno-Opo and Guil 2007). Movements of individuals to and from Spain, France, Portugal and Italy have been recorded in recent years. Also, birds from the Dadia-Lefkimi-Soufli Forest National Park colony in North-eastern Greece regularly visit the nearby vulture feeding sites in southern Bulgaria, and disperse in the wider range of Rhodope Mountain (Vasilakis e al. 2008, Vasilakis et al 2016, Vasilakis et al. 2017) with some moving into Turkey (Skartsi pers. com 2016). Reports of Cinereous Vultures as regular winter visitors to Africa (Egypt and Sudan) appear to be unfounded, at least recently, although very small numbers have been recorded (less than annually) in Egypt. Few birds are recorded crossing the Gibraltar Strait yearly. At least two birds from Spain and France respectively have been recovered in Senegal and Mali after being marked at their respective breeding colonies (Cantos and Gómez-Manzaneque 1996).

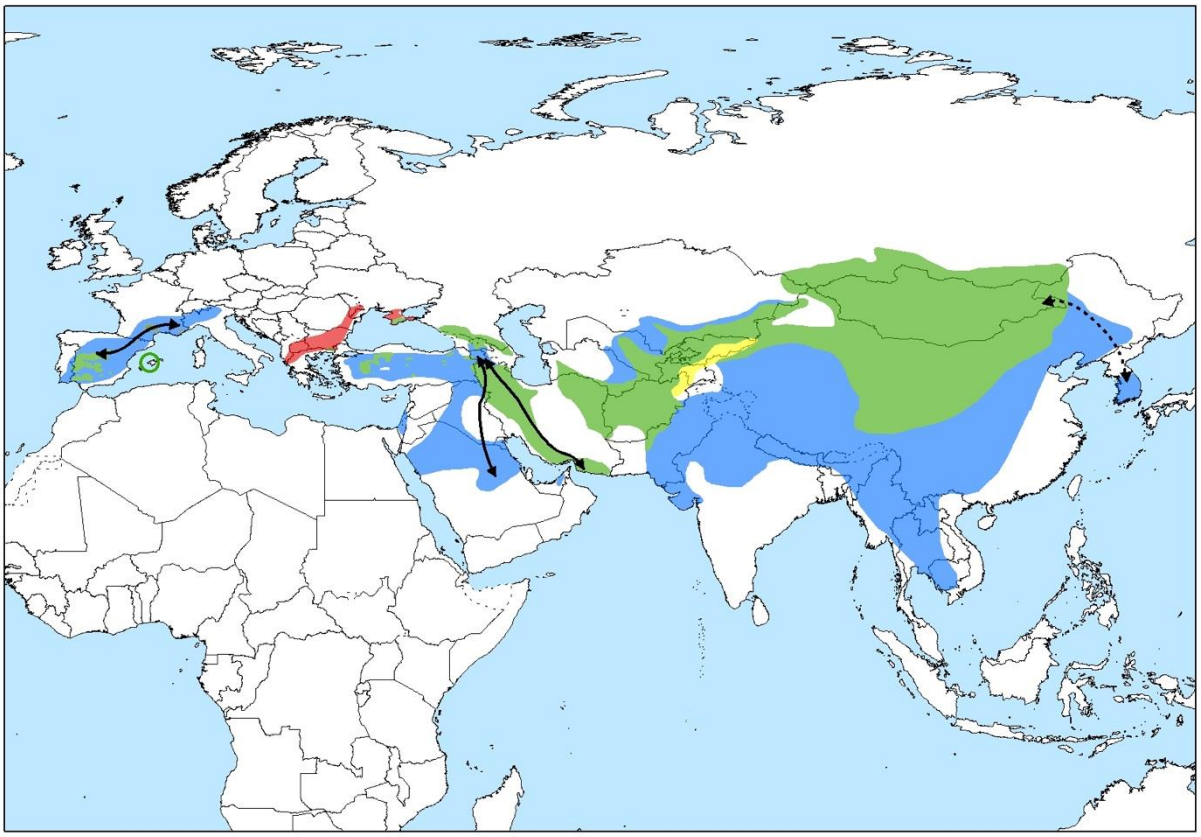

Figure 1. *Global distribution range of the Cinereous Vulture*[2].

Legend for range map	
	Resident: resident throughout the year, and breeding
	Breeding visitor: occurs regularly only during the breeding season, and known to breed
	Non-breeding visitor: occurs regularly during the non-breeding season. In the Eurasian context, this encompasses 'winter'. For vultures, this covers all non-breeding movements outside the breeding range
	Extinct: formerly bred, but no breeding has been recorded in the last 30 years.
	Arrows indicate approximate migration/dispersal routes where there may have been few actual observations, but data clearly indicate occurrence regularly, even if during a relatively short period
	of the year, on migration between breeding and non-breeding ranges. Solid arrows indicate a route confirmed by multiple tracking datasets; dashed arrows show a route inferred from point locality information.

The global range covers 64 countries, of which 19 are supporting breeding populations, whilst in a further 41 countries it is recorded as vagrant or wintering[3]. The species is extinct in 15 countries. For more details, please see **Table 1** below.

[2] The Cinereous Vulture range map is that prepared for the Vulture MsAP, based on BirdLife International and Handbook of the Birds of the World (2017) with revisions following subsequent public consultation.

[3] In most of the Range States where the species became extinct as a breeding species it is still considered to be a non-breeding visitor or vagrant.

Table 1. *Cinereous Vulture Range States and species status*

Breeding	Non-breeding visitor or vagrant	Formerly bred
Afghanistan	Algeria	Albania [b]
Armenia	Austria	Austria [b]
Azerbaijan	Bangladesh	Bosnia and Herzegovina [b]
China (People's Republic of)	Belgium	Bulgaria [a]
France	Bhutan	Croatia [b]
Georgia	Bulgaria	Cyprus [b]
Greece	Cambodia	Egypt [b]
Iran (Islamic Republic of)	Cyprus	Israel [b]
Kazakhstan	Egypt	Italy [b]
Kyrgyzstan	Estonia	Jordan [b]
Mongolia	Germany	Macedonia (The FYR of) [a]
Portugal	India	Moldova [b]
Russia	Iraq	Morocco [b]
Spain	Israel	Romania [b]
Tajikistan	Italy	Serbia [b]
Turkey	Japan	
Turkmenistan	Jordan	
Ukraine	Korea (Democratic People's Republic of)	
Uzbekistan	Korea (Republic of)	
	Latvia	
	Lebanon	
	Macedonia (The FYR of)	
	Morocco	
	Myanmar	
	Nepal	
	Netherlands	
	Oman	
	Pakistan	
	Philippines	
	Poland	
	Qatar	
	Romania	
	Saudi Arabia	
	Senegal	
	Serbia	
	Slovakia	
	Switzerland	
	Syrian Arab Republic	
	Tunisia	
	United Arab Emirates	
	Yemen	

[a] *Extinct as breeder in this Range State within the last 30 years.*
[b] *Extinct as breeder in this Range States more than 30 years ago.*

3.4 Diet

Like all the Old World vultures (except the Palm-nut Vulture *Gypohierax angolensis* (Carneiro 2017), the Cinereous Vulture feeds mostly on carrion. Its diet consists mainly of carrion from medium-sized or large mammal carcasses, although snakes and insects have also been recorded as food items. Live prey is rarely taken (Batbayar et al. 2006). It mainly feeds on the carcasses of rabbits, sheep and wild ungulates (Hiraldo 1976, Corbacho et al. 2007, Yamac and Günyel 2010). However, changes in the availability of prey over the last 30 years have led to a decrease in the number of rabbits in its diet and an increase in the consumption of domestic ungulates (Corbacho et al. 2007, Costillo et al. 2007, Moreno-Opo et al. 2010). In Mongolia, at least, the species is reliant on livestock numbers for successful nesting (Batbayar et al. 2006). Studies in Spain show that the species prefers individual, medium-sized pieces of muscle and small peripheral scraps of meat and tendon (Moreno-Opo et al. 2010). Juveniles show a preference for sheep and goat carcasses (Moreno-Opo et al. 2015). In Greece, terrestrial tortoises contribute 15% of the diet (Skartsi et al. 2015), whilst in Turkey wild boar are important, and feeding on wolf and fox carcases was also noted. (Yamac and Günyel 2010). Detailed knowledge of its diet and which specific anatomic parts of a carcass it prefers may constitute a fundamental tool for the design of conservation strategies (Margalida et al. 2009, Moreno-Opo et al. 2015).

3.5 Habitat requirements

Forested areas in hills and mountains are used in Spain at an altitude of 300-1,400m, but it occurs at higher altitudes in Asia, where it also occupies scrub and arid and semi-arid alpine steppe and grasslands up to 4,500m (Thiollay 1994). Nests are normally built on trees, sometimes on cliffs or even on the ground (Mebs and Schmidt 2006). Between the Iberian Peninsula and the Caucasus for nesting-sites it generally selects steep and south-facing slopes, with a high cover of large trees that are not subject to disturbance by human activities (Moreno-Opo 2012). The Cinereous Vulture nests in trees in the Iberian Peninsula, with oak (*Quercus suber* and *Q. rotundifolia*) and pines being the most widely used species (Moreno-Opo 2007a). In its easternmost range, it prefers arid hilly and montane habitats, including semi-desert, with nests built on rocky ledges and on the ground.

It spends much time soaring overhead in search of food, over a variety of habitats including treeline, agricultural habitats with patches of forests, bare mountains, steppe and open grasslands. It is a central place forager around the breeding colonies (Carrete and Donázar 2005) being more common in areas with a higher prey abundance, especially extensive livestock, wild ungulates and lagomorphs (Costillo et al. 2007). Non-breeding individuals tend to concentrate in other areas with high amounts of predictable food availability such as supplementary feeding sites and hunting estates (Moreno-Opo et al. 2015). It perches more often on trees than on cliff faces or on the ground. Although not numerous, in places with abundant food the species may congregate in large flocks (Flint 1984).

3.6 Productivity and survival

The Cinereous Vulture has the longest breeding period of all raptors in Europe. The incubation period of the single egg averages 57 days (range 50-68 days). The young spend 110-120 days in the nest (with extreme ranges from 88-137 days) (Moreno-Opo 2007a). After fledging the young return to the nest for a while to obtain food from the adults and to roost at night (Mebs and Schmidt 2006). In Spain, most eggs are laid between the end of February and the first half of March,

although some eggs may be laid earlier and the last into April (Moreno-Opo 2007a). In Turkey, the breeding season begins between the second week of February and April. The first young hatch on the third week of March and fledge by the second week of August (Kirazlı and Yamaç 2013). The nest is huge, the largest ones having a diameter of up to 254 cm and a height of 129 cm. In Spain, nests on oaks were on average 160 cm wide and 93 cm high (Moreno-Opo 2007a).

Breeding parameters of the species are not well known for the entire breeding range. In Spain, the latest national coordinated census (in 2006) revealed an overall productivity (number of chicks reared/total observed pairs) of 0.60 and a breeding success (number of chicks reared/pairs starting incubation) of 0.68 (De la Puente et al. 2007). These values could be considered as sustainable for maintaining a positive population trend if no serious threats such as poisoning, shooting or electrocution impact regionally, and reflect a possible minimum reference for well-managed breeding areas of the species (Moreno-Opo and Margalida 2014). The breeding success values, which are the most accurate for studying the demographic traits of the species, vary in other regions from 0.27 to 0.55 (2001-2003) in France, 0.57 in Uzbekistan (Dobado and Arenas 2012) and from 0.52 to 0.95 (1993-2005) in Greece (Vlachos et al. 1999, Skartsi et al 2008). Survival / mortality rates have not been studied for the species in a detailed way.

3.7 Status, population size and trend

The most recent global population estimate (BirdLife International, 2017) is 7,800-10,500 pairs, roughly equating to 15,600-21,000 mature individuals. This consists of 2,300-2,500 pairs in Europe (BirdLife International 2004, Anon. 2004) and 5,500-8,000 pairs in Asia. The population in the Republic of Korea has been estimated at c.50-10,000 wintering individuals (Brazil 2009). The global estimate roughly equates to 23,400-31,500 individuals (BirdLife International 2017).

According to data collected during 2016 and 2017, via questionnaires and other information gathered during the preparation of the Vulture MsAP, the Cinereous Vulture population is increasing in Europe: by 48% during the last decade (Deinet 2013), specifically in Spain (with an increase from 2,068 breeding pairs in 2012 to 2,198 – 2,258 breeding pairs by 2015); Portugal (18 pairs, increasing); and France (31 pairs in 2016, increasing). In Greece, the population is located at a single colony (21-35 breeding pairs, stable or slowly increasing) and in the Caucasus population estimates are available only from a few countries and the population trend seems to be stable. The trend across Asia is believed to be an ongoing moderate decline, although there is lack of quantified data for this major part of the population.

Recent national population estimates and trends, presented in **Table 2**, estimate the global Cinereous Vulture population at 9,657 - 12,306 breeding pairs, and for Europe from 2,536 - 2,838 breeding pairs.

It is very important to highlight the main strongholds of the Cinereous Vulture population: Mongolia holds approximately 50% of the species' global population, and Spain more than 20% (representing 90% of the European population). These facts must be kept in mind when identifying global threats to the species and when developing conservation actions.

Only partial information is available on trends in the non-breeding (wintering) range of the species; wintering numbers appear to be declining in Nepal and significantly increasing in India and South Korea (due to establishment of feeding sites). The latest population count for

wintering Cinereous Vultures in South Korea was 2,532 individuals in 2012 (Cultural Heritage Administration 2012), and during the previous count in 2004-2005 approximately 1,600 birds were recorded (Choi 2012). The wintering population in Nepal is estimated at 60-100 individuals (Inskipp 2016). The number of individuals wintering in Pakistan is estimated to be 4,500-5,000 individuals.

Table 2. *Cinereous Vulture national breeding population estimates and trends.*

Country	Breeding pairs	Data quality	Year(s) of estimate	Breeding Population trend in the last 10	Data quality
Afghanistan	No data	M			
Armenia	50	M	2007-2009	stable	M
Azerbaijan	20-100	M	2000-2016	stable	M
China (People's Republic	1760		1991		
France	31	G	2016	small increase	G
Georgia	50	G	1995-2016	stable	G
Greece	21-35	G	2006-2015	moderate increase	G
Iran (Islamic Republic of)	No data				
Kazakhstan	150-300	M	2012	stable	M
Kyrgyzstan	50-60	M	2007		
Mongolia	5000 -7000	P	2016	small decline	P
Portugal	18	G	2016	large increase	G
Russia (Caucasus)	63-102	M	2004	small decline	M
Russia (Altai-Sayan)	71-96	G	2009	moderate increase	G
Spain	2198 - 2258	G	2015	moderate increase	G
Tajikistan	10-100	P	2016		
Turkey	80-200	M	2013	decline	M/P
Turkmenistan	30-32	M	2013	decline	M
Ukraine	15-19	G	2016	stable	G
Uzbekistan	80-120	M	2005	small decline	P

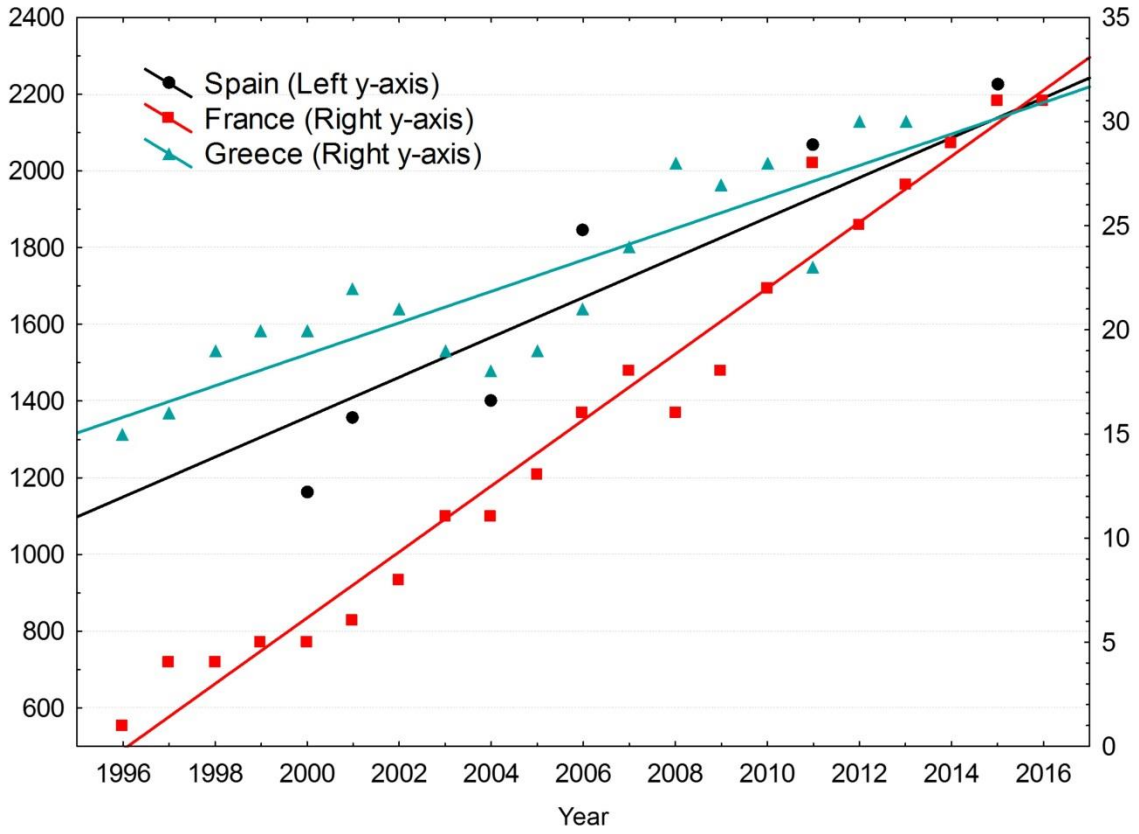

Figure 2. *Estimated number of Cinereous Vulture breeding pairs in Europe (Spain,[4] France[5] and Greece[6]).*

[4] Moreno-Opo, R. and Margalida, A. (2014). Conservation of the Cinereous Vulture *Aegypius monachus* in Spain (1966–2011): a bibliometric review of threats, research and adaptive management. Bird Conservation International, 24, pp 178-191 and 2015 update (Moreno-Opo unpublished data).

[5] Néouze, R., Nadal, R., Tessier, C., Henriquet, S. and Arenales del Campo, V. (2016). Bilan annuel du Plan National d'Action en faveur du vautour moine en France en 2016. Compte rendu du comité de pilotage du PNA Vautour Moine du 25/04/2017 à Montpellier (VEB, LPO PACA, LPO GC, DREAL Occitanie).

[6] Skartsi, T., Elorriaga, J. and Vasilakis, D. 2008. Population size, breeding rates and conservation status of Eurasian Black Vulture in the Dadia National Park, Thrace, NE Greece. – Journal of Natural History 42: 345-353.
and WWF Greece unpublished data

4.1 General overview of the threats

As for most, if not all, vulture species, poisoning is the most severe threat to the Cinereous Vulture. This is the reason for the species' extinction in significant part of its original range, the cause of declines in more than half of its current range and one of the main constraints for its recovery. In general, poison is not used to intentionally kill vultures – these birds are normally secondary or tertiary victims of poison used against predators (foxes, wolves, feral dogs, etc.) regarded to be in conflict with human activities such as livestock husbandry and hunting. Poisoning can also be unintentionally caused by agrochemicals (pesticides), veterinary pharmaceuticals (used in livestock), and lead ammunition from hunting activities. Poisoning is not the only threat affecting the Cinereous Vulture: electrocution and collision with electricity infrastructure are also causing direct mortality across its entire range. At present, the persecution or deliberate killing of birds is considered a threat in Central Asia, rather than Europe.

The species is also threatened by factors that affect breeding success and distribution. The decline of herbivores (wildlife and livestock), resulting in a reduction of animal carcasses in the wild, is considered to have a negative impact on the species. Disturbance caused by human activities during the breeding season (which is protracted for this species, see section 2.6) can also have a negative effect on breeding success.

Detailed analyses of the threats affecting each vulture species were made during the Vulture MsAP process. **Figure 3** presents the high priority threats to the Cinereous Vulture and **Table 1** from **Annex IV** presents a full list of threats affecting the species in its entire distribution range.

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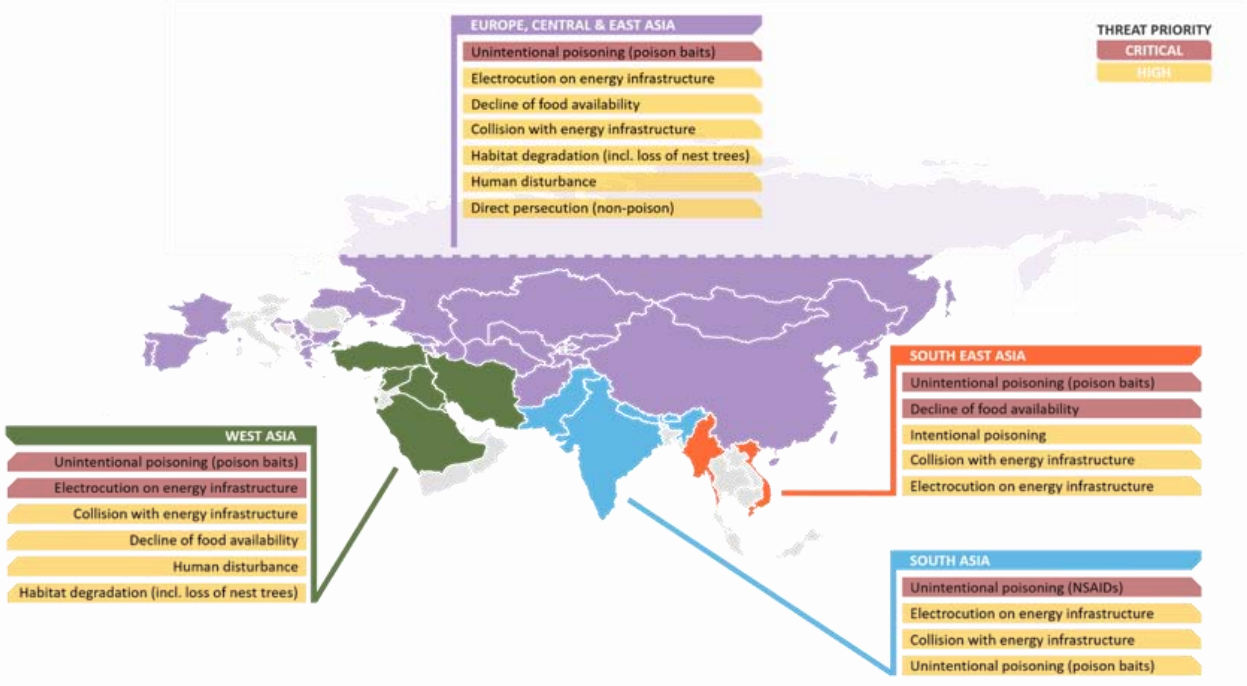


Figure 3. *High priority threats to the Cinereous Vulture by region (source: Vulture MsAP).*

4.2 Overview of major threats at regional level

4.2.1 Unintentional poisoning (by poison baits)

Birds are killed when feeding on carcasses or on poison baits deliberately laced with pesticides (mostly insecticides) to kill wild predators, badgers, feral/hunting/shepherd dogs or rodents across the entire species' range. In Spain, between 1992 and 2013, a total of 578 Cinereous Vultures were found poisoned (Cano 2016). Another study, also from Spain, shows that this kind of poisoning mainly affects adult individuals (83% from 464 affected individuals), something that can have important effects on population dynamics (Hernández and Margalida 2008). In Greece, based on WWF Data, during 1994-2005, 86% of poisoned Black vultures were adults (Skartsi at al. 2010). Eleven different poison compounds were identified in the same study, although just three accounted for up to 88% of the poisoning cases: carbofuran, aldicarb, and strychnine (Hernández and Margalida 2008). In Greece, carbamates, carbofuran, methomyl and methamidofos were identified as poisoning compounds on dead black vultures (Skartsi et al. 2010). Poisoning has been also recorded as a threat in a stronghold country, such as Mongolia (Batbayar 2005).

4.2.2 Electrocution and collision

Electrocution and collision are important threats resulting from power generation and distribution infrastructure: Electrocution normally caused by electricity utility poles (adjacent wires or conductors at the top), and collision with distribution lines or wind-turbines. There is no doubt about the severity of these threats to raptors or soaring birds, although little substantive data is available for this species. In Spain, there are records of at least 30 birds killed by electrocution and collision (Moreno-Opo 2007b), and a further four, at least, were electrocuted in the Grand Causses in France after being reintroduced (Eliotout and Orabi 2010). The Cinereous Vulture population in Greece is also affected by these threats (Vasilakis et al. 2017, Vasilakis et al. 2016). On the steppe habitats of Kazakhstan, the Cinereous Vulture was identified among the list of birds found dead due to collision and electrocution (Haas and Nipkow 2006, Lasch et al. 2010). Dixon *et al.* (2013) recorded Cinereous Vultures among the species killed on power lines during a study in Mongolia. Collision with wires has been reported to be a threat to Cinereous Vultures wintering in South Korea as well.

The development of wind energy could be a serious threat in the future. In Spain, to date, fourteen vultures have been killed and there are two records from Geece and one in India (Camiña 2007, 2017, Pers.comm.). Reasons for this might be that most wind farms in Spain have been built outside the core areas of the species' distribution. There is also a lack of long-term post-construction monitoring required to properly assess impacts.

4.2.3 Decline of food availability

In Eastern Europe and Central Asia, particularly in the former Soviet Union, changes in agricultural practices and human migration from the countryside to the cities have greatly reduced numbers of domestic livestock. In Georgia and Armenia, declines may be linked to the loss of subsidies for sheep-herding in the post-Soviet era (McGrady *in lit.* 2007). Additionally, there have been steep declines in many populations of wild ungulates which provide a major food source for the species. In Kazakhstan, all vulture species are in serious decline as a result of the precipitous fall in numbers of their main food resource, the saiga (*Saiga tartarica*), a critically endangered antelope, and this trend is possibly mirrored in several other Central Asian countries where populations wild ungulates have

declined in recent years. In Europe, a lack of naturally available food followed the introduction, in the early 2000s, of highly restrictive veterinary sanitary regulations (due to Bovine Spongiform Encephalopathy, Regulation CE 1774/2002). The application of this sanitary legislation greatly restricted the availability to vultures of animal by-products not intended for human consumption, and deprived scavenger populations of the resources they depended on to survive. It has been estimated that in some parts of Spain, 80% of animal carcasses generated on farms were being removed for industrial disposal; in the case of cows this figure reaches 100% (Donázar 2009, Margalida 2010). These highly restrictive regulations have been now corrected in Spain (but not elsewhere in Europe), with farmers in many parts of Spain now being able to leave dead sheep, goats and free-range pigs dead on the fields.

The decline in extensive farmed livestock in Spain, especially sheep and goats, has also been remarkable in the last 30 years (about 40% of their populations), thus reducing the availability of a key food source for the Cinereous Vulture (Moreno-Opo and Margalida 2014).

4.2.4 Habitat degradation

The impact of habitat degradation on vulture populations is difficult to evaluate, but it surely affects several species. Distinct from disturbance, habitat degradation causes permanent habitat changes or losses. This may concern large nesting and foraging areas. More specifically, tree-nesting vultures such as the Cinereous Vulture have specific breeding site requirements, which are easily affected by human activities: deforestation for clearance of large trees in agricultural areas, logging, quarrying, widening of roads and highways, etc. (Poirazidis et al. 2004). The logging of large trees in the Mediterranean forest is considered to be a serious problem for the species (Mebs and Schmidt 2006). Also, forest fires, often caused by humans, can kill juveniles in the nest before they can fledge (several cases have been recorded in Spain and Portugal).

4.2.5 Human disturbance

There are many forms of human disturbance, for example, forestry operations, hunting activities, cork harvesting, construction of roads and firebreaks.

Human presence, which generally involves activities that are likely to have a negative impact on the species' breeding cycle, affects the number of chicks fledged, even if the disturbance occurs once (González *et al*. 2006, Zuberogoitia *et al*. 2008, Margalida *et al*. 2011). Disturbance does not only influence success in a breeding season, but can also lead to changes in distribution patterns and even changes in individual behaviour (Sutherland 2007).

Variables related to this effect were only reported to influence breeding success in the two Cinereous Vulture colonies studied by Donázar *et al*. (2002). They found that less human presence had a positive effect on breeding success. This factor is generally seen to be important for nesting habitat selection by the Cinereous Vulture (Fargallo *et al*. 1998, Poizaridis *et al*. 2004, Gavashelishvili *et al*. 2006, Morán-López *et al*. 2006a). Pairs in an area of the colony exposed to intrusive anthropogenic activity had 20% lower breeding success than those in the same colony that were not exposed to these disturbances (Margalida et al. 2010). In Spain, cork harvesting is considered to be one of the main causes of disturbance during the breeding period, because this activity is carried out in June–July while chicks are being reared (Moreno-Opo and Arredondo 2007, Margalida et al. 2010). Disturbance has been also described as a limiting factor in the Caucasus, where mountain tourism has been very popular. Human disturbance during incubation often

results in loss of the egg due to predation by crows.

4.2.6 Direct persecution

In the past, direct persecution was one of the main threats to the species in Europe. Nowadays this threat appears only sporadically, although it seems to be a significant threat for the species in Central Asia. Batbayar (2005) reports an increase in the deliberate persecution of the Cinereous Vulture in Mongolia and the trapping or shooting of birds in China for their feathers. In China, there is certainly some persecution of vultures for direct meat consumption, but this also extends to belief-based use and is considered a significant threat (MaMing et al. 2017).

5.1 International and regional conservation and legal status of the species

Since 2004, the global IUCN Red List Category for the Cinereous Vulture has been *Near Threatened* (C1), as the species has a moderately small population which appears to be suffering an ongoing decline in its Asiatic strongholds, even though in parts of Europe numbers are now increasing. In Europe, the species does not meet regional IUCN Red List criteria, and its European Threat Status is *Rare* (BirdLife International, 2017). The species is listed in Annex I of the European Commission Birds Directive and in Appendix II of the Bern Convention. It is also covered by the following international conventions and agreements:

- Convention on the Conservation of Migratory Species of Wild Animals (CMS or Bonn Convention)
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- Convention on Biological Diversity (CBD)
- Directive 2009/147/EC of the European Parliament and of the Council on the Conservation of Wild Birds (EU Birds Directive)
- 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)
- Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)
- Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia (Raptors MoU)

5.2 National legislation and policies

Table 3. *National policies and legislation*

Country	Protection status	Conservation status	Legally protected from killing	Legally protected from poisoning	Maximum legal coverage in national legislation	National Species Action Plan prepared
Afghanistan	Protected					No
Albania	Protected	Extinct in the wild	Yes	Yes	No	No
Algeria						No
Armenia	Protected	Near threatened	Yes	No	Partly	No
Austria	Protected	Extinct in the wild				No
Azerbaijan	Protected	Endangered	Yes	No	Partly	No
Bangladesh	Protected					No
Belgium	Protected		Yes	Yes		No
Bhutan						No
Bosnia and Herzegovina	Protected	Extinct in the wild	Yes	Yes		No
Bulgaria	Protected	Extinct in the wild	Yes	Yes	Yes	In devel.
Cambodia						

China (PR)	Protected	Second Class	No	No	No	No
Croatia	Protected	Extinct in the wild	Yes	Yes	Yes	No
Cyprus	Protected	Extinct in the wild	Yes	Yes	Yes	No
Egypt	Protected		Yes	Yes	Partly	No
Estonia	Protected		Yes	Yes	Yes	No
France	Protected	Endangered	Yes	Yes	Yes	Yes
Georgia	Protected	Endangered	Yes	Yes	Partly	No
Germany	Protected		Yes	Yes		No
Greece	Protected	Endangered	Yes	Yes	Yes	No
India	Protected					
Iraq	Protected					No
Iran (Islamic Republic of)	Protected		Yes	Yes		No
Israel	Protected	Extinct in the wild	Yes	Yes	Yes	No
Italy	Protected	Extinct in the wild	Yes	Yes		No
Japan						
Jordan	Protected	Not evaluated	Yes	Yes	Partly	No
Kazakhstan	Protected					No
Korea (DPR)	Protected					
Korea (Republic of)	Protected					
Kyrgyzstan	Protected					No
Latvia						
Lebanon						No
Macedonia (The FYR of)	Protected	Extinct in the wild	Yes	Yes	Partly	No
Moldova	Protected					No
Mongolia	Not prot.	Least concern	No	No	No	No
Morocco						No
Myanmar						
Nepal						
Netherlands	Protected		Yes	Yes	yes	No
Oman						
Pakistan	Protected					
Philippines						
Poland	Protected		Yes	Yes	yes	No
Portugal	Protected	Critically Endangered	Yes	Yes	Partly	In devel.
Qatar	Protected					No
Romania	Protected	Extinct in the wild	Yes	Yes	Yes	In devel.
Russia	Protected	Vulnerable	Yes	Yes	Yes	No
Saudi Arabia	Protected	Near threatened	Yes	Yes	Yes	No
Senegal						
Serbia	Protected	Extinct in the wild	Yes	Yes	Partly	No
Slovakia	Protected	not listed	Yes	Yes	Partly	No
Spain	Protected	Vulnerable	Yes	Yes	Yes	No
Switzerland	Protected	Not evaluated	Yes	Yes	No	No
Syrian Arab Republic	Protected	Critically endangered	Yes	Yes	Yes	In devel.

Tajikistan	Protected	Not evaluated	Yes		No	No
Tunisia						
Turkey	Protected	Near threatened	Yes	Yes	Yes	Yes
Turkmenistan						
Ukraine	Protected	Near threatened	Yes	Yes	Yes	No
United Arab Emirates	Protected					No
Uzbekistan	Protected	Vulnerable	Yes	Yes	No	No
Yemen						No

Table 4. *Highest responsible national authority in each Range State.*

Country	Institution
Albania	Ministry of Environment
Armenia	Ministry of Nature Protection of Republic of Armenia
Azerbaijan	Ministry of Ecology and Natural resources
Bulgaria	Ministry of Environment and Water
Croatia	Ministry of Environment and Energy
Cyprus	Ministry of Interior
Egypt	Ministry of Environment, Nature conservation sector, NCS
France	Ministry in charge of environment
Georgia	The Ministry of Environment and Natural Resources Protection
Greece	The Ministry of the Environment and Energy
Hungary	Ministry of Agriculture
Iran (Islamic Republic	Department of Environment
Israel	Nature and Parks Authority
Italy	Ministry for the Environment
Jordan	Ministry of Environment
Mongolia	Ministry of Environment and Tourism
Portugal	ICNF - Instituto da Conservação da Natureza e Florestas
Romania	Ministry of Environment, Waters and Forests
Russia	Federal Service for Supervision of Nature (Rosprirodnadzor)
Saudi Arabia	Saudi Wildlife Authority
Serbia	Ministry for Environment, Institute for Conservation Nature of Serbia
Slovakia	Ministry of Environment of the Slovak Republic
Spain	Ministry of Agriculture, Fisheries, Food and Environment / Regional Governments
Switzerland	Federal Office for the Environment FOEN, Bern
Syria	Ministry of Local Administration and Environment, Ministry of Agriculture and Agrarian Reform
Turkey	Ministry of Forestry and Water Affairs
Ukraine	Federal Service for Supervision of Nature
United Arab Emirates	Ministry of Climate Change and Environment
Uzbekistan	The State Committee for Nature Protection of the Republic of Uzbekistan

5.3 Identified legislative gaps

In almost all Range States the Cinereous Vulture is legally protected, but with important exceptions:

- In Mongolia (one of the strongholds – 50% of the global population) the species **is not protected** by national law.
- In China, the species is classified as a Second Class Important Bird (Weizhi 2006).

Although the Cinereous Vulture is protected from direct persecution (killing) in most Range States, it is less well protected from the primary threat of poisoning.

5.4 Action Plans

The European Species Action Plan for the Cinereous Vulture (Heredia, 1996) was developed in 1993 and adopted in 1996 by the European Union and the Bern Convention.

Table 5. *EU Cinereous Vulture SAP Action Framework (from the old SAP)*

Action	Measure	Priority
1.1.1	**Forestry policy is based on principle of sustainability and ensures long-term survival of all native forests and takes into consideration the presence of the species.**	High
	a. Management activities fully account for the presence of CV and another threatened species	High
	b. Guidelines for forest management in areas of exceptional natural value prepared at the national level.	High
1.1.2	**Agricultural policies are sympathetic to wildlife and are compatible with the conservation of the Cinereous Vulture**	Medium
	a. Agriculture policy ensures the sustainability of livestock raising and long-term survival of traditional extensive livestock practices. Thus favourable conditions for key prey (e.g. rabbit) are maintained.	Medium
	b. Agricultural practices in general are favourable to the preservation of suitable habitats for the species.	Medium
1.1.3	**International cooperation from wealthier countries and organisations to strengthen institutions and support NGOs**	Critical
	International cooperation has involved your country in conservation action for the species (e.g. raising of funds and equipment for countries lacking financial resources, exchange of knowhow, etc.)	Critical
1.2.1	**The Cinereous Vulture and its habitat receive maximum legal coverage in national legislation**	High
	a. The species is fully protected.	High
	b. All breeding colonies are in protected areas.	High
	c. National recovery plan established.	High
	d. Environmental impact assessment law exists and takes into consideration the species.	High
2.1.1	**Protected area status conveyed to all existing breeding colonies and isolated nests**	Critical
	Management plans for the protected areas take into account the presence of the species and provide specific recommendations for its conservation.	Critical
2.1.2	**Prevention of damaging or disturbing developments and activities near nest-sites**	Medium
	All damaging or disturbing activities affecting the breeding colonies have been successfully prevented.	Medium
2.1.3	**Protection of breeding colonies and nests from forestry operations**	Medium
	a. Forestry operations prohibited near the colonies between January and September.	Medium
	b. All trees containing a nest protected from cutting.	Medium
	c. Plans to prevent wildfires developed and implemented.	Medium
2.2.1	**Encourage a continuing livestock economy**	Medium

	Dead stocks are left for the vultures under careful veterinarian supervision.	Medium
2.2.2	**Encourage repopulation of native wild ungulates** Reintroduction or restocking of ungulates carried out following the IUCN criteria and avoiding overgrazing and competition with other key prey species such as rabbits.	Low Low
2.2.3	**Provide supplementary food at specific sites** Schemes for supplementary feeding have been set up where necessary. They are organized and managed by professionally trained staff.	Low Low
2.3.1	**Prevent the use of toxic chemicals for predator control** a. Use of poisons for predator control prohibited. b. Enforcement of legal restrictions on the use of poisoned baits is fully effective.	Critical Critical Critical
2.4.1	**Restore Cinereous Vulture populations to previous range areas** a. A natural re-colonisation of the former range of the species has occurred in your country. b. A reintroduction programme has been successfully carried out in your country (if relevant).	Low Low Low
3.1.1	**Regular national monitoring schemes in place in all range states** a. At least one national survey has been carried out in the last four years. b. Colonies in protected areas are monitored annually.	Medium Medium Medium
3.1.2	**Surveys to establish the status of Cinereous Vultures** a. Status and distribution of the species known. b. A national inventory covering all breeding colonies established.	Medium Medium Medium
3.1.3	**Monitor causes of mortality** Representative information on the causes of mortality within your national population is available.	Medium Medium
3.1.4	**Monitor results of reintroduction efforts** a. All released birds are marked (rings, wing tags, etc.) b. Individual survival and movements are monitored. c. Breeding parameters are monitored.	Low Low Low Low
3.2.1	**Undertake studies on the ecological requirements of the Cinereous Vulture** a. Successful research is carried out on home range b. Habitat use c. Dispersal patterns	Medium Medium Medium Medium
4.1.1	**Inform the public and increase awareness of the ecological role played by the CV and need to protect CV and its habitat** a. Education and awareness campaign on the species carried out. b. Cinereous Vulture used as a flagship for the conservation of forests and traditional farming practices.	Low Low Low
4.2.1	**Undertake national and international anti-poisoning awareness campaigns, preferably led by Government** a. Anti-poisoning awareness campaigns carried out. b. Effective prevention measures are in place. c. Institutional capacity for effective enforcement is ensured.	Critical Critical Critical Critical

A new European Species Action Plan for the Cinereous Vulture has been developed in parallel with the CVFAP. The action framework proposed for the new EU SAP aligns with the action framework prepared for this CVFAP.

The main conservation efforts for the species so far have been (successfully) implemented in Europe. Apart from some surveys and small research projects, very little is done in Asia for this species in terms of active conservation measures. The experience from Europe is very positive and can be used as best-practice guide for the conservation of the species elsewhere.

The EU Birds Directive[7] requires Member States to establish a general system of protection for the Cinereous Vulture prohibiting, in particular, deliberate killing or capture by any method, deliberate destruction/damage/removal to its nests and eggs, deliberate disturbance during breeding or rearing and keeping birds of the species.

Member states are also required to designate Special Protection Areas for the Cinereous vulture as part of the EU Natura 2000 network. Currently there are 195 Natura 2000 sites which have been designated for the protection of the species (the sites and information about their conservation objectives etc. could be seen on http://natura2000.eea.europa.eu/#).

The significant increase of the European Cinereous Vulture population in France, Portugal, and Spain has largely been due to the implementation of the EU Birds and Habitats[8] directives and implementation of targeted conservation measures. The increase that the species registered in Spain (from 206 pairs in 1973 to over 2000 pairs in 2015) shows that there is a lot of room for growth in Cinereous Vulture populations if the appropriate conservation measures are put in place.

A highly successful reintroduction project has been undertaken in France, where the species disappeared a hundred years ago. 31 pairs were established in 2016. The species has also naturally recolonised Portugal (from zero pairs in 2007 to 18 in 2016), from the nearby Spanish breeding colonies.

Despite all the threats in the Balkans and the extinction of all surrounding colonies, the Cinereous Vulture breeding colony in Dadia-Lefkimi-Soufli Forest National Park, North-East Greece increased from 21 to 35 pairs in the period 2006-2015.

The most effective conservation actions implemented in Europe have been essentially targeting exactly the high priority threats listed in this FAP: fight against the use of poison, correction of electricity infrastructure, improvement of food resources and habitat protection.

About 90% of the species' breeding territories in France, Greece, Portugal, and Spain are in protected areas (including Natura2000 sites). However, the designation of protected areas is not enough to guarantee the survival of such wide-ranging species which exploit a variety of biotopes. It requires more careful land planning and detailed scrutiny of impact of construction of new infrastructure to help to protect breeding habitats and to reduce disturbance.

7 http://ec.europa.eu/environment/nature/legislation/birdsdirective/index_en.htm

8 http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm

6.1 Implementation Review of the European Species Action Plan for the Cinereous Vulture

The European Species Action Plan for the Cinereous Vulture (Heredia 1996) was developed in 1993 and adopted in 1996 by the European Union and the Bern Convention. The action plan has not been revised so far. Its implementation has been reviewed four times – in 2000 (Gallo-Orsi 2001), 2004 (Nagy and Crockford 2004), 2010 (Barov and Derhé 2010) and current one (2017, by VCF, within EuroSAP LIFE Project).

This Implementation review was done by the VCF, as part of the process to prepare a new SAP (Species Action Plan) through the EuroSAP Project: LIFE14 PRE UK 002 "Coordinated Efforts for International Species Recovery EuroSAP". The project is co-financed by the LIFE fund of the EU and supervised by the European Commission Directorate General for the Environment, coordinated by BirdLife International (http://www.birdlife.org/europe-and-central-asia/project/life-eurosap) and implemented by 12 partners across Europe.

The geographical scope of the SAP covers Europe *sensu lato*: Albania, Armenia, Azerbaijan, Bulgaria, Croatia, France, Georgia, Greece, Italy, Macedonia, Portugal, Russia (Europe only), Serbia, Spain, Turkey and Ukraine.

The implementation review report is mainly based on data collected through the online questionnaire distributed in late October 2016 ('Implementation Review of the Species Action Plan for the Cinereous Vulture - Aegypius monachus'), but it also includes information collected though the Vulture MsAP online questionnaire distributed mid-August 2016 among vulture experts and government representatives from the range countries, and from the Vulture MsAP European Regional Workshop held in Monfragüe in October 2016. The results of this implementation review are presented below.

The objectives presented in the SAP are:

- In the short term, to maintain and enhance the existing Cinereous Vulture populations in Europe.
- In the long term, to encourage the recolonization of the former range.

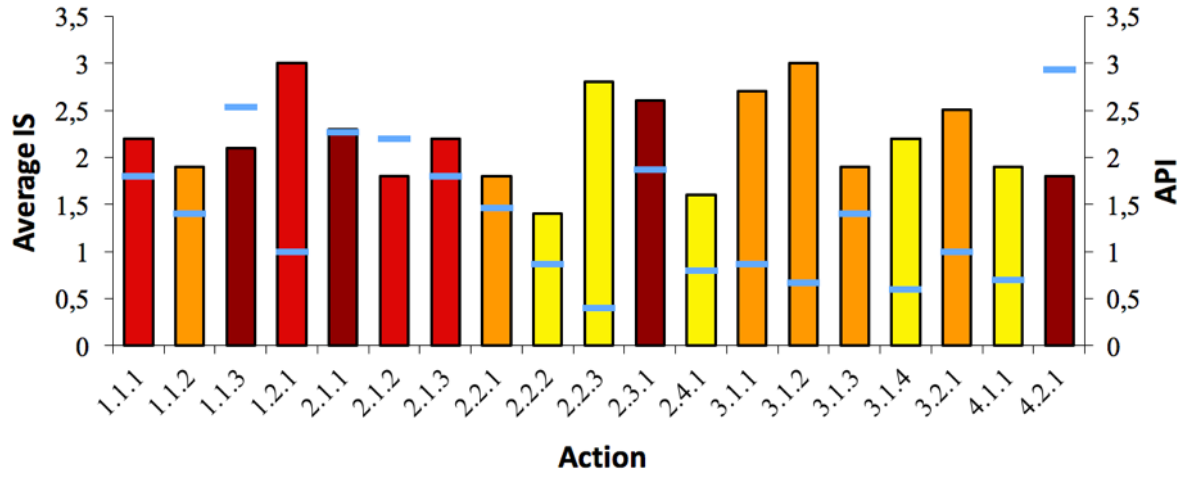
The short-term target of the plan has been achieved (prior to the previous review in 2010), as the European breeding population has increased overall from 1330-1874 pairs in 1993-1996 to 2375 – 2648 pairs in 2010-2016. In the previous review (2010) the population increase for the preceding decade was considered 10–20%. Currently it is being considered an increase of 50% in the last decade.

The majority (90%) of the European Cinereous Vulture population is found in Spain, with a stronghold in the following autonomous regions: Extremadura, Andalusia, Castilla-La Mancha and Castilla y Leon) (De la Puente et al. 2007). Here there has been 48% increase in the number of breeding pairs in the last decade (2068 breeding pairs in 2012/2015 (Moreno-Opo and Margalida 2014)). The populations from the Spanish neighbouring countries Portugal (18 pairs in 2016) and France (31 pairs in 2016) are also increasing, due to successful conservation practices (such as reintroduction in France), but also facilitated by the connection with the Spanish population (confirmed by marked birds). In eastern Europe, there is a smaller population in Georgia (50 pairs estimated in 2017, Gavashelishvili pers. comm) and Greece (up to 35 pairs in 2015, Zakkak 2015) with a stable trend, but the species has declined slightly in Russia (Caucasus) (102 pairs or fewer in 2004, Belik 2004) and Turkey (up to 200 pairs in 2013), from

where precise and recent data is not available.

Some progress has been made on the long-term objective to restore the former range, primarily through reintroduction projects. The reintroduction to France is proving to be extraordinarily successful – the project is almost completed with an established population of 31 breeding pairs. The situation is similar in Catalonia, where a stable population has also been established (14 territorial pairs in the Pre-Pyrenees). New reintroduction projects have been initiated in Burgos (Spain) and in Bulgaria (following the successful reintroduction of Griffon Vultures there) – projects that will definitely contribute to the achievement of this long-term objective of the old Species Action Plan. As this objective is not fully achieved, it is also considered for the new EU Species Action Plan.

Figure 4. *Average Implementation Score (AIS) for each action within the old Action Plan, across all European Member States.*



The SAP has been implemented well across all range countries (AIS=2.21), slightly better than when compared to the previous implementation review (2010). Good implementation of the plan is noted in countries with significant populations (France, Greece and Spain) where a considerable number of actions have been fully implemented. On the other hand, the species has been increasing since the adoption of the plan and continues to do so since the last review (2010). Some of the key threats have been addressed with legal measures and with designation of protected areas, but mainly through active conservation actions on the ground (related to food availability and the illegal use of poison). At the same time, poisoning remains a critical threat to address for this species (as for all vulture species in general). It is unlikely that the population can be completely restored to previous levels and by natural recolonization across all the countries where it is extinct, essentially due to the permanent loss of suitable habitat or significant distance from existing colonies. This could be partially addressed though by establishing safe corridors or links between native colonies, supported by reintroduction activities. Therefore, especially in Eastern Europe, the species status will remain dependent on conservation activities (reintroduction activities where extinct).

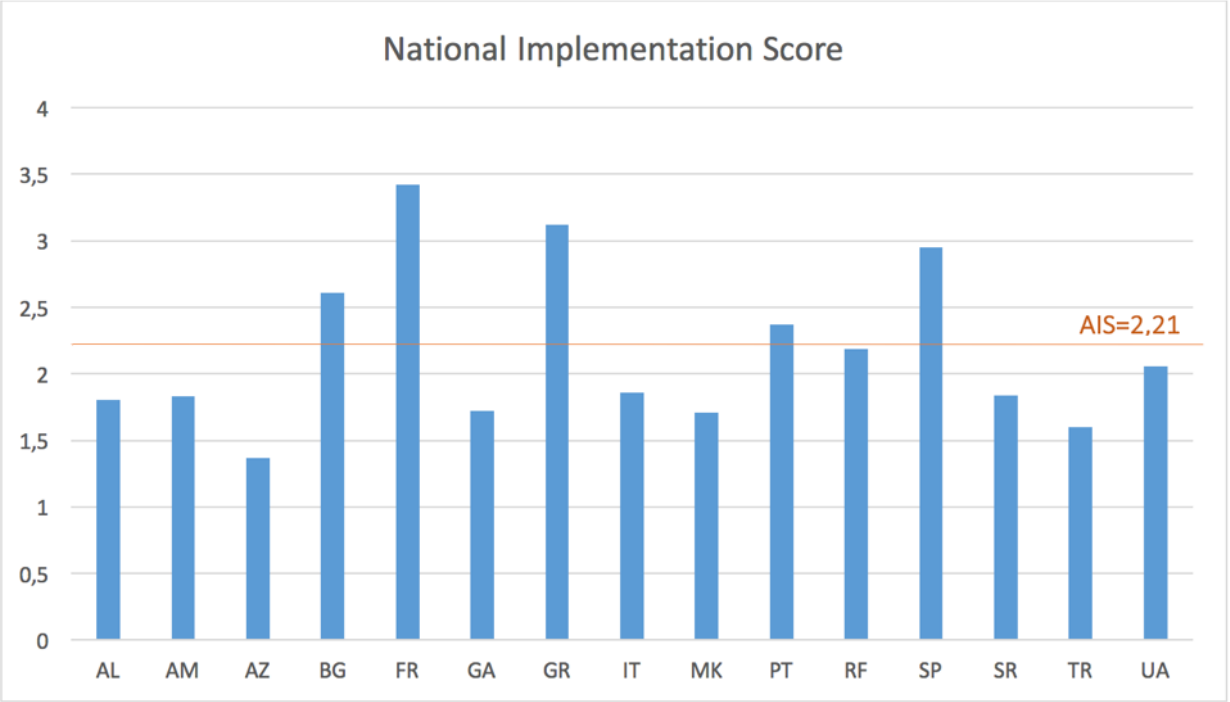


Figure 5. *National Implementation Score (NIS) for each European Member State, and the average score across all European States.*

Very good implementation of the Action Plan (NIS close or over 3) has been recorded in France, Greece and Spain, countries that host most of the European Cinereous Vulture population. Good implementation of the Action Plan (NIS above the AIS) is recorded in Bulgaria and Portugal, also important Range States for the species. Overall, the implementation level of the old Action Plan has been significantly higher in the EU countries compared to non-EU countries, mainly due to the funding opportunities (e.g. LIFE fund, European Regional Development Fund Design & Implementation-EPPERAA). Most of the conservation projects that supported the implementation of the old Action Plan were funded by the EU's LIFE programme.

Table 6. *List of LIFE projects related to the Cinereous Vulture conservation approved by the European Commission (2000-2014).*

Project N°	Year of finance	Country	Total budget	EU	Species
LIFE00 NAT/E/007340	2000	Spain	1,036,378.00	621,827.00	*Aegypius monachus* /
LIFE00 NAT/E/007348	2000	Spain	1,853,176.00	1,297,223.00	*A. monachus* / *N. percnopterus*
LIFE02 NAT/E/008624	2002	Spain	683,142.00	364,878.00	*Gypaetus barbatus* /
LIFE02 NAT/GR/008489	2002	Greece	1,248,000.00	936,000.00	*None or non-applicable* /
LIFE02 NAT/GR/008492	2002	Greece	2,286,108.00	1,371,665.00	*Gypaetus barbatus* /
LIFE02 NAT/GR/008497	2002	Greece	1,566,345.00	939,807.00	*Aegypius monachus* /
LIFE03 NAT/E/000050	2003	Spain	3,286,882.00	1,972,129.00	*Aegypius monachus* /
LIFE03 NAT/F/000100	2003	France	1,726,194.00	1,035,716.00	*Gypaetus barbatus* /
LIFE03 NAT/F/000103	2003	France	2,256,971.00	1,128,485.00	*Neophron percnopterus* /
LIFE04 NAT/ES/000034	2004	Spain	2,082,923.00	1,249,754.00	*None or non-applicable* /
LIFE04 NAT/ES/000036	2004	Spain	1,237,532.00	618,766.00	*None or non-applicable* /
LIFE04 NAT/ES/000056	2004	Spain	1,649,250.00	1,236,937.00	*Gypaetus barbatus* /
LIFE04 NAT/ES/000067	2004	Spain	829,937.00	414,968.00	*Neophron percnopterus* /
LIFE05 NAT/IT/000009	2005	Italy	866,062.00	649,546.00	*Neophron percnopterus* /
LIFE06 NAT/E/000214	2006	Spain	1,826,559.00	913,279.00	*Gyps fulvus* /
LIFE06 NAT/IT/000026	2006	Italy	955,631.00	716,723.00	*Neophron percnopterus* /
LIFE07 NAT/E/000742	2007	Spain	3,699,135.00	1,625,400.00	*Aegypius monachus* /

LIFE07 NAT/E/000762	2007	Spain	3,869,850.00	1,934,925.00	*Aegypius monachus /*
LIFE07 NAT/IT/000436	2007	Italy	1,411,144.00	705,572.00	*G. barbatus / G. fulvus / N. perc.*
LIFE08 NAT/BG/000278	2008	Bulgaria	1,332,328.00	666,164.00	*A. monachus / G. barbatus / G. f*
LIFE08 NAT/E/000062	2008	Spain	1,672,020.00	646,737.00	*A. monachus G. barbatus G. ful.*
LIFE08 NAT/P/000227	2008	Portugal	2,640,556.00	1,980,417.00	*Aegypius monachus /*
LIFE09 NAT/ES/000533	2009	Spain	5,660,886.00	2,730,790.00	*A. monachus/G. barbatus/N. p.*
LIFE10 NAT/BG/000152	2010	Bulgaria	2,625,742.00	1,312,871.00	*Neophron percnopterus /*
LIFE11 NAT/BG/000363	2011	Bulgaria	376,891.00	188,445.00	*A. monachus /C lupus /G. f./N. p*
LIFE11 NAT/FR/000734	2011	France	2,128,061.00	1,060,532.00	*Neophron percnopterus /*
LIFE12 NAT/ES/000322	2012	Spain	1,582,854.00	1,061,936.00	*Gypaetus barbatus /*
LIFE12 NAT/ES/000595	2012	Spain	2,103,209.00	1,049,627.00	*A. monachus / N. percnopterus /*
LIFE13 NAT/ES/001130	2013	Spain	759,811.00	455,886.00	*Aegypius monachus / N. percnopterus*
LIFE13 NAT/FR/000093	2013	France	1,810,276.00	905,136.00	*Gypaetus barbatus /*
LIFE13 NAT/IT/000311	2013	Italy	2,414,270.00	1,265,077.00	*G. barbatus /G. fulvus /N. percnopterus*
LIFE14 NAT/BG/000649	2014	Bulgaria	3,483,411.00	2,607,648.00	*Aegypius monachus /*
LIFE14 NAT/FR/000050	2014	France	5,632,328.00	4,157,440.00	*Gypaetus barbatus /*
LIFE14 NAT/IT/000484	2014	Italy	1,733,385.00	1,039,985.00	*Gyps fulvus /*
LIFE14 NAT/IT/001017	2014	Italy	2,877,095.00	2,071,508.00	*Neophron percnopterus /*
LIFE14 NAT/NL/000901	2014	Nederland	2,198,572.00	1,648,015.00	*Aegypius monachus / Gyps fulvus /*
LIFE14 NAT/PT/000855	2014	Portugal	3,578,924.00	2,672,481.00	*Aegypius monachus / N.percnopterus*
LIFE14 PRE/UK/000002	2014	UK	837,995.00	500,000.00	*None or non-applicable /*

** Source: http://ec.europa.eu/environment/life/project/Projects/*

Since 2000, 38 Life Projects have been approved for vulture conservation (15 specifically targeting this species) – projects that directly supported the implementation of the Cinereous Vulture SAP and contributed to the conservation of the species, with total budget of €79,819.833, including a direct €47,254.295 EU contribution.

The Member States with higher NIS= (3) (National Implementation Score): France, Greece, Portugal and Spain, were the counties that received/invested most of the funds available for vulture conservation (73,6% from the total Life Projects funds) within the last 15 years, Spain leading with 42,4% of the total (see **Figure 6** for percentage from total Life Projects funds by Member State). It is to be expected, as these four countries hold most of the European Cinereous Vulture population (whole CV population if we only consider EU Member States).

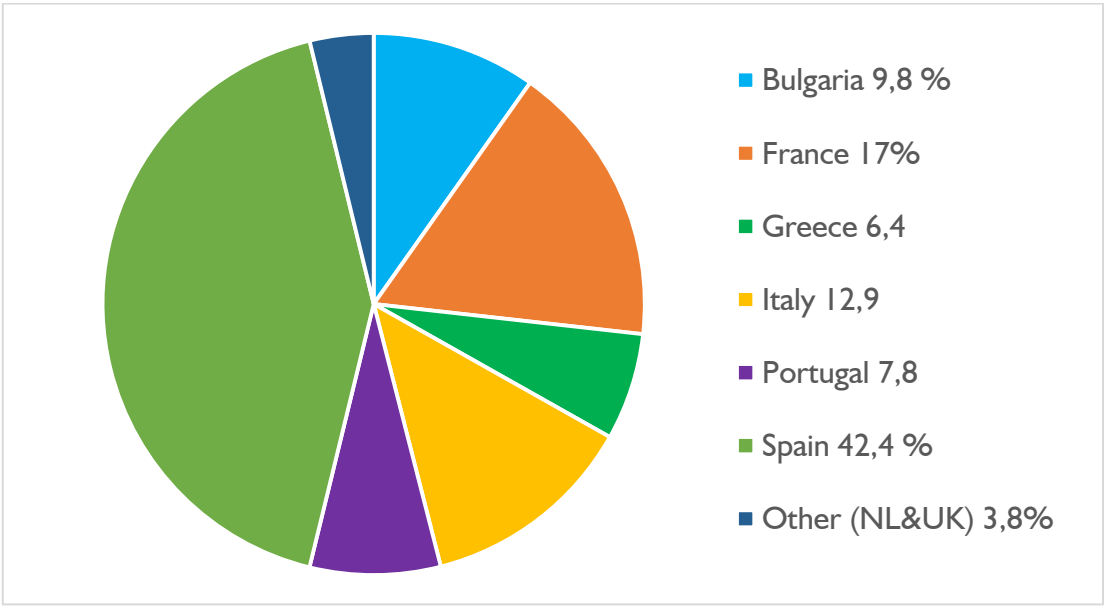


Figure 6. *Percentage from total funds (Life Projects) by EU Member State*[9]

[9] Data source: **Table 6**

6.2 Reintroduction Projects in Europe

Very good experience and results have been achieved by means of implementing reintroduction and restocking activities in Europe, following the IUCN guidelines for reintroduction and financially supported mostly by the EU, but also by national governments and private funding. Herewith an overview of the European successful reintroduction project implemented in Europe:

6.2.1 Restocking Project in Majorca, Spain

The first Cinereous Vulture restocking project in the world started in 1986 on the island of Majorca - Spain, where the population had decreased to 22-24 birds and 7 breeding pairs in 1982 (Mayol, 2012, Muntaner 2015). These restocking activities were part of the "*Recovery Programme for the Cinereous Vulture in Majorca*" promoted by the Regional Government of the Balearic Islands in 1983 and implemented with the support of the Black Vulture Conservation Foundation (BVCF) since 1986. Up to the beginning of the 1990's thirty-five birds were released coming from both Spanish Wildlife Rehabilitation Centres and a specific captive breeding programme for this project. According to the latest census (2017), the Cinereous Vulture population is estimated to be around 30 breeding pairs (Muntaner, J. in López-Jurado, *et al.*, 2017), indicating the success of this restocking exercise.

6.2.2 Reintroduction project in France

By the 1900s, The Cinereous Vulture was extinct in France and by the 1940s the other 3 vulture species were declining drastically. After the world's first successful Griffon Vulture reintroduction in Grands Causses, a Cinereous Vulture reintroduction was initiated. The first birds were released in the Grands Causes from 1992 to 2004, while in 2004 and 2005 two other reintroduction sites were established, in Baronnies and Verdon respectively. Releases have stopped in the Grands Causses, after 53 birds were released there. So far, about 46 birds have been released in the Baronnies, and about 31 in Verdon (with 11 more to be released by 2019 and 8 more to be provided). Most of these vultures come from Spain through rehabilitation centres, and are sent to France when fully recovered. Some other birds come from captive breeding programme performed by European zoos within the EEP network. In 2017, a total of 36 breeding pairs were recorded in France, 27 in the Grands Causses, 8 in Baronnies and 1 in Verdon. These programs have been very successful and the releases should conclude by 2019/ 2020 (LPO France (Grands Causses technical office).

6.2.3 Reintroduction Project in Catalonia, Spain

Although feasibility studies and other preparatory actions were initiated in 2004, the Reintroduction Project in the Pyrenees started in 2007 with two release points: RNC de Boumort and Espai Natura Muntanya d'Alinyà, implemented by GREFA (Grupo de Rehabilitación de la Fauna Autóctona y su Hábitat), Association Trenca, Fundació Catalunya-La Pedrera, Generalitat de Catalunya and the Black Vulture Conservation Foundation (BVCF). A total of 71 individuals were released, most of them coming from Spanish wildlife recovery centres and some from captive breeding.

First reproduction in the wild was recorded in 2010 and until now (2017) of 23 chicks have fledged, 18 remain alive and form part of the colony. By 2017 the population reached 56 resident individuals and 14 territorial pairs. Almost a dozen individuals from the Iberian Peninsula and France have

been recruited, demonstrating the role of a corridor connecting native Spanish Cinereous Vulture populations with the reintroduced population in France (GREFA 2017 unpublished data).

6.2.4 Reintroduction Project in Burgos, Spain

The project activities in the Iberian Mountain chain, core of actions located in the Sierra de la Demanda (Burgos) have started in 2015, lead by GREFA (Grupo de Rehabilitación de la Fauna Autóctona y su Hábitat). The objective of this program is to recover the species in the area, more than half a century since it became extinct, encouraging its expansion towards the northeast, encouraging connectivity between the Pyrenean colony and the French population. In 2017, the first group of 15 Cinereous Vultures was released. To date, through a monitoring system with video surveillance cameras, a total of 682 observations of Cinereous Vultures have been recorded at the feeding site next to the release aviary. Small numbers of individuals from a colony close to Madrid have settled in this area for more than a year, so the project even in its early days is already giving positive results (GREFA 2017 unpublished data).

6.2.5 Reintroduction Project in Balkan Mountains, Bulgaria

After more than 15 years of intensive vulture conservation work and the successfully implemented Griffon Vulture Reintroduction project in the Balkan Mountains, Bulgaria, a new project started in 2016 targeting the recovery of the Cinereous Vulture in the same area. The species was declared extinct as a breeding bird in Bulgaria about 30 years ago. The project is implementing conservation measures before aiming to release about 50 individuals within the next 4 years, starting in 2018. Most of the birds will come from Spanish wildlife recovery centres (mostly from Extremadura), but also birds from the captive breeding programme will be released. All these activities are part of a LIFE Project: "Bright Future for Black Vulture in Bulgaria" LIFE14 NAT/BG/000649, lead by Green Balkans.

6.2.6 Cinereous Vulture Captive Breeding Programme

The original name of the programme is Eurasian Black Vulture European Endangered Species Programme (EEP) and is a coordinated breeding network of zoos and animal parks under the umbrella of EAZA, the European Association of Zoos and Aquaria and the coordination is hosted by Planckendael Zoo (Belgium). The programme was initiated in 1986 by the Black Vulture Conservation Foundation and turned into an EEP breeding program one year later. It aims to breed this endangered species in captivity to build a sustainable back-up population and eventually release young into the wild. Captive bred birds from the EEP are particularly important at the start of a new release site as three-month old birds adapt more readily, increasing the chances that they will stay and eventually settle in an area.

Breeding a Cinereous Vulture in captivity is challenging, to be successful, breeding pairs need to have a very strong pair bond and the species is very sensitive to disturbance. Breeding success in captivity is very low, although there have been improvements in recent years. The breeding program holds 43 pairs and has an average of 7 hatches per year. To date 55 chicks were released, in Spain (Mallorca and Catalonia) and at the three release sites in France (Grands Causses, Baronnies and Verdon) (Marleen Huyghe, 2017 pers. com.).

7.1 Goal, objective, expected results and actions of the FAP

Main Goal: To halt current population declines, and to restore the Cinereous Vulture to its original geographic range with all populations in a favorable conservation status.

High Level Objective: Enhance recolonization of the former range by reducing threats in all relevant Range States and establishing safe corridors and links between populations.

Table 7. *Framework for action*

Result	Actions	Time-frame	Priority	Main Stakeholders
Objective 0: Improve knowledge about Cinereous Vulture populations				
Better quality population figures available for all range and trend accurately estimated for the bigger populations	0.1 Promote a global census across the range and monitoring of the breeding productivity for the most significant populations (Spain and Mongolia)	1-12 years	High	NGOs and Governments
Objective 1: Reduce poisoning with poison baits				
Significant decrease of mortality by poisoning (by 50% at least in Europe), when compared with 2000-2015 data	1.1 Review of legislation to make poison substances illegal, clarify competences of the authorities and/or to create new punitive measures/sanctions (some countries)	1-3 years	Essential	Governments
	1.2 Use conventions (CMS + Bern-Tunis Action Plan) to pressure governments to follow/implement the guidelines	1-3 years	High	Governments, NGOs
	1.3 Create capabilities (training of law enforcement agencies, judges, prosecutors, anti-poisoning detection units, etc.) to fight against poison use	1-3 years	Essential	Governments (with NGO support)
	1.4 Establish adequate toxicological screening (sampling protocols, etc.)	1-3 years	Essential	Governments (with NGO support)
	1.5 Awareness campaign about the negative impacts of poison to several target groups (general public, police, hunting managers, etc.)	1-3 years	Essential	NGOs/hunting organizations
	1.6 Establishing national and regional databases (European, Asian) of poisoning incidents and list of poisons used.	1-3 years	High	Governments, NGOs
	1.7 Promotion of effective livestock and crop management methods that reduce human-wildlife conflict	1-12 years	Medium	Governments, NGOs
	1.8 Establish and Improve effective compensation schemes to solve human-wildlife conflict when relevant	1-12 years	Medium	Governments
	1.9 Adequate enforcement of legal procurement rules for hazardous substance and control trade in illegal substances	1-12 years	Medium	Governments

	1.10 Enhance adequate legislation and/or management of feral dogs	1-12 years	Medium	Governments
	1.11 Implement a positive campaign on role of scavengers, including the ecosystem services they provide	1-3 years	High	NGOs
Objective 2: Reduce poisoning by agrochemicals				
Increase knowledge on the role of agrochemicals on mortality of Cinereous Vulture	2.1 Establish regular biocide screening in vultures	1-12 years	Medium	NGOs, Universities, Reference Laboratories
	2.2 Implement awareness campaign about misuse of biocides and their negative effects on vultures (or wildlife in general)	1-3 years	Medium	NGOs
Objective 3: Reduce poisoning by vet drugs				
Reduce risk of mortality to Cinereous Vultures from vet drugs	3.1 Establish adequate screening for vet drugs (incl. Diclofenac), at least in Europe	1-3 years	High	Governments
	3.2 Develop toxicity tests for new vet drugs to be introduced into the market	1-6 years	High	Researchers/Universities
	3.3 Develop rapid-reaction kit to detect vet drugs	1-6 years	Medium	Researchers/Universities
	3.4 Develop guidelines for adoption of good risk assessment procedures for new vet drugs	1-6 years	High	Industry/NGO/Governments
	3.5 Prohibit the use of Diclofenac and other toxic veterinary drugs in Range States	1-3 years	High	Governments
	3.6 Implement awareness raising campaigns with veterinarians about the potential toxic effects of vet drugs on Cinereous Vultures	1-3 years	High	NGOs
Objective 4: Reduce poisoning by lead				
Impact of lead poisoning on Cinereous Vultures populations better known and use of lead ammunition in some key sites for the species reduced or eliminated	4.1 Quantify impacts of lead poisoning on populations of CV and conduct regular lead and other heavy metal screening in CV.	1-6 years	High	Researchers/Universities/NGO/Governments
	4.2 Implement awareness raising activities among hunters about negative effects of lead and non-lead alternatives in some key sites for the species	1-12 years	High	NGO/Hunters
	4.3 Prohibit the use of lead hunting ammunition in the EU	1-6 years	High	European commission/Governments
	4.4 Promote voluntary local/regional lead hunting ammunition bans across the CVFAP Range States	1-12 years	High	NGO/Hunters
Objective 5: Improve the quality and availability of food resources for Cinereous Vultures				
Sufficient food resources avaiable to sustain the different populations	5.1 Develop and apply scavenger-friendly vet regulations about carcass disposal where relevant (supplementary feeding sites, abandonment of carcasses, etc)	1-6 years	Essential	Veterinary and conservation/environmental authorities
	5.2 Establish adequate control of feral dog populations (some countries)	1-12 years	Medium	Vet services - state municipality authority
	5.3 Improve waste management (some countries)	1-12 years	Medium	Municipalities, NGOs, Governments

	5.4 Promote policies that favour pastoralism, including removing incentives that lead to grassland/pastoralism loss and increasing the value of grazing related productions	1-12 years	High	Agricultural authorities, conservation authorities, tourism agencies
	5.5 Promote scavenger-friendly traditional land use practices such as mobile pastoralism	1-12 years	High	National authorities/NGOs
	5.6 Promote vultures as free sanitary agents providing a valuable ecosystem service	1-3 years	High	National authorities/NGOs
Supplementary feeding established adequately to help sustain the growth and connectivity of Cinereous Vulture populations	5.7 Develop specific guidelines for supplementary feeding for the CV	1-3 years	High	Conservation and vet authorities
	5.8 Implement adequate and relevant supplementary feeding where needed (site, timing and quantity of food provided)	1-6 years	Essential	Conservation and vet authorities
Self-sustaining breeding populations of Cinereous Vulture dependent on natural food resources as much as possible	5.9 Conserve habitat features important for the CV in key sites, including by the adequate management and/or establishment of protected areas	1-12 years	High	Wildlife authorities, NGOs, EU Commission
	5.10 Promote good hunting management at key sites for the CV, to secure more good quality food available for the species	1-12 years	High	Hunting Associations
	5.11 Reintroduce/restore wild ungulate and rabbit populations in key sites for the CV	1-12 years	High	Wildlife authorities
Objective 6: Reduce the impact of the energy infrastructure on Cinereous Vulture populations				
Impact of collision and electrocution on Cinereous Vultures populations better known and the respective mortality reduced or eliminated	6.1 Sensitivity mapping of key priority areas for the species and power lines – identify high risk areas for CV **electrocution**, and provide protocols to be used during development, planning and management of existing and new lines, including the promotion of new underground lines	1-6 years	High	Researchers/NGOs/ Government/ Electricity companies
	6.2 Sensitivity mapping of priority areas for the species and power lines – identify high risk areas for CV **collision with powerlines and windfarms**, and provide protocols to be used during development, planning and management of existing and new infrastructure	1-6 years	High	Researchers/NGOs/ Government/Wind farms investors/electricity companies
	6.3 Capacity building on legislation/regulation and implementation of mitigation measures to public officers and industry	1-6 years	Medium	Private sector/ NGOs/ Legal prosecutors
	6.4 Promotion/review of existing legislation/regulation (national and international)	1-3 years	Medium	Governments and NGOs
	6.5 Definition and implementation of communication and awareness on this issue	1-6 years	High	NGOs and Governments
	6.6 Correction of existing problematic power lines and use of safe pylons at new power lines in priority areas for CV	1-6 years	Essential	NGOs/Government / electricity companies

	6.7 Drafting and implementation of standard protocol for data collection on **electrocution**	1-3 years	High	Researchers/ electricity companies/ ministries
	6.8 Drafting and implementation of standard protocol for data collection on **collision** with powerlines and windfarms	1-3 years	High	Researchers/ electricity companies/ ministries
	6.9 Increase monitoring of powerlines including assessing effectiveness of mitigation measures	1-6 years	Medium	Governments/NGOs/ electricity companies
	6.10 Ensure maintenance of mitigation measures against electrocution and collision	1-12 years	High	electricity companies/ ministries
	6.11 Develop research on the economic benefits of mitigating measures against collision and electrocution	1-6 years	Medium	NGOs / CMS / electricity companies
	6.12 For new and existing energy infrastructure, promote the implementation of CMS guidelines by phasing out energy infrastructure designs that pose collision risk to vultures and other birds, and advocate retro-fitting with known bird-friendly designs within current maintenance schedules	1-12 years	High	Government/Industry/ NGOs/CMS
Objective 7: Improve breeding productivity by adequate protection and management of breeding habitat				
Key Cinereous Vulture nesting and roosting sites adequately protected and managed	7.1 Investigate and identify key nesting and roosting areas and assess vulnerability in relation to habitat destruction – working with local communities to show importance and impact on CV populations.	1-6 years	High	Research Institutions, Universities and NGOs
	7.2 Review legislation and promote recognition and conservation of key breeding and roosting sites for CV (including potential establishment of new protected areas)	1-6 years	Medium	Government, NGOs, Wildlife authorities, local communities
	7.3 Establish reforestation schemes and woodlots to increase vulture nesting habitat and reduce human pressure for fuel and construction timber	1-12 years	High	Government, NGOs, Wildlife authorities
Objective 8: Improve breeding productivity by decreasing human disturbance to breeding Cinereous Vultures				
Breeding success increased by reducing disturbance at key sites	8.1 Implement public awareness campaigns to highlight activities that cause disturbance to CV at breeding and/or roosting sites and how to avoid or mitigate them	1-12 years	High	International, national/regional authorities, NGOs
	8.2 Determine scientifically-based guidelines to reduce the impact of disturbance to CV	1-12 years	High	Governments, NGOs, Universities, Research Institutions
	8.3 Improve legislation, policies and law enforcement on anthropogenic disturbance (some countries)	1-12 years	High	International and national authorities
	8.4 Enhance protection around priority and-or vulnerable sites for CV	1-12 years	High	NGOs, national and regional authorities
	8.5 Establish new protected areas and/or adequately manage existing network of protected sites with important populations of CV	1-12 years	High	National and regional authorities

Objective 9: Reduce mortality of Cinereous Vultures through direct persecution				
Cinereous Vulture is fully legally protected in all CVFAP Range States	9.1 Ensure that appropriate species protection legislation is in place and effectively enforced to prevent direct persecution of CV in all range states, including the legal protection of the species in some Asian countries where it is not yet fully legally protected (Mongolia, China, etc)	1-12 years	Essential	International and national authorities
Mortality of Cinereous Vultures caused by direct persecution minimised in key sites	9.2 Increase public awareness on the impacts and legality of direct persecution of CV	1-12 years	High	NGOs/media / livestock breeders / hunting assoc.
	9.3 Assess the motivation behind the direct persecution of CV and engage with relevant stakeholders to promote alternative approaches or interventions	1-12 years	Medium	NGOs/ national and international authorities
Appropriate policy instruments and legal measures are established to reduce trade on Cinereous Vultures	9.4 Increase public awareness on illegal trade of CV	1-12 years	Medium	National authorities/ NGOs
	9.5 Train customs and law enforcement officers to identify vultures and their body parts to enable effective confiscation and enforcement actions, particularly at borders	1-6 years	Medium	National authorities/NGOs/ CITES
Objective 10: Promote linkages between Cinereous Vulture populations to restore the species into its former range				
Cinereous Vulture populations restored in some key areas where extinct through reintroduction and/or restocked where there is danger of extinction	10.1 Establish priorities for CV reintroduction/restocking on a global scale	1-3 years	High	NGOs/national authorities/ Universities
	10.2 Develop and implement a reintroduction strategy using the IUCN guidelines and criteria for reintroduction of species	1-12 years	High	NGOs/national authorities
	10.3 Engage with governments for securing or releasing CV within reintroduction/restocking projects	1-6 years	High	NGOs/governments
	10.4 Support and involve the already established CV EEP (captive breeding programme of EAZA) in reintroduction/restocking projects	1-12 years	Medium	NGOs/national authorities/EAZA
Objective 11: Coordinate conservation actions for the Cinereous Vulture across the global range through the implementation of the Flyway Action Plan				
The CVFAP is endorsed by Range States and effectively implemented	11. 1 Establish a coordination system for publishing and reporting on the implementation of the CV FAP	1-12 years	Essential	CMS Raptors MoU/NGOs/ Governments
	11.2 Establish working group with representatives from the key CV Range States to advise on implementation of CV FAP	1-12 years	High	CMS/NGOs/ Governments/ Researchers
	11.3 Monitor the implementation of the CVFAP	1-12 years	High	CMS/NGOs/Governments
	11.4 Fundraising for the implementation of the CVFAP and CV conservation in general	1-12 years	Essential	CMS/NGOs/ Governments/other donors

7.2 FAP delivery and coordination mechanism

Any species action plan is only as good as its implementation, with the respective outputs monitored for impact and results. SAPs are dynamic documents that are designed to incorporate new information or respond to changing situations.

In this context, for a species action plan to be successfully implemented and monitored, it is absolutely essential to secure two things:

I. Some level of coordination that drives the SAP implementation and monitoring, the continuous engagement with partners, and the necessary fundraising for specific actions or components – in other words, an 'owner'.

II. A formal mid-term review that measures impact, and implementation, and takes into consideration any changing contexts and new information

We propose the establishment of a FAP Coordinator, a person that will have as part of his/her working portfolio and job description the duty to push and promote the implementation of the FAP across the Cinereous Vulture range, engaging constantly with the different partners. The Coordinator would also help fundraise for particular actions or components of this FAP – in particular, the Coordinator should explore the possibilities to develop a LIFE project (including non-EU countries) to help finance the implementation of several components of this FAP.

We estimate that the Coordinator would need to spend about 40% of a normal working timetable on this coordination role, at least for the first 6 years of the plan (2018-2023), leading to the formal review that should happen mid-term, in 2023. The Coordinator would effectively implement Objective 11 of the FAP.

This Coordinator should be supported by a Working Group, including representatives from the key Cinereous Vulture Range States and prominent Cinereous Vulture experts, who would provide advice when needed. The FAP Working Group should have its own Terms of Reference and should meet (remotely) once a year to review progress.

Since the VCF has coordinated the development of this FAP, we propose that the Coordinator could readily sit within the structure of this international foundation, which is particularly well placed due to its international outlook and coordinating capacities, to successfully adopt this coordination role. The FAP Coordinator should work closely and have a line management link to the Coordinating unit of the Raptors MoU (CMS).

We trust that CMS Parties, Raptors MoU Signatories, other Cinereous Vulture Range States and other donors will feel able to invest in securing the budget for this Coordinator role, which should promote effective implementation of the CVFAP, and thus, ultimately, the restoration of this species into its former range and the improvement of its long-term conservation status.

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Annex I – Abbreviations

Table 1. *List of acronyms and abbreviations*

AIS	Average Implementation Score
AOS	Albanian Ornithological Society
BSPB	Bulgarian Society for the Protection of Birds
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 the Parties
CR	Critically Endangered
CU	Coordinating Unit
CVFAP	Flyway Action for the Conservation of the Cinereous Vulture
EC	European Commission
EN	Endangered
EU	European Union
FAP	Flyway Action Plan
IUCN	International Union for the Conservation of Nature
IUCN SSC VSG	IUCN Species Survival Commission Vulture Specialist Group
LC	Least Concern
LPO	Ligue pour la Protection des Oiseaux
MoU	Memorandum of Understanding
MsAP	Multi-species Action Plan
NGO	Non-governmental Organisation
NIS	National Implementation Score
NSAIDs	Non-steroidal anti-inflammatory drugs
NT	Near Threatened
SAP	Species Action Plan
SAVE	Saving Asia's Vultures from Extinction (consortium)
SEO	Sociedad Española de Ornitología (Spanish Ornithological Society)
SsAP	Single-species Action Plan
TPF	The Peregrine Fund, Inc. (USA)
UNEA	United Nations Environment Assembly
UN Environment	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
VCF	Vulture Conservation Foundation
VSG	Vulture Specialist Group (See IUCN SSC VSG)
VSZ	Vulture Safe Zone
VU	Vulnerable
Vulture MsAP	Multi-species Action Plan to Conserve African-Eurasian Vultures
WWF	World Wide Fund for Nature

Annex II – Contributors

Table 1. *Participants – Vulture MsAP European Regional Workshop, Monfragüe, Spain, 26-28 October 2016*

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Table 2. *Participants – Vulture MsAP Asian Regional Workshop, Mumbai, India, 29-30 November 2016*

Name	**Affiliation**	**Country**
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Jovan Andevski	Vulture Conservation Foundation	Spain

Table 3. *Participants – Vulture MsAP Middle East Regional Workshop, Sharjah, UAE, 6-9 February 2017*

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Salah Behbehani	The Scientific Center Kuwait	Kuwait
Mostafa Mahmoud	Kuwait Zoo	Kuwait
Mansoor Al Jadhami	Diwan of Royal Court	Oman
Ahmad Al-Razem	Al Wabra Wildlife Preserve	Qatar
Cramell Purchase	Al Wabra Wildlife Preserve	Qatar
Ahi Ahfaqih		Saudi Arabia
Hamad Alqahtani	Saudi Wildlife Authority	Saudi Arabia
Monif AlRoshidi	University of Hail	Saudi Arabia
Mohammed Shobrak	University of Taif	Saudi Arabia
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Jovan Andevski	Vulture Conservation Foundation	Spain
José Tavares	Vulture Conservation Foundation	Turkey
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Table 4. *Respondents to the Vulture MsAP questionnaire*

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Osama Elgebaly	Egyptian Environmental Affairs Agency	Egypt
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Elzbieta Kret	WWF Greece	Greece
Theodora Skartsi	WWF Greece	Greece
Stavros Xirouchakis	Natural History Museum of Crete- University of Crete	Greece
Alireza Hashemi	Tarlan Ornithological Society	Iran
Szilvia Gőri	Hortobágy National Park Directorate	Hungary
Miklós Dudás	Hortobágy National Park Directorate	Hungary
Ohad Hatzofe	Nature and Parks Authority Israel	Israel
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Mohammed Shobrak	Taif University	Saudi Arabia
Bratisalav Grubač	Institute for Conservation Nature of Serbia	Serbia
Saša Marinković	Institute for biological research Siniša Stanković	Serbia
Uros Pantovic	Bird Protection and Study Society of Serbia	Serbia
Juan Antonio Gil Gallus	Fundación para la Conservación del Quebrantahuesos	Spain
Pascal König	BirdLife Switzerland	Switzerland
Pascual López-López	University of Valencia	Spain
Fernando Feas	IAF	Spain
Rubén Moreno-Opo	Ministry of Agriculture, Food and Environment of Spain	Spain
Joan Real	University of Barcelona	Spain
Borja Heredia	UNEP/CMS	Spain
Eduardo Soto-Largo Meroño	Fundación CBD-Habitat	Spain
Helena Tauler-Ametller	University of Barcelona	Spain
Nicolás López Jiménez	SEO/BirdLife	Spain
Antonio Hernandez-Matiaz	University of Barcelona	Spain
Jovan Andevski	Vulture Conservation Foundation	Spain
Reto Spaar	Swiss Ornithological Institute	Switzerland
Daniel Hegglin	Stiftung Pro Bartgeier	Switzerland
Ahmad Aidek	Ministry of Local Administration and Environment	Syrian Arab Republic
Raffael Ayé	BirdLife Switzerland	Tajikistan
Itri Levent Erkol	Doğa Derneği - BirdLife Turkey	Turkey
Elif Yamaç	Anadolu University	Turkey
Ilker Ozbahar	Nature Research Society	Turkey
Elena Shnayder	Siberian Environmental Center	Ukraine
Salim Javed	Environment Agency-Abu Dhabi	UAE
Shakeel Ahmed	Environment Agency - Abu Dhabi	UAE
Roman Kashkarov	Uzbekistan Society for the Protection of Birds	Uzbekistan

Annex III – Range States

Table 1. *Current status of the Cinereous Vulture in each Range State*

Resident	Non-breeding	Extinct	Vagrant

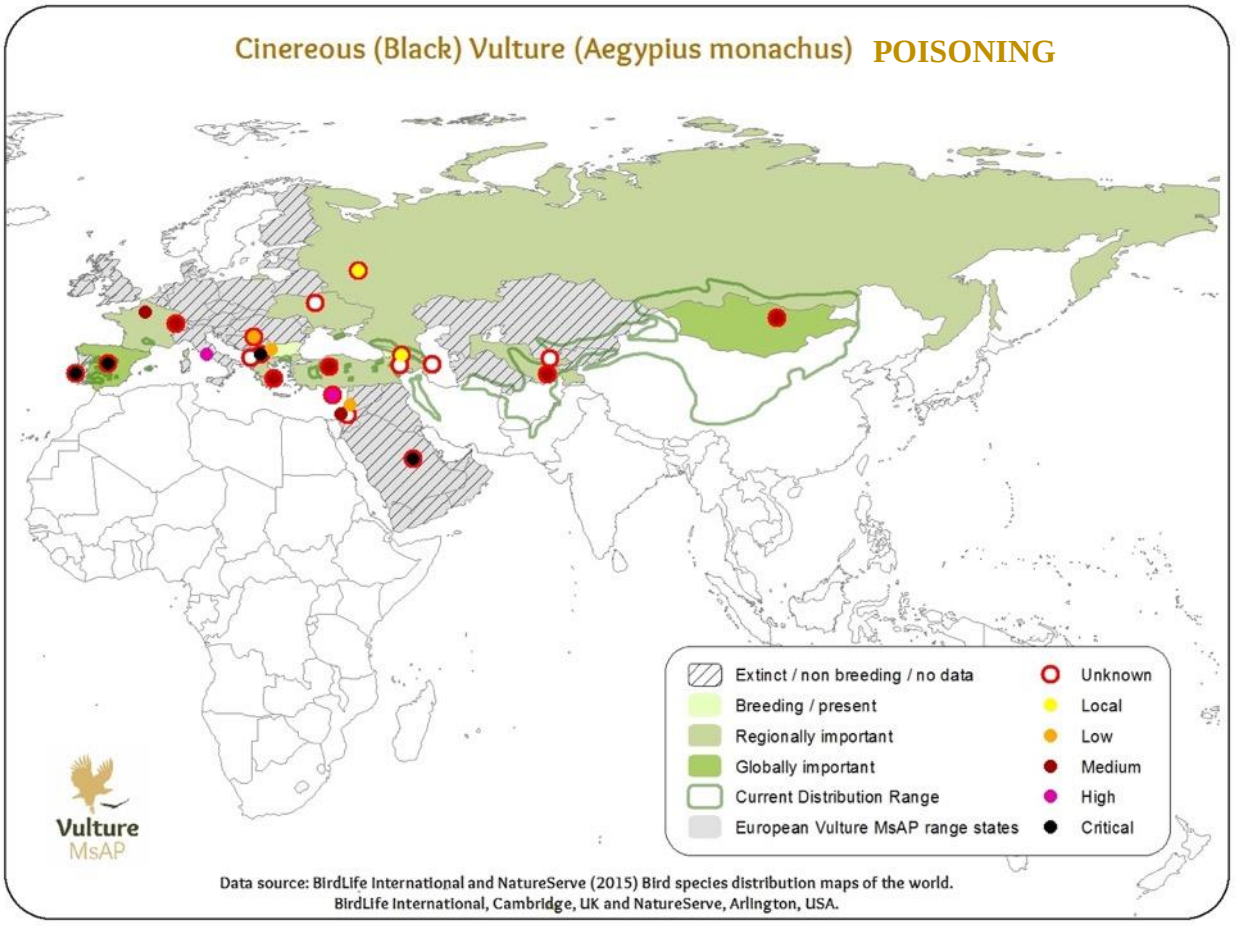
Country	Status
Afghanistan	
Albania	
Algeria	
Armenia	
Austria	
Azerbaijan	
Bangladesh	
Belgium	
Bhutan	
Bosnia and Herzegovina	
Bulgaria	
Cambodia	
China (People's R of)	
Croatia	
Cyprus	
Egypt	
Estonia	
France	
Georgia	
Germany	
Greece	
India	
Iran (Islamic Republic of)	
Iraq	
Israel	
Italy	
Japan	
Jordan	
Kazakhstan	
Korea (DPR)	
Korea (Republic of)	
Kyrgyzstan	

Country	Status
Latvia	
Lebanon	
Macedonia (The FYR of)	
Moldova	
Mongolia	
Morocco	
Myanmar	
Nepal	
Netherlands	
Oman	
Pakistan	
Philippines	
Poland	
Portugal	
Qatar	
Romania	
Russia	
Saudi Arabia	
Senegal	
Serbia	
Slovakia	
Spain	
Switzerland	
Syrian Arab Republic	
Tajikistan	
Tunisia	
Turkey	
Turkmenistan	
Ukraine	
United Arab Emirates	
Uzbekistan	
Yemen	

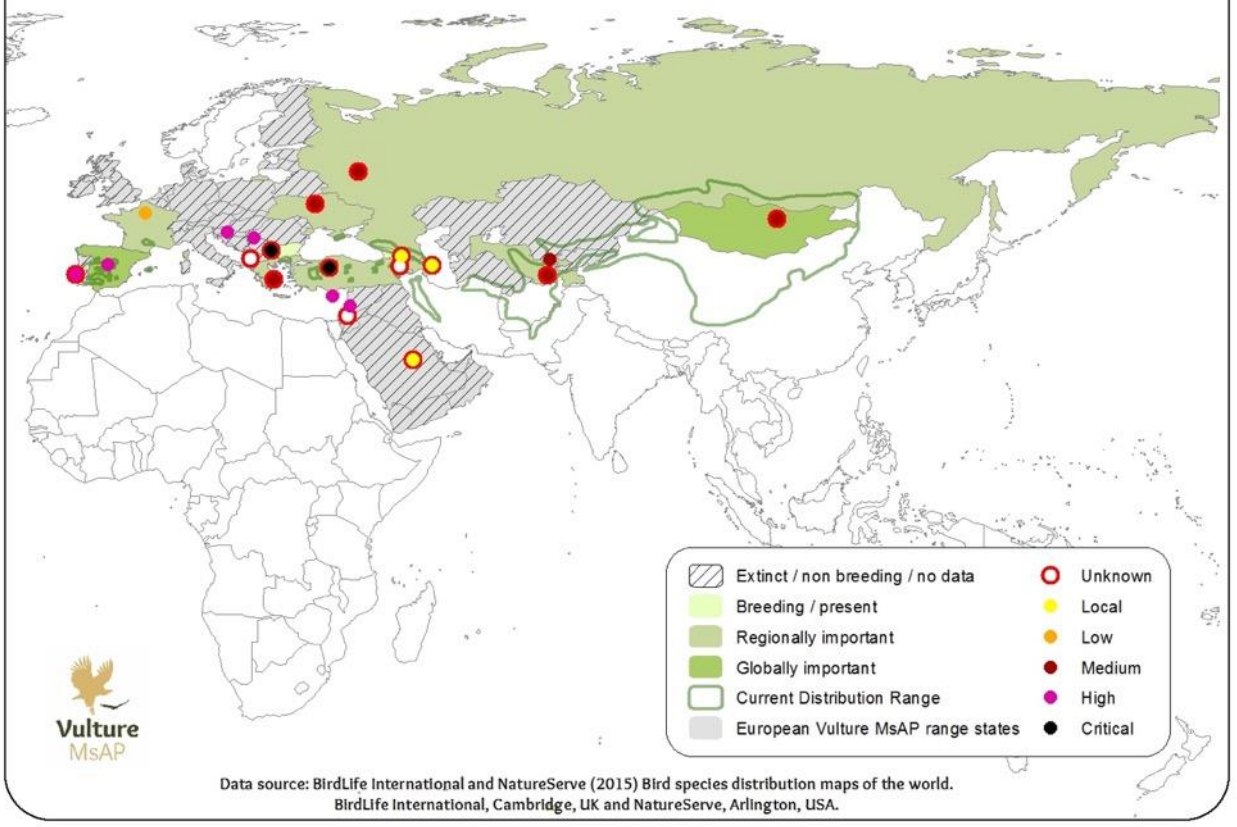
Annex IV – Threats

Maps: Cinereous Vulture threat maps based on the results from the Vulture MsAP questionnaire of 2016.

The 2016 questionnaire results related to threats were used to produce threat maps just before the Vulture MsAP Workshop in Monfragüe in October 2016. Apart of presenting the situation with the threats in Europe and Central Asia the maps were used during the working sessions (threats analyses and action identification) to facilitate the discussions.

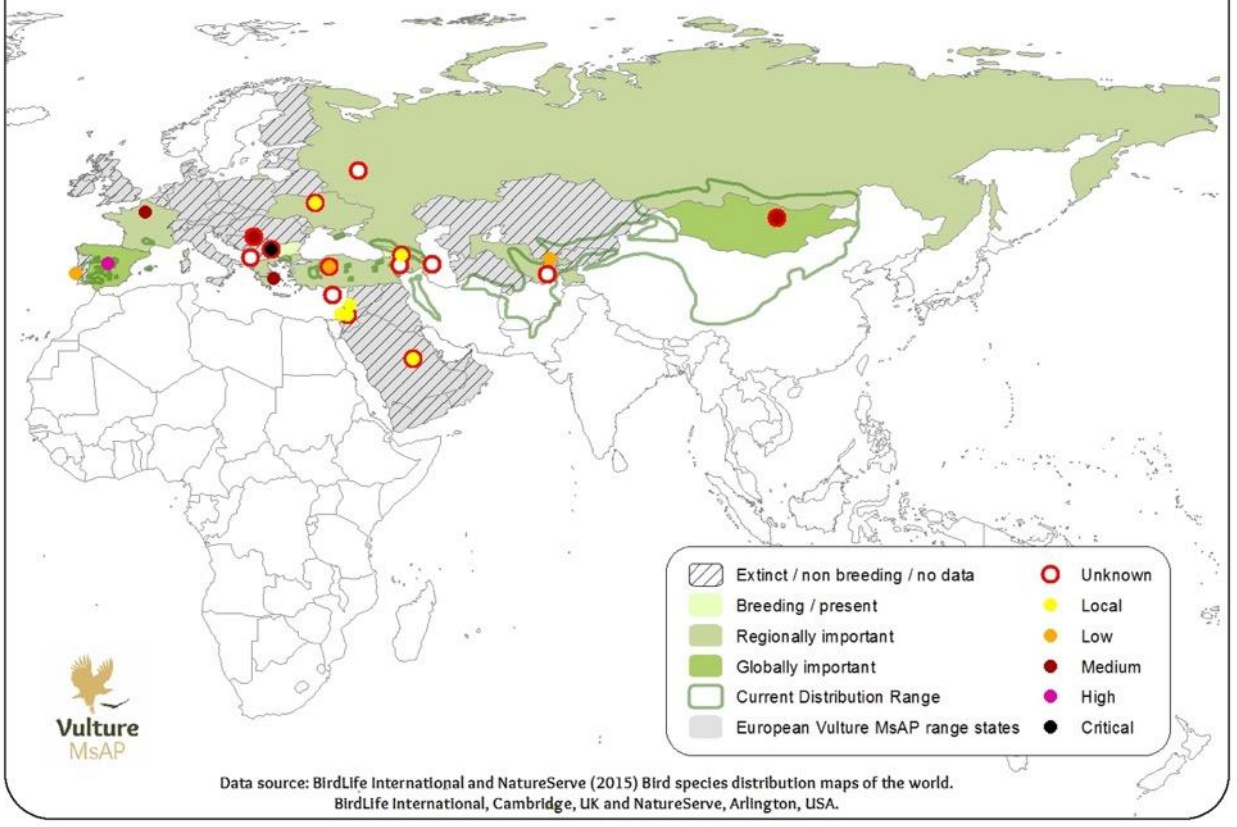


Cinereous (Black) Vulture (Aegypius monachus) - FOOD AVAILABILITY



Data source: BirdLife International and NatureServe (2015) Bird species distribution maps of the world.
BirdLife International, Cambridge, UK and NatureServe, Arlington, USA.

Cinereous (Black) Vulture (Aegypius monachus) - COLLISION & ELECTROCUTION



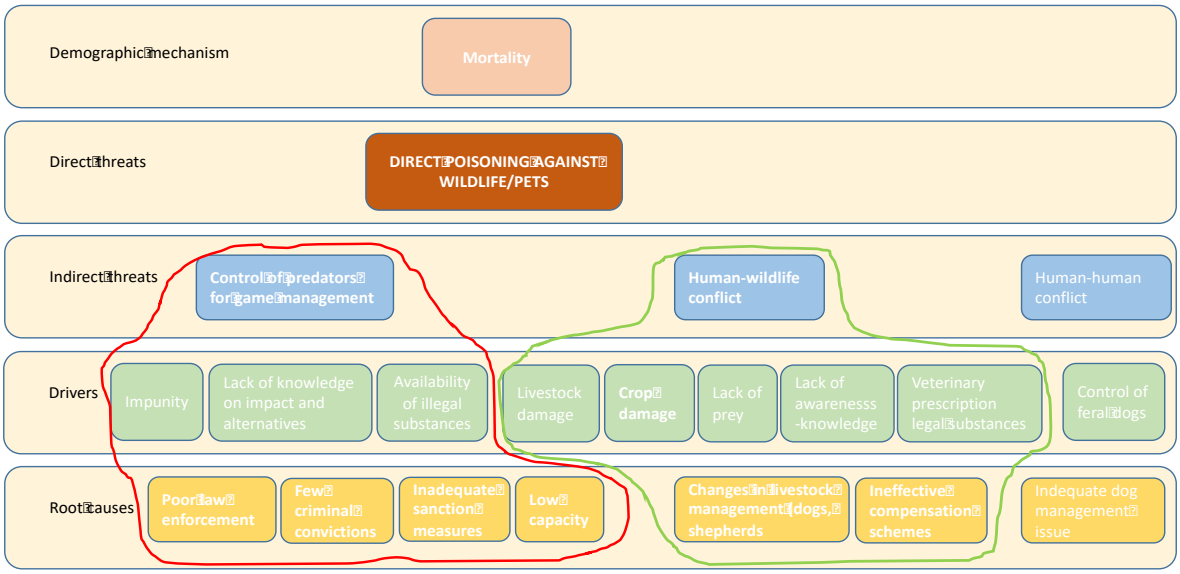
Data source: BirdLife International and NatureServe (2015) Bird species distribution maps of the world.
BirdLife International, Cambridge, UK and NatureServe, Arlington, USA.

Table 1. *List of defined direct threats to the species*

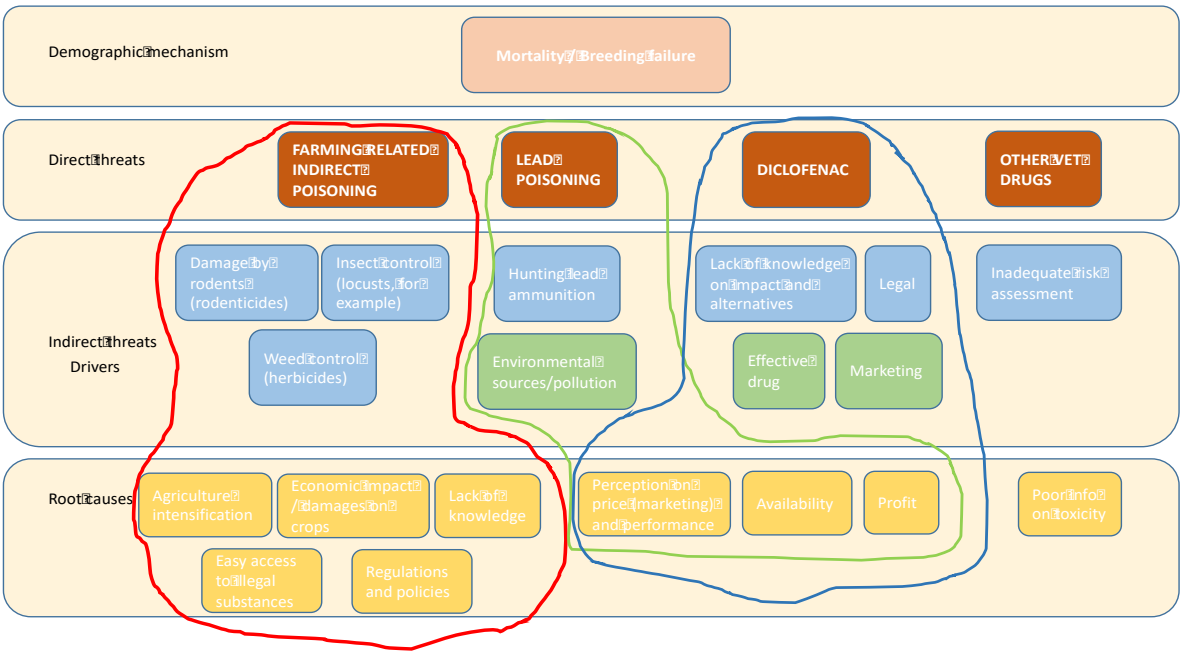
Definition	Overall impact	Evidence	Gaps
Unintentional poisoning with poison baits	Critical	Good	Effective toxicological screening
Shortage of freely available food	Critical	Good	Effect on population dynamics, role for meta-population connections
Collision with any energy infrastructure (cables and wind turbines)	Critical	Good	Need better methodology to identify corpses/cases related to collision; demographic models needed to understand real impact
Electrocution with energy infrastructure	Critical	Good	Need to centralised reporting system
Lead poisoning	High	Good on effects/poor on population impacts	Lead poisoning analysis and masked effects on mortality by other threats
Unintentional poisoning with NSAIDs (Diclofenac)	High	Not for CV particularly	
Inappropriate supplementary feeding	High	Good	Effect on population dynamics, role for meta-population connections
Direct persecution	High	Good	Middle East and Central Asia, lack of precise data
Destruction of habitat	High	Good	Long-term habitat suitability data
Farming related indirect poisoning	High	Poor	Effective toxicological screening
Poisoning by other vet drugs	High	Poor	Lack of knowledge /effects on pop dynamics
Disturbance from human activities	High	Good	Collect & Analyse available data
Poisoning of pests on dumps	Medium	Poor	
Genetic diversity loss	Low	Poor	Lack of substantive data
Collision with moving vehicles	Low	Poor	Data sharing & Transparency
Collision with any man made infrastructure excluding power lines or wind turbines	Low	Poor	Standard monitoring protocols

Annex V – Actions

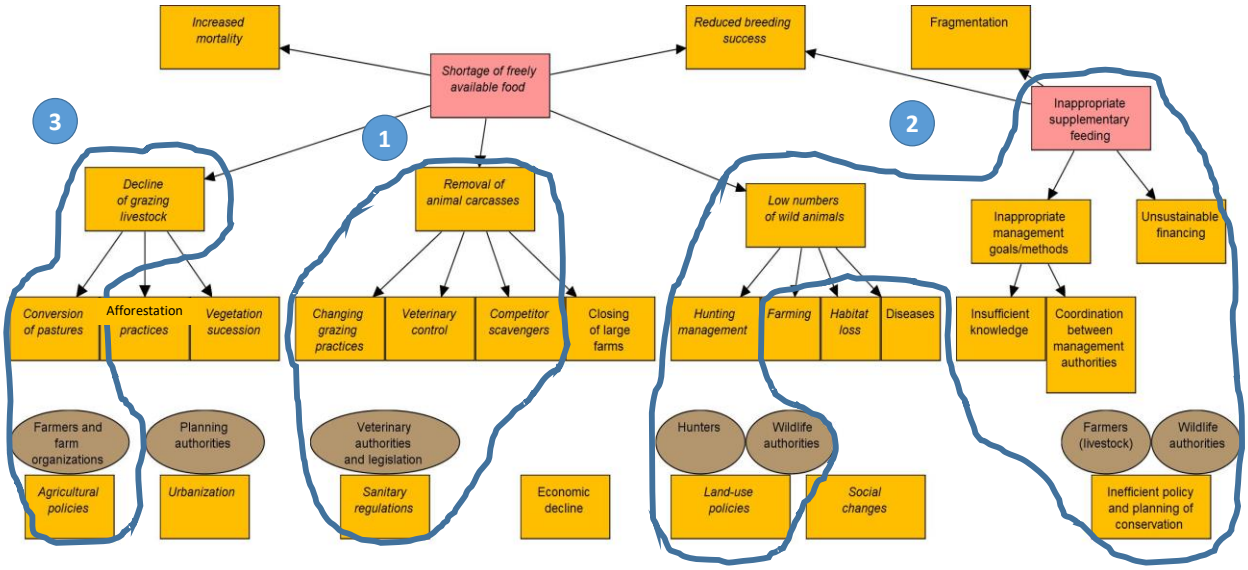
Problem tree – Direct poisoning against wildlife and pets



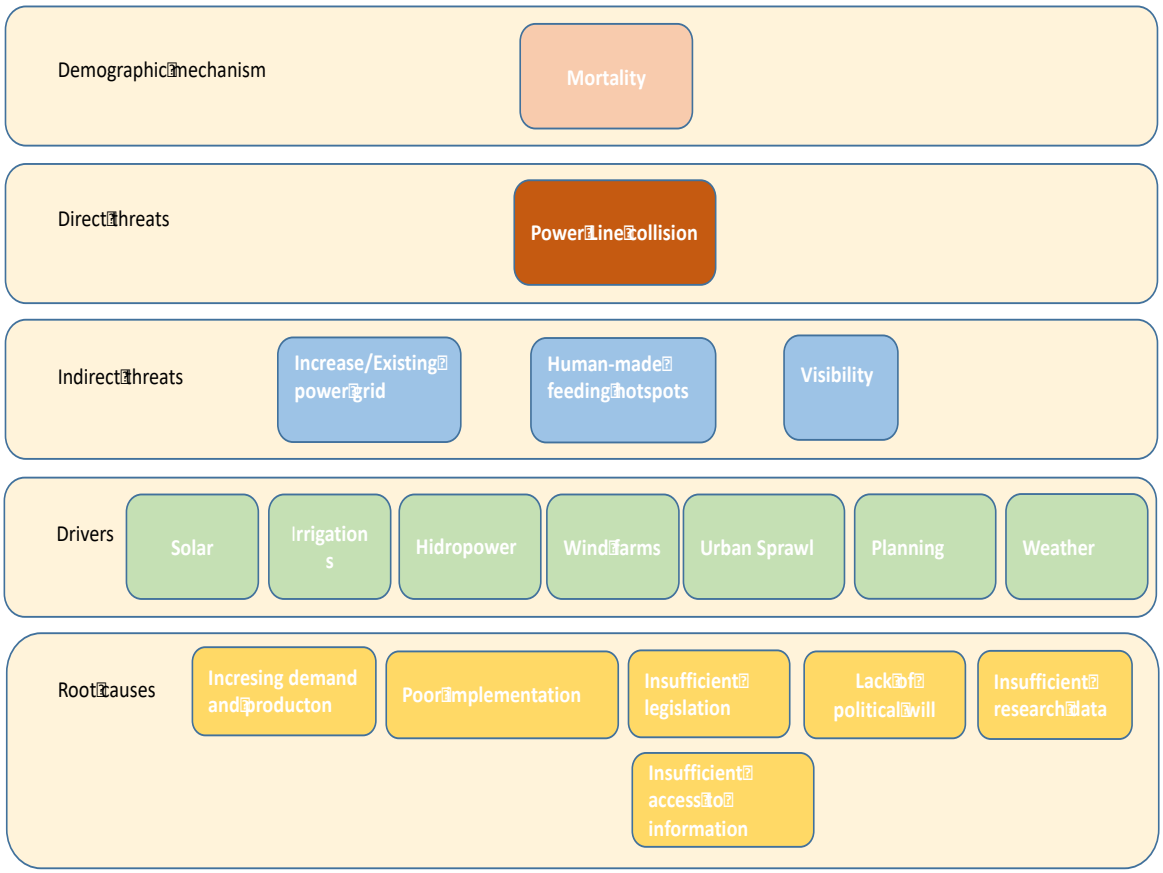
Problem tree – Indirect poisoning



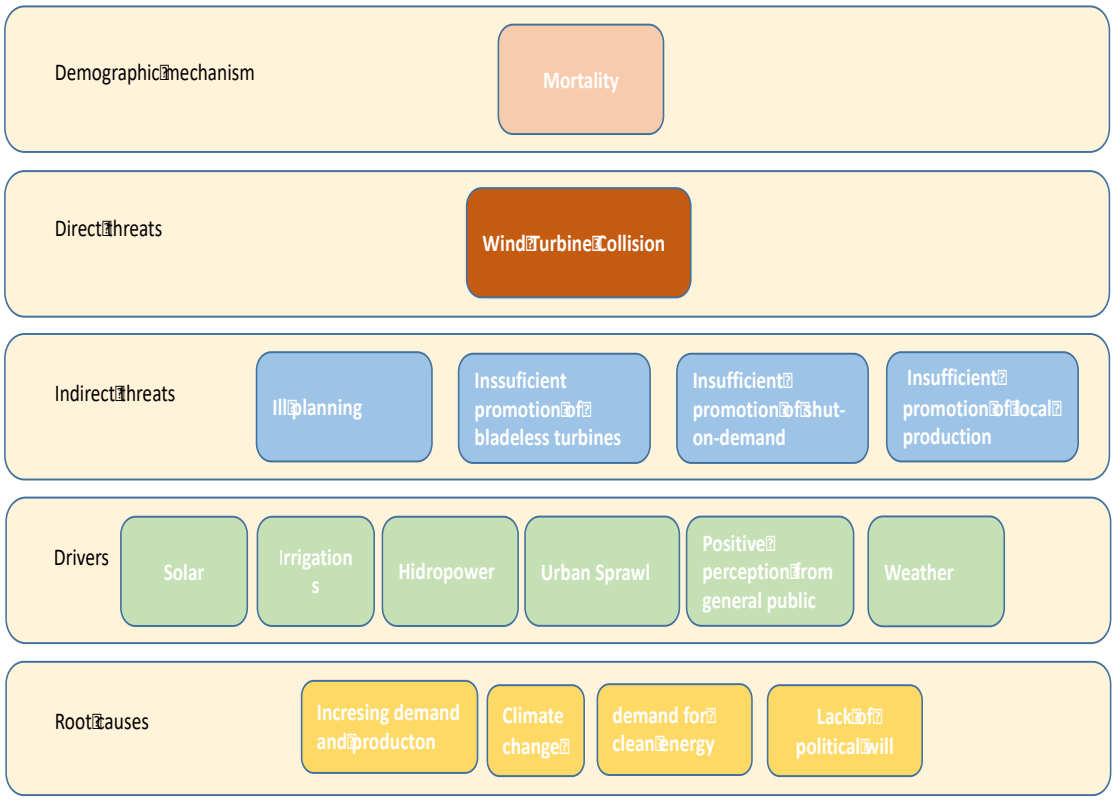
Problem tree – Shortage of freely available food and inappropriate feeding



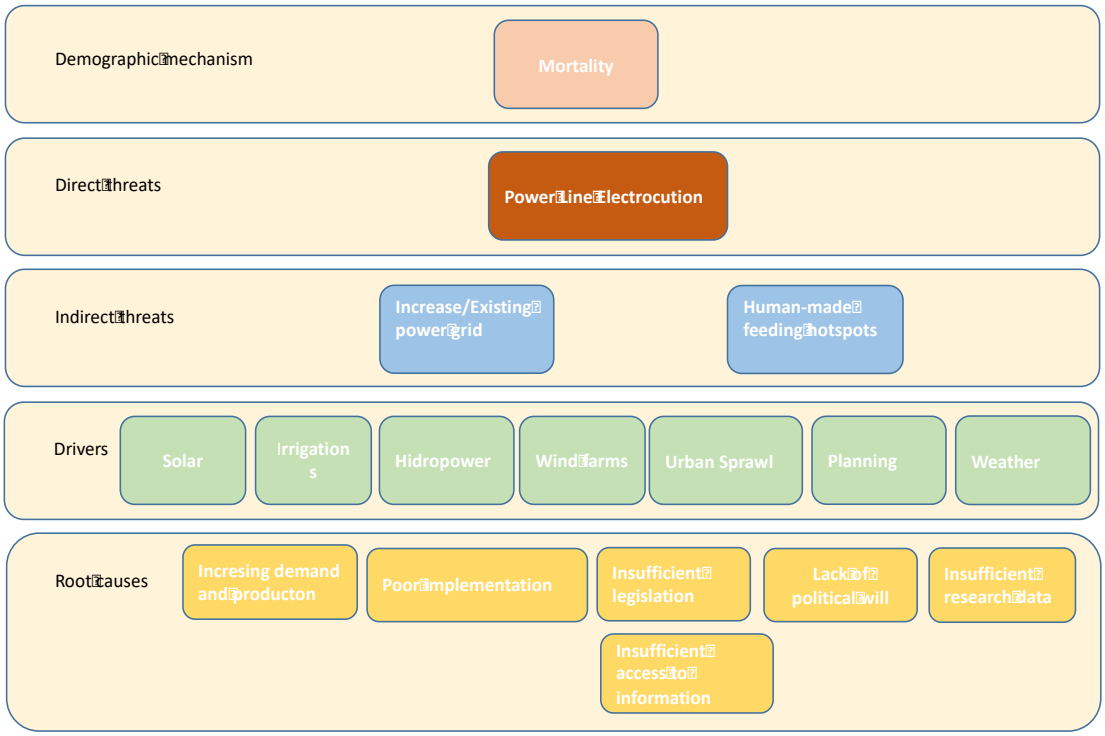
Problem tree – Power line collision



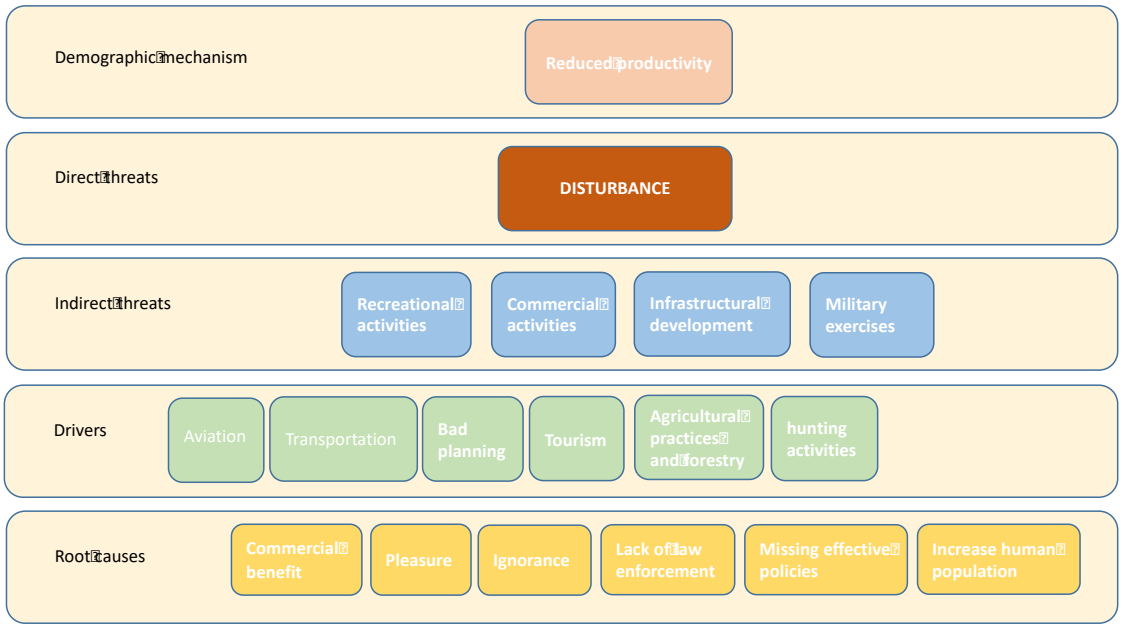
Problem tree – Wind turbine collision



Problem tree – Power line Electrocution



Problem tree – Human disturbance collision



Problem tree – Direct persecution

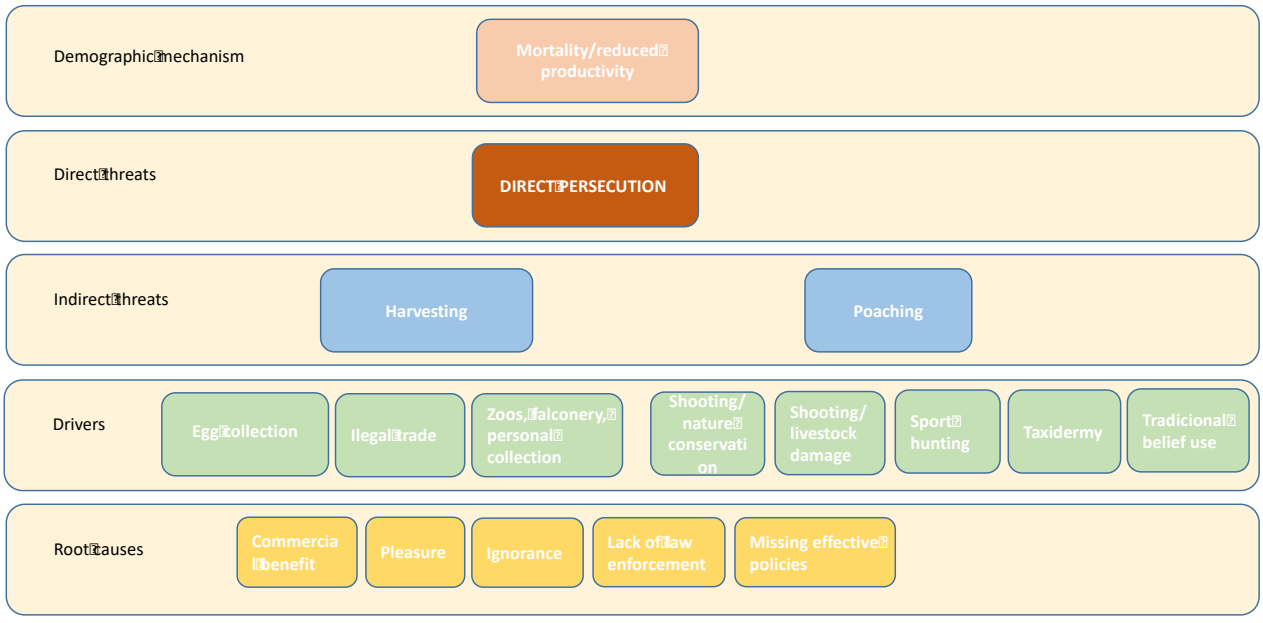


Table 1. *Timetable for implementation of the Cinereous Vulture FAP*

	Years of implementation											
Action	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**
0.1												
1.1												
1.2												
1.3												
1.4												
1.5												
1.6												
1.7												
1.8												
1.9												
1.10												
1.11												
2.1												
2.2												
3.1												
3.2												
3.3												
3.4												
3.5												
3.6												
4.1												
4.2												
4.3												
4.4												
5.1												
5.2												
5.3												
5.4												
5.5												
5.6												
5.7												
5.8												
5.9												
5.10												
5.11												
6.1												
6.2												
6.3												
6.4												
6.5												
6.6												
6.7												
6.8												
6.9												
6.10												
6.11												
6.12												
7.1												
7.2												
7.3												
8.1												
8.2												
8.3												
8.4												
8.5												
9.1												
9.2												

	Years of implementation											
Action	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**
9.3												
9.4												
9.5												
10.1												
10.2												
10.3												
10.4												
11.1												
11.2												
11.3												
11.4												