

Poisoning specific analysis of the data collected during the review of illegal killing and taking of birds in the Mediterranean

By BirdLife International for the CMS poisoning working group



Red Kite poisoned © R. Riols



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Executive Summary

In order to provide available information to the CMS Preventing Poisoning Working Group, data collected during the 2014/2015 BirdLife review of illegal killing and taking of birds in the Mediterranean was re-analysed to look at illegal poisoning in particular.

Compared to illegal shooting and illegal trapping, illegal poisoning was of relatively minor importance in the Mediterranean. It was however mentioned for 19 out of the 26 countries assessed. In each of France, Serbia, Syria and Spain, more than 15 species were reported be killed by illegal poisoning (with a maximum of 20 species in Spain). It was also reported as the most important illegal method of killing birds for six raptor species: Bearded Vulture (NT), Egyptian Vulture (EN), Griffon Vulture (LC), Cinereous Vulture (NT), Spanish Imperial (VU) and Red Kite (NT). Raptors were indeed reported to be more affected by illegal poisoning than waterbirds and passerines (61% of species affected by illegal poisoning were raptors) and the main reason reported for illegal killing of birds by illegal poisoning was for predator control.

BirdLife International is currently leading a Review of illegal killing and taking of birds in the rest of Europe, the Arabian Peninsula, Iraq and Iran. Results of the regional overview of illegal killing and taking of birds for Europe and Middle East should be available from summer/autumn 2017.

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1. Background

In 2014-2015, BirdLife International led a 1.5-year project to review various aspects of illegal killing and taking of birds in the Mediterranean. This review was the first pan-Mediterranean analysis providing detailed quantitative estimates of the numbers of individual birds for each species that are likely to be killed/taken illegally in the region each year, and the reasons for killing/taking and types of illegal activities involved in 26 countries/territories (Figure 1). The assessment also identified the species of greatest concern, and the highest priority locations at which urgent remedial action is required to tackle this issue. Please see scientific paper (Brochet *et al.* 2016), layman's report ([The Killing](#)) and full report (BirdLife International 2015), all used as information documents at the [1st Meeting of the Intergovernmental Task Force on Illegal Killing, Taking and Trade of Migratory Birds in the Mediterranean](#) in Cairo in July 2016.



Figure 1. Map of the Mediterranean region with the 26 assessed countries/territories (in white).

The aim of this review was to better understand which species might be most affected, why and how, which countries are the most seriously affected by the issue of illegal killing and taking of birds and where are the worst locations for the illegal killing and taking of birds. For this assessment, illegal killing and taking of birds was defined as any form of deliberate action that results in the death or removal from the wild of an individual bird (regardless of whether it was the target of this action or not) that is prohibited under national legislation. Examples of illegal killing/taking include hunting of ‘game’ species during the closed season, use of prohibited methods (e.g. mist-nets, lime-sticks, poisons) or activities (e.g. egg collecting), killing protected species, and/or inside protected areas in which such activities are forbidden. BirdLife International asked national experts to provide quantitative information compiled in a specific template, based on their own data, experience and/or knowledge, as well as any available, relevant information (data from publications, grey literature,

police reports, consultation of individuals and organisations who may have relevant information, such as government departments, hunting associations, animal recovery centres, etc.) for each of species regularly present in their country.

For each bird species reported to be known or likely to be affected by illegal killing/taking, national experts provide a minimum and maximum approximate estimate of the total number of individuals killed/taken illegally per year in the country, all potential primary and secondary reason(s) for illegal killing/taking (“predator control”, “sport”, “food”, “taxidermy”, “cagebird” or “other”) and all potential primary and secondary types of illegal activities affecting the species (“protected species”, “within a protected area”, “outside legal open season”, “illegal method” or “other”). “Illegal method” was related to the use of illegal means with the specifications: “poisoning” (poisons/poisoned baits targeted directly at birds, individuals accidentally killed as for example as result of secondary poisoning targeting e.g. fox and rodents was recorded under ‘other’), “trapping” (e.g. traps, nets, snares, lime-sticks) and “shooting” (e.g. using illegal means such as silencers, and automatic or semi-automatic guns).

In order to provide the CMS poisoning working group with the information available on illegal poisoning from the Mediterranean review, BirdLife have re-analysed the data to look at poisoning in particular. As the aim of this review was to assess illegal killing and taking more generally, please note that results¹ presented here cover illegal poisoning alongside other illegal methods.

2. Poisoning issue in the Mediterranean

2.1. Importance of the issue

In order to understand the importance of each potential type of illegality in each country, for all species likely to be significantly² impacted by illegal killing in each country, an “index of importance” was calculated by dividing the mean estimated number of birds illegally killed/taken per species per country and per type mentioned by the mean total estimated number of birds killed/taken in the country, multiplied this ratio by 1 if the type was scored as primary for that species in that country, or by 0.5 if it was scored as secondary, and defined the sum of these values for each type across all species

¹ Estimated numbers of individual birds illegally killed/taken presented in the results (section 2) are rounded appropriately to avoid spurious precision.

² ‘Insignificant’ was defined to be when the maximum estimate of the number of birds illegally killed was ≤ 100 individuals/year for a passerine species or ≤ 50 individuals/year for a non-passerine species that was listed as ‘Least Concern’ on the global 2014 IUCN Red List. For globally ‘Critically Endangered’, ‘Endangered’, ‘Vulnerable’ and ‘Near Threatened’ species, any number of illegally killed birds was regarded as significant (for more details, please see Brochet *et al.* 2016).

in the country as the “index of importance” for the type in the country. The calculations can be summarised as following:

$$\text{Index} = \sum \frac{\text{No. ind killed per species and per country}}{\text{No. ind killed per country}} \begin{matrix} * 1 \text{ if primary type} \\ * 0.5 \text{ if secondary type} \end{matrix}$$

For the Mediterranean region³, across all species illegal poisoning does not appear to be the most important method of illegal killing/taking in any country in terms of the number of illegally killed/taken individuals it accounts for (Figure 2). However, it disproportionately affects raptor species, many of which are long-lived and have low reproductive rates and a number of which are globally threatened or Near Threatened (see 2.2, 2.3, 2.4). Therefore, the conservation impact of poisoning is likely to be considerably higher than the numbers alone would indicate.

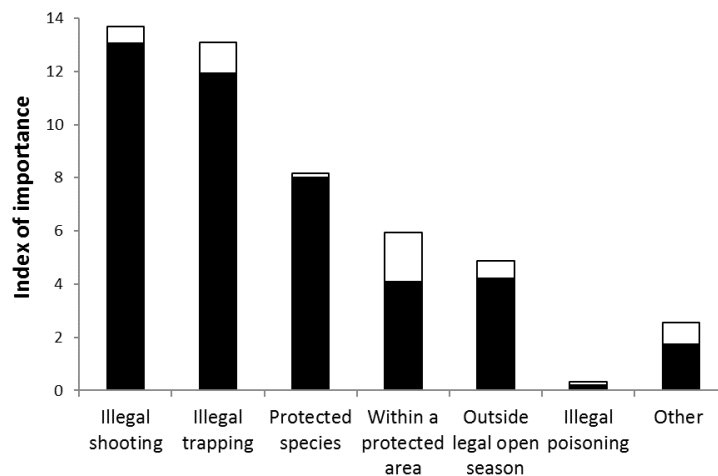


Figure 2. Index of importance of the potential types of illegality for killing/taking birds in the Mediterranean region. Solid bars indicate the primary type, open bars indicate secondary type.

2.2. Number of birds estimated to be illegally poisoned in the Mediterranean

Illegal poisoning was mentioned for 19 out of the 26 countries assessed (Figure 3), with a maximum of 20 species affected in Spain (Table 1). Illegal poisoning was the most important illegal method for killing birds for six species: Bearded Vulture, Egyptian Vulture, Griffon Vulture, Cinereous Vulture, Spanish Imperial and Red Kite (Annex 1), of which 5 are globally threatened or Near Threatened.

³ Similar graph at the national level are available in the annexes of the project report (BirdLife International 2015).

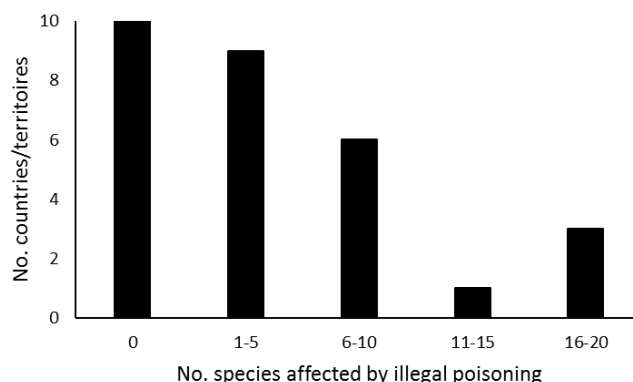


Figure 3. Number of species affected by illegal poisoning per country/territory.

Table 1. Estimated numbers of individual illegal poisoned per year in assessed country/territory mentioning this issue (NB/ For any given species in a country, from the data collected we have an estimate for the total illegally killed but usually there are several different methods mentioned for a single species and we are unable to apportion the total among the different methods).

Country	No. species affected by illegal poisoning (no. NT and globally threatened species only)	Min - Max estimated no. individual birds illegally killed/taken per year by any method for species where illegal poisoning ^a was one of the methods mentioned	Main reason for killing/taking (highest index of importance) ^b	Main illegal method (highest index of importance) ^b
Albania	8 (1)	1 – 200	Sport	Illegal shooting
Bosnia and Herzegovina	7 (1)	1 – 2,000	Food	Illegal shooting
Croatia	9 (1)	1 – 7,100	Food	Illegal shooting
Cyprus	1 (0)	1 – 200	Food	Illegal trapping
France	17 (5)	1 – 3,800	Food	Illegal trapping
Greece	9 (2)	1 – 151,000	Cagebird	Illegal trapping
Italy	5 (3)	1 – 300	Sport	Illegal shooting
Jordan	2 (0)	1 – 200	Food	Illegal shooting
Lebanon	5 (2)	1 – 10,600	Sport	Illegal shooting
Macedonia FYR	2 (1)	1 – 10	Sport	Illegal trapping
Malta	1 (1)	1 – 10	Cagebird	Illegal trapping
Montenegro	1 (0)	1 – 10	Sport	Illegal shooting
Morocco	6 (1)	1 – 1,100	Sport	Illegal trapping
Portugal	7 (3)	1 – 2,200	Cagebird	Illegal trapping
Serbia	12 (4)	1 – 23,900	Sport	Illegal shooting
Slovenia	4 (0)	1 – 200	Food	Illegal trapping
Spain	20 (6)	1 – 27,800	Food	Illegal trapping
Syria	16 (5)	1 – 9,300	Food	Illegal shooting
Turkey	1 (0)	1 – 5	Sport	Illegal shooting

^a Min estimate was set up to 1 as illegal poisoning was mentioned as one type of illegality, so we can consider that at least one individual may be killed by poison. Max estimate represent the maximum number of birds estimated to be killed/taken by all illegal methods (poisoning, trapping and shooting) for species where poisoning was one of the methods mentioned

^b from BirdLife (2015)

2.3. Species reported to be impacted

Among the 561 bird species assessed, 62 species (11%) were reported to be known, or likely to be illegally poisoned, mainly raptor species (Figure 4, Annex 1). Corvids are the most affected species among passerines (5 species out of the 7 affected). No particular pattern was found for waterbirds

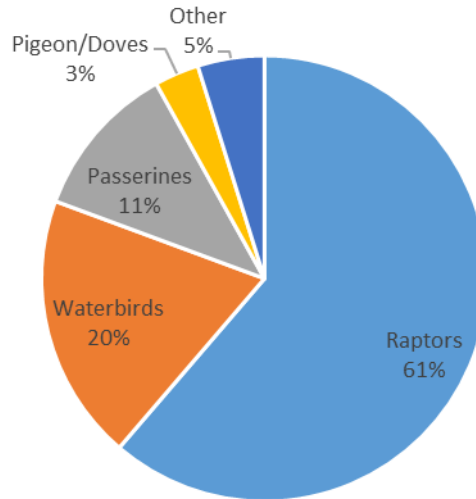


Figure 4. Proportion of each taxonomic group of species affected by illegal poisoning.

2.4. Reasons for killing by illegal poisoning

Species reported to be known or likely to be illegally killed by illegal poisoning (alone as illegal method or alongside trapping and/or shooting) were reported to be mainly targeted for predator control (Figure 5). There were 133 cases (1 case = 1 species in 1 country) mentioning illegal poisoning as an illegal method for killing. For 47 cases, only one reason was provided: Predator control (35 cases), Sport (7 cases), Taxidermy (5).

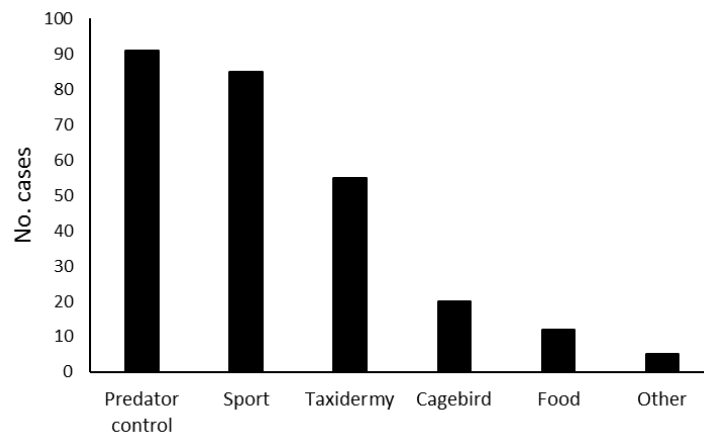


Figure 5. Number of cases (1 case = 1 species in 1 country mentioning illegal poisoning as illegal method for killing, 133 cases in total) for each reason category.

3. Extension of the review of illegal killing and taking of birds

Results presented here focused geographically on the Mediterranean region, but similar data are needed in Central and Northern Europe, the Arabian Peninsula, sub-Saharan Africa and Central Asia, in order to provide a flyway-scale picture. **BirdLife International is currently leading a Review of illegal killing and taking of birds in the rest of Europe, the Arabian Peninsula, Iraq and Iran, jointly with OSME in the Middle East region.** Results of the regional overview of illegal killing and taking of birds for Europe and Middle East should be available from summer/autumn 2017.

4. References

BirdLife International (2015) *Assessing the scope and scale of illegal killing and taking of birds in the Mediterranean, and establishing a basis for systematic monitoring*. Cambridge, UK: BirdLife International (available online [here](#))

Brochet *et al.* (2016) Preliminary assessment of the scope and scale of illegal killing and taking of birds in the Mediterranean. *Bird Conservation International* 26: 1-28 (available online [here](#)).

Annex

Annex 1. Estimated numbers of individual birds illegally killed/taken per year in the Mediterranean for each species affected by illegal poisoning (NB/ For any given species in a country, from the data collected we have an estimate for the total illegally killed but usually there are several different methods mentioned for a single species and we are unable to apportion the total among the different methods). 2016 IUCN Red List category: LC = Least Concern, NT = Near Threatened, VU = Vulnerable, EN = Endangered.

Species (IUCN red list category)	Min - Max estimated no. individual birds illegally killed/taken per year by any method for species where illegal poisoning ^a was one of the methods mentioned	Main reason for illegal killing/taking of the species (highest index of importance) ^b	Main illegal method (highest index of importance) ^b
Chukar <i>Alectoris chukar</i> (LC)	1 – 9,500	Food	Illegal shooting
Greylag Goose <i>Anser anser</i> (LC)	1 – 2,000	Food	Illegal shooting
Common Shelduck <i>Tadorna tadorna</i> (LC)	1 – 2,000	Food	Illegal shooting
Ruddy Shelduck <i>Tadorna ferruginea</i> (LC)	1 – 2,000	Sport	Illegal shooting
Gadwall <i>Mareca strepera</i> (LC)	1 – 400	Food	Illegal shooting
Eurasian Wigeon <i>Mareca penelope</i> (LC)	1 – 400	Sport	Illegal shooting
Mallard <i>Anas platyrhynchos</i> (LC)	1 – 2,000	Sport	Illegal shooting
European Turtle-dove <i>Streptopelia turtur</i> (VU)	1 – 126,000	Food	Illegal shooting
Eurasian Collared-dove <i>Streptopelia decaocto</i> (LC)	1 – 1,000	Sport	Illegal shooting
Great Bustard <i>Otis tarda</i> (VU)	1 – 200	Sport	Illegal shooting
Black Stork <i>Ciconia nigra</i> (LC)	1 – 2	Sport	Illegal shooting
White Stork <i>Ciconia ciconia</i> (LC)	1 – 900	Sport	Illegal shooting
Grey Heron <i>Ardea cinerea</i> (LC)	1 – 200	Food	Illegal shooting
Little Egret <i>Egretta garzetta</i> (LC)	1 – 200	Taxidermy	Illegal shooting
Eurasian Oystercatcher <i>Haematopus ostralegus</i> (NT)	1 – 10	Unknown	Unknown
Yellow-legged Gull <i>Larus michahellis</i> (LC)	1 – 1,000	Food	Illegal shooting

Common Barn-owl <i>Tyto alba</i> (LC)	1 – 2,400	Sport	Illegal shooting
Little Owl <i>Athene noctua</i> (LC)	1 – 200	Cagebird	Illegal trapping
Northern Long-eared Owl <i>Asio otus</i> (LC)	1 – 1,000	Predator control	Illegal shooting
Short-eared Owl <i>Asio flammeus</i> (LC)	1 – 20	Predator control	Illegal shooting
Tawny Owl <i>Strix aluco</i> (LC)	1 – 1,200	Sport	Illegal shooting
Ural Owl <i>Strix uralensis</i> (LC)	1 – 10	Unknown	Unknown
Eurasian Eagle-owl <i>Bubo bubo</i> (LC)	1 – 800	Predator control	Illegal shooting
European Honey-buzzard <i>Pernis apivorus</i> (LC)	1 – 100	Sport	Illegal shooting
Bearded Vulture <i>Gypaetus barbatus</i> (NT)	1 – 40	Predator control	Illegal poisoning
Egyptian Vulture <i>Neophron percnopterus</i> (EN)	1 – 500	Predator control	Illegal poisoning
Short-toed Snake-eagle <i>Circaetus gallicus</i> (LC)	1 – 100	Sport	Illegal shooting
Griffon Vulture <i>Gyps fulvus</i> (LC)	1 – 2,600	Predator control	Illegal poisoning
Cinereous Vulture <i>Aegypius monachus</i> (NT)	1 – 300	Predator control	Illegal poisoning
Lesser Spotted Eagle <i>Clanga pomarina</i> (LC)	1 – 1,000	Sport	Illegal shooting
Greater Spotted Eagle <i>Clanga clanga</i> (VU)	1 – 20	Sport	Illegal shooting
Tawny Eagle <i>Aquila rapax</i> (LC)	1 – 1	Unknown	Unknown
Steppe Eagle <i>Aquila nipalensis</i> (EN)	1 – 20	Cagebird	Illegal trapping
Spanish Imperial Eagle <i>Aquila adalberti</i> (VU)	1 – 200	Predator control	Illegal poisoning
Eastern Imperial Eagle <i>Aquila heliaca</i> (VU)	1 – 20	Cagebird	Illegal shooting
Golden Eagle <i>Aquila chrysaetos</i> (LC)	1 – 300	Predator control	Illegal shooting
Bonelli's Eagle <i>Aquila fasciata</i> (LC)	1 – 200	Predator control	Illegal shooting
Booted Eagle <i>Hieraetus pennatus</i> (LC)	1 – 20	Predator control	Illegal shooting
Western Marsh-harrier <i>Circus aeruginosus</i> (LC)	1 – 800	Taxidermy	Illegal shooting
Hen Harrier <i>Circus cyaneus</i> (LC)	1 – 200	Sport	Illegal shooting
Montagu's Harrier <i>Circus pygargus</i> (LC)	1 – 100	Predator control	Illegal shooting
Eurasian Sparrowhawk <i>Accipiter nisus</i> (LC)	1 – 400	Predator control	Illegal shooting
Northern Goshawk <i>Accipiter gentilis</i> (LC)	1 – 100	Predator control	Illegal shooting
White-tailed Sea-eagle <i>Haliaeetus albicilla</i> (LC)	1 – 10	Unknown	Unknown
Red Kite <i>Milvus milvus</i> (NT)	1 – 2,200	Predator control	Illegal poisoning
Black Kite <i>Milvus migrans</i> (LC)	1 – 2,500	Predator control	Illegal shooting

Eurasian Buzzard <i>Buteo buteo</i> (LC)	1 – 17,600	Sport	Illegal shooting
Long-legged Buzzard <i>Buteo rufinus</i> (LC)	1 – 100	Cagebird	Illegal trapping
European Bee-eater <i>Merops apiaster</i> (LC)	1 – 5,400	Other	Illegal shooting
Lesser Kestrel <i>Falco naumanni</i> (LC)	1 – 500	Taxidermy	Illegal shooting
Common Kestrel <i>Falco tinnunculus</i> (LC)	1 – 5,500	Predator control	Illegal shooting
Red-footed Falcon <i>Falco vespertinus</i> (NT)	1 – 100	Taxidermy	Illegal shooting
Eurasian Hobby <i>Falco subbuteo</i> (LC)	1 – 100	Predator control	Illegal shooting
Saker Falcon <i>Falco cherrug</i> (EN)	1 – 30	Sport	Illegal shooting
Peregrine Falcon <i>Falco peregrinus</i> (LC)	1 – 200	Sport	Illegal shooting
Masked Shrike <i>Lanius nubicus</i> (LC)	1 – 200	Sport	Illegal trapping
Eurasian Magpie <i>Pica pica</i> (LC)	1 – 5,000	Sport	Illegal shooting
Rook <i>Corvus frugilegus</i> (LC)	1 – 3,000	Predator control	Illegal shooting
Common Raven <i>Corvus corax</i> (LC)	1 – 600	Predator control	Illegal shooting
Carrion Crow <i>Corvus corone</i> (LC)	1 – 7,100	Predator control	Illegal shooting
Eurasian Blackbird <i>Turdus merula</i> (LC)	1 – 9,900	Food	Illegal shooting
House Sparrow <i>Passer domesticus</i> (LC)	1 – 20,000	Food	Illegal trapping

^a Min estimate was set up to 1 as illegal poisoning was mentioned as one type of illegality, so we can consider that at least one individual may be killed by poison. Max estimate represent the maximum number of birds estimated to be killed/taken by all illegal method (poisoning, trapping and shooting) for species where poisoning was one of the methods mentioned.

^b from Brochet et al. (2016)