The international impact of hunting and trapping in the Maltese islands

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Table of Contents

List of Figures

List of Tables

Appendices

Summary

Ring recoveries were used to analyse the international importance of Malta's position along one of the main European-African bird migration routes. International ring recoveries came from 1,188 individuals, representing 120 species. Birds from a total of 48 countries, 36 in Europe and 12 in Africa, were found to pass over Malta during spring and autumn migration. Birds that had been ringed overseas and shot by hunters in Malta were analysed separately. Ring recoveries from a total of 75 species, representing 35 countries, were found to have been killed in Malta. The majority of these ring recoveries came from protected, non-huntable species, with a significant proportion being Annex 1 species the EU Birds Directive. It was also found that a large proportion of these recoveries were of birds of prey that had been ringed as nestlings, further highlighting the impact of illegal hunting on conservation efforts throughout Europe. Ring recoveries for six of the seven main trappable finch species were also analysed separately. These came from 19 countries, with the majority of ring recoveries being from birds trapped by trappers and not released. Finally, the issue of spring hunting was investigated by considering ring recoveries of Turtle Dove (*Streptopelia turtur*) and Common Quail (*Coturnix coturnix*). This analysis showed that these species originate from key countries within Europe and not from the entire European population. By analysing ring recoveries, this study has demonstrated the key importance of Malta on one of the main European-African migratory flyways and the international impact of hunting and trapping activities in the country.

1.0 Introduction

Every year, billions of birds make migratory journeys along a network of routes across the world. As part of this global phenomenon, birds migrating from European breeding grounds cross over the Mediterranean region on their way to African wintering grounds. Upon reaching the Mediterranean, migrants often follow routes that cross the shortest expanse of open water, as this represents a hazard for migrants seeking shelter during adverse weather conditions or at nightfall. Many raptors, for example, follow one of three main migratory routes across the Mediterranean on their way to Africa. To the west, they cross from the Iberian peninsula, over the Straits of Gibraltar, and on into Morocco. Birds moving through the eastern flyway travel around the edge of the Mediterranean, cross the Turkish Straits, and continue on into Israel. Finally, those migrants following the central flyway pass from Italy, over Sicily and Malta, and on into North Africa. At the end of the winter, birds follow the reverse routes back to European breeding grounds. The Maltese islands therefore lie along the central route of the European-African migratory flyway. This flyway represents a key route taken every year by countless thousands of migratory raptors.

Other species, such as many passerines, migrate across the Mediterranean in a broad front (Moreau 1953, 1961, 1972). These migrants are particularly susceptible to adverse weather conditions and, during storms or high winds, can appear in Malta in very high numbers. Being located in the middle of the Mediterranean, Malta therefore represents a vital stop-over and refuelling site to replenish fat stores for their onwards migration (Sultana & Gauci, 1982). Furthermore, late in the afternoon as daylight fades, migrating birds (particularly birds of prey) often use Malta to roost before continuing their onward migration the following morning. In total, over 170 species regularly use Malta during migration (Casha, 2004).

Despite its significant importance, being located on one of the main migratory flyways between Europe and Africa, Malta has developed a notorious reputation as one of the black spots in the Mediterranean due to uncontrolled hunting and trapping activities. Recognising the international importance of Malta to bird migration, it must therefore be accepted that activities such as hunting and trapping will have an impact on species coming from a number of different countries located along these migratory routes.

To understand bird migration and the origin and destination of migrants, scientific bird ringing is a vitally important technique for ornithologists. Birds are caught at strategic points along their migration routes and are individually marked using numbered identification rings which are normally attached to their legs. Since 1965, licensed bird ringers have been carrying out scientific studies and bird monitoring work on the Maltese islands. This work has helped to understand Malta's significance in the migratory routes of birds crossing over the Mediterranean.

The purpose of this report is to investigate the impact of hunting and trapping in Malta by assessing the international element of bird migration over the islands. This is undertaken by analysing a data set gathered by licensed Maltese bird ringers carrying out their work under the Valletta Bird Ringing Scheme (run by BirdLife Malta), which is also a member of EURING (European Union for Bird Ringing).

2.0 Methodology

For the purposes of this study, only data on ringed birds found either i) ringed in Malta and recovered overseas or ii) ringed overseas and recovered in Malta are considered for the purposes of analysis. Data on birds carrying out short-distance movements (eg birds ringed and recovered within Malta or Gozo) are not considered.

The data analysed consist of all ring recoveries sent to, or recorded by, Maltese ringers within the BirdLife Malta database. This represents a substantial database, consisting of 1,188 records from the 1920s up until the end of 2006.

2.1 Method limitations

Ringing effort is very variable across Europe and Africa. Some countries, particularly in northern Europe, have large-scale ringing operations that are carried out by significant numbers of ringers on a country-wide basis. On the other hand, many countries in Africa, for example, have minimal or non-existent ringing programmes. This level of variability creates a disparity in ring recoveries as countries with extensive ringing schemes will result in more ringed birds and thus higher levels of ring recoveries. Therefore, it should be noted that in the case of countries that do not have a particularly high prominence in Malta in terms of ring recoveries, this may simply be due to low levels of ringing in the countries involved. Likewise, the recoveries of Maltese-ringed birds in these countries will be similarly affected. For example, the low levels of Maltese ringed birds in sub-Saharan Africa can be considered to be an artefact of this. This disparity needs to be taken into consideration when interpreting the results.

It should also be made very clear that these analyses only refer to the database for ring recoveries. Therefore, the results of the analysis on birds shot in Malta for example do not show the *number* of birds shot in Malta but rather represent the *range* of countries from which these birds are originating

Furthermore, ring recoveries only represent the number of ringed birds found or reported to BirdLife Malta. In reality, ring recoveries from ringed birds shot or trapped in Malta will be dramatically under-represented, as hunters and trappers are very unlikely to report ringed birds (especially protected and illegal species) and will make every effort to conceal them. This is further accentuated by the fact that many areas (such as Delimara and Mizieb) are inaccessible to fieldworkers during the peak hunting seasons due to the inherent dangers involved. Many hunters are often very aggressive to field workers (both verbally and physically) and this, coupled with the health and safety issues of so many firearms being discharged in such concentrated areas, means that it is simply not safe for field workers to collect data. This further reduces the number of ring recoveries that it is possible to obtain, and as these areas are hotspots for illegal hunting activities, these are the areas where it is very likely that many of the ring recoveries would be found.

Finally, the total number of birds being shot and trapped in Malta can not be inferred from this report as it must be remembered that the number of birds of each species ringed every year is a very small proportion of the total overall population. That so

many ringed birds have been recovered should further underline the serious nature of hunting and trapping on these islands, as the total numbers of birds shot or trapped will be much higher.

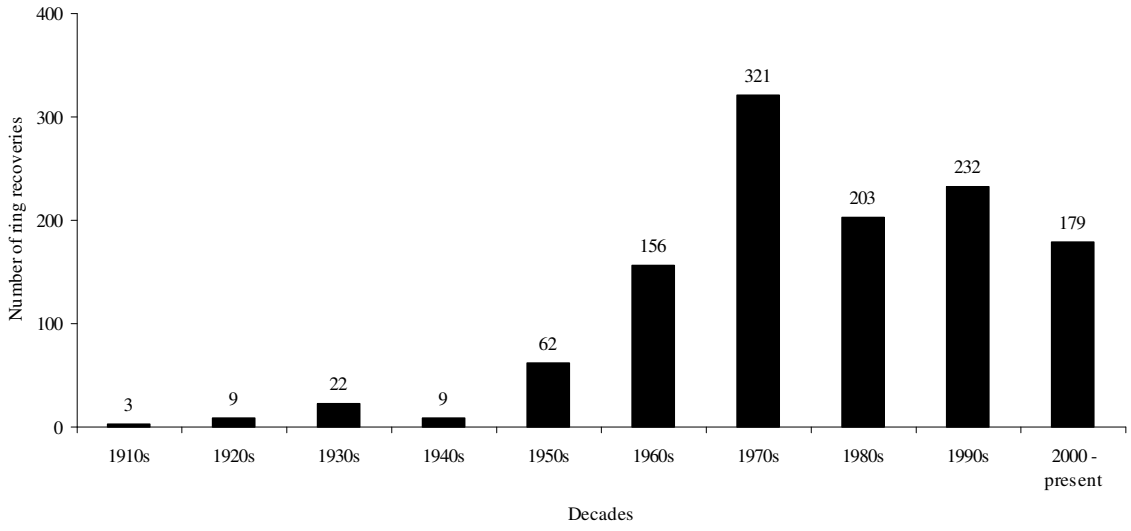
The results of this report should therefore only be used to show the range of countries being impacted by illegal hunting and trapping in Malta.

3.0 Results

3.1 Ringing records

A total of 1,188 foreign recoveries are analysed in this report, representing 120 species. Figure 1 shows the number of foreign ring recoveries received by BirdLife Malta since its inception in 1962, or compiled from EURING and various European ringing schemes' reports, some dating as early as the 1920s.

Figure 1. Number of ring recoveries received, by decade.

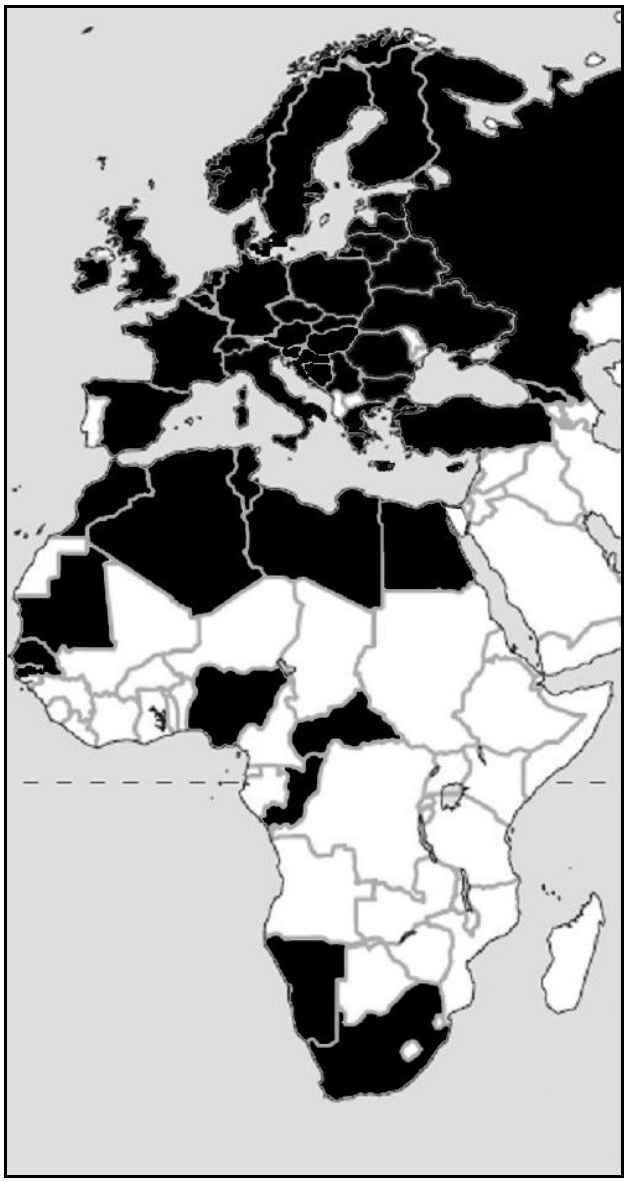


3.2 All ring recoveries combined

All ring recoveries, both those ringed overseas and recorded in Malta, and those ringed in Malta and recovered overseas, were analysed. For this analysis, ring recoveries from all sources were used; (i) recaptured and released by licensed ringers, (ii) re-sighted in the field, (iii) brought in dead or wounded by members of the public, (iv) killed by man or (v) trapped by trappers and not released.

A total of **48** countries were found to be connected to Malta by ring recoveries (Appendix 1). Of these, **36** countries were from Europe and **12** from Africa (Figure 2). Ring recoveries were also obtained from the islands of Crete, Sardinia, Corsica and Sicily.

Figure 2. Map showing countries (filled in black) linked to Malta through bird migration either from (i) birds ringed in Malta and recovered overseas, or (ii) foreign-ringed birds recovered in Malta.



The most northerly recoveries were from birds ringed in **Sweden** and **Finland**. The most southerly recoveries were of a Curlew Sandpiper (*Calidris ferruginea*) and a Sanderling (*Calidris alba*), both ringed on the Cape, **South Africa**, and both shot on their way to Europe by hunters in Malta.

The five most commonly recorded countries are shown in Table 1. Combined, these make up 46.4% of all recoveries in Malta. Ring recoveries came from a total of 1,188 individuals, representing 120 species. The five most commonly recorded species are shown in Table 2. Combined these make up 30.2% of all recoveries in Malta.

Table 1. The five most commonly recorded countries from ring recoveries.

Country	No. of recoveries	% of total recoveries
Italy	181	15.2
Finland	103	8.7
Czech Republic	98	8.3
Hungary	88	7.4
Sweden	81	6.8

Table 2. The five most commonly recorded bird species from ring recoveries.

Common Name	Scientific Name	No. of recoveries	% of total recoveries
Barn Swallow	*Hirundo rustica*	136	11.4
Sand Martin	*Riparia riparia*	73	6.1
Common Chiffchaff	*Phylloscopus collybita*	53	4.5
Linnet	*Carduelis cannabina*	53	4.5
Osprey	*Pandion halieatus*	44	3.7

The international element of bird migration through Malta is amply demonstrated by examining ring recoveries for three species in particular, the Sand Martin (*Riparia riparia*) (Figure 3), Barn Swallow (*Hirundo rustica*) (Figure 4) and Robin (*Erithacus rubecula*) (Figure 5). Ring recoveries from these species alone come from 26, 20 and 15 countries respectively.

Figure 3. Ring recoveries for Sand Martin (*Riparia riparia*), ringed overseas and recovered in Malta or ringed in Malta and recovered overseas (n=73).

Figure 4. Ring recoveries for Barn Swallow (*Hirundo rustica*), ringed overseas and recovered in Malta or ringed in Malta and recovered overseas (n=134).

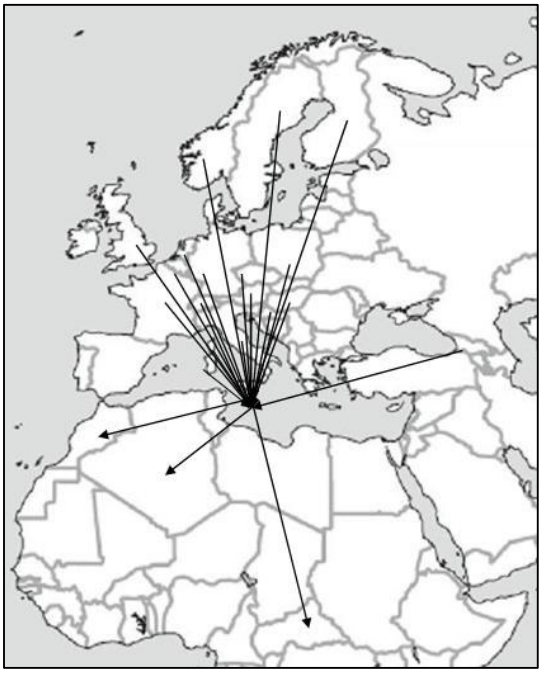


Figure 5. Ring recoveries for Robin (*Erithacus rubecula*), ringed overseas and recovered in Malta or ringed in Malta and recovered overseas (n=37).

3.3 Ring recoveries of birds killed in Malta

All ring recoveries for birds killed in Malta were analysed separately. It should be noted that these results are ***not*** indicative of the number of birds killed in Malta, but are only indicative of the **range** of countries impacted by hunting on the island (as discussed in Section 2.1, Methods Limitations).

Birds from **35** countries, representing **75** species were recorded as ringed overseas and shot in Malta (Appendix 2).

The five most commonly recorded countries for birds killed in Malta are shown in Table 3. Together, these five countries make up 54.5% of all recoveries. For Finland and Sweden in particular, a significant proportion of these recoveries come from birds of prey, comprising 55.5% and 33.3% of the total recoveries for these countries respectively. The five most common species ringed overseas and killed in Malta are shown in Table 4. Together, these make up 38.7% of all individual recoveries.

Of the 75 species recorded as ringed overseas and killed in Malta, **15** (20.0%) species were raptors (birds of prey) and **25** (33.3%) were listed under Annex 1 of the Birds Directive.

Table 3. The five most commonly recorded countries from ring recoveries.

Country	No. of recoveries	% of total recoveries
Finland	63	16.5
Sweden	46	12.0
Tunisia	37	9.7
Italy	35	9.2
Germany	27	7.1

Table 4. The five most common species recorded ringed overseas and shot in Malta.

Common Name	Latin Name	No. of recoveries	% of total recoveries
Osprey	*Pandion halieatus*	44	11.5
Common Kestrel	*Falco tinnunculus*	32	8.4
Turtle Dove	*Streptopelia turtur*	28	7.3
Night Heron	*Nycticorax nycticorax*	23	6.0
Caspian Tern	*Sterna caspia*	21	5.5

Data was also considered in terms of bird groupings (Table 5). The three most common groupings in this analysis were raptors (33.3%), gulls & terns (17.0%) and herons (11.0%).

Table 5. Groupings of birds ringed overseas and killed in Malta

Grouping	No. of recoveries	% of total recoveries
Raptors	127	33.2
Herons	42	11.0
Gulls & Terns	65	17.0
Waders	31	8.1
Doves	29	7.6
Other Passerines	26	6.8
Quails	17	4.5
Hirundines	17	4.5
Cormorants	11	2.9
Owls	7	1.8
Finches	3	0.8
Waterfowl	3	0.8
Nightjars	2	0.5
Gannets	2	0.5

3.4 Ring recoveries of finch species trapped in Malta

All ring recoveries for six of the seven main finch species trapped in Malta were analysed. For this analysis, ring recoveries from all sources were used; (i) recaptured and released by licensed ringers, (ii) re-sighted in the field, (iii) brought in dead or wounded by members of the public, (iv) killed by man or (v) trapped by trappers and not released (ie. caught by bird trappers and then either kept to be used in the future as decoys, or sold into the pet trade). All ring recoveries were analysed together to investigate the range of countries that each finch species comes from. Hawfinch (*Coccothraustes coccothraustes*) was not included in this analysis as no data exists on this species in the BirdLife Malta ring recovery database. This may be because many of the individuals of this species are caught by trappers as soon as they arrive on the island and are therefore never recovered by licensed bird ringers. This is particularly relevant as there are currently 4616 registered trappers (according to government statistics) who attract finches using live decoys, thus catching the vast majority of migratory finches shortly after they arrive on the island.

112 foreign-ringed individuals from **19** countries were recorded from the BirdLife Malta database (Appendix 3). The five most common countries recorded from ring recoveries are shown in Table 6. Combined these make up **73.2%** of all finch recoveries in Malta.

Table 6. The five most commonly recorded countries from finch ring recoveries.

Country	No. of recoveries	% of total recoveries
Czech Republic	23	20.5
Hungary	19	17.0
Italy	16	14.3
Slovenia	13	11.6
Croatia	11	9.8

The vast majority (**86.6%**) of these recoveries were from birds trapped by trappers and not released.

3.5 Species data

This section investigates recoveries on a species-by-species basis. It is divided into three sections; (i) Protected species[1], (ii) Turtle Dove & Common Quail and (iii) Finches. Key species will be used in each section to investigate the international impact of illegal hunting of protected species, spring hunting of Turtle Dove and Common Quail and the trapping of finches in Malta. Once again, it is worth reiterating that these results are ***not*** indicative of the number of birds killed or trapped in Malta, but are only indicative of the breadth of countries impacted by hunting on the island. The numbers of birds killed or trapped in Malta for each species are much higher.

3.5.1 Protected Species

Ring recoveries of the five most commonly shot ringed species (all of which are protected) in Malta were analysed. Results are shown in Figures 6 through 10.

Figure 6. Percentage of ring recoveries for Osprey (*Pandion haliaetus*), ringed overseas and killed in Malta, by country (n=44).

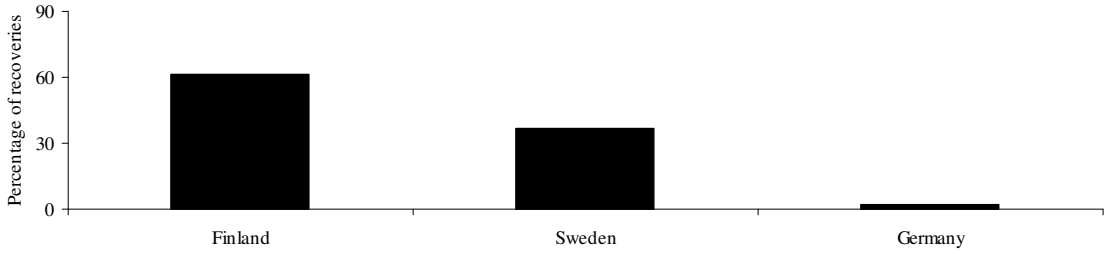
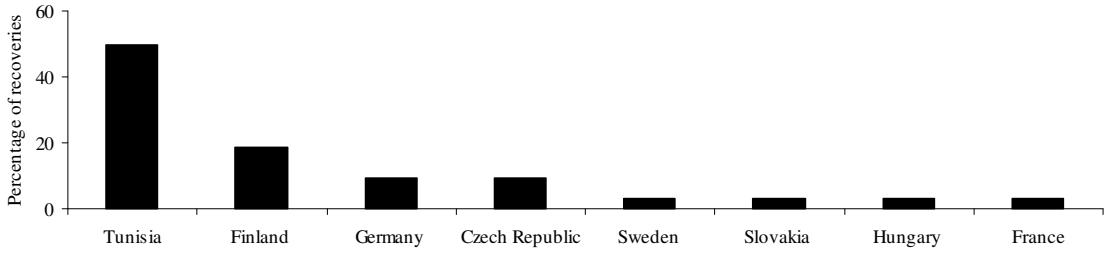


Figure 7. Percentage of ring recoveries for Common Kestrel (*Falco tinnunculus*), ringed overseas and killed in Malta, by country (n=32).



[1] It should be noted that prior to regulations published by the Maltese government in 1980 there were only 22 legally protected species. The 1980 regulations included two schedules (birds that could be shot and those that could be trapped), and afforded legal protection to all other species. The introduction of more recent legislation, particularly LN 79 of 2006, further restricted the number of legally huntable species. Therefore, when discussing legally protected species for the purposes of this report, the author is referring to legally protected species under *current* legislation. This is to demonstrate the international impact of the illegal hunting of these protected species in recent years. The results of this analysis show the origin of these protected species and therefore which are the main countries affected when these species are shot in the present day.

Figure 8. Percentage of ring recoveries for Black-crowned Night Heron (*Nycticorax nycticorax*), ringed overseas and killed in Malta, by country (n=23).

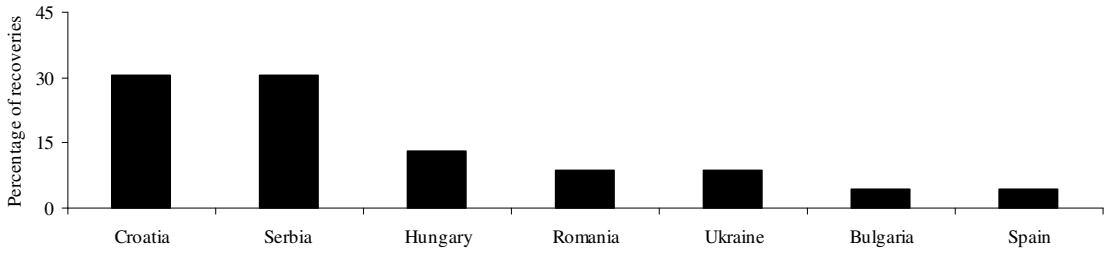


Figure 9. Percentage of ring recoveries for Caspian Tern (*Sterna caspia*), ringed overseas and killed in Malta, by country (n=21).

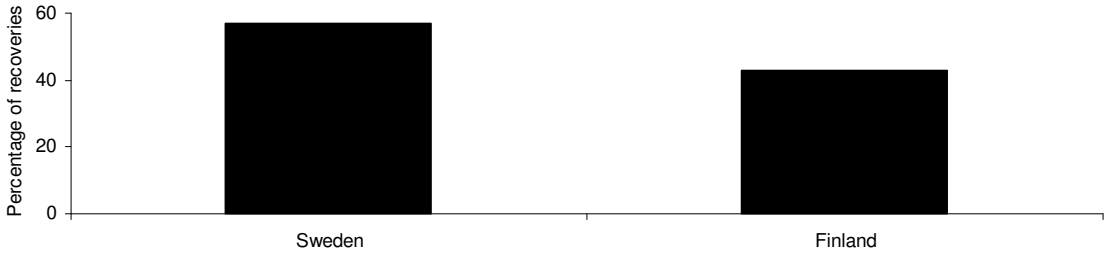
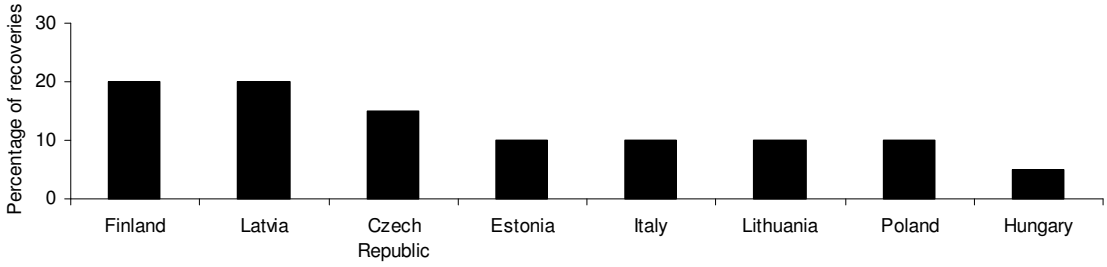


Figure 10. Percentage of ring recoveries for Marsh Harrier (*Circus aeruginosus*), ringed overseas and killed in Malta, by country (n=20).



The countries for raptors shot in Malta (for the purposes of the analysis, data was used for the 13 species present in the database) are presented in Table 7. The age at ringing for all raptors ringed overseas and shot in Malta was also analysed, and the results are presented in Table 8. The same two analyses was carried out for all herons ringed overseas and shot in Malta, and the results are presented in Tables 9 and 10.

Table 7. Ring recoveries for birds of prey (13 species combined), ringed overseas and shot in Malta.

Country	No. of recoveries	% of total recoveries
Finland	44	34.9
Sweden	21	16.7
Tunisia	17	13.5
Germany	10	7.9
Czech Republic	7	5.6
Hungary	5	4.0
Poland	4	3.2
Latvia	4	3.2
Lithuania	3	2.4
Italy	3	2.4
Estonia	2	1.6
Crete	2	1.6
Slovakia	1	0.8
Serbia	1	0.8
Romania	1	0.8
France	1	0.8

Table 8. Age at ringing for all raptors ringed overseas and shot in Malta. The majority of these birds are therefore ringed in their natal country.

	Age at ringing		
Species	**Nestling**	**Juvenile**	**Adult**
Osprey	**44**	0	0
Common Buzzard	**1**	**1**	0
Common Kestrel	**18**	**13**	**10**
Eleanora's Falcon	**2**	0	0
European Hobby	**3**	0	**2**
Honey Buzzard	**10**	**2**	0
Lesser Kestrel	0	**1**	0
Marsh Harrier	**10**	**1**	**9**
Montagu's Harrier	**2**	0	**1**
Pallid Harrier	0	0	**1**
Peregrine Falcon	**1**	0	0
Red Kite	**1**	0	0
Red-footed Falcon	**1**	0	0
Saker	**1**	0	0
Raptors (Combined)	**94**	**18**	**23**
Percentage of total	*69.6*	*13.3*	*17.0*

Table 9. Ring recoveries for herons & egrets (5 species combined), ringed overseas and shot in Malta.

Country	No. of recoveries	% of total recoveries
Serbia	15	31.3
Croatia	9	18.8
Hungary	6	12.5
Ukraine	3	6.3
Spain	2	4.2
Russia	2	4.2
Romania	2	4.2
Netherlands	2	4.2
Bulgaria	2	4.2
Tunisia	1	2.1
Poland	1	2.1
France	1	2.1
Finland	1	2.1
Bosnia and Herzegovina	1	2.1

Table 10. Age at ringing for all herons ringed overseas and shot in Malta. The majority of these birds are therefore ringed in their natal country.

	Age at ringing		
Species	**Nestling**	**Juvenile**	**Adult**
Night Heron	21	3	1
Squacco Heron	6	0	0
Purple Heron	9	1	0
Grey Heron	3	0	0
Little Egret	3	0	0
Herons (Combined)	**42**	**4**	**1**
Percentage of total	*89.4*	*8.5*	*2.1*

It can be seen in many cases that these protected species come from a range of countries, and therefore illegal hunting affects the conservation efforts of all of these countries. However, in the case of certain other species, illegal hunting can be seen to be having an impact on bird populations from certain key countries only. For example, 97.7% of Osprey recoveries come from Finland and Sweden (with 69.5% of these being birds shot while undertaking their first migration). All of the ring

recoveries for Great Skua (*Stercorarius skua*) come from Scotland (n=9, all of which were ringed as nestlings), for the Sandwich Tern (*Sterna sandvichensis*) from the Ukraine (n=5, all of which were ringed as nestlings or juveniles) and for Mediterranean Gull (*Larus melanocephalus*) from the Ukraine (n=10).

3.5.2 Turtle Dove & Common Quail

Ring recoveries of Turtle Dove and Common Quail were analysed separately as they are the two species the Maltese government is currently allowing to be hunted and trapped during spring migration [2]. For this analysis, ring recoveries from all sources were used; (i) recaptured and released by licensed ringers, (ii) re-sighted in the field, (iii) brought in dead or wounded by members of the public, (iv) killed by man or (v) trapped by trappers and not released. Results are shown in Figures 11 and 12.

Figure 11. Percentage of ring recoveries for Common Quail (*Coturnix coturnix*), ringed overseas and recovered in Malta, by country (n=19).

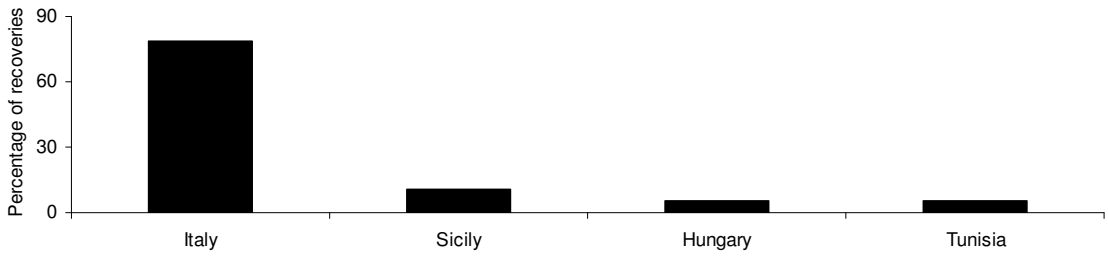
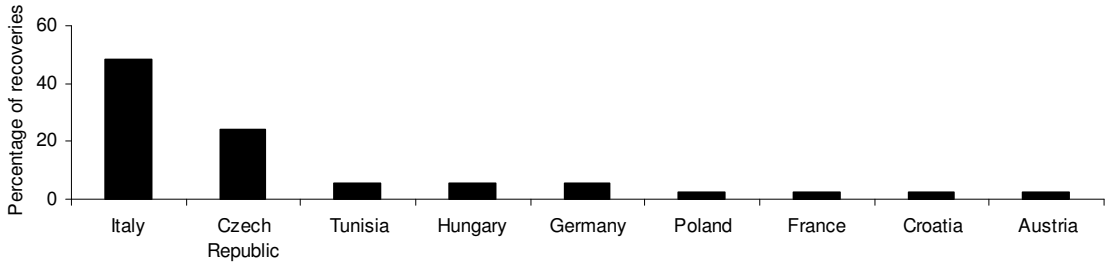


Figure 12. Percentage of ring recoveries for Turtle Dove (*Streptopelia turtur*), ringed overseas and recovered in Malta, by country (n=37).



[2] The hunting of birds in spring is not allowed under the EU Birds Directive. The European Commission has started an infringement procedure against the Maltese government for allowing the hunting of Turtle Dove and Common Quail since Malta joined the EU.

3.5.3 Finches

Ring recoveries of six of the main finch species trapped in Malta were analysed. For this analysis, ring recoveries from all sources were used; (i) recaptured and released by licensed ringers, (ii) re-sighted in the field, (iii) brought in dead or wounded by members of the public, (iv) killed by man or (v) trapped by trappers and not released.

Sample sizes of ring recoveries for Chaffinch (*Fringilla coleobs*) and Goldfinch (*Carduelis carduelis*) are too small to allow for meaningful analysis. In the case of the Chaffinch, there are only 7 ring recoveries from Hungary (2), Italy (2), Ukraine (1), Poland (1) and Tunisia (1). In the case of European Goldfinch, there are 4 ring recoveries, with one each from England, Germany, Croatia and Tunisia.

For the remaining species, results are shown in Figures 13 through 16.

Figure 13. Percentage of ring recoveries for Linnet (*Carduelis cannabina*), ringed overseas and recovered in Malta, by country (n=53).

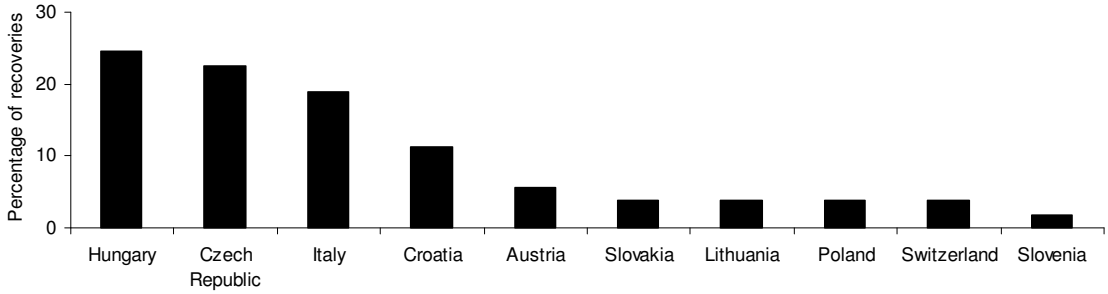


Figure 14. Percentage of ring recoveries for Siskin (*Carduelis spinus*), ringed overseas and recovered in Malta, by country (n=16).

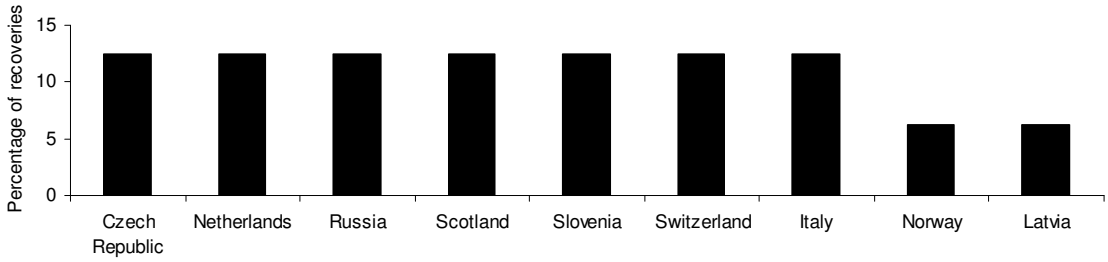


Figure 15. Percentage of ring recoveries for Greenfinch (*Carduelis chloris*), ringed overseas and recovered in Malta, by country (n=16).

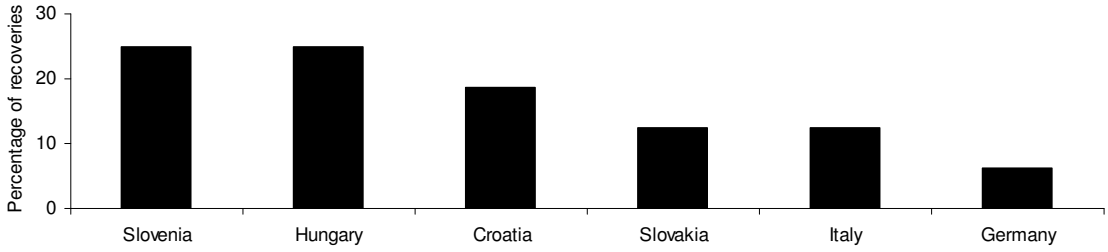
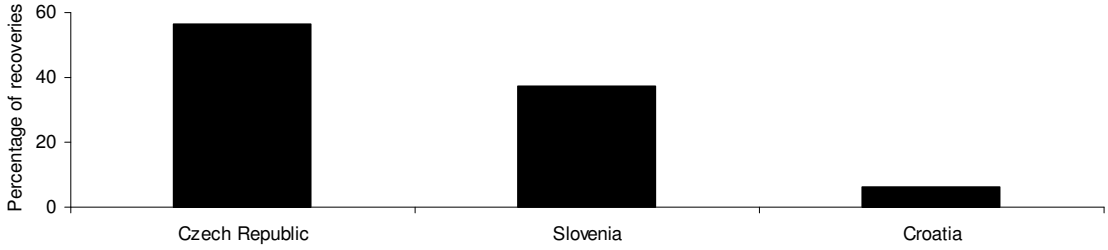


Figure 16. Percentage of ring recoveries for European Serin (*Serinus serinus*), ringed overseas and recovered in Malta, by country (n=16).



4.0 Discussion

The data analysed in this report comes from an extensive database spanning many decades. The analysis of a database of this size therefore allows for an enhanced understanding of Malta's importance in terms of international migration. It should be noted that although some of the ringing records originate from the 1960s or earlier, it is not the date of the ringing record that is important in this analysis. Ringing records, both past and present, are equally important as together they provide us with an understanding of where migrant species originate from. This is particularly vital when considering the international implications of the illegal persecution of protected species in the present day.

4.1 International migration

The results of this analysis have shown that birds from a *minimum* of 48 countries pass through Malta on their annual migration between breeding and wintering grounds. These are composed of 36 countries in Europe and 12 countries in Africa. It should be noted that this will represent the *minimum* number of countries linked to Malta through bird migration. In many countries, particularly in Africa and some parts of Eastern Europe, ringing programmes are limited or almost non-existent and therefore relatively few birds from these countries will be ringed and recovered abroad. The true number of countries linked to Malta through migration will therefore in all likelihood be higher and would include many of the African countries not currently included in this list.

Ring recoveries of birds in Malta span the whole of the Western Palearctic, from Finland and Sweden to Algeria and Tunisia. Birds from further south have also been recorded, including two wader species ringed on the Cape, South Africa. These two individuals, like many of the other ring recoveries analysed in this report, were subsequently shot in Malta. Recoveries of species such as the Sand Martin, Barn Swallow (both shot illegally in Malta) and Robin (a species that is often trapped illegally in Malta) span the entirety of their European breeding range. In the case of the Sand Martin, recoveries in Malta come from 24 breeding range countries and two wintering countries. Ring recoveries of this species come from breeding colonies as far north as Finland and Sweden, as far east as Russia and as far west as the Republic of Ireland, whilst wintering birds have been recorded as far south as Nigeria. The migration of this species over Malta, and many others like it, is therefore truly on an international scale.

While it can be seen that many species passing over Malta come from a wide range of European countries, an equally important factor to be considered is when all of the ringed birds passing over Malta are found to originate from one or two countries only. This can be seen for species such as the Osprey, a rare bird of prey considered to be of Unfavourable Conservation Status in Europe (Birdlife International, 2004). In the case of this species, ring recoveries originate from three countries only, Finland, Sweden and Germany, with the vast majority coming from Finland and Sweden. As the number of ring recoveries for this species is relatively high (44 ringed individuals have been recorded as shot in Malta) it can be seen that a significant proportion of Osprey passing over Malta originate from these two countries alone. Satellite tracking of both Swedish and Finnish Ospreys confirm the importance of the central

European-African migratory route for many of their breeding birds (Hake *et al*, 2001; Kellen *et al*, 2001; FMNH, 2006).

In Finland and Sweden, Osprey populations are composed of 1,150-1,300 pairs and 3,400-4,000 pairs respectively (BirdLife International, 2004). Due to world-wide declines of this species in the late 1960s (mainly due to human persecution and the widespread use of DDT, a highly toxic, persistent and bio-accumulative pesticide (Saurola 1997)), this species has been the focus of intensive conservation efforts throughout its' breeding range. Both Sweden and Finland currently have extensive research projects aimed at this species, which in both countries includes satellite tracking individual birds. Therefore, the conservation and research initiatives of these two countries can be seen to be directly affected by illegal hunting activities in Malta. This is particularly pertinent, considering that all 44 ringed birds from these two countries were originally ringed as nestlings and over two thirds of them were undertaking their first migration. As this species typically does not reach sexual maturity until at least three years of age (BTO, 2007) then birds passing over Malta will need to survive three separate migrations before they can even attempt to rear their first brood. Due to intensive illegal hunting pressure in Malta, this makes it particularly difficult for these birds to survive long enough to start breeding, thus creating a serious conservation issue.

This is also true for other species, such as Great Skua and Sandwich Tern (the latter species designated as being of Unfavourable Conservation Status and Depleted in Europe (BirdLife International, 2004)). For both of these species, ring recoveries come from single countries only. In the case of the Great Skua, all of the ring recoveries have been of juvenile birds and all have originated from Scotland (with 9,600 pairs, Scotland holds over half of the world population of this species (BirdLife International 2004)). The recovery of juvenile birds in Malta, all of which were recorded as shot, confirms the migratory patterns of this species, with many of the juveniles leaving Scotland after the breeding season and spending the winter roaming throughout the Mediterranean (Flegg, 2004). Illegal hunting of protected species in Malta that originate from single countries can therefore have a very concentrated effect on the breeding populations of these countries.

4.2 Impact of illegal hunting

According to the Home Affairs Minister the latest figures for the number of *registered* hunters (excluding trappers) in Malta currently stands at 11,929 individuals (Times of Malta, 2007).

From the analysis of ring recoveries it can be seen that birds from a *minimum* of 35 countries have been subsequently killed in Malta by Maltese hunters. Only a small proportion of these ring recoveries came from legally huntable species, with the vast majority being protected species.

Illegal hunting is therefore an international issue that affects the breeding birds of a range of countries, particularly countries such as Finland, Sweden and Germany. In particular, a high proportion of recoveries of illegally shot birds from these countries come from birds of prey. The central Mediterranean flyway is particularly important

for many raptors, with thousands making the crossing every year (Beaman & Galea, 1974; Coleiro *et al* 1995; Garcia & Arroyo, 1998; Agostini *et al,* 2003; Sammut & Bonavia, 2004; Pannuccio *et al,* 2005). This group of birds in particular are heavily persecuted in Malta, with large numbers being killed every year on migration (Coleiro *et al,* 1995; Sammut & Bonavia, 2004). This includes species such as Marsh Harrier (and other harrier species including the endangered Pallid Harrier (*Circus macrourus*)), Honey Buzzard (*Pernis apivorus*), Osprey, Red-footed Falcon (*Falco vespertinus*), Lesser Kestrel (*Falco naumanni*), Common Kestrel and Hobby (*Falco subbuteo*). As these birds are often rare or declining species, have small numbers of young and take several years to reach sexual maturity, the impact of illegal hunting pressures on their populations can have serious repercussions on their conservation status. The effects of illegal persecution on birds of prey are widely documented (eg. Cramp & Simmons, 1980; Hatsofe, 1981; del Hoyo *et al,* 1994; Thirgood *et al,* 2000; Saurola, 2007)

As can be seen from this analysis, the majority of ringed raptors and herons that have been shot over Malta are of juvenile birds and birds ringed in the nest. Although it is to be expected that for these species higher numbers of birds will be ringed as nestlings as opposed to adults (due to the relative ease in ringing nestlings), it is still important to realise that these are birds which have been born and fledged in foreign countries, often as a result of concerted conservation effort. After fledging, these birds subsequently commence their migration and pass over Malta, where they may then fall victim to illegal persecution by Maltese hunters. Furthermore, as it takes several years for the young of many of these species to reach sexual maturity, they have to survive several migrations before they are of a sufficient age to successfully breed. The chances of survival to breeding age of those birds having to pass repeatedly over Malta are therefore affected by the high levels of illegal hunting pressure. Ring recoveries of birds ringed as nestlings and killed in Malta include Pallid Harrier (Globally Near Threatened, Endangered in Europe with a breeding population of 5-51pairs), Osprey (Unfavourable Conservation Status, Rare), Lesser Kestrel (Global Status Vulnerable), Saker Falcon (Globally Endangered, entire European population 360-540 pairs) and Purple Heron (Unfavourable Conservation Status, Declining)[3].

4.3 Impact of trapping

Trapping of several species of finch using clap-nets, while illegal throughout the European Union, is still allowed in Malta under an agreement made during the Accession Treaty. However, this practice is to be phased out over the next two years and will legally come to an end in Malta by December 31st, 2008.

According to the Home Affairs Minister the latest figures for the number of registered trappers in Malta currently stands at 4,616 individuals (Times of Malta, 2007). Analysis of aerial photographs from 2001 found a minimum of 5,317 trapping sites (Mifsud, 2001). Trapping currently occurs in Malta at such a high level that only a handful of each of the common finch species regularly breed on the islands, despite breeding in abundance in other areas of the Mediterranean. For comparative

[3] European or Global conservation status is shown from BirdLife International (2004)

purposes, while Chaffinch, Serin, Goldfinch, Greenfinch and Linnet all have breeding populations of between 10,000 and 60,000 pairs (depending on the species) in Cyprus (BirdLife International, 2004), the Maltese breeding populations are represented as between 1-5 pairs, and several of these species no longer breed regularly on the islands.

As well as having a serious impact on locally breeding birds, trapping particularly targets the large flocks of migrating finches that pass through Malta during migration. Many of these flocks, in the absence of persecution, would over-winter in Malta. Analysing data for six of the main legally trappable finch species, it was found that these species come from *at least* 19 European countries. Of these, the Czech Republic, Hungary, Italy, Slovenia and Croatia are the main countries from which these birds come from and it is these countries that will be predominantly affected by the trapping of finches in Malta. For the Serin in particular, ring recoveries come from three countries only, the Czech Republic, Slovenia and Croatia. In the case of this species, trapping will have a particularly concentrated effect on the populations of these countries in particular.

It should also be noted that the number of recoveries of ringed finches is very low because the number of finches caught by licensed ringers in Malta is exceptionally low. Even very common Mediterranean finch species like the Greenfinch and the Linnet are rarely recorded by licensed Maltese bird ringers. This is due to the fact that the large flocks of migrants are almost entirely caught by trappers who position their trapping sites along the edges of cliffs where migrating finches first arrive. The methods employed by trappers, who utilise large clap nets and live decoy birds, is a very successful method of trapping entire flocks of finches. This, coupled with the large number of registered trappers in Malta, means that very few migrants reaching Malta remain free long enough to move inland to where scientific bird ringing normally takes place. The fact that there are so few wild finches present in the interior of Malta shows the dramatic impacts that trapping has on populations of migrating finches.

The trapping of finches in Malta can therefore be seen to be (i) effectively causing the local extinction of the Maltese breeding populations and (ii) impacting on migrating finch flocks from a range of countries throughout their European breeding range.

4.4 Turtle Dove & Common Quail

Both Turtle Dove and Common Quail are currently considered to be of an Unfavourable Conservation Status in Europe due to significant declines throughout their breeding range (BirdLife International 2006a, 2006b).

The Maltese government, in 2007, opened its fourth spring hunting and trapping season (for Turtle Dove and Common Quail) since joining the European Union[4]. The hunting of birds in spring is not allowed under the EU Birds Directive (Directive 79/409/EEC). Derogations from this can be applied only if certain conditions are fulfilled, including the absence of an alternative solution. To date, no Member State

[4] Legal Notice 44 of 2007

of the European Union has been able to demonstrate meeting these conditions, and several have stopped spring hunting, either to avoid being condemned by the European Court of Justice or after being condemned.

The European Commission has started an infringement procedure against the Maltese government on this issue, with the issuing of a first written warning in July 2006[5]. The procedure has moved on to the next level, with the issuing of a supplementary warning letter in March 2007. The next step will involve the taking of Malta to the European Court of Justice.

The analysis of ring recoveries helps to ascertain the origin of many of the Turtle Dove and Quail passing over Malta during migration. Turtle Doves have been recovered from eight countries within the species' breeding range. Of these, half of the ring recoveries come from Italy and a further quarter come from the Czech Republic. The breeding population of Turtle Dove in Germany and Poland (two of the other countries with ring recoveries linked to Malta) are listed as declining (BirdLife International, 2006b).

For the Common Quail, the vast majority (94.4%) of ring recoveries from countries within its breeding range originate from a single country only; Italy. The only recovery of Common Quail outside Italy is of a single recovery from Hungary. While some of the quails with Italian rings may have been caught by Italian ringers while on migration (and may thus originate from other countries), the lack of ring recoveries of this species from any other country apart from Hungary suggest that a significant proportion of the quails passing over Malta are of Italian origin. The hunting of Common Quail in Malta will therefore be having an impact on the breeding populations of Italy in particular.

The results of this analysis are particularly important when considering the conclusions of the derogation report issued by Malta defending its intention to allow spring hunting (MRAE, 2005). In this report, Malta claims that birds from both species come from the entirety of their breeding ranges (in an attempt to show that what happens in Malta is insignificant in terms of the European populations of these species). For the Turtle Dove, Malta refers to a breeding population of 7.2 million pairs, which is actually the maximum European estimate for this species (estimated at between 3.5 and 7.2 million pairs (BirdLife International, 2006b)). For Common Quail, Malta refers to a breeding population of 4.7 million pairs, which is again the maximum European estimate for this species (estimated at between 2.8 and 4.7 million pairs (BirdLife International, 2006a)).

The analysis in this report shows very clearly that, for both Turtle Dove and Common Quail, birds migrating over Malta originate from a subset of countries within their total European range. In the case of Turtle Doves one should only consider the

[5] As regards Malta, the European Commission maintains that there is a satisfactory alternative to spring hunting, namely hunting in autumn, and that therefore there is no justification for allowing spring hunting of these two species in Malta. Moreover Malta does not meet the conditions of Art.9 (1) c of "strictly supervised conditions" (i.e. there are no systems in place to limit and supervise the number of birds killed, as well as methods, time and place of the activity) and of "judicious use" (ie. the hunted species have declining or depleted populations and Unfavourable Conservation Status).

breeding populations of the eight countries involved in the ring recoveries, whilst for Common Quail one can only consider the breeding populations of Italy and Hungary. Countries with large breeding populations, such as Russia and Turkey for example, should not be considered unless proof is provided that some of their birds migrate over Malta. While this report is not claiming that these are the only countries from which birds migrating over Malta originate, for the purposes of sensitive issues involving the Birds Directive, a precautionary principle needs to be taken. This means that other countries within the breeding range of these species should not be considered for any discussions or analyses unless proof (in the form of ring recoveries) is given that birds are originating from them.

4.5 Conclusion

The Birds Directive is the primary European legislation for the protection of wild birds and was created to ensure the effective conservation of all of these species within Europe. One of the most important issues that the Birds Directive addresses is the migratory nature of many bird species and the fact that they pass through many different countries during their annual migrations. Conservation of these species therefore needs to be considered in a European-wide context, as activities in one country may have far-reaching affects on the populations of another.

As a member of the European Union, Malta has a legal obligation to follow the Birds Directive. Protecting migratory species must be undertaken through robust national legislation which implements the Birds Directive in its entirety. This needs to be supported by increased assistance for over-stretched law enforcement officers and the application of significant penalties (in court and not just on paper) for those who break the law.

This report shows, unequivocally, the international importance of Malta on the European-African migratory flyway. Birds from breeding populations throughout Europe pass over Malta every year on their way to African wintering grounds. It follows that illegal hunting and trapping activities in Malta have a direct resonance on the conservation efforts of countries throughout Europe and Africa. Malta therefore has a responsibility to protect these species, which should be viewed as a common heritage and not simply as a resource for Maltese hunters and trappers.

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Appendix 1. Number of countries linked to Malta through ring recoveries (either birds ringed in Malta and recovered overseas, or birds ringed overseas and recovered in Malta).

No.	Country	No. of recoveries
	Europe	
1	Italy	181
2	Finland	103
3	Czech Republic	98
4	Hungary	88
5	Sweden	81
6	Germany	72
7	Slovenia	59
8	Ukraine	46
9	Croatia	37
10	Poland	36
11	France	24
12	Serbia	22
13	England	19
14	Austria	17
15	Denmark	16
16	Russia	16
17	Scotland	16
18	Netherlands	15
19	Norway	15
20	Spain	13
21	Switzerland	12
22	Slovakia	11
23	Latvia	10
24	Greece	8
25	Lithuania	8
26	Belgium	7
27	Bulgaria	7
28	Romania	3
29	Belarus	2
30	Bosnia & Herzegovina	2
31	Estonia	2
32	Georgia	2
33	Republic of Ireland	2
34	Wales	2
35	Turkey	1
36	Montenegro	1
	Africa	
1	Tunisia	64
2	Nigeria	11
3	Algeria	10
4	Libya	5
5	Central African Republic	2
6	South Africa	2
7	Congo	1
8	Egypt	1
9	Mauritania	1
10	Morocco	1
11	Namibia	1
12	Senegal	1
	Additional Islands	
1	Sicily	22
2	Crete	7
3	Sardinia	4
4	Corsica	1

Appendix 2. Number of recoveries of overseas-ringed birds shot in Malta, by country.

No.	Country	No. of recoveries
1	Finland	63
2	Sweden	46
3	Tunisia	37
4	Italy	35
5	Germany	27
6	Hungary	22
7	Ukraine	21
8	Czech Republic	19
9	Serbia	13
10	Poland	12
11	Croatia	11
12	Denmark	11
13	Scotland	7
14	France	5
15	England	4
16	Latvia	4
17	Russia	4
18	Austria	3
19	Bulgaria	3
20	Lithuania	3
21	Netherlands	3
22	Romania	3
23	Crete	2
24	Estonia	2
25	Sicily	2
26	Slovakia	2
27	Slovenia	2
28	South Africa	2
29	Spain	2
30	Switzerland	2
31	Belgium	1
32	Bosnia & Herzegovina	1
33	Greece	1
34	Ireland	1
35	Namibia	1
36	Nigeria	1
37	Norway	1

Appendix 3. Number of recoveries of overseas-ringed finches recorded in Malta, by country.

No.	Country	No. of recoveries
1	Czech Republic	23
2	Hungary	19
3	Italy	16
4	Slovenia	13
5	Croatia	11
6	Slovakia	4
7	Switzerland	4
8	Austria	3
9	Poland	3
10	Germany	2
11	Lithuania	2
12	Netherlands	2
13	Russia	2
14	Scotland	2
15	Tunisia	2
16	England	1
17	Latvia	1
18	Norway	1
19	Ukraine	1