Conservation status of European Golden Plover (*Pluvialis apricaria altifrons*) and Song Thrush (*Turdus philomelos*)

2023 update

Wild Birds Regulation Unit

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Contents

Key to conservation status codes

Category	European species of global conservation concern	Conservation status in Europe	Global population or range concentrated in Europe
SPEC 1	Yes	–	–
SPEC 2	No	Unfavourable	Yes
SPEC 3	No	Unfavourable	No
Non-SPEC[E]	No	Favourable	Yes
Non-SPEC	No	Favourable	No

Source: BirdLife International (2004: xiii)

Categories of Species of European Conservation Concern (SPECs) and Non-SPECs

Each species is initially assessed against the IUCN Red List Criteria (IUCN 2001) at a European level, and then against the additional criteria derived mainly from Birds in Europe I (Tucker and Heath 1994). All population size thresholds refer to minimum population estimates. In descending order of threat, a species is evaluated as:	
Critically Endangered (CR)	if its European population meets any of the IUCN Red List Criteria (A to E) for Critically Endangered. Such species have an Unfavourable conservation status in Europe because they are considered to be facing an extremely high risk of extinction in the wild (IUCN 2001).
Endangered (EN)	if its European population meets any of the IUCN Red List Criteria (A to E) for Endangered. Such species have an Unfavourable conservation status in Europe because they are considered to be facing a very high risk of extinction in the wild (IUCN 2001).
Vulnerable (V)	if its European population meets any of the IUCN Red List Criteria (A to E) for Vulnerable. Such species have an unfavourable conservation status in Europe because they are considered to be facing a high risk of extinction in the wild (IUCN 2001).
Declining (D)	if its European population does not meet any IUCN Red List Criteria, but declined by more than 10% over 10 years (i.e. 1990–2000) or three generations, whichever is longer. Such species have an Unfavourable conservation status in Europe because they are unable to maintain their populations and/or natural ranges in the long-term. [Birds in Europe I classified species as SPECs if the size of their population or range declined between 1970–1990 by **20%** or more in 33–65% of the population (or by 50% or more in 12–24% of the population). Given the shorter time period covered by Birds in Europe II, an overall decline exceeding **10%** is comparable with this approach.]
Rare (R)	if its European population does not meet any IUCN Red List Criteria and is not Declining, but numbers fewer than 10,000 breeding pairs (*or* 20,000 breeding individuals *or* 40,000 wintering individuals), and is not marginal to a larger non-European population. Such species have an Unfavourable conservation status in Europe because the small size of their population renders them more susceptible to accelerated declines as a result of: break-up of social structure; loss of genetic diversity; large-scale population fluctuations and catastrophic chance events; existing or potential exploitation, persecution or disturbance by humans.
Depleted (H)	if its European population does not meet any IUCN Red List Criteria and is not Rare or Declining, but has not yet recovered from a moderate or large decline suffered during

	1970–1990, which led to its classification as Endangered, Vulnerable or Declining in Birds in Europe I. Such species have an Unfavourable conservation status in Europe because they have already undergone a population decline of the type that various directives, conventions and agreements intend to prevent, and have not yet recovered.
Localised (L)	if its European population does not meet any IUCN Red List Criteria and is not Declining, Rare or Depleted, but is heavily concentrated, with more that 90% of the European population occurring at 10 or fewer sites (as listed in Heath and Evans 2000). Such species have an Unfavourable conservation status in Europe because their dependence on a small number of sites renders them more susceptible to accelerated declines as a result of: large-scale population fluctuations and catastrophic chance events; existing or potential exploitation, persecution and disturbance by humans.
Secure (S)	if its European population does not meet any of the criteria listed above. Such species have a Favourable conservation status in Europe.
In addition, a species is considered to be:	
Data Deficient (DD)	if there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A species in this category may be well studied, and its biology well known, but appropriate data on its abundance and/or distribution in Europe are lacking. Data Deficient is therefore not a category of threat (IUCN 2001).
Not evaluated (NE)	if its European population has not yet been evaluated against the criteria.
Source: BirdLife International (2004: 8)	

Species trends in Birds in Europe (2004)

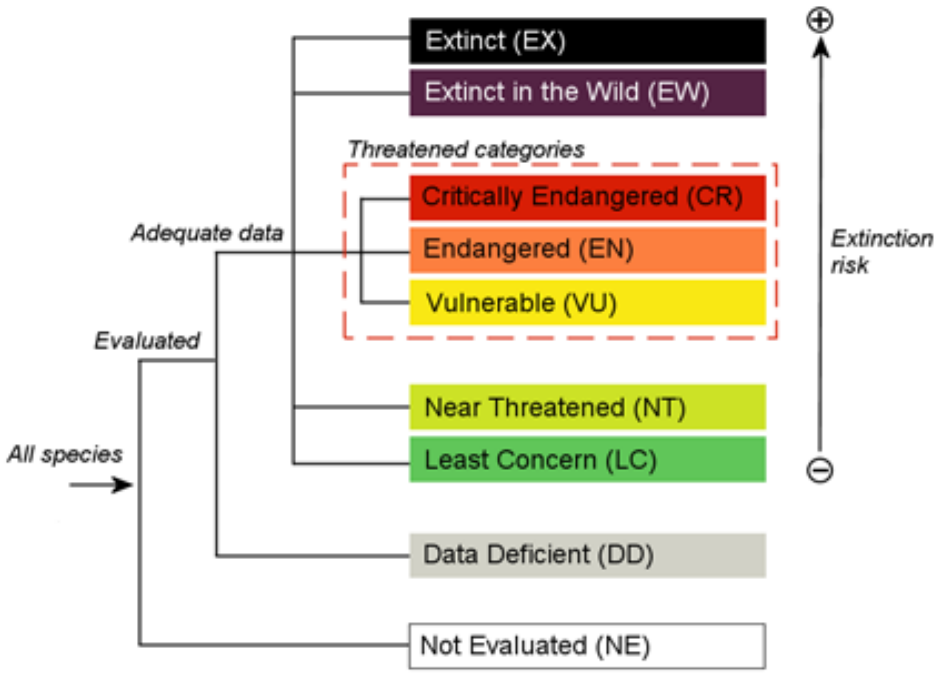
'Worst case' trend scenario 1990–2000	1990–2000 trend category	Criteria met
>30% decline	Large decline	IUCN Red List Criteria
10–29% decline	Moderate decline	Declining
<10% decline and <10% increase	Stable	-
10–29% increase	Moderate increase	-
>30% increase	Large increase	-
Unknown (insufficient data)	Unknown	-

Source: BirdLife International (2004)

IUCN Categories

EXTINCT (EX)	A taxon is Extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.
EXTINCT IN THE WILD (EW)	A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range. A taxon is presumed Extinct in the Wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.
CRITICALLY ENDANGERED (CR)	A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered (see Section V), and it is therefore considered to be facing an extremely high risk of extinction in the wild.
ENDANGERED (EN)	A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered (see Section V), and it is therefore considered to be facing a very high risk of extinction in the wild.
VULNERABLE (VU)	A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable (see Section V), and it is therefore considered to be facing a high risk of extinction in the wild.
NEAR THREATENED (NT)	A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.
LEAST CONCERN (LC)	A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.
DATA DEFICIENT (DD)	A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great care should be exercised in choosing between DD and a threatened status. If the range of a taxon is suspected to be relatively circumscribed, and a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.
NOT EVALUATED (NE)	A taxon is Not Evaluated when it has not yet been evaluated against the criteria.

Structure of IUCN categories



Source: IUCN Red List Categories and Criteria Ver. 3.1 2nd edition. Available at: https://portals.iucn.org/library/efiles/documents/RL-2001-001-2nd.pdf

IUCN CRITERIA FOR CRITICALLY ENDANGERED, ENDANGERED AND VULNERABLE TAXA

CRITICALLY ENDANGERED (CR)	A taxon is Critically Endangered when the best available evidence indicates that it meets any of the following criteria (A to E), and it is therefore considered to be facing an extremely high risk of extinction in the wild: A. Reduction in population size based on any of the following: 1. An observed, estimated, inferred or suspected population size reduction of ≥90% over the last 10 years or three generations, whichever is the longer, where the causes of the reduction are clearly reversible AND understood AND ceased, based on (and specifying) any of the following: (a) direct observation (b) an index of abundance appropriate to the taxon (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat (d) actual or potential levels of exploitation (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites. 2. An observed, estimated, inferred or suspected population size reduction of ≥80% over the last 10 years or three generations, whichever is the longer, where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1. 3. A population size reduction of ≥80%, projected or suspected to be met within the next 10 years or three generations, whichever is the longer (up to a maximum of 100 years), based on (and specifying) any of (b) to (e) under A1. 4. An observed, estimated, inferred, projected or suspected population size reduction of ≥80% over any 10 year or three generation period, whichever is longer (up to a maximum of 100 years in the future), where the time period must include both the past and the future, and where the

	reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1. B. Geographic range in the form of either B1 (extent of occurrence) OR B2 (area of occupancy) OR both: 1. Extent of occurrence estimated to be less than 100 km^2, and estimates indicating at least two of a-c: a. Severely fragmented or known to exist at only a single location. b. Continuing decline, observed, inferred or projected, in any of the following: (i) extent of occurrence (ii) area of occupancy (iii) area, extent and/or quality of habitat (iv) number of locations or subpopulations (v) number of mature individuals. c. Extreme fluctuations in any of the following: (i) extent of occurrence (ii) area of occupancy (iii) number of locations or subpopulations (iv) number of mature individuals. 2. Area of occupancy estimated to be less than 10 km^2, and estimate indicating at least two of a-c: a. Severely fragmented or known to exist at only a single location. b. Continuing decline, observed, inferred or projected, in any of the following: (i) extent of occurrence (ii) area of occupancy (iii) area, extent and/or quality of habitat (iv) number of locations or subpopulations (v) number of mature individuals. c. Extreme fluctuations in any of the following: (i) extent of occurrence (ii) area of occupancy (iii) number of locations or subpopulations (iv) number of mature individuals. C. Population size estimated to number fewer than 250 mature individuals and either: 1. An estimated continuing decline of at least 25% within three years or one generation, whichever is longer, (up to a maximum of 100 years in the future) OR 2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals AND at least one of the following (a-b): . Population structure in the form of one of the following: (i) no subpopulation estimated to contain more than 50 mature individuals, OR (ii) at least 90% of mature individuals in one subpopulation. b. Extreme fluctuations in number of mature individuals. D. Population size estimated to number fewer than 50 mature individuals. E. Quantitative analysis showing the probability of extinction in the wild is at least 50% within 10 years or three generations, whichever is the longer (up to a maximum of 100 years).

ENDANGERED (EN)	A taxon is Endangered when the best available evidence indicates that it meets any of the following criteria (A to E), and it is therefore considered to be facing a very high risk of extinction in the wild: . Reduction in population size based on any of the following: 1. An observed, estimated, inferred or suspected population size reduction of ≥70% over the last 10 years or three generations, whichever is the longer, where the causes of the reduction are clearly reversible AND understood AND ceased, based on (and specifying) any of the following: (a) direct observation (b) an index of abundance appropriate to the taxon (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat (d) actual or potential levels of exploitation (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites. 2. An observed, estimated, inferred or suspected population size reduction of ≥50% over the last 10 years or three generations, whichever is the longer, where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1. 3. A population size reduction of ≥50%, projected or suspected to be met within the next 10 years or three generations, whichever is the longer (up to a maximum of 100 years), based on (and specifying) any of (b) to (e) under A1. 4. An observed, estimated, inferred, projected or suspected population size reduction of ≥50% over any 10 year or three generation period, whichever is longer (up to a maximum of 100 years in the future), where the time period must include both the past and the future, AND where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1. B. Geographic range in the form of either B1 (extent of occurrence) OR B2 (area of occupancy) OR both: 1. Extent of occurrence estimated to be less than 5,000 km^2, and estimates indicating at least two of a-c: a. Severely fragmented or known to exist at no more than five locations. b. Continuing decline, observed, inferred or projected, in any of the following: (i) extent of occurrence (ii) area of occupancy (iii) area, extent and/or quality of habitat (iv) number of locations or subpopulations (v) number of mature individuals. c. Extreme fluctuations in any of the following: (i) extent of occurrence (ii) area of occupancy (iii) number of locations or subpopulations (iv) number of mature individuals. 2. Area of occupancy estimated to be less than 500 km^2, and estimates indicating at least two of a-c: a. Severely fragmented or known to exist at no more than five locations. b. Continuing decline, observed, inferred or projected, in any of the following: (i) extent of occurrence (ii) area of occupancy (iii) area, extent and/or quality of habitat (iv) number of locations or subpopulations (v) number of mature individuals.

	c. Extreme fluctuations in any of the following: (i) extent of occurrence (ii) area of occupancy (iii) number of locations or subpopulations (iv) number of mature individuals. C. Population size estimated to number fewer than 2,500 mature individuals and either: 1. An estimated continuing decline of at least 20% within five years or two generations, whichever is longer, (up to a maximum of 100 years in the future) OR 2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals AND at least one of the following (a-b): a. Population structure in the form of one of the following: (i) no subpopulation estimated to contain more than 250 mature individuals, OR (ii) at least 95% of mature individuals in one subpopulation. b. Extreme fluctuations in number of mature individuals. D. Population size estimated to number fewer than 250 mature individuals. E. Quantitative analysis showing the probability of extinction in the wild is at least 20% within 20 years or five generations, whichever is the longer (up to a maximum of 100 years).
VULNERABLE (VU)	A taxon is Vulnerable when the best available evidence indicates that it meets any of the following criteria (A to E), and it is therefore considered to be facing a high risk of extinction in the wild: . Reduction in population size based on any of the following: 1. An observed, estimated, inferred or suspected population size reduction of ≥50% over the last 10 years or three generations, whichever is the longer, where the causes of the reduction are clearly reversible AND understood AND ceased, based on (and specifying) any of the following: (a) direct observation (b) an index of abundance appropriate to the taxon (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat (d) actual or potential levels of exploitation (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites. 2. An observed, estimated, inferred or suspected population size reduction of ≥30% over the last 10 years or three generations, whichever is the longer, where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1. 3. A population size reduction of ≥30% projected or suspected to be met within the next 10 years or three generations, whichever is the longer (up to a maximum of 100 years), based on (and specifying) any of (b) to (e) under A1. 4. An observed, estimated, inferred, projected or suspected population size reduction of ≥30% over any 10 year or three generation period, whichever is longer (up to a maximum of 100 years in the future), where the time period must include both the past and the future, AND where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1. B. Geographic range in the form of either B1 (extent of occurrence) OR B2 (area of occupancy) OR both: 1. Extent of occurrence estimated to be less than 20,000 km^2, and estimates indicating at least two of a-c: a. Severely fragmented or known to exist at no more than 10 locations.

	b. Continuing decline, observed, inferred or projected, in any of the following: (i) extent of occurrence (ii) area of occupancy (iii) area, extent and/or quality of habitat (iv) number of locations or subpopulations (v) number of mature individuals. c. Extreme fluctuations in any of the following: (i) extent of occurrence (ii) area of occupancy (iii) number of locations or subpopulations (iv) number of mature individuals. 2. Area of occupancy estimated to be less than 2,000 km^2, and estimates indicating at least two of a-c: a. Severely fragmented or known to exist at no more than 10 locations. b. Continuing decline, observed, inferred or projected, in any of the following: (i) extent of occurrence (ii) area of occupancy (iii) area, extent and/or quality of habitat (iv) number of locations or subpopulations (v) number of mature individuals. c. Extreme fluctuations in any of the following: (i) extent of occurrence (ii) area of occupancy (iii) number of locations or subpopulations (iv) number of mature individuals. C. Population size estimated to number fewer than 10,000 mature individuals and either: 1. An estimated continuing decline of at least 10% within 10 years or three generations, whichever is longer, (up to a maximum of 100 years in the future) OR 2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals AND at least one of the following (a-b): a. Population structure in the form of one of the following: (i) no subpopulation estimated to contain more than 1,000 mature individuals, OR (ii) all mature individuals in one subpopulation. b. Extreme fluctuations in number of mature individuals. D. Population very small or restricted in the form of either of the following: 1. Population size estimated to number fewer than 1,000 mature individuals. 2. Population with a very restricted area of occupancy (typically less than 20 km^2) or number of locations (typically five or fewer) such that it is prone to the effects of human activities or stochastic events within a very short time period in an uncertain future, and is thus capable of becoming Critically Endangered or even Extinct in a very short time period. E. Quantitative analysis showing the probability of extinction in the wild is at least 10% within 100 years.

Executive Summary

This report provides an update on the conservation status of the Golden Plover (*Pluvialis apricaria*) and Song Thrush (*Turdus philomelos*) for review and consideration by the Malta Ornis Committee.

The conservation status of the two species is reviewed based on current scientific literature, which also provides details on population size, mortality rates and migratory routes. Tracking (GPS) data from Song Thrushes and Golden Plovers fitted with a geolocator (satellite-tag) is included in this report. An assessment of the Golden Plover at sub-specific level is also provided.

Literature review based on the latest ornithological publications and scientific evidence, including mapping of flyways at sub-specific level, shows that Golden Plovers migrating over the Maltese Islands are the sub-species *Pluvialis apricaria altifrons* from the Northeast European (West Continental) population and that the moderate historical decline refers to the nominate *P. apricaria apricaria*, which has a more restricted range and does not pass through Malta (Scott, 2002; Wetlands International, 2009). The GPS tracking data also corroborates the scientific literature, although further deployments are necessary to increase the sample size. The GPS tracking data (for period March 2023 to date) also shows that specimens from the Central Siberian population of the European Golden Plover pass through Malta.

The current update on population size and population trends, based on the most recently available scientific literature, shows that both *Pluvialis apricaria altifrons* and *Turdus philomelos* continue to have a **Favourable Conservation Status at the European, the EU28 and Malta's EU reference population levels**.

The assessment contains a review of the latest population trend estimates for both species, based on the current Birds Directive Article 12 report for period 2013–2018 as well as the latest Pan-European Common Birds Monitoring Scheme (PECMBS) wild bird indicators. The report also determines the applicable annual mortality rate of Malta's EU reference population for both species in accordance with the principles established in the European Commission's Guide to Sustainable Hunting under the Birds Directive[1].

[1] http://ec.europa.eu/environment/nature/conservation/wildbirds/hunting/docs/hunting_guide_en.pdf

1. Conservation status of European Golden Plover (*Pluvialis apricaria altifrons*)

The Golden Plover (*Pluvialis apricaria s.l.*) is a medium-sized Palearctic wader which breeds in continental arctic, arctic alpine and boreal tundra, but secondarily on temperate oceanic unenclosed upland moors and peat-land. In winter, the Golden Plover occupies harvest fields, stubbles, close grazed pastures, fallows and other farmland of open character including flood-lands. Its breeding range extends from Iceland to Russia and its wintering quarters stretch from Morocco to Asia Minor including South Europe (Geroudet 1983; Cramp & Simmons 1983).

European population

The European population is estimated at 630,000–860,000 pairs, which equates to 1,300,000–1,750,000 individuals (BirdLife International, 2023[2]). The population at EU28 level is estimated at 207,000–338,000 pairs (EEA, 2020)[3]. The population trend is estimated to be **increasing** (BirdLife International, 2023).

The Golden Plover (*Pluvialis apricaria s.l.*) is a huntable species listed under Annex II/B of the Birds Directive. According to the EU Management Plan for the Golden Plover[4], this species is hunted in at least four EU member states, including Portugal, Ireland, France and Malta. According to the Management Plan, over 62,000 Golden Plovers were known to have been bagged annually in France and over 32,000 in Portugal[5].

This species has an extremely large range, with an estimated global extent of occurrence of 1,000,000–10,000,000 km^2 (Wetlands International 2006[6]). BirdLife International (2023) notes that on the basis of such large range (11,100,000 km^2), this species does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km^2 combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population size is very large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated by BirdLife International (2023) and IUCN[7] as **Least Concern** with an increasing population trend.

Sub-specific assessment – a historical review of trends and geographical populations

Cramp and Simmons (1983)[8] maintain that the Golden Plover includes two sub-species ***Pluvialis apricaria apricaria*** (nominate) breeding from Ireland and Britain to the Baltic States and ***Pluvialis apricaria altifrons*** breeding at higher altitudes from Iceland to north-central Siberia. Delany *et. al*. (2007)[9] indicate that the *altifrons* population is divided into three sub-populations, of which the Northeast European (West Continental) is the one that migrates over

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[2] BirdLife International (2023) Species factsheet: *Pluvialis apricaria*. Downloaded from http://www.birdlife.org on 31/07/2023.

[3] European Environment Agency (2020) Article 12 reports for the 2013-2018 reporting period (EU28) Available at: http://bd.eionet.europa.eu/article12/summary?period=1&subject=A140

[4] European Union Management Plan 2009–2011 Golden Plover *Pluvialis apricaria*. Available at: https://ec.europa.eu/environment/nature/conservation/wildbirds/hunting/docs/Golden%20Plover%20EU_MP.pdf

[5] EC 2009: *European Union Management Plan for Golden Plover 2009–2011*, Table 4, page 17.

[6] Wetlands International (2006). - Waterbird Population Estimates – Fourth Edition. Wetlands International, Wageningen, the Netherlands.

[7] http://www.iucnredlist.org/details/22693727/0

[8] Cramp, S., cf. ed. 1983. The Birds of the Western Palearctic. Vol. III 'Waders to Gulls. (Pluvialis apricaria Golden Plover pp 201-216). Oxford University Press.

[9] Delany, S, Scott, D, Dodman T, and Stroud, D (eds) (2009) *2009 Atlas of Wader Populations in Africa and Western Eurasia.* Wetlands International, Wageningen, The Netherlands.

Malta (breeds from North Norway to Russia-east 70 degrees) and winters in west and south continental Europe, east Britain and north-west Africa (Morocco to Tunisia).

The Agreement on the Conservation of African–Eurasian Migratory Waterbirds (AEWA) Status Report indicates that the *Pluvialis apricaria altifrons* breeds widely at high altitudes in Western Eurasia from Iceland east to 100 degrees east in Western Siberia, and winters south to North Africa (occasionally to Senegal) and the South Caspian. *Pluvialis apricaria apricaria* breeds at more westerly latitudes in Britain, Ireland, Denmark and Germany, and is a short-distance migrant, most birds wintering fairly close to their breeding areas (Scott, 2002).

Considerable variation exists in most populations, and many authors consider the species to be monotypic. Four main breeding populations can be identified: (1) Icelandic and Faeroese breeders (*altifrons*), wintering mainly in Ireland, with smaller numbers in western Britain, France and Iberia, and a few to Northwest Africa; (2) a population of *altifrons* breeding from Northern Norway east to about 70 degrees east and wintering mainly in western and southern continental Europe and Northwest Africa (Morocco and Tunisia) [Malta's reference population]; (3) population of *altifrons* breeding in Western Siberia east to 100 degrees east and wintering in the Caspian region band possibly Asia Minor and Eastern Mediterranean; and (4) southern breeders (*apricaria*) breeding in Britain, Ireland, Denmark (extirpated?) and Germany, and wintering in Northwest Europe (Table 1).

Table 1 Countries of origin of *Pluvialis apricaria altifrons* and *Pluvialis apricaria apricaria*

Population	***altifrons* (Iceland & Faeroes)**	***altifrons* (NW Europe)**	***altifrons* (N–C Siberia)**	***apricaria* (UK/IR/DK/D)**
Population size	☺	☺	☹☹	☹
Breeding location	☺☺	☺☺	😐	☺☺

Source: Adapted from Gillings, S (2005) Table 1: An assessment of the level of knowledge for developing a flyway conservation strategy for each breeding population of Eurasian Golden Plover (after Davidson *et al*. 1998). ☺☺ = very good; ☺ = good; = 😐 adequate; ☹ = poor, ☹☹ = very poor. International workshop on passage and wintering Eurasian Golden Plovers (p. 6).

AEWA and its Resolution 4.11 (see http://tinyuri.com/aewares411) also provides the distribution for *Pluvialis apricaria apricaria* as "*Britain, Ireland, Denmark, Germany and the Baltic*", thereby excluding in a definitive way the Central Mediterranean region. The same applies for the 'European Management Plan for the Golden Plover, 2009–2011' (see http://tinyuri.com/gp-eump) which indicates that "*The nominate southern subspecies Pluvialis apricaria apricaria nests in Ireland, Great Britain, Denmark, Germany, Latvia, Lithuania and Estonia. This subspecies winters in North-West, from Ireland to South Britain, France and Iberia*".

In this context, it should be noted that the sub-species that migrates over Malta in autumn is *Pluvialis apricaria altifrons* as can also be attested by Delany *et. al*. (2007). The authors maintain that "there is growing evidence that numbers of *altifrons* wintering in Europe are increasing" (Delany et. al., 2007: 183). The publication also indicates that the nominate *Pluvialis apricaria apricaria* has a more restricted migratory distribution that excludes the Maltese Islands and nearby central regions in the Mediterranean. The European Union Management Plan (EC 2009) specifies that:

"*The Northern P. a. altifrons subspecies is generally split into three populations based on their different flyways that overlap in winter. They are defined as:*

— *Icelandic (or East Atlantic): breeds in Iceland, the Faeroe Islands and Greenland and winters in Ireland, West Britain, France, West Iberia and North-West Africa.*

— *Northeast European (or West Continental): breeds in North Norway and Russia (east to 70 degrees east) and winters in West and south continental Europe, East Britain and North-West Africa (Morocco and Tunisia).*

— *North Central Siberia population, breeds in North Central Siberia (east to 100 degrees east) and winters in the Caspian Region, Asia Minor and the Eastern Mediterranean."*

According to Delany *et al*. (2007) *Pluvialis apricaria apricaria* is declining whereas the *Pluvialis apricaria altifrons* is more or less stable (see also page 7, second paragraph, of *The European Union Management Plan 2009-2011 for Golden Plover*). On the basis of current literature, therefore, the population of the sub-species with a historical decline is the *P. a. apricaria*, whereas the other populations / groups (*P. apricaria altifrons*) found in Europe are stable or increasing.

According to the EU Management Plan for the Golden Plover, approximately 50% of Golden Plover (*P. apricaria altifrons*) European population breeds in Iceland with a total of >300,000 breeding pairs (Thorup 2006, 930,000 individuals, Wetlands International 2006). Trends in this population are not well known, whereas the relatively small Faeroese population is declining. Approximately half of this population is found in Norway, 22% in Finland, 17% in Sweden and 9% in Russia with a total ranging from 217,000 to 362,000 breeding pairs. This population is considered stable (Wetlands International 2006). According to AEWA, while the *P. apricaria apricaria* is declining, *P. apricaria altifrons* is considered as stable and possibly increasing.

It should thus be noted that this moderate decline is related to the nominate *Pluvialis apricaria apricaria* population which does not pass through Malta (Figures 1 and 2). Golden Plovers that migrate over the Maltese Islands form part of the Northeast European (or West Continental) population (*P. apricaria altifrons*) which has a **minimum population of 172,089 breeding pairs at EU28 level** (Finland and Sweden only) – see Table 5.

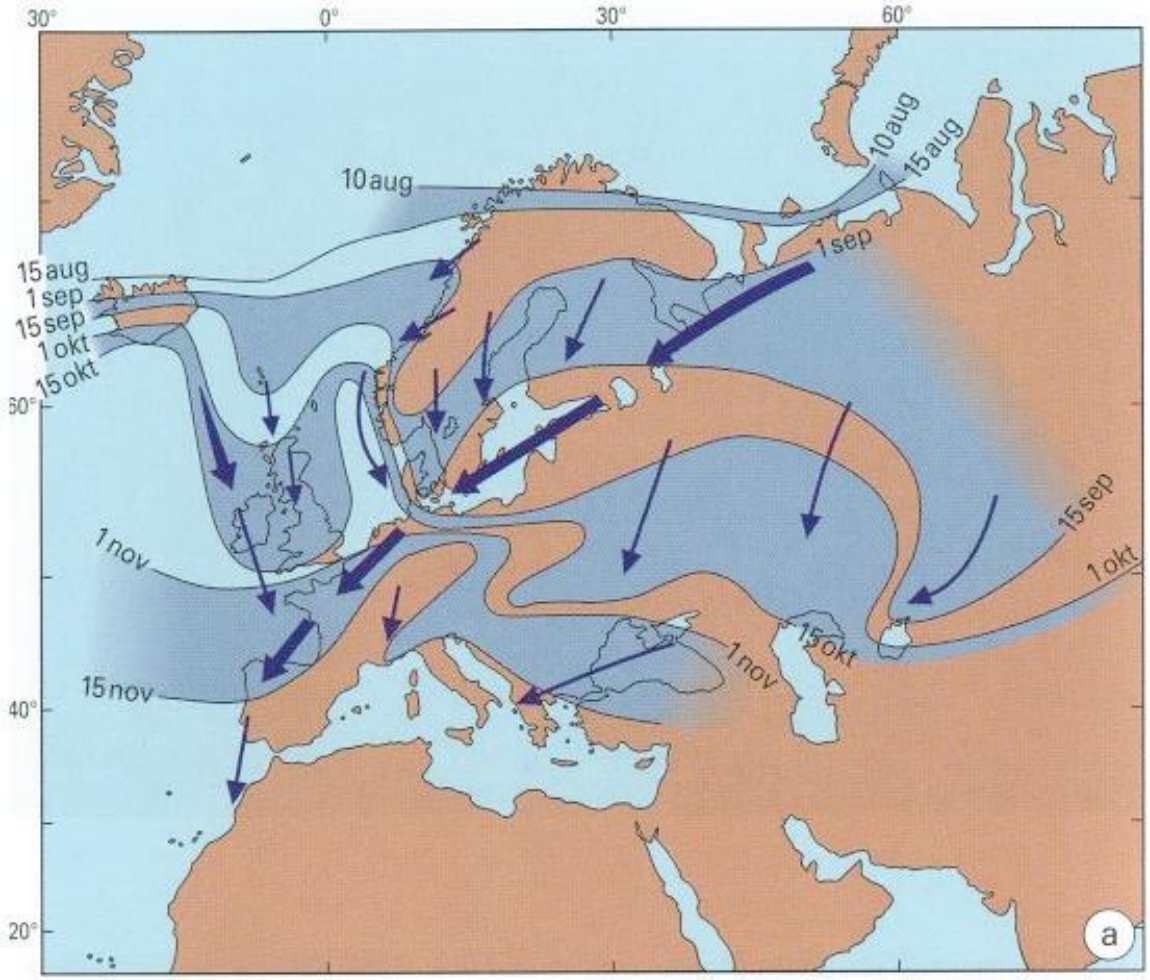


Figure 1: Outline of the timing and geography of the southward migration of Golden Plovers. Arrows indicate the most important migration routes, and size of arrow is an indication of migration intensity. Source: Jukema *et al.* 2001. In: Gillings, S (2005) International workshop on passage and wintering Eurasian Golden Plovers (p. 5).

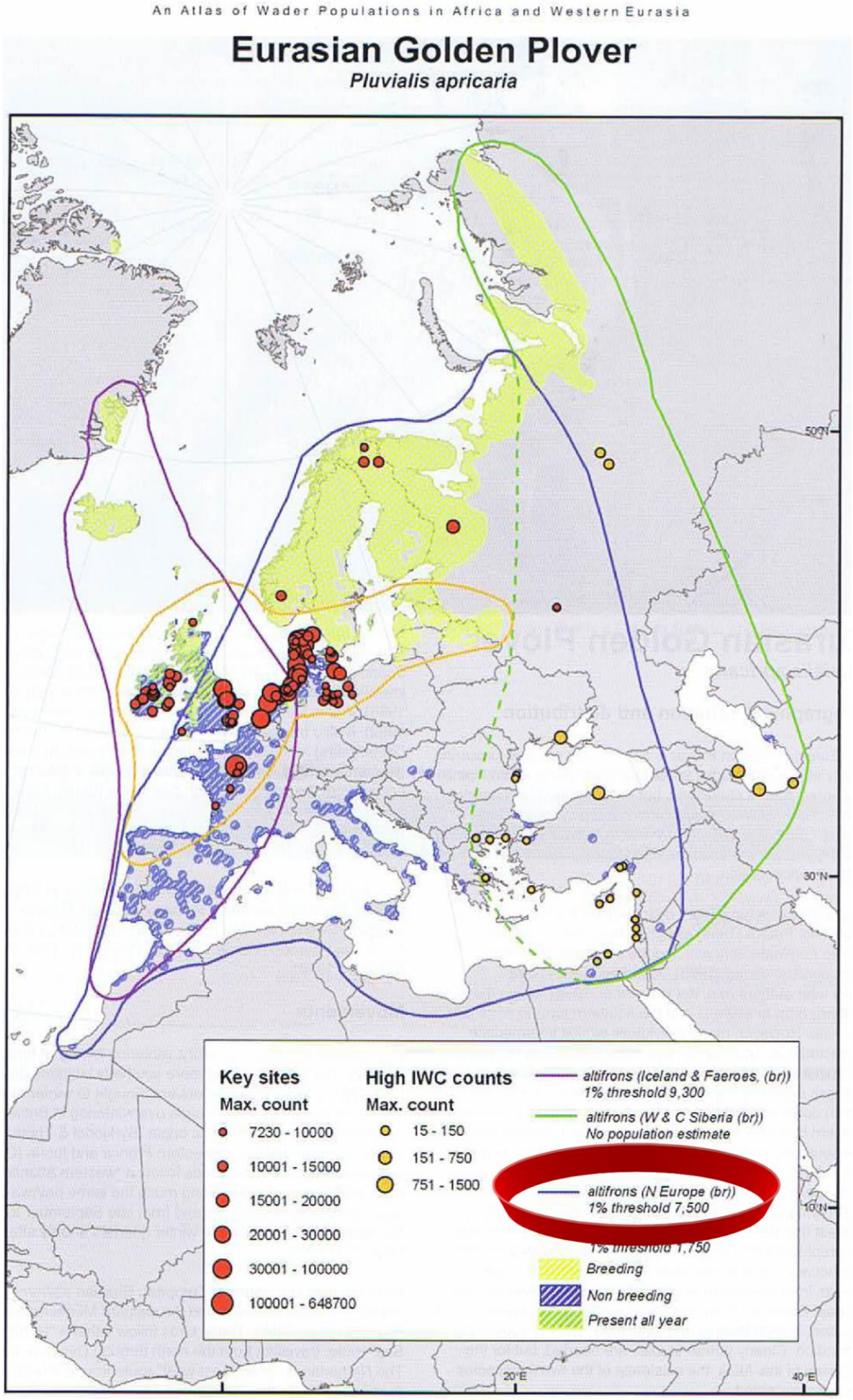


Figure 2: Migratory flyways of *Pluvialis apricaria altifrons*. Source: Wetlands International (2009) *An Atlas of Wader Populations in Africa and Western Eurasia* (p. 180). **Note orange boundary delineating the restricted migration pattern of nominate *Pluvialis apricaria apricaria*.**

Article 12 reports (2013–2018)

This update includes the current population trends and indices as reported by Member States in their Article 12 report for period 2013–2018[10]. Within the territory of the European Union (EU28), the European Golden Plover has a breeding population size of 207,000–338,000 pairs (previously reported at 244,000–355,000 pairs during the 2008–2012 reporting cycle) and a breeding range size of 533,000km² (previously reported at 661,000km² during the 2008–2012 reporting cycle). The **breeding population** trend in the EU28 is **Stable in both the short-term** and **long-term** (EEA, 2020)[11].

Short-term and long-term trend directions and magnitudes reported for the EU for this taxon correspond to trends in PECBMS (2019), indicating a stable trend (0%) during 2008–2017 and a stable trend (-13%) during 1981–2017[12].

The species has a wintering population size of 746,000–1,220,000 individuals (previously reported at 1,350,000–2,430,000 individuals during the 2008–2012 reporting cycle). The **wintering population** trends at EU level were reported as **declining in the short-term and increasing in the long-term**.

Wintering EU assessment: Short-term and long-term trend directions and magnitudes reported for the EU for this taxon do not correspond to trends in Wetlands International 2017 (http://iwc.wetlands.org/static/files/0-IWC-trendanalysis-report-2017-final.pdf and http://iwc.wetlands.org/index.php/aewatrends). In this instance, Wetlands International 2017 trends were however considered more representative alongside the Red List of British Birds (Stanbury *et al*., 2017); thus the EU population trend is likely declining (source: see footnote 10).

The EU population status of *Pluvialis apricaria* was assessed as **Secure**, because the species does not meet any of the IUCN Red List criteria for threatened or Near Threatened, or the criteria for Depleted or Declining (the EU28 population or range has not declined by 20% or more since 1980)[13].

Pan-European Common Birds Monitoring Scheme (2022 update)

It should be noted that since 2021, Estonia has been included in the "List of Countries" contributing to the latest European Bird Census Council (EBCC / PECBMS) updates, apart from Norway, **Sweden** and **Finland** (the latter two constituting Malta's EU reference population). According to the EU Management Plan for this species, Estonia, which sustains a breeding population of 2,500–3,400 pairs (EEA, 2020) does not form part of the Northeast European population of *Pluvialis apricaria altifrons* (Malta's EU reference population)[14].

According to the latest dataset available from the European Bird Census Council[15] (EBCC, 2022) at the time the conservation status of the Golden Plover (*Pluvialis apricaria*) was updated (August 2023), **there was an <u>increase</u> in the combined breeding population of**

[10] https://nature-art12.eionet.europa.eu/article12/summary

[11] European Environment Agency (2020) Article 12 reports for the 2013-2018 reporting period (EU28) Available at: http://bd.eionet.europa.eu/article12/summary?period=1&subject=A140

[12] https://nature-art12.eionet.europa.eu/article12/summary/audittrail/?reported_name=&period=3&subject=Pluvialis+apricaria

[13] https://nature-art12.eionet.europa.eu/article12/summary/datasheet/?period=3&subject=Pluvialis+apricaria

[14] *The nominate southern subspecies* P. a. apricaria *nests in Ireland, Great Britain, Denmark, Germany, Latvia, Lithuania and Estonia. This subspecies winters in North-West Europe, form Ireland to South Britain, France and Iberia.* Source: EU Management Plan – Golden Plover (p.8).

[15] *Trends of common birds in Europe, 2022 update*. Available at: https://pecbms.info/european-wild-bird-indicators-2022-update/

the contributing countries (Norway, Sweden, Finland and Estonia) both in the short-term and long-term trends, when compared with the previous EBCC update.

In the short-term trend [ten-year slope] (2012–2021), the increase was from -12% to 4% (**16% increase**) and from -27% to -23% (**4% increase**) in the long-term trend (1980–2021). The current EBCC assessment considers *Pluvialis apricaria* as **Stable** (1981–2021).

Figure 3 is an extract from the EBCC 2022 update, which confirms that the population trend category for *Pluvialis apricaria* remained **Stable** with "no significant increase or decline, and most probable trends are less than 5% per year".

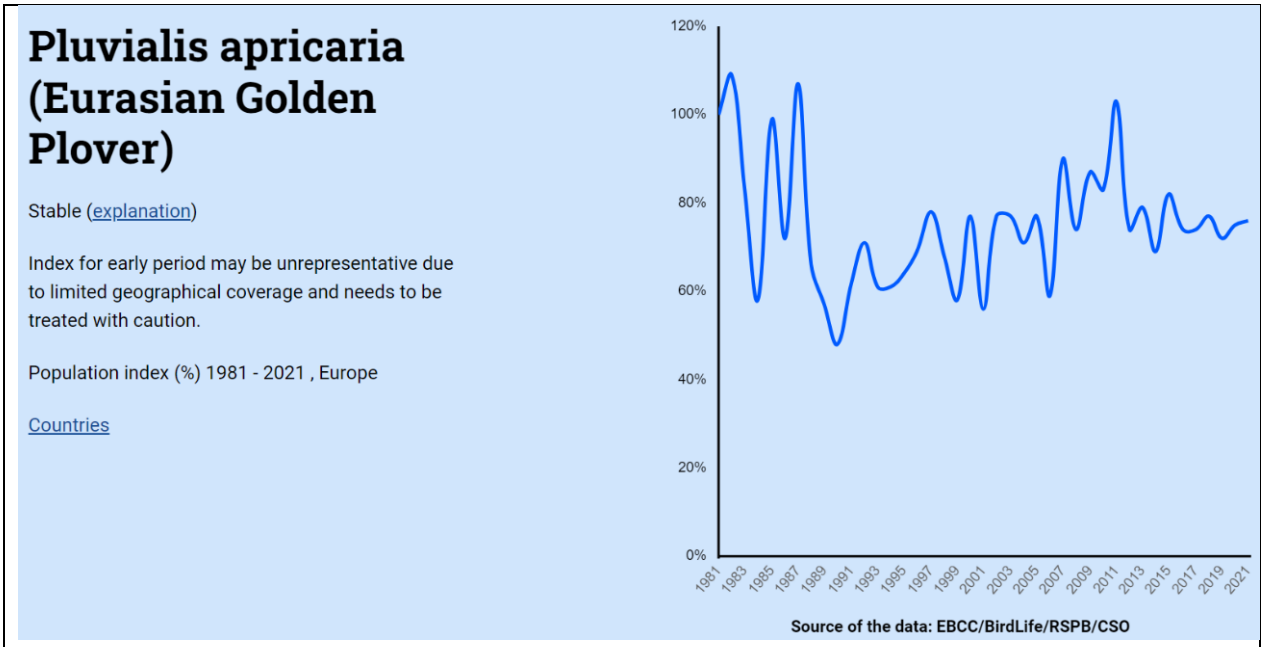


Figure 3: Long-term trend classification for *Pluvialis apricaria*. Source: EBCC (2022 update). Available at: https://pecbms.info/trends-and-indicators/species-trends/species/pluvialis-apricaria/.

List of Countries:

Estonia	1984 – 2020
Finland	1981 – 2021
Norway	2007 – 2021
Sweden	1998 – 2021

The Golden Plover does not breed in Malta (neither in the wild, nor in captivity). Table 2 lists the live-capturing data for Golden Plover in Malta and Gozo from 2006 to January 2023.

Table 2 Live-capturing data for Golden Plover (2006–Dec2022)

Species	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total	Average
Golden Plover	319	44	503[1]	414	1,769	52	25[2]	158[3]	476[4]	321[5]	297[5]	167[5]	233[5]	588[6]	797[7]	688[8]	727[9]	0[10]	7,578	446

Data sources:
2006–2012: *Carnet de Chasse* data, Environment Protection Directorate (MEPA).
2013–2023: Wild Birds Regulation Unit.

[1] Jan 2008 (n=16) + Oct–Dec 2008 (n=487)

[2] The 2012 figure represents the SMS data for the period 20th October to 31st December 2012 (i.e. excluding the period 1st January to 10th January 2013, n=8).

[3] The 2013 figure represents the SMS data for the period 20th October to 31st December 2013 (i.e. excluding the period 1st January to 10th January 2014, n=58).

[4] The 2014 figure represents the SMS data for the period 1st January to 10th January 2014 (n=58) and the game reporting data for the period 20th October to 31st December 2014 (n=418).

[5] Game reporting data for the period 20th October to 31st December of the corresponding year.

[6] Game reporting data for the period 1st November to 31st December of the corresponding year.

[7] The 2020 figure represents the game reporting data for the period 1st January to 10th January 2020 (n=112) and the game reporting data for the period 1st November to 31st December 2020 (n=685).

[8] The 2021 figure represents the game reporting data for the period 1st January to 4th January 2021 (n=15) [season closed on 4th January 2021 as soon as the national bag limit of 700 Golden Plovers was reached] and the game reporting data for the period 1st November to 31st December 2021 (n=673).

[9] The 2022 figure represents the game reporting data for the period 1st January to 3rd January 2022 (n=27) [season closed on 3rd January 2022 as soon as the national bag limit of 700 Golden Plovers was reached] and the game reporting data for the period 1st November to 30th December 2022 (n=700). The 01 November 2022 – 10 January 2023 live-capturing season for Golden Plover was closed on 30th December 2022 as soon as the national bag limit of 700 Golden Plovers was reached

[10] The 01 November 2022 – 10 January 2023 live-capturing season for Golden Plover was closed on 30th December 2022 as soon as the national bag limit of 700 Golden Plovers was reached.

Reference population

The "small numbers" requirement, within the meaning of Article 9(1)(c) of the Birds Directive should be understood as "any sample of less than 1% of the total annual mortality of the population in question (average value) for those species which are not to be hunted and **a sample in the order of 1% for those species which may be hunted**. 'Population in question' is to be understood, with regard to migratory species, as the population of those regions from which come the main contingents passing through the region to which the derogation applies during its period of application". Given that the Golden Plover qualifies as a huntable species under the Birds Directive (MT: Annex IIB), the "*small numbers*" requirement is understood as "*a sample in the order of 1% of the total annual mortality of the population in question*".

As explained in the previous sections of this report, on the basis of the latest scientific literature, the reference population of the Golden Plover for Malta is the West Continental (Northeast European) population (*P. apricaria altifrons*). According to the EU Management Plan (2009–2011) for this species, this population is distributed as follows:

- Norway (c. 50%)
- Finland (22%)
- Sweden (17%)
- Russia (9%)

Satellite tracking data

Although the flyways of Golden Plovers are mapped in established scientific literature (see Figures 1 and 2 above), as requested by the services of the European Commission in 2019, the Maltese authorities initiated a research project to assess the migratory routes of this species passing through Malta using satellite tracking devices (geolocators), hereinafter referred to as satellite-tags. The location of tagged specimens is monitored in real-time by the Maltese authorities using Argos satellite data repository to which a Movebank account has been linked. The Movebank account showing all GPS fixes was converted to a publicly visible research study in 2021.

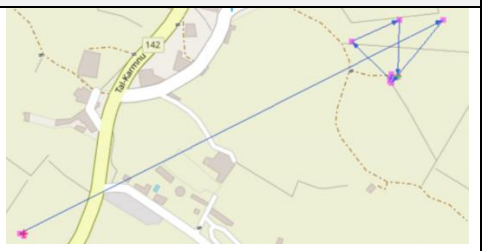
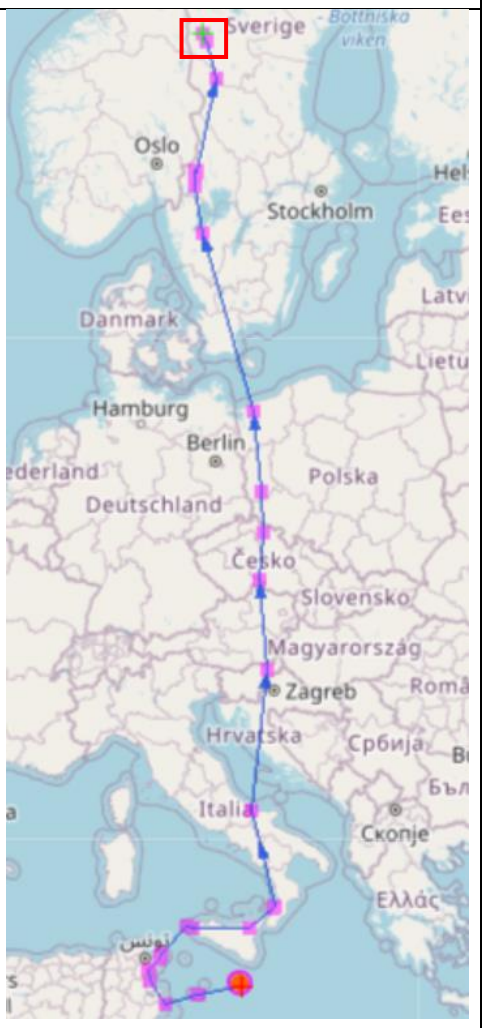
The project commenced in February 2022 until March 2022. No Golden Plovers were caught during the first research derogation period. The satellite-tagging project was renewed by Ornis Committee for period 29 November 2022 until 31 March 2023 (the commencement date was linked with the date of publication of the Government Notice[16] since the Committee discussed the renewal after the proposed commencement date). Five Golden Plovers were fitted with a satellite-tag during this period, as shown in Table 3. The table includes maps showing the migratory routes of all tagged specimens, the locations of their wintering grounds (for specimens caught and satellite-tagged during post-nuptial migration) and the location of their breeding grounds following pre-nuptial migration (all satellite-tagged specimens).

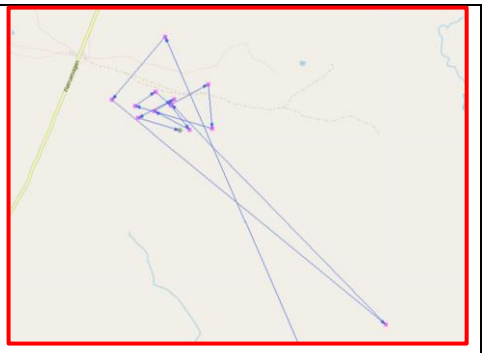
From a total of three specimens satellite-tagged during pre-nuptial migration, one was shot during the open hunting season. The other two wintered in North Africa (Tunisia) and both subsequently bred in Sweden. The other two specimens that were satellite-tagged during pre-nuptial migration bred in Finland and Russia (Central Siberia) respectively. Figure 4 is a composite map showing the locations and flightpaths of all Golden Plovers fitted with a satellite-tag.

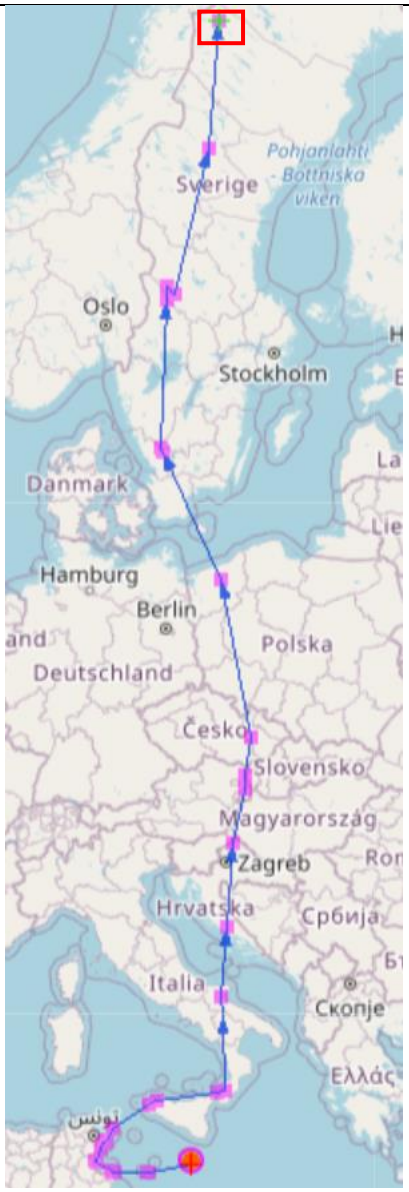
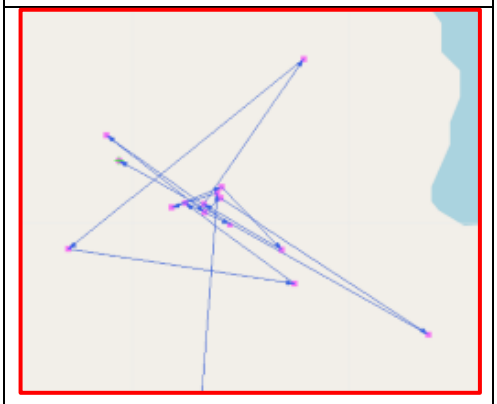
[16] G.N. no. 1618/2022, dated 29 November 2022. Available at: https://www.gov.mt/en/Government/DOI/Government%20Gazette/Documents/2022/11/Gaz%20Government%20Gazette%20-%2029th%20November.pdf

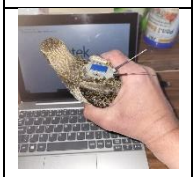
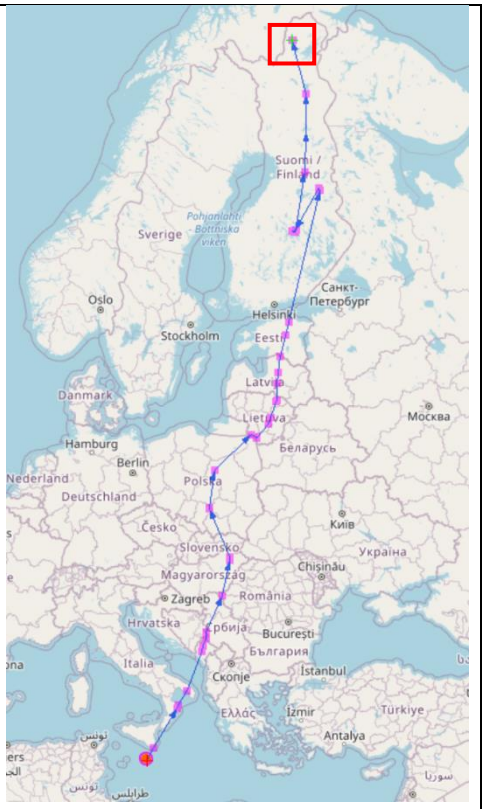
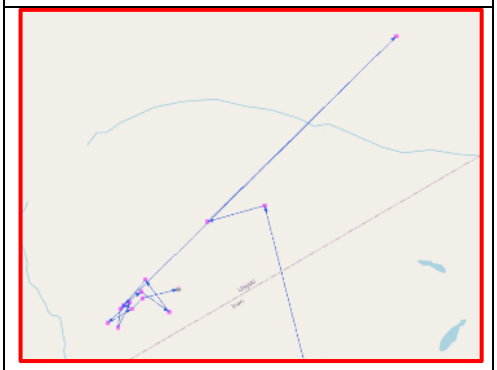
A report on the outcome of each satellite-tagging period is prepared by the Wild Birds Regulation Unit and presented to the Ornis Committee as part of the process when a request for renewal of the research derogation period is submitted to the Committee.

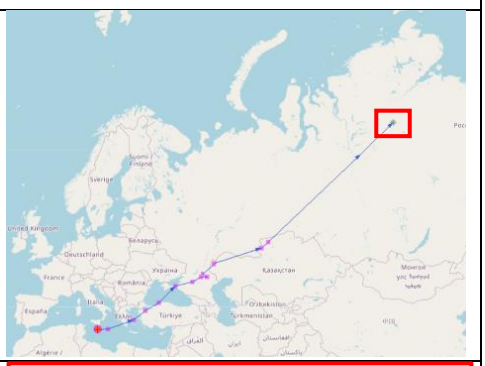
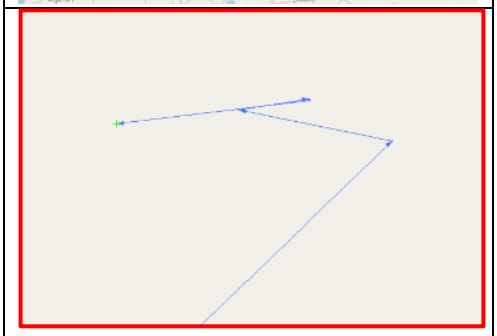
Table 3 GPS locations of Golden Plover tags from date of first deployment

Species	**Tag decimal id.**	**Location of GPS fixes** (italics = date when tagged | bold = date of last transmission)	**Date**	**Map**
Pluvialis apricaria 	208612	*Birżebbuġa, Malta* **Birżebbuġa, Malta**	*16/12/2022* **17/12/2022** (shot; tag returned to WBRU the following working day)	
Pluvialis apricaria 	208581	*Birżebbuġa, Malta* Birżebbuġa, Malta Filfla, Malta Lampedusa Chebba, Tunisia Sidi Bou Ali, Tunisia Enfidha, Tunisia Bouficha, Tunisia Errmal, Tunisia Errmal, Tunisia Hammamet, Tunisia Menzel Temime, Tunisia Menzel Temime, Tunisia Haouaria, Tunisia Nabeul, Tunisia Marettimo, Sicily Favignana, Sicily Randazzo, Sicily Rombiolo, Italy San Gregorio d'Ippona, Italy Campobasso, Italy Rače, Slovenia Studená, Czechia Horka u Staré Paky, Czechia Gmina Brzeźnica, Poland	*30/12/2022* 01/01/2023 02/01/2023 03/01/2023 04/01/2023 09/01/2023 12/01/2023 19/01/2023 20/01/2023 18/02/2023 22/02/2023 26/02/2023 09/03/2023 11/03/2023 13/03/2023 15/03/2023 15/03/2023 17/03/2023 18/03/2023 18/03/2023 20/03/2023 22/03/2023 24/03/2023 26/03/2023 28/03/2023	

		Gmina Gryfice, Poland	31/03/2023	
		Grästorp Municipality, Sweden	01/04/2023	
		Årjäng Municipality, Sweden	03/04/2023	
		Arvika Municipality, Sweden	08/04/2023	
		Arvika Municipality, Sweden	08/05/2023	
		Härjedalen, Sweden	10/05/2023	
		Falkvålen, Sweden	14/05/2023	
		Falkvålen, Sweden	16/05/2023	
		Falkvålen, Sweden	18/05/2023	
		Falkvålen, Sweden	20/05/2023	
		Falkvålen, Sweden	22/05/2023	
		Falkvålen, Sweden	24/05/2023	
		Falkvålen, Sweden	26/05/2023	
		Falkvålen, Sweden	28/05/2023	
		Falkvålen, Sweden	30/05/2023	
		Falkvålen, Sweden	01/06/2023	
		Falkvålen, Sweden	03/06/2023	
		Falkvålen, Sweden	05/06/2023	
		Falkvålen, Sweden	07/06/2023	
		Falkvålen, Sweden	15/06/2023	
		Falkvålen, Sweden	21/06/2023	
		Falkvålen, Sweden	05/07/2023	
		Falkvålen, Sweden	16/07/2023	
		Falkvålen, Sweden	**27/07/2023**	
Pluvialis apricaria 	208591	*Birżebbuġa, Malta*	*07/02/2023*	
		Birżebbuġa, Malta	07/02/2023	
		Lampedusa	09/02/2023	
		Mahdia, Tunisia	10/02/2023	
		Mahdia, Tunisia	18/02/2023	

		Moknine, Tunisia	20/02/2023	
		Kalaa Kebira, Tunisia	22/02/2023	
		Sebhika Kelbia, Tunisia	24/02/2023	
		Kondar, Tunisia	26/02/2023	
		Hammamet, Tunisia	28/02/2023	
		Bou Argoub, Tunisia	02/03/2023	
		Dar Chaabane El Fehri, Tunisia	06/03/2023	
		Korba, Tunisia	08/03/2023	
		Haouaria, Tunisia	10/03/2023	
		Trapani, Sicily	12/03/2023	
		Messina, Sicily	14/03/2023	
		Reggio Calabria, Italy	14/03/2023	
		Foggia, Italy	16/03/2023	
		Radonić, Croatia	16/03/2023	
		Središče ob Dravi, Slovenia	18/03/2023	
		Parndorf, Austria	20/03/2023	
		Ebenthal, Austria	22/03/2023	
		Čelechovice na Hané, Czechia	24/03/2023	
		Gmina Świdwin, Poland	26/03/2023	
		Hylte Municipality, Sweden	28/03/2023	
		Gislaved Municipality, Sweden	30/03/2023	
		Torsby Municipality, Sweden	01/04/2023	
		Malung, Sweden	10/04/2023	
		Malung, Sweden	08/05/2023	
		Strömsund Municipality, Sweden	10/05/2023	
		Sorsele Municipality, Sweden	12/05/2023	
		Sorsele Municipality, Sweden	14/05/2023	
		Sorsele Municipality, Sweden	16/05/2023	
		Sorsele Municipality, Sweden	18/05/2023	
		Sorsele Municipality, Sweden	20/05/2023	
		Sorsele Municipality, Sweden	22/05/2023	
		Sorsele Municipality, Sweden	24/05/2023	
		Sorsele Municipality, Sweden	26/05/2023	
		Sorsele Municipality, Sweden	28/05/2023	
		Sorsele Municipality, Sweden	30/05/2023	
		Sorsele Municipality, Sweden	01/06/2023	
		Sorsele Municipality, Sweden	03/06/2023	
		Sorsele Municipality, Sweden	05/06/2023	
		Sorsele Municipality, Sweden	07/06/2023	
		Sorsele Municipality, Sweden	14/06/2023	
		Sorsele Municipality, Sweden	22/06/2023	
		Sorsele Municipality, Sweden	04/07/2023	
		Sorsele Municipality, Sweden	15/07/2023	
		Sorsele Municipality, Sweden	**26/07/2023**	

Pluvialis apricaria 	208617	*Birżebbuġa, Malta*	*26/02/2023*	
		Marsaskala, Malta	26/02/2023	
		Syracuse, Italy	26/02/2023	
		Crotone, Italy	26/02/2023	
		Lecce, Italy	26/02/2023	
		Ozrinići, Montenegro	28/02/2023	
		Novakovići, Montenegro	28/02/2023	
		Kaluđerovići, Serbia	02/03/2023	
		Hercegovačka Goleša, Serbia	02/03/2023	
		Zaovine, Serbia	04/03/2023	
		Tomnatic, Romania	06/03/2023	
		Tiszavasvári, Hungary	08/03/2023	
		Mezőzombor, Hungary	08/03/2023	
		Drochlin, Poland	10/03/2023	
		Koniecpol, Poland	10/03/2023	
		Dłużniewo Duże, Poland	12/03/2023	
		Makauskai, Lithuania	12/03/2023	
		Lebedžiūnai, Lithuania	20/03/2023	
		Krape, Latvia	22/03/2023	
		Kārļi, Latvia	24/03/2023	
		Naukšēni Parish, Latvia	26/03/2023	
		Sõrandu, Estonia	28/03/2023	
		Auküla, Estonia	30/03/2023	
		Ristijärvi, Finland	01/04/2023	
		Ristijärvi, Finland	14/04/2023	
		Hyrynsalmi, Finland	16/04/2023	
		Pielavesi, Finland	18/04/2023	
		Pielavesi, Finland	22/04/2023	
		Tervo, Finland	24/04/2023	
		Keitele, Finland	26/04/2023	
		Tervo, Finland	08/05/2023	
		Pudasjärvi, Finland	10/05/2023	
		Pudasjärvi, Finland	12/05/2023	
		Sodankylä, Finland	14/05/2023	
		Northern Lapland, Finland	16/05/2023	
		Northern Lapland, Finland	18/05/2023	
		Northern Lapland, Finland	20/05/2023	
		Northern Lapland, Finland	22/05/2023	
		Northern Lapland, Finland	24/05/2023	
		Northern Lapland, Finland	26/05/2023	
		Northern Lapland, Finland	28/05/2023	
		Northern Lapland, Finland	30/05/2023	
		Northern Lapland, Finland	01/06/2023	
		Northern Lapland, Finland	03/06/2023	
		Northern Lapland, Finland	05/06/2023	
		Northern Lapland, Finland	07/06/2023	
		Northern Lapland, Finland	14/06/2023	

		Northern Lapland, Finland	21/06/2023	
		Northern Lapland, Finland	07/07/2023	
		Northern Lapland, Finland	19/07/2023	
		Northern Lapland, Finland	**29/07/2023**	
Pluvialis apricaria 	208612 (re-used)	*Birżebbuġa, Malta*	*12/03/2023*	 
		Birżebbuġa, Malta	21/03/2023	
		Mediterranean Sea (268km from eastern coast of Malta)	23/03/2023	
		Idrousa, Greece (10km NE from Andros Island)	25/03/2023	
		Beylik, Turkey	02/04/2023	
		Black Sea (33km from northern coast of Hatipler, Turkey)	05/04/2023	
		Temryuksky District, Russia	14/04/2023	
		Gorodovikovsky District, Russia	17/04/2023	
		Gorodovikovsky District, Russia	20/04/2023	
		Zavetinsky District, Russia	23/04/2023	
		Beloozerskii, Republic of Kalmykia, Russia	23/04/2023	
		Sarpinsky District, Republic of Kalmykia, Russia	05/05/2023	
		Dizhiembet, Zhanybek District, Kazakhstan	08/05/2023	
		Dizhiembet, Zhanybek District, Kazakhstan	17/05/2023	
		Zhiyenbat, Zhanybek District, Kazakhstan	20/05/2023	
		Zhiyenbat, Zhanybek District, Kazakhstan	23/05/2023	
		Grishenka, Denisov District, Kazakhstan	26/05/2023	
		Grishenka, Denisov District, Kazakhstan	29/05/2023	
		Kostanay District, Kazakhstan	01/06/2023	
		Evenkiysky District, Krasnoyarsk Krai (Siberia), Russia	12/06/2023	
		Evenkiysky District, Krasnoyarsk Krai (Siberia), Russia	24/06/2023	
		Evenkiysky District, Krasnoyarsk Krai (Siberia), Russia	06/07/2023	
		Evenkiysky District, Krasnoyarsk Krai (Siberia), Russia	18/07/2023	

		Evenkiysky District, Krasnoyarsk Krai (Siberia), Russia	**30/07/2023**	

Source: movebank.org, study name “Migration of Golden Plovers and Song Thrushes”, study ID 1995912295.

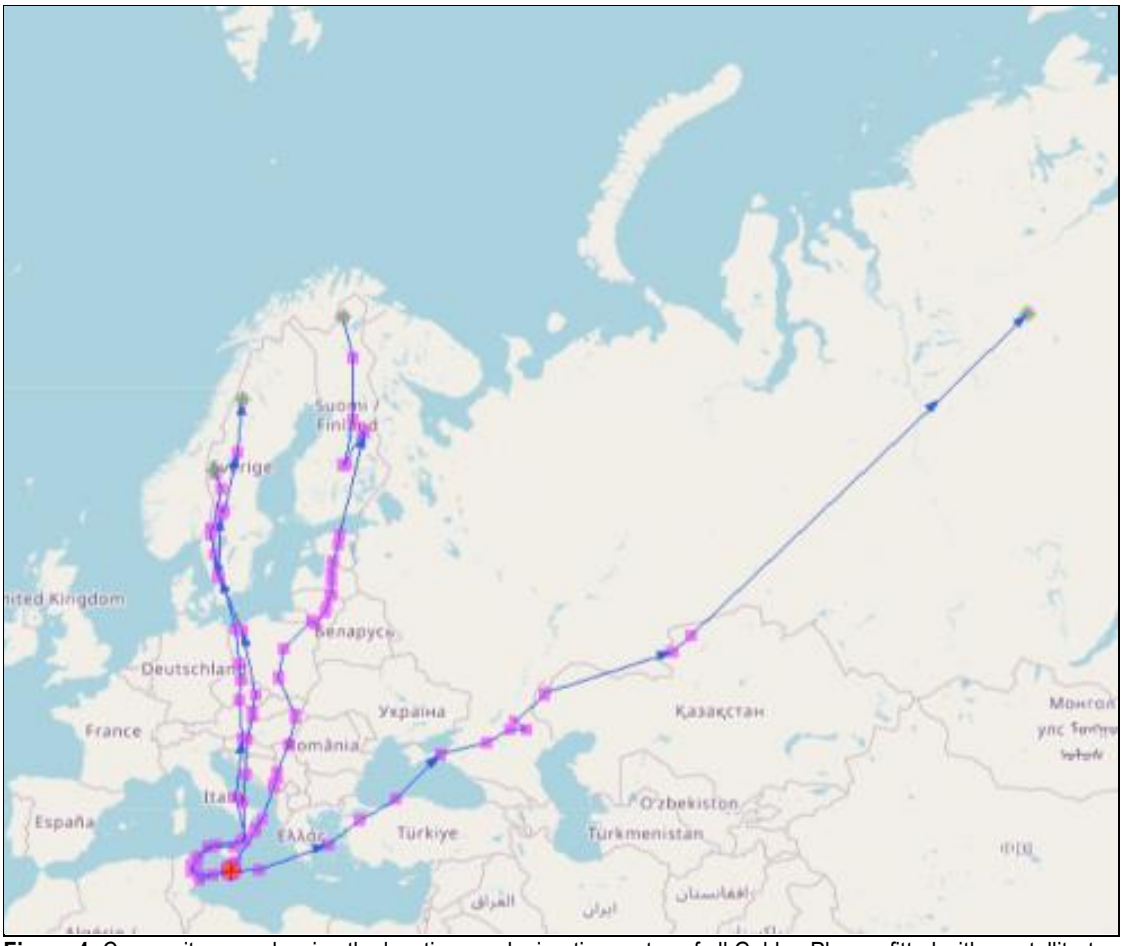


Figure 4: Composite map showing the locations and migration routes of all Golden Plovers fitted with a satellite-tag (GPS data for period 2022–2023). Source: movebank.org, study name “Migration of Golden Plovers and Song Thrushes”, study ID 1995912295.

Although temporally separate by 39 days from date of deployment, the two Golden Plovers fitted with tags **208581** and **208591** followed an almost identical migration route, not only during post-nuptial period but also on their way back towards their breeding grounds in Sweden (Figure 4). They wintered in separate locations in Tunisia (n=68 $_{208581}$ and 26 $_{208591}$ days) and departed to Europe from two separate sites in Cap Bon (Nabeul on 13 March 2023 $_{208581}$ and Haouaria on 8 March $_{208591}$). Although their flightpaths overlapped in some regions, it is unlikely that these two specimens were in the same area concurrently owing to temporal partitioning of the GPS fixes recorded from the same locations they visited.

The Golden Plover that was fitted with satellite-tag **208617** followed a totally different flightpath. It veered in a north–north-easterly direction through nine countries before arriving in Ristijärvi, Finland on 1 April 2023 where it spent two weeks before moving further south,

then gradually moving back north until it settled in its breeding ground in Northern Lapland (Finland) on 16 May 2023.

The fourth Golden Plover fitted with satellite-tag **208612** headed east towards Greece and Turkey after a prolonged period (11 days) in the vicinity of the area in Malta where it was tagged. From mid-April to mid-May 2023 this specimen was recorded in Southern Russia and Western Kazakhstan. It left Northern Kazakhstan and arrived in Central Siberia (Krasnoyarsk), where it settled to breed, during period 1–12 June (last GPS data from Kazakhstan was on 1 June | first GPS data from Central Siberia was on 12 June).

Table 4 lists the last GPS locations recorded during the breeding season at the time this report was prepared. Given that, unlike the Song Thrush tags, the ones used for Golden Plovers are solar charged, they are expected to last longer than one year from date of deployment. Thus, any additional GPS fixes for Golden Plovers after the date of compilation of this report will be included in the next update.

Table 4: Golden Plover breeding territory

Tag number	Last set of GPS fixes from overseas countries during the breeding season		Number of GPS fixes
	Location	Date(s)	
208581	Falkvålen, Sweden	14/05/2023 – 27/07/2023	18
208591	Sorsele Municipality, Sweden	12/05/2023 – 26/07/2023	19
208617	Northern Lapland, Finland	16/05/2023 – 29/07/2023	17
208612	Evenkiysky District, Krasnoyarsk Krai (Siberia), Russia	12/06/2023 – 30/07/2023	5

Population size

The latest Article 12 reports for the 2013–2018 reporting period specifies that the Northeast European breeding population of the Golden Plover (*P. a. altifrons*) within the EU territory (Finland and Sweden) ranges between 172,089–283,233 breeding pairs (previously reported at 203,000–290,000 breeding pairs during the 2008–2012 reporting cycle). Finland constitutes 44% whereas Sweden constitutes 39.7% of the EU28 population respectively. The breeding population of Finland and Sweden is distributed as follows:

- Finland: 89,089–143,233 pairs (best value: 121,726 pairs)
- Sweden: 83,000–140,000 pairs (best value: 110,000 pairs)

This results in a reference population of **172,089 minimum breeding pairs**, based on the current estimates as specified in Article 12 reports for the 2013–2018 reporting period. Table 5 provides a direct comparison between the breeding population estimates of the reference population (Finland and Sweden) and other breeding populations at EU28 level.

Table 5 **Golden Plover EU28 Breeding Population** (orange shading represents the West Continental component population of *Pluvialis apricaria altifrons* – Malta's reference population)

Member State	% in EU28	Breeding Pairs (Min - Max)		Breeding Population Trend		Short-term % change (Max - Min)		Long-term % change (Max - Min)	
				Short term	Long term				
Denmark	0.2	N/A	N/A	Decreasing	Decreasing	N/A	N/A (-100)	N/A	N/A (-100)
Germany	0.1	0	2	Unknown	Decreasing	N/A	N/A	N/A	N/A (-86)
Estonia	1.1	2,500	3,400	Stable	Stable	1	8	12	27
Finland†	**44**	**89,089**	**143,233**	**Stable**	**Stable**	**-11**	**26**	**-9**	**44**
Ireland		84	98	Decreasing	Decreasing	N/A	N/A (-37.5)	-84	-82
Lithuania		35	45	Stable	Stable	N/A	N/A	N/A	N/A
Latvia	0.1	260	550	Stable	Stable	1.56	6.27	7	12
Sweden†	**39.7**	**83,000**	**140,000**	**Stable**	**Increasing**	**0**	**28**	**10**	**40**
UK	23.9	32,667	50,531	Stable	Increasing	-5.7	-5.7	+64	+64
Total		207,000	338,000	Stable	Stable				
					Trend (EU28 Population)			**Secure**	

Source: European Environment Agency (2020): Article 12 reports for the 2013–2018 reporting period; † Movebank satellite-tracking data (2022–2023): movebank.org, study name "Migration of Golden Plovers and Song Thrushes", study ID 1995912295.

For the purpose of calculating the "small numbers" criterion in relation to the relevant "population concerned" (the reference population), Table 6 shows the **minimum** number of breeding pairs of *Pluvialis apricaria altifrons*, together with other relevant information required for calculating the 1% mortality threshold. According to the British Trust for Ornithology (BTO)[17], the typical lifespan of Golden Plover is four years and the annual mortality rate of adults is 27%, "based on a 50-year study in The Netherlands using colour-mark sightings" (Sandercock, 2003).

Table 6 **Minimum breeding population and mortality rate – Malta's EU reference population**

	Golden Plover (*Pluvialis apricaria altifrons*)	Source
Minimum breeding population – pairs (Finland and Sweden only)	**172,089**	Article 12 reports for the 2013–2018 reporting period (EEA, 2020); Wetlands International (2009: 180); Movebank satellite-tracking data (2022–2023): movebank.org, study name "Migration of Golden Plovers and Song Thrushes", study ID 1995912295.
Mortality rate – juveniles	53.33%	Das Kompendium der Vögel Mitteleuropas (KVM) / Birds of the Western Palearctic (BWP)
Mortality rate – adults	27%	BTO

[17] Golden Plover *Pluvialis apricaria* Key Facts. British Trust for Ornithology. Available at: https://app.bto.org/birdfacts/results/bob4850.htm.

Breeding rate (young per pair)	3.64	Golden Plover: European Management Plan-2009–2011, Technical Report-2009-034, Golden Plover.

Calculation of 1% mortality rate and "small numbers"

Golden Plover (*P. apricaria altifrons*)
Minimum breeding success 3.64 birds per pair (172,089 x 3.64) = 626,404
Mortality rate of 1st year birds (626,404 x 53.33%) = 334,061
Mortality rate of adults (344,178 x 27%) = 92,928
Total annual mortality (334,061 + 92,928) = 426,989
1% of total annual mortality (426,989 x 1%) = 4,270

Total potential Golden Plover national bag limit (1% of total annual mortality of [minimum] reference population size) is: 4,270 ÷ 3 = **1,423** (figure divided by three to take into account the three principal flyways and the fact that *Pluvialis apricaria altifrons* is a broad-front migrant [Wetlands International, 2009]).

Autumn seasonal bag limit in relation to "small numbers"

Based on the 1% mortality rate (of the minimum population size), the "small numbers" calculation with respect to the national bag limit would amount to 1,423 Golden Plovers. However, it should be noted that the average number of Golden Plovers captured with clap-nets during period 2006–2022 is 446 (Table 2). Thus, the previous season's bag limit of 700 Golden Plovers should be retained if a derogation to open an autumn live-capturing season for this species is applied in 2023. This equates to 0.164% of the total annual mortality of the reference population (minimum population size), which is significantly less than the 1% threshold.

- **Golden Plover** – maximum national bag limit of **700** birds.

2. Conservation status of Song Thrush (*Turdus philomelos*)

The Song Thrush (*Turdus philomelos*) is a passerine species in the thrush family found in woodland and forest ecosystems. It is a huntable species, listed under Annex II/B of the Birds Directive and is present throughout Europe and the northern part of Asia eastwards of Lake Baikal. **The northern populations are migratory and winter in western and southern Europe**. The European population is estimated at 24.4–38.4 million breeding pairs. Europe forms c.65% of the global range. According to BirdLife International (2023)[18], the global population size is estimated at 75–(118)120 million individuals.

This species has an extremely large range (23,300,000 km²), and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km^2 combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). The population trend appears to be increasing, and hence the species does not approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations). The population size is extremely large, and hence does not approach the thresholds for Vulnerable under the population size criterion (<10,000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern (BirdLife International, 2023).

Global and European distribution

It has been documented that most Song Thrushes from the northern and eastern parts of the European range migrate via three or four main routes in a south westerly direction (Ashmole M.J., 1962; Busse P & Maksalon L, 1986). With reference to the central Mediterranean region, the Italian publication *Atlante della Migrazione degli Uccelli in Italia*[19] states that "the Song Thrush is a regular breeder in Italy and a common passage migrant with the first thrushes occurring from late August, but high frequencies reached from late September, with the largest influxes in October with a maximum reached in the last decade of the month and good numbers till early November". With reference to the migratory pattern of this species, the authors note that:

"*Autumn recoveries mainly involve northern and central Italy, where most records are on the western side. Much less data from lower latitudes, while on islands most observations are from southern Sardinia. The good sample of direct autumn recoveries indicates NE–SW movements, primarily from the Balkans[20]. This main direction is similar to what [is] reported from more northern countries, like the UK, Norway, The Netherlands and Denmark. In our case Italy gets influxes from more eastern areas, with many birds entering through Friuli. Parallel routes towards our country are confirmed by the southernmost recoveries along the peninsula being referred to birds ringed in more eastern longitudes within the general ringing area.*

The national sample of first-capture data indicates a progressive decline in average wing length during the autumn, suggesting an earlier passage of more northern populations...The importance of the Mediterranean as a wintering area for the species is confirmed by the many recoveries, mainly concentrated south of the Apennines and with a concentration of data in Sardinia, although this island might be also affected by earliest return movements...Average

[18] BirdLife International (2023) Species factsheet: *Turdus philomelos*. Downloaded from http://www.birdlife.org on 31/07/2023.

[19] Spina F. and Volponi S. (2008) *Atlante della Migrazione degli Uccelli in Italia*. Vol 2. Passeriformi (*Turdus philomelos*: pp.228–235).

[20] For the purpose of this conservation status report, the Balkans are limited to EU Member States: Bulgaria, Croatia, Greece, Romania and Slovenia.

size of birds ringed in Italy during the winter months show a further seasonal decline in size till the central decade of December, followed by a new increase with the first decade of January, again suggesting early movements of birds of northern and eastern origin...Within a general framework of NE–SW Song Thrush movements across Europe, birds ringed in Italy move towards the coast of France, before reaching Mediterranean Iberia and North Africa, mainly in Algeria, later moving eastwards through Tunisia and flying back north via Sardinia and Corsica." Spina & Volponi (2008: 235)

Cramp *et al.* (1988)[21] note that the Song Thrush is mostly resident but northern populations are partially or entirely migratory and that in contrast to other species such as Redwing (*Turdus iliacus*) and Fieldfare (*Turdus pilaris*), populations show strong affinity to regular wintering areas. The authors further note that:

"*Most nominate* philomelos *from Fenno-Scandia, Germany, Switzerland, Poland, and [former] USSR are migratory, moving south-west or south-east through Europe to winter in southern England, France (mainly towards south-west), Spain and Portugal. Those from further north, especially first-year birds, winter furthest south to Canary Islands, Morocco, Algeria, Tunisia, Libya and Cyprus. Birds from Denmark, Netherlands, Belgium, and north-east France are partially resident with most others moving only short distances south or south-west, though considerable numbers from Netherlands winter in Britain and Ireland. Birds from Switzerland move south, with recoveries in southern France along Mediterranean coast into northern Italy, and in Corsica and Libya. Birds from east-central Europe winter correspondingly east of birds from Fenno-Scandia and western Europe: mainly in Italy, Yugoslavia, Greece, Balkans and Cyprus; also a very few recoveries in Balearics, Spain and Portugal.*

Populations from further east presumably winter largely from eastern Mediterranean to Iran...In early part of winter, migrant populations from Britain, Belgium, Netherlands and Denmark are chiefly in north-west France, north of Scandinavian birds (in southern Spain and Portugal), but by January birds from Low Countries have also moved south-west into Iberia. Southward departures in autumn begin in August but main passage September to early November. Birds from Fenno-Scandia move south-west on broad front, fringe of movement (or birds drifted west) passing through eastern Britain. Siberian birds depart mid-September while populations further south remain until November, in southern central Asia, Kazakhstan, and Turkmenistan; rarely recorded on passage outside breeding range. Birds wintering around Mediterranean arrive mid-October with frequent influxes until mid-April. During severe weather over Europe, large-scale mid-winter arrivals occur regularly in North Africa." Cramp *et al.* (1988: 990-992).

According to BirdLife International (2023) this species does not approach the thresholds for Vulnerable neither under the range size criterion, under the population trend criterion, nor under the population size criterion. For these reasons BirdLife International evaluates this species as Least Concern within both Europe and the EU28[22] with an increasing population trend. IUCN[23] also classifies this species as **Least Concern**.

Article 12 reports (2013–2018)

This update includes the current population trends and indices as reported by Member States in their Article 12 report for period 2013–2018[24]. Within the territory of the European Union (EU28), the Song Thrush has a breeding population size of 12,200,000–20,500,000 pairs (previously reported at 12,700,000–21,900,000 pairs during the 2008–2012 reporting cycle)

[21] Cramp S. *et al* (1988) Handbook of the Birds of Europe, the Middle East and North Africa: The Birds of the Western Palearctic. Vol V: Tyrant Flycatchers to Thrushes. The Royal Society for the Protection of Birds.

[22] http://www.birdlife.org/datazone/userfiles/file/Species/erlob/summarypdfs/22708822_turdus_philomelos.pdf

[23] http://www.iucnredlist.org/details/22708822/0

[24] https://nature-art12.eionet.europa.eu/article12/summary

and a breeding range size of 3,100,000km² (previously reported at 3,520,000km² during the 2008–2012 reporting cycle). The **breeding population** trend in the EU28 is **Increasing in the short-term and Stable in the long-term** (EEA, 2020)[25].

Breeding population size estimate for Ireland converted to specified units (pairs) based on detection estimates in Crowe *et al*., 2014 and expert opinion, and assuming a 2:1 ratio. In the absence of short-term and long-term trend magnitudes reported from Spain for this taxon, surrogate data were sourced from SACRE, 2018, indicating an increasing trend (59.1%) during 1998-2018. In the absence of a report from Romania for this taxon, surrogate data were sourced from the national Common Bird Monitoring Scheme in Romania 2017, indicating an uncertain trend during 2007–2016. Short-term and long-term trend magnitudes for this taxon in Czechia for the period given have been calculated and corrected from the average annual trends reported. Source: https://nature-art12.eionet.europa.eu/article12/summary/audittrail/?reported_name=&period=3&subject=Turdus+philomelos.

The EU population status of the Song Thrush was assessed as **Secure**, because the species does not meet any of the IUCN Red List criteria for threatened or Near Threatened, or the criteria for Depleted or Declining (the EU28 population or range has not declined by 20% or more since 1980). Data on the wintering population trends for this species was not available at the time this report was prepared (August 2023).

Pan-European Common Birds Monitoring Scheme (2022 update)

The latest dataset available from the European Bird Census Council (EBCC, 2022)[26] at the time the conservation status of the Song Thrush (*Turdus philomelos*) was updated (August 2023), lists this species trend classification as **Moderate Increase,** defined as a "significant increase, but not significantly more than 5% per year" (Figure 5). When compared with the previous EBCC (2021) update, the short-term [ten-year (2012–2021)] trend **decreased by 1%** [from 16% to 15%], whereas in the long-term trend (1980–2021) the population increased from 3% to 6% (**3% increase**).

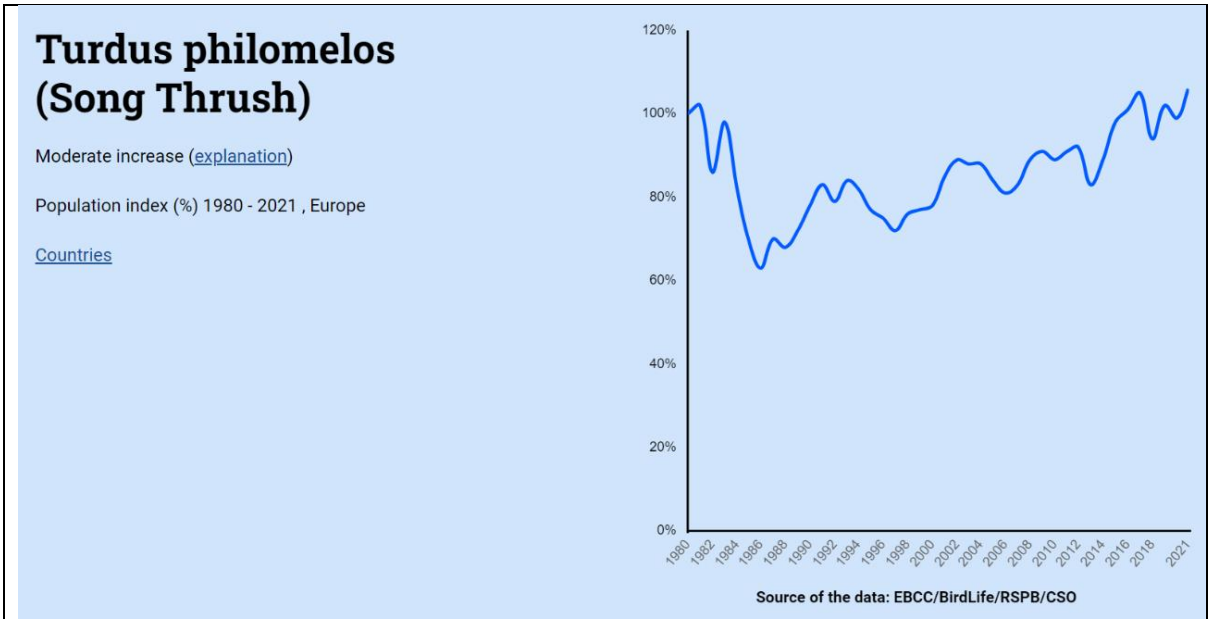


Figure 5: Long-term trend classification for *Turdus philomelos*. Source: EBCC (2022 update). Available at: https://pecbms.info/trends-and-indicators/species-trends/species/turdus-philomelos/.

[25] European Environment Agency (2020) Article 12 reports for the 2013-2018 reporting period (EU28) Available at: http://bd.eionet.europa.eu/article12/summary?period=1&subject=A140

[26] *Trends of common birds in Europe, 2022 update*. Available at: https://pecbms.info/trends-and-indicators/species-trends/

List of Countries:	
Austria	1998 - 2021
Belgium-Brussels	1992 - 2021
Belgium - Flanders	2007 - 2021
Belgium-Wallonia	1990 - 2021
Bulgaria	2005 - 2021
Czech Republic	1982 - 2021
Denmark	1976 - 2021
Estonia	1984 - 2021
Finland	1975 - 2021
France	1989 - 2021
Germany East	2005 - 2020
Germany West	2005 - 2020
Hungary	1999 - 2021
Italy	2000 - 2021
Latvia	2005 - 2021
Lithuania	1994 - 2021
Luxembourg	2010 - 2021
Netherlands	1984 - 2021
Norway	2007 - 2021
Poland	2000 - 2021
Republic of Ireland	1998 - 2021
Romania	2008 - 2021
Slovakia	2005 - 2021
Slovenia	2008 - 2021
Spain	1998 - 2021
Sweden New	1998 - 2021
Sweden Old	1975 - 2021
Switzerland	1999 - 2021
United Kingdom	1966 - 2021

Song Thrush distribution within the territory of the European Union (EU28)

It has been documented that most of the Song Thrush populations from the northern and eastern parts of the European range migrate via three or four main routes in a south westerly direction (Ashmole M.J., 1962, Busse P & Maksalon L., 1986). The Song Thrush breeds throughout the territory of the European Union (EU28), except Malta and Cyprus (and Gibraltar) (EEA, 2020). Table 7 provides an estimate of the breeding population of the Song Thrush within the EU28 (Article 12 reports for the 2013–2018 reporting period).

Table 7 Song Thrush EU28 Breeding Population

Member State	% in EU28	Breeding Pairs (Min - Max)		Breeding Population Trend		Short-term % change (Min - Max)		Long-term % change (Min - Max)	
				Short term	Long term				
Austria	2.7	350,000	550,000	Stable	Unknown	N/A	N/A (4)	N/A	N/A
Belgium	0.8	92,600	163,900	Decreasing	Decreasing	-35	-22	-54	-18
Bulgaria	2.0	150,000	500,000	Increasing	Stable	0	45	0	5
Croatia	4.8	600,000	1,000,000	Unknown	Unknown	N/A	N/A	N/A	N/A
Czechia	4.1	450,000	900,000	Increasing	Increasing	N/A	N/A (2)	N/A	N/A (1)
Germany	10.7	1,600,000	1,950,000	Increasing	Stable	8	24	N/A	N/A (5)
Denmark	2.3	384,280	384,280	Increasing	Stable	22.34	75.5	-7.06	32.87
Estonia	2.1	300,000	400,000	Stable	Stable	0	1	-13	10
Spain	3.1	369,672	663,714	Increasing	Increasing	N/A	N/A	N/A	N/A
Finland	6.4	980,844	1,175,381	Increasing	Increasing	12	28	13	46
France	9.1	1,000,000	2,000,000	Stable	Increasing	-3	11	6.1	24
Greece		1,000	3,000	Stable	Stable	N/A	N/A (0)	0	0
Hungary	2.4	366,000	430,000	Stable	Unknown	N/A	N/A	N/A	N/A

Ireland	N/A	687,965	1,028,321	Stable	Unknown	-8	0.3	N/A	N/A
Italy	1.2	100,000	300,000	Increasing	Stable	25	40	N/A	N/A
Lithuania	1.8	200,000	400,000	Stable	Stable	0	0	0	0
Luxembourg		5,000	8,000	Stable	Unknown	0	10	N/A	N/A
Latvia	3.1	430,769	617,919	Increasing	Increasing	3.8	41.7	130	131
Netherlands	0.9	110,000	180,000	Stable	Increasing	0	12	90	148
Poland	9.0	1,121,000	1,843,000	Increasing	Unknown	11	29	N/A	N/A
Portugal		5,000	10,000	Uncertain	Increasing	N/A	N/A	N/A	N/A
Romania	9.8	1,150,018	1,743,426	Uncertain	Unknown	-1	5	N/A	N/A
Sweden	11.7	1,157,000	2,703,000	Stable	Stable	-2	8	-9	7
Slovenia	1.3	138,400	276,900	Increasing	Unknown	N/A	N/A (33)	N/A	N/A
Slovakia	2.7	300,000	600,000	Stable	Stable	N/A	N/A	N/A	N/A
UK	7.9	1,308,420	1,308,420	Stable	Decreasing	N/A	N/A (7.06)	N/A	N/A (-10.98)
Total		12,200,000	20,500,000	Increasing	Stable				
					Trend (EU28 Population)				**Secure**

Data source: European Environment Agency (2020): Article 12 reports for the 2013–2018 reporting period.

The Song Thrush does not breed in Malta (neither in the wild, nor in captivity). Table 8 below lists the live-capturing data for Song Thrush in Malta and Gozo from 2006 to 2022.

Table 8 Live-capturing data for Song Thrush (2006–2022)

Species	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total	Average
Song Thrush	420	10	552	1,199	5,027	2,069	44	135	292	248	230	183	511	722	651	1,006	1,014	14,313	842

Data sources:
2006–2012: *Carnet de Chasse* data, Environment Protection Directorate (MEPA).
2013–2022: Wild Birds Regulation Unit.

Reference Population

The “small numbers” requirement, within the meaning of Article 9(1)(c) of the Birds Directive should be understood as “any sample of less than 1% of the total annual mortality of the population in question (average value) for those species which are not to be hunted and **a sample in the order of 1% for those species which may be hunted.** ‘Population in question’ is to be understood, with regard to migratory species, as the population of those regions from which come the main contingents passing through the region to which the derogation applies during its period of application”. Given that the Song Thrush qualifies as a huntable species under the Birds Directive (MT: Annex IIB), the “*small numbers*” requirement is understood as “*a sample in the order of 1% of the total annual mortality of the population in question*”.

The Song Thrush shows a strong affinity to regular wintering areas (Cramp *et al,* 1988) and has a general framework of NE-NW movements across Europe (Spina & Volponi, 2008). Although there are no ring recoveries of this species in Malta, on the basis of this literature review, there is sufficient scientific data to ascertain that EU populations of Song Thrush migrating over Malta (NE-NW movements) come from the easternmost parts of the territory of the European Union, namely Romania, Bulgaria and Hungary (Table 7).

Satellite tracking data

As requested by the services of the European Commission in 2019, Malta initiated a research project to assess the migratory routes of this species using satellite tracking devices (geolocators). The location of tagged specimens is monitored in real-time by the Maltese authorities using Argos satellite data repository to which a Movebank account has been linked. The Movebank account showing all GPS fixes was converted to a publicly visible research study in 2021.

The first tagging effort took place during period February–March 2022. Three Song Thrushes were caught by BirdLife Malta licensed bird-ringers and fitted with a satellite-tag (and a scientific ring), two on 8 February and the other one on 8 March 2022. Tracking data from the first two specimens shows that one remained in Romania throughout the breeding season (05 April – 14 June 2022) whereas the second specimen appears to have remained in Belarus. However, since the last confirmed data associated with the second specimen was transmitted on 26 April 2022, it cannot be ascertained whether it remained in Belarus throughout the breeding season or whether it migrated further north in May. The third specimen was tracked within the same area in Malta where it was fitted with a satellite-tag during period 08 March – 22 March 2022. No additional tracking data was obtained from the third specimen after 22 March.

A report on the outcome of the satellite-tagging project is presented to the Ornis Committee when a request to renew the research derogation period is submitted. Ornis Committee renewed the satellite-tagging project for period 29 November 2022 – 31 March 2023 (vide corresponding subsection under the section on Golden Plover for further details in this regard). During the second research period, 11 Song Thrushes were caught by BirdLife Malta licensed bird-ringers and fitted with a satellite-tag (and a scientific ring). From the start of the satellite-tagging project to date, six Song Thrush tags out of a total of 14 deployed between 4 February 2022 and 10 March 2023 transmitted GPS fixes from continental Europe during pre-nuptial migration, after wintering in Malta (see Table 9–11). Table 11 includes maps showing the migratory routes of all tagged specimens, the locations of their wintering grounds (for specimens caught and satellite-tagged during post-nuptial migration) and the location of their breeding grounds following pre-nuptial migration (all satellite-tagged specimens). Table 12 lists Malta’s Song Thrush EU reference population and current population trend (2013–2018).

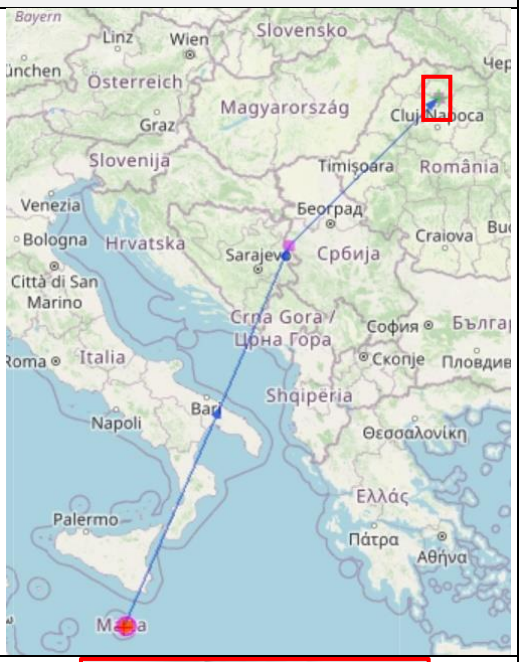
Table 9: Song Thrush wintering period						
Tag no.	**Date tagged**	**Last GPS fix in Malta**	**First GPS fix overseas**	**Wintering period in Malta** (days)		
				Minimum	Maximum	Mean
208582	04/02/2022	22/02/2022	29/03/2022	18	53	36
208583	04/02/2022	22/03/2022	12/04/2022	46	67	57
208590	06/12/2022	18/03/2023	06/04/2023	102	121	112
208593	09/12/2022	18/03/2023	07/04/2023	99	119	109
208578	23/01/2023	05/02/2023	07/04/2023	13	74	44
208585	28/02/2023	18/03/2023	06/04/2023	18	37	28
			Mean	**49**	**79**	**64**

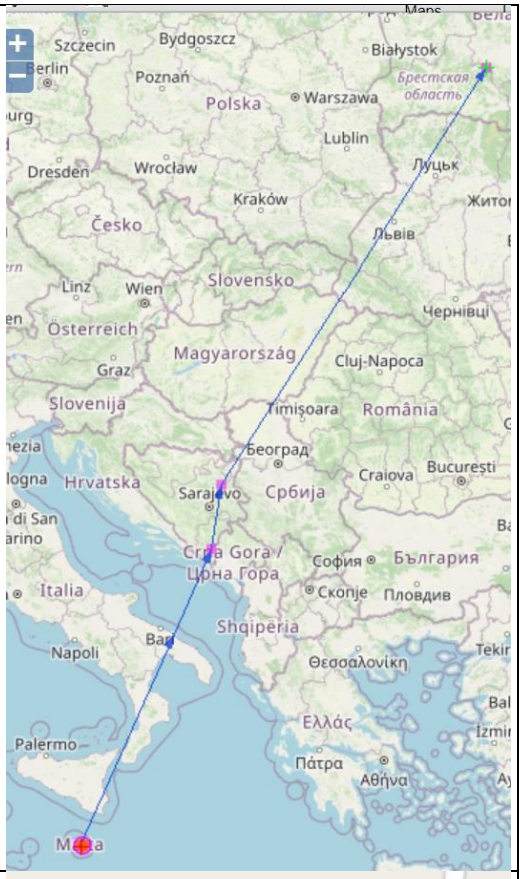
In all cases, their wintering location in Malta was very restricted—all Song Thrushes remained in the same area where they were captured and satellite-tagged throughout the wintering period. Also of note is the flightpath taken by the six satellite-tagged Song Thrushes during pre-nuptial migration, which corroborates Spina and Volponi's (2008) observation of ***a general framework of NE–SW Song Thrush movements across Europe***[27] (see Figure 6).

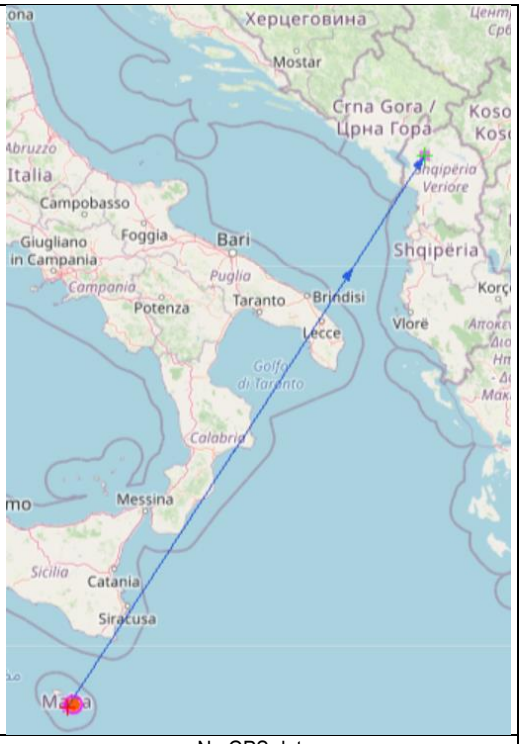
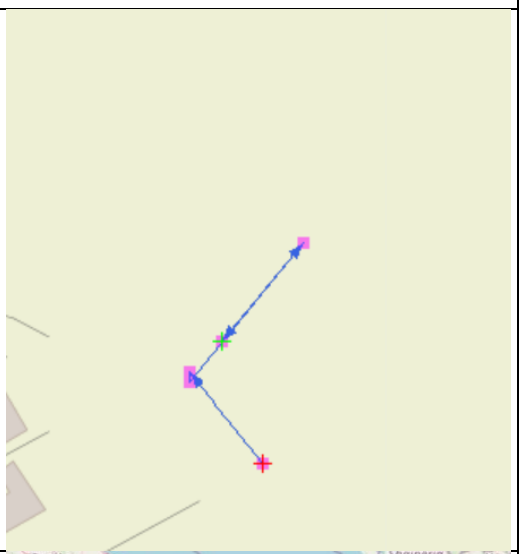
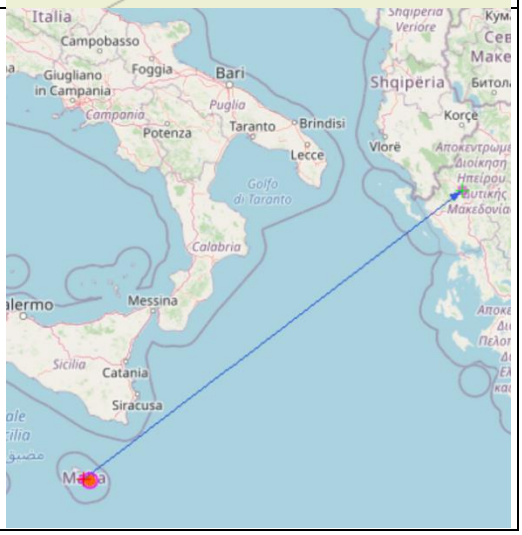
Given that only tag **208582** transmitted data over several weeks during the Song Thrush breeding season, no conclusive information on the breeding grounds of the remaining five tagged Song Thrushes (Table 10) could be obtained at the time this report was compiled. Given that Song Thrush tags are not solar charged (unlike the ones used for Golden Plovers), it is very unlikely that any additional GPS signals will be received from the ones already deployed.

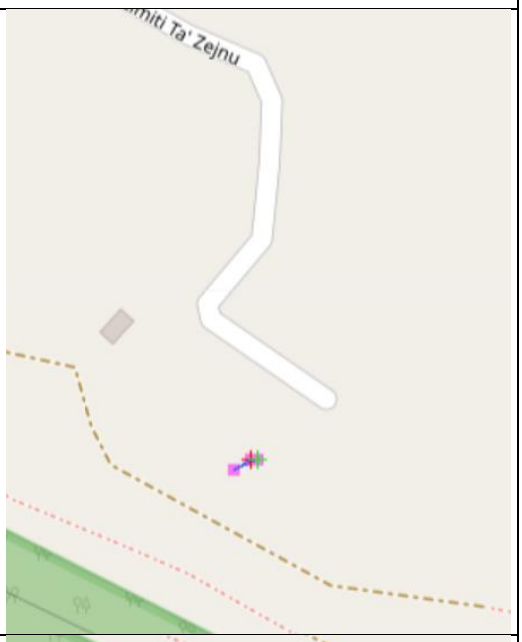
Table 10: Song Thrush breeding territory			
Tag number	**Last set of GPS fixes from overseas countries during pre-nuptial and breeding period** *A "?" next to the location denotes a high level of uncertainty given that only one GPS fix was recorded (the last GPS signal) from that specific country*		**Number of GPS fixes**
	Location	**Date(s)**	
208582	Romania	05/04/2022 – 14/06/2022	7
208583	Belarus (?)	26/04/2022	1
208590	Albania (?)	06/04/2023	1
208593	Greece (?)	07/04/2023	1
208578	Serbia (?)	07/04/2023	1
208585	North Macedonia (?)	06/04/2023	1

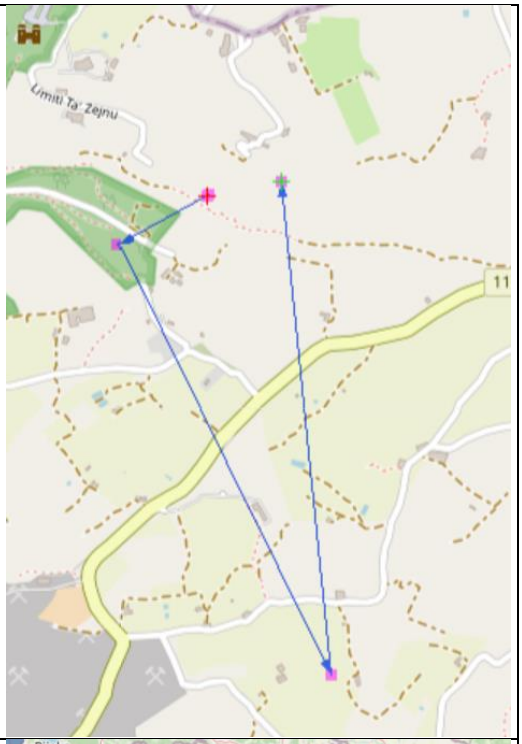
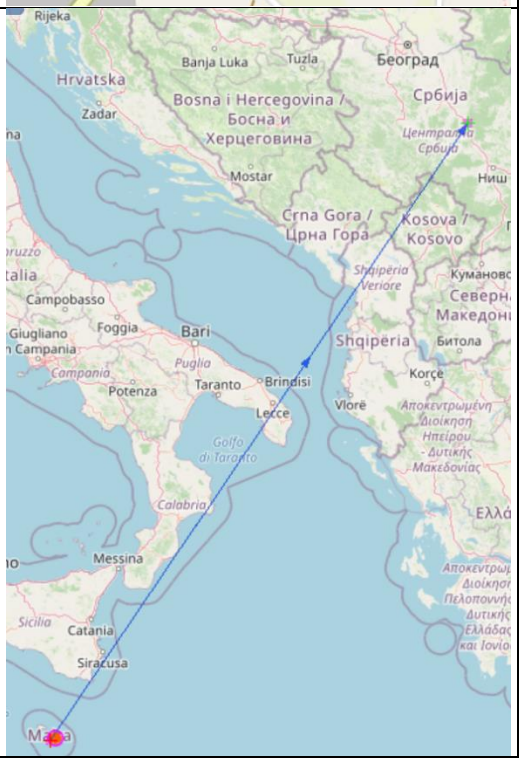
[27] See p.12 of the Golden Plover and Song Thrush Conservation Status Report (2021 update), available at: https://mgoz.gov.mt/en/Documents/WBRU/Reports%20and%20Statistics/consStaRepMay21GpSt.pdf

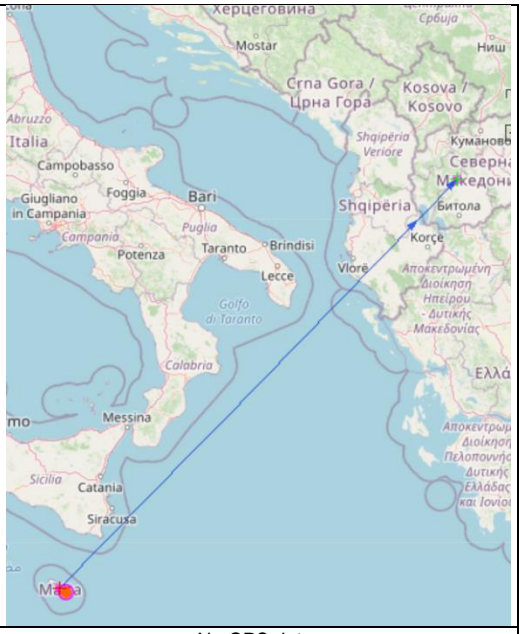
Table 11: GPS locations of Song Thrush tags from date of first deployment					
Species	**BirdLife Malta ring no.**	**Tag decimal id.**	**Location of GPS fixes** (italics = date when tagged | bold = date of last transmission)	**Date**	**Map**
Turdus philomelos	CC4804	208582	*Buskett, Malta* Buskett, Malta Buskett, Malta Buskett, Malta Planina, Serbia Ileanda, Romania Ileanda, Romania Ileanda, Romania Ileanda, Romania Ileanda, Romania Ileanda, Romania **Ileanda, Romania**	*04/02/2022* 08/02/2022 15/02/2022 22/02/2022 29/03/2022 05/04/2022 12/04/2022 26/04/2022 03/05/2022 10/05/2022 17/05/2022 **14/06/2022**	 

Turdus philomelos	CC4756	208583	*Buskett, Malta* Girgenti, Malta Girgenti, Malta Girgenti, Malta Buskett, Malta Baljci, Bosnia and Herzegovina Brgule, Bosnia and Herzegovina **Kletsk District, Belarus**	*04/02/2022* 08/02/2022 15/02/2022 22/02/2022 22/03/2022 12/04/2022 19/04/2022 **26/04/2022**	
Turdus philomelos	CC4805	208586	*Girgenti, Malta* Girgenti, Malta Girgenti, Malta **Girgenti, Malta**	*01/03/2022* 08/03/2022 15/03/2022 **22/03/2022**	

Turdus philomelos	CC4772	208590	*Buskett, Malta* Buskett, Malta Buskett, Malta Buskett, Malta Buskett, Malta **Likaj, Albania**	*06/12/2022* 26/12/2022 05/01/2023 16/01/2023 18/03/2023 **06/04/2023**	
Turdus philomelos	CC5303	208589	*Manikata, Malta*	*08/12/2022*	No GPS data
Turdus philomelos	CC4808	208594	*Girgenti, Malta* Girgenti, Malta Girgenti, Malta Girgenti, Malta Girgenti, Malta **Girgenti, Malta**	*09/12/2022* 26/12/2022 05/01/2023 16/01/2023 05/02/2023 **25/02/2023**	
Turdus philomelos	CC5605	208593	*Żebbiegħ, Malta* Mġarr, Malta Mġarr, Malta Mġarr, Malta Mġarr, Malta **Perama, Greece**	*09/12/2022* 26/12/2022 05/01/2023 16/01/2023 18/03/2023 **07/04/2023**	

Turdus philomelos	CC4773	208595	*Buskett, Malta*	*12/12/2022*	No GPS data
Turdus philomelos	CC4774	208592	*Buskett, Malta* Buskett, Malta Buskett, Malta **Buskett, Malta**	*12/12/2022* 26/12/2022 05/01/2023 **16/01/2023**	
Turdus philomelos	CC4776	208597	*Buskett, Malta* Buskett, Malta Buskett, Malta **Buskett, Malta**	*04/01/2023* 05/01/2023 16/01/2023 **04/02/2023**	

Turdus philomelos	CC4777	208596	*Buskett, Malta* Buskett, Malta Buskett, Malta Buskett, Malta Buskett, Malta Buskett, Malta **Buskett, Malta**	*16/01/2023* 04/02/2023 05/02/2023 25/02/2023 06/03/2023 18/03/2023 **06/04/2023**	
Turdus philomelos	CC4358	208578	*Buskett, Malta* Buskett, Malta Buskett, Malta **Bosnjane, Serbia**	*23/01/2023* 04/02/2023 05/02/2023 **07/04/2023**	

Turdus philomelos	CC3563	208585	*Simar, Malta* Simar, Malta Miżieb, Malta **Debreshte, North Macedonia**	*28/02/2023* 06/03/2023 18/03/2023 **06/04/2023**	
Turdus philomelos	CC5355	208584	*Wied Ħarq Ħamiem, Malta*	*10/03/2023*	No GPS data

Source: movebank.org, study name “Migration of Golden Plovers and Song Thrushes”, study ID 1995912295.

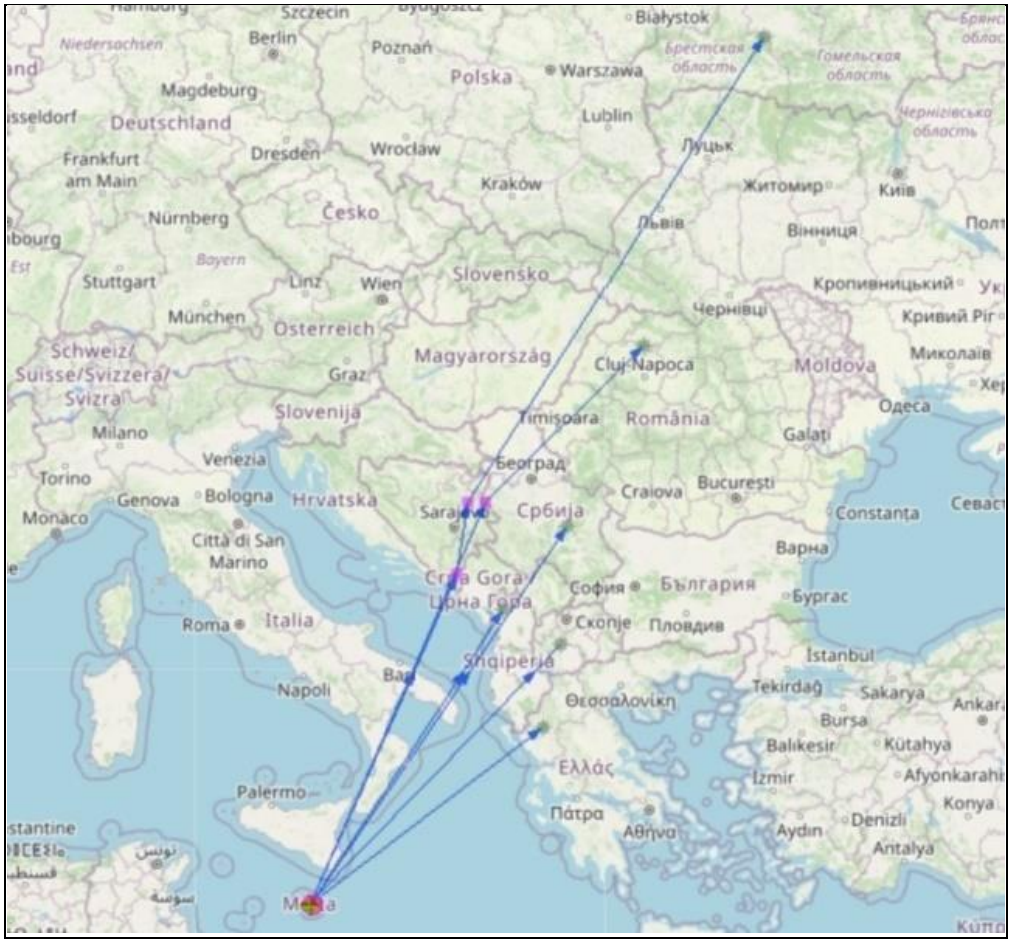


Figure 6: Composite map showing the locations and migration routes of all Song Thrushes fitted with a satellite-tag (GPS data for period 2022–2023). Source: movebank.org, study name “Migration of Golden Plovers and Song Thrushes”, study ID 1995912295.

Table 12 **Song Thrush EU reference population and current population trend (2013–2018)**

Country	% in EU28	Breeding Pairs (Min - Max)		Short-term Trend	Mag. % (Min - Max)		Long-term Trend	Mag. % (Min - Max)		Short-term (10-year trend) Max % Change (Min Population)	Short-term (10-year trend) Max % Change (Max Population)	Long-term Max % Change (Min Population)	Long-term Max % Change (Max Population)
Bulgaria	2.0%	150,000	500,000	Increasing	0	45	Stable	0	5	0	225,000	0	25,000
Hungary	2.4%	366,000	430,000	Stable	N/A	N/A	Unknown	N/A	N/A	N/A	N/A	N/A	N/A
Romania†	8.0%	1,510,018	1,743,426	Uncertain	-1	5	Unknown	N/A	N/A	-15,100	87,171	N/A	N/A
Total		**2,026,018**	2,673,426							**-15,100**	**312,171**	**0**	**25,000**
				Percentage change						**-0.75%**	**11.68%**	**0.00%**	**0.94%**
				Trend (Reference population)						**Stable (<10% change)**	**Increasing (>10% change)**	**Stable (<20% change since 1980)**	**Stable (<20% change since 1980)**

Data sources: European Environment Agency (2020): Article 12 reports for the 2013–2018 reporting period; Cramp et al (1988); Spina & Volponi (2008);
† Movebank satellite-tracking data (2022–2023): movebank.org, study name “Migration of Golden Plovers and Song Thrushes”, study ID 1995912295.

Table 13 below shows the **minimum** number of Song Thrush breeding pairs, together with other relevant information required for the calculation of "small numbers". According to the British Trust for Ornithology (BTO)[28], the typical lifespan of Song Thrush is three years and the annual mortality rate of adults is 43.7% ± 0.7%, which tallies with that specified by the *Birds of the Western Palaearctic (BWP)*.

Table 13 Minimum breeding population and mortality rate – Malta's EU reference population

	Song Thrush (*Turdus philomelos*)	Source
Minimum breeding population – pairs (Bulgaria, Hungary and Romania only)	**2,026,018**	Article 12 reports for the 2013–2018 reporting period (EEA, 2020); Cramp *et al* (1988); Spina & Volponi (2008); Movebank satellite-tracking data (2022–2023): movebank.org, study name "Migration of Golden Plovers and Song Thrushes", study ID 1995912295.
Mortality rate – juveniles	56%	Das Kompendium der Vögel Mitteleuropas (KVM) / Birds of the Western Palearctic (BWP)
Mortality rate - Adults	43.3%	BWP / British Trust for Ornithology (BTO)
Breeding rate (young per pair)	4	KVM / BWP / BTO

Calculation of 1% mortality rate and "small numbers"

Song Thrush (*Turdus philomelos*)
Minimum breeding success: 4 fledglings per pair (2,026,018 x 4) = 8,104,072
Mortality rate of 1st year birds: (8,104,072 x 56%) = 4,538,280
Mortality rate of adults: (4,052,036 x 43.3%) = 1,754,532
Total annual mortality: (4,538,280 + 1,754,532) = 6,292,812
1% of total annual mortality: (6,292,812 x 1%) = 62,928

Total potential Song Thrush national bag limit (1% of total annual mortality of [minimum] reference population size) is **62,928**.

Autumn seasonal bag limit in relation to "small numbers"

Based on the 1% mortality rate (of the minimum population size), the "small numbers" calculation with respect to the national bag limit would amount to 62,928 Song Thrushes. However, it should be noted that the average number of Song Thrushes captured with clap-nets during period 2006–2022 is 842 (Table 8). Thus, the previous season's national bag limit of 5,000 Song Thrushes should be retained if a derogation to open an autumn live-capturing season for this species is applied in 2023. This equates to 0.079% of the total annual mortality of the reference population (minimum population size), which is significantly less than the 1% threshold.

- **Song Thrush** – recommended maximum national bag limit of **5,000** birds.

[28] Song Thrush *Turdus philomelos* Key Facts. British Trust for Ornithology. Available at: https://app.bto.org/birdfacts/results/bob12000.htm.

3. Conclusion

European Golden Plover (*Pluvialis apricaria*)

The European (Eurasian) Golden Plover has an IUCN Least Concern classification at global level with an increasing population trend. At European Level, its IUCN classification is also Least Concern, with a stable population. According to the Article 12 report for reporting period 2013–2018, the EU breeding population status of Golden Plover is Stable in both the short-term and long-term trends (EEA, 2020).

It should be noted that since 2021, Estonia has been included in the "List of Countries" contributing to the latest European Bird Census Council (EBCC / PECBMS) updates, apart from Norway, **Sweden** and **Finland** (the latter two constituting Malta's EU reference population). According to the EU Management Plan for this species, Estonia, which sustains a breeding population of 2,500–3,400 pairs (EEA, 2020) does not form part of the Northeast European population of *Pluvialis apricaria altifrons* (Malta's EU reference population)[29].

According to the latest dataset available from the European Bird Census Council (EBCC, 2022) at the time the conservation status of the Golden Plover (*Pluvialis apricaria*) was updated (August 2023), **there was an increase in the combined breeding population of the contributing countries** (Norway, Sweden, Finland and Estonia) both in the short-term and long-term trends, when compared with the previous EBCC update.

In the short-term trend [ten-year slope] (2012–2021), the increase was from -12% to 4% (**16% increase**) and from -27% to -23% (**4% increase**) in the long-term trend (1980–2021). The current EBCC assessment considers *Pluvialis apricaria* as **Stable** (1981–2021).

Malta's EU reference population of *Pluvialis apricaria altifrons* (Finland and Sweden) remained stable in both the short-term and long-term trends.

Song Thrush (*Turdus philomelos*)

The Song Thrush has an IUCN Least Concern classification at global level with an increasing population trend. At European Level, its IUCN classification is also Least Concern with a stable population. According to the Article 12 report for reporting period 2013–2018, the EU breeding population status of Song Thrush is Increasing in the short-term trend and Stable in the long-term trend (EEA, 2020).

The latest dataset available from the European Bird Census Council (EBCC, 2022) at the time the conservation status of the Song Thrush (*Turdus philomelos*) was updated (August 2023), lists this species trend classification as **Moderate Increase,** defined as a "significant increase, but not significantly more than 5% per year". When compared with the previous EBCC (2021) update, the short-term [ten-year (2012–2021)] trend **decreased by 1%** [from 16% to 15%], whereas in the long-term trend (1980–2021) the population increased from 3% to 6% (**3% increase**).

Malta's reference population of *Turdus philomelos* (Bulgaria, Hungary and Romania) remained stable in both the short-term and long-term trends, with an increasing short-term (10-year) trend in the maximum number of breeding pairs.

[29] *The nominate southern subspecies* P. a. apricaria *nests in Ireland, Great Britain, Denmark, Germany, Latvia, Lithuania and Estonia. This subspecies winters in North-West Europe, form Ireland to South Britain, France and Iberia.* Source: EU Management Plan – Golden Plover (p.8).