

Conservation status of seven finch species: Chaffinch (*Fringilla coelebs*), Linnet (*Carduelis cannabina*), Goldfinch (*Carduelis carduelis*), Greenfinch (*Carduelis chloris*), Hawfinch (*Coccothraustes coccothraustes*), Serin (*Serinus serinus*) and Siskin (*Carduelis spinus*)

2016 update

**Wild Birds Regulation Unit
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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 than 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)

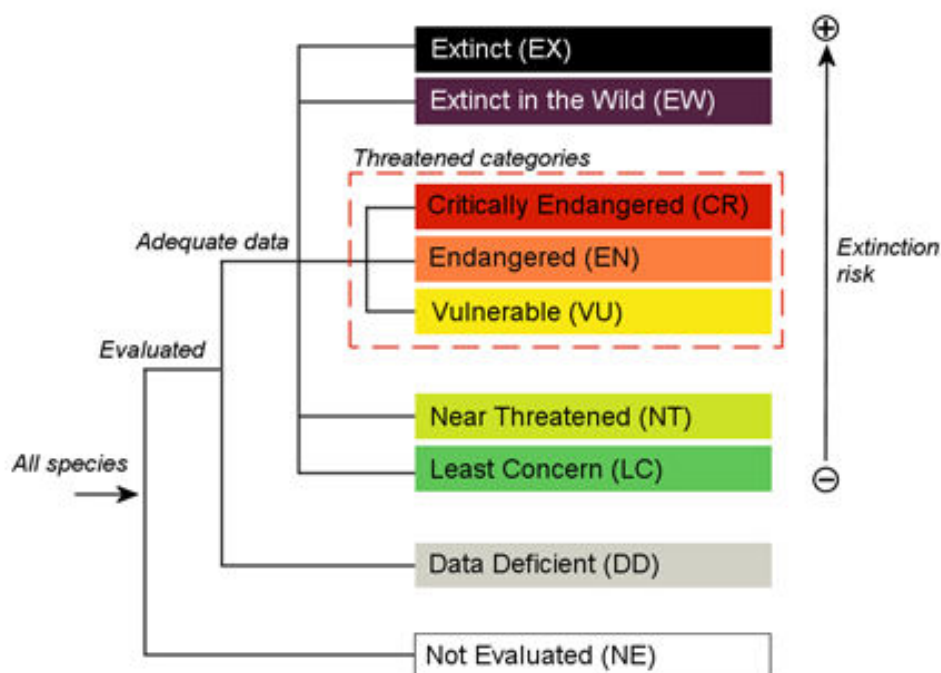
'Worst case' trend scenario 1990–2000	1990–2000 trend category	Criteria met
>30% decline	Large decline	IUCN Red List Criteria
10–29% decline	Moderate decline	Declining
<10% decline and <10% increase	Stable	-
10–29% increase	Moderate increase	-
>30% increase	Large increase	-
Unknown (insufficient data)	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 $\geq 90\%$ 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 $\geq 80\%$ 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 $\geq 80\%$, 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 $\geq 80\%$ over any 10 year or three generation period, whichever is longer (up to a maximum of 100 years in the future),
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	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 km², 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 km², 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): a. 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).
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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: A. Reduction in population size based on any of the following: 1. An observed, estimated, inferred or suspected population size reduction of $\geq 70\%$ 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 $\geq 50\%$ 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 $\geq 50\%$, 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 $\geq 50\%$ 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 km², 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 km², 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:
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	(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: A. Reduction in population size based on any of the following: 1. An observed, estimated, inferred or suspected population size reduction of $\geq 50\%$ 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 $\geq 30\%$ 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 $\geq 30\%$ 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 $\geq 30\%$ 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 km², 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 km², 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 km²) 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.
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Executive Summary

This report provides an update on the conservation status of seven finch species namely: Chaffinch (*Fringilla coelebs*), Linnet (*Carduelis cannabina*), Goldfinch (*Carduelis carduelis*), Greenfinch (*Carduelis chloris*), Hawfinch (*Coccothraustes coccothraustes*), Serin (*Serinus serinus*) and Siskin (*Carduelis spinus*) for review and consideration by the Malta Ornithology Committee.

The conservation status of the seven finch species is reviewed on the basis of current scientific literature, which also provides details of population size, mortality rates and ring recoveries from other EU Member States. The population trends of these species are evaluated on the basis of Article 12 reports for the reporting period 2008–2012 and the latest (2015) update by the European Bird Census Council.

The latest (2015) EBCC update shows that the EU population of Chaffinch, Goldfinch and Hawfinch are classified as **Moderate Increase**, the Greenfinch and Siskin as **Stable** whereas the Linnet and Serin as **Moderate Decline**. It is noted that EBCC provides data on the magnitude change at both the short- and long-term trends at pan-European level only, which shows that **the Linnet declined by 67% in the long-term trend (since 1980) and by 18% in the short-term (1990) trend¹. The Serin declined by 47% since 1980 and by 21% in the short-term trend**. The report shows that on the basis of Article 12 reports for the reporting period 2008–2012, EBCC classifications do not tally with the long-term trend analysis for the respective species at EU level.

This update also focuses on the changes in the short-term and long-term trends of the seven finch species on the basis of Article 12 reports, including surrogate data for Czech Republic and Greece, as published by the European Environment Agency (EEA, 2014) for the period 2008–2012. It is shown that although a number of Member States have reported a decrease in some of the finch populations, such magnitude change is not reflected in the number of breeding pairs that was reported ten years earlier in Birds in Europe II (BirdLife International, 2004). On the contrary, despite a reported decline, the number of breeding pairs as reported in Article 12 reports is actually higher than those reported ten years earlier. This was also the case in terms of reported increases, since the corresponding number of pairs in Birds in Europe II was either exactly the same or indeed higher than those in Article 12 reports.

The values for the number of breeding pairs in 2004 was thus revised using an online percentages calculator to provide a more realistic number of breeding pairs based on the percentage changes as reported by each Member State in the current Article 12 reports. The analysis shows that in the **short-term trend**, the **EU populations** of Chaffinch, Linnet, Goldfinch, Hawfinch, Serin and Siskin are **stable**, whereas the Greenfinch population is **increasing** at all levels of the population (minimum and maximum pairs and their geomean). **In terms of long-term trend, all seven finch species have been shown to be Stable at all three levels of their population (min/max/geomean)**, the Siskin being the only exception since it **increased** in the number of minimum pairs.

At **ring recoveries level** it is shown that whilst the Goldfinch and Siskin **increased**, the Linnet, Hawfinch, Serin, Chaffinch, Greenfinch remained **stable**. In terms of long-term trends at ring recoveries level, it is shown that the Chaffinch, Linnet, Greenfinch, Hawfinch, Serin are **stable** at all three levels of the population (min/max/geomean), whereas the Goldfinch and Siskin **increased**.

¹ The European Bird Census Council replaced the short-term (1990) trend by a rolling “Ten-year trend”. For the current update it is the period 2006–2013.

Introduction

This report provides an update on the conservation status of seven finch species, namely: Chaffinch (*Fringilla coelebs*), Linnet (*Carduelis cannabina*), Goldfinch (*Carduelis carduelis*), Greenfinch (*Carduelis chloris*), Hawfinch (*Coccothraustes coccothraustes*), Serin (*Serinus serinus*) and Siskin (*Carduelis spinus*). The status of these species is evaluated on the basis of Article 12 reports for the reporting period 2008–2012 and the latest (2015) update by the European Bird Census Council.

Conservation status: trend analysis and classifications

The 2004 publication by BirdLife International *Birds in Europe: population estimates trends and conservation status* (Birds in Europe II) specifies that a species is classified as declining "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" ("Classification of European threat status": Box 3, p. 8). The explanatory text further specifies that 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" (BirdLife International, 2004). However, Box 3 (p. 14) of Birds in Europe II ("Interpreting the data table") also specifies that when the overall population change is less than **20%**, the overall direction of the population trend is considered to be stable. When calculating the overall direction of the EU finch population's long-term trend, this report considers that **a change of not more than 20% is considered as Stable**. This is a stricter approach than that adopted by BirdLife International for Birds in Europe II (10% for every 10-year period) since, strictly speaking, the threshold over a 30-year period could be said to constitute 30%. **For the short-term trend, a change of not more than 10% is considered as Stable**.

This report takes into account the latest (December 2015) update by the European Bird Census Council (EBCC, 2015) and the data (minimum/maximum pairs and magnitude change) submitted by Member States (EU27) as part of the Birds Directive Article 12 reporting obligation for the period 2008–2012 (EEA, 2014)², including surrogate data for Czech Republic and Greece as published by EEA (2014). Given that Croatia was not included in the 2008–2012 reporting period, and in the absence of published surrogate data from this Member State, the corresponding data at EU28 level is based on EEA (2014) and Birds in Europe II (BirdLife International, 2004). The following sub-section provides a comparison between the population trends as reported in Birds in Europe II and through Article 12 (2008–2012) reports.

Comparison between Birds in Europe II (2004) and Article 12 data (EEA, 2014)

This update provides an overall comparison between the number of breeding pairs reported in Birds in Europe II and those reported in Article 12 reports for the period 2008–2012. The number of breeding pairs increased in both the minimum and maximum values (see Table 1 below). The only exception is the Chaffinch, which has seen a decrease in the number of maximum pairs by just under 3 million, although the number of minimum Chaffinch pairs increased by over 18 million. The data was then compared with the **maximum percentage change** as reported by each Member State for each species for the same reporting period (i.e. short-term trend).

It is clear that the two data sets do not correlate given that whilst on the one hand all breeding pairs pertaining to the seven finch species (except the Chaffinch) have been reported through Article 12 as increasing (both in the minimum and maximum number of pairs), the Member States' combined magnitude percentage change shows an overall decline in almost all seven finch species (except the Greenfinch and Chaffinch), as shown in the table below (see in particular the circled columns). These percentages are explored in more detail further below in the respective section for each of the seven finch species.

² EU Population Status Assessment (Article 12 reports). Available at: <http://bd.eionet.europa.eu/article12/summary>.

Table 1: EU Breeding Population: a comparison between Birds in Europe II (2004) and Article 12 reports (2008–2012)										
Species	Breeding Pairs (Article 12 Reports) [2014] (Min - Max)		Breeding Pairs (Birds in Europe II) [2004] (Min - Max)		Change in Breeding Pairs (comparison between Article 12 and BIE II) (Min - Max)		% Change (comparison between Article 12 and BIE II) (Min - Max)		Short-term Trend (2004–2014), based on Max. % Change (Article 12 Reports) (Min - Max)	
Chaffinch	82,131,648	126,886,083	63,934,000	129,864,000	18,197,648	-2,977,917	28.46%	-2.29%	+0.49%	-0.11%
Linnet	14,003,752	18,928,299	6,352,000	15,403,000	7,651,752	3,525,299	120.46%	22.89%	-13.03%	-9.01%
Goldfinch	23,199,170	32,329,072	7,288,500	19,295,000	15,910,670	13,034,072	218.30%	67.55%	-19.22%	-13.56%
Greenfinch	18,096,464	26,173,127	10,164,000	24,429,000	7,932,464	1,744,127	78.04%	7.14%	+17.20%	+3.69%
Hawfinch	1,893,476	3,560,278	1,888,100	3,321,300	5,376	238,978	0.28%	7.20%	-7.21%	-8.13%
Serín	20,286,379	29,083,631	7,548,202	17,695,629	12,738,177	11,388,002	168.76%	64.35%	-30.07%	-23.42%
Siskin	3,381,935	5,238,873	2,103,561	4,806,210	1,278,374	432,663	60.77%	9.00%	-4.57%	-29.49%

Although the number of breeding pairs pertaining to the seven finch species within the EU territory, as reported by Member States in their Article 12 submissions, is higher than the corresponding number of breeding pairs in Birds in Europe II (except the Chaffinch max. pairs), this increase is not reflected in the combined percentage change over the same reporting period (=short-term trend).

Data Sources: BirdLife International (2004); European Environment Agency (2014)

The mismatch between the number of breeding pairs reported through Article 12 (2008–2012) and the number of breeding pairs reported in Birds in Europe II can be better illustrated in the example below. The data shows four Member States reporting a decline in the number of Linnet breeding pairs (ranging from 6–20% up to 40–60% decline) yet the corresponding number of breeding pairs as reported in their Article 12 reports is actually higher than the number of breeding pairs reported in Birds in Europe II (see encircled columns).

EU Member State	Breeding Pairs (EEA, 2014) (Min - Max)		Long-term Trend	Mag. % (Min - Max)		Breeding Pairs (BLI, 2004) (Min - Max)	
Italy	300,000	600,000	Decreasing	20	30	100,000	400,000
Austria	18,000	30,000	Decreasing	40	60	12,000	24,000
Poland	830,000	1,100,000	Decreasing	6	20	300,000	600,000
Slovenia	10,000	15,000	Decreasing	30	50	5,000	10,000

In order to overcome this anomaly, an online percentages calculator (<http://www.cleavebooks.co.uk/scol/calpcent.htm>) was used. This calculator returns a value that corresponds to the number of breeding pairs in 2004 (the “Original value”), based on the number of breeding pairs (the “Value after DEcrease”) and “Percentage change” as reported by Member States in their Article 12 (2008–2012) reports (EEA, 2014). Using the above example, the revised figures are shown below:

EU Member State	Breeding Pairs (EEA, 2014) (Min - Max)		Long-term Trend	Mag. % (Min - Max)		Breeding Pairs (2004) (Min - Max)	
Italy	300,000	600,000	Decreasing	20	30	375,000	857,143
Austria	18,000	30,000	Decreasing	40	60	30,000	75,000
Poland	830,000	1,100,000	Decreasing	6	20	882,979	1,375,000
Slovenia	10,000	15,000	Decreasing	30	50	14,286	30,000

The same approach illustrated above was adopted when the number of breeding pairs in 2014 was reported to have increased yet was either the same or higher in 2004. The objective was to establish a clearer (more realistic) short-term trend analysis on the basis of the populations in 2004 and 2014 and the reported magnitude change.

Ring recoveries

The assessment on reference populations and small numbers is based on ring recoveries from EU Member States (BirdLife Malta: Raine, 2007), with the exception of the Hawfinch since there are no ring recoveries of this species in Malta. In the latter case, ring recoveries in Italy (Spina and Volpini, 2008) were used as a proxy. No additional ring recoveries have been reported for these seven finch species since the 2007 publication by BirdLife Malta (Raine, 2007), hence no updates in this respect were possible. A total of 112 foreign-ringed finches (six species, excluding *Coccothraustes coccothraustes*) from 19 countries were recorded in Malta by Raine (2007). The five most common countries recorded from these ring recoveries are shown in Table 2. Combined, these top five countries make up 73.2% of all finch recoveries in Malta. The remaining 14 countries, including five non-EU Member States (Belarus, Norway, Russia, Switzerland and Ukraine), make up 26.8% of the remaining ring recoveries. For the purpose of calculating the reference population and <1% mortality, these five non-EU Member States were omitted.

Table 2 **The five most commonly recorded countries from finch ring recoveries in Malta (six species)**

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

Source: Raine (2007)

Recruitment rate: breeding success vs. breeding rate

For the purpose of calculating the recruitment rate of each species, the minimum number of chicks per pair was used. Both the Birds of the Western Palearctic (BWP) [Cramp and Perrins, 1994] and the British Trust for Ornithology (BTO) [Robinson, 2005] refer to the breeding rate when referring to the number of young per pair. However, Cramp and Perrins (1994) also refer to the breeding success (young per pair). It should be noted that since the values provided for the number of young per pair do not tally between BWP and BTO, for the purpose of calculating small numbers, only the lowest recruitment rate was considered. For example, the **breeding rate** for the Chaffinch (*Fringilla coelebs*) is 3–4 young per pair (BWP and BTO), yet the **breeding success** is 2.6 (BWP). In such instance, the breeding success of 2.6 is used in the formula for calculating small numbers. Whenever the breeding success specified by BWP is higher than the breeding rate, such as the case with the Greenfinch (*Carduelis chloris*) [breeding success 4.4; breeding rate 3–4], then the lower figure specified for the breeding rate (i.e., 3 chicks per pair) is used. This was purposely done so that the formula returns the lowest possible figure when calculating the potential bag limit for each species.

Partitioning of the <1% mortality with other Member States

There are two EU Member States that apply derogations for the live-capturing of finches (and other passerines), namely Austria and Spain. Italy, on the other hand, has applied derogations for the hunting of Chaffinch (and other passerines). According to the EC's Composite Report on derogations applied by Member States in 2008 (EC, 2011), it appears that Austria has a bag limit of 554 individuals from a total of 12 species (Linnet, Goldfinch, Siskin, Chaffinch and Hawfinch and seven other passerines). The situation with respect to the bag limits established by Spain and Italy is unclear. The 2008 Composite Report specifies that the total number of individuals affected by the Spanish activities is 187,967 (Linnet, Goldfinch, Siskin, Chaffinch, Serin, Greenfinch and two other passerine species). However, the July 2011 European Conference on Illegal Killing of Birds³ held in Larnaca, mentions a figure of 400,000 individuals [5 finch species], composed of: 200,000 Goldfinches, 100,000 Linnets, 40,000 Greenfinches, 40,000 Serins and 20,000 Chaffinches. This report partitions the reference population (minimum breeding pairs) with Austria, Italy and Spain very restrictively. For example, it could be argued, on the basis of EU ring recoveries in Malta (Raine,

³ "Control of illegal bird trapping practices in Spain". Available at: http://www.coe.int/t/dg4/cultureheritage/nature/bern/documents/072011_IKB/Presentations/IllegalBirdTrapping_Spain_Larnaca_July2011.pdf

2007) and taking into account the three principal flyways (Western Europe–Strait of Gibraltar, Central Europe–Tunisia and Eastern Europe–Bosporus), that it is very unlikely that Malta and Spain share the same reference populations. Notwithstanding that this assessment has based the reference population on ring recoveries in Malta (and on recoveries in Italy with respect to the Hawfinch), the <1% threshold is nonetheless partitioned as follows (Table 3):

Table 3 Partitioning of the <1% mortality (ring recoveries in Malta/Italy) with other EU Member States

Species	Member State	Partitioning value
Chaffinch	Austria, Spain, Italy	25%
Linnet	Austria, Spain	33%
Goldfinch	Austria, Spain	33%
Siskin	Austria, Spain	33%
Hawfinch	Austria	50%
Serin	Spain	50%
Greenfinch	Spain	50%

An alternative to the above partitioning methodology could have taken into account the entire EU population of the respective species and divide the <1% threshold with Austria, Italy and Spain, as opposed to the partitioning based on ring recoveries in Malta (and Italy in the case of the Hawfinch). However, the latter method returned a much higher <1% threshold notwithstanding that it was further divided by three (to account for the three principal flyways). Therefore, for the purpose of fulfilling the “small numbers” criterion further, the reference population was partitioned solely on the basis of ring recoveries in Malta/Italy, which consist of a much smaller subset of the total EU population of the seven finch species.

Formula for calculating <1% mortality of the reference population and proportionality to *Carnet de Chasse* data

In the following sections on the conservation status of the seven finch species, a formula is used to calculate the national harvest limit, as adapted from Allendorf and Luikart (2007) *Conservation and the Genetics of Populations*. The formula takes into account the <1% mortality of the reference population (which is based on the minimum number of breeding pairs and minimum recruitment rate per species (<1% mortality’ or ‘<1% threshold’) and the average number of birds harvested over a seven-year period (namely, the *Carnet de Chasse* data from 2002 to 2008⁴). The formula returns a figure (N_h) that is not only lower than the partitioned <1% threshold of each species but also lower than the average number of birds caught between 2002 and 2008. It should be noted that the formula can only be applied when the partitioned <1% threshold exceeds the average bag limit. The formula is as follows:

$$N_h = [(N_u + N_m) \times (N_u / N_m)] - [(N_u / N_m) \times N_m \times (\sqrt{N_u / N_m})]$$

where,

N_h is the potential national harvest limit

N_m is the 1% mortality of the minimum number of breeding pairs of the reference population (<1%)

N_u is the *Carnet de Chasse* data (average number of finches per species harvested over a 7-year period: 2002–2008)

⁴ Available at <http://www.mepa.org.mt/biodiversity-reporting>

1. Conservation status of the Chaffinch (*Fringilla coelebs*)

European Red List Status: Least Concern (European & EU27 levels)

Status at EU27: Secure

Distribution and conservation status

This species is present in all of Europe but is absent in Iceland (Hume, 2002). The geographical distribution of the Chaffinch in Europe (Fig. 1) is as follows:

Breeding Finland, Sweden, Estonia, Latvia, Lithuania, Malta (few pairs), Czech Republic, United Kingdom, Ireland, Germany, Netherlands, Spain, Portugal, France, Belgium, Austria, Luxembourg, Slovenia, Italy, Greece, Cyprus, Denmark, Bulgaria, Croatia, Hungary and Romania.

Wintering Estonia, Italy, United Kingdom, Ireland, Malta (a few), Cyprus, Greece, Germany (a few), Belgium (a few), Luxembourg (a few)

Sedentary and migratory Northern breeders of the nominate race move west, southwest or south to winter mostly within the range in central and southern Europe, around the Mediterranean, Cyprus, the Middle East and Israel. **It is a nocturnal and diurnal migrant.** (Clement *et al.* 1993: 167).

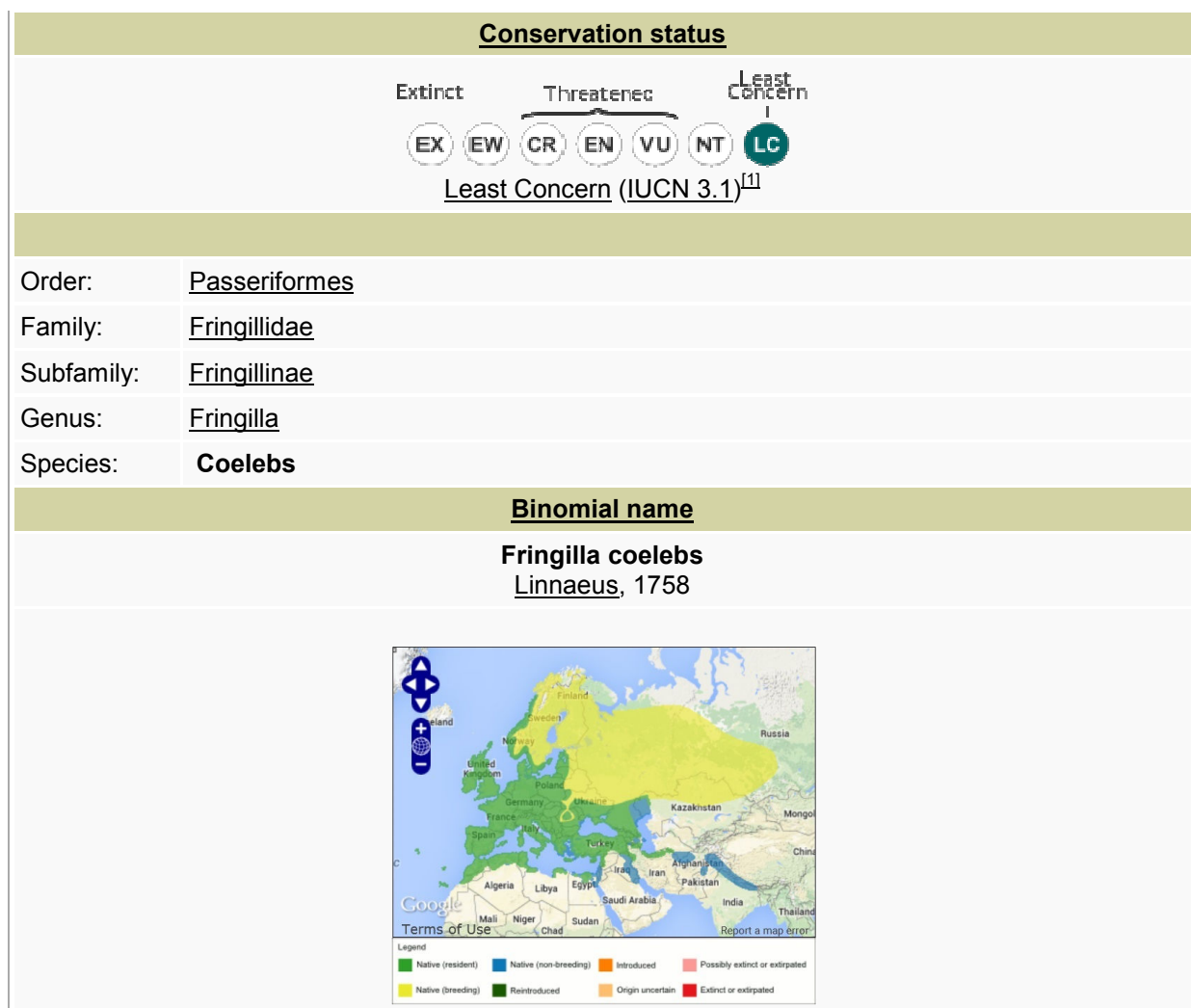


Fig. 1: Distribution and conservation status of the European Chaffinch (*Fringilla coelebs*)

Source: http://en.wikipedia.org/wiki/Common_Chaffinch [Accessed 6 May 2016]. Distribution map downloaded from <http://www.birdlife.org> on 6 May 2016 [BirdLife International (2016) IUCN Red List for birds].

In Europe, the breeding population is estimated to number 130,000,000–240,000,000 breeding pairs, equating to 390,000,000–720,000,000 individuals (BirdLife International 2004). Europe forms 50–74% of the global range of the Chaffinch [BirdLife International (2016) Species Factsheet]. Based on the EU Member States' Article 12 reports for the 2008–2012 reporting period, the EU breeding population amounts to 82,131,648–126,886,083 pairs. Within the territory of the European Union (EU 28), both the minimum and maximum breeding pairs are **Stable** in the long-term trend (1980–2012), with a change in the minimum number of pairs of -0.26% and a change of -1.04% in the maximum number of pairs, equating to a geomean change of -0.73% (Table 4). **According to BirdLife International (2004), this equates to a long-term Stable classification for the minimum, maximum and geomean number of breeding pairs (a change not more than 20% is considered to be Stable for the period 1980–2012).** Table 4 also lists population counts and long-term trend for each Member State within the territory of the European Union.

Table 4: Chaffinch EU breeding population (long-term trend) and ring recoveries (bold = ring recoveries in Malta)

EU Member State	EU Ring Recoveries in Malta (n=5) ‡	Breeding Pairs (2014) (Min - Max)		Long-term Trend (1980–2012)	Mag. % (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)	Max % Change (Average Pairs)
Austria		1,500,000	2,300,000	Unknown	?	?	-	-	-
Belgium		300,000	700,000	Increasing	20	180	192,857	450,000	321,429
Bulgaria		2,000,000	4,000,000	Stable	0	0	-	-	-
Croatia*		1,000,000	1,500,000	Decreasing	50	79	-790,000	-1,185,000	-987,500
Cyprus		15,000	45,000	Unknown	?	?	-	-	-
Czech Rep.		3,720,000	7,440,000	Decreasing	20	32	-1,190,400	-2,380,800	-1,785,600
Denmark		1,300,000	1,300,000	Stable	0	0	-	-	-
Estonia		1,700,000	2,200,000	Stable	0	0	-	-	-
Finland		7,200,000	8,500,000	Stable	0	0	-	-	-
France		8,000,000	15,000,000	Stable	0	0	-	-	-
Germany		7,350,000	11,000,000	Stable	0	19	-	-	-
Greece		430,000	550,000	Unknown	?	?	-	-	-
Hungary	40%	1,130,000	1,360,000	Unknown	?	?	-	-	-
Ireland		2,767,400	3,871,930	Unknown	?	?	-	-	-
Italy	40%	1,000,000	2,000,000	Increasing	10	20	166,667	333,333	250,000
Latvia		2,623,780	3,219,441	Stable	0	0	-	-	-
Lithuania		1,500,000	2,500,000	Stable	0	0	-	-	-
Luxembourg		50,000	70,000	Unknown	?	?	-	-	-
Netherlands		715,468	834,712	Increasing	91	154	433,788	506,085	469,936
Poland	20%	7,600,000	8,500,000	Unknown	?	?	-	-	-
Portugal		1,000,000	5,000,000	Unknown	?	?	-	-	-
Romania		4,000,000	8,000,000	Unknown	?	?	-	-	-
Slovakia		3,000,000	5,000,000	Stable	0	0	-	-	-
Slovenia		750,000	1,250,000	Stable	0	0	-	-	-
Spain		8,710,000	10,675,000	Increasing	?	?	-	-	-
Sweden		5,720,000	10,860,000	Stable	0	0	-	-	-
UK		6,200,000	6,200,000	Increasing	18.6	18.6	974,987	974,987	974,987
Total	100%	81,281,648	123,876,083	Total change			-212,101	-1,301,394	-756,748
				Percentage change			-0.26%	-1.04%	-0.73%
				Long-term Trend (EU Population)			Stable	Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); ‡ Raine (2007)

Percentages verified using *The Percentages Calculator*, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

With reference to the short-term trend of the Chaffinch within the territory of the European Union (EU 28), the change in the minimum number of breeding pairs is +4.46% and +3.14% in the maximum number of pairs, equating to a geomean change of +3.64% (Table 5). **According to BirdLife International (2004), this equates to a short-term Stable classification for the minimum and maximum number of breeding pairs and their geomean (a change not more than 10% is considered to be Stable for the short-term trend).** Table 5 also lists population counts and short-term trend for each Member State within the territory of the European Union.

Table 5 Chaffinch EU breeding population (short-term trend) and ring recoveries (bold = ring recoveries in Malta)

EU Member State	EU Ring Recoveries in Malta (n=5) †	Breeding Pairs (EEA, 2014) (Min - Max)		Short-term Trend (~2001–2012)	Mag. % (Min - Max)		Breeding Pairs (2004) (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)	Max % Change (Average Pairs)
Austria		1,500,000	2,300,000	Stable	0	0	1,600,000	3,200,000	-	-	-
Belgium		300,000	700,000	Stable	0	0	100,000	250,000	-	-	-
Bulgaria		2,000,000	4,000,000	Stable	0	0	2,000,000	6,000,000	-	-	-
Croatia*		1,000,000	1,500,000	Decreasing	50	79	2,000,000	7,142,857	-790,000	-1,185,000	-987,500
Cyprus		15,000	45,000	Stable	?	?	20,000	40,000	-	-	-
Czech Rep.		3,720,000	7,440,000	Decreasing	4	15	3,875,000	8,752,941	-558,000	-1,116,000	-837,000
Denmark		1,300,000	1,300,000	Stable	0	0	1,500,000	2,000,000	-	-	-
Estonia		1,700,000	2,200,000	Stable	0	0	1,500,000	2,500,000	-	-	-
Finland		7,200,000	8,500,000	Stable	0	0	5,000,000	7,000,000	-	-	-
France		8,000,000	15,000,000	Increasing	11	11	7,207,207	13,513,514	792,793	1,486,486	1,139,640
Germany		7,350,000	11,000,000	Decreasing	7	13	7,903,226	12,643,678	-955,500	-1,430,000	-1,192,750
Greece		430,000	550,000	Stable	0	0	430,000	550,000	-	-	-
Hungary	40%	1,130,000	1,360,000	Increasing	42	42	795,775	957,746	474,600	571,200	522,900
Ireland		2,767,400	3,871,930	Increasing	7.20	21.10	2,581,530	3,197,300	482,181	674,630	578,406
Italy	40%	1,000,000	2,000,000	Increasing	5	15	952,381	1,739,130	150,000	300,000	225,000
Latvia		2,623,780	3,219,441	Increasing	24	68	2,115,952	1,916,334	1,062,006	1,303,107	1,182,557
Lithuania		1,500,000	2,500,000	Stable	0	0	2,500,000	3,500,000	-	-	-
Luxembourg		50,000	70,000	Unknown	?	?	50,000	70,000	-	-	-
Netherlands		715,468	834,712	Increasing	8	19	662,470	701,439	114,234	133,273	123,754
Poland	20%	7,600,000	8,500,000	Decreasing	10	20	8,444,444	10,625,000	-1,520,000	-1,700,000	-1,610,000
Portugal		1,000,000	5,000,000	Stable	0	0	500,000	2,500,000	-	-	-
Romania		4,000,000	8,000,000	Fluctuating	-	-	2,450,000	6,300,000	-	-	-
Slovakia		3,000,000	5,000,000	Stable	0	0	3,000,000	5,000,000	-	-	-
Slovenia		750,000	1,250,000	Stable	0	0	1,000,000	1,500,000	-	-	-

Spain		8,710,000	10,675,000	Increasing	75	75	4,977,143	6,100,000	3,732,857	4,575,000	4,153,929
Sweden		5,720,000	10,860,000	Stable	0	0	7,500,000	15,000,000	-	-	-
UK		6,200,000	6,200,000	Increasing	7.40	7.40	5,772,812	5,772,812	427,188	427,188	427,188
Total	100%	81,281,648	123,876,083				76,437,940	128,472,751			
							Total change		3,412,360	4,039,885	3,726,122
							Percentage change		4.46%	3.14%	3.64%
							Short-term Trend (EU Population)		Stable	Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); J Raine (2007)

Percentages verified using The Percentages Calculator, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

Conservation status at EU27 level

The Chaffinch has a breeding population size of 81,300,000–126,000,000 pairs in the EU27. The breeding population trend in the EU27 is **Increasing** in the short-term and **Stable** in the long-term. The EU population status of *Fringilla coelebs* 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 EU27 population or range has not declined by 20% or more since 1980) [Source: EEA, 2014, *Fringilla coelebs* all others, Article 12 2008–2012 (Data Sheet Info⁵)].

European Bird Census Council: Long-term trend and ten-year (short-term) trends

According to the European Bird Census Council (EBCC, 2015 update)⁶, the Chaffinch population is classified as **Moderate Increase** (1980–2012) in the long-term trend at both pan-European and EU levels. It should be noted that EBCC data pertaining to the short-term trends is only available at pan-European level. EBCC replaced the short-term (1990) trend by a rolling “Ten-year trend”. For the current update, the ten-year trend is represented by the period 2006–2013. At pan-European level, the Chaffinch increased by 7% since 1980 but decreased by 4% during the current 10-year period. Between the previous EBCC update and the current (EBCC 2014) update the percentage change was -6% in the long-term trend and -9% in the short-term trend (Table 6).

Table 6	Chaffinch long-term and short-term percentage change at pan-European level						
EBCC update	Species	Long-term Trend (%)	Long-term Slope		10-Year Trend (%)	10-Year Slope	Habitat
2012	<i>Fringilla coelebs</i>	+13%	1.0021		-1%	0.9996	oth
2013	<i>Fringilla coelebs</i>	+8%	1.0016		-4%	0.9993	oth
2014	<i>Fringilla coelebs</i>	+13%	1.0019		+5%	1.0005	oth
2015	<i>Fringilla coelebs</i>	+7%	1.0019		-4%	0.9998	oth
Overall % change (2014–2015)		-6%			-9%		

Data sources: EBCC (2012, 2013, 2014 & 2015 updates). Available at: <http://www.ebcc.info/index.php?ID=587>

⁵ <http://bd.eionet.europa.eu/article12/summary/datasheet/?period=1&subject=A657>

⁶ <http://www.ebcc.info/index.php?ID=558>

Figure 2 is an extract from the EBCC 2015 update, which confirms that the long-term trend classification for *Fringilla coelebs* is **Moderate Increase**, namely: “significant increase, but not significantly more than 5% per year”.

Eurasian Chaffinch (*Fringilla coelebs*)

Population index (%) 1980 - 2013, Europe.

Trend classification: *Moderate increase* ([explanation](#))

List of Countries

Source of the data: EBCC/RSPB/BirdLife/Statistics Netherlands

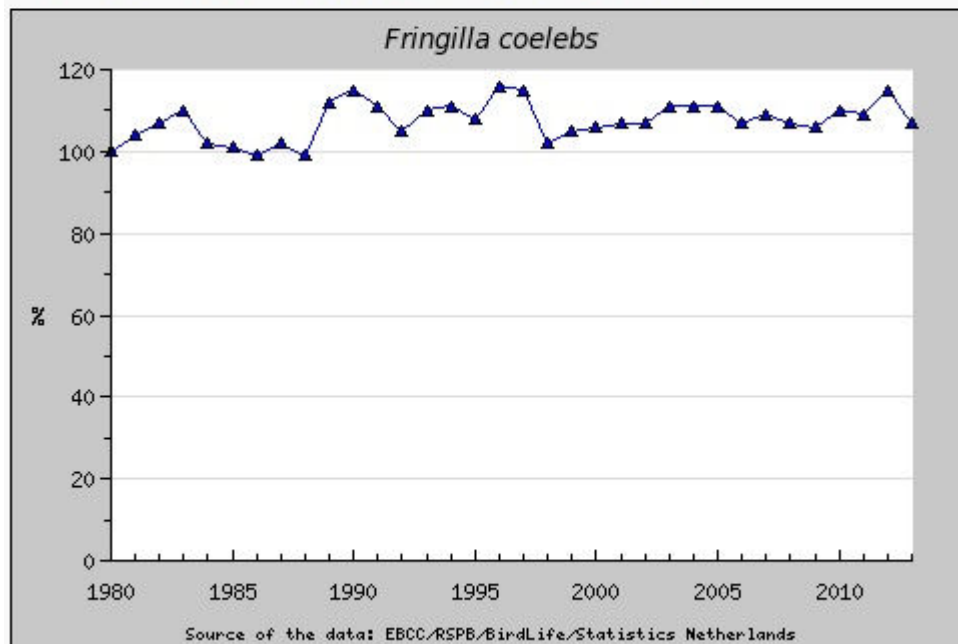


Fig. 2: Long-term trend classification for *Fringilla coelebs*.

“List of Countries”:

Austria	1998 - 2013	Latvia	2005 - 2013
Belgium-Brussels	1992 - 2013	Lithuania	1994 - 2013
Belgium-Wallonia	1990 - 2013	Luxembourg	2009 - 2012
Bulgaria	2005 - 2013	Netherlands	1984 - 2013
Cyprus	2006 - 2013	Norway	1996 - 2013
Czech Republic	1982 - 2013	Poland	2000 - 2013
Denmark	1976 - 2013	Portugal	2004 - 2013
Estonia	1983 - 2013	Republic of Ireland	1998 - 2013
Finland	1975 - 2013	Romania	2007 - 2013
France	1989 - 2013	Slovakia	2005 - 2013
Germany East	1991 - 2013	Slovenia	2007 - 2013
Germany West	1989 - 2013	Spain	1998 - 2013
Greece	2007 - 2013	Sweden	1975 - 2013
Hungary	1999 - 2013	Switzerland	1999 - 2013
Italy	2000 - 2013	United Kingdom	1966 - 2013

Source: EBCC (2015 update), available at: <http://www.ebcc.info/index.php?ID=587>.

Ring recoveries in Malta

Tables 7 and 8 provide data on the ring recoveries of this species in Malta, the respective number of breeding pairs, together with the overall direction of the population trend. The reference population (ring recoveries in Malta) is **Stable** in both the short-term and long-term trends. Figs. 3 and 4 illustrate the long-term trend at EU and reference population levels whereas Figs. 5 and 6 illustrate the respective short-term trends.

Table 7 Chaffinch ring recoveries in Malta from other EU Member States and corresponding long-term trend

EU Member State	EU Ring Recoveries in Malta (n=5) ¹	Reference Population Breeding Pairs (Min - Max)		Long-term Trend (1980–2012)	Mag. % (Max - Min)		Max % Change (Min Pairs)	Max % Change (Max Pairs)
Hungary	40%	1,130,000	1,360,000	Unknown	?	?	-	-
Italy	40%	1,000,000	2,000,000	Increasing	10	20	166,667	333,333
Poland	20%	7,600,000	8,500,000	Unknown	?	?	-	-
Total	100%	9,730,000	11,860,000	Total change			166,667	333,333
				Percentage change			1.74%	2.89%
				Long-term Trend (Ring Recoveries)			Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); ¹ Raine (2007)

Percentages verified using *The Percentages Calculator*, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

Table 8 Chaffinch ring recoveries in Malta from other EU Member States and corresponding short-term trend

EU Member State	EU Ring Recoveries in Malta (n=5) ¹	Breeding Pairs (EEA, 2014) (Min - Max)		Short-term Trend (~2001–2012)	Mag. % (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)
Hungary	40%	1,130,000	1,360,000	Increasing	42	42	474,600	571,200
Italy	40%	1,000,000	2,000,000	Increasing	5	15	150,000	300,000
Poland	20%	7,600,000	8,500,000	Decreasing	10	20	-1,520,000	-1,700,000
Total	100%	9,730,000	11,860,000	Total change			-895,400	-828,800
				Percentage change			-8.78%	-6.22%
				Short-term Trend (Ring Recoveries)			Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); ¹ Raine (2007)

Percentages verified using *The Percentages Calculator*, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

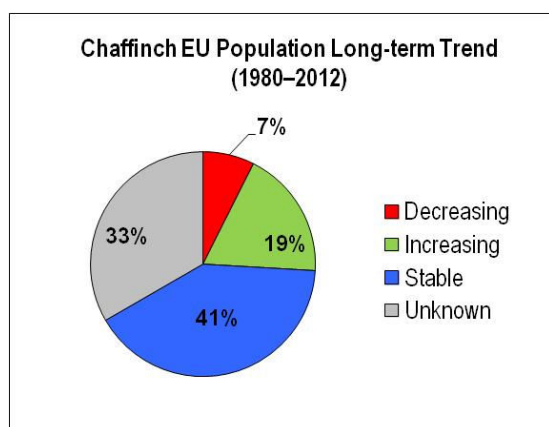


Fig. 3: Chaffinch EU population long-term trend by Member State

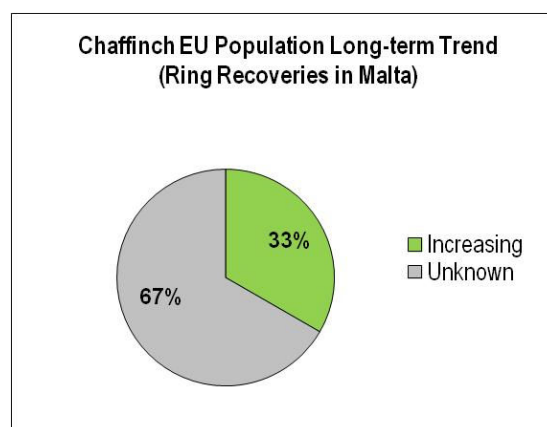


Fig. 4: Chaffinch EU population long-term trend (ring recoveries in Malta)

Data sources: EEA (2014); Raine (2007)

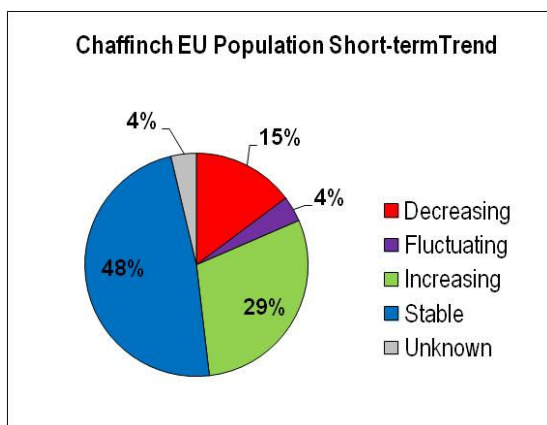


Fig. 5: Chaffinch EU population short-term trend by Member State

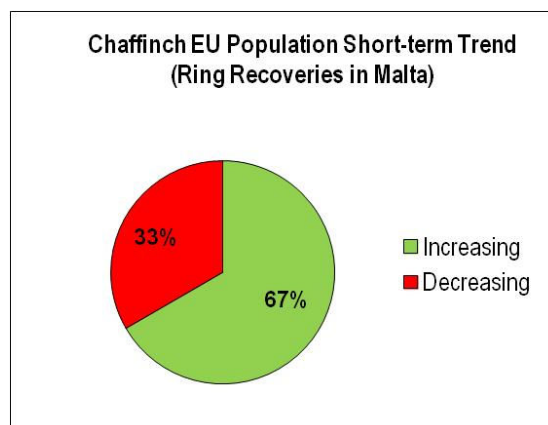


Fig. 6: Chaffinch EU population short-term trend (ring recoveries in Malta)

Data sources: EEA (2014); Raine (2007)

Chaffinch conservation status update – comparison between different data sources

The following table provides a general overview of the latest conservation status update from various sources for direct comparison.

Species	EU Population						Ring Recoveries					
	Short-term Trend			Long-term Trend			Short-term Trend			Long-term Trend		
	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean
Chaffinch	➡	➡	➡	➡	➡	➡	➡	➡	➡	➡	➡	➡
	Short-term Trend					Long-term Trend						
Species	EBCC 2015 (pan-European)		Article 12 (2008–2012) [EU Geomean]	Article 12 (2008–2012) [Ring Recoveries Geomean]		EBCC 2015 (pan-European)		EBCC 2015 (EU)		Article 12 (2008–2012) [EU Geomean]	Article 12 (2008–2012) [Ring Recoveries Geomean]	
Chaffinch	➡		➡	➡		⬆		⬆		➡	➡	

Data Sources: EBCC (2015); European Environment Agency (2014)

The reference population

Table 9 Chaffinch (*Fringilla coelebs*) breeding population estimates (reference population)

Country [Ring recoveries in Malta]	Chaffinch minimum breeding population size (pairs) [Reference population]	Short-term Trend (~2001– 2012)	Long-term Trend (1980–2012)
Hungary	1,130,000	Increasing	Unknown
Italy	1,000,000	Increasing	Increasing
Poland	7,600,000	Decreasing	Unknown
Reference Population Size (Minimum breeding pairs)	9,730,000	Stable (-8.78%)	Stable (+1.74%)

Data Sources: BirdLife International (2004); European Environment Agency (2014); Raine (2007)

Carnet de Chasse data (2002–2008)

According to the *Carnet de Chasse* data available from the Environment Protection Directorate of the Malta Environment and Planning Authority, the following number of Chaffinches were captured alive in Malta during the years indicated (Table 10).

Table 10 *Carnet de Chasse* live-capturing data⁷ for Chaffinch (2002–2008)

Species	2002	2003	2004	2005	2006	2007	2008	Total	Average
Chaffinch	4,957	8,159	3,746	7,215	4,783	6,914	6,750	42,524	6,075

Source: *Carnet de Chasse* data, Environment Protection Directorate (Malta Environment and Planning Authority). Available at: <http://www.mepa.org.mt/biodiversity-reporting>.

Minimum breeding population and the <1% annual mortality

Table 11 shows the minimum number of breeding pairs of Chaffinches within the territory of the European Union that correspond with ring recoveries in Malta (the reference population), together with other relevant information required for the calculation of “small numbers”.

Table 11 Minimum breeding population and mortality rate

	Common Chaffinch (<i>Fringilla coelebs</i>)	Source
Minimum breeding population – pairs	9,730,000	EEA (2014); Raine (2007)
Mortality rate – juveniles	47%	Bauer (2005): <i>Das Kompendium der Vögel Mitteleuropas</i> / Cramp & Perrins (1994): <i>Birds of the Western Palearctic</i> / Robinson (2005): <i>British Trust for Ornithology</i>
Mortality rate – adults	43%	Bauer (2005) and Robinson (2005)
Breeding rate (young per pair)	3–4	Cramp & Perrins (1994: 467) and Robinson (2005)
Breeding success	2.6	Cramp & Perrins (1994: 467)

For the purpose of calculating the <1% mortality rate and “small numbers”, the reference population is based solely on ring recoveries of this species in Malta from EU Member States. This equates to a reference population of **9,730,000 minimum breeding pairs**.

Calculation of the <1% mortality rate and “small numbers”

Chaffinch (*Fringilla coelebs*)

Minimum breeding success: 2.6 fledglings per pair (9,730,000 x 2.6) = 25,298,000

Mortality rate of 1st year birds (25,298,000 x 47%) = 11,890,060

Mortality rate of adults (19,460,000 x 43%) = 8,367,800

Total annual mortality (11,890,060 + 8,367,800) = 20,257,860

1% of total annual mortality (20,257,860 x 1%) = 202,579

Total potential Chaffinch harvest figure is 202,579

Partitioning with other Member States (Austria, Spain and Italy: 202,579 × 25%) = 50,645

⁷ The *Carnet de Chasse* data for the period 2002–2007 covers the months January–May and September–December, whereas the *Carnet de Chasse* data for 2008 covers the months of January and October–December.

Autumn seasonal bag limit in relation to “small numbers”

Based on the <1% mortality rate of the reference population, the “small numbers” calculation with respect to the potential national bag limit of the Chaffinch is as follows:

- **Chaffinch** – potential maximum bag limit of **50,645** individuals (partitioned with Austria, Spain and Italy)

Notwithstanding that the partitioned maximum bag limit arising out of the above calculations is 50,645 Chaffinches, given that the average bag limit over a seven-year period (2002–2008) is 6,075 birds, this analysis recommends that, should a derogation for the live-capturing of the seven finch species be considered in autumn 2016, the national bag limit should be substantially reduced further to not more than 5,000 as established in the July 2014 Framework for Allowing a Derogation Opening an Autumn Live-Capturing Season for Finches Regulations (S.L. 504.124)⁸. This calculation is based on the formula discussed previously, which returns a figure that is not only considerably lower than the <1% threshold but also lower than the average number of birds caught over a seven-year period (2002–2008). Thus:

- **Chaffinch** – national bag limit of **5,000** birds.

⁸ <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=12211&l=1>

2. Conservation status of the Linnet (*Carduelis cannabina*)

European Red List Status: Least Concern
(European & EU27 levels)

Status at EU27: Declining by at least 20% since 1980, with continuing decline since 2001

Distribution and conservation status

The species is present in most of Europe except N. Scandinavia and Iceland (Hume, 2002). The geographical distribution of the Linnet in Europe (Fig. 7) is as follows:

Breeding Finland, Sweden, Estonia, Latvia, Lithuania, Malta (a few), Czech Republic, United Kingdom, Ireland, Germany, Netherlands, Spain, Portugal, France, Belgium, Austria, Luxembourg, Slovenia, Italy, Greece, Cyprus, Denmark, Bulgaria, Croatia, Hungary and Romania.

Wintering Estonia, Italy, United Kingdom, Ireland, Malta (a few), Cyprus, Greece, Germany (a few), Belgium (a few), Luxembourg (a few).

Sedentary and migratory Northern breeders of races *cannabina* (nominate) and *bella* (Turkestan Linnet: Turkey, Middle East, Israel, Caucasus and Iran) move south and southwest to winter mostly within the range around the Mediterranean and Iran, Iraq and northern Baluchistan (Pakistan), also to coastal areas of North Africa, the Negev, northern Egypt and the Nile areas of Sudan. **A diurnal and nocturnal passage migrant** (Clement *et al.* 1993: 250).

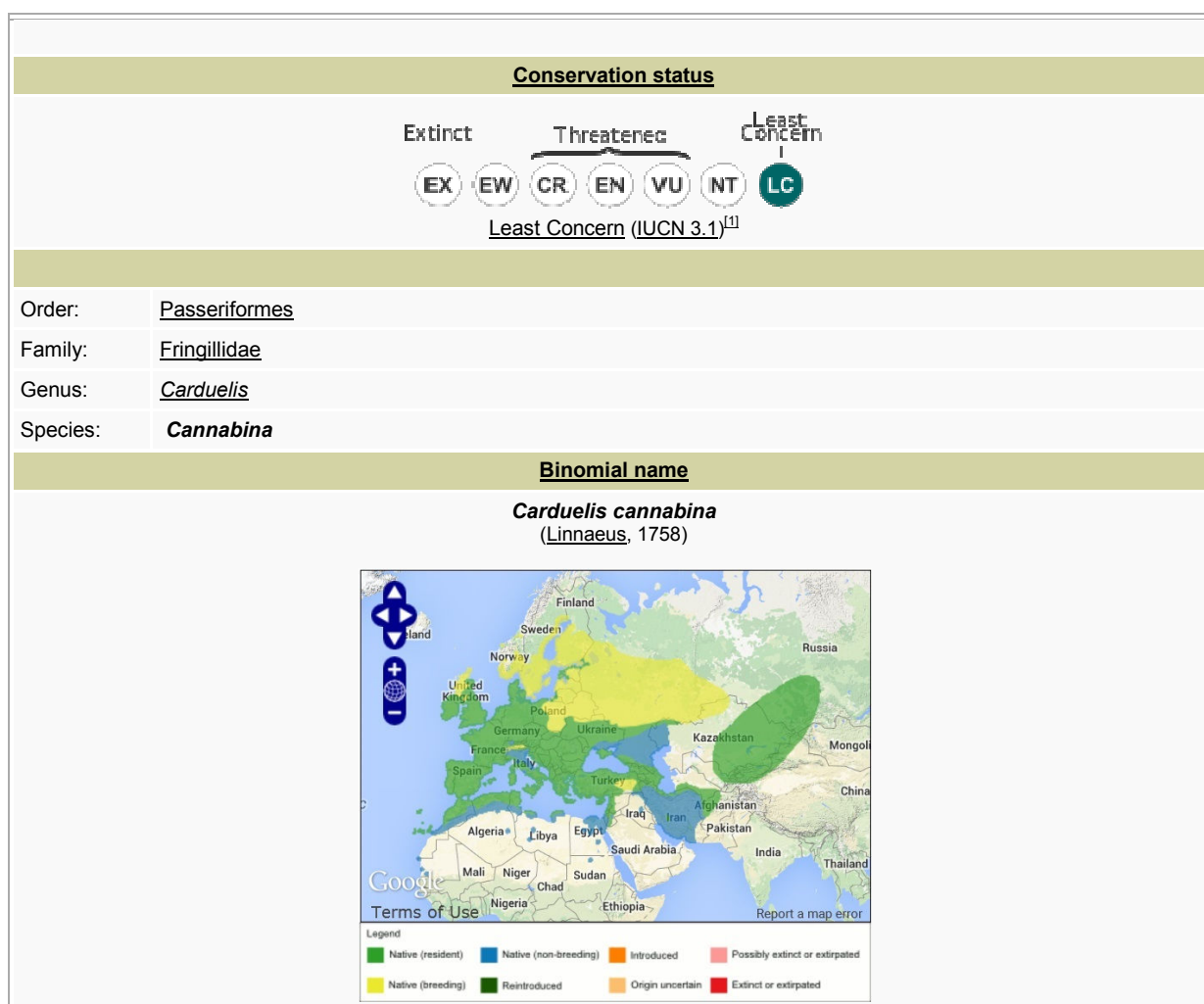


Fig. 7: Distribution and conservation status of the Linnet (*Carduelis cannabina*)

Source: http://en.wikipedia.org/wiki/Common_Linnet. [Accessed 6 May 2016]. Distribution map downloaded from <http://www.birdlife.org> on 6 May 2016 [BirdLife International (2016) IUCN Red List for birds].

In Europe, the breeding population is estimated to number 10–28 million breeding pairs, equating to 30–84 million individuals (BirdLife International 2004). Europe forms 50–74% of the global range of the Linnet [BirdLife International (2016) Species Factsheet]. Based on the EU Member States' Article 12 reports for the 2008–2012 reporting period, the EU breeding population amounts to 14,003,752–18,928,299 breeding pairs. Within the territory of the European Union (EU 28), both the minimum and maximum breeding pairs are **Stable** in the long-term trend (1980–2012), with a change in the minimum number of pairs of -4.61% and a change of -5.88% in the maximum number of pairs, equating to a geomean change of -5.35% (Table 12). **According to BirdLife International (2004), this equates to a Stable classification for the minimum, maximum and geomean number of breeding pairs (a change not more than 20% is considered to be Stable for the period 1980–2012).** Table 12 also lists population counts and long-term trend for each Member State within the territory of the European Union.

Table 12 Linnet EU breeding population (long-term trend) and ring recoveries (bold = ring recoveries in Malta)

EU Member State	EU Ring Recoveries in Malta (n=52) †	Breeding Pairs (2014) (Min - Max)		Long-term Trend (1980–2012)	Mag. % (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)	Max % Change (Average Pairs)
Austria	6%	18,000	30,000	Unknown	?	?	-	-	-
Belgium		30,000	70,000	Decreasing	53	80	-24,000	-56,000	-40,000
Bulgaria		30,000	100,000	Stable	0	0	-	-	-
Croatia*	15%	500,000	800,000	Increasing	80	80	222,222	355,556	288,889
Cyprus		20,000	60,000	Unknown	?	?	-	-	-
Czech Rep.	24%	60,000	120,000	Decreasing	3	73	-43,800	-87,600	-65,700
Denmark		100,000	100,000	Decreasing	33	50	-50,000	-50,000	-50,000
Estonia		40,000	60,000	Decreasing	20	50	-20,000	-30,000	-25,000
Finland		6,600	18,000	Stable	0	0	-	-	-
France		500,000	1,000,000	Decreasing	68	68	-340,000	-680,000	-510,000
Germany		125,000	235,000	Decreasing	52	69	-86,250	-162,150	-124,200
Greece		250,000	680,000	Unknown	?	?	-	-	-
Hungary	26%	71,000	107,000	Unknown	?	?	-	-	-
Ireland		153,250	309,590	Unknown	?	?	-	-	-
Italy	22%	300,000	600,000	Decreasing	20	30	-90,000	-180,000	-135,000
Latvia		12,065	42,162	Stable	0	0	-	-	-
Lithuania	2%	100,000	200,000	Stable	0	0	-	-	-
Luxembourg		5,000	8,000	Decreasing	20	40	-2,000	-3,200	-2,600
Netherlands		38,837	48,547	Decreasing	54	75	-29,128	-36,410	-32,769
Poland	2%	830,000	1,100,000	Unknown	?	?	-	-	-
Portugal		500,000	1,000,000	Unknown	?	?	-	-	-
Romania		200,000	500,000	Unknown	?	?	-	-	-
Slovakia	2%	40,000	60,000	Stable	0	0	-	-	-
Slovenia	1%	10,000	15,000	Unknown	?	?	-	-	-
Spain		9,770,000	11,665,000	Stable	0	0	-	-	-
Sweden		64,000	150,000	Decreasing	56	72	-46,080	-108,000	-77,040
UK		430,000	430,000	Decreasing	40.6	40.6	-174,709	-174,709	-174,709
Total	100%	14,203,752	19,508,299	Total change			-683,745	-1,212,514	-948,129
				Percentage change			-4.61%	-5.88%	-5.35%
				Long-term Trend (EU Population)			Stable	Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); † Raine (2007)

Percentages verified using *The Percentages Calculator*, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

With reference to the short-term trend of the Linnet within the territory of the European Union (EU 28), there is change in the minimum number of breeding pairs of -1.32% and a change of -1.14% in the maximum number of pairs, equating to a geomean change of -1.20% (Table 13). **According to BirdLife International (2004), this equates to a Stable classification for the minimum and maximum number of breeding pairs and their geomean (a change not more than 10% is considered to be Stable for the short-term trend).** Table 13 also lists population counts and short-term trend for each Member State within the territory of the European Union.

Table 13 Linnet EU breeding population (short-term trend) and ring recoveries (bold = ring recoveries in Malta)

EU Member State	EU Ring Recoveries in Malta (n=52)]	Breeding Pairs (EEA, 2014) (Min - Max)		Short-term Trend (~2001–2012)	Mag. % (Min - Max)		Breeding Pairs (2004) (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)	Max % Change (Average Pairs)
Austria	6%	18,000	30,000	Decreasing	40	60	30,000	75,000	-10,800	-18,000	-14,400
Belgium		30,000	70,000	Decreasing	3	3	30,928	72,165	-900	-2,100	-1,500
Bulgaria		30,000	100,000	Stable	0	0	2,000,000	6,000,000	-	-	-
Croatia*	15%	500,000	800,000	Increasing	80	80	277,778	444,444	222,222	355,556	288,889
Cyprus		20,000	60,000	Decreasing	10	20	22,222	75,000	-4,000	-12,000	-8,000
Czech Rep.	24%	60,000	120,000	Fluctuating	-	-	60,000	120,000	-	-	-
Denmark		100,000	100,000	Decreasing	33	50	149,254	200,000	-50,000	-50,000	-50,000
Estonia		40,000	60,000	Decreasing	20	50	50,000	120,000	-20,000	-30,000	-25,000
Finland		6,600	18,000	Stable	0	0	5,000,000	7,000,000	-	-	-
France		500,000	1,000,000	Decreasing	39	39	819,672	1,639,344	-195,000	-390,000	-292,500
Germany		125,000	235,000	Decreasing	40	53	208,333	500,000	-66,250	-124,550	-95,400
Greece		250,000	680,000	Unknown	?	?	50,000	100,000	-	-	-
Hungary	26%	71,000	107,000	Stable	0	0	940,000	1,230,000	-	-	-
Ireland		153,250	309,590	Stable	0	0	1,000,000	2,500,000	-	-	-
Italy	22%	300,000	600,000	Decreasing	20	30	375,000	857,143	-90,000	-180,000	-135,000
Latvia		12,065	42,162	Stable	0	0	2,600,000	3,200,000	-	-	-
Lithuania	2%	100,000	200,000	Stable	0	0	2,500,000	3,500,000	-	-	-
Luxembourg		5,000	8,000	Decreasing	10	20	5,556	10,000	-1,000	-1,600	-1,300
Netherlands		38,837	48,547	Increasing	19	19	32,636	40,796	6,201	7,751	6,976
Poland	2%	830,000	1,100,000	Decreasing	6	20	882,979	1,375,000	-166,000	-220,000	-193,000
Portugal		500,000	1,000,000	Unknown	?	?	500,000	2,500,000	-	-	-
Romania		200,000	500,000	Unknown	?	?	2,450,000	6,300,000	-	-	-
Slovakia	2%	40,000	60,000	Stable	0	0	3,000,000	5,000,000	-	-	-
Slovenia	1%	10,000	15,000	Decreasing	30	50	14,286	30,000	-5,000	-7,500	-6,250

Spain		9,770,000	11,665,000	Stable	0	0	2,600,000	6,400,000	-	-	-
Sweden		64,000	150,000	Stable	0	0	7,500,000	15,000,000	-	-	-
UK		430,000	430,000	Decreasing	14.90	14.90	505,288	505,288	-64,070	-64,070	-64,070
Total	100%	14,203,752	19,508,299				33,603,931	64,794,180			
							Total change		-444,597	-736,513	-590,555
							Percentage change		-1.32%	-1.14%	-1.20%
							Short-term Trend (EU Population)		Stable	Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); J Raine (2007)

Percentages verified using The Percentages Calculator, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

Conservation status at EU27 level

The Linnet has a breeding population size of 13,700,000–19,100,000 pairs and a breeding range size of 3,370,000 square kilometres in the EU27. The breeding population trend in the EU27 is **Decreasing** in the short term and **Decreasing** in the long term. The EU population status of *Carduelis cannabina* was assessed as **Declining**, because EU27 population or range declined by at least 20% since 1980, with continuing decline since 2001 [Source: EEA, 2014, *Carduelis cannabina*, Article 12 2008–2012 (Data Sheet Info⁹)].

European Bird Census Council: Long-term trend and ten-year (short-term) trends

According to the European Bird Census Council (EBCC, 2015 update)¹⁰, the long-term and short-term trends of the Linnet population at pan-European level is classified as **Moderate Decline** (1980–2013) at both pan-European and EU levels. It should be noted that EBCC data pertaining to the short-term trends is only available at pan-European level. EBCC replaced the short-term (1990) trend by a rolling “Ten-year trend”. For the current update, the ten-year trend is represented by the period 2006–2013. **At pan-European level, the Linnet decreased by 67% since 1980 and decreased by 18% during the current 10-year period.** Between the previous EBCC update and the current (EBCC 2015) update, the percentage change was -11% in the long-term trend and -25% in the short-term trend (Table 14).

Table 14	Linnet long-term and short-term percentage change at pan-European level						
EBCC update	Species	Long-term Trend (%)	Long-term Slope		10-Year Trend (%)	10-Year Slope	Habitat
2012	<i>Carduelis cannabina</i>	-62%	0.9658		-51%	0.9526	farm
2013	<i>Carduelis cannabina</i>	-63%	0.9675		-54%	0.9557	farm
2014	<i>Carduelis cannabina</i>	-56%	0.9667		+7%	1.0016	farm
2015	<i>Carduelis cannabina</i>	-67%	0.9661		-18%	0.9997	farm
Overall % change (2014–2015)		-11%			-25%		

Data sources: EBCC (2012, 2013 & 2014 updates). Available at: <http://www.ebcc.info/index.php?ID=557>

⁹ <http://bd.eionet.europa.eu/article12/summary/datasheet/?period=1&subject=A366>

¹⁰ <http://www.ebcc.info/index.php?ID=587>

Figure 8 is an extract from the EBCC 2015 update, which confirms that the long-term trend classification for *Carduelis cannabina* is **Moderate Decline**, namely: “significant decline, but not significantly more than 5% per year”.

Eurasian Linnet (*Carduelis cannabina*)

Population index (%) 1980 - 2013, Europe.

Trend classification: *Moderate decline* ([explanation](#))

List of Countries

Source of the data: EBCC/RSPB/BirdLife/Statistics Netherlands

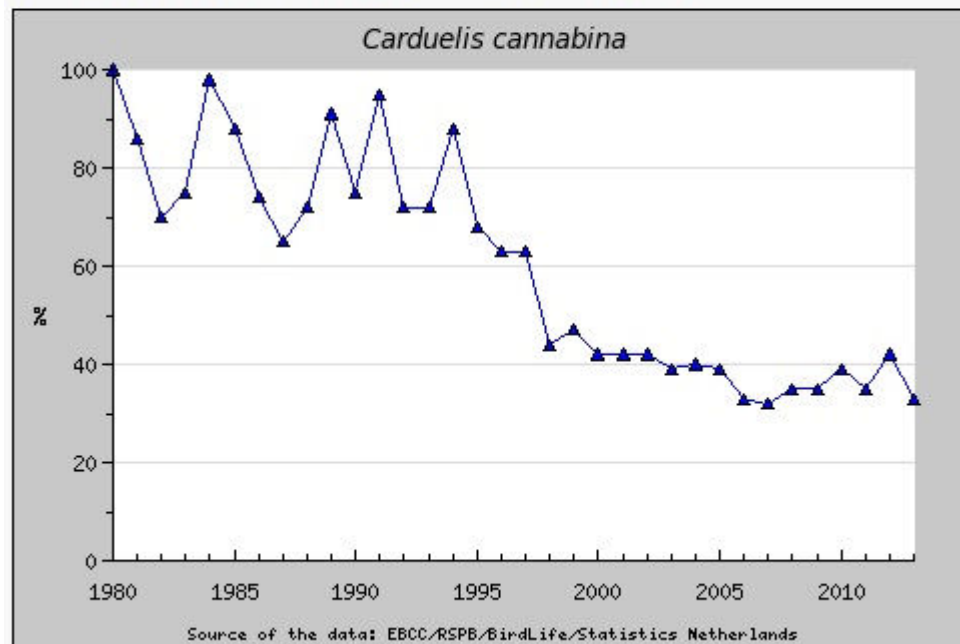


Fig. 8: Long-term trend classification for *Carduelis cannabina*.

"List of Countries":

Austria	1998 - 2013	Latvia	1995 - 2013
Belgium-Wallonia	1990 - 2013	Lithuania	2011 - 2013
Cyprus	2006 - 2013	Netherlands	1984 - 2013
Czech Republic	1982 - 2013	Poland	2000 - 2013
Denmark	1976 - 2013	Portugal	2004 - 2013
Estonia	1983 - 2013	Republic of Ireland	1998 - 2013
France	1989 - 2013	Slovakia	2005 - 2013
Germany East	1991 - 2013	Slovenia	2007 - 2013
Germany West	1989 - 2013	Spain	1998 - 2013
Greece	2007 - 2013	Sweden	1975 - 2013
Hungary	1999 - 2013	Switzerland	1999 - 2013
Italy	2000 - 2013	United Kingdom	1966 - 2013

Source: EBCC (2015 update), available at: <http://www.ebcc.info/index.php?ID=587>.

Ring recoveries in Malta

Tables 15 and 16 provide data on the ring recoveries of this species in Malta, the respective number of breeding pairs, together with the overall direction of the population trend. The reference population (ring recoveries in Malta) is **Stable** in both the short-term and long-term trends. Figs. 9 and 10 illustrate the long-term trend at EU and reference population levels whereas Figs. 11 and 12 illustrate the respective short-term trends.

Table 15 Linnet ring recoveries in Malta from other EU Member States and corresponding long-term trend

EU Member State	EU Ring Recoveries in Malta (n=52) †	Breeding Pairs (2014) (Min - Max)		Long-term Trend (1980–2012)	Mag. % (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)
Hungary	26%	71,000	107,000	Unknown	?	?	-	-
Czech Rep.	24%	60,000	120,000	Decreasing	3	73	-43,800	-87,600
Italy	22%	300,000	600,000	Decreasing	20	30	-90,000	-180,000
Croatia*	15%	500,000	800,000	Increasing	80	80	222,222	355,556
Austria	6%	18,000	30,000	Unknown	?	?	-	-
Lithuania	2%	100,000	200,000	Stable	0	0	-	-
Poland	2%	830,000	1,100,000	Unknown	?	?	-	-
Slovakia	2%	40,000	60,000	Stable	0	0	-	-
Slovenia	1%	10,000	15,000	Unknown	?	?	-	-
Total	100%	1,929,000	3,032,000	Total change			88,422	87,956
				Percentage change			4.92%	2.90%
				Long-term Trend (Ring Recoveries)			Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); † Raine (2007)

Percentages verified using *The Percentages Calculator*, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

Table 16 Linnet ring recoveries in Malta from other EU Member States and corresponding short-term trend

EU Member State	EU Ring Recoveries in Malta (n=52) †	Breeding Pairs (EEA, 2014) (Min - Max)		Short-term Trend (~2001–2012)	Mag. % (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)
Hungary	26%	71,000	107,000	Stable	0	0	-	-
Czech Rep.	24%	60,000	120,000	Fluctuating	-	-	-	-
Italy	22%	300,000	600,000	Decreasing	20	30	-90,000	-180,000
Croatia*	15%	500,000	800,000	Increasing	80	80	222,222	355,556
Austria	6%	18,000	30,000	Decreasing	40	60	-10,800	-18,000
Lithuania	2%	100,000	200,000	Stable	0	0	-	-
Poland	2%	830,000	1,100,000	Decreasing	6	20	-166,000	-220,000
Slovakia	2%	40,000	60,000	Stable	0	0	-	-
Slovenia	1%	10,000	15,000	Decreasing	30	50	-5,000	-7,500
Total	100%	1,929,000	3,032,000	Total change			-49,578	-69,944
				Percentage change			-2.59%	-2.31%
				Long-term Trend (Ring Recoveries)			Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); † Raine (2007)

Percentages verified using *The Percentages Calculator*, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

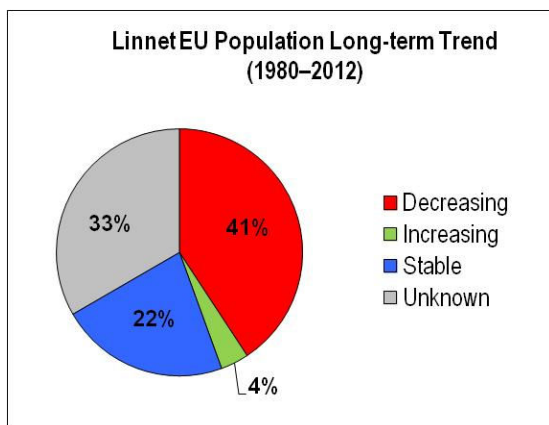


Fig. 9: Linnet EU population long-term trend by Member State

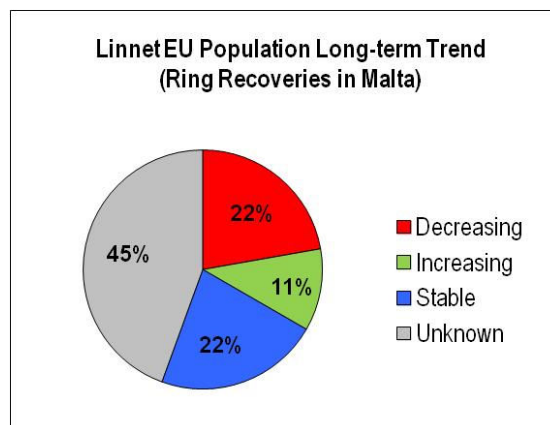


Fig. 10: Linnet EU population long-term trend (ring recoveries in Malta)

Data sources: EEA (2014); Raine (2007)

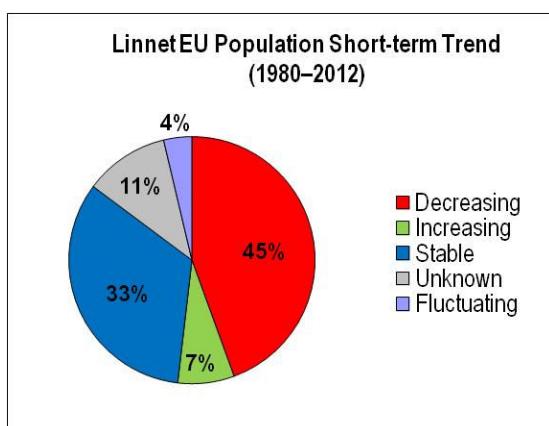


Fig. 11: Linnet EU population short-term trend by Member State

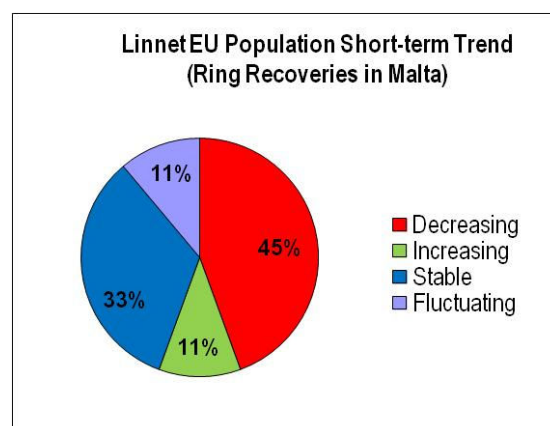


Fig. 12: Linnet EU population short-term trend (ring recoveries in Malta)

Data sources: EEA (2014); Raine (2007)

Linnet conservation status update – comparison between different data sources

The following table provides a general overview of the latest conservation status (2015 update) from various sources for direct comparison.

Species	EU Population						Ring Recoveries					
	Short-term Trend			Long-term Trend			Short-term Trend			Long-term Trend		
	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean
Linnet	➡	➡	➡	➡	➡	➡	➡	➡	➡	➡	➡	➡
	Short-term Trend					Long-term Trend						
Species	EBCC 2015 (pan-European)		Article 12 (2008–2012) [EU Geomean]	Article 12 (2008–2012) [Ring Recoveries Geomean]		EBCC 2015 (pan-European)		EBCC 2015 (EU)		Article 12 (2008–2012) [EU Geomean]	Article 12 (2008–2012) [Ring Recoveries Geomean]	
Linnet	⬇		➡	➡		⬇		⬇		➡	➡	

Data Sources: EBCC (2015); European Environment Agency (2014)

The reference population

Table 17 Linnet (*Carduelis cannabina*) breeding population estimates (reference population)

Country [Ring recoveries in Malta]	Linnet minimum breeding population size (pairs) [Reference population]	Short-term Trend (~2001– 2012)	Long-term Trend (1980–2012)
Hungary	71,000	Stable	Unknown
Czech Rep.	60,000	Fluctuating	Decreasing
Italy	300,000	Decreasing	Decreasing
Croatia*	500,000	Increasing	Increasing
Austria	18,000	Decreasing	Unknown
Lithuania	100,000	Stable	Stable
Poland	830,000	Decreasing	Unknown
Slovakia	40,000	Stable	Stable
Slovenia	10,000	Decreasing	Unknown
Reference Population Size (Minimum breeding pairs)	1,929,000	Stable (-2.59%)	Stable (+4.92%)

Data Sources: BirdLife International (2004); European Environment Agency (2014); Raine (2007)

Carnet de Chasse data (2002–2008)

According to the *Carnet de Chasse* data available from the Environment Protection Directorate of the Malta Environment and Planning Authority, the following Linnets were captured alive in Malta during the years indicated (Table 18).

Table 18 *Carnet de Chasse* live-capturing data¹¹ for Linnet (2002–2008)

Species	2002	2003	2004	2005	2006	2007	2008	Total	Average
Linnet	18,946	22,321	14,362	13,534	9,252	28,094	19,143	125,662	17,952

Source: *Carnet de Chasse* data, Environment Protection Directorate (Malta Environment and Planning Authority). Available at: <http://www.mepa.org.mt/biodiversity-reporting>.

Minimum breeding population and the <1% annual mortality

Table 19 shows the minimum number of breeding pairs of Linnets within the territory of the European Union that correspond with ring recoveries in Malta (the reference population), together with other relevant information required for the calculation of “small numbers”.

Table 19 Minimum breeding population and mortality rate

	Linnet (<i>Carduelis cannabina</i>)	Source
Minimum breeding population – pairs	1,929,000	BirdLife International (2014); EEA (2014); Raine (2007)
Mortality rate – juveniles	66%	Bauer (2005): <i>Das Kompendium der Vögel Mitteleuropas</i> (KVM) / Cramp & Perrins (1994): <i>Birds of the Western Palearctic</i> / Robinson (2005): British Trust for Ornithology

¹¹ The *Carnet de Chasse* data for the period 2002–2007 covers the months January–May and September–December, whereas the *Carnet de Chasse* data for 2008 covers the months of January and October–December.

Mortality rate – adults	63%	Bauer (2005) and Robinson (2005)
Breeding rate (young per pair)	3–4	Cramp & Perrins (1994: 620) and Robinson (2005)
Breeding success	2.7	Cramp & Perrins (1994: 620)

For the purpose of calculating the <1% mortality rate and “small numbers”, the reference population is based solely on ring recoveries of this species in Malta from EU Member States. This equates to a reference population of **1,929,000 minimum breeding pairs**.

Calculation of <1% annual mortality and “small numbers”

Linnet (*Carduelis cannabina*)

Minimum breeding success: 2.7 fledglings per pair ($1,929,000 \times 2.7$) = 5,208,300

Mortality rate of 1st year birds ($5,208,300 \times 66\%$) = 3,437,478

Mortality rate of adults ($3,858,000 \times 63\%$) = 2,430,540

Total annual mortality ($3,437,478 + 2,430,540$) = 5,868,018

1% of total annual mortality ($5,868,018 \times 1\%$) = 58,680

Total potential Linnet harvest figure is 58,680.

Partitioning with other Member States (Austria and Spain: $58,680 \times 33\%$) = 19,364

Autumn seasonal bags in relation to “small numbers”

Based on the <1% mortality rate of the reference population, the “small numbers” calculation with respect to the potential national bag limit of the Linnet is as follows:

- **Linnet** – potential maximum bag limit of **19,364** birds (partitioned with Austria and Spain).

Notwithstanding that the partitioned maximum bag limit arising out of the above calculations is 19,364 Linnets, given that the average bag limit over a seven-year period (2002–2008) is 17,952 birds, this analysis recommends that, should a derogation for the live-capturing of the seven finch species be considered in autumn 2016, the national bag limit should be substantially reduced further to not more than 12,000 as established in the July 2014 Framework for Allowing a Derogation Opening an Autumn Live-Capturing Season for Finches Regulations (S.L. 504.124)¹². This calculation is based on the formula discussed previously, which returns a figure that is not only considerably lower than the <1% threshold but also lower than the average number of birds caught over a seven-year period (2002–2008). Thus:

- **Linnet** – national bag limit of **12,000** birds.

¹² <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=12211&l=1>

3. Conservation status of the European Goldfinch (*Carduelis carduelis*)

European Red List Status: Least Concern (European & EU27 levels)

Status at EU27: Secure

Distribution and conservation status

The Goldfinch is resident in most European countries (Hume, 2002). The geographical distribution of this species in Europe (Fig. 13) is as follows:

Breeding Estonia, Latvia, Lithuania, Czech Republic, United Kingdom, Ireland, Germany, Netherlands, Spain, Portugal, France, Belgium, Austria, Luxembourg, Slovenia, Italy, Greece, Cyprus, Denmark, Bulgaria, Croatia, Hungary, Romania, Turkey, Sicily, Corsica, Sardinia, Russia.

Wintering Estonia, Italy, United Kingdom, Ireland, Cyprus, Greece, Germany (a few), Belgium (a few), Luxembourg, Sicily, Corsica, Sardinia.

Sedentary and migratory Birds breeding in northern parts of the range move south and southwest to winter mostly within the southern boundaries of the range or occasionally just beyond. Nominate race regularly (annually?) reaches the Mediterranean, Malta, North Africa and southern Israel; about two-thirds of the British breeding population moves south to winter from Belgium to southern Spain, but some remain even in the northernmost parts of the British Isles (Clement *et al.* 1993: 242).

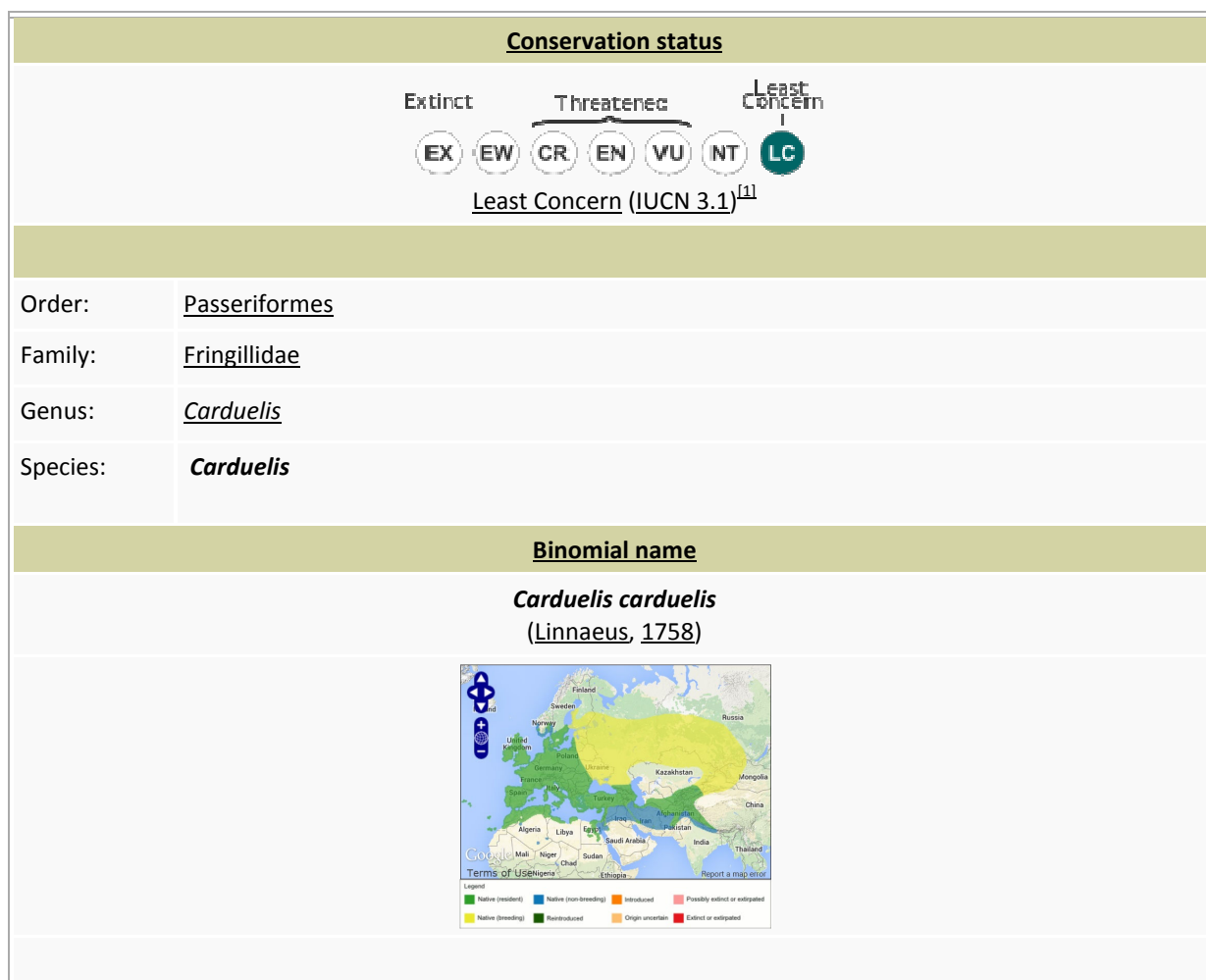


Fig. 13: Distribution and conservation status of the Goldfinch (*Carduelis carduelis*)

Source: http://en.wikipedia.org/wiki/European_Goldfinch [Accessed 6 May 2016]. Distribution map downloaded from <http://www.birdlife.org> on 6 May 2016 [BirdLife International (2016) IUCN Red List for birds].

In Europe, the breeding population is estimated to number 12,000,000–29,000,000 breeding pairs, equating to 36,000,000– 87,000,000 individuals (BirdLife International 2004). Europe forms 25–49% of the global range of the Goldfinch [BirdLife International (2016) Species Factsheet]. Based on the EU Member States' Article 12 reports for the 2008–2012 reporting period, the EU breeding population amounts to 23,199,170–32,329,072 breeding pairs. Within the territory of the European Union (EU 28), both the minimum and maximum breeding pairs are **Stable** in the long-term trend (1980–2012), with a change in the minimum number of pairs of +0.67% and a change of +0.07% in the maximum number of pairs, equating to a geomean change of +0.32% (Table 20). **According to BirdLife International (2004), this equates to a Stable classification for the minimum, maximum and geomean number of breeding pairs (a change not more than 20% is considered to be Stable for the period 1980–2012).** Table 20 also lists population counts and trends for each Member State within the territory of the European Union.

Table 20 Goldfinch EU breeding population (long-term trend) and ring recoveries (bold = ring recoveries in Malta)

EU Member State	EU Ring Recoveries in Malta (n=3) †	Breeding Pairs (2014) (Min - Max)		Long-term Trend (1980–2012)	Mag. % (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)	Max % Change (Average Pairs)
Austria		50,000	80,000	Unknown	?	?	-	-	-
Belgium		8,000	14,500	Increasing	19	303	6,015	10,902	8,458
Bulgaria		400,000	600,000	Decreasing	5	10	-40,000	-60,000	-50,000
Croatia*	33%	500,000	1,000,000	Increasing	80	80	222,222	444,444	333,333
Cyprus		70,000	150,000	Unknown	?	?	-	-	-
Czech Rep.		200,000	400,000	Stable	0	19	-	-	-
Denmark		23,000	23,000	Increasing	100	1,000	20,909	20,909	20,909
Estonia		40,000	60,000	Stable	0	0	-	-	-
Finland		7,700	15,000	Increasing	603	1,342	7,166	13,960	10,563
France		800,000	1,500,000	Decreasing	18	18	-144,000	-270,000	-207,000
Germany	33%	305,000	520,000	Decreasing	26	52	-158,600	-270,400	-214,500
Greece		830,000	1,080,000	Unknown	?	?	-	-	-
Hungary		622,000	763,000	Unknown	?	?	-	-	-
Ireland		275,945	494,810	Unknown	?	?	-	-	-
Italy		1,000,000	1,800,000	Decreasing	20	30	-300,000	-540,000	-420,000
Latvia		48,861	139,543	Stable	0	0	-	-	-
Lithuania		50,000	100,000	Stable	0	0	-	-	-
Luxembourg		3,000	6,000	Unknown	?	?	-	-	-
Netherlands		31,664	42,219	Increasing	407	1,125	29,079	38,773	33,926
Poland		650,000	1,000,000	Unknown	?	?	-	-	-
Portugal		500,000	1,000,000	Unknown	?	?	-	-	-
Romania		750,000	1,500,000	Unknown	?	?	-	-	-
Slovakia		100,000	150,000	Stable	0	0	-	-	-
Slovenia		28,000	112,000	Unknown	?	?	-	-	-
Spain		15,515,000	19,010,000	Stable	0	0	-	-	-
Sweden		21,000	49,000	Increasing	590	3,300	20,382	47,559	33,971
UK	33%	1,100,000	1,300,000	Increasing	82	82	496,533	586,811	541,672
Total	100%	23,929,170	32,909,072	Total change			159,707	22,958	91,332
				Percentage change			0.67%	0.07%	0.32%
				Long-term Trend (EU Population)			Stable	Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); † Raine (2007)

Percentages verified using The Percentages Calculator, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

With reference to the short-term trend of the Goldfinch within the territory of the European Union (EU 28), there is change in the minimum number of breeding pairs of -3.73% and a change of -4.17% in the maximum number of pairs, equating to a geomean change of -4.02% (Table 21). **According to BirdLife International (2004), this equates to a Stable classification for the minimum and maximum number of breeding pairs and their geomean (a change not more than 10% is considered to be Stable for the short-term trend).** Table 21 also lists population counts and short-term trend for each Member State within the territory of the European Union.

Table 21 Goldfinch EU breeding population (short-term trend) and ring recoveries (bold = ring recoveries in Malta)

EU Member State	EU Ring Recoveries in Malta (n=3)	Breeding Pairs (EEA, 2014) (Min - Max)		Short-term Trend (~2001–2012)	Mag. % (Min - Max)		Breeding Pairs (2004) (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)	Max % Change (Average Pairs)
Austria		50,000	80,000	Stable	0	0	25,000	50,000	-	-	-
Belgium		8,000	14,500	Increasing	2	100	7,843	7,250	4,000	7,250	5,625
Bulgaria		400,000	600,000	Decreasing	10	50	444,444	1,200,000	-200,000	-300,000	-250,000
Croatia*	33%	500,000	1,000,000	Increasing	80	80	277,778	555,556	222,222	444,444	333,333
Cyprus		70,000	150,000	Decreasing	10	20	77,778	187,500	-14,000	-30,000	-22,000
Czech Rep.		200,000	400,000	Stable	0	19	200,000	400,000	-	-	-
Denmark		23,000	23,000	Decreasing	20	33	28,750	34,328	-7,590	-7,590	-7,590
Estonia		40,000	60,000	Stable	0	0	20,000	30,000	-	-	-
Finland		7,700	15,000	Increasing	30	148	5,923	6,048	4,595	8,952	6,773
France		800,000	1,500,000	Decreasing	49	49	1,568,627	2,941,176	-392,000	-735,000	-563,500
Germany	33%	305,000	520,000	Decreasing	37	48	484,127	1,000,000	-146,400	-249,600	-198,000
Greece		830,000	1,080,000	Stable	0	19	830,000	1,080,000	-	-	-
Hungary		622,000	763,000	Stable	0	0	690,000	910,000	-	-	-
Ireland		275,945	494,810	Increasing	135	216	117,523	156,585	188,621	338,225	263,423
Italy		1,000,000	1,800,000	Decreasing	20	30	1,250,000	2,571,429	-300,000	-540,000	-420,000
Latvia		48,861	139,543	Stable	0	0	15,000	50,000	-	-	-
Lithuania		50,000	100,000	Stable	0	0	50,000	100,000	-	-	-
Luxembourg		3,000	6,000	Unknown	?	?	6,000	8,000	-	-	-
Netherlands		31,664	42,219	Increasing	80	119	17,591	19,278	17,206	22,941	20,073
Poland		650,000	1,000,000	Decreasing	35	40	1,000,000	1,666,667	-260,000	-400,000	-330,000
Portugal		500,000	1,000,000	Stable	0	0	500,000	2,500,000	-	-	-
Romania		750,000	1,500,000	Fluctuating	-	-	887,000	964,000	-	-	-
Slovakia		100,000	150,000	Stable	0	0	100,000	150,000	-	-	-
Slovenia		28,000	112,000	Decreasing	27	35	38,567	172,308	-9,800	-39,200	-24,500
Spain		15,515,000	19,010,000	Stable	0	0	800,000	2,900,000	-	-	-

Sweden		21,000	49,000	Increasing	70	260	12,353	13,611	15,167	35,389	25,278
UK	33%	1,100,000	1,300,000	Increasing	84	84	596,853	705,372	503,147	594,628	548,888
Total	100%	23,929,170	32,909,072				10,051,159	20,379,108			
							Total change		-374,833	-849,561	-612,197
							Percentage change		-3.73%	-4.17%	-4.02%
					Short-term Trend (EU Population)			Stable	Stable	Stable	

Data Sources: *BirdLife International (2004); European Environment Agency (2014); J Raine (2007)

Percentages verified using The Percentages Calculator, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

Conservation status at EU27 level

The Goldfinch has a breeding population size of 23,500,000–32,600,000 pairs and a breeding range size of 3,420,000 square kilometres in the EU27. The breeding population trend in the EU27 is **Stable** in the short term and **Stable** in the long term. The EU population status of *Carduelis carduelis* 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 EU27 population or range has not declined by 20% or more since 1980) [Source: EEA, 2014, *Carduelis carduelis*, Article 12 2008–2012 (Data Sheet Info¹³)].

European Bird Census Council: Long-term trend and ten-year (short-term) trends

According to the European Bird Census Council (EBCC, 2015 update)¹⁴, the Goldfinch population is classified as **Moderate Increase** at both pan-European and EU levels. It should be noted that EBCC data pertaining to the short-term trends is only available at pan-European level. EBCC replaced the short-term (1990) trend by a rolling “Ten-year trend”. For the current update, the ten-year trend is represented by the period 2006–2013. At pan-European level, the Goldfinch increased by 2% since 1980 but decreased by 14% during the current 10-year period. Between the previous EBCC update and the current (EBCC 2014) update the percentage change was -16% in the long-term trend and -15% in the short-term trend (Table 22).

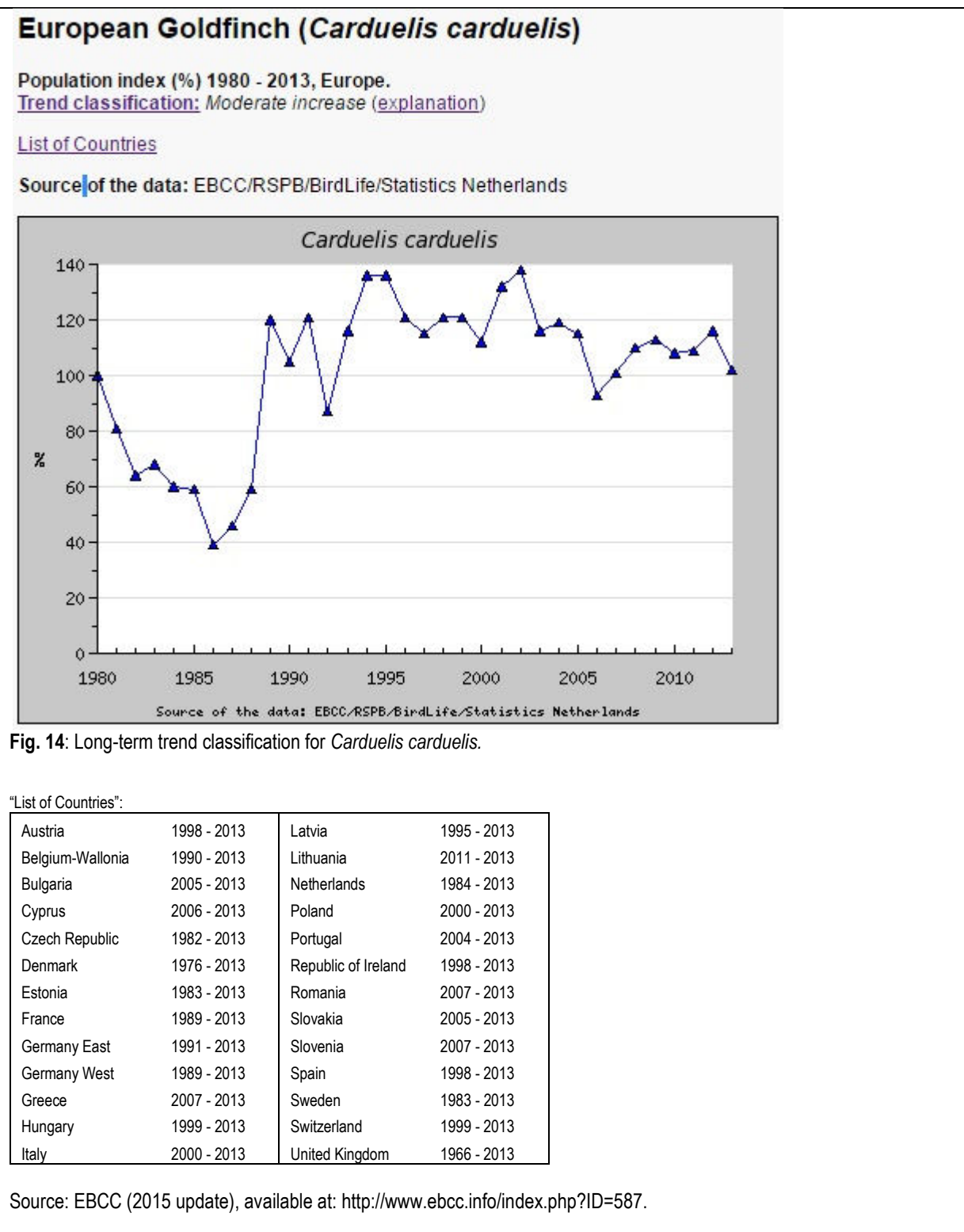
Table 22	Goldfinch long-term and short-term percentage change at pan-European level						
EBCC update	Species	Long-term Trend (%)	Long-term Slope		10-Year Trend (%)	10-Year Slope	Habitat
2012	<i>Carduelis carduelis</i>	-3%	1.0195		+8	1.001	oth
2013	<i>Carduelis carduelis</i>	+4%	1.022		+6	0.9992	oth
2014	<i>Carduelis carduelis</i>	+18%	1.0208		+1	0.9989	oth
2015	<i>Carduelis carduelis</i>	+2%	1.0185		-14%	0.9981	oth
Overall % change (2014–2015)		-16%			-15%		

Data sources: EBCC (2012, 2013, 2014 & 2015 updates). Available at: <http://www.ebcc.info/index.php?ID=587>

¹³ <http://bd.eionet.europa.eu/article12/summary/datasheet/?period=1&subject=A364>

¹⁴ <http://www.ebcc.info/index.php?ID=558>

Figure 14 is an extract from the EBCC 2015 update, which confirms that the long-term trend classification for *Carduelis carduelis* is **Moderate Increase**, namely: "significant increase, but not significantly more than 5% per year".



Ring recoveries in Malta

Tables 23 and 24 provide data on the ring recoveries of this species in Malta, the respective number of breeding pairs, together with the overall direction of the population trend. The reference population (ring recoveries in Malta) is **Increasing** in both the short-term and long-term trends. Figs. 15 and 16 illustrate the long-term trend at EU and reference population levels whereas Figs. 17 and 18 illustrate the respective short-term trends.

Table 23 Goldfinch ring recoveries in Malta from other EU Member States and corresponding long-term trend

Country	EU Ring Recoveries in Malta (n=3) ‡	Breeding Pairs (Min - Max)		Long-term Trend (1980–2012)	Mag. % (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)
Croatia*	33%	500,000	1,000,000	Increasing	80	80	222,222	444,444
Germany	33%	305,000	520,000	Decreasing	26	52	-158,600	-270,400
UK	33%	1,100,000	1,300,000	Increasing	82	82	496,533	586,811
Total	100%	1,905,000	2,820,000	Total change			560,155	760,856
				Percentage change			+41.65%	+36.95%
				Long-term Trend (Ring Recoveries)			Increasing	Increasing

Data Sources: *BirdLife International (2004); European Environment Agency (2014); ‡ Raine (2007)

Percentages verified using *The Percentages Calculator*, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

Table 24 Goldfinch ring recoveries in Malta from other EU Member States and corresponding short-term trend

EU Member State	EU Ring Recoveries in Malta (n=3) ‡	Breeding Pairs (EEA, 2014) (Min - Max)		Short-term Trend	Mag. % (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)
Croatia*	33%	500,000	1,000,000	Increasing	80	80	222,222	444,444
Germany	33%	305,000	520,000	Decreasing	37	48	-146,400	-249,600
UK	33%	1,100,000	1,300,000	Increasing	84	84	503,147	594,628
Total	100%	1,905,000	2,820,000	Total change			578,969	789,473
				Percentage change			+49.29%	+42.42%
				Short-term Trend (Ring Recoveries)			Increasing	Increasing

Data Sources: *BirdLife International (2004); European Environment Agency (2014); ‡ Raine (2007)

Percentages verified using *The Percentages Calculator*, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

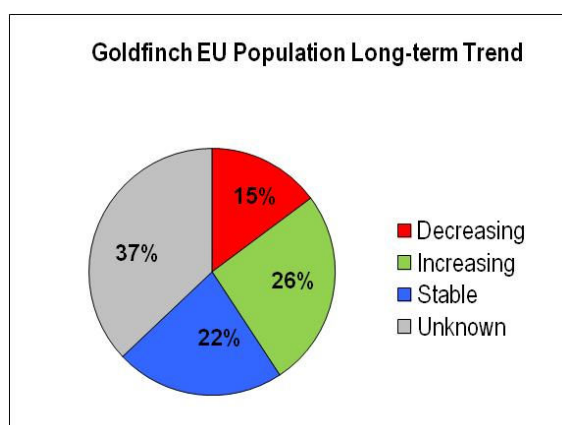


Fig. 15: Goldfinch EU population long-term trend by Member State

Data sources: EEA (2014); Raine (2007)

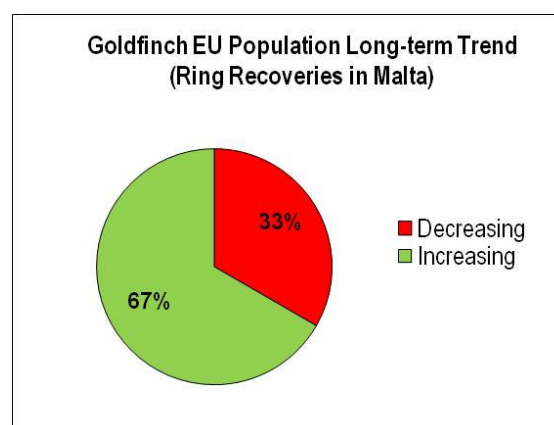


Fig. 16: Goldfinch EU population long-term trend (ring recoveries in Malta)

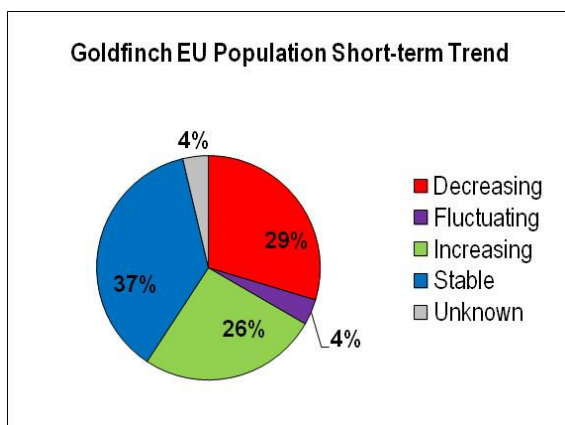


Fig. 17: Goldfinch EU population short-term trend by Member State

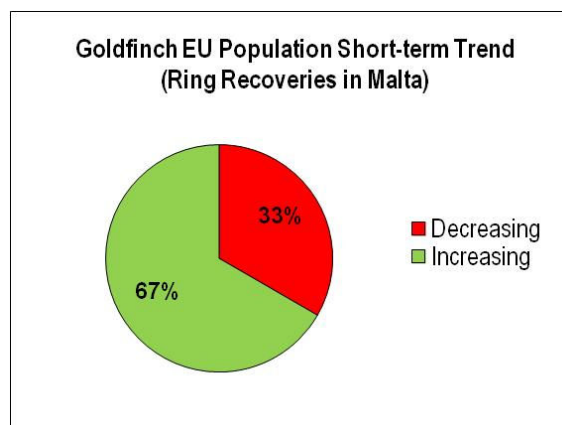


Fig. 18: Goldfinch EU population short-term trend (ring recoveries in Malta)

Data sources: EEA (2014); Raine (2007)

Goldfinch conservation status update – comparison between different data sources

The following table provides a general overview of the latest conservation status (2015 update) from various sources for direct comparison.

Species	EU Population						Ring Recoveries					
	Short-term Trend			Long-term Trend			Short-term Trend			Long-term Trend		
	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean
Goldfinch	→	→	→	→	→	→	↑	↑	↑	↑	↑	↑
Species	Short-term Trend			Long-term Trend								
	EBCC 2015 (pan-European)	Article 12 (2008–2012) [EU Geomean]	Article 12 (2008–2012) [Ring Recoveries Geomean]	EBCC 2015 (pan-European)	EBCC 2015 (EU)	Article 12 (2008–2012) [EU Geomean]	Article 12 (2008–2012) [Ring Recoveries Geomean]					
Goldfinch	↓	→	↑	↑	↑	→	↑					

Data Sources: EBCC (2015); European Environment Agency (2014)

The reference population

Table 25: Goldfinch (*Carduelis carduelis*) breeding population estimates (reference population)

Country [Ring recoveries in Malta]	Goldfinch minimum breeding population size (pairs) [Reference population]	Short-term Trend (~2001–2012)	Long-term Trend (1980–2012)
Croatia*	500,000	Increasing	Increasing
Germany	305,000	Decreasing	Decreasing
UK	1,100,000	Increasing	Stable
Reference Population Size (Minimum breeding pairs)	1,905,000	Increasing (+49.29%)	Increasing (+41.65%)

Data Sources: *BirdLife International (2004); European Environment Agency (2014); Raine (2007)

Carnet de Chasse data (2002–2008)

According to the *Carnet de Chasse* data available from the Environment Protection Directorate of the Malta Environment and Planning Authority, the following Goldfinches were captured alive in Malta during the years indicated (Table 26).

Table 26 *Carnet de Chasse* live-capturing data¹⁵ for Goldfinch (2002–2008)

Species	2002	2003	2004	2005	2006	2007	2008	Total	Average
Goldfinch	1,248	1,348	497	1,240	505	1,880	458	7,176	1,025

Source: *Carnet de Chasse* data, Environment Protection Directorate (Malta Environment and Planning Authority). Available at: <http://www.mepa.org.mt/biodiversity-reporting>.

Minimum breeding population and the <1% annual mortality

In the case of the European breeding population, Table 27 shows the minimum number of breeding pairs of Goldfinches correspond with ring recoveries in Malta (the reference population), together with other relevant information required for the calculation of “small numbers”.

Table 27 Minimum breeding population and mortality rate

	Goldfinch (<i>Carduelis carduelis</i>)	Source
Minimum breeding population – pairs	1,905,000	BirdLife International (2014); EEA (2014); Raine (2007)
Mortality rate – juveniles	66%	Bauer (2005): <i>Das Kompendium der Vögel Mitteleuropas</i> (KVM) / Cramp & Perrins (1994): <i>Birds of the Western Palearctic</i> / Robinson (2005): British Trust for Ornithology
Mortality rate – adults	63%	Bauer (2005) and Robinson (2005)
Breeding rate (young per pair)	3–4	Cramp & Perrins (1994: 583) and Robinson (2005)
Breeding success	1.8	Cramp & Perrins (1994: 583)

For the purpose of calculating the <1% mortality rate and “small numbers”, the reference population is based solely on ring recoveries of this species in Malta from EU Member States. This equates to a reference population of **1,905,000 minimum breeding pairs**.

Calculation of <1% annual mortality and “small numbers”

Goldfinch (*Carduelis carduelis*)

Minimum breeding success: 1.8 fledglings per pair ($1,905,000 \times 1.8$) = 3,429,000

Mortality rate of 1st year birds ($3,429,000 \times 66\%$) = 2,263,140

Mortality rate of adults ($3,810,000 \times 63\%$) = 2,400,300

Total annual mortality ($2,263,140 + 2,400,300$) = 4,663,440

1% of total annual mortality ($1,958,400 \times 1\%$) = 46,634

Total potential Goldfinch harvest figure is 46,634.

¹⁵ The *Carnet de Chasse* data for the period 2002–2007 covers the months January–May and September–December, whereas the *Carnet de Chasse* data for 2008 covers the months of January and October–December.

Partitioning with other Member States (Austria and Spain: $46,634 \times 33\%$) = 15,389

Autumn seasonal bags in relation to “small numbers”

Based on the <1% mortality rate of the reference population, the “small numbers” calculation with respect to the potential national bag limit of the Goldfinch is as follows:

- **Goldfinch** – potential maximum bag limit of 15,389 individuals (partitioned with Austria and Spain).

Notwithstanding that the partitioned maximum bag limit arising out of the above calculations is 15,389 Goldfinches, given that the average bag limit over a seven-year period (2002–2008) is 1,025 birds, this analysis recommends that, should a derogation for the live-capturing of the seven finch species be considered in autumn 2016, the national bag limit should be substantially reduced further to not more than 800 as established in the July 2014 Framework for Allowing a Derogation Opening an Autumn Live-Capturing Season for Finches Regulations (S.L. 504.124)¹⁶. This calculation is based on the formula discussed previously, which returns a figure that is not only considerably lower than the <1% threshold but also lower than the average number of birds caught over a seven-year period (2002–2008). Thus:

- **Goldfinch** – national bag limit of **800** birds.

¹⁶ <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=12211&l=1>

4. Conservation status of the European Greenfinch (*Carduelis chloris*)

European Red List Status: Least Concern (European & EU27 levels)

Status at EU27: Secure

Distribution and conservation status

This Greenfinch is present throughout Europe except Iceland (Hume, 2002). The geographical distribution of this species in Europe (Fig. 19) is as follows:

Breeding Estonia, Latvia, Lithuania, Czech Republic, United Kingdom, Ireland, Germany, Netherlands, Spain, Portugal, France, Belgium, Austria, Luxembourg, Slovenia, Italy, Greece, Cyprus, Denmark, Bulgaria, Croatia, Hungary, Romania, Turkey, Sicily, Corsica, Sardinia, Russia.

Wintering Estonia, Italy, United Kingdom, Ireland, Cyprus, Greece, Germany (a few), Belgium (a few), Luxembourg, Sicily, Corsica, Sardinia, Malta.

Sedentary and migratory Birds from northern areas of breeding range move south and southwest to winter mostly within or slightly to the south of the range with nominate race regular in winter in southern Spain, southern France, Italy (possibly also Malta) and south-western CIS (former USSR); *aurantiventris* is largely sedentary, but some move south to reach Malta, Cyprus, Libya and northern Egypt south to the Suez Canal and the northern shores of the Red Sea. **A diurnal and nocturnal migrant** (Clement *et al.* 1993: 214).

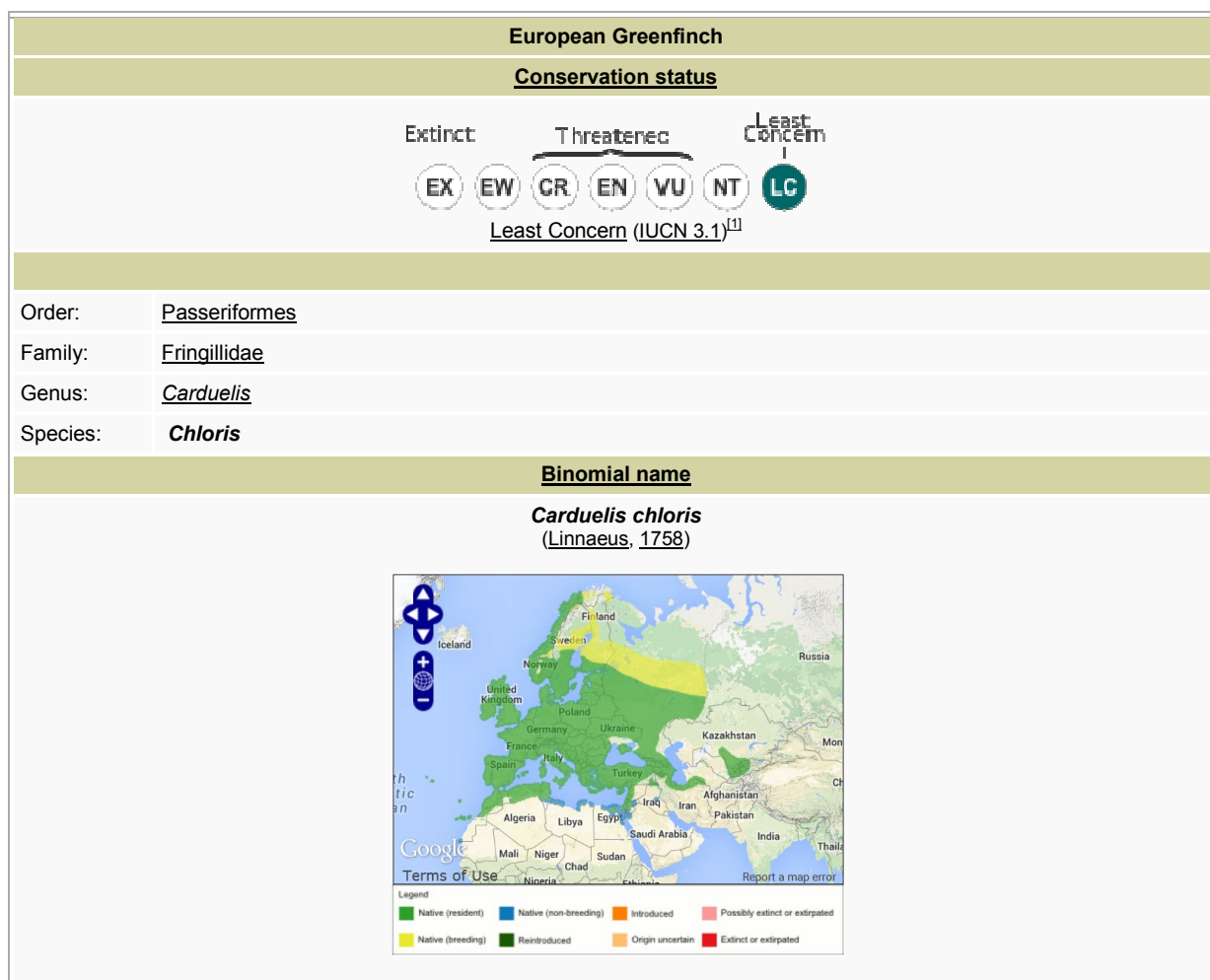


Fig. 19: Distribution and conservation status of the Greenfinch (*Carduelis chloris*)

Source: http://en.wikipedia.org/wiki/European_Greenfinch [Accessed 6 May 2016]. Distribution map downloaded from <http://www.birdlife.org> on 6 May 2016 [BirdLife International (2016) IUCN Red List for birds].

In Europe, the breeding population is estimated to number 14,000,000–32,000,000 breeding pairs, equating to 42,000,000–96,000,000 individuals (BirdLife International 2004). Europe forms 75–94% of the global range of the Greenfinch [BirdLife International (2016) Species Factsheet]. Based on the EU Member States' Article 12 reports for the 2008–2012 reporting period, the EU breeding population amounts to 18,096,464–26,173,127 pairs. Within the territory of the European Union (EU 28), both the minimum and maximum breeding pairs are **Stable** in the long-term trend (1980–2012), with a change in the minimum number of pairs of -1.55% and a change of -2.45% in the maximum number of pairs, equating to a geomean change of -2.08% (Table 28). **According to BirdLife International (2004), this equates to a long-term Stable classification for the minimum, maximum and geomean number of breeding pairs (a change not more than 20% is considered to be Stable for the period 1980–2012).** Table 28 also lists population counts and long-term trend for each Member State within the territory of the European Union.

Table 28 Greenfinch EU breeding population (long-term trend) and ring recoveries (bold = ring recoveries in Malta)

EU Member State	EU Ring Recoveries in Malta (n=16) †	Breeding Pairs (2014) (Min - Max)		Long-term Trend (1980–2012)	Mag. % (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)	Max % Change (Average Pairs)
Austria		190,000	280,000	Unknown	?	?	-	-	-
Belgium		70,000	130,000	Stable	0	0	-	-	-
Bulgaria		200,000	400,000	Stable	0	0	-	-	-
Croatia*	18%	500,000	1,000,000	Increasing	80	80	222,222	444,444	333,333
Cyprus		40,000	120,000	Increasing	10	50	13,333	40,000	26,667
Czech Rep.		562,500	1,125,000	Decreasing	1	35	-196,875	-393,750	-295,313
Denmark		500,000	500,000	Increasing	50	100	250,000	250,000	250,000
Estonia		80,000	120,000	Increasing	50	70	32,941	49,412	41,176
Finland		170,000	400,000	Increasing	349	570	144,627	340,299	242,463
France		1,000,000	2,000,000	Decreasing	30	30	-300,000	-600,000	-450,000
Germany	8%	1,650,000	2,800,000	Decreasing	14	29	-478,500	-812,000	-645,250
Greece		370,000	470,000	Unknown	?	?	-	-	-
Hungary	25%	525,000	639,000	Unknown	?	?	-	-	-
Ireland		260,240	439,675	Unknown	?	?	-	-	-
Italy	12%	400,000	800,000	Decreasing	20	30	-120,000	-240,000	-180,000
Latvia		113,621	194,246	Increasing	5	297	85,001	145,318	115,159
Lithuania		120,000	250,000	Stable	0	0	-	-	-
Luxembourg		15,000	20,000	Unknown	?	?	-	-	-
Netherlands		90,603	181,206	Increasing	44	190	59,361	118,721	89,041
Poland		1,000,000	1,300,000	Unknown	?	?	-	-	-
Portugal		500,000	1,000,000	Unknown	?	?	-	-	-
Romania		300,000	600,000	Unknown	?	?	-	-	-
Slovakia	12%	100,000	130,000	Stable	0	0	-	-	-
Slovenia	25%	101,000	142,000	Unknown	?	?	-	-	-
Spain		7,780,000	9,155,000	Increasing	?	?	-	-	-
Sweden		241,000	572,000	Stable	0	0	-	-	-
UK		1,600,000	1,800,000	Stable	0	0	-	-	-
Total	100%	18,478,964	26,568,127						
				Total change			-287,890	-657,557	-472,723
				Percentage change			-1.55%	-2.45%	-2.08%
				Long-term Trend (EU Population)			Stable	Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); † Raine (2007)

Percentages verified using The Percentages Calculator, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

With reference to the short-term trend of the Greenfinch within the territory of the European Union (EU 28), there is change in the minimum number of breeding pairs of +16.52% and a change of +10.36% in the maximum number of pairs, equating to a geomean change of +12.69% (Table 29). **According to BirdLife International (2004), this equates to a short-term Moderate Increase classification for the minimum number of breeding pairs and Stable for the maximum and geomean number of breeding pairs (a change not more than 10% is considered to be Stable for the short-term trend).** Table 29 also lists population counts and short-term trend for each Member State within the territory of the European Union.

Table 29 Greenfinch EU breeding population (short-term trend) and ring recoveries (bold = ring recoveries in Malta)

EU Member State	EU Ring Recoveries in Malta (n=16) J	Breeding Pairs (EEA, 2014) (Min - Max)		Short-term Trend (~2001–2012)	Mag. % (Min - Max)		Breeding Pairs (2004) (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)	Max % Change (Average Pairs)
Austria		190,000	280,000	Stable	0	0	110,000	220,000	-	-	-
Belgium		70,000	130,000	Increasing	42	42	49,296	91,549	20,704	38,451	29,577
Bulgaria		200,000	400,000	Fluctuating	-	-	200,000	600,000	-	-	-
Croatia*	18%	500,000	1,000,000	Increasing	80	80	277,778	555,556	222,222	444,444	333,333
Cyprus		40,000	120,000	Stable	0	0	80,000	200,000	-	-	-
Czech Rep.		562,500	1,125,000	Increasing	17	50	480,769	750,000	187,500	375,000	281,250
Denmark		500,000	500,000	Stable	0	0	500,000	700,000	-	-	-
Estonia		80,000	120,000	Increasing	20	50	66,667	80,000	26,667	40,000	33,333
Finland		170,000	400,000	Decreasing	41	57	288,136	930,233	-96,900	-228,000	-162,450
France		1,000,000	2,000,000	Decreasing	29	29	1,408,451	2,816,901	-290,000	-580,000	-435,000
Germany	8%	1,650,000	2,800,000	Decreasing	20	29	2,062,500	3,943,662	-478,500	-812,000	-645,250
Greece		370,000	470,000	Stable	0	0	370,000	470,000	-	-	-
Hungary	25%	525,000	639,000	Increasing	35	35	388,889	473,333	136,111	165,667	150,889
Ireland		260,240	439,675	Decreasing	25	41	348,847	750,299	-107,739	-182,025	-144,882
Italy	12%	400,000	800,000	Decreasing	25	35	533,333	1,230,769	-140,000	-280,000	-210,000
Latvia		113,621	194,246	Increasing	6	216	107,190	61,470	77,665	132,776	105,220
Lithuania		120,000	250,000	Stable	0	0	200,000	400,000	-	-	-
Luxembourg		15,000	20,000	Unknown	?	?	15,000	20,000	-	-	-
Netherlands		90,603	181,206	Increasing	64	100	55,246	90,603	45,302	90,603	67,952
Poland		1,000,000	1,300,000	Increasing	60	90	625,000	684,211	473,684	615,789	544,737
Portugal		500,000	1,000,000	Stable	0	0	200,000	2,000,000	-	-	-
Romania		300,000	600,000	Unknown	?	?	850,000	910,000	-	-	-
Slovakia	12%	100,000	130,000	Stable	0	0	100,000	130,000	-	-	-
Slovenia	25%	101,000	142,000	Stable	0	0	50,000	80,000	-	-	-
Spain		7,780,000	9,155,000	Increasing	65	65	4,728,334	5,560,617	3,054,538	3,594,383	3,324,461

Sweden		241,000	572,000	Decreasing	37	48	382,540	1,100,000	-115,680	-274,560	-195,120
UK		1,600,000	1,800,000	Decreasing	19	19	1,968,020	2,214,022	-299,200	-336,600	-317,900
Total	100%	18,478,964	26,568,127				16,445,993	27,063,225			
							Total change		2,716,374	2,803,927	2,760,151
							Percentage change		16.52%	10.36%	12.69%
					Short-term Trend (EU Population)				Increasing	Increasing	Increasing

Data Sources: *BirdLife International (2004); European Environment Agency (2014); J Raine (2007)

Percentages verified using The Percentages Calculator, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

Conservation status at EU27 level

The Greenfinch has a breeding population size of 18,000,000–26,100,000 pairs and a breeding range size of 4,010,000 square kilometres in the EU27. The breeding population trend in the EU27 is **Stable** in the short term and **Stable** in the long term. The EU population status of *Carduelis chloris* 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 EU27 population or range has not declined by 20% or more since 1980) [Source: EEA, 2014, *Carduelis chloris*, Article 12 2008–2012 (Data Sheet Info¹⁷)].

European Bird Census Council: Long-term trend and ten-year (short-term) trends

According to the European Bird Census Council (EBCC, 2015 update)¹⁸, the Greenfinch population is classified as **Stable** at both pan-European and EU levels. It should be noted that EBCC data pertaining to the short-term trends is only available at pan-European level. EBCC replaced the short-term (1990) trend by a rolling “Ten-year trend”. For the current update, the ten-year trend is represented by the period 2006–2013. At pan-European level, the Greenfinch increased by 14% since 1980 but decreased by 9% during the current 10-year period. Between the previous EBCC update and the current (EBCC 2014) update the percentage change was -8% in the long-term trend and -4% in the short-term trend (Table 30).

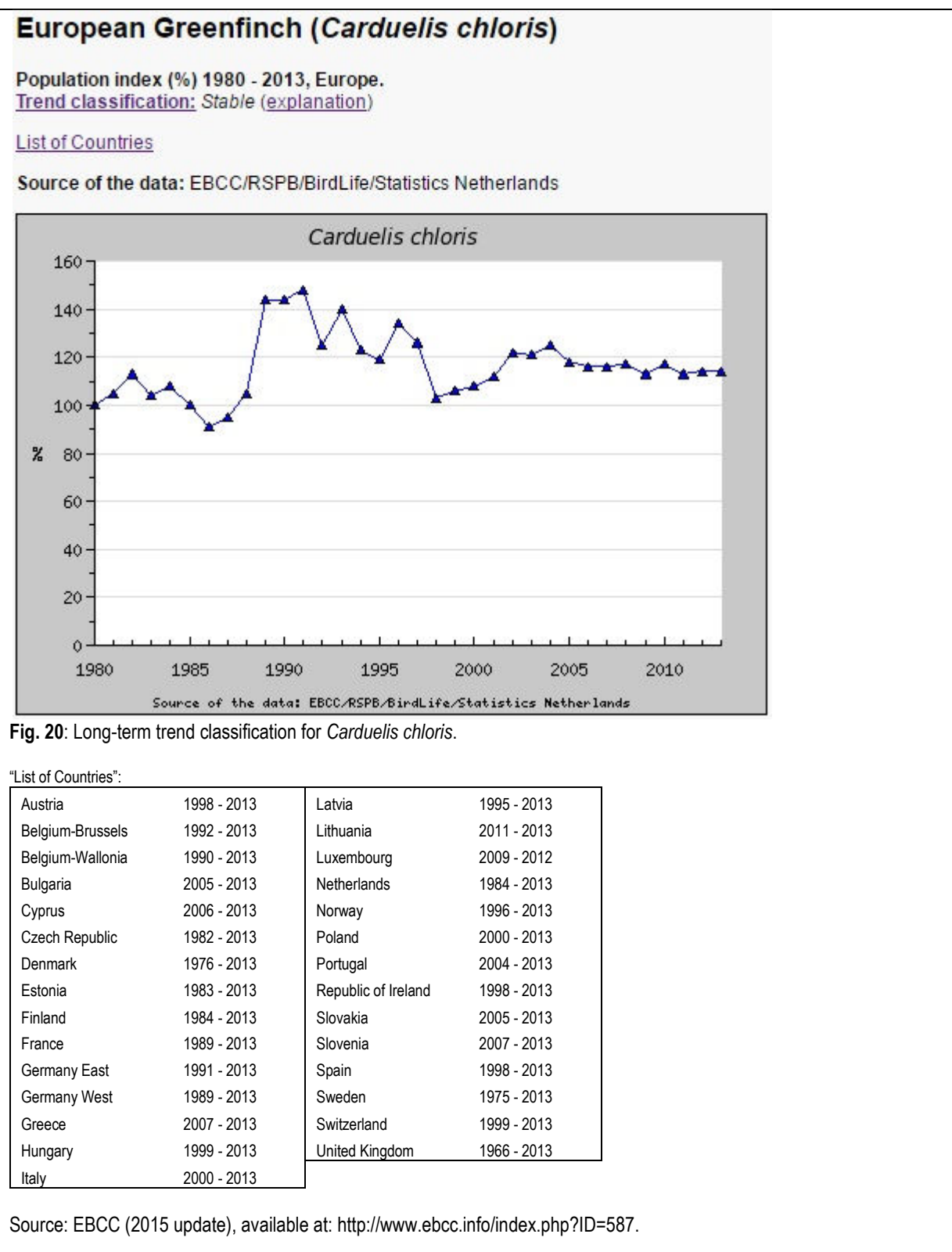
Table 30		Greenfinch long-term and short-term percentage change at pan-European level						
EBCC update	Species	Long-term Trend (%)	Long-term Slope		10-Year Trend (%)	10-Year Slope		Habitat
2012	<i>Carduelis chloris</i>	+28%	1.0045		-16%	0.9936		oth
2013	<i>Carduelis chloris</i>	+29%	1.005		-18%	0.9937		oth
2014	<i>Carduelis chloris</i>	+22%	1.004		-5%	0.994		oth
2015	<i>Carduelis chloris</i>	+14%	1.0023		-9%	0.9933		oth
Overall % change (2014–2015)		-8%			-4%			

Data sources: EBCC (2012, 2013, 2014 & 2015 updates). Available at: <http://www.ebcc.info/index.php?ID=587>

¹⁷ <http://bd.eionet.europa.eu/article12/summary/datasheet/?period=1&subject=A745>

¹⁸ <http://www.ebcc.info/index.php?ID=558>

Figure 20 is an extract from the EBCC 2015 update, which confirms that the long-term trend classification for *Carduelis chloris* is **Stable**, namely: “no significant increase or decline, and most probable trends are less than 5% per year”.



Ring recoveries in Malta

Tables 31 and 32 provide data on the ring recoveries of this species in Malta, the respective number of breeding pairs, together with the overall direction of the population trend. The reference population (ring recoveries in Malta) is **Stable** in both the short-term and long-term trends. Figs. 21 and 22

illustrate the long-term trend at EU and reference population levels whereas Figs. 23 and 24 illustrate the respective short-term trends.

Table 31 Greenfinch ring recoveries in Malta from other EU Member states and corresponding long-term trend

Country	EU Ring Recoveries in Malta (n=16) †	Breeding Pairs (Min - Max)		Long-term Trend (1980–2012)	Mag. % (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)
Hungary	25%	525,000	639,000	Unknown	?	?	-	-
Slovenia	25%	101,000	142,000	Unknown	?	?	-	-
Croatia*	18%	500,000	1,000,000	Increasing	80	80	222,222	444,444
Italy	12%	400,000	800,000	Decreasing	20	30	-120,000	-240,000
Slovakia	12%	100,000	130,000	Stable	0	0	-	-
Germany	8%	1,650,000	2,800,000	Decreasing	14	29	-478,500	-812,000
Total	100%	3,276,000	5,511,000	Total change			-376,278	-607,556
				Percentage change			-10.99%	-9.27%
			Long-term Trend (Ring Recoveries)				Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); † Raine (2007)

Percentages verified using *The Percentages Calculator*, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

Table 32 Greenfinch ring recoveries in Malta from other EU Member states and corresponding short-term trend

EU Member State	EU Ring Recoveries in Malta (n=16) †	Breeding Pairs (EEA, 2014) (Min - Max)		Short-term Trend (~2001–2012)	Mag. % (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)
Hungary	25%	525,000	639,000	Increasing	35	35	136,111	165,667
Slovenia	25%	101,000	142,000	Stable	0	0	-	-
Croatia*	18%	500,000	1,000,000	Increasing	80	80	222,222	444,444
Italy	12%	400,000	800,000	Decreasing	25	35	-140,000	-280,000
Slovakia	12%	100,000	130,000	Stable	0	0	-	-
Germany	8%	1,650,000	2,800,000	Decreasing	20	29	-478,500	-812,000
Total	100%	3,276,000	5,511,000	Total change			-260,167	-481,889
				Percentage change			-7.62%	-7.51%
			Short-term Trend (Ring Recoveries)				Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); † Raine (2007)

Percentages verified using *The Percentages Calculator*, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

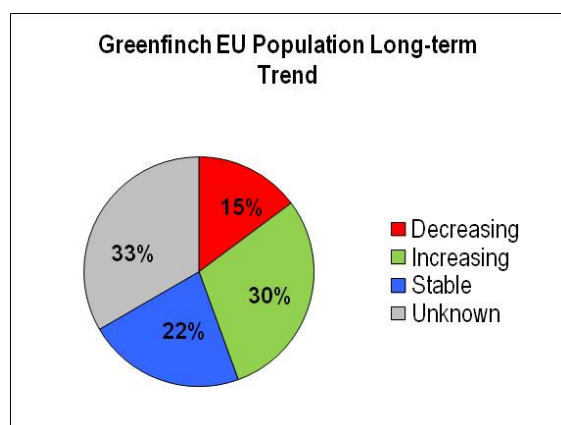


Fig. 21: Greenfinch EU population long-term trend by Member State

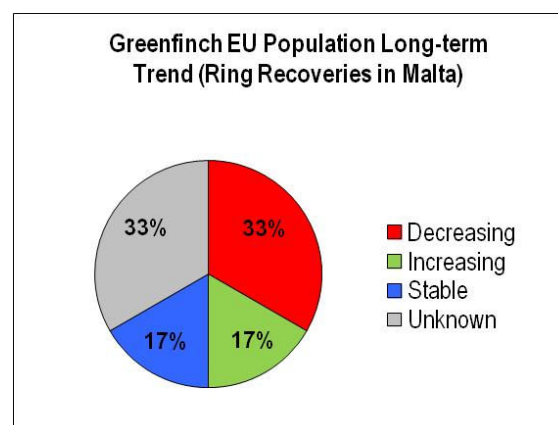


Fig. 22: Greenfinch EU population long-term trend (ring recoveries in Malta)

Data sources: EEA (2014); Raine (2007)

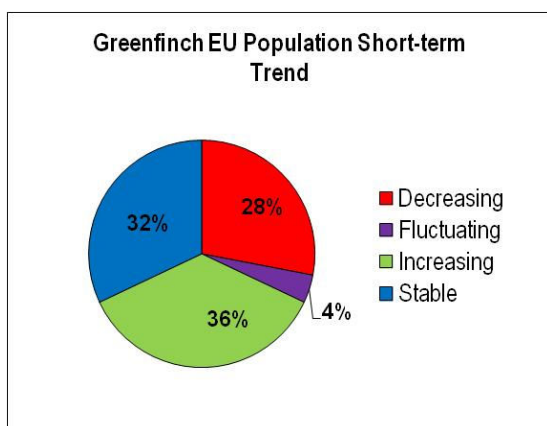


Fig. 23: Greenfinch EU population short-term trend by Member State

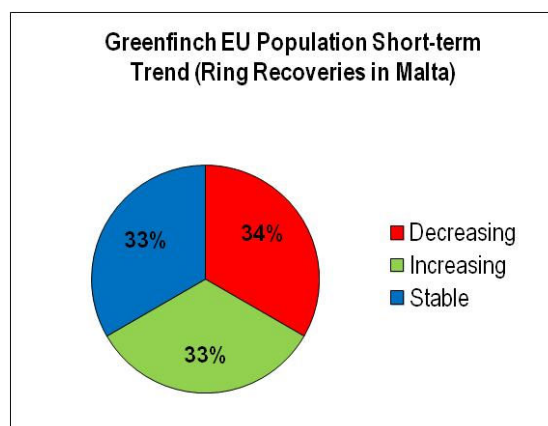


Fig. 24: Greenfinch EU population short-term trend (ring recoveries in Malta)

Data sources: EEA (2014); Raine (2007)

Greenfinch conservation status update – comparison between different data sources

The following table provides a general overview of the latest conservation status (2015 update) from various sources for direct comparison.

Species	EU Population						Ring Recoveries					
	Short-term Trend			Long-term Trend			Short-term Trend			Long-term Trend		
	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean
Greenfinch	↑	↑	↑	→	→	→	→	→	→	→	→	→
Species	Short-term Trend			Long-term Trend								
	EBCC 2015 (pan-European)	Article 12 (2008–2012) [EU Geomean]	Article 12 (2008–2012) [Ring Recoveries Geomean]	EBCC 2015 (pan-European)	EBCC 2015 (EU)	Article 12 (2008–2012) [EU Geomean]	Article 12 (2008–2012) [Ring Recoveries Geomean]					
Greenfinch	→	↑	→	→	→	→	→					

Data Sources: EBCC (2015); European Environment Agency (2014)

The reference population

Table 33 Greenfinch (*Carduelis chloris*) breeding population estimates (reference population)

Country [Ring recoveries in Malta]	Goldfinch minimum breeding population size (pairs) [Reference population]	Short-term Trend (~2001–2012)	Long-term Trend (1980–2012)
Hungary	525,000	Increasing	Unknown
Slovenia	101,000	Stable	Unknown
Croatia*	500,000	Increasing	Increasing
Italy	400,000	Decreasing	Decreasing
Slovakia	100,000	Stable	Stable
Germany	1,650,000	Decreasing	Decreasing
Reference Population Size (Minimum breeding pairs)	3,276,000	Stable (-7.62%)	Stable (-10.99%)

Data Sources: *BirdLife International (2004); European Environment Agency (2014); Raine (2007)

Carnet de Chasse data (2002–2008)

According to the *Carnet de Chasse* data available from the Environment Protection Directorate of the Malta Environment and Planning Authority, the following Greenfinches were captured alive in Malta during the years indicated (Table 34).

Table 34 *Carnet de Chasse* live-capturing data¹⁹ for Greenfinch (2002–2008)

Species	2002	2003	2004	2005	2006	2007	2008	Total	Average
Greenfinch	8,231	12,449	2,494	4,130	3,062	6,202	2,619	39,187	5,598

Source: *Carnet de Chasse* data, Environment Protection Directorate (Malta Environment and Planning Authority). Available at: <http://www.mepa.org.mt/biodiversity-reporting>.

Minimum breeding population

In the case of the European breeding population, Table 35 shows the minimum number of breeding pairs of Greenfinches that correspond with ring recoveries in Malta (the reference population), together with other relevant information required for the calculation of “small numbers”.

Table 35 Minimum breeding population and mortality rate

	Greenfinch (<i>Carduelis chloris</i>)	Source
Minimum breeding population – pairs	3,276,000	BirdLife International (2014); EEA (2014); Raine (2007)
Mortality rate – juveniles	58%	Bauer (2005): <i>Das Kompendium der Vögel Mitteleuropas</i> (KVM) / Cramp & Perrins (1994): <i>Birds of the Western Palearctic</i> / Robinson (2005): British Trust for Ornithology
Mortality rate – adults	55%	Bauer (2005) and Robinson (2005)
Breeding rate (young per pair)	3–4	Cramp & Perrins (1994: 564) and Robinson (2005)
Breeding success	4.4	Cramp & Perrins (1994: 564)

For the purpose of calculating the <1% mortality rate and “small numbers”, the reference population is based solely on ring recoveries of this species in Malta from EU Member States. This equates to a reference population of 3,276,000 **minimum breeding pairs**.

Calculation of <1% annual mortality and “small numbers”

Greenfinch (*Carduelis chloris*)

Minimum breeding success: 3 fledglings per pair (3,276,000 x 3) = 9,828,000

Mortality rate of 1st year birds (9,828,000 x 58%) = 5,700,240

Mortality rate of adults (6,552,000 x 55%) = 3,603,600

Total annual mortality (3,603,600 + 5,700,240) = 9,303,840

1% of total annual mortality (9,303,840 x 1%) = 93,038

Total potential Greenfinch harvest figure is 93,038.

Partitioning with other Member States (Spain: 93,038 x 50%) = 46,519

¹⁹ The *Carnet de Chasse* data for the period 2002–2007 covers the months January–May and September–December, whereas the *Carnet de Chasse* data for 2008 covers the months of January and October–December.

Autumn seasonal bags in relation to “small numbers”

Based on the <1% mortality rate of the reference population, the “small numbers” calculation with respect to the potential national bag limit of the Greenfinch is as follows:

- **Greenfinch** – potential maximum bag limit of 46,519 individuals (partitioned with Spain).

Notwithstanding that the partitioned maximum bag limit arising out of the above calculations is 46,519 Greenfinches, given that the average bag limit over a seven-year period (2002–2008) is 5,598 birds, this analysis recommends that, should a derogation for the live-capturing of the seven finch species be considered in autumn 2016, the national bag limit should be substantially reduced further to not more than 4,500 as established in the July 2014 Framework for Allowing a Derogation Opening an Autumn Live-Capturing Season for Finches Regulations (S.L. 504.124)²⁰. This calculation is based on the formula discussed previously, which returns a figure that is not only considerably lower than the <1% threshold but also lower than the average number of birds caught over a seven-year period (2002–2008). Thus:

- **Greenfinch** – national bag limit of **4,500** birds.

²⁰ <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=12211&l=1>

5. Conservation status of the Hawfinch (*Coccothraustes coccothraustes*)

European Red List Status: Least Concern (European & EU27 levels)

Status at EU27: Secure

Distribution and conservation status

The Hawfinch is a widespread but much localized breeder (Hume, 2002). The geographical distribution of this species in Europe (Fig. 25) is as follows:

Breeding Estonia, Latvia, Lithuania, Czech Republic, United Kingdom, Germany, Netherlands, Spain, Portugal, France, Belgium, Austria, Luxembourg, Slovenia, Italy, Greece, Cyprus, Bulgaria, Croatia, Hungary, Romania, Turkey, Sicily, Corsica, Sardinia, Russia.

Wintering Estonia, Italy, United Kingdom, Cyprus, Greece, Germany, Belgium (a few), Luxembourg, Sicily, Corsica, and Sardinia.

Sedentary and migratory Birds in the southern and central parts of the range are largely resident or make only short-distance movements. Northern breeders move south, southeast or southwest. Nominate race (*Coccothraustes c. coccothraustes*) winters from Ireland to southern Europe mostly around the Mediterranean, including Algeria and Tunisia, northwest Africa, Malta, Crete and Cyprus, east through the Balkans and the Black Sea sporadically to west and central Turkey, northern Iran, Central Asia, southern Mongolia to Manchuria, central and southern China, also Sakhalin. (Clement *et al.* 1993: 313).

Conservation status	
Extinct Threatened Least Concern EX EW CR EN VU NT LC Least Concern (IUCN 3.1)⁽¹⁾	
Order:	<u>Passeriformes</u>
Suborder:	<u>Passeri</u>
Infraorder:	<u>Passerida</u>
Superfamily:	<u>Passeroidea</u>
Family:	<u>Fringillidae</u>
Subfamily:	<u>Carduelinae</u>
Genus:	<u>Coccothraustes</u>
Species:	Coccothraustes
Binomial name	
Coccothraustes coccothraustes (Linnaeus, 1758)	
	

Fig. 25: Distribution and conservation status of the Hawfinch (*Coccothraustes coccothraustes*)

Source: <http://en.wikipedia.org/wiki/Hawfinch> [Accessed 6 May 2016]. Distribution map downloaded from <http://www.birdlife.org> on 6 May 2016 [BirdLife International (2016) IUCN Red List for birds].

In Europe, the breeding population is estimated to number 2,400,000– 4,200,000 breeding pairs, equating to 7,200,000–12,600,000 individuals (BirdLife International 2004). Europe forms 25–49% of the global range of the Hawfinch [BirdLife International (2016) Species Factsheet]. Based on the EU Member States' Article 12 reports for the 2008–2012 reporting period, the EU breeding population amounts to 1,893,476– 3,560,278 pairs. Within the territory of the European Union (EU 28), both the minimum and maximum breeding pairs are **Stable** in the long-term trend (1980–2012), with a change in the minimum number of pairs of -3.97% and a change of -5.23% in the maximum number of pairs, equating to a geomean change of -4.79% (Table 36). **According to BirdLife International (2004), this equates to a long-term Stable classification for the minimum, maximum and geomean number of breeding pairs (a change not more than 20% is considered to be Stable for the period 1980–2012).** Table 36 also lists population counts and long-term trend for each Member State within the territory of the European Union.

Table 36 Hawfinch EU breeding population and ring recoveries (bold = Ring Recoveries in Italy)

EU Member State	EU Ring Recoveries in Italy (n=522) †	Breeding Pairs (2014) (Min - Max)		Long-term Trend (1980–2012)	Mag. % (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)	Max % Change (Average Pairs)
Austria	2.7%	20,000	35,000	Unknown	?	?	-	-	-
Belgium	0.6%	12,000	17,000	Increasing	71	305	9,037	12,802	10,920
Bulgaria		40,000	150,000	Stable	0	0	-	-	-
Croatia*	0.6%	200,000	300,000	Increasing	80	80	88,889	133,333	111,111
Czech Rep.	27.2%	140,000	280,000	Decreasing	29	81	-113,400	-226,800	-170,100
Denmark	0.2%	9,500	9,500	Increasing	25	50	3,167	3,167	3,167
Estonia	0.4%	20,000	40,000	Stable	0	0	-	-	-
Finland		1,000	1,500	Increasing	333	526	840	1,260	1,050
France	0.8%	23,000	40,000	Increasing	118	118	12,450	21,651	17,050
Germany	35.8%	200,000	365,000	Decreasing	36	69	-138,000	-251,850	-194,925
Greece		5,000	20,000	Unknown	?	?	-	-	-
Hungary	19.0%	112,000	163,000	Unknown	?	?	-	-	-
Italy	N/A	5,000	15,000	Unknown	?	?	-	-	-
Latvia		50,301	95,434	Increasing	403	3,081	48,720	92,434	70,577
Lithuania		30,000	60,000	Stable	0	0	-	-	-
Luxembourg	0.2%	3,000	4,000	Unknown	?	?	-	-	-
Netherlands	0.2%	9,875	12,344	Increasing	60	196	6,539	8,174	7,356
Poland	2.5%	270,000	390,000	Unknown	?	?	-	-	-
Portugal		5,000	10,000	Unknown	?	?	-	-	-
Romania	0.4%	500,000	1,000,000	Unknown	?	?	-	-	-
Slovakia	5.6%	110,000	220,000	Stable	0	0	-	-	-
Slovenia	2.5%	25,000	35,000	Stable	0	0	-	-	-
Spain	0.2%	92,000	272,500	Stable	0	0	-	-	-
Sweden	1.0%	10,000	24,000	Increasing	25	75	4,286	10,286	7,286
UK		800	1,000	Decreasing	88	88	-704	-880	-792
Total	100%	1,893,476	3,560,278						
				Total change			-78,177	-196,422	-137,300
				Percentage change			-3.97	-5.23%	-4.79%
				Long-term Trend (EU)			Stable	Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); † Spina and Volpini (2008)

Percentages verified using The Percentages Calculator, available at: <http://www.cleavebooks.co.uk/scol/calpcnt.htm>

With reference to the short-term trend of the Hawfinch within the territory of the European Union (EU 28), there is change in the minimum number of breeding pairs of +1.72% and a change of +0.86% in the maximum number of pairs, equating to a geomean change of +1.16% (Table 37). **According to BirdLife International (2004), this equates to a short-term Stable classification for the minimum and maximum number of breeding pairs and their geomean (a change not more than 10% is considered to be Stable for the short-term trend).** Table 37 also lists population counts and short-term trend for each Member State within the territory of the European Union.

Table 37 Hawfinch EU breeding population and ring recoveries (bold = Ring Recoveries in Italy)

EU Member State	EU Ring Recoveries in Italy (n=522) †	Breeding Pairs (EEA, 2014) (Min - Max)		Short-term Trend (~2001–2012)	Mag. % (Min - Max)		Breeding Pairs (2004) (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)	Max % Change (Average Pairs)
Austria	2.7%	20,000	35,000	Fluctuating	-	-	25,000	50,000	-	-	-
Belgium	0.6%	12,000	17,000	Increasing	19	70	5,200	15,000	4,941	7,000	5,971
Bulgaria		40,000	150,000	Fluctuating	-	-	50,000	150,000	-	-	-
Croatia*	0.6%	200,000	300,000	Increasing	80	80	200,000	300,000	88,889	133,333	111,111
Czech Rep.	27.2%	140,000	280,000	Stable	0	0	140,000	280,000	-	-	-
Denmark	0.2%	9,500	9,500	Decreasing	33	50	14,179	19,000	-4,750	-4,750	-4,750
Estonia	0.4%	20,000	40,000	Stable	0	0	5,000	10,000	-	-	-
Finland		1,000	1,500	Increasing	3	57	400	800	363	545	454
France	0.8%	23,000	40,000	Increasing	37	37	50,000	250,000	6,212	10,803	8,507
Germany	35.8%	200,000	365,000	Decreasing	12	57	227,273	848,837	-114,000	-208,050	-161,025
Greece		5,000	20,000	Stable	0	19	5,000	20,000	-	-	-
Hungary	19.0%	112,000	163,000	Increasing	159	159	82,000	145,000	68,757	100,066	84,411
Italy	N/A	5,000	15,000	Unknown	?	?	5,000	15,000	-	-	-
Latvia		50,301	95,434	Increasing	249	249	3,000	10,000	35,888	68,089	51,989
Lithuania		30,000	60,000	Stable	0	0	40,000	60,000	-	-	-
Luxembourg	0.2%	3,000	4,000	Unknown	?	?	3,000	4,000	-	-	-
Netherlands	0.2%	9,875	12,344	Increasing	30	76	8,000	10,000	4,264	5,330	4,797
Poland	2.5%	270,000	390,000	Decreasing	20	20	337,500	487,500	-54,000	-78,000	-66,000
Portugal		5,000	10,000	Unknown	?	?	1,000	10,000	-	-	-
Romania	0.4%	500,000	1,000,000	Fluctuating	-	-	760,000	940,000	-	-	-
Slovakia	5.6%	110,000	220,000	Stable	0	0	110,000	220,000	-	-	-
Slovenia	2.5%	25,000	35,000	Stable	0	0	10,000	20,000	-	-	-
Spain	0.2%	92,000	272,500	Stable	0	0	2,500	10,000	-	-	-
Sweden	1.0%	10,000	24,000	Stable	0	0	5,000	15,000	-	-	-
UK		800	1,000	Decreasing	81	81	4,211	5,263	-648	-810	-729

Total	100%	1,893,476	3,560,278			2,093,262	3,895,400			
						Total change	35,916	33,556	34,736	
						Percentage change	1.72%	0.86%	1.16%	
						Short-term Trend (EU Population)	Stable	Stable	Stable	

Data Sources: *BirdLife International (2004); European Environment Agency (2014); J Spina and Volpini (2008)

Percentages verified using The Percentages Calculator, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

Conservation status at EU27 level

The Hawfinch has a breeding population size of 1,690,000–3,270,000 pairs and a breeding range size of 2,200,000 square kilometres in the EU27. The breeding population trend in the EU27 is **Stable** in the short term and **Unknown** in the long term. The EU population status of *Coccothraustes coccothraustes* 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 EU27 population or range has not declined by 20% or more since 1980) [Source: EEA, 2014, *Coccothraustes coccothraustes*, Article 12 2008–2012 (Data Sheet Info²¹)].

European Bird Census Council: Long-term trend and ten-year (short-term) trends

According to the European Bird Census Council (EBCC, 2015 update)²², the Hawfinch population is classified as **Moderate Increase** (at both pan-European and EU levels. It should be noted that EBCC data pertaining to the short-term trends is only available at pan-European level. EBCC replaced the short-term (1990) trend by a rolling “Ten-year trend”. For the current update, the ten-year trend is represented by the period 2006–2013. At pan-European level, the Hawfinch increased by 389% since 1980 and by 49% during the current 10-year period. Between the previous EBCC update and the current (EBCC 2014) update the percentage change was +46% in the long-term trend and +31% in the short-term trend (Table 38).

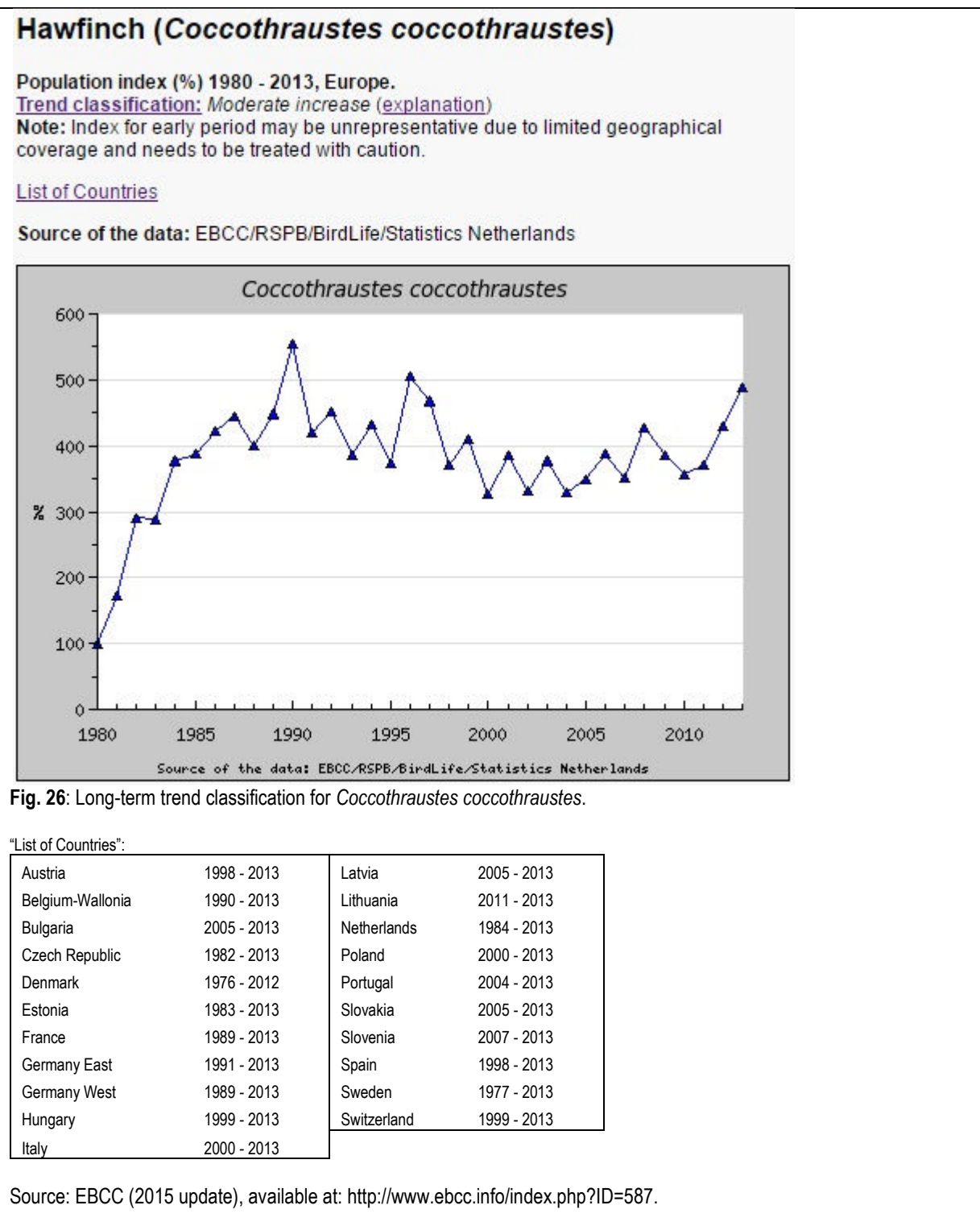
Table 38	Hawfinch long-term and short term percentage change at pan-European level						
EBCC update	Species	Long-term Trend (%)	Long-term Slope		10-Year Trend (%)	10-Year Slope	Habitat
2012	<i>Coccothraustes coccothraustes</i>	+474%	1.0166		-31%	0.9898	for
2013	<i>Coccothraustes coccothraustes</i>	+282%	1.0117		-30%	0.9892	for
2014	<i>Coccothraustes coccothraustes</i>	+343%	1.0112		+18%	1.0165	for
2015	<i>Coccothraustes coccothraustes</i>	+389%	1.0111		+49%	1.0289	for
Overall % change (2014–2015)		+46%			+31%		

Data sources: EBCC (2012, 2013, 2014 & 2015 updates). Available at: <http://www.ebcc.info/index.php?ID=587>

²¹ <http://bd.eionet.europa.eu/article12/summary/datasheet/?period=1&subject=A373>

²² <http://www.ebcc.info/index.php?ID=558>

Figure 26 is an extract from the EBCC 2015 update, which confirms that the long-term trend classification for *Coccothraustes coccothraustes* is **Moderate Increase**, namely: “significant increase, but not significantly more than 5% per year”.



Ring recoveries in Italy

Since there are no known ring recoveries of this species in Malta (Raine, 2007), the reference population is based on ring recoveries in Italy (Spina and Volpini, 2008) since there is a high confidence level that birds migrating towards Italy may utilise the same Central European flyway. This subsection illustrates the distribution pattern of the species in Central Europe, with an emphasis on ring recoveries in Italy. The majority of foreign-ringed Hawfinches recovered in Italy originate from

Germany (34%, n=187) followed by Czech. Republic (26%, n=142), Hungary (19%, n=101), Slovakia (5%, n=29) and Switzerland (3%), as illustrated in Figs. 27 and 28.

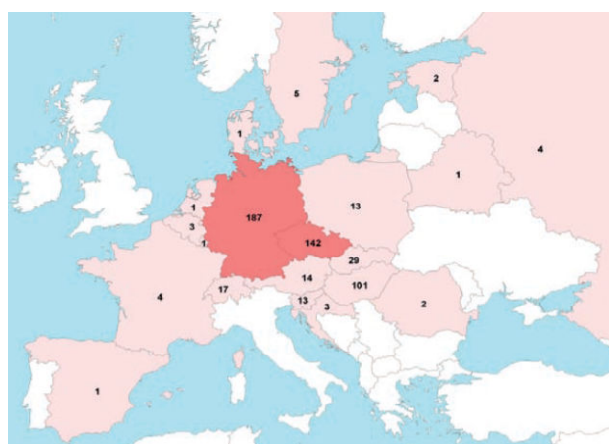


Fig. 27: Foreign-ring recoveries of Hawfinches in Italy.

Source: Spina and Volpini (2008)



Fig. 28: Foreign-ringed Hawfinches recovered in Italy during the autumn migration period (n = 544).

Source: Spina and Volpini (2008)

Tables 39 and 40 provide data on the ring recoveries of this species in Italy, the respective number of breeding pairs, together with the overall direction of the population trend. The reference population (ring recoveries in Italy) is **Stable** in both the short-term and long-term trends. Figs. 29 and 30 illustrate the long-term trend at EU and reference population levels whereas Figs. 31 and 32 illustrate the respective short-term trends.

Table 39 Hawfinch ring recoveries in Italy from other EU Member States and corresponding long-term trend

EU Member State	EU Ring Recoveries in Italy (n=522) †	Breeding Pairs (2014) (Min - Max)		Long-term Trend (1980–2012)	Mag. % (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)	Max % Change (Average Pairs)
Germany	35.8%	200,000	365,000	Decreasing	36	69	-138,000	-251,850	-194,925
Czech Rep.	27.2%	140,000	280,000	Decreasing	29	81	-113,400	-226,800	-170,100
Hungary	19.0%	112,000	163,000	Unknown	?	?	-	-	-
Slovakia	5.6%	110,000	220,000	Stable	0	0	-	-	-
Austria	2.7%	20,000	35,000	Unknown	?	?	-	-	-
Poland	2.5%	270,000	390,000	Unknown	?	?	-	-	-
Slovenia	2.5%	25,000	35,000	Stable	0	0	-	-	-
Sweden	1.0%	10,000	24,000	Increasing	25	75	4,286	10,286	7,286
France	0.8%	23,000	40,000	Increasing	118	118	12,450	21,651	17,050
Belgium	0.6%	12,000	17,000	Increasing	71	305	9,037	12,802	10,920
Croatia*	0.6%	200,000	300,000	Increasing	80	80	88,889	133,333	111,111
Estonia	0.4%	20,000	40,000	Stable	0	0	-	-	-
Romania	0.4%	500,000	1,000,000	Unknown	?	?	-	-	-
Denmark	0.2%	9,500	9,500	Increasing	25	50	3,167	3,167	3,167
Luxembourg	0.2%	3,000	4,000	Unknown	?	?	-	-	-
Netherlands	0.2%	9,875	12,344	Increasing	60	196	6,539	8,174	7,356
Spain	0.2%	92,000	272,500	Stable	0	0	-	-	-
Italy	N/A	5,000	15,000	Unknown	?	?	-	-	-
Total	100%	1,761,375	3,222,344	Total change			-127,033	-289,237	-208,135
				Percentage change			-6.73%	-8.24%	-7.71%
				Long-term Trend (Ring recoveries)			Stable	Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); † Spina and Volpini (2008)

Percentages verified using The Percentages Calculator, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

Table 40 Hawfinch ring recoveries in Italy from other EU Member States and corresponding short-term trend

EU Member State	EU Ring Recoveries in Italy (n=522) †	Breeding Pairs (EEA, 2014) (Min - Max)		Short-term Trend (~2001–2012)	Mag. % (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)	Max % Change (Average Pairs)
Italy	N/A	5,000	15,000	Unknown	?	?	-	-	-
Germany	35.8%	200,000	365,000	Decreasing	12	57	-114,000	-208,050	-161,025
Czech Rep.	27.2%	140,000	280,000	Stable	0	0	-	-	-
Hungary	19.0%	112,000	163,000	Increasing	159	159	68,757	100,066	84,411
Slovakia	5.6%	110,000	220,000	Stable	0	0	-	-	-
Austria	2.7%	20,000	35,000	Fluctuating	-	-	-	-	-
Poland	2.5%	270,000	390,000	Decreasing	20	20	-54,000	-78,000	-66,000
Slovenia	2.5%	25,000	35,000	Stable	0	0	-	-	-
Sweden	1.0%	10,000	24,000	Stable	0	0	-	-	-
France	0.8%	23,000	40,000	Increasing	37	37	6,212	10,803	8,507
Belgium	0.6%	12,000	17,000	Increasing	19	70	4,941	7,000	5,971
Croatia*	0.6%	200,000	300,000	Increasing	80	80	88,889	133,333	111,111
Estonia	0.4%	20,000	40,000	Stable	0	0	-	-	-
Romania	0.4%	500,000	1,000,000	Fluctuating	-	-	-	-	-
Denmark	0.2%	9,500	9,500	Decreasing	33	50	-4,750	-4,750	-4,750
Luxembourg	0.2%	3,000	4,000	Unknown	?	?	-	-	-
Netherlands	0.2%	9,875	12,344	Increasing	30	76	4,264	5,330	4,797
Spain	0.2%	92,000	272,500	Stable	0	0	-	-	-
Total	100%	1,761,375	3,222,344	Total change			313	-34,268	-16,978
				Percentage change			0.02%	-0.94%	-0.60%
				Short-term Trend (Ring recoveries)			Stable	Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); † Spina and Volpini (2008)

Percentages verified using The Percentages Calculator, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

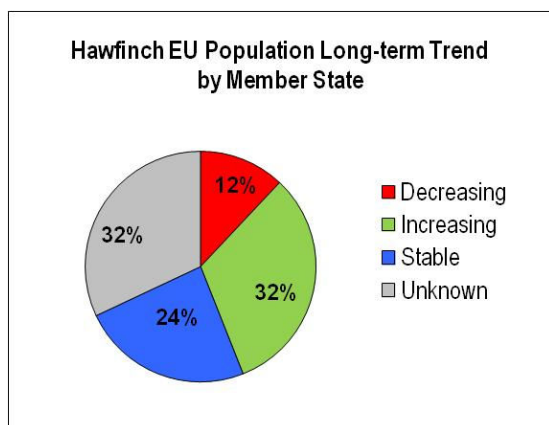


Fig. 29: Hawfinch EU population long-term trend by Member State

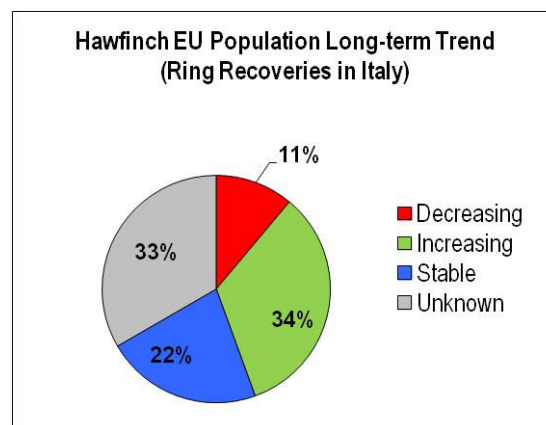


Fig. 30: Hawfinch EU population long-term trend (ring recoveries in Italy)

Data sources: EEA (2014); Spina and Volpini (2008)

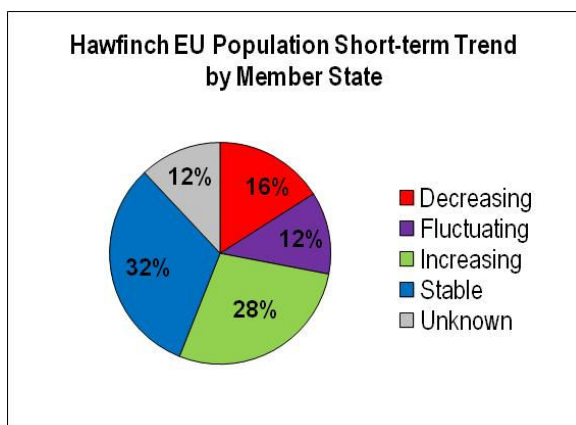


Fig. 31: Hawfinch EU population short-term trend by Member State

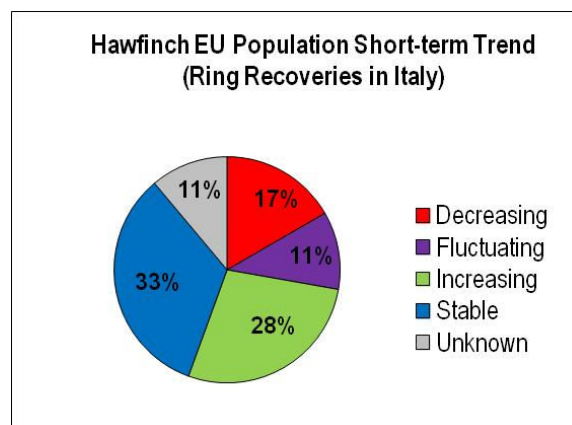


Fig. 32: Hawfinch EU population short-term trend (ring recoveries in Malta)

Data sources: EEA (2014); Raine (2007)

Hawfinch conservation status update – comparison between different data sources

The following table provides a general overview of the latest conservation status (2015 update) from various sources for direct comparison.

Species	EU Population						Ring Recoveries					
	Short-term Trend			Long-term Trend			Short-term Trend			Long-term Trend		
	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean
Hawfinch	➡	➡	➡	➡	➡	➡	➡	➡	➡	➡	➡	➡
	Short-term Trend					Long-term Trend						
Species	EBCC 2015 (pan-European)	Article 12 (2008–2012) [EU Geomean]	Article 12 (2008–2012) [Ring Recoveries Geomean]	EBCC 2015 (pan-European)	EBCC 2015 (EU)	Article 12 (2008–2012) [EU Geomean]	Article 12 (2008–2012) [Ring Recoveries Geomean]					
Hawfinch	⬆	➡	➡	⬆	⬆	➡	➡					

Data Sources: EBCC (2015); European Environment Agency (2014)

The reference population

Table 41 Hawfinch (*Coccothraustes coccothraustes*) breeding population estimates (reference population)

Country [Ring recoveries in Italy]	Hawfinch minimum breeding population size (pairs) [Reference population]	Short-term Trend (~2001–2012)	Long-term Trend (1980–2012)
Germany	200,000	Decreasing	Decreasing
Czech Rep.	140,000	Stable	Decreasing
Hungary	112,000	Increasing	Unknown
Slovakia	110,000	Stable	Stable
Austria	20,000	Fluctuating	Unknown
Poland	270,000	Decreasing	Unknown
Slovenia	25,000	Stable	Stable
Sweden	10,000	Stable	Increasing
France	23,000	Increasing	Increasing

Belgium	12,000	Increasing	Increasing
Croatia*	200,000	Increasing	Increasing
Estonia	20,000	Stable	Stable
Romania	500,000	Fluctuating	Unknown
Denmark	9,500	Decreasing	Increasing
Luxembourg	3,000	Unknown	Unknown
Netherlands	9,875	Increasing	Increasing
Spain	92,000	Stable	Stable
Italy	5,000	Unknown	Unknown
Reference Population Size (Minimum breeding pairs)	1,761,375	Stable (+0.02%)	Stable (-6.73%)

Data Sources: *BirdLife International (2004); European Environment Agency (2014); Spina and Volpini (2008)

Carnet de Chasse data (2002–2008)

According to the *Carnet de Chasse* data available from the Environment Protection Directorate of the Malta Environment and Planning Authority, the following Hawfinches were captured alive in Malta during the years indicated (Table 42).

Table 42 *Carnet de Chasse* live-capturing data²³ for Hawfinch (2002–2008)

Species	2002	2003	2004	2005	2006	2007	2008	Total	Average
Hawfinch	530	207	94	1,885	612	553	347	4,228	604

Source: *Carnet de Chasse* data, Environment Protection Directorate (Malta Environment and Planning Authority). Available at: <http://www.mepa.org.mt/biodiversity-reporting>.

Minimum breeding population

In the case of the European breeding population, Table 43 shows the minimum number of breeding pairs of Hawfinches that correspond with ring recoveries in Italy (the reference population), together with other relevant information required for the calculation of “small numbers”.

Table 43 Minimum breeding population and mortality rate

	Hawfinch (<i>Coccothraustes coccothraustes</i>)	Source
Minimum breeding population – pairs	1,761,375	BirdLife International (2014); EEA (2014); Spina and Volpini (2008)
Mortality rate – juveniles	34%	Bauer (2005): <i>Das Kompendium der Vögel Mitteleuropas</i> (KVM) / Cramp & Perrins (1994): <i>Birds of the Western Palearctic</i> / Robinson (2005): <i>British Trust for Ornithology</i>
Mortality rate – adults	51%	Bauer (2005) and Robinson (2005)
Breeding rate (young per pair)	4–5	Cramp & Perrins (1994: 844) and Robinson (2005)
Breeding success	3.4	Cramp & Perrins (1994: 844)

²³ The *Carnet de Chasse* data for the period 2002–2007 covers the months January–May and September–December, whereas the *Carnet de Chasse* data for 2008 covers the months of January and October–December.

For the purpose of calculating the <1% mortality rate and “small numbers”, the reference population is based solely on ring recoveries of this species in Italy from EU Member States (given that there are no ring recoveries of this species in Malta). This equates to a reference population of **1,761,375 minimum breeding pairs**.

Calculation of <1% annual mortality and “small numbers”

Hawfinch (*Coccothraustes coccothraustes*)

Minimum breeding success: 3.4 fledglings per pair (**1,761,375** x 3.4) = 5,988,675

Mortality rate of 1st year birds (5,988,675 x 34%) = 2,036,150

Mortality rate of adults (3,522,750 x 51%) = 1,796,603

Total annual mortality (2,036,150 + 1,796,603) = 3,832,753

1% of total annual mortality (3,832,753 x 1%) = 38,328

Total potential Hawfinch harvest figure is: 38,744 = 12,776 (figure divided by three to account for the fact that only a fraction of the bird reference population actually migrates towards the Maltese Islands through the Central Flyway).

Partitioning with other Member States (Austria: 12,776 × 50%) = 6,388

Autumn seasonal bags in relation to “small numbers”

Based on the <1% mortality rate (which is further divided by three), the “small numbers” calculation with respect to the Autumn 2014 seasonal bag limit of the Hawfinch is as follows:

- **Hawfinch** – maximum national bag limit of 6,388 individuals (one-third of the reference population partitioned with Austria)

Notwithstanding that the partitioned maximum bag limit arising out of the above calculations is 6,388 Hawfinches, given that the average bag limit over a seven-year period (2002–2008) is 604 birds, this analysis recommends that, should a derogation for the live-capturing of the seven finch species be considered in autumn 2016, the national bag limit should be substantially reduced further to not more than 500 as established in the July 2014 Framework for Allowing a Derogation Opening an Autumn Live-Capturing Season for Finches Regulations (S.L. 504.124)²⁴. This calculation is based on the formula discussed previously, which returns a figure that is not only considerably lower than the <1% threshold but also lower than the average number of birds caught over a seven-year period (2002–2008). Thus:

- **Hawfinch** – national bag limit of **500** birds.

²⁴ <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=12211&l=1>

6. Conservation status of the European Serin (*Serinus serinus*)

European Red List Status: Least Concern (European & EU27 levels)

Status at EU27: Secure

Distribution and conservation status

The geographical distribution of this species in Europe (Fig. 33) is as follows:

Breeding Estonia (a few), Latvia, Lithuania, Czech Republic, United Kingdom (a few), Germany, Netherlands, Spain, Portugal, France, Belgium, Austria, Ukraine Luxembourg, Slovenia, Italy, Greece, Cyprus, Bulgaria, Croatia, Hungary, Romania, Turkey, Sicily, Corsica, Sardinia, Russia (a few).

Wintering Italy, Cyprus, Greece, Germany Luxembourg, Sicily, Corsica, and Sardinia, Malta, Spain, Portugal, West France, Croatia.

Sedentary and migratory Breeding birds from the northern parts of the range move south to winter within southern Europe, around the Mediterranean (including coastal North Africa), the Balkans (including the Hungarian Plain), Cyprus, Lebanon, Israel, southern Iraq, Libya and northern Egypt (Clement *et al.* 1993: 173).

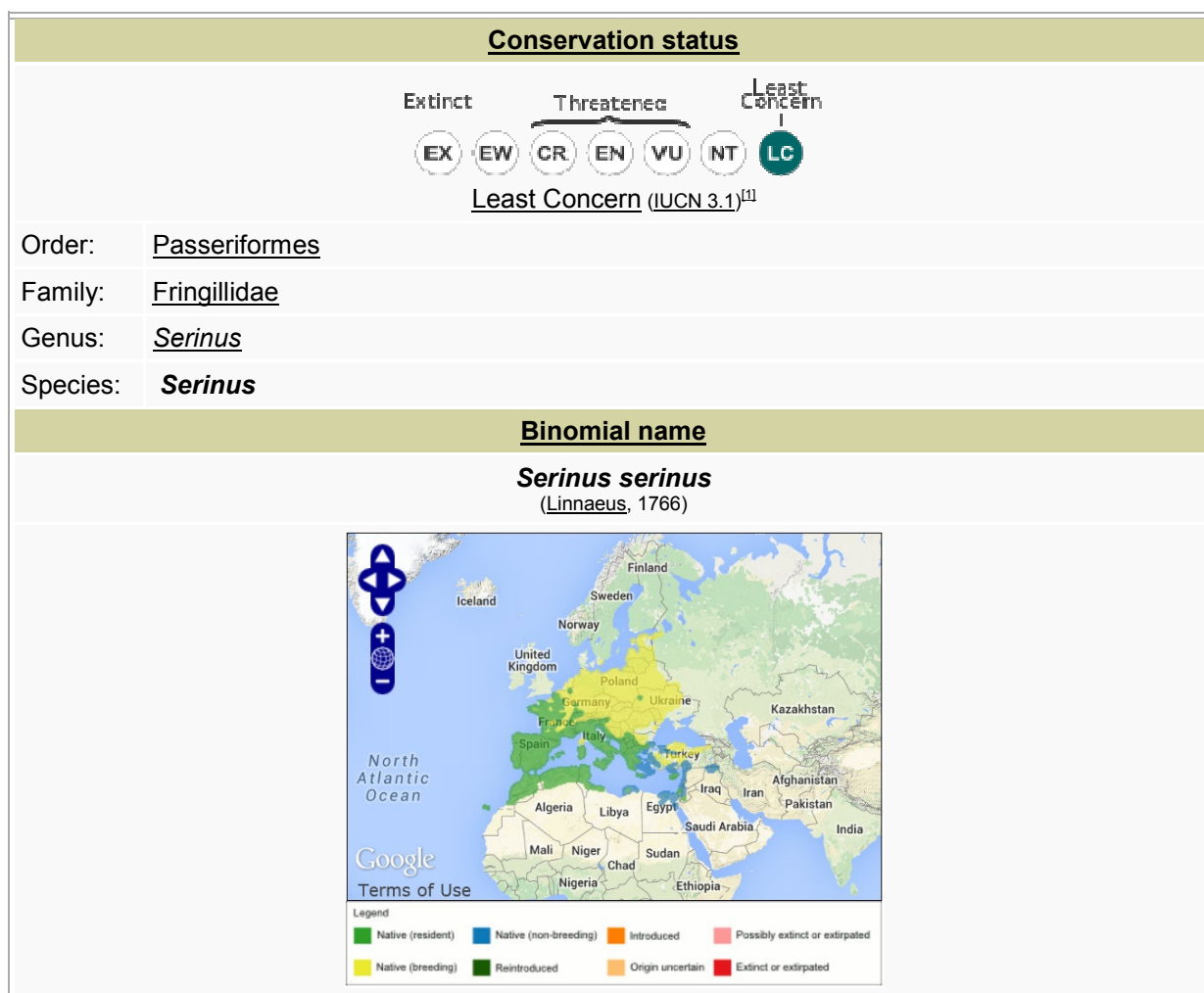


Fig. 33: Distribution and conservation status of the Serin (*Serinus serinus*)

Source: <http://en.wikipedia.org/wiki/Serinus> [Accessed 6 May 2016]. Distribution map downloaded from <http://www.birdlife.org> on 6 May 2016 [BirdLife International (2016) IUCN Red List for birds].

In Europe, the breeding population is estimated to number 8.3–20 million breeding pairs, equating to 24.9–60 million individuals (BirdLife International 2004). Europe forms 75–94% of the global range of the Serin [BirdLife International (2016) Species Factsheet]. Based on the EU Member States' Article 12 reports for the 2008–2012 reporting period, the EU breeding population amounts to 18,096,464–26,173,127 pairs. Within the territory of the European Union (EU 28), both the minimum and maximum breeding pairs are **Stable** in the long-term trend (1980–2012), with a change in the minimum number of pairs of -0.67% and a change of -1.20% in the maximum number of pairs, equating to a geomean change of -0.99% (Table 44). **According to BirdLife International (2004), this equates to a long-term Stable classification for the minimum, maximum and geomean number of breeding pairs (a change not more than 20% is considered to be Stable for the period 1980–2012).** Table 44 also lists population counts and long-term trend for each Member State within the territory of the European Union.

Table 44 Serin EU breeding population (long-term trend) and ring recoveries (bold = ring recoveries in Malta)

EU Member State	EU Ring Recoveries in Malta (n=16) †	Breeding Pairs (2014) (Min - Max)		Long-term Trend (1980–2012)	Mag. % (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)	Max % Change (Average Pairs)
Austria		50,000	80,000	Unknown	?	?	-	-	-
Belgium		500	800	Decreasing	35	80	-400	-640	-520
Bulgaria		25,000	50,000	Stable	0	0	-	-	-
Croatia*	4%	150,000	200,000	Increasing	0	19	23,950	31,933	27,941
Cyprus		2,500	10,000	Increasing	25	50	833	3,333	2,083
Czech Rep.	58%	225,000	450,000	Decreasing	98	99	-222,750	-445,500	-334,125
Denmark		20	20	Unknown	?	?	-	-	-
Estonia		100	300	Increasing	20	50	33	100	67
Finland		0	3	Fluctuating	-	-	-	-	-
France		225,000	400,000	Decreasing	42	42	-94,500	-168,000	-131,250
Germany		110,000	220,000	Decreasing	44	63	-69,300	-138,600	-103,950
Greece		80,000	110,000	Unknown	?	?	-	-	-
Hungary		142,000	200,000	Unknown	?	?	-	-	-
Italy		1,000,000	1,500,000	Increasing	5	25	200,000	300,000	250,000
Latvia		129	308	Increasing	?	516	108	258	183
Lithuania		15,000	25,000	Increasing	2,900	4,900	14,700	24,500	19,600
Luxembourg		1,000	2,000	Decreasing	?	30	-300	-600	-450
Netherlands		100	140	Decreasing	43	75	-75	-105	-90
Poland		540,000	690,000	Unknown	?	?	-	-	-
Portugal		1,000,000	5,000,000	Unknown	?	?	-	-	-
Romania		60,000	120,000	Unknown	?	?	-	-	-
Slovakia		50,000	100,000	Stable	0	0	-	-	-
Slovenia	38%	65,000	115,000	Unknown	?	?	-	-	-
Spain		16,390,000	19,440,000	Stable	?	?	-	-	-
Sweden		30	60	Stable	0	0	-	-	-
Total	100%	20,131,379	28,713,631						
					Total change		-147,701	-393,321	-270,511
					Percentage change		-0.67%	-1.20%	-0.99%
			Long-term Trend (EU Population)				Stable	Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); † Raine (2007)

Percentages verified using The Percentages Calculator, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

With reference to the short-term trend of the Serin within the territory of the European Union (EU 28), there is change in the minimum number of breeding pairs of -8.50% and a change of -9.79% in the maximum number of pairs, equating to a geomean change of -9.28% (Table 45). **According to BirdLife International (2004), this equates to a Stable classification for the minimum and maximum number of breeding pairs and their geomean (a change not more than 10% is considered to be Stable for the short-term trend).** Table 45 also lists population counts and short-term trend for each Member State within the territory of the European Union.

Table 45 Serin EU breeding population (short-term trend) and ring recoveries (bold = ring recoveries in Malta)

EU Member State	EU Ring Recoveries in Malta (n=16) f	Breeding Pairs (EEA, 2014) (Min - Max)		Short-term Trend (~2001–2012)	Mag. % (Min - Max)		Breeding Pairs (2004) (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)	Max % Change (Average Pairs)
Austria		50,000	80,000	Decreasing	50	60	100,000	200,000	-30,000	-48,000	-39,000
Belgium		500	800	Decreasing	45	66	909	2,353	-330	-528	-429
Bulgaria		25,000	50,000	Stable	0	0	50,000	150,000	-	-	-
Croatia*	4%	150,000	200,000	Increasing	0	19	150,000	168,067	23,950	31,933	27,941
Cyprus		2,500	10,000	Increasing	50	75	1,667	5,714	1,071	4,286	2,679
Czech Rep.	58%	225,000	450,000	Decreasing	50	83	2,058,750	4,117,500	-186,750	-373,500	-280,125
Denmark		20	20	Unknown	?	?	1	11	-	-	-
Estonia		100	300	Stable	0	0	50	100	-	-	-
Finland		0	3	Unknown	?	?	0	3	-	-	-
France		225,000	400,000	Decreasing	22	22	288,462	512,821	-49,500	-88,000	-68,750
Germany		110,000	220,000	Decreasing	40	54	183,333	478,261	-59,400	-118,800	-89,100
Greece		80,000	110,000	Stable	-	-	80,000	110,000	-	-	-
Hungary		142,000	200,000	Decreasing	31	31	205,797	289,855	-44,020	-62,000	-53,010
Italy		1,000,000	1,500,000	Stable	0	0	500,000	1,000,000	-	-	-
Latvia		129	308	Unknown	?	?	50	300	-	-	-
Lithuania		15,000	25,000	Increasing	650	1,150	2,000	2,000	13,800	23,000	18,400
Luxembourg		1,000	2,000	Decreasing	10	20	1,111	2,500	-200	-400	-300
Netherlands		100	140	Decreasing	74	89	385	1,273	-89	-125	-107
Poland		540,000	690,000	Increasing	30	70	415,385	405,882	222,353	284,118	253,235
Portugal		1,000,000	5,000,000	Decreasing	15	25	1,176,471	6,666,667	-250,000	-1,250,000	-750,000
Romania		60,000	120,000	Unknown	?	?	245,000	650,000	-	-	-
Slovakia		50,000	100,000	Stable	0	0	50,000	100,000	-	-	-
Slovenia	38%	65,000	115,000	Decreasing	30	40	92,857	191,667	-26,000	-46,000	-36,000

Spain		16,390,000	19,440,000	Decreasing	10	10	18,211,111	21,600,000	-1,639,000	-1,944,000	-1,791,500
Sweden		30	60	Stable	0	0	1	15	-	-	-
Total	100%	20,131,379	28,713,631				23,813,339	36,654,988			
							Total change		-2,024,115	-3,588,016	-2,806,066
							Percentage change		-8.50%	-9.79%	-9.28%
						Short-term Trend (EU Population)			Stable	Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); † Raine (2007)

Percentages verified using The Percentages Calculator, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

Conservation status at EU27 level

The Serin has a breeding population size of 19,900,000–28,600,000 pairs and a breeding range size of 2,410,000 square kilometres in the EU27. The breeding population trend in the EU27 is **Decreasing** in the short term and **Decreasing** in the long term. The EU population status of *Serinus serinus* 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 EU27 population or range has not declined by 20% or more since 1980) [Source: EEA, 2014, *Serinus serinus*, Article 12 2008–2012 (Data Sheet Info²⁵)].

European Bird Census Council: Long-term trend and ten-year (short-term) trends

According to the European Bird Census Council (EBCC, 2015 update)²⁶, the Serin population is classified as **Moderate** at both pan-European and EU levels. It should be noted that EBCC data pertaining to the short-term trends is only available at pan-European level. EBCC replaced the short-term (1990) trend by a rolling “Ten-year trend”. For the current update, the ten-year trend is represented by the period 2006–2013. At pan-European level, **the Serin decreased by 47% since 1980 and by 21% during the current 10-year period**. Between the previous EBCC update and the current (EBCC 2014) update the percentage change was -5% in the long-term trend and -4% in the short-term trend (Table 46).

Table 46	Serin long-term and short-term percentage change at pan-European level						
EBCC update	Species	Long-term Trend (%)	Long-term Slope		10-Year Trend (%)	10-Year Slope	Habitat
2012	<i>Serinus serinus</i>	-31%	0.9733		-23%	0.9788	farm
2013	<i>Serinus serinus</i>	-39%	0.9726		-34%	0.9773	farm
2014	<i>Serinus serinus</i>	-42%	0.9731		-17%	0.9853	farm
2015	<i>Serinus serinus</i>	-47%	0.9721		-21%	0.9869	farm
Overall % change (2014–2015)		-5%			-4%		

Data sources: EBCC (2012, 2013, 2014 & 2015 updates). Available at: <http://www.ebcc.info/index.php?ID=587>

²⁵ <http://bd.eionet.europa.eu/article12/summary/datasheet/?period=1&subject=A361>

²⁶ <http://www.ebcc.info/index.php?ID=558>

Figure 34 is an extract from the EBCC 2015 update, which confirms that the long-term trend classification for *Serinus serinus* is **Moderate decline**, namely: “significant decline, but not significantly more than 5% per year”.

European Serin (*Serinus serinus*)

Population index (%) 1982 - 2013, Europe.

Trend classification: Moderate decline ([explanation](#))

Note: Index for early period may be unrepresentative due to limited geographical coverage and needs to be treated with caution.

[List of Countries](#)

Source of the data: EBCC/RSPB/BirdLife/Statistics Netherlands

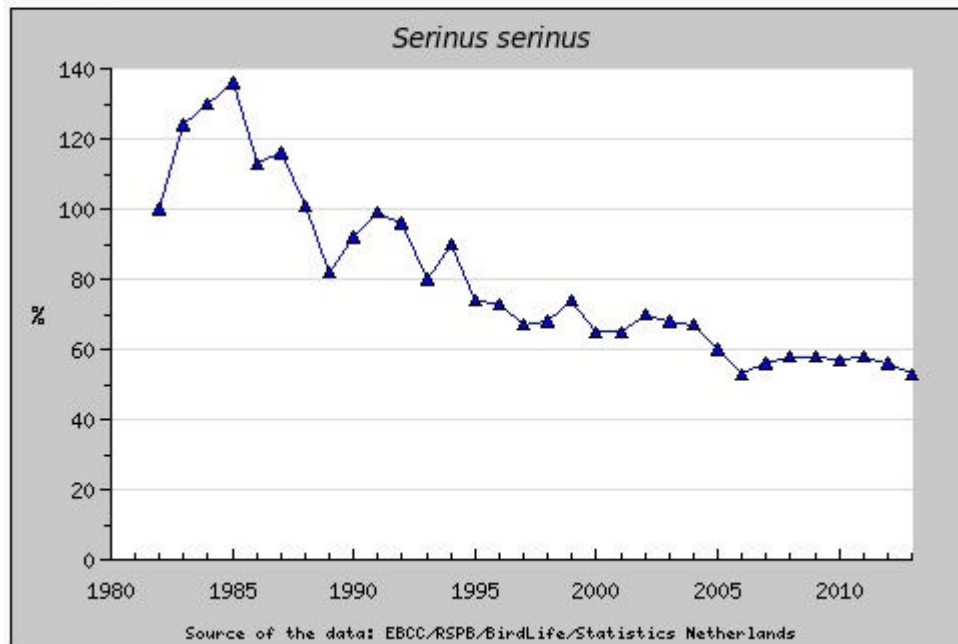


Fig. 34: Long-term trend classification for *Serinus serinus*.

"List of Countries":

Austria	1998 - 2013
Czech Republic	1982 - 2013
France	1989 - 2013
Germany East	1991 - 2013
Germany West	1989 - 2013
Greece	2007 - 2013
Hungary	1999 - 2013
Italy	2000 - 2013
Poland	2000 - 2013
Portugal	2004 - 2013
Slovakia	2005 - 2013
Slovenia	2007 - 2013
Spain	1998 - 2013
Switzerland	1999 - 2013

Source: EBCC (2015 update), available at: <http://www.ebcc.info/index.php?ID=587>.

Ring recoveries in Malta

Tables 47 and 48 provide data on the ring recoveries of this species in Malta, the respective number of breeding pairs, together with the overall direction of the population trend. The reference population (ring recoveries in Malta) is **Stable** in both the short-term and long-term trends. Figs. 35 and 36 illustrate the long-term trend at EU and reference population levels whereas Figs. 37 and 38 illustrate the respective short-term trends.

Table 47 Serin ring recoveries in Malta from other EU Member States and corresponding long-term trend

Country	EU Ring Recoveries in Malta (n=16) †	Breeding Pairs (Min - Max)		Long-term Trend (1980–2012)	Mag. % (Max - Min)		Max % Change (Min Pairs)	Max % Change (Max Pairs)
Czech Rep.	58%	225,000	450,000	Decreasing	98	99	-222,750	-445,500
Slovenia	38%	65,000	115,000	Unknown	?	?	-	-
Croatia*	4%	150,000	200,000	Increasing	0	19	23,950	31,933
Total	100%	440,000	765,000	Total change			-198,800	-413,567
				Percentage change			-8.02%	-8.57%
			Long-term Trend (Ring Recoveries)				Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); † Raine (2007)

Percentages verified using *The Percentages Calculator*, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

Table 48 Serin ring recoveries in Malta from other EU Member States and corresponding short-term trend

EU Member State	EU Ring Recoveries in Malta (n=16) †	Breeding Pairs (EEA, 2014) (Min - Max)		Short-term Trend (~2001–2012)	Mag. % (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)
Czech Rep.	58%	225,000	450,000	Decreasing	50	83	-186,750	-373,500
Slovenia	38%	65,000	115,000	Decreasing	30	40	-26,000	-46,000
Croatia*	4%	150,000	200,000	Increasing	0	19	23,950	31,933
Total	100%	440,000	765,000	Total change			-188,800	-387,567
				Percentage change			-8.21%	-8.72%
			Short-term Trend (Ring Recoveries)				Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); † Raine (2007)

Percentages verified using *The Percentages Calculator*, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

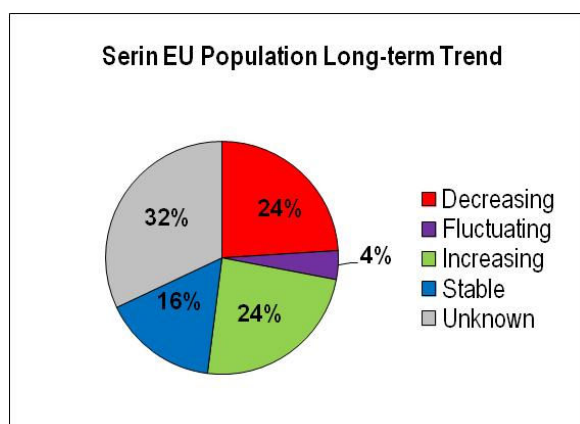


Fig. 35: Serin EU population long-term trend by Member State

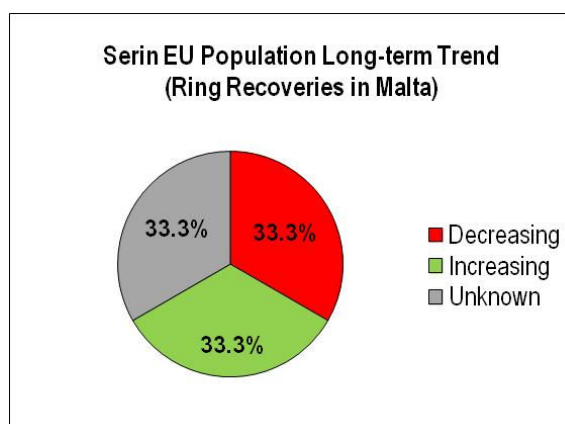


Fig. 36: Serin EU population long-term trend (ring recoveries in Malta)

Data sources: EEA (2014); Raine (2007)

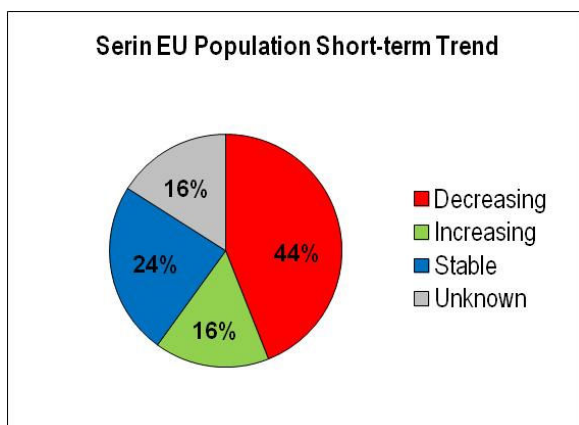


Fig. 37: Serin EU population short-term trend by Member State

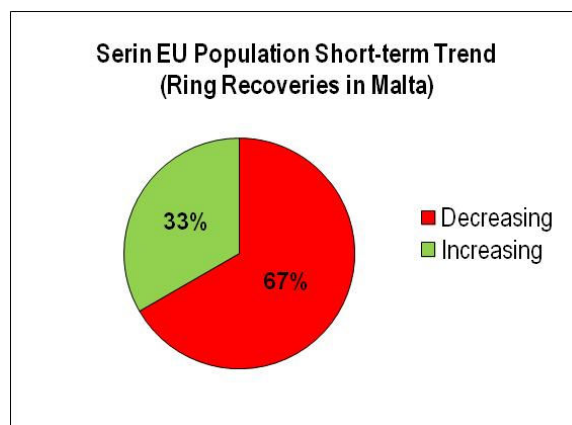


Fig. 38: Serin EU population short-term trend (ring recoveries in Malta)

Data sources: EEA (2014); Raine (2007)

Serin conservation status update – comparison between different data sources

The following table provides a general overview of the latest conservation status (2015 update) from various sources for direct comparison.

Species	EU Population						Ring Recoveries					
	Short-term Trend			Long-term Trend			Short-term Trend			Long-term Trend		
	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean
Serin	➡	➡	➡	➡	➡	➡	➡	➡	➡	➡	➡	➡
	Short-term Trend					Long-term Trend						
Species	EBCC 2015 (pan-European)		Article 12 (2008–2012) [EU Geomean]	Article 12 (2008–2012) [Ring Recoveries Geomean]		EBCC 2015 (pan-European)		EBCC 2015 (EU)		Article 12 (2008–2012) [EU Geomean]	Article 12 (2008–2012) [Ring Recoveries Geomean]	
Serin	↓		➡	➡		↓		↓		➡	➡	

Data Sources: EBCC (2015); European Environment Agency (2014)

The reference population

Table 49 Serin (*Serinus serinus*) breeding population estimates (reference population)

Country [Ring recoveries in Malta]	Serin minimum breeding population size (pairs) [Reference population]	Short-term Trend (~2001–2012)	Long-term Trend (1980–2012)
Czech Rep.	225,000	Decreasing	Decreasing
Slovenia	65,000	Decreasing	Unknown
Croatia*	150,000	Increasing	Increasing
Reference Population Size (Minimum breeding pairs)	440,000	Stable (-8.21%)	Stable (-8.02%)

Data Sources: *BirdLife International (2004); European Environment Agency (2014); Raine (2007)

Carnet de Chasse data (2002–2008)

According to the *Carnet de Chasse* data available from the Environment Protection Directorate of the Malta Environment and Planning Authority, the following Serins were captured alive in Malta during the years indicated (Table 50).

Table 50 *Carnet de Chasse* live-capturing data²⁷ for Serin (2002–2008)

Species	2002	2003	2004	2005	2006	2007	2008	Total	Average
Serin	4,918	4,525	1,599	1,814	2,509	3,800	3,139	22,304	3,186

Source: *Carnet de Chasse* data, Environment Protection Directorate (Malta Environment and Planning Authority). Available at: <http://www.mepa.org.mt/biodiversity-reporting>.

Minimum breeding population

In the case of the European breeding population, Table 51 shows the minimum number of breeding pairs of Serins that correspond with ring recoveries in Malta (the reference population), together with other relevant information required for the calculation of “small numbers”.

Table 51 Minimum breeding population and mortality rate

	European Serin (<i>Serinus serinus</i>)	Source
Minimum breeding population – pairs	440,000	BirdLife International (2014); EEA (2014); Raine (2007)
Mortality rate – juveniles	44%	Bauer (2005): <i>Das Kompendium der Vögel Mitteleuropas</i> (KVM) / Cramp & Perrins (1994): <i>Birds of the Western Palearctic</i> / Robinson (2005): British Trust for Ornithology
Mortality rate – adults	40%	Bauer (2005) and Robinson (2005)
Breeding rate (young per pair)	3–4	Cramp & Perrins (1994: 518) and Robinson (2005)
Breeding success	4	Cramp & Perrins (1994: 518)

For the purpose of calculating the <1% mortality rate and “small numbers”, the reference population is based solely on ring recoveries of this species in Malta from EU Member States. This equates to a reference population of **665,000 minimum breeding pairs**.

Calculation of <1% annual mortality and “small numbers”

Serin (*Serinus serinus*)

Minimum breeding success: 3 fledglings per pair (**440,000** x 3) = 1,320,000

Mortality rate of 1st year birds (1,320,000 x 44%) = 580,800

Mortality rate of adults (880,000 x 40%) = 352,000

Total annual mortality (580,800 + 352,000) = 932,800

1% of total annual mortality (932,800 x 1%) = 9,328

Total potential Serin harvest figure is 9,328.

Partitioning with other Member States (Spain: 9,328 x 50%) = 4,664

²⁷ The *Carnet de Chasse* data for the period 2002–2007 covers the months January–May and September–December, whereas the *Carnet de Chasse* data for 2008 covers the months of January and October–December.

Autumn seasonal bags in relation to “small numbers”

Based on the <1% mortality rate of the reference population, the “small numbers” calculation with respect to the potential national bag limit of the Serin is as follows:

- **Serin** – potential maximum bag limit of 4,664 birds (partitioned with Spain).

Notwithstanding that the partitioned maximum bag limit arising out of the above calculations is 4,664 Serins, given that the average bag limit over a seven-year period (2002–2008) is 3,186 birds, this analysis recommends that, should a derogation for the live-capturing of the seven finch species be considered in autumn 2016, the national bag limit should be substantially reduced further to not more than 2,350 as established in the July 2014 Framework for Allowing a Derogation Opening an Autumn Live-Capturing Season for Finches Regulations (S.L. 504.124)²⁸. This calculation is based on the formula discussed previously, which returns a figure that is not only considerably lower than the <1% threshold but also lower than the average number of birds caught over a seven-year period (2002–2008). Thus:

- **Serin** – national bag limit of **2,350** birds

²⁸ <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=12211&l=1>

7. Conservation status of the Eurasian Siskin (*Carduelis spinus*)

European Red List Status: Least Concern (European & EU27 levels)	Status at EU27: Secure
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Distribution and conservation status

The geographical distribution of this species in Europe (Fig. 39) is as follows:

Breeding	Estonia (a few), Latvia, Lithuania, Czech Republic, United Kingdom, Germany, Netherlands, Spain, Portugal, France, Belgium, Austria, Ukraine, Luxembourg, Slovenia, Italy, Greece, Cyprus, Bulgaria, Croatia, Hungary, Romania, Turkey, Russia.
Wintering	Italy, Cyprus, Greece, Germany, Luxembourg, Sicily, Corsica, and Sardinia, Spain, Portugal, France, Croatia.
Sedentary and migratory	In the west of the range, those breeding in the northern regions move south and southwest to winter within and south of the breeding range to southern Spain, Balearic Islands, throughout France and the British Isles, Italy, the Balkans to Greece, Cyprus, Turkey, central Iran and southern Central Asia; also occurs irregularly or rarely in Iceland, Faroe Isles, Sicily (has bred), Malta, Lebanon, Israel, Jordan, Tunisia, Libya (Tripoli), northern Egypt, Iraq, southern Iran, United Arab Emirates, Bahrain and Kuwait. Individuals do not necessarily winter in the same area in successive years. (Clement <i>et al.</i> 1993: 221).

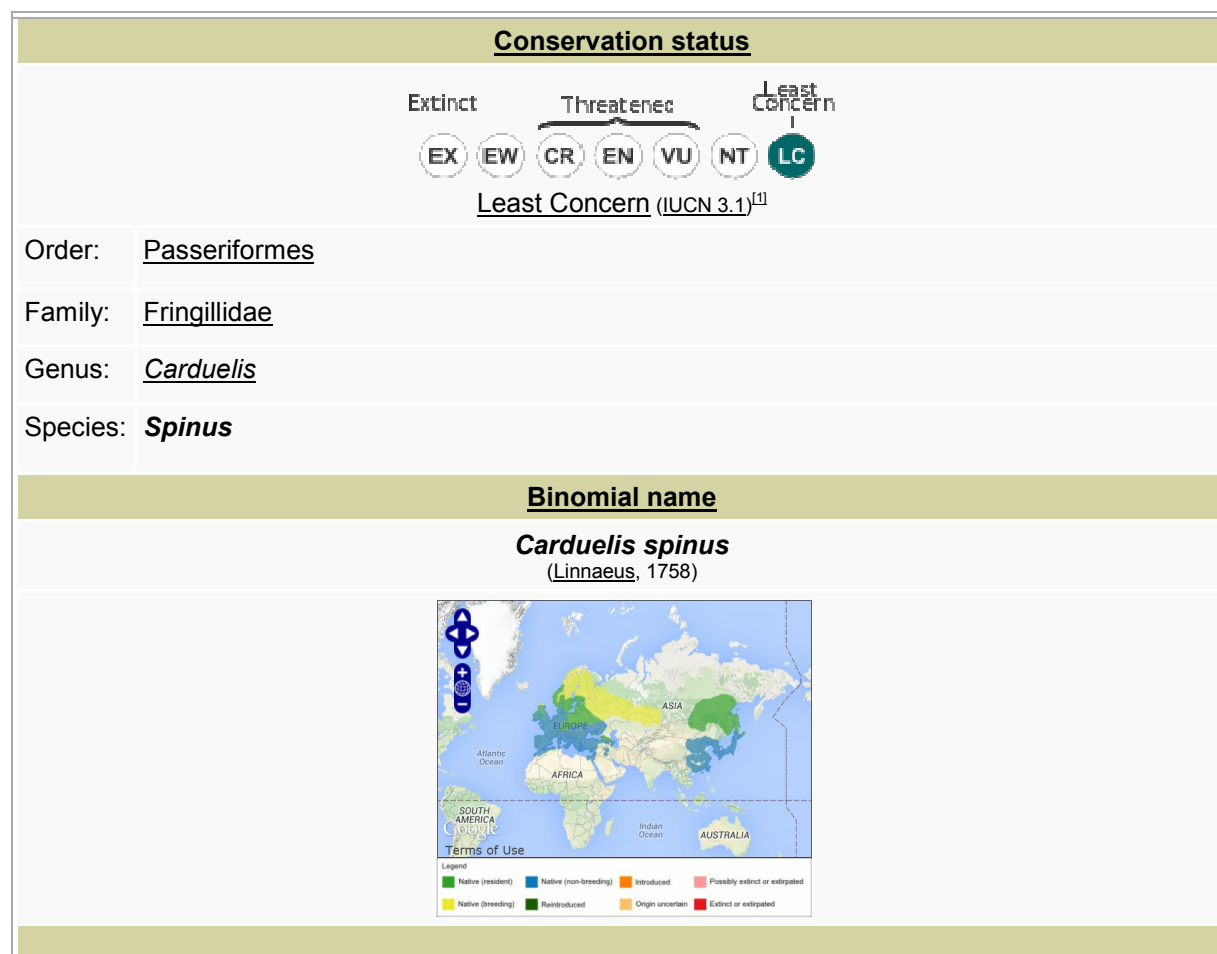


Fig. 39: Distribution and conservation status of the Siskin (*Carduelis spinus*)

Source: http://en.wikipedia.org/wiki/Eurasian_Siskin [Accessed 6 May 2016]. Distribution map downloaded from <http://www.birdlife.org> on 6 May 2016 [BirdLife International (2016) IUCN Red List for birds].

In Europe, the breeding population is estimated to number 10–18 million breeding pairs, equating to 30–54 million individuals (BirdLife International 2004). Europe forms 75–94% of the global range of the Siskin [BirdLife International (2016) Species Factsheet]. Based on the EU Member States' Article 12 reports for the 2008–2012 reporting period, the EU breeding population amounts to 3,381,935–5,238,873 pairs. Within the territory of the European Union (EU 28), the minimum breeding pairs is **Increasing**, whereas the maximum number of pairs and geomean are **Stable** in the long-term trend (1980–2012), with a change in the minimum number of pairs of +26.15% and a change of +13.97% in the maximum number of pairs, equating to a geomean change of +18.43% (Table 52). **According to BirdLife International (2004), this equates to a long-term Moderate Increase classification for the minimum pairs and Stable for the maximum number of breeding pairs and geomean (a change not more than 20% is considered to be Stable for the period 1980–2012).** Table 52 also lists population counts and long-term trend for each Member State within the territory of the European Union.

Table 52 Siskin EU breeding population (long-term trend) and ring recoveries (bold = ring recoveries in Malta)

EU Member State	EU Ring Recoveries in Malta (n=9) ‡	Breeding Pairs (2014) (Min - Max)		Long-term Trend (1980–2012)	Mag. % (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)	Max % Change (Average Pairs)
Austria		25,000	50,000	Unknown	?	?	-	-	-
Belgium		100	550	Decreasing	28	87	-87	-479	-283
Bulgaria		2,000	4,000	Fluctuating	-	-	-	-	-
Croatia*		5,000	10,000	Decreasing	30	49	-2,450	-4,900	-3,675
Czech Rep.	18%	201,600	403,200	Decreasing	31	99	-199,584	-399,168	-299,376
Denmark		200	200	Fluctuating	-	-	-	-	-
Estonia		100,000	150,000	Stable	0	0	-	-	-
Finland		1,700,000	2,300,000	Increasing	10	33	421,805	570,677	496,241
France		500	1,500	Unknown	?	?	-	-	-
Germany		21,000	51,000	Stable	0	0	-	-	-
Greece		500	2,000	Unknown	?	?	-	-	-
Hungary		200	300	Unknown	?	?	-	-	-
Ireland		99,999	99,999	Increasing	733	733	87,994	87,994	87,994
Italy	18%	500	1,500	Fluctuating	-	-	-	-	-
Latvia	10%	343,425	621,964	Increasing	142	1371	320,079	579,682	449,880
Lithuania		40,000	100,000	Stable	0	0	-	-	-
Luxembourg		0	2	Fluctuating	-	-	-	-	-
Netherlands	18%	247	594	Stable	0	0	-	-	-
Poland		18,000	62,000	Unknown	?	?	-	-	-
Romania		1,000	10,000	Unknown	?	?	-	-	-
Slovakia		15,000	30,000	Decreasing	20	30	-4,500	-9,000	-6,750
Slovenia	18%	6,000	9,000	Stable	0	0	-	-	-
Spain		264	264	Unknown	?	?	-	-	-
Sweden		493,000	1,134,000	Decreasing	20	40	-197,200	-453,600	-325,400
UK	18%	420,000	420,000	Increasing	245	245	298,204	298,204	298,204
Total	100%	3,493,535	5,462,073						
					Total change		724,261	669,411	696,836
					Percentage change		26.15%	13.97%	18.43%
			Long-term Trend (EU Population)				Increasing	Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); ‡ Raine (2007)

Percentages verified using The Percentages Calculator, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

With reference to the short-term trend of the Siskin within the territory of the European Union (EU 28), there is change in the minimum number of breeding pairs of -5.85% and a change of -8.42% in the maximum number of pairs, equating to a geomean change of -7.55% (Table 53). **According to BirdLife International (2004), this equates to a Stable classification for the minimum and maximum number of breeding pairs and their geomean (a change not more than 10% is considered to be Stable for the short-term trend).** Table 53 also lists population counts and short-term trend for each Member State within the territory of the European Union.

Table 53 Siskin EU breeding population (short-term trend) and ring recoveries (bold = ring recoveries in Malta)

EU Member State	EU Ring Recoveries in Malta (n=9) [	Breeding Pairs (EEA, 2014) (Min - Max)		Short-term Trend (~2001–2012)	Mag. % (Min - Max)		Breeding Pairs (2004) (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)	Max % Change (Average Pairs)
Austria		25,000	50,000	Fluctuating	-	-	30,000	140,000	-	-	-
Belgium		100	550	Decreasing	4	82	104	3,056	-82	-451	-267
Bulgaria		2,000	4,000	Fluctuating	-	-	2,000	4,000	-	-	-
Croatia*		5,000	10,000	Decreasing	30	49	7,143	19,608	-2,450	-4,900	-3,675
Czech Rep.	18%	201,600	403,200	Increasing	76	99	114,545	202,613	199,584	200,587	200,085
Denmark		200	200	Fluctuating	-	-	200	2,000	-	-	-
Estonia		100,000	150,000	Decreasing	20	50	125,000	300,000	-50,000	-75,000	-62,500
Finland		1,700,000	2,300,000	Decreasing	8	24	1,847,826	3,026,316	-408,000	-552,000	-480,000
France		500	1,500	Unknown	?	?	500	2,500	-	-	-
Germany		21,000	51,000	Stable	0	0	25,000	100,000	-	-	-
Greece		500	2,000	Fluctuating	-	-	500	2,000	-	-	-
Hungary		200	300	Unknown	?	?	200	300	-	-	-
Ireland		99,999	99,999	Increasing	67	67	59,880	59,880	66,999	40,119	53,559
Italy	18%	500	1,500	Fluctuating	-	-	4,000	15,000	-	-	-
Latvia	10%	343,425	621,964	Decreasing	4	53	357,734	1,323,328	-182,015	-329,641	-255,828
Lithuania		40,000	100,000	Stable	0	0	100,000	300,000	-	-	-
Luxembourg		0	2	Fluctuating	-	-	1	10	-	-	-
Netherlands	18%	247	594	Increasing	1	175	245	216	432	378	405
Poland		18,000	62,000	Increasing	50	120	12,000	28,182	21,600	33,818	27,709
Romania		1,000	10,000	Unknown	?	?	24,000	65,000	-	-	-
Slovakia		15,000	30,000	Decreasing	20	30	18,750	42,857	-4,500	-9,000	-6,750
Slovenia	18%	6,000	9,000	Stable	0	0	2,000	3,000	-	-	-
Spain		264	264	Stable	0	0	500	1,100	-	-	-

Sweden		493,000	1,134,000	Stable	0	0	500,000	1,000,000	-	-	-
UK	18%	420,000	420,000	Increasing	36	36	308,824	308,824	151,200	111,176	131,188
Total	100%	3,493,535	5,462,073				3,540,952	6,949,788			
							Total change		-207,232	-584,913	-396,072
							Percentage change		-5.85%	-8.42%	-7.55%
					Short-term Trend (EU Population)				Stable	Stable	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); † Raine (2007)

Percentages verified using The Percentages Calculator, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

Conservation status at EU27 level

The Siskin has a breeding population size of 3,480,000–5,460,000 pairs and a breeding range size of 1,750,000 square kilometres in the EU27. The breeding population trend in the EU27 is **Decreasing** in the short term and **Increasing** in the long term. The EU population status of *Carduelis spinus* 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 EU27 population or range has not declined by 20% or more since 1980) [Source: EEA, 2014, *Carduelis spinus*, Article 12 2008–2012 (Data Sheet Info²⁹)].

European Bird Census Council: Long-term trend and ten-year (short-term) trends

According to the European Bird Census Council (EBCC, 2015 update)³⁰, the Siskin population is classified as **Moderate Decline** at pan-European level and **Stable** at EU level. EBCC replaced the short-term (1990) trend by a rolling “Ten-year trend”. For the current update, the ten-year trend is represented by the period 2006–2013. At pan-European level, the Siskin increased by 32% since 1980 but decreased by 19% during the current 10-year period. Between the previous EBCC update and the current (EBCC 2014) update the percentage change was -40% in the long-term trend and -51% in the short-term trend (Table 54).

Table 54	Siskin long-term and short-term percentage change at pan-European level						
EBCC update	Species	Long-term Trend (%)	Long-term Slope		10-Year Trend (%)	10-Year Slope	Habitat
2012	<i>Carduelis spinus</i>	+6%	0.9903		-6%	0.9823	for
2013	<i>Carduelis spinus</i>	+11%	0.9904		-3%	0.9831	for
2014	<i>Carduelis spinus</i>	+32%	0.992		+32%	1.0201	for
2015	<i>Carduelis spinus</i>	-8%	0.9908		-19%	1.0136	for
Overall % change (2014–2015)		-40%			-51%		

Data sources: EBCC (2012, 2013, 2014 & 2015 updates). Available at: <http://www.ebcc.info/index.php?ID=587>

²⁹ <http://bd.eionet.europa.eu/article12/summary/datasheet/?period=1&subject=A365>

³⁰ <http://www.ebcc.info/index.php?ID=558>

Figure 40 is an extract from the EBCC 2015 update, which confirms that the long-term trend classification for *Carduelis spinus* is **Moderate Increase**, namely: “significant increase, but not significantly more than 5% per year”.

Eurasian Siskin (*Carduelis spinus*)

Population index (%) 1980 - 2013, Europe.

Trend classification: Moderate decline ([explanation](#))

List of Countries

Source of the data: EBCC/RSPB/BirdLife/Statistics Netherlands

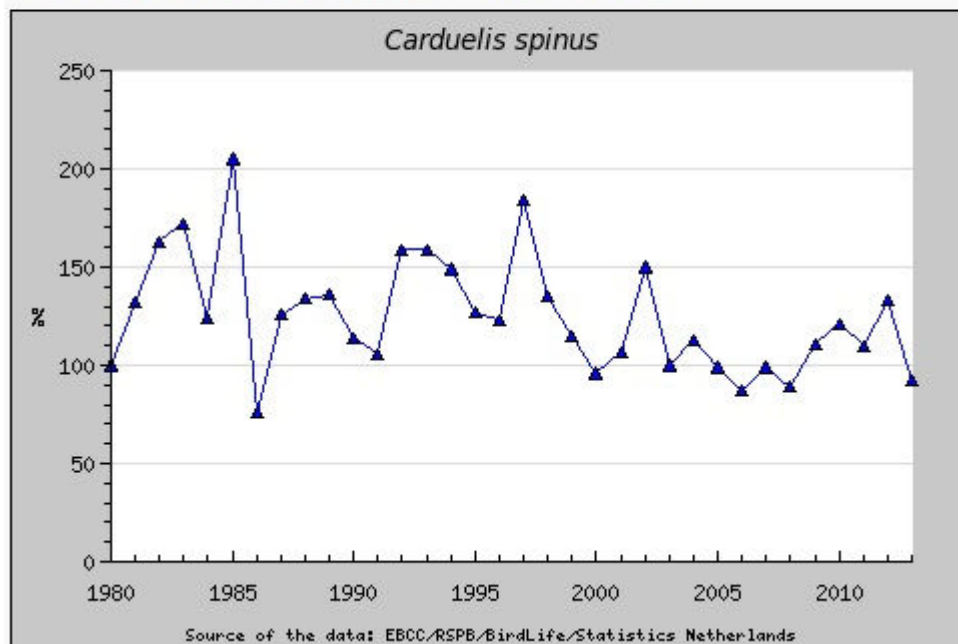


Fig. 40: Long-term trend classification for *Carduelis spinus*.

"List of Countries":

Austria	1998 - 2013
Czech Republic	1982 - 2013
Denmark	1976 - 2012
Estonia	1983 - 2013
Finland	1976 - 2013
Germany East	1991 - 2013
Germany West	1989 - 2013
Italy	2000 - 2013
Latvia	2005 - 2013
Netherlands	1986 - 2013
Norway	1996 - 2013
Poland	2000 - 2013
Slovakia	2005 - 2013
Sweden	1975 - 2013
Switzerland	1999 - 2013
United Kingdom	1994 - 2013

Source: EBCC (2015 update), available at: <http://www.ebcc.info/index.php?ID=587>.

Ring recoveries in Malta

Tables 55 and 56 provide data on the ring recoveries of this species in Malta, the respective number of breeding pairs, together with the overall direction of the population trend. The reference population (ring recoveries in Malta) is **Increasing** in both the short-term and long-term trends, with a Stable short-term trend in maximum number of breeding pairs and geomean. Figs. 41 and 42 illustrate the long-term trend at EU and reference population levels whereas Figs. 43 and 44 illustrate the respective short-term trends.

Table 55 Siskin ring recoveries in Malta from other EU Member States and corresponding long-term trend

Country	EU Ring Recoveries in Malta (n=9) †	Reference Population Breeding Pairs (Min - Max)		Long-term Trend (1980–2012)	Mag. % (Max - Min)		Max % Change (Min Pairs)	Max % Change (Max Pairs)
Czech Rep.	18%	201,600	403,200	Decreasing	31	99	-199,584	-399,168
Italy	18%	500	1,500	Fluctuating	-	-	-	-
Netherlands	18%	247	594	Stable	0	0	-	-
Slovenia	18%	6,000	9,000	Stable	0	0	-	-
UK	18%	420,000	420,000	Increasing	245	245	298,204	298,204
Latvia	10%	343,425	621,964	Increasing	142	1371	320,079	579,682
Total	100%	971,772	1,456,258	Total change			418,699	877,886
				Percentage change			+75.70%	+48.97%
				Long-term Trend (Ring Recoveries)			Increasing	Increasing

Data Sources: *BirdLife International (2004); European Environment Agency (2014); † Raine (2007)

Percentages verified using *The Percentages Calculator*, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

Table 56 Siskin ring recoveries in Malta from other EU Member States and corresponding short-term trend

EU Member State	EU Ring Recoveries in Malta (n=11) †	Breeding Pairs (EEA, 2014) (Min - Max)		Short-term Trend (~2001–2012)	Mag. % (Min - Max)		Max % Change (Min Pairs)	Max % Change (Max Pairs)
Czech Rep.	18%	201,600	403,200	Increasing	76	99	199,584	200,587
Italy	18%	500	1,500	Fluctuating	-	-	-	-
Netherlands	18%	247	594	Increasing	1	175	432	378
Slovenia	18%	6,000	9,000	Stable	0	0	-	-
UK	18%	420,000	420,000	Increasing	36	36	151,200	111,176
Latvia	10%	343,425	621,964	Decreasing	4	53	-182,015	-329,641
Total	100%	971,772	1,456,258	Total change			169,201	-17,500
				Percentage change			+22.18%	-0.96%
				Long-term Trend (Ring Recoveries)			Increasing	Stable

Data Sources: *BirdLife International (2004); European Environment Agency (2014); † Raine (2007)

Percentages verified using *The Percentages Calculator*, available at: <http://www.cleavebooks.co.uk/scol/calpcent.htm>

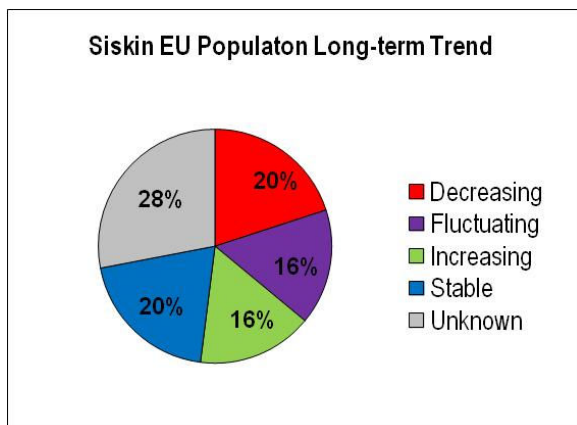


Fig. 41: Siskin EU population long-term trend by Member State

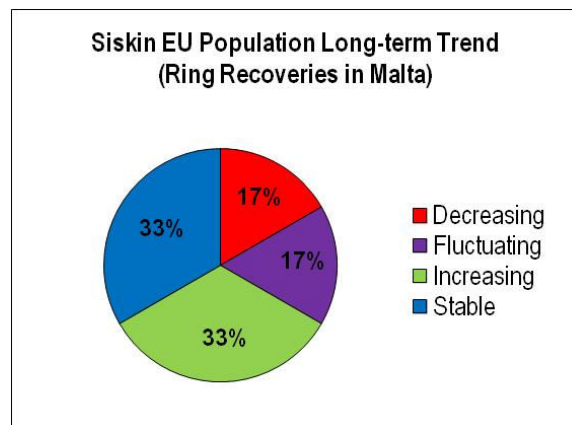


Fig. 42: Siskin EU population long-term trend (ring recoveries in Malta)

Data sources: EEA (2004); Raine (2007)

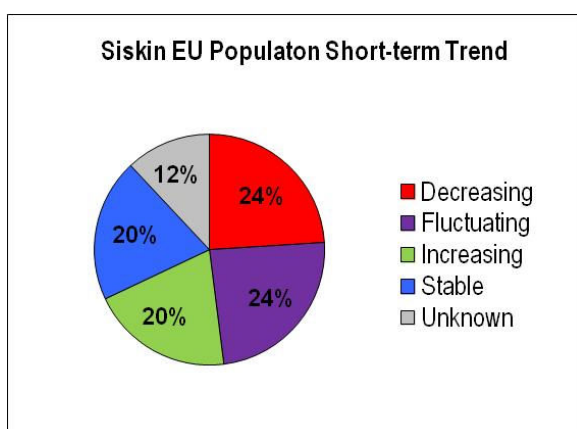


Fig. 43: Siskin EU population short-term trend by Member State

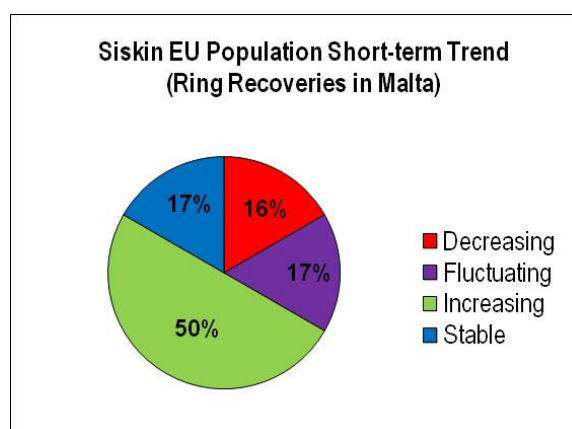


Fig. 44: Siskin EU population short-term trend (ring recoveries in Malta)

Data sources: EEA (2014); Raine (2007)

Siskin conservation status update – comparison between different data sources

The following table provides a general overview of the latest conservation status (2015 update) from various sources for direct comparison.

Species	EU Population						Ring Recoveries					
	Short-term Trend			Long-term Trend			Short-term Trend			Long-term Trend		
	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean
Siskin	➡	➡	➡	⬆	➡	➡	⬆	➡	➡	⬆	⬆	⬆
	Short-term Trend					Long-term Trend						
Species	EBCC 2015 (pan-European)	Article 12 (2008–2012) [EU Geomean]		Article 12 (2008–2012) [Ring Recoveries Geomean]		EBCC 2015 (pan-European)	EBCC 2015 (EU)		Article 12 (2008–2012) [EU Geomean]		Article 12 (2008–2012) [Ring Recoveries Geomean]	
Siskin	⬇	➡		➡		⬇	➡		⬆		⬆	

Data Sources: EBCC (2015); European Environment Agency (2014)

The reference population

Table 57 Siskin (*Carduelis spinus*) breeding population estimates (reference population)

Country [Ring recoveries in Malta]	Siskin minimum breeding population size (pairs) [Reference population]	Short-term Trend (~2001– 2012)	Long-term Trend (1980–2012)
Czech Rep.	201,600	Increasing	Decreasing
Italy	500	Fluctuating	Fluctuating
Netherlands	247	Increasing	Stable
Slovenia	6,000	Stable	Stable
UK	420,000	Increasing	Increasing
Latvia	343,425	Decreasing	Increasing
Reference Population Size (Minimum breeding pairs)	971,772	Increasing (+22.18%)	Increasing (+75.70%)

Data Sources: *BirdLife International (2004); European Environment Agency (2014); Raine (2007)

Carnet de Chasse data (2002–2008)

According to the *Carnet de Chasse* data available from the Environment Protection Directorate of the Malta Environment and Planning Authority, the following Siskins were captured alive in Malta during the years indicated (Table 58).

Table 58 Carnet de Chasse live-capturing data³¹ for Siskin (2002–2008)

Species	2002	2003	2004	2005	2006	2007	2008	Total	Average
Siskin	670	380	296	7,877	1,449	10,120	1,503	22,295	3,185

Source: *Carnet de Chasse* data, Environment Protection Directorate (Malta Environment and Planning Authority). Available at: <http://www.mepa.org.mt/biodiversity-reporting>.

Minimum breeding population

In the case of the European breeding population, Table 59 shows the minimum number of breeding pairs of Siskins that correspond with ring recoveries in Malta (the reference population), together with other relevant information required for the calculation of “small numbers”.

Table 59 Minimum breeding population and mortality rate

	Siskin (<i>Carduelis spinus</i>)	Source
Minimum breeding population – pairs	971,772	BirdLife International (2014); EEA (2014); Raine (2007)
Mortality rate – juveniles	55%	Bauer (2005): <i>Das Kompendium der Vögel Mitteleuropas</i> (KVM) / Cramp & Perrins (1994): <i>Birds of the Western Palearctic</i> / Robinson (2005): British Trust for Ornithology
Mortality rate – adults	54%	Bauer (2005) and Robinson (2005)
Breeding rate (young per pair)	3–5	Cramp & Perrins (1994) and Robinson (2005)
Breeding success	3	Cramp & Perrins (1994)

³¹ The *Carnet de Chasse* data for the period 2002–2007 covers the months January–May and September–December, whereas the *Carnet de Chasse* data for 2008 covers the months of January and October–December.

For the purpose of calculating the <1% mortality rate and “small numbers”, the reference population is based solely on ring recoveries of this species in Malta from EU Member States. This equates to a reference population of **860,172 minimum breeding pairs**.

Calculation of <1% annual mortality and “small numbers”

Siskin (*Carduelis spinus*)

Minimum breeding success: 3 fledglings per pair ($971,772 \times 3$) = 2,915,316

Mortality rate of 1st year birds ($2,915,316 \times 55\%$) = 1,603,423

Mortality rate of adults ($1,943,544 \times 54\%$) = 1,049,513

Total annual mortality ($1,603,423 + 1,049,513$) = 2,652,936

1% of total annual mortality ($2,652,936 \times 1\%$) = 26,529

Total potential Siskin harvest figure is 26,529.

Partitioning with other Member States (Austria and Spain: $26,529 \times 33\%$) = 8,843

Autumn seasonal bags in relation to “small numbers”

Based on the <1% mortality rate of the reference population, the “small numbers” calculation with respect to the potential national bag limit of the Siskin is as follows:

- **Siskin** – potential maximum bag limit of 8,843 birds (partitioned with Austria and Spain).

Notwithstanding that the partitioned maximum bag limit arising out of the above calculations is 8,843 Siskins, given that the average bag limit over a seven-year period (2002–2008) is 3,185 birds, this analysis recommends that, should a derogation for the live-capturing of the seven finch species be considered in autumn 2016, the national bag limit should be substantially reduced further to not more than 2,350 as established in the July 2014 Framework for Allowing a Derogation Opening an Autumn Live-Capturing Season for Finches Regulations (S.L. 504.124)³². This calculation is based on the formula discussed previously, which returns a figure that is not only considerably lower than the <1% threshold but also lower than the average number of birds caught over a seven-year period (2002–2008). Thus:

- **Siskin** – national bag limit of **2,350** birds

³² <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=12211&l=1>

Conclusions regarding conservation status and “small numbers”

The previous sections provided an update on the conservation status of the seven finch species together with calculations of the <1% annual mortality of the reference populations. This section provides a general summary of the main conclusions. This update focused on the changes in the short-term and long-term trends of the seven finch species on the basis of Article 12 reports, including surrogate data for Czech Republic and Greece, as published by the European Environment Agency (EEA, 2014) for the period 2008–2012 and the latest EBCC (2015) update. It has been shown that in the Article 12 reports, although a number of Member States have reported a decrease in some of the finch populations, such magnitude change is not actually reflected in the number of breeding pairs that was reported ten years earlier in Birds in Europe II (BirdLife International, 2004). On the contrary, despite a reported decline, the number of breeding pairs as reported in Article 12 reports is actually higher than those reported ten years earlier. This was also the case in terms of reported increases, since the corresponding number of pairs in Birds in Europe II was either exactly the same or indeed higher than those in Article 12 reports. The **values for the number of breeding pairs in 2004 was thus revised** using an online percentages calculator to provide a more realistic number of breeding pairs **based on the percentage changes as reported by each Member State in the current Article 12 reports**.

The final analysis showed that in the **short-term trend**, the **EU populations** of Chaffinch, Linnet, Goldfinch, Hawfinch, Serin and Siskin are **stable**, whereas the Greenfinch population is **increasing** at all levels of the population (minimum and maximum pairs and their geomean). **In terms of long-term trend, all seven finch species have been shown to be Stable at all three levels of their population (min/max/geomean)**, the Siskin being the only exception since it **increased** in the number of minimum pairs.

The same methodology discussed above (review of the 2004 baseline population) was used to determine the short-term trends at **ring recoveries level**. It was shown that whilst the Goldfinch and Siskin **increased**, the Linnet, Hawfinch, Serin, Chaffinch, Greenfinch were **stable**. In terms of long-term trends at ring recovery level, it was shown that the Chaffinch, Linnet, Greenfinch, Hawfinch, Serin were **stable** at all three levels of the population (min/max/geomean) whereas the Goldfinch and Siskin **increased**.

The table below illustrates an overall update on the conservation status using a three-arrow set to differentiate between decreasing, stable and increasing trends. The upper table compares the trends at EU level with those at ring recoveries level whereas the lower part of the table compares the trends reported by EBCC (2015) at pan-European as well as at EU level with those reported by Member States in their Article 12 reports.

Species	EU Population						Ring Recoveries					
	Short-term Trend			Long-term Trend			Short-term Trend			Long-term Trend		
	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean	Min Pairs	Max Pairs	Geomean
Chaffinch	→	→	→	→	→	→	→	→	→	→	→	→
Linnet	→	→	→	→	→	→	→	→	→	→	→	→
Goldfinch	→	→	→	→	→	→	↑	↑	↑	↑	↑	↑
Greenfinch	↑	↑	↑	→	→	→	→	→	→	→	→	→
Hawfinch	→	→	→	→	→	→	→	→	→	→	→	→
Serin	→	→	→	→	→	→	→	→	→	→	→	→
Siskin	→	→	→	↑	→	→	↑	→	→	↑	↑	↑

Data Sources: EBCC (2015); European Environment Agency (2014)

Species	Short-term Trend			Long-term Trend			
	EBCC 2015 (pan-European)	Article 12 (2008–2012) [EU Geomean]	Article 12 (2008–2012) [Ring Recoveries Geomean]	EBCC 2015 (pan-European)	EBCC 2015 (EU)	Article 12 (2008–2012) [EU Geomean]	Article 12 (2008–2012) [Ring Recoveries Geomean]
Chaffinch	→	→	→	↑	↑	→	→
Linnet	↓	→	→	↓	↓	→	→
Goldfinch	↓	→	↑	↑	↑	→	↑
Greenfinch	→	↑	→	→	→	→	→
Hawfinch	↑	→	→	↑	↑	→	→
Serin	↓	→	→	↓	↓	→	→
Siskin	↓	→	→	↓	→	↑	↑

Data Sources: EBCC (2015); European Environment Agency (2014)

For each of the seven finch species considered in this analysis, the “small numbers” calculation is considerably below the 1% threshold for non-huntable species as specified in paragraph 3.5.34 of the Guidance Document on Sustainable Hunting. The <1% figure is based on a much smaller subset of the total breeding population of the respective species within the territory of the European Union, since only those European countries (Member States) from which there are ring recoveries in Malta form part of the reference population, with the exception of the Hawfinch. In the absence of ring recoveries pertaining to the latter species, the reference population of the Hawfinch is based on ring recoveries in Italy from other Member States.

The national bag limits are considerably **much lower than <1% of the total annual mortality** of the EU reference population of each finch species as they also take into account the average bag limits over a seven-year period (2002–2008), which in turn are all considerably below the <1% threshold (see Table 60 below). The bag limits have been partitioned restrictively with those Member States that in 2008 had applied derogations for live-finch capturing or hunting of these finch species (EC, 2011), namely Austria (Linnet, Goldfinch, Siskin, Chaffinch and Hawfinch), Spain (Linnet, Goldfinch, Siskin, Chaffinch, Serin and Greenfinch) and Italy (Chaffinch). Table 60 also provides a direct comparison between the <1% mortality (calculated on the basis of the minimum EU breeding population size and lowest recruitment rate), the harvest record (average of *Carnet de Chasse* data over a seven-year period: 2002–2008) and the national bag limit for each of the seven species. The last column lists the national bag limit as a percentage of the bag limit partitioned with other EU Member States.

Table 60 Consideration of the <1% mortality of the reference population and harvest records

Species	*Total Annual Mortality of Reference Population (Ring Recoveries)	Maximum Bag Limit from Reference Population (<1%)	Partitioned Maximum Bag Limit (<1%)	Average Annual Harvest (2002–2008)	National Bag Limit (SL 504.124)	National Bag Limit as a percentage of the Partitioned Bag Limit (<1%)
Chaffinch	20,257,860	202,579	50,645	6,075	5,000	9.87%
Linnet	5,868,018	58,680	19,364	17,950	12,000	61.97%
Goldfinch	4,663,440	46,634	15,389	1,025	800	5.20%
Greenfinch	9,303,840	93,038	46,519	5,598	4,500	9.67%
Hawfinch	3,832,753	38,328	6,388	604	500	7.83%
Serin	932,800	9,328	4,664	3,186	2,350	50.39%
Siskin	2,652,936	26,529	8,843	3,185	2,350	26.57%
Total			151,812		27,500	18.11%

* Data sources: Cramp and Perrins (1994); Bauer (2005); Robinson (2005), based on the minimum EU population (breeding pairs) as reported in Article 12 reports for the period 2008–2012 (EEA, 2014).

References

Allendorf FW and Luikart G (2007) <i>Conservation and the genetics of populations</i> . Blackwell Publishing.
Bauer HG, Bezzel E, Fiedler W (2005) <i>Das Kompendium der Vögel Mitteleuropas: Alles über Biologie, Gefährdung und Schutz</i> .
BirdLife International (2004) <i>Birds in Europe: population estimates, trends and conservation status</i> . Cambridge, UK: BirdLife International. (BirdLife Conservation Series No. 12).
BirdLife International (2016). IUCN Red Lists for Birds. <i>BirdLife International Species Factsheets</i> . Available at: http://www.birdlife.org/datazone/species
Clement P, Harris A and Davis J (1993) <i>Finches and Sparrows</i> . Helm Identification Guides, London.
Cramp S and Perrins CM (eds) (1994) <i>Handbook of the birds of Europe, the Middle East, and North Africa: The birds of the Western Palearctic</i> . Vol. VIII: Crows to Finches. Oxford University Press.
EBCC (2012a) <i>Population trends of common European birds 2012</i> . Pan-European Common Bird Monitoring Scheme (PECBMS). European Bird Census Council. Available at: http://www.ebcc.info/wpimages/video/Leaflet2012.pdf
EBCC (2012b) <i>Trends of common birds in Europe, 2012 update</i> . European Bird Census Council. Available at: http://www.ebcc.info/trends2012.html
EBCC (2013a) <i>Population trends of common European birds 2013</i> . Pan-European Common Bird Monitoring Scheme (PECBMS). European Bird Census Council. Available at: http://www.ebcc.info/wpimages/video/Leaflet2013.pdf
EBCC (2013b) <i>Trends of common birds in Europe, 2013 update</i> . European Bird Census Council. Available at: http://www.ebcc.info/trends2013.html
EBCC (2014) <i>Trends of common birds in Europe, 2014 update</i> . European Bird Census Council. Available at: http://www.ebcc.info/trends2014.html
EBCC (2015) <i>Trends of common birds in Europe, 2015 update</i> . European Bird Census Council. Available at: http://www.ebcc.info/index.php?ID=587
EEA (2014) <i>EU population status assessments (2008–2012)</i> . European Topic Centre on Biological Diversity/European Environment Agency. Available at: http://bd.eionet.europa.eu/article12/summary
Hume R (2002) <i>Complete birds of Britain and Europe</i> . The Royal Society for the Protection of Birds. Dorling Kindersley.
Mason GJ (2010) <i>Species differences in responses to captivity: stress, welfare and the comparative method</i> . Trends in Ecology and Evolution Vol. 25: 12 pp 713–721.
Raine (2007) <i>The international impact of hunting and trapping in the Maltese Islands</i> . BirdLife Malta. Available at: http://www.birdlifemalta.org/photos/otherfiles/206.pdf
Robinson RA (2005) BirdFacts: profiles of birds occurring in Britain & Ireland (BTO Research Report 407). British Trust for Ornithology. Thetford. Available at: http://www.bto.org/birdfacts
Spina F and Volpini S (2008) <i>Atlante della migrazione degli uccelli in Italia</i> [1455_vol 2 pp 488–557, 1456_vol 2 pp 558–625].