

ANNEX 1

INSECT DECLINE AND ITS THREAT TO MIGRATORY INSECTIVOROUS ANIMAL POPULATIONS

(Prepared by scientists of LIB, Mr. Jonas Rochlitz under supervision of Dr. David Ott, on behalf of the CMS Secretariat)

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Content summary - How to read this Report

Chapter (**Error! Reference source not found.**) gives a general overview on the topic based on scientific literature, refers to CMS mandate (1.2) and work done on the report (2). Chapter (3) provides an overview of the most recent results of global arthropod and insect monitoring (3.1), identifies the Main Drivers (3.2) and Minor Drivers (3.3) threatening the insect biodiversity *sensu lato* and includes a sections describing the importance of insects for ecosystem services (3.4). Chapter (4) identifies and defines the terms “Animal Migration” (4.1), “Migratory Species” (4.2), “Insectivorous Feeding” (4.3) and the “Target Species” of this Report (4.4). In Chapters on birds (5) and Bats (6), present information on the migratory insectivorous species of these groups is presented, detailing the migratory systems (5.1 & 6.1), subdivision of the taxa in focus (5.2 & 6.2), population trends (5.3 & 6.3), threats and stresses in general (5.4 & 6.4) and in particular due to insect decline (5.5 & 6.5). The report ends with summarizing major findings and highlights gaps and draws suggestions for further action to take place in Chapter (7).

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1. Introduction

1.1. State of the Art

Approximately two-thirds of all terrestrial species on Earth are insects (Sánchez-Bayo & Wyckhuys 2019). These two thirds correspond to 5.5 million insect species worldwide, of which 80% of species remain undescribed (Stork 2018). Insects are the main component of biodiversity in most terrestrial habitats, providing multiple ecosystem functions and ecosystem services (Losey & Vaughan 2006; Weisser & Siemann 2008). Globally, 10 % of insects, or 1 million insect species, are threatened with extinction (IPBES 2019). A loss of 9% per decade in the abundance and biomass¹ of terrestrial insects has been reported (Klink *et al.* 2020b). While trends in the insect decline show a strong variation between insect orders (Dirzo *et al.* 2014) and between freshwater and terrestrial environments (Klink *et al.* 2020b), there is evidence of an overall global decline in insects (Klink *et al.* 2020b; Raven & Wagner 2021; Wagner *et al.* 2021). Land-use change *per se*, agriculture, introduced species, nitrification, pollution and climate change have been identified as the main drivers underlying of insect declines, with the potential to affect other organisms (Wagner *et al.* 2021).

Similarly, the populations of many migratory animal species are declining rapidly on a global scale (Wilcove & Wikelski 2008). These include migratory birds, bats and fish (Bairlein 2016; Fleming 2019; Deinet *et al.* 2020). Migration is the regular seasonal movement of individuals from one habitat to another (Webster *et al.* 2002). Movement patterns are primarily driven by the seasonal availability of resources such as food, shelter or mating partners (Brower & Malcolm 1991; Dingle & Drake 2007). While migrating between breeding and non-breeding areas, the population dynamics of migratory species are fundamentally dependent on the migratory connectivity of their specific migratory network (Webster *et al.* 2002; Taylor & Norris 2009). Consequently, migratory species that are known to be vulnerable to extinction risks are of great conservation concern (Hoffmann *et al.* 2010). In particular, the annual ranges of migratory species often cover large geographical areas across state or international boundaries (López-Hoffman *et al.* 2017). Specific to the fish migration are the directions of migration patterns between freshwater and saltwater habitats (Morais & Daverat 2016).

About 1,924 of the worlds land- and waterbirds are migratory (BirdLife International 2023). Approximately, 11% of all migratory land- and waterbirds are listed as threatened or near-threatened on the IUCN Red List (Kirby *et al.* 2008).

Nevertheless, bird species dependent on insects for food have declined drastically over the last 50 years (Jetz *et al.* 2007; Tallamy & Shriver 2021). The impact of insects on birds is manifested directly by reducing the birds ability to meet energetic needs, or indirectly through abiotic factors that affect the birds ability to respond to a given environmental change (Bowler *et al.* 2019).

Migratory insectivorous bird species and migratory bird species *per se* are exposed to drivers that occur during the annual life cycle on the breeding/wintering grounds and during autumn/spring migration (Sherry & Holmes 1995; Faaborg *et al.* 2010a). Population trends of these species are therefore the result of complex interactions of stressors that occur at different spatial scales and during different phases of migration (Spiller & Dettmers 2019). For example, food availability must be ensured throughout the life cycle to avoid a trophic or phenological mismatches (Kwon *et al.* 2019). Otherwise, potential stressors at one stage of the life cycle may be transferred to the next through carryover effects (Harrison *et al.* 2011).

¹ Patterns are mainly based on trends in North America and Europe.

On average, bats migrate much shorter distances on average than birds (Fleming 2019). Although, migration is a less common behaviour in bats than in birds, a significant number of bat species from temperate and tropical ecosystems make seasonal movements between habitats (Fleming & Eby 2003; Avgar *et al.* 2014). However, the spatial distances covered by bat migrations can vary from 100 km to more than 1,000 km (Fleming 2019). Insectivorous bat species exhibit geographically diffuse migratory behaviour that is highly dependent on intact foraging habitats and stopover roosts (Wiederholt *et al.* 2013). Prey availability plays a critical role during migration (Frick *et al.* 2019). In contrast, frugivorous migratory bats mainly follow a food/diet gradient characterised by the availability of specific fruit plants (Richter *et al.* 2006). Of the approximately 1400 bat species that exist worldwide which account for one-fifth of mammalian biodiversity (Burgin *et al.* 2018), many feed primarily on insects and other arthropods (Hutson *et al.* 2001). 180 bat species² are listed as threatened on the IUCN Red List (Frick *et al.* 2019). However, migratory insectivorous bats occur in many different genera (Supplement 2). Frugivorous migratory bats are most common in tropical and subtropical biomes, where species information is often scarce (Popa-Lisseanu & Voigt 2009; Fleming 2019).

Connectivity between freshwater and marine habitats is important for some migratory fishes (Verhelst *et al.* 2021). Compared to other fish groups, migratory fish are highly threatened (Darwall & Freyhof 2015). Fish typically migrate between freshwater and saltwater (diadromous), within freshwater systems (potomadromous), and within marine systems (oceanodromous) (Shaw 2016). For example, migratory diadromous and potomadromous freshwater fish declined by 76%³ globally between 1970 and 2016 (Deinet *et al.* 2020). 31% of freshwater species on the IUCN Red List are classified as Critically Endangered, Endangered or Vulnerable (Darwall & Freyhof 2015). Scientific studies focusing on threats to migratory insectivorous fish due to declines in insect biodiversity are lacking, as overfishing, pollution, water withdrawals, aquaculture, non-native (invasive) species, habitat degradation, hatcheries and climate change have been identified as major direct drivers of the freshwater fish declines (Waldman & Quinn 2022).

Knowledge of the interactions between insects and birds and bats is much more extensive. The report therefore focuses specifically on migratory insectivorous birds and bats. The term *insectivorous* of the report refers to birds and bats that feed exclusively on insects and other arthropods. Taxonomically, insects (lat. *Insecta*) are a class of animals belonging to the phylum of arthropods (lat. *Arthropoda*) (Snodgrass 2018). The term *arthropodivore* (Segura-Trujillo *et al.* 2016) is more biologically accurate, but is not used in the report as *insectivorous* is the more common term. In addition, insects account to be the dominant resource, especially for birds and bats – which feed mainly on flying insects (Pterygota). The chapter Review of CMS Work to Date and Terms of References for this Project

In February 2020 at the 13th meeting of the Conference of the Parties to CMS (COP13, Gandhinagar, India), the subject of Insect Decline and its Threat to Migratory Insectivorous Animal Populations prepared by the European Union was introduced with the Agenda Item 26.4 (UNEP/CMS/COP13/Doc.26.4.10). The Parties adopted the Resolution 13.6 *Insect Decline and its Threat to Migratory Insectivorous Animal Populations*, calling for the analysis and action

Commented [D02]: In general, we think we are unable for this report to address fish species in details. However, we would like to know a) if, and b) to which extend the Committee would like to have estimate of the number of insectivorous (migratory) fish - to infer a potential impact of insect decline on this group. We plan to include this in chpt 7 highlighting the gap and the need for further action here.

² Number refers to 1,236 bat species assessed by Frick *et al.* (2019).

³ 50 % of the freshwater fish species were assigned to Europe and North America. Data for Africa, Asia, Oceania and South America was scarce.

concerning the dramatic insect decline and related cascading effects on migratory insectivorous species.

Recalling Article II and acknowledging Article VII of the Convention on Migratory Species as well as welcoming EUROBATS Resolution 8.13 on Insect Decline as a Threat to Bat Populations in Europe, the CMS Resolution 13.6 calls upon the Parties, subject to the availability of resources, to

- a) Encourage and support scientific research on the impact of insect decline on migratory insectivorous animal populations, e.g. birds and bats and freshwater fish; including identifying the gaps in research, species specific data collection and monitoring, making use where appropriate of existing monitoring methods, such as those developed by FAO or recognized by IUCN;
- b) Avoid the detrimental effects of pesticide use on non-target insects as food resource of migratory insectivores in and around areas that are important for the conservation of these species, including by reducing the use and risks;
- c) Promote action programs for the conservation of insects and restoration of their habitats in consideration of their vulnerability, aiming at the known causes of insect decline, including pesticide usage and habitat loss;
- d) Take a precautionary approach with respect to the use of pesticides, including enhancing efforts to promote sustainable agricultural practices;
- e) Raise awareness regarding the concerns mentioned above with land managers and other stakeholders;
- f) Promote continued cooperation and collaboration between scientists, professionals, stakeholders and international bodies, whose work is related to insect decline.

Furthermore, the CMS COP13 adopted the Decision 13.129, requesting the Scientific Council to consider subject to the availability of resources, in the meetings of its Sessional Committee after the COP13, the following topics:

- a) Identifying and prioritizing the main factors causing the established loss of insect biomass;
- b) Collecting relevant information regarding the current insect decline, and assessing its cascading effects on migratory insectivorous animal species;
- c) Developing guidelines for the most urgent or prioritized actions identified;
- d) Publishing any such guidelines following circulation to all Parties for approval.

2. Overview of Work on this Project to Date

Following the CMS, the Decision 13.129, CMS agreed to co-operate with LIB requesting Scientific Council. J Rochlitz and D Ott submitted previous drafts of the report, in May and June 2023, to the CMS Secretariat. Based on these outlines and revision by CMS secretary, research has

continued and resulted in this version for the Sessional Committee meeting as an advanced draft for review.

Relevant literature about the Insect Decline and its Threat to Migratory Insectivorous Animal was assessed via literature research using several academic search engines (GoogleScholar, Web of Science and ResearchGate).

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Global Insect Decline therefore also includes both, studies and reviews that have assessed insect and arthropod declines.

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- h) Avoid the detrimental effects of pesticide use on non-target insects as food resource of migratory insectivores in and around areas that are important for the conservation of these species, including by reducing the use and risks;
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- e) Identifying and prioritizing the main factors causing the established loss of insect biomass;

⁴ Acknowledgement to the need to take action to avoid any migratory species becoming endangered.

⁵ The Conference of the Parties may make recommendations to the Parties for improving the effectiveness of the convention

- f) Collecting relevant information regarding the current insect decline, and assessing its cascading effects on migratory insectivorous animal species;
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4. Global Insect Decline

4.1. Overview

The latest version of the IUCN Red List, published in February 2022, contains 12,438 insect species (IUCN 2023a). Almost 25% of these insect species are classified as Near Threatened, Vulnerable, Endangered or Critically Endangered, which corresponds to 3,125 insect species (Fig. 1).

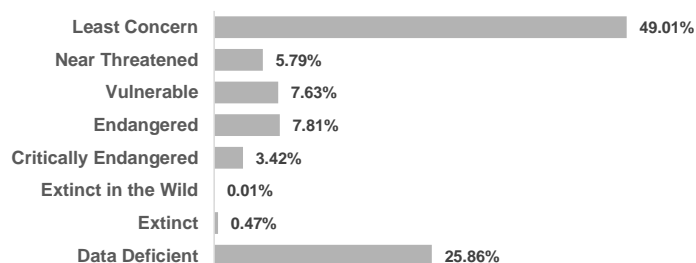


Fig. 1 Proportions of IUCN Red List categories for insects. A total of 12,438 insects were classified by the IUCN as Least Concern (n = 6,096), Near Threatened (n = 720), Vulnerable (n = 949), Endangered (971), Critically Endangered (n = 425), Extinct in the Wild (n = 1), Extinct (n = 59) and Data Deficient (n = 3,217) (IUCN 2023a).

The number of insect species assessed by the IUCN is 1.2% of an estimated number of 1,053,578 described species (IUCN 2022). According to IPBES, 1 million insect species alone are threatened with extinction, representing 10% of global insect biodiversity (IPBES 2019). Alarming, insects account for 84% of the global biotic species richness (Eggleton 2020). Declines in insect abundance, biomass and diversity have been reported in many studies and reviews across ecosystems and taxa in recent years (Tab. 1).

Tab. 1 Highly cited studies and reviews on the insect decline, ranked by number of citations.

Author	Year	Citations ¹	Style	Region	DOI
Dirzo <i>et al.</i>	2014	3884	Review	Global	www.doi.org/10.1126/science.1251817
Biesmeijer <i>et al.</i>	2006	3650	Study	Europe	www.doi.org/10.1126/science.1127863
Hallmann <i>et al.</i>	2017	3049	Study	Europe	www.doi.org/10.1371/journal.pone.0185809
Sánchez-Bayo & Wyckhuys	2014	2607	Review	Global	www.doi.org/10.1016/j.biocon.2019.01.020
Seibold <i>et al.</i> ²	2019	829	Study	Europe	www.doi.org/10.1038/s41586-019-1684-3
Wagner	2020	749	Review	Global	www.doi.org/10.1146/annurev-ento-011019-025151
Klink <i>et al.</i>	2020	707	Review	Global	www.doi.org/10.1126/science.aax9931
Wagner <i>et al.</i>	2021	561	Review	Global	www.doi.org/10.1073/pnas.2023989118

¹ Accessed on June 2023 via Google Scholar

² Included arthropods

Insect declines have been shown to be highly variable between insect orders (Dirzo *et al.* 2014). A review of 100 long-term studies based on data from Greenland, North Africa, South America, East Asia, Australia, Europe and North America over the last three decades, focusing on 10 major

insect taxonomic orders, showed an average decline of 36.9% and an increase in species numbers of 18.2% (Sánchez-Bayo & Wyckhuys 2021). Negative population trends were profound for the orders of *Coleoptera* (47.0%), Aquatic *Hemiptera* (68.0%), *Hymenoptera* (46.7%), *Lepidoptera* (50.6%), while half of the *Trichoptera* species showed a positive population trend (50%). Population trends differed between aquatic and terrestrial species, where 36% of insect species declined compared to 41.8% of terrestrial species. Consistent with Basset & Lamarre (2019), a bias towards certain taxa (*Lepidoptera*, *Coleoptera* and *Odonata*) and geographical regions (Europe and North America) was found in the data of the review (Sánchez-Bayo & Wyckhuys 2021). Different patterns for freshwater and terrestrial insects were also identified by Klink *et al.* (2020). Based on 166 long-term studies, they found a decline of 9% per decade in the abundance of freshwater insects and an increase of 11% per decade in the abundance of terrestrial insects. The largest declines in terrestrial insect biodiversity were found in North America and Europe. Patterns of insect decline were much more pronounced in unprotected areas than in protected areas. The increase in freshwater insect abundance was attributed to habitat protection programmes (Klink *et al.* 2020b). Alarmingly, insects can also decline in protected areas, as shown by a highly cited study from Europe (Hallmann *et al.* 2017). Over a 27-year period, aerial insect biomass declined by 75% in protected areas due to the impact of surrounding agricultural fields. Landscape-scale patterns are important for understanding patterns of insect decline (Seibold *et al.* 2019) and biodiversity *per se* (Tscharntke *et al.* 2005).

Land use change (implying habitat change), pollution and climate change are the main drivers of insect decline (Sánchez-Bayo & Wyckhuys 2019; Wagner *et al.* 2021). Agricultural intensification changes habitats so rapidly that insects are unable to adapt. As a result, agricultural intensification is rapidly reducing insect biodiversity worldwide (Raven & Wagner 2021). Agriculture is often associated with direct chemical and indirect environmental pollution, including synthetic pesticides and fertilisers. Insect pollinators are particularly threatened by the use of synthetic pesticides (Brittain *et al.* 2010). Both wild and domestic insect pollinators (e.g. *Dipetra* and *Hymenoptera*) are reported to be declining along with the plants they are associated with (Biesmeijer *et al.* 2006; Potts *et al.* 2010). An increasingly important driver of insect decline is climate change, which is strongly linked to agricultural intensification (Raven & Wagner 2021) and geographical factors (Halsch *et al.* 2021). Main and minor drivers have been summarised by Wagner *et al.* (2021) as “Death by a Thousand Cuts” (Fig. 2).

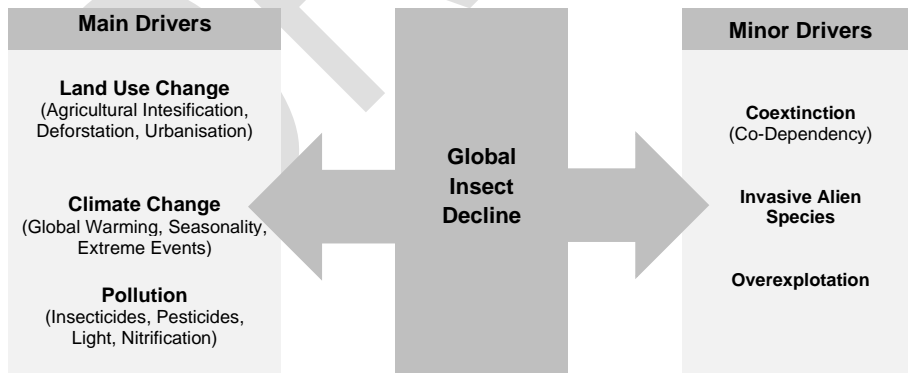


Fig. 2 Schematic overview of main and minor drivers of the global insect decline, modified from Wagner *et al.* (2021). Note: The figure is schematic and simplifies the global insect decline. All drivers have a strong impact on insects. The terms “main” and “minor” are chosen for a schematic overview. Real-world insect decline is a complex system, with drivers interacting and co-dependt (Forister *et al.* 2019).

Globally, insects are stressed by direct and indirect drivers that are often intertwined (Forister *et al.* 2019) and acting simultaneously (Wagner *et al.* 2021). For example, climate change is a major stressor for agriculture itself, leading to dramatic shifts in land suitable for agricultural production (Adams *et al.* 1998; Raven & Wagner 2021).

In addition, there is a bias towards the dominance of studies conducted in Europe or North America when assessing insect declines globally (Cardoso *et al.* 2019; Simmons *et al.* 2019): The highly cited review by Sánchez-Bayo & Wyckhuys (2019) included only 3 out of 73 studies examining insect decline in tropical biomes (Cardoso *et al.* 2019). Similarly, in Klink *et al.* (2020), the vast majority of studies were conducted in North America or Europe (Fig. 3).

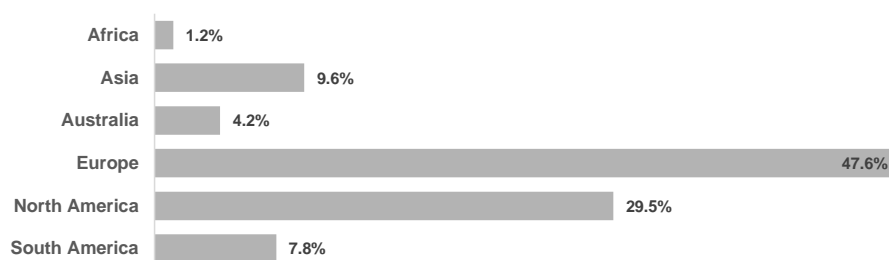


Fig. 3 Proportion of the locations of the 166 studies used by Klink *et al.* (2020) to review global insect declines, sorted by continent. In total, two studies were reviewed from Africa, 16 from Asia, 7 from Australia, 79 from Europe, 49 from North America and 13 from South America. The dataset is available at www.doi.org/10.5063/F11V5C9V by Klink *et al.* (2020a).

Consequently, entomological reviews at global scales should aim to be unbiased in terms of research conditions, geographical area and assessment of drivers (Simmons *et al.* 2019). In addition, the available data for inferring large-scale spatial global patterns of insect trends need to be continuously improved (Montgomery *et al.* 2020). Developments in taxonomy, inventory, monitoring, data management, statistics and science communication will help to improve insect conservation (Cardoso *et al.* 2011).

4.2. Main Drivers of the Insect Decline

The report uses the term “main” drivers, which includes land use change, climate change and pollution, as summarised by Cardoso *et al.* (2020), Eggleton (2020), Kehoe *et al.* (2021), Sánchez-Bayo & Wyckhuys (2021) and Wagner *et al.* (2021).

Land use change is associated with agricultural intensification, deforestation and urbanisation resulting in habitat loss, habitat degradation and habitat fragmentation (Fig. 4).

Recent reports indicate that the worlds total **agricultural area** has increased by 4.8 billion hectares, or about 37%⁶ of the worlds land area. Between 1990 and 2019, the area of agricultural land decreased by 1%, as a result of an overall 5% increase in arable land and a 4% decrease in permanent meadows and pastures (FAO 2021). From 1960 to 2019 almost 32% of the worlds land area have been estimated to be affected by land use change (Winkler *et al.* 2021). The demand for land in the year 2030 has been estimated by Lambin & Meyfroidt (2011) to be an

⁶ Next to 31% devoted to forest land and 32% to other land (barren and dessert areas, urban land, infrastructure)

additional 285 million hectares for a conservative estimate and 792 million hectares for a bolder estimate that includes expansion of cropland, grazing land, urban areas and industrial forestry.

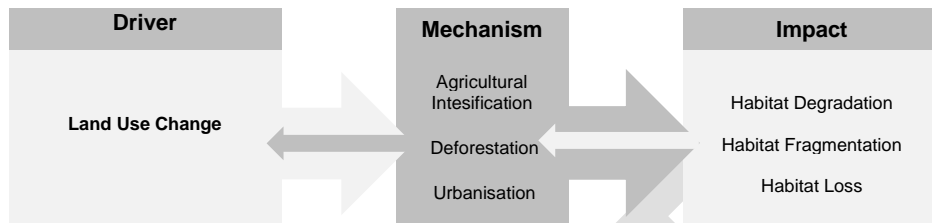


Fig. 4 Schematic overview of land use change and the global insect decline, including mechanisms and impacts. Arrows indicate complex interactions of patterns. Based mainly on Cardoso *et al.* (2020) and Wagner *et al.* (2021).

Agricultural intensification (as a sum of several components, see below on details of some single components) transforms an often complex natural ecosystem into a simplified managed (eco-) system. The land is reshaped to increase farming efficiency and yield, creating a homogeneous agricultural landscape with a little or no natural areas in between (Tscharntke *et al.* 2005). Thus, landscape effects can be manifested at the landscape level and at the habitat level with its habitat heterogeneity (Tews *et al.* 2004; Tscharntke *et al.* 2005). At the landscape level, land use intensity can control the extent to which insects might be affected. In particular, the negative effects of land use intensity on insects⁷ have been investigated when management intensities are high (Hendrickx *et al.* 2007; Seibold *et al.* 2019).

Habitat degradation can be the result of intensive land use (Akiyama & Kawamura 2007) mediated by plant species in grassland ecosystems (van Klink *et al.* 2015). Habitat degradation changes habitat quality as a factor for insect species occurrence (Poniatowski *et al.* 2018; Münsch *et al.* 2019). Populations of plant-associated insects may decline when plant diversity changes (Scherber *et al.* 2010). These insect populations include important insect pollinators such as butterflies (*Lepidoptera*) and bumblebees (*Hymenoptera*) (Goulson *et al.* 2005; Öckinger *et al.* 2006).

Habitat loss, usually accompanied by habitat fragmentation, leads to decreasing connectivity of ecosystems (Fischer & Lindenmayer 2007). Globally, many grassland ecosystems have been converted into croplands or plantations (Raven & Wagner 2021). In addition, agricultural expansion for crops and livestock is threatening forest ecosystems, accounting for 40% of tropical deforestation between 2000 and 2010 (FAO & UNEP 2020). Deforestation is suspected to be affecting both aquatic (Benstead *et al.* 2003; Yoshimura 2012) and terrestrial (Hanski *et al.* 2007) insect communities. However, insects vary in their response to habitat loss, due to differences in dispersal ability between insect taxa. Surprisingly, insect taxa with low mobility are able to adapt more successfully to isolation than those with a high mobility (Cardoso *et al.* 2020).

With a near tripling of the global **urban land area** estimated for 2000, current trends suggest a staggering increase of 1.2 million km² by 2030 (Seto *et al.* 2012). Urban areas are characterised by highly fragmented habitats, leading to the emergence of specific ecosystems with novel abiotic

⁷ Both studies addressed the decline of arthropods of which insects are a part of.

and biotic conditions (Kotze *et al.* 2011; Theodorou 2022). Challenged by multiple conditions (Theodorou 2022), urbanisation is an important mechanism for the decline of insects in urban areas (Fenoglio *et al.* 2021). However, generalist insect pollinators can benefit from urbanisation when provided if flowering habitats are provided, while specialist insect pollinators tend to decline (Wenzel *et al.* 2020). Aquatic insect taxa in lakes, rivers or ponds in rapidly growing cities are declining due to widespread pollution (Fogaça *et al.* 2013; Tchakonté *et al.* 2015; Ríos-Touma *et al.* 2022).

The impact of climate change on insects has been discussed by Robinet & Roques (2010). They concluded that the effects of climate change on insects are much more complex than a simple response of insects to rising temperatures. The mechanisms of climate change on insects may differ between seasons, geographical regions, altitudes and insect taxa, feeding guild or life stage (Robinet & Roques 2010; Stange & Ayres 2010; Kingsolver *et al.* 2011; Harvey *et al.* 2023). A schematic overview of climate change and insect decline based on Wagner *et al.* (2021) and Harvey *et al.* (2023) is shown in Fig. 5.

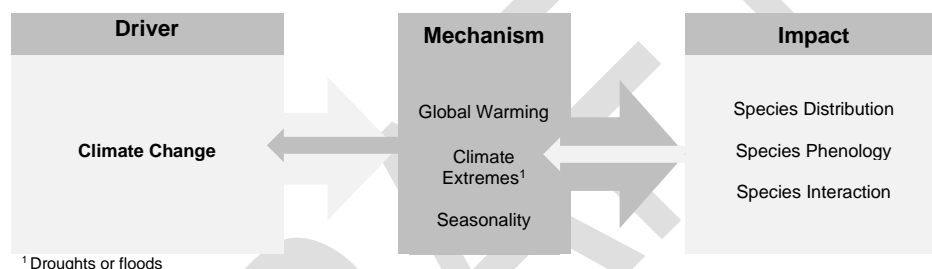


Fig. 5 Schematic overview of climate change and the global insect decline, including mechanisms and impacts. Arrows indicate complex interactions of patterns. Mainly based on Wagner *et al.* (2021) and Harvey *et al.* (2023).

Global warming affects insects in the long-term by suppressing a critical performance threshold for insects, resulting in declines in species distribution, species phenology, population dynamics and interactions (Harvey *et al.* 2020, 2023). As ectotherms, insects are highly sensitive to abiotic changes in the environment (Deutsch *et al.* 2008). Consequently, global warming has the potential to destabilise insect communities (Harvey *et al.* 2023). The success of insect species or populations in adapting to change is highly dependent on their thermal tolerance (Deutsch *et al.* 2008).

Changes in species distributions will mainly affect species of lower altitudes, which will have to migrate to more suitable/colder habitats to avoid individual mortality or species extinction (Sunday *et al.* 2012). A 2 °C increase in global temperature would shift the ranges of 18% of the global insect populations (Warren *et al.* 2018). Insects in tropical ecosystems are known to be more threatened by global warming than those in temperate ecosystems (Deutsch *et al.* 2008). Nevertheless, some insect species are expected to increase in abundance and distribution under changing seasonal conditions as a result of warmer weather conditions (Harvey *et al.* 2020). This **change in insect phenology** (life cycle) may be the result of rising temperatures, followed by an increase in the length of the growing season, leading to faster rates of development and an increase in the number of insect generations in a year (voltinism) (Bradshaw & Holzapfel 2001). These insect taxa are mainly herbivorous species of temperate ecosystems at mid-latitudes (Stange & Ayres 2010). In temperate forests, most insect herbivores and insect pests may benefit

from climate change impacts (Jactel *et al.* 2019). Of course, a general response of insect pests to global warming does not exist and must be placed in a species-specific context within their geographical region (Lehmann *et al.* 2020).

The differential response of insect species, resulting in changes in the distribution and phenology, is the main mechanism leading to a spatial and temporal mismatch between **interacting insect species**. In particular, interactions between different trophic levels are the result of long co-evolutionary processes under relatively stable conditions (Harvey *et al.* 2023). Rising global temperatures may destabilise interactions between plants (first trophic level) and insect pollinators (second trophic level) (Tylianakis *et al.* 2008). Impaired interactions between species are known to cascade through the trophic systems, affecting species at higher trophic levels such as predators (Kehoe *et al.* 2021). Due to multiple synergistic negative effects on freshwater habitats and a limited dispersal ability, insects of aquatic ecosystems are more vulnerable to global warming than insects of terrestrial ecosystems (Cardoso *et al.* 2020).

The consequences of climate change are **extreme climate events** (van de Pol *et al.* 2017). Unlike global warming, climate extremes occur in the short term, over a period of days or weeks (Harvey *et al.* 2020). The report provides a brief overview of the impacts of **droughts, fires and storms** on insects. Global warming does not directly cause droughts, but indirectly droughts are expected to occur faster and more intense as a result of global warming (Trenberth *et al.* 2014). **Droughts** affect the physiology of insects and have effects on the associated plant communities on which the insects depend (Jactel *et al.* 2012). Consequently, both the insects and the habitat are affected by drought stress through physiological and ecological mechanisms that operate in a multi-faceted manner (Harvey *et al.* 2023). In some cases, negative effects induced by drought have been studied to be long-lasting, affecting flying insects at higher altitudes (Halsch *et al.* 2021). Indeed, insect taxa of humid to wet ecosystems have been identified as being highly vulnerable to future drought (Wagner 2020).

The effects of **floods** on insects can be direct, through displacement or drowning, and indirect, through habitat fragmentation or loss (Harvey *et al.* 2023). Floods are projected to increase in frequency and magnitude under current global warming scenarios (Monirul Qader Mirza 2002; Alfieri *et al.* 2015). Floods are often associated with changes in habitat quality. By altering soil conditions, floods can change the structure of plant communities and thus indirectly negatively affect associated insects (Walter 2020). However, post-flood disturbance does not always lead to a decline in insect abundance. Some insect taxa, in this case grassland generalists, can resist floods (González-Macé & Scheu 2018)⁸ or even benefit from such events if they are litter and forest specialists (Gandhi *et al.* 2007). Despite this, understanding the responses of insect communities to flooding remains largely unknown (Harvey *et al.* 2023).

Modern conventional agriculture often emphasises the use of monocultures to increase crops scale and productivity. Monocultures are known to require the use of **pesticides and fertilisers** (Raven & Wagner 2021). The use of **natural or synthetic pesticides** has been instrumental in securing food production and meeting global food demand in recent decades (Oerke 2006). In contrast, pesticides can also be a chemical pollutant to the environment, causing adverse effects on water quality, biodiversity and human health (Tang *et al.* 2021). According to the previous study by Tang *et al.* (2021), 64% of the world's agricultural land⁹ is suspected to be at risk of pesticide pollution, while 31% is considered to be at high risk. High-risk areas include high biodiversity regions of tropical ecosystems. The impact of pesticides on ecosystems is highly dependent on

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⁸ The study investigated the response of arthropods (Collembola and Acari) on flooding.

⁹ Applicable to 24.5 million km².

the type of pesticide and the amount applied (Sharma *et al.* 2019). Insects can be affected by pesticides in two ways: Directly, through immanent toxicity or sublethal effects of insecticides, and indirectly through herbicides by reducing plant communities (Cardoso *et al.* 2020). Neonicotinoids are a widely used insecticides and are known to cause declines of terrestrial and aquatic insects, as well as non-target species of mammals, birds, fish, crustaceans, molluscs and annelids (Goulson 2013). There is strong evidence that honeybees and bumblebees, as a non-target species, are affected by sublethal effects of neonicotinoids (Mommaerts *et al.* 2010; Henry *et al.* 2012). Thus, pesticides can contribute to the creation of ecosystem disservices when pollutants affect important key species in the ecosystem (Zhang *et al.* 2007; Power 2010).

Most **fertilisers** used in agriculture have negative effects on insects when applied intensively (Habel *et al.* 2019). Again, herbivorous insects may respond positively to fertilisation (Butler *et al.* 2012). Effects of fertilisation are usually induced indirectly through changes in the plant community and its structure (Cardoso *et al.* 2020), or through increases in the density of herbivorous pests leading to apparent competition for other insect guilds (Kehoe *et al.* 2021). The use of large amounts of fertiliser poses a risk to aquatic insects by channeling nutrient-rich water into water bodies, leading to an eutrophication of freshwater systems (Eggleton 2020).

Finally, **artificial light at night** (ALAN) is a mechanism driving the global decline of insects (Fig. 6).

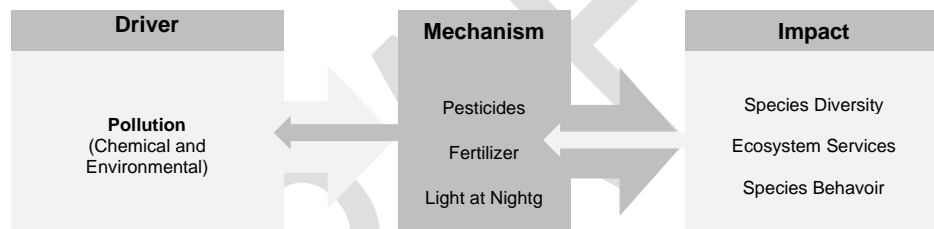


Fig. 6 Schematic overview of pollution and the global insect decline, including mechanisms and impacts. Arrows indicate complex interactions of patterns. Mainly based on Cardoso *et al.* (2020), Wagner (2020) and Raven & Wagner (2021).

Direct artificial light or indirect diffuse light pollution at night can negatively affect the behaviour of several insects, including the developmental success, movement patterns, foraging strategies and reproductive cycles, but can have positive effects on insectivorous predators (Owens *et al.* 2020). This makes ALAN a novel anthropogenic stressor for insects, luring species into a powerful evolutionary trap (Desouhant *et al.* 2019; Fraleigh *et al.* 2021).

In 2014, over 23% of the world's land surface was exposed to light pollution at night (artificial skyglow) (Falchi *et al.* 2016). The global area of artificially lit land is expected to increase by 2.2% per year (Kyba *et al.* 2017). Insects that are attracted and killed by artificial light at night (fatal attraction) are known as positively phototactic and belong to macromoths (Lepidoptera) and beetles (Coleoptera), while negatively phototactic insects, such as some Orthoptera, avoid artificial light at night (Owens *et al.* 2020). Important characteristics that influence insect attraction to light are the wavelength, colour saturation and brightness of the artificial light source (Antignus 2000; Longcore *et al.* 2015).

Insects in open habitats are more vulnerable than those in closed habitats, and terrestrial and aquatic insects are equally affected (Owens *et al.* 2020). However, ALAN may be beneficial for predatory arthropods as a result of prey accumulation at artificial light sources at night (Manfrin *et al.* 2017).

4.3. Minor Drivers of the Insect Decline

Minor drivers of the global insect decline can be obtained from Cardoso *et al.* (2020), Kehoe *et al.* (2021) and Wagner *et al.* (2021) and are summarised in Figure. 7.

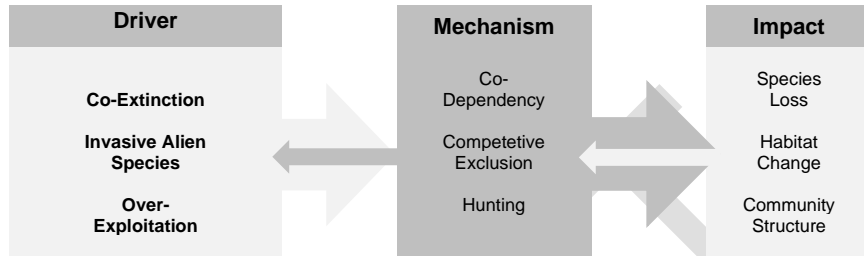


Fig. 7 Schematic overview of minor drivers and the global insect decline, including mechanisms and impacts. Arrows indicate complex interactions of patterns. Mainly based on Cardoso *et al.* (2020) and Kehoe *et al.* (2021)

Co-extinction, or secondary extinction, can occur after a single extinction event or a large decline in the abundance of a species, followed by multiple extinction events along the trophic network that may affect one or more species in its path (Kehoe *et al.* 2021). Co-extinctions mainly affect biotic interactions between species such as pollination, mutualism, predation, parasitism and non-trophic processes (Kehoe *et al.* 2021). Specialised insects are extremely vulnerable to co-extinction due to their host dependence (Dunn *et al.* 2009). Consequently, the loss of the resource (or host) triggers the extinction of the specialists themselves. For example, gall-forming insects are co-dependent on their host plants and are also extremely species-rich (Espírito-Santo & Fernandes 2007). However, co-extinctions have rarely been studied (Colwell *et al.* 2012). Nevertheless, local population extinctions can contribute to global extinction regimes (Kehoe *et al.* 2021), but should never be confused with global extinctions *per se* (Eggleton 2020).

Sometimes extinction events can be driven by competition between species, especially when species occur in places outside their natural geographical range or habitat (Cardoso *et al.* 2020). These species are mainly introduced by humans and can have environmental, ecological and socio-economic impacts on their new habitat (Turbelin *et al.* 2017). These species are known as **invasive alien species** (IAS) and their global abundance is increasing (Pyšek *et al.* 2020). The impact of IAS on insects can be direct via resource competition (competitive exclusion, Mooney & Cleland 2001) and/or indirect through the trophic cascade or co-extinction (Cardoso *et al.* 2020). Native insect species with a narrow geographical range and specialists have been identified as the most vulnerable insect groups threatened by IAS, while IAS are often invasive plants, social insects such as ants or vertebrate grazers and predators (Wagner & Van Driesche 2009). Some invasive plants have the ability to grow faster and denser than their native competitors, altering the quality and quantity of primary production of a habitat (engineering effect). This homogenisation of habitats can have consequences for the aquatic insect communities (Strayer 2010). Coastal mainland and islands are most at risk from invasive alien species, but ecosystems around the world are affected (Pyšek *et al.* 2020).

Anthropogenic overexploitation of insect species represents a driver of insect decline which is often overseen. While overexploitation is usually thought of as a problem affecting vertebrate

megafauna, it can impact insect species as well (Cardoso *et al.* 2020; Kehoe *et al.* 2021). Free-living insects are removed from their habitat for the use as pets, decoration, food source or traditional medicine (Cardoso *et al.* 2020). The trade in ornamental insects, those with colourful elytra or wings (Coleoptera and Lepidoptera), is often widespread (New 2005). In addition, edible free-living insect species are often threatened by inadequate harvesting (Ramos-Elorduy 2006). Ecosystem impacts are highly dependent on the function of exploited species in the ecological network (Kehoe *et al.* 2021).

4.4. Impact on Ecosystem Services

Insects are involved in the regulation and dynamics of many ecosystem services (Noriega *et al.* 2018). Ecosystem services (ES) can be defined as processes that contribute directly or indirectly to human well-being (Eggleton 2020). There are include main types of ES (Millennium Ecosystem Assessment 2003):

- (1) Provisioning Services,
- (2) Regulating Services,
- (3) Supporting Services and
- (4) Cultural Services.

Insect can be contributors to all four types of ecosystem services (Noriega *et al.* 2018; Cardoso *et al.* 2020) by for example:

- (i) Pollination,
- (ii) Biological Control,
- (iii) Decomposition and
- (iv) Education.

However, insects can also provide ecosystem disservices, processes that are directly or indirectly contribute to human problems (Eggleton 2020).

Despite this, 35% of the worlds food production depends on crops pollinated by wild or managed insect pollinators (Klein *et al.* 2007). However, Klein *et al.* (2007) state, that most of the leading crop species diversity (70%) are actually dependent on **insect pollination**. Biodiverse agricultural systems can increase yields and profitability through pollination services (Kremen *et al.* 2002; Nicholls & Altieri 2013). A biodiversity based agriculture is also known to be more resilient to environmental change (Jackson *et al.* 2007). In addition, even highly extensive and homogeneous agricultural systems can benefit indirectly from insect pollinators from surrounding natural habitats in the form of higher yields (Klein *et al.* 2003). Insect pollination contributes directly to the global volume of crop production, with an annual market value of US\$ 235-577 billion for all animal pollination services (IPBES 2016).

Insects can play an important role in agricultural production as **biological control** agents (Losey & Vaughan 2006). By using insects directly as a biological antagonists of pests, or by creating suitable habitats with management practices that promote insects as natural enemies, agriculture is already actively using insects as biological control agents (Cardoso *et al.* 2020). Biological pest control can have environmental and economic benefits, as insect predation, parasitism or seed removal can reduce yield loss without the potential negative ecosystem consequences of chemical

pollution (Bianchi *et al.* 2006). Crop and landscape management are important factors in the implementation of large-scale insect pest strategies (Rusch *et al.* 2010). A homogeneous agricultural landscape can be expected to have lower levels of biological pest control than a heterogeneous landscape (Rusch *et al.* 2016).

Insects support the improvement of the soil structure and fertility through the **decomposition** of animal or plant detritus (Noriega *et al.* 2018). In particular, dung beetles (Coleoptera: Scarabaeidae), which feed as larvae and adults on animal faeces, contribute to several ecosystem functions such as nutrient cycling, bioturbation or plant growth enhancement (Nichols *et al.* 2008). The livestock industry, for example, benefits greatly from dung removal by beetles, both economically (Losey & Vaughan 2006) and ecologically (Steinfeld *et al.* 2006). Highly diverse dung beetle communities are found in tropical forest and savannah ecosystems (Hanski & Cambefort 1991). Today, tropical forest ecosystems are facing major habitat changes and fragmentation, which may negatively affect dung beetle diversity and the ecosystem services provided by these insects (Nichols *et al.* 2007, 2008).

Positive emotions towards nature in childhood can promote commitment for nature in later adulthood (Turtle *et al.* 2015). However, compared to charismatic vertebrate megafauna such as pandas, insects are not a typical medium for environmental education programmes due to negative emotions towards invertebrates (Bixler & Floyd 1999; Cho & Lee 2017). **Environmental education** programmes that focus on insects, particularly bees, can improve young peoples human-nature relationships with insects (Cho & Lee 2017). Furthermore, by combining environmental knowledge with emotional drivers, environmental education creates connection to nature that increases ecological behaviour (Otto & Pensini 2017).

5. Terms and Definitions on Migration and Insectivorous Target Species

5.1. Animal Migration – A Biological Concept

Migratory animal species are globally distributed and can be found in aquatic and terrestrial ecosystems, belonging to different animal taxa such as birds, fish, mammals, reptiles, amphibians and insects (Dingle 2014). Although, migration is common among animals, the number and proportion of migratory species in animal taxa can vary widely (**Error! Reference source not found.**).

Tab. 2 Number and proportion of migratory species sorted by animal taxa of birds, bats, mammals, fish and insects. Modified from after Robinson *et al.* (2009).

Migratory Taxon	Number of Migratory Species	Proportion of Migratory Species	Reference
Birds	1,855	19%	Kirby <i>et al.</i> (2008)
Bats	113	10%	Robinson <i>et al.</i> (2009)
Terrestrial Mammals	30	1%	Robinson <i>et al.</i> (2009)
Aquatic Mammals	63	36%	Robinson <i>et al.</i> (2009)
Fish	874	3%	Robinson <i>et al.</i> (2009)
Insects	Unknown	Unknown	Chapman <i>et al.</i> (2015)

In addition, migratory behaviour is known to vary within animal families and even genera (Chapman *et al.* 2014). An extreme form of animal migration is partial migration, where individuals from the same population may be migratory or entirely resident (Chapman *et al.* 2011). The types of migration can be grouped into categories and patterns based on Dingle & Drake (2007) (Tab. 3).

Tab. 3 Types of animal migration patterns of animal migration based on Dingle & Drake (2007).

Category	Pattern	Definition
Organism	Obligate	Migratory individual always migrates
	Facultative	Migratory individual responses to changing habitat conditions
Population	Partial	Fractions of the migratory animal population migrate
	Differential	Older/younger or female/male migratory individuals of a population migrate differently
Space	To-and-fro	Migratory individual migrates between breeding and wintering grounds
	Round-trip	Migratory individual migrates temporarily migrates between breeding and non-breeding grounds with a direct return
	Altitudinal	Migratory individual migrates between different altitudes
Time	Nomadic	Migratory individual migrates based on favorable habitat conditions
	Annual/Seasonal	Migratory individual migrates annually based in seasons
	Irruptive	Migratory individual migrates based on occasional and irregular movements

In the classical biological sense, *animal migration can be characterised as the regular seasonal movement of an individual from one habitat to another* (Webster *et al.* 2002). A habitat is defined as the geographical area (or home range) in which a species can occur and which provides the resources required for each stage of the species life cycle (Southwood 1981 in Dingle 2014). Migration allows an individual to move from its current habitat to a new habitat with a new home range, often with some distance between the current and the new habitats (Dingle & Drake 2007).

The two habitats are often described as breeding grounds and wintering areas (Dingle 2014). An organism migrates to enhance its growth, survival, or reproduction (Shaw 2016). As such, the movement patterns of migratory animals are often driven by the seasonal availability of resources such as food, shelter or mating partners (Brower & Malcolm 1991; Dingle & Drake 2007). Therefore, migratory behaviour is thought to have evolved in response to periodic and predictable changes in environmental conditions (Chapman *et al.* 2014).

In the face of global warming, migration phenology may be affected by climate shifts, habitat destruction, resource scarcity and physical barriers (Wilcove 2008; Wilcove & Wikelski 2008). These effects can lead to shifts in migration timing, changes in migration frequency, reduced migration success, and even the loss of the ability to migrate (Shaw 2016). As a result, migratory species are known to be at risk to extinction (Hoffmann *et al.* 2010). The vulnerability of the migratory species may differ depending on their migratory behaviour, taxonomic group and environmental system (aquatic or terrestrial) (Hardesty-Moore *et al.* 2018). On the contrary, due to their mobility, migratory species can also be considered highly adaptive to change (Robinson *et al.* 2009). In general, migration patterns can be linked to climatic conditions such as temperature and precipitation, but current research highlights patterns to be biased towards taxonomic groups (e.g. birds) and geographical regions (e.g. northern hemisphere) (Shaw 2016). More specifically, in temperate regions temperature drives animal migration for many taxonomic groups, while in tropic regions changes in precipitation can act as an important trigger for bird and mammal migrations (Shaw 2016).

5.2. Migratory Species - Definitions of CMS/GROMS/IUCN

The CMS (1979) defined migratory species as:

“[...] the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries” (CMS 1979, Article 1)

GROMS (Global Register of Migratory Species) definition of migratory species included “true migrants” which are:

“[...] animal species covering more than 100 km, or crossing from sea to freshwater” (Riede 2001).

The subdivision includes intracontinental/intercontinental and intraoceanic/ineroceanic GROMS migrants. The approximate number of true migrants in the GROMS has been estimated in 2020 with 4000 animal species belonging to the groups of mammals, birds, turtles, fish and invertebrates (Riede 2020).

The IUCN definitions of animal migrations have been recorded for animals in the online Species Fact Sheet (www.iucnredlist.org) under the “Habitat and Ecology” section in the “Movement Patterns” subsection with the categories:

- (i) Full Migrant, (ii) Altitudinal migrant, (iii) Nomadic, (iv) Not a migrant, (v) Unknown

and whether it is congregatory or not (IUCN 2023b).

5.3. Insectivorous Feeding - Ecological Definition

Insectivores can be described as insect eating animals belonging to a wide range of taxa including mammals, fish, birds, amphibians and reptiles. Insectivores feed on insects and other arthropods as their primary diet throughout the annual cycle, or only transiently as a supplementary protein source during the breeding season (Vafidis *et al.* 2019).

As a result, the term “insectivorous” is commonly used to also characterise animals that feed on arthropods. Arthropods are the phylum to which insects belong as a class (lat. Insecta) (Snodgrass 2018). The more biologically accurate term of “arthropodivors” by Segura-Trujillo *et al.* (2016) is not used for the report.

The report is referring to the term “insectivore” as defined by Lopes *et al.* (2016) for avian diet types:

“Hexapoda (insects and their kin; e.g., springtails, dragonflies, cockroaches, termites, locusts, true bugs, beetles, flies, butterflies, ants, bees, and wasps), including the benthic aquatic forms (e.g., dragonflies, stoneflies, and mayflies). This category also includes birds that feed on other terrestrial arthropods, such as Chelicerata (e.g., ticks, spiders, and scorpions) and Myriapoda (e.g., centipedes and millipedes). Items included in this food category are probably among the most widespread and common food items of birds, representing the primary food of species in numerous bird families (Lopes et al. 2016, p.4).”

5.4. Target Species - Migratory Insectivorous Bird and Bat Species

The report focuses on migratory animal species that move at least 100 km, as defined by GROMS (Riede 2020). Under this condition, we chose species listed with the IUCN criteria “full migrants” (IUCN 2023b).

Migratory birds and bats are the main focus of the report, as most of the migration research concerns birds (Faaborg *et al.* 2010b) and more recently bats (Krauel & McCracken 2013).

Birds are well-studied animal migrants with a wide range of migratory behaviours (Newton 2010). Birds migrate globally, across continents and oceans, in multiple bird migration systems (Dingle 2008; Jahn *et al.* 2020). Migratory bird species were assessed using the BirdLife International species search page with the search terms “Species Types = Migratory” (BirdLife International 2023). This resulted in a list of 1,924 bird species (Supplement 1).

Bat movement patterns have been increasingly studied in the recent years (Popa-Lisseanu & Voigt 2009). Bat migration is less common and differs significantly in scale and behaviour from bird migration (Krauel & McCracken 2013). A list of 827 bat species of the mostly insectivorous bat suborder of *Yangochiroptera* was extracted from Hutson *et al.* (2001) and identified as migratory on www.iucnredlist.org (IUCN 2023b) in the subsection “Movement Patterns”, matching the search term “Full Migrant”. In addition, specific literature was used to find migratory bat species (Popa-Lisseanu & Voigt 2009).

Not all migratory birds and bats are insectivorous. The report includes all species that rely predominantly on insects and other invertebrates as a food source.

Insectivorous bird feeding was assessed by literature searches on www.birdsoftheworld.org (Billerman *et al.* 2023) and www.audubon.org (National Audubon Society 2023), resulting in a list of 722 migratory insectivorous bird species (Supplement 1). The dietary preferences of some species could not be determined, although they may be insectivorous.

The dietary preferences of insectivorous bats of the suborder *Yangochiroptera* were determined separately for each bat species at www.iucnredlist.org (IUCN 2023b) under “Text Overview”, section “Habitat and Ecology Information” and at the website of the Global Biodiversity Information Facility www.gbif.org (GBIF 2023) in section “Food and Feeding”. The final list of migratory insectivorous bats included 28 species (Supplement 2). As the CMS definitions of the term migratory is broader than the the one used here, the report addresses other, not fully migratory, but insectivorous bat species in a second half of the species lists if possible.

Insectivorous birds can consume large amounts of prey annually worldwide (Nyffeler *et al.* 2018). Many insectivorous birds (migratory and non-migratory) have declined over the past 50 years (Tallamy & Shriver 2021).

Insectivorous bats must consume between 25% and < 100% of to their body mass in insects during the night, depending on the species, season, and reproductive cycle (Kunz *et al.* 2011). The abundance of insects is essential for the activity and diversity of insectivorous bats (Wickramasinghe *et al.* 2004).

It is important to note that migratory insectivores are also found in fish and insects.

Fish migrate between and within different freshwater and saltwater systems (Morais & Daverat 2016). Although, many freshwater fish species are insectivorous, research on insect-fish interactions are lacking.

Fish migration has been reviewed by the following authors: Carolsfeld & Bank (2003), Lucas & Baras (2008), Limburg & Waldman (2009), Brönmark *et al.* (2014), Morais & Daverat (2016), Deinet *et al.* (2020) and Waldman & Quinn (2022).

Insects are an abundant and important group of terrestrial migrants, but little is known about the patterns and behaviour of insect migrants (Chapman *et al.* 2015). Large insects of the taxa Lepidoptera, Orthoptera and Odonata, mostly herbivores, are known to undertake long-distance migrations (Chapman *et al.* 2015).

Comprehensive studies and reviews of insect migration include: Dingle (1972), Taylor (1974), Drake & Farrow (1988), Holland *et al.* (2006) and Chapman *et al.* (2010, 2015).

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6. Birds

6.1. Bird Migration System

Bird migration is a global phenomenon covering all continents and oceans (Fudickar *et al.* 2021). Approximately 19% of the world's 9,856 described bird species migrate (Kirby *et al.* 2008). Several hundred species of migratory water and land birds migrate in three major bird migration systems (Dingle 2008; Jahn *et al.* 2020):

- (i) Nearctic-Neotropical system: Migration between North American breeding grounds and Neotropical wintering grounds.
- (ii) Palearctic-Palearctic system: Migration between European or Asian breeding grounds and southern Asian or central/southern African wintering grounds.
- (iii) Austral system: Migration between Australian or South American breeding grounds and northern wintering grounds closer to the equator.

The three migratory systems are geographically limited and do not include altitudinal migration of birds (Fudickar *et al.* 2021). Furthermore, bird migration within the Neotropical system (intratropical migration) is notoriously poorly understood and studied when compared to the Nearctic-Neotropical system (Jahn *et al.* 2020). This is not surprising, as global patterns of migratory bird diversity show that bird migration is characteristic of the Northern Hemisphere (Somveille *et al.* 2013). Here, the diversity of migratory birds and the intercontinental turnovers of species composition between breeding and non-breeding areas are high (Somveille *et al.* 2013).

However, migratory bird species and populations often connect their breeding and non-breeding grounds along broadly similar and well-established routes or flyways (BirdLife International 2010f). The eight global flyways of migratory land and waterbirds have been refined by BirdLife International (2010b) for species that are a) fully migratory; b) conduct biannual and c) latitudinal migration; d) migrate between breeding and non-breeding grounds and e) belong to populations in which all individuals migrate (Fig. 8). Unfortunately, populations of the migratory birds along the world's main flyways have declined in recent decades (Kirby *et al.* 2008).

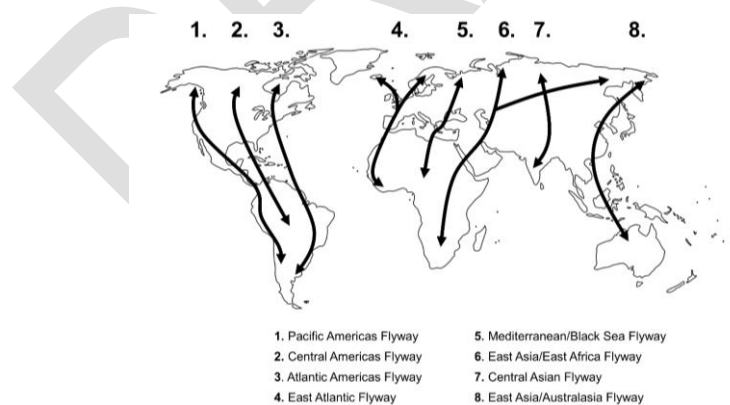


Fig. 8 Overview of the eight main global flyways of migratory land and waterbirds. Adapted from Bagley (2022) based on BirdLife International (2010b). Maps used under CCO 1.0 Universal Public Domain Dedication.

BirdLife International provides detailed information (Flyway Factsheets) on all eight flyways (BirdLife International 2010f) (Tab. 4).

Tab. 4 Basic information on the eight global flyways of migratory land and waterbirds (BirdLife International 2010f).

Flyway	Flyway Area (km ²)	Number of Migratory Species	Number of Countries	Number of IBAs ¹	Source
Pacific Americas	21.3 Mio.	323	18	174	http://datazone.birdlife.org/userfiles/file/sowb/flyways/1_Pacific_Americas_Factsheet.pdf
Central Americas	30.5 Mio.	382	27	323	http://datazone.birdlife.org/userfiles/file/sowb/flyways/2_Central_Americas_Factsheet.pdf
Atlantic Americas	33.9 Mio.	395	46	543	http://datazone.birdlife.org/userfiles/file/sowb/flyways/3_Atlantic_Americas_Factsheet.pdf
East Atlantic	45.6 Mio.	297	75	1,948	http://datazone.birdlife.org/userfiles/file/sowb/flyways/4_East_Atlantic_Factsheet.pdf
Mediterranean/Black Sea	49.0 Mio.	302	101	2,077	http://datazone.birdlife.org/userfiles/file/sowb/flyways/5_Mediterranean_Black_Sea_Factsheet.pdf
East Asia/East Africa	56.7 Mio.	331	64	1,355	http://datazone.birdlife.org/userfiles/file/sowb/flyways/6_East_Asia_East_Africa_Factsheet.pdf
Central Asia/South Asia	34.0 Mio.	307	29	1,178	http://datazone.birdlife.org/userfiles/file/sowb/flyways/7_Central_Asia_Factsheet.pdf
East Asia/Australasia	84.7 Mio.	492	37	1,184	http://datazone.birdlife.org/userfiles/file/sowb/flyways/8_EastAsia_Australasia_NEW.pdf

¹ Important Bird Areas with categories for fully protected, partially protected, not protected (unknown) areas and sites with more than one million birds. See detailed flyway factsheets for more information.

UNEP and CMS have divided the flyways into five sections, with some overlap (UNEP & CMS 2009):

- (1) Central Pacific Flyway
- (2) American Flyways
- (3) African/West Eurasian Flyways based on AEWA Agreement (UNEP & AEWA 2022)
- (4) Central Asian Flyway (CAF)
- (5) East Asian Australasian Flyway (EAAF)

6.2. Migratory Land and Waterbirds

The flyway concept includes all migratory land and waterbirds. Of the 11,118 bird species listed in the IUCN Red List of Threatened Species, an estimated of 12% are globally threatened (Fig. 9), including bird species that were classified as vulnerable, endangered and critically endangered (BirdLife International 2022; IUCN 2023a).

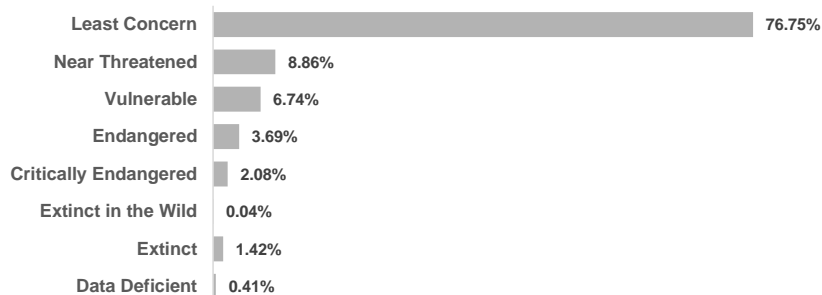


Fig. 9 Proportion of IUCN Red List categories for all documented bird species. A total of 11,118 birds were classified by the IUCN as Least Concern (n = 8,587), Near Threatened (n = 991), Vulnerable (n = 754), Endangered (n = 413), Critically Endangered (n = 233), Extinct in the Wild (n = 5), Extinct (n = 159) and Data Deficient (n = 46) (IUCN 2023a).

BirdLife International classified 11% of migratory birds as threatened or near-threatened on the IUCN Red List (Kirby *et al.* 2008). According to the authors the status of migratory bird species varies widely geographically, with 8% threatened species in the Americas, 10% threatened in Europe, Asia and Africa, and 14% threatened in Asia-Pacific region.

Migratory bird species face many threats during their annual life cycle in the breeding and wintering grounds and during autumn and spring migration (Sherry & Holmes 1995; Faaborg *et al.* 2010a). To understand the global decline of migratory bird species, the Nearctic-Neotropical system of migratory landbirds can be represented in a schematic model called the Sherry-Holmes model (Sherry & Holmes 1995).

The model can visualise population limitation of migratory birds during breeding, wintering and the two phases of migration (Faaborg *et al.* 2010b). In the model, migratory bird populations are affected by conditions categorised by food, predation and weather on the breeding and wintering grounds and/or by effects that occur during spring and/or fall migration. Impacts affect populations on the breeding grounds, challenging dispersal of the young, habitat selection and survival of adults and juveniles in summer. Winter may be characterised by wintering populations facing habitat selection and overwintering survival (Faaborg *et al.* 2010b).

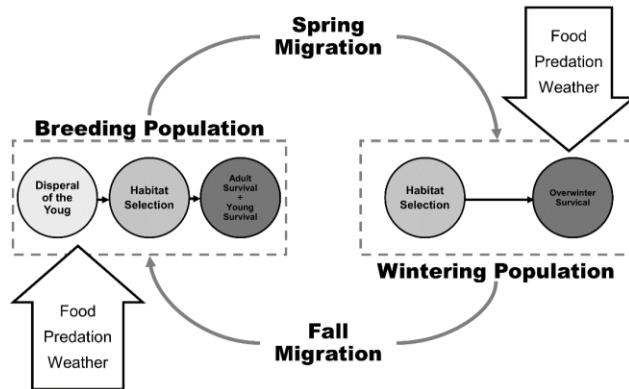


Fig. 10 Schematic model of the four phases of bird migration and constraints on migratory bird populations from Sherry & Holmes (1995). According to the model, breeding and wintering populations of migratory birds face threats transmitted from food, predation and weather. Limits to summer and winter bird populations are projected in the grey cycles.

The Sherry & Holmes model for understanding the dynamics of migratory bird populations can be extended with current knowledge of bird migration behaviour:

Population dynamics of migratory birds can vary depending on the **migratory connectivity** of the bird species (Webster *et al.* 2002). Migratory connectivity can be simply described as the extent to which individuals from the same breeding site migrate to the same non-breeding site (Esler 2000). Migratory species with a low migratory connectivity are more adaptive to local environmental changes than those with high migratory connectivity (Knight *et al.* 2021). Migratory connectivity is considered to be low when subpopulations of a migratory species have a high degree of spatial and temporal interaction (Knight *et al.* 2021).

Carry-over effects (COEs) affect the performance or fitness of individuals at different stages of migration. These effects are processes that occur at one phase of the migratory life cycle and can influence the success of individuals in the following phase (Harrison *et al.* 2011). Consequently, non-lethal negative effects are carried over to the next phase and influence the success of individuals, such as reproduction or habitat selection (Norris 2005; Norris & Taylor 2006). These effects are often based on changes in resource availability to individuals in a population (Harrison *et al.* 2011).

In **phenological mismatches**, interactions between resource and consumer species are shifted (Visser & Gienapp 2019). Therefore, they occur at times in an individual's annual cycle when consumer resource demand is high but cannot be met by resource availability (Kwon *et al.* 2019; Visser & Gienapp 2019). The amplitude of the mismatch for a migratory bird species can depend on the geographical region, the bird migration system, the migration distance and the species composition of the migrants (Jones & Cresswell 2010). In the context of the migration system, conditions at the **stopover sites** (e.g. food availability or predation pressure) along the flyway can have an important influence on the migration schedule (Trierweiler *et al.* 2014). However, climate warming is expected to further promote phenological mismatch (Møller *et al.* 2008; Saino *et al.* 2011).

Kirby *et al.* (2008) assessed the major threats to birds in general, whether or not they are considered globally threatened or not. In particular, they (Kirby *et al.* 2008) highlighted the impacts on migratory land and water birds, which are classified as “Threatened” and “Near-Threatened”, based on a categorisation by Salafsky *et al.* (2008). Agriculture and aquaculture were identified as the main threats to migratory bird species, followed by 10 other threats (Kirby *et al.* 2008):

- (1) Agriculture and Aquaculture
- (2) Biological Resource Use*
- (3) Natural System Modification
- (4) Pollution
- (5) Invasive/Problematic Species and Genes
- (6) Residential and Commercial Development
- (7) Human Intrusions and Disturbances
- (8) Climate Change and severe Weather
- (9) Transportations and Service Corridors
- (10) Energy Production and Mining
- (11) Geological Events

*(including activities such as hunting)

6.3. Migratory Insectivorous Bird Populations

Bird populations with at least one annual life cycle phase that dependent on insects as a food source are most likely to suffer from the expected reductions in insect biomass and diversity (Tallamy & Shriver 2021).

Migratory insectivorous birds of the **Americas Flyway** that feed on insects in flight (aerial insectivores), such as swallows, swifts, nightjars, and flycatchers have been experienced significant population declines (Spiller & Dettmers 2019). Population declines of North American migratory insectivores are expected to vary by species and region (Nebel *et al.* 2010; Michel *et al.* 2015; Smith *et al.* 2015). La Sorte *et al.* (2014) suspected that bird populations have different migratory behaviour between the wester and easter parts of the Americas Flyways due to different spring phenology of ecological productivity (e.g. availability of insects and their associated plants).

Nevertheless, non-aerial insectivorous grassland and farmland birds in **North America** have also declined in recent decades as well due to the negative impacts of land use intensification (Stanton *et al.* 2018). It should be noted that, Stanton *et al.* (2018) classified bird species based on their foraging habitat rather than their feeding guild. Raven & Wagner (2021) characterised insectivorous birds of grassland as one of the most rapidly declining bird guilds in North America, but made no assumptions about migratory bird populations per se. Cascading effects of the insect declines on birds have also been described by Rosenberg *et al.* (2019). According to the authors, the North American avifauna declined in abundance by 29% between 1970 and 2017. Migratory insectivores were mainly assessed in the species group of land birds and aerial insectivores, which showed a loss in abundance of 27.1% and 31.8%, respectively, over a 47 year period (Rosenberg *et al.* 2019). Declines affected both threatened and common species from different biomes and families, suggesting that impacts on the bird communities operate at multiple scales with interacting threats (Rosenberg *et al.* 2019). Threats may be more severe in areas where birds are

highly concentrated during migration stopovers, forming so called migratory bottlenecks (Bayly *et al.* 2018). The impact of these areas on birds may have the potential to contribute disproportionately to overall population declines (Newton 2006).

The insectivorous birds of **South America** form highly species diverse communities (Sherry *et al.* 2020). However, the richness of migratory species in the Southern Hemisphere is generally low when compared to the Northern Hemisphere (Somveille *et al.* 2013). Approximately 171 bird species can be classified as insectivorous and live in the Neotropics and the Nearctic (Sherry *et al.* 2020). Approximately 230 bird species belonging to the endemic austral migrant community migrate within the South American continent (Jahn *et al.* 2013). The Austral Bird Migration system is known to have a wide variety of migration strategies among bird species (Dingle 2008; Jahn *et al.* 2010).

The most common long-distance migrants in South America are primarily insectivores, whose migratory behaviour is strongly linked to rainfall cycles (Jahn *et al.* 2010). However, austral migrants are usually found in open or shrubby areas, whereas Nearctic migrants prefer forests and woodlands (Chesser 1994). Tropical forests and woodlands and their biodiversity are particularly threatened by changes in land use for crops, pasture, and wood fuel (Wagner 2020). Losses of insects in South America (Klink *et al.* 2020b) are likely to cascade through the ecosystem to migratory insectivorous bird populations, although studies of insect-bird interactions in the Neotropics are limited.

This report assessed the IUCN status and population trends of 304 migratory insectivorous bird species of the Americas Flyway. Overall, 9.2% of the species are globally threatened, while 90.8% are classified as “Least Concern” (Fig. 11a). Worryingly, many (40.1%) of the migratory insectivorous bird populations assessed are in decline (Fig. 11b). 34.8% are classified as stable and 22.1% show a positive population trend.

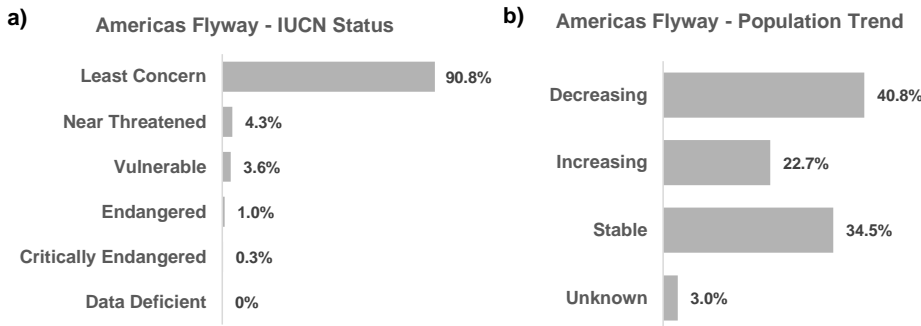


Fig. 11 a) IUCN status and b) population trends of 299 migratory insectivorous bird species of the Americas Flyway (North America and South America) based on the IUCN Red List Version 2022-2 (IUCN 2023b). The list of bird species is available in the supplementary material. Proportions are based on: Least Concern (n = 276), Near Threatened (n = 13), Vulnerable (n = 11), Endangered (n = 3), Critically Endangered (n = 1) and Data Deficient (n = 0); Decreasing (n = 124), Increasing (n = 66), Stable (n = 105) and Unknown (n = 9).

An estimated 2.1 billion passerines and near-passerines birds migrate between **Europe and Africa** in autumn (Hahn *et al.* 2009). Interestingly, 73% of these 2.1 billion birds belong to just 16

bird species, most of which are insectivorous, such as the Willow Warbler (*Phylloscopus trochilus*) or the Tree Pipit (*Anthus trivialis*).

For **Europe**, a 13% long-term decline in migratory populations of insectivorous birds was found for 66 bird species between 1990 and 2015 for (Bowler *et al.* 2019). Insectivorous feeding behaviour was associated with long-distance migration within the African/West Eurasian Flyway. According to Bowler *et al.* (2019), farmland bird species, particularly grassland species, showed the greatest declines. Consistent with the findings of Vickery *et al.* (2001), the authors concluded, that changes in grassland due to intensification of management have likely reduced the extent and quality of grassland as foraging and breeding habitat for migratory insectivorous birds.

The decline of European farmland birds, which are often insectivorous, has been linked to the harmful use of insecticides in agriculture (Benton *et al.* 2002; Hallmann *et al.* 2014). As a result, insectivorous birds tend to be more sensitive to environmental change than other bird guilds (Bowler *et al.* 2019). A closer look at the full life cycle of migratory bird species of the African/West Eurasian Flyway was undertaken by Vickery *et al.* (2014). In their review, 27 out of 38 bird species (71%) declined in abundance over a 29-year period (1980-2009). The feeding guilds of the species were not assessed. However, Vickery *et al.* (2014) pointed out that declines in Afro-Palaeartic bird populations on breeding grounds are in many cases better known than the declines of bird populations on non-breeding grounds. Understanding geographical variation in survival and productivity in breeding and non-breeding areas is crucial to understanding demographic processes in migratory bird populations (Morrison *et al.* 2013).

Studies on the decline of insects on the **African** continent are lacking (Klink *et al.* 2020b). Research on migratory insectivorous bird species endemic to Africa and their population trends is difficult to find. Hockey (2000) showed that austral African migrants are most likely to be insectivorous and that the migratory behaviour of species moving from tropical to temperate areas for breeding is closely linked to the onset of summer and the rain season. Around 10% of migratory water and landbirds that spend a phase of their life cycle in Africa are threatened or near-threatened (Kirby *et al.* 2008). However, Kirby *et al.* (2008) extrapolated this figure to migratory bird species *per se* and to regions defined as Europe, Central Asia, Africa and the Middle East.

However, the IUCN status and population trends in the birds of the African/West Eurasian Flyway are based on 220 species for the report. 94.9% of the bird species assessed are classified as "Least Concern" (Fig. 12a). However, around a third of the migratory insectivorous bird species (30.9%) show a declining population trend (Fig 12b).

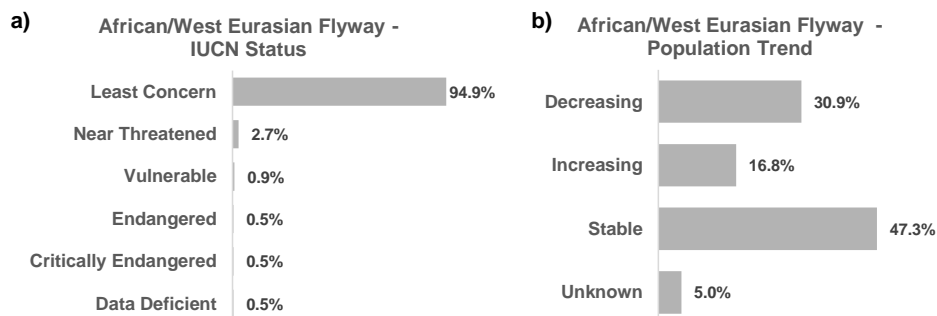


Fig. 12 a) IUCN status and b) population trends of 220 migratory insectivorous bird species of the African/West Eurasian Flyway based on the IUCN Red List Version 2022-2 (IUCN 2023b). The list of bird species is available in the supplementary material. Proportions are based on: Least Concern (n = 209), Near Threatened (n = 6), Vulnerable (n = 2), Endangered (n = 1), Critically Endangered (n = 1) and Data Deficient (n = 1); Decreasing (n = 68), Increasing (n = 37), Stable (n = 104) and Unknown (n = 11).

There are 307 migratory bird species using the Central Asia Flyway (BirdLife International 2010a). Migratory insectivorous bird populations in **Asia** may face declines in intensively used landscapes (Menon *et al.* 2019). Although, the Central Asian flyway is the shortest in the world, threats along the migration routes through the steppes and cold deserts of Central Eurasia and much of the Himalayan chain, have the potential to drive many bird populations into decline (BirdLife International 2010a). Information on population trends of migratory insectivorous bird species has been difficult to obtain due to a lack of research. For general population trends of migratory bird species, see Kirby *et al.* (2008).

Of the 178 migratory insectivorous bird species assessed for the report, 4.4% can be classified as globally threatened (Fig. 13a). The majority (95.6%) of the bird species are classified as “Least Concern”. Population trends of migratory insectivorous bird species show a different picture, with 32.0% of species assessed decreasing and 51.1% stable (Fig. 13b).

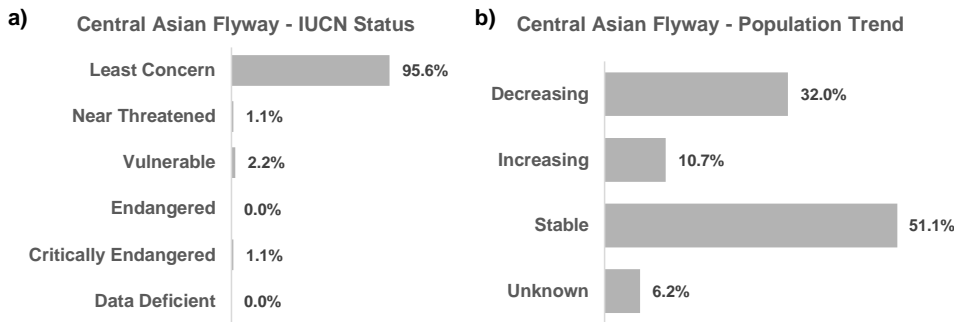


Fig. 13 a) IUCN status and b) population trends of 178 migratory insectivorous bird species of the Central Asian Flyway based on the IUCN Red List Version 2022-2 (IUCN 2023b). The list of bird species is available in the supplementary material. Proportions are based on: Least Concern (n = 170), Near Threatened (n = 2), Vulnerable (n = 4), Endangered (n = 0), Critically Endangered (n = 2) and Data Deficient (n = 0); Decreasing (n = 57), Increasing (n = 19), Stable (n = 91) and Unknown (n = 11).

East Asia and Australia are home to a diverse community of migratory insectivorous birds dominated by flycatchers, chats and leaf warblers, with approximately 170 species defined as long-distance migrants (Yong *et al.* 2015). Of these 170 species defined as long-distance migratory songbirds by Yong *et al.* (2015), 21 species are threatened or near threatened and 56 showed a declining trend in in population numbers along temperate and tropical East Asia. Australia was characterised by the authors as the south-eastern limit of most migratory songbirds. Lindenmayer *et al.* (2018) examined predictions of temporal change in temperate forest ecosystems for 177 Australian bird species over a 13-year time period. Migratory insectivorous bird species were not assessed, but migratory and insectivorous birds in separate categories. Migratory bird communities showed less temporal change than resident bird communities

(Lindenmayer *et al.* 2018). In addition, nectarivorous bird species declined across all temperate forest sites, while insectivores remained stable over the 13-year period. In Australia, however, forest fragmentation is known to cause severe declines in bird populations of all feeding guilds (Watson *et al.* 2002). Similarly, many land birds in East Asia rely on tropical forests for overwintering, exposing populations to habitat loss and degradation across their geographic range (Yong *et al.* 2015).

The IUCN status of the 219 migratory insectivorous bird species assessed in the report for the East Asian Australasian Flyway shows that 8.2% of the bird species are globally threatened and 91.8% are of least concern (Fig. 14a). Population trends indicate a decline of 35.6% and stable numbers for 52.1% of the bird species (Fig. 14b).

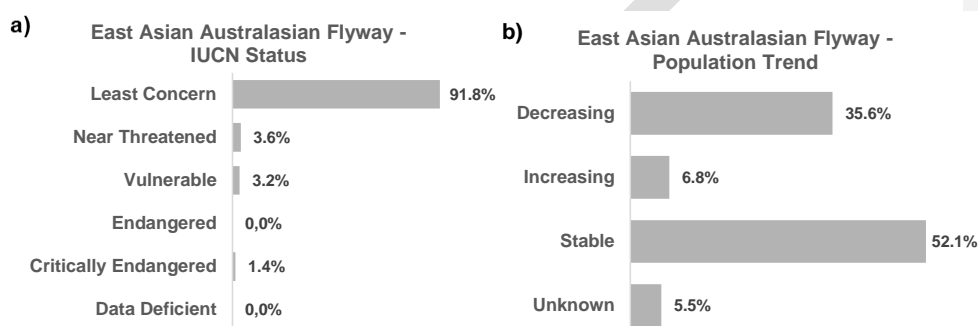


Fig. 14 a) IUCN status and b) population trends of 219 migratory insectivorous bird species of the East Asian Australasian Flyway based on the IUCN Red List Version 2022-2 (IUCN 2023b). The list of bird species is available in the supplementary material. Proportions are based on: Least Concern (n = 201), Near Threatened (n = 8), Vulnerable (n = 7), Endangered (n = 0), Critically Endangered (n = 3) and Data Deficient (n = 0); Decreasing (n = 78), Increasing (n = 15), Stable (n = 114) and Unknown (n = 12).

6.4. Threats and Stresses of Migratory Insectivorous Birds

The list of the 722 migratory insectivorous bird species (Supplement 1) included 126 bird species for which the IUCN defined threats and stresses (IUCN 2012, 2023c). 55.6% of the bird species were threatened by agricultural and aquacultural land use (e.g. annual and perennial non-timber crops, wood and pulp plantations or livestock farming), followed by 46% for climate change and severe weather (e.g. habitat shifts, drought, temperature extremes) and 42.1% for biological resource use (e.g. hunting and collecting, logging and wood harvesting or fishing) (Fig. 15). The lowest threats were human intrusions and disturbances (e.g. recreational activities, war or military exercises) with 12.7%, transportation and service corridors (e.g. roads, services lines or shipping lanes) with 11.1% and geological events (e.g. volcanoes, earthquakes or landslides) with 1.6% of affected bird species.

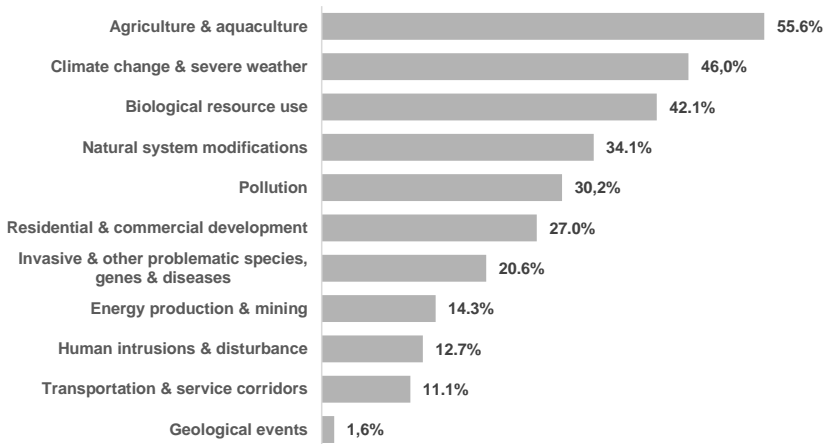


Fig. 15 Threats defined by the IUCN for 126 migratory insectivores bird species (IUCN 2023c). Threat categories are based on categorization of Salafsky et al. (2008) and can be found in the IUCN Threat Classification Scheme. Proportions are based on: Agriculture & aquaculture (n = 70), Climate change & severe weather (n = 58), Biological resource use (n = 53), Natural system modifications (n = 43), Pollution (n = 38), Residential & commercial development (n = 34), Invasive & other problematic species, genes & diseases (n = 26), Energy production & mining (n = 18), Human intrusions & disturbance (n = 16), Transportation & service corridors (n = 14), Geological events (n = 2).

Recently, reviews have been published for North America and Europe that focus on and include threats and stresses to migratory insectivorous bird species.

Spiller & Dettmers 2019 identified potential drivers of the declines in aerial insectivorous birds (swallows, swifts, nightjars, and flycatchers), including declines in insect prey abundance, effects of environmental pollution, habitat loss, phenological changes due to climate warming, and deterioration of stopover sites and wintering ground conditions. The drivers are thought to act simultaneously at different times in the annual cycle, which may make carry-over effects an important issue in declines (Spiller & Dettmers 2019). Common threats to migratory land birds of the Central Americas Flyway have been identified by BirdLife International (2010a) and include infrastructure, housing and energy development, tropical deforestation, agricultural expansion and hunting.

The review by Møller *et al.* (2008) of 100 European migratory bird species between 1970 and 2000 analysed the phenological response of bird species to climate change. It was concluded that bird species that did not advance their spring migration declined. A potential mismatch between food availability and arrival time could lead to failure to breed during periods of high food availability, as shown for the migratory insectivorous Pied Flycatcher (Both *et al.* 2006).

For many European-African migrants, including many insectivores, illegal hunting, habitat loss and degradation have been defined as major threats (Bairlein 2016). Furthermore, Bowler *et al.* (2019) showed that the long-term decline of many migratory insectivorous bird species in Europe may be linked to agricultural intensification and the loss of many grassland ecosystems. The use of pesticides and fertilisers is a major threat to European bird populations (Rigal *et al.* 2023). Together with overgrazing, increased pesticide use has been identified as a serious threat to migratory insectivorous bird species in sub-Saharan Africa, as insect prey populations decline as a result of reduced habitat quality (BirdLife International 2010d, e). In addition, bird species migrating through

the Mediterranean and Middle East are threatened by illegal hunting and trapping (BirdLife International 2010d, e).

Threats to migratory birds in Central Asia and East Asia/Australasia include habitat degradation of rivers and wetland ecosystems, climate change, land use and human infrastructure (BirdLife International 2010b, c). Yong *et al.* (2015) identified illegal hunting/trapping of migratory birds for food and pet trade, invasive species and collisions with human-made structures as the main threats at stopover and wintering sites, while breeding grounds were increasingly affected by the impacts of habitat loss and climate change. For example, the illegal trapping of the migratory insectivore Yellow-breasted Bunting (*Emberiza aureola*), caused a population decline by 84.3 to 94.7% across its geographical range in East Asia between 1980 and 2013 (Kamp *et al.* 2015).

The stresses on the populations of the 126 migratory insectivorous bird species in the report are shown in Figure 16. 79.4% of the bird species are affected by stresses from ecosystem degradation, which is a direct damage to the biotic and/or biological condition of an ecosystem (IUCN 2012). Ecosystem conversion through direct and complete conversion of the ecosystem (e.g. clear cutting or diversion of rivers) caused stress to 62.7% of the insectivorous bird species, followed by direct killing or capture of species causing species mortality to 43.7% of the bird species. Indirect species effects, defined as indirect damage to species (e.g. hybridisation, competition, inbreeding, skewed sex ratios, reduced reproductive success) had an impact on 28.8% of the species. 25.4% and 20.6%, respectively, were attributed to indirect ecosystem effects (e.g. fragmentation or isolation) and species disturbance as disruption of critical life stages.

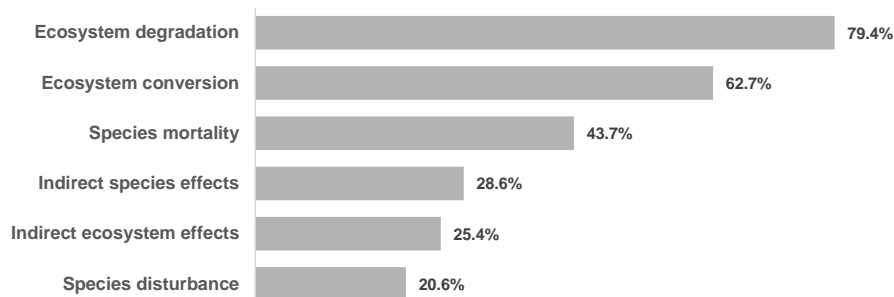


Fig. 16 Threats to 126 migratory insectivorous bird species as defined by the IUCN (IUCN 2012). Proportions are based on: Ecosystem degradation (n = 100), Ecosystem conversion (n = 79), Species mortality (n = 55), Indirect species effects (n = 36), Indirect ecosystem effects (n = 32), Species disturbance (n = 26).

6.5. Threats of Insect Decline to Migratory Insectivorous Birds

Insects are essential for the survival of insectivorous bird species worldwide (Tallamy & Shriver 2021). However, food availability is not the only known factor, as it is strongly interacts with nest site availability, predation pressure and climate (Newton 2004).

For example, Pied Flycatcher (*Ficedula hypoleuca*) have altered their arrival times at breeding grounds in response to spring temperature fluctuations (Visser *et al.* 2015). Theoretically, birds arriving early at the breeding grounds risk freezing and their young may hatch when resources are limited (Mayor *et al.* 2017). However, arriving late at the breeding grounds can lead to fewer nests, reduced numbers of mating partners and increased competition for resources (Mayor *et al.*

2017). Breeding success of Blue Warblers (*Dendroica caerulescens*) decreases when intraspecific competition (neighbour density) is high and abiotic conditions are difficult (Sillett *et al.* 2004). In some cases, abiotic conditions determine food availability. Ovenbirds (*Seiurus aurocapilla*), ground-foarging Neotropical-Nearctic migrants, were affected by late winter rains that reduced the abundance of insect prey and resulted in an energy deficit (low fat and protein stores) for the wintering period (Strong & Sherry 2000). Biotic interactions between animals could also reduce the reproductive success of migratory insectivorous bird species. American Redstarts populations (*Setophaga ruticilla*) are known to be negatively affected by mammalian nest predators such as Red Squirrels and Eastern Chipmunks (Sherry *et al.* 2015).

After all, threats to migratory insectivorous birds are mediated by the insect availability, including distribution and scarcity of insects (Fig. 17).



Fig. 17 Schematic overview of the threats exposed by the global insect decline towards migratory insectivorous birds.

In another study of American Redstarts (*Setophaga ruticilla*), arthropod food availability at wintering sites was identified as the main factor to directly affecting body condition, which reduced the performance of spring migration (delayed departure) (Cooper *et al.* 2015). In the face of climate change, the arrival dates of spring migration of many migratory bird species may advance in timing, with effects on bird species being highly species-specific (Rubolini *et al.* 2007).

On breeding grounds, some migratory insectivorous birds, tend to synchronise their nesting with the availability of insect prey (Marshall *et al.* 2002).

The reproductive success of Barn Swallows (*Hirundo rustica*) has been reported to be strongly related with the abundance of flying insects (Møller 2019). However, potential threats to aerial insectivores have been found to be highly complex (Spiller & Dettmers 2019). For example, insects may be abundant in an ecosystem, but cold weather conditions may lead insect inactivity, ultimately altering food availability for aerial insectivorous bird species (Cox *et al.* 2019).

The date of arrival of birds at the breeding grounds and the date of hatching can be used as phenological markers in migratory birds, to monitor potential effects of food availability in a changing climate (Seebacher & Post 2015). Trans sub-Saharan bird migration is one of the 17 indicators used to monitor the effects of climate change on migratory species (Newson *et al.* 2009). Reduced precipitation and rising temperatures are particularly threatening stopover and wintering habitats of trans sub-Saharan bird populations (Sanderson *et al.* 2006).

Other aspects of insect availability may include insect distribution and scarcity. Insect distribution at wintering sites, can be the main driver of warblers distribution, as insect biomass and warbler abundance often are linked (Johnson & Sherry 2001). During migration & stopover sites, warblers select their habitat according to food abundance (Kelly *et al.* 2002).

7. Bats

7.1. Bat Migration

In general, bats migrate over shorter distances, than birds (Fleming 2019). Bat species associated with long-distance migratory behaviour are found in at least 15 bat genera and approximately 25 species worldwide (Popa-Lisseanu & Voigt 2009). The migratory behaviour of bats has been described to distinguish between temperate and tropical geographical zones (Fleming & Eby 2003).

Bat species of the **temperate zone** exhibit characteristic annual migratory movements that are closely linked to hibernation (Fleming 2019). Temperate bats migrate mainly in response to cold climate conditions in breeding areas and favourable milder climate in roosting sites (Popa-Lisseanu & Voigt 2009). These migratory movements can be described as (a) regional migration, with distances between summer and winter roosts of 100 to 500 km, or (b) long-distance migration, with distances between seasonal roosts of 1,000 km or more (Fleming & Eby 2003; Fleming 2019). However, partial or sex-biased migration and migratory flexibility are common in bats of the temperate zone (Fleming & Eby 2003).

In contrast, bats of the **tropical zone** show little migratory behaviour (Fleming & Eby 2003). When migrating, tropical and subtropical bats mostly follow resource gradients due to seasonal and geographical shifts in food availability (Popa-Lisseanu & Voigt 2009). Migration for hibernation purpose does not play an important role in tropical bats (Fleming 2019).

The distribution of the world's bat species can be grouped into six zoogeographical regions (Fig. 18), using microbats (here *Microchiroptera*) as an example, which include Afrotropical, Australasian, Indomalayan, Nearctic, Neotropical, and Palaeartic regions (Hutson *et al.* 2001). Bats are absent from the Arctic, Antarctica and several isolated islands (Hutson *et al.* 2001).

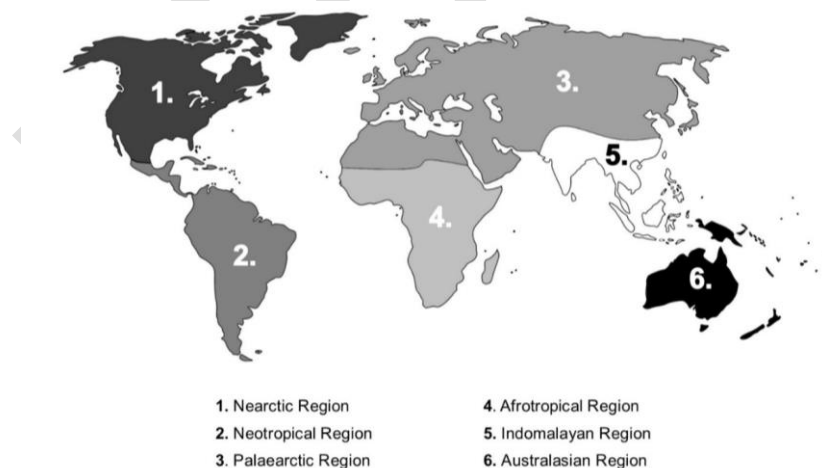


Fig. 18 Overview of the six zoogeographical regions of the distribution of bat species (microbats of the former suborder *Microchiroptera*). The map is based on Hutson *et al.* (2001) and has been used under the CCO 1.0 Universal Public Domain Dedication.

For the purpose of this report, the six zoogeographical regions are grouped into the temperate and tropical zones used by Fleming (2019):

- (1) Temperate zone (Nearctic and Palearctic regions)
- (2) Tropical zone (Afrotropical, Australasian, Indomalayan and Neotropical regions)

Several species of bats may occur in both zones, exceeding the total number of migratory bat species.

7.2. Macro- and Microbats (or Yinpterochiroptera and Yangochiroptera)

Globally, bats are widely distributed and represent a highly diverse order within the class of mammals (Frick *et al.* 2019). The order of bats (Chiroptera) consisted of two suborders with distinct feeding preferences: *Megachiroptera* (formerly megabats) are mainly consume fruits and flowers, while the majority of *Microchiroptera* (formerly microbats) feed on insects, but also on fish, amphibians, small mammals, fruits and flowers (Mickleburgh *et al.* 1992; Hutson *et al.* 2001). Recent molecular evidence suggests a close relationship between Old World fruit bats (Pteropodiformes) and several traditionally classified families of *Microchiroptera* (Hutcheon & Kirsch 2006). In agreement with Teeling *et al.* (2005), a placement of *Pteropodidae*, *Rhinolophidae* in the suborder *Yinpterochiroptera*, and *Emballonuridae*, *Noctilionidae* and *Vespertilionidae* in *Yangochiroptera* was announced.

The IUCN listed 23.4% of the 1,332 bat species as threatened and 58.2% as least concern (Fig. 19) (IUCN 2023b). 236 bat species on the list (17.7%) are classified as data deficient. Frick *et al.* (2019) estimate that more than one third of the global bat species are classified as threatened and data deficient by the IUCN. Information on yinpterochiropteran and yangochiropteran species can be obtained from Mickleburgh *et al.* (1992) and Hutson *et al.* (2001)¹⁰.

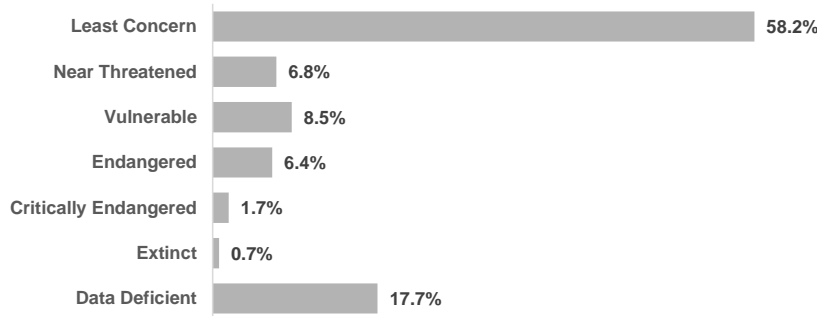


Fig. 19 Proportion of IUCN Red List categories for all documented bat species. A total 1,332 bats were classified by the IUCN as Least Concern (n = 775), Near Threatened (n = 91), Vulnerable (n = 113), Endangered (85), Critically Endangered (n = 23), Extinct (n = 9) and Data Deficient (n = 236) (IUCN 2023b).

Arthropods and insects are the primary food source for around 75% of yangochiropteran (formerly microchiropteran) bat species (Hutson *et al.* 2001). Thus, insectivorous bat species provide an important ecosystem service by regulating insect and arthropod populations that may cause

¹⁰ Both literatures need to be updated.

potential agricultural pests or transmit pathogens to humans and animals in ecosystems (Kunz *et al.* 2011). Frugi- and nectivorous bats play an important role in plant pollination and seed dispersal in tropical and subtropical ecosystems (Kunz *et al.* 2011). Compared to migratory fruit- or nectar eating bats, migratory insectivorous bats show a geographically defuse migratory behaviour (Wiederholt *et al.* 2013). Some characteristics of migratory insectivorous bats are:

It has been suggested that long-distance migratory bats use **torpor** to minimise energy costs during daytime stopovers on migration routes (McGuire & Guglielmo 2009). Typically, prolonged and continuous torpor is associated with winter hibernation (Speakman & Thomas 2003). In this case, the term of **torpor-assisted migration** has been introduced (McGuire *et al.* 2012). Species of the Silver-haired Bat (*Lasionycteris noctivagans*) used torpor instead of remaining euthermic to save up to 91% of their energy (McGuire *et al.* 2014).

Bats migrate almost exclusively at night, making daytime stopovers essential (McGuire *et al.* 2012). Suitable roosts in trees and artificial structures and their microclimate are important for bats at **stopover sites** (McGuire *et al.* 2012, 2014).

The frequent stops made by bats during migration to feed on insects and to store fat can be described as a **fly-and-forage strategy** (Šuba *et al.* 2012). In autumn, just before hibernation and migration, bats feed intensively on insects to store fat (McGuire & Guglielmo 2009). Along the migration route, energy costs must be optimised to ensure winter survival and reproductive success (Šuba *et al.* 2012). Compared to birds, bats spend a short time at stopover sites (McGuire *et al.* 2012).

7.3. Migratory Insectivorous Bat Populations

Intercontinental migratory behaviour in bats is very rare, as bats are relatively short-distance migrants, with migration distances of 100 to 1,000 km (Fleming 2019). However, some Palaearctic yangochiropteran bat species (formerly microbats) of the are able to migrate over more than 2,400 km (Vasenkov *et al.* 2022). Prey availability plays a crucial role during migration (Frick *et al.* 2019). Therefore, insectivorous bats along the migration routes are sensitive to changes in insect prey abundance due to direct or indirect anthropogenic impacts (Jones *et al.* 2009).

52% of the bats of **North America** are estimated to decline over the next 15 years (Bat Conservation International 2023). The conservation status of North American bats follows strong geographic and temporal patterns: The southwest of North America is characterised by high bat species richness, but threatened bat species are mostly found in the east. The north of North America has the highest number of threatened bat species (Hammerson *et al.* 2017). For example, the insectivorous migratory Tricolored Bat (*Perimyotis subflavus*) is listed as vulnerable with a 50% decline in summer distribution, while the summer distribution of the Grey Bat (*Myotis grisescens*) is expected to increase by 16%, although the species is listed as vulnerable (Bat Conservation International 2023). Populations of the endangered Little Brown Bat (*Myotis lucifugus*) showed a decline, with individuals rapidly decreasing in body size due to declining insect abundance and prey availability (Davy *et al.* 2022).

European bat populations were assessed for 16 yangochiropteran bat species with data from 9 countries¹¹ from 1993 to 2011 (EEA 2013). For 43% of the species an increasing population trend in wintering sites was identified between 1993 and 2011 (EEA 2013). Of the 16 bat species

Commented [D07]: We see the potential necessity to widen the rather strict definitions of migratory-classification for the bat species to draw attention on these species being under threat as well. Planned to be included as additional list in supplement no.2 (see also comment under 4.4.)

¹¹Austria, Germany (Bavaria, Thuringia), Hungary, Latvia, Netherlands, Portugal, Slovakia, Slovenia, United Kingdom

assessed by the EEA, 8 species are known to be long-distance migrants. In addition, increasing population trends were found for 5 out of 11 bat species monitored in United Kingdom (Browning *et al.* 2021). However, the EEA report (2013) and Browning *et al.* (2021) state that bat populations have declined across Europe, particularly in the second half of the 20th century. According to the IUCN (2023), the Schreiber's Bent-winged Bat (*Miniopterus schreibersii*) is estimated to have declined by at least 30% across its large geographical range. The migratory insectivorous bat is listed as vulnerable by the IUCN Red List due to the population decline. The near threatened bat species of the Brown Long-eared Bat (*Plecotus auritus*) was also found to be in decline throughout Europe (IUCN 2023).

20 (71.4%) of the 28 identified migratory insectivorous bat species of North America and Europe/North Africa (temperate zone) were mostly classified by the IUCN as least concern (Fig. 20). Near threatened, vulnerable and endangered bat species accounted for 28.6% of the listed animals. 53.6% (15) of the bat populations are stable, 21.4% (6) are declining and 3.6% (1) are increasing. For 6 (21.4%) bat species the population trend is unknown.

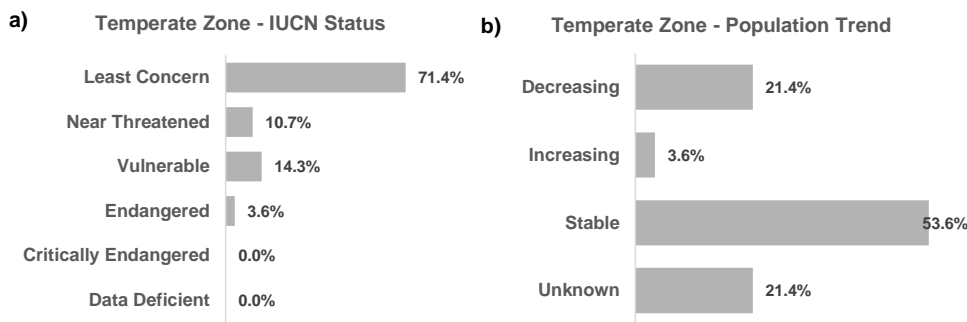


Fig. 20 a) IUCN status and b) population trends of 28 migratory insectivorous bat species of the temperate zone based on the IUCN Red List Version 2022-2 (IUCN 2023b). The list of bat species is available in the supplementary material. Proportions are based on: Least Concern (n = 20), Near Threatened (n = 3), Vulnerable (n = 4), Endangered (n = 1), Critically Endangered (n = 0) and Data Deficient (n = 0); Decreasing (n = 6), Increasing (n = 1), Stable (n = 15) and Unknown (n = 6).

Neotropical insectivorous bats and several forest-dependent species in **South America** have declined due to habitat fragmentation (Meyer *et al.* 2008; Meyer & Kalko 2008). The sensitivity of bats to habitat fragmentation, logging and deforestation has been found to be highly species and landscape specific (Meyer *et al.* 2016). Furthermore, studies on tropical bats tend to follow a taxonomic and geographic bias towards the New World leaf-nose bat family (Phyllostomidae) and a lack of knowledge on **African** and **Southeast Asian** bat species (Meyer *et al.* 2016). Not surprisingly, the Amazon basin in South America and in Southeast Asia have the highest number of data deficient and threatened bat species according to the IUCN Red List (Frick *et al.* 2019). As noted above, most tropical bats show no migratory behaviour and prefer fruits or nectar as a food source (Fleming 2019). Long-distance migratory insectivorous bats found in the tropical zone are mainly temperate bats in their winter habitat, such as the Mexican free-tailed Bats (*Tadarida brasiliensis*), which migrates between North and South America, or the Particoloured Bat (*Vespertilio murinus*), which has its southernmost range in Southeast Asia. Both bat species are classified by the IUCN (2023) as „Least Concern“ with the stable populations.

9 out of 11 identified tropical migratory insectivorous bat species (81.8%) are classified as “Least Concern”, while two species (18.2%) are classified as “Vulnerable” (Fig. 21). None of the bat species had increasing bat populations. Most bat populations were stable (45.5%) or their status unknown (36.4%). Decreasing bat population were accounted for 18.2% of the species.

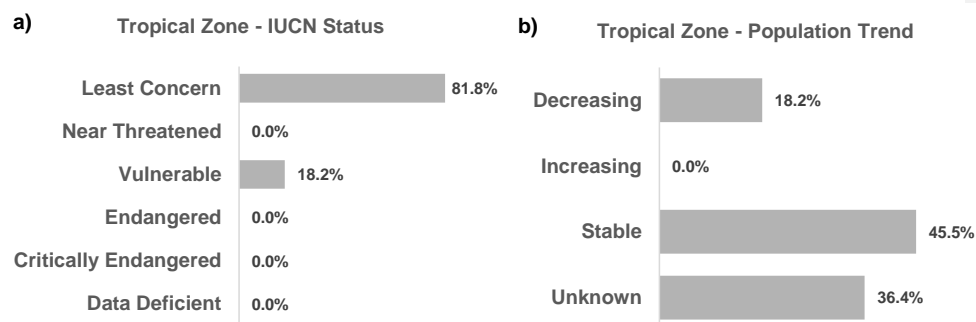


Fig. 21 a) IUCN status and b) population trends of 11 migratory insectivorous bat species of the tropical zone based on the IUCN Red List Version 2022-2 (IUCN 2023b). The list of bat species is available in the supplementary material. Proportions are based on: Least Concern (n = 9), Near Threatened (n = 0), Vulnerable (n = 2), Endangered (n = 0), Critically Endangered (n = 0) and Data Deficient (n = 0); Decreasing (n = 2), Increasing (n = 0), Stable (n = 5) and Unknown (n = 4).

7.4. Threats and Stresses of Migratory Insectivorous Bats

Bats are threatened globally by logging and harvesting of plants, agriculture, and hunting or collecting of animals (Frick *et al.* 2019). Until 2000, hunting has caused multiple mortality events (MMEs) in bats, as the main causes of MMEs today are collisions with wind turbines and the occurrence of the white-nose syndrome in North America (O’Shea *et al.* 2016).

The loss and degradation of tropical rainforests in the Neotropics and Southeast Asia can be considered a major threat to global bat diversity (Kingston 2010; Meyer *et al.* 2016). Despite caves, forest ecosystems are an important habitat for bats and support a wide variety of bat species (Frick *et al.* 2019). For insectivorous bats, forests are the most important habitat (Law *et al.* 2016). Managed forests in Australia, Europe and North America are known to focus in timber production, which promotes even-aged forests with a homogeneous forest structure and low amounts of habitats for bats (Law *et al.* 2016; Frick *et al.* 2019). However, heterogeneous uneven-aged forests with a mix of managed and excluded areas, regardless of forest type and geographic region, may maintain bat diversity (Law *et al.* 2016).

Agriculture and its components can lead to a reduction in habitat quality for bats by reducing foraging and habitat resources (Wickramasinghe *et al.* 2003, 2004). In particular, the reduction of natural elements within the agricultural system, such as hedgerow or woodlands, has significant negative effects on bats (Williams-Guillen *et al.* 2015). The negative effects of agriculture on bats are expected to increase with the expansion of agricultural land cover (Put *et al.* 2019). The use of insecticides and insect-resistant crops further impacts insectivorous bat species by reducing prey abundance and increasing the risk of direct poisoning (Frick *et al.* 2019). For migratory

insectivorous bat species, responses to intensive agriculture were mostly negative (Davidai *et al.* 2015).

Many tropical bats are subject to exploitation for bushmeat and medicine. At least 167 bat species are threatened by hunting and collecting (Mildenstein *et al.* 2016). The majority of globally hunted species are fruit bats of the suborder of *Yinpterochiroptera* of the genus *Pteropus* or *Eidolon*, but the insectivorous genus *Tadarida* of the suborder of *Yangochiroptera* is also widely consumed (Mickleburgh *et al.* 2009). Intentional killing of bats varies geographically, with high killing rates in South America, Africa and Asia (O’Shea *et al.* 2016). In addition to hunting and collecting, bats are often get intentionally killed to prevent potential disease transmission, due to emotional fear, for crop protection, for pest control in buildings, or simply for vandalism (Frick *et al.* 2019).

The threats to the 28 listed migratory insectivorous bat species (Supplement 2) are shown in Figure 22. 66.7% of the bat species were threatened by human intrusions and disturbances, including recreational activities, war or military exercises, and work and other activities. Both winter and summer roosts are often affected by disturbance. Agriculture and aquaculture, with their shifting annual and perennial non-timber crops, and wood and pulp plantations, have an impact on 60 % of the bat species. 53.3% of the bat species were sensitive to energy production and mining, including the production of renewable energy, and to biological resource use, such as hunting and wood logging.

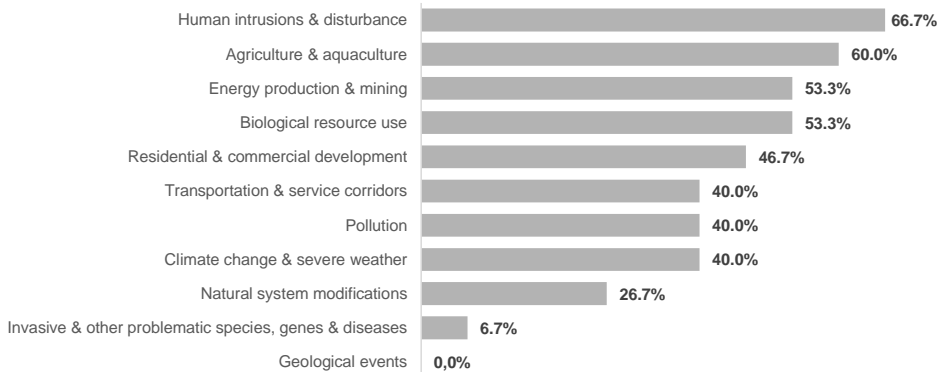


Fig. 22 Threats for 28 migratory insectivorous bat species as defined by the IUCN (IUCN 2023c). Categories of the threats are based on categorization from Salafsky *et al.* (2008) and can be found in the threats classification scheme of the IUCN. Proportions are based on: Human intrusions & disturbance (n = 10), Agriculture & aquaculture (n = 9), Energy production & mining (n = 8), Biological resource use (n = 8), Residential & commercial development (n = 7), Transportation & service corridors (n = 6), Pollution (n = 6), Climate change & severe weather (n = 6), Natural system modifications (n = 4), Invasive & other problematic species, genes & diseases (n = 1), Geological events (n = 0).

Threats to migratory insectivorous bat species result in six types of stresses (Fig. 23). The dominant stresses are ecosystem degradation (e.g. direct damage to an ecosystem condition) and species disturbance (e.g. direct harm to a species), which affected 86.7% of the bat species. 73.3% of the species suffer from ecosystem conversion, which involves massive changes to an ecosystem. Species mortality (e.g. direct killing or capturing of species) accounted for 60% of species affected, while 33.3% could be attributed to indirect ecosystem and indirect species effects, such as indirect changes to an ecosystem and indirect harm to species.

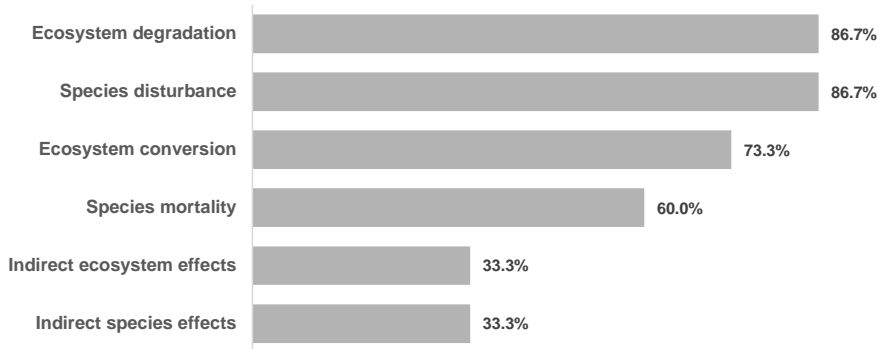


Fig. 23 Stresses for 28 migratory insectivorous bat species as defined by the IUCN (IUCN 2012). Proportions are based on: Ecosystem degradation (n = 13), Species disturbance (n = 13), Ecosystem conversion (n = 11), Species mortality (n = 9), Indirect ecosystem effects (n = 5), Indirect species effects (n= 5).

7.5. Threats of Insect Decline to Migratory Insectivorous Bats

Global threats to bats are mostly related to anthropogenic demands for land, food and other resources that directly affect ecosystems, resulting in the conversion and degradation of habitats important to bats and other organisms (Mickleburgh *et al.* 2002). Threats and challenges to the worlds bats have been reviewed by Frick *et al.* (2019). Indirect effects on insectivorous bat populations are mediated through the food resources (abundance of insects or arthropods). Greater insect diversity in a habitat can provide a better prey availability for insectivorous bats during the night and throughout the season (Rydell *et al.* 1996; Davidai *et al.* 2015).

Food availability during long-distance migration is critical for insectivorous bats because they can only use a limited amount of their body fat as an energy source during migration. Thus, migratory insectivorous bats are known to combine dietary protein from insects captured along the migration route with body reserves to meet energie requirements for migration (Voigt *et al.* 2012). Reduced insect abundance along the migration route may lead to a higher energie expenditure for successful foraging to compensate for the lack of insect prey. The increased energy cost could result in additional stress for migrating insectivorous bats, affecting individual fitness and survival (Fig. 24).

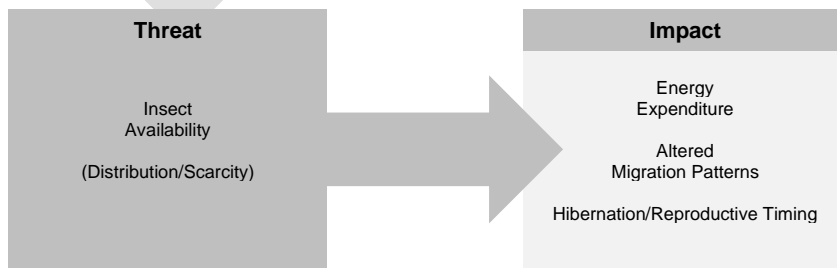


Fig. 24 Schematic overview of the threats exposed by the global insect decline towards migratory insectivorous bats.

To avoid energy expenditure, migratory insectivorous bats can reduce their body temperature during inactive periods, regardless of the ambient temperature at the stopover site (McGuire *et al.* 2014). Sommers *et al.* (2019) showed that a dramatic change in the energy demand of insectivorous bats during summer season and autumn migration may in turn change body mass, digestive organ mass and foraging intensity of species due to phenotypic flexibility. For example, endangered Little Brown Bat (*Myotis lucifugus*) has rapidly decreased body size following a decrease in insect prey availability (Davy *et al.* 2022).

Rather than a change in food distribution, a change in the availability of insect prey caused a two-week delay in the spring migration and a change in the summer reproductive cycle of the migratory insectivorous Mexican Free-tailed Bats (*Tadarida brasiliensis*) (Stepanian & Wainwright 2018). The authors linked the changes in the behaviour of the bats to pest management practices on the agricultural land in the region. Male species of the West European Pond Bat (*Myotis dasycneme*) were observed to alter their migration patterns from long-distance migratory behaviour to a sedentary behaviour (Haarsma *et al.* 2019). The reason for this behaviour was an energetic trade-off of male Pond Bats, who faced the energetic challenges of mating prior to migration and hibernation. Although, the findings were not related to food scarcity, Haarsma *et al.* (2019) presented the differences in energy choices of male and female insectivorous bats prior to hibernation. However, food scarcity of insect prey was the main factor in delaying parturition in specimens of the *Myotis* genus (Arlettaz *et al.* 2001).

In a warming climate with changing temperatures and precipitation patterns, hibernation behaviour of bats is expected to be affected (Speakman & Thomas 2003). Warm winter nights are increasing and temperatures of 11°C can trigger bat activity during winter (Mas *et al.* 2022). Wetlands in the Mediterranean regions in Europe harbour many insects during winter and may become important for bat conservation in a warming climate (Mas *et al.* 2022). However, the effects of climate change on bats are not uniform, as the different bat species have different reproductive strategies (Sherwin *et al.* 2013). Migratory insectivorous bats species play an important role in monitoring the global impacts of climate change on migratory species (Newson *et al.* 2009). As a representative of cave-dwelling tropical bats and their dependence on high insect densities, the Mexican Free-tailed Bat (*Tadarida brasiliensis*) was identified as one of 17 indicators. In the temperate zone, the indicator 15 focuses on the abundance and distribution of bats inhabiting underground hibernation sites in Europe (Newson *et al.* 2009).

8. **Outline for Recommendations**

(potentially to be included after Committee revision)

Commented [D08]: Potentially to be included after Committee revision. We may highlight gaps in data availability in terms of covered taxa and species, and "white space" in spatial information, e.g.lack of information on taxa or species per se, or missing information on migratory behavior or status as an insectivore.
In addition we may point to outdated species informations (taxonomic names,

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10. Supplement

Supplement 1 List of migratory insectivorous bird species sorted by flyway (UNEP & CMS 2009), IUCN status and population trend. Migratory bird species were assessed on the BirdLife International species search page using the search terms "Species Types = Migratory" (BirdLife International 2023). The assessment of insectivorous feeding of birds is based on www.birdsoftheworld.org (Billerman et al. 2023) and www.audubon.org (National Audubon Society 2023).

Commented [JR9]: Species may need to be updated with additional information on old latin (synonymous) species names used by the CMS – here we provide names currently in use by taxonomic revision.

Species	Flyway	IUCN Status	Population Trend	DOI or Link
<i>Acrocephalus agricola</i>	3,4	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22714714A111077678.en
<i>Acrocephalus arundinaceus</i>	3,4	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T104317670A111179363.en
<i>Acrocephalus australis</i>	5	LC	Stable	https://www.iucnredlist.org/species/219591228/219591004
<i>Acrocephalus bistrigiceps</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22714709A111077307.en
<i>Acrocephalus concinens</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22714719A111097943.en
<i>Acrocephalus dumetorum</i>	3,4	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22714736A111098258.en
<i>Acrocephalus griseldis</i>	3	EN	Stable	https://www.iucnredlist.org/species/22714757/216850934
<i>Acrocephalus melanopogon</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22714693A131328180.en
<i>Acrocephalus orientalis</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22734033A104329496.en
<i>Acrocephalus orinus</i>	4,5	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2022-1.RLTS.T22729551A210090585.en
<i>Acrocephalus paludicola</i>	3,4	VU	Decreasing	https://www.iucnredlist.org/species/22714696/176687364
<i>Acrocephalus palustris</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22714741A155434933.en
<i>Acrocephalus schoenobaenus</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22714700A87569807.en
<i>Acrocephalus scirpaceus</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22714722A155436305.en
<i>Acrocephalus sorghophilus</i>	5	CR	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2022-1.RLTS.T22714704A154735033.en
<i>Acrocephalus stentoreus</i>	3,4,5	LC	Stable	https://www.iucnredlist.org/species/219591644/219591696
<i>Acrocephalus tangorum</i>	5	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22728387A111223837.en
<i>Aerodramus brevirostris</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T60824542A118574220.en
<i>Aeronautes saxatalis</i>	2	LC	Decreasing	https://www.iucnredlist.org/species/22686733/188786704
<i>Agelasticus cyanopus</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22724184A132027717.en
<i>Agelasticus thilius</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22724178A132027485.en
<i>Alauda arvensis</i>	3,4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T102998555A132039889.en
<i>Alauda leucoptera</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22717298A131975551.en
<i>Alaudala cheleensis</i>	4,5	LC	Decreasing	https://www.iucnredlist.org/species/216912565/94527748
<i>Alaudala heinei</i>	3,4,5	LC	Stable	https://www.iucnredlist.org/species/216912582/219507661

<i>Alectrurus risora</i>	2	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700303A93768087.en
<i>Alectrurus tricolor</i>	2	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22700300A110738421.en
<i>Alopocheidon fucata</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22712146A118844170.en
<i>Amblyramphus holosericeus</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22724265A132029107.en
<i>Ammodramus savannarum</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721144A138486868.en
<i>Ammospiza leconteii</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721135A189212442.en
<i>Ammospiza nelsoni</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22728393A138482260.en
<i>Anairetes flavirostris</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22699397A93729681.en
<i>Anairetes parulus</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22699406A93730121.en
<i>Anthus campestris</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22718501A131883347.en
<i>Anthus cervinus</i>	1,3,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22718560A137415441.en
<i>Anthus cinnamomeus</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T103821565A111993308.en
<i>Anthus godlewskii</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22718505A94584095.en
<i>Anthus gustavi</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22718553A131986546.en
<i>Anthus hellmayri</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22718597A131989841.en
<i>Anthus hodgsoni</i>	3,4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22718550A88191672.en
<i>Anthus pratensis</i>	3,4	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22718556A154480081.en
<i>Anthus richardi</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T103821389A155458715.en
<i>Anthus rubescens</i>	1,2,4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22718575A155437845.en
<i>Anthus spinoletta</i>	3,4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22718571A131988012.en
<i>Anthus spragueii</i>	2	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22718591A152502644.en
<i>Anthus trivialis</i>	3,4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22718546A131985523.en
<i>Antrostomus arizonae</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22736398A152272957.en
<i>Antrostomus carolinensis</i>	2	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22689778A154067182.en
<i>Antrostomus vociferus</i>	2	NT	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22736393A152619806.en
<i>Apus acuticauda</i>	5	VU	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22686853A117600944.en
<i>Apus affinis</i>	3,4	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22686856A89562931.en
<i>Apus apus</i>	3,4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22686800A86111691.en
<i>Apus barbatus</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22686819A130110767.en
<i>Apus berliozi</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22686831A93127986.en
<i>Apus caffer</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22686882A131921201.en

<i>Apus niansae</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22686811A93127264.en
<i>Apus pacificus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22686845A155438660.en
<i>Apus pallidus</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22686815A155463151.en
<i>Apus unicolor</i>	3	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22686806A119263428.en
<i>Artamus cinereus</i>	5	LC	Increasing	https://www.iucnredlist.org/species/22706327/111049892
<i>Artamus cyanopterus</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22706330A94063639.en
<i>Artamus fuscus</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22706302A94061518.en
<i>Artamus leucorhynchus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22706305A118742325.en
<i>Artamus minor</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22706333A118741647.en
<i>Artamus personatus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22706321A118740415.en
<i>Artamus superciliosus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22706324A94063104.en
<i>Artemisiospiza belli</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T103780113A136888436.en
<i>Artemisiospiza nevadensis</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T103780166A136890758.en
<i>Arundinax aedon</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22714871A94431231.en
<i>Asthenes anthoides</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22702566A93879970.en
<i>Asthenes hudsoni</i>	2	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22702582A110876083.en
<i>Asthenes pyrrholeuca</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22702487A110867595.en
<i>Batis pririt</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22707873A94140401.en
<i>Cacicus chrysopterus</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22724046A132025014.en
<i>Cacicus solitarius</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22724057A94846971.en
<i>Cacomantis flabelliformis</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683941A93008713.en
<i>Cacomantis merulinus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683923A93007953.en
<i>Cacomantis passerinus</i>	4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683920A93007678.en
<i>Cacomantis sonneratii</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683917A93007354.en
<i>Calamospiza melanocorys</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721049A189197819.en
<i>Calandrella acutirostris</i>	4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22717325A94527506.en
<i>Calandrella brachydactyla</i>	3,4	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T103766207A132042070.en
<i>Calandrella cinerea</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T103766143A119720449.en
<i>Calandrella dukhunensis</i>	4	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103766226A104343288.en
<i>Calidris pygmaea</i>	1,5	CR	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22693452A154738156.en
<i>Calliope calliope</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22709701A87886433.en

<i>Calliope pectardens</i>	5	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22709724A155451672.en
<i>Calliope pectoralis</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T103768539A132043046.en
<i>Calliope tschebaiewi</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T103768594A132043312.en
<i>Campephaga phoenicea</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22706700A130422533.en
<i>Caprimulgus aegyptius</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22689902A155483722.en
<i>Caprimulgus climacurus</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22690008A93256751.en
<i>Caprimulgus europaeus</i>	3,4	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22689887A86103675.en
<i>Caprimulgus fossii</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22690016A93257318.en
<i>Caprimulgus indicus</i>	4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22725692A94899774.en
<i>Caprimulgus inornatus</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22689977A93254587.en
<i>Caprimulgus jotaka</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22725702A94899999.en
<i>Caprimulgus longipennis</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22690021A93257600.en
<i>Caprimulgus mahrattensis</i>	4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22689906A93251979.en
<i>Caprimulgus ruficollis</i>	3	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2022-1.RLTS.T22689875A211192401.en
<i>Caprimulgus rufigena</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22689898A93251235.en
<i>Caprimulgus vexillarius</i>	3	LC	Stable	https://www.iucnredlist.org/species/22690025/111834797
<i>Cardellina canadensis</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721882A137213211.en
<i>Cardellina pusilla</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721879A137211627.en
<i>Cardellina rubrifrons</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22721885A94737888.en
<i>Catharus bicknelli</i>	2	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22728467A180783383.en
<i>Catharus fuscescens</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22708655A131949838.en
<i>Catharus ustulatus</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T103881682A139429014.en
<i>Cecropis abyssinica</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22712350A111068375.en
<i>Cecropis cucullata</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712342A94330455.en
<i>Cecropis daurica</i>	3,4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T103812643A111238464.en
<i>Cecropis semirufa</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22712358A118753627.en
<i>Cecropis senegalensis</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712365A94331657.en
<i>Cercotrichas galactotes</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22709936A155484275.en
<i>Certhia americana</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22711244A137629174.en
<i>Cettia cetti</i>	3,4	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22714445A111073290.en
<i>Chaetura meridionalis</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22733018A95053584.en

<i>Chaetura pelagica</i>	2	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22686709A131792415.en
<i>Chaetura vauxi</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T154632189A181590271.en
<i>Chalcites basalis</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683917A93007354.en
<i>Chalcites crassirostris</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683968A93009115.en
<i>Chalcites lucidus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22683973A131913272.en
<i>Chalcites minutillus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T61433519A181643543.en
<i>Chalcites osculans</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22684006A93010615.en
<i>Charadrius alexandrinus</i>	3,4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22727487A155485165.en
<i>Charadrius asiaticus</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22693868A131930637.en
<i>Charadrius dubius</i>	3,4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22693770A155486463.en
<i>Charadrius forbesi</i>	3	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22693807A93424175.en
<i>Charadrius modestus</i>	2	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22693879A93428966.en
<i>Charadrius mongolus</i>	3,4,5	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22693855A93427510.en
<i>Charadrius montanus</i>	2	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22693876A178907575.en
<i>Charadrius placidus</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22693767A93421626.en
<i>Charadrius veredus</i>	5	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22693872A93428298.en
<i>Charadrius vociferus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22693777A93422319.en
<i>Chondestes grammacus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721191A136926221.en
<i>Chordeiles acutipennis</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22689711A93243940.en
<i>Chordeiles gundlachi</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22689717A168858532.en
<i>Chordeiles minor</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22689714A189010894.en
<i>Chordeiles nacunda</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22689723A93245296.en
<i>Chrysococcyx caprius</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22684026A93011786.en
<i>Chrysococcyx cupreus</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22684021A111721716.en
<i>Chrysococcyx klaas</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22684017A93011027.en
<i>Chrysococcyx maculatus</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22684000A130087242.en
<i>Chrysococcyx xanthorhynchus</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22684003A130087571.en
<i>Chrysomus ruficapillus</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22724057A94846971.en
<i>Ciconia abdimii</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22697673A93629659.en
<i>Cinclodes comechingonus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22702082A93859075.en
<i>Cinclodes oustaleti</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22702088A93859499.en

<i>Cincloramphus cruralis</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22715511A94456565.en
<i>Cincloramphus mathewsi</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22715514A111102569.en
<i>Cinclus cinclus</i>	3,4	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22708156A131946814.en
<i>Cistothorus palustris</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22711374A137610926.en
<i>Cistothorus platensis</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103886997A94290566.en
<i>Cistothorus stellaris</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103887005A104216001.en
<i>Clamator coromandus</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683816A93002963.en
<i>Clamator glandarius</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22683819A157601327.en
<i>Clamator jacobinus</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683800A93002088.en
<i>Clamator levaillantii</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683808A93002559.en
<i>Cnemotriccus fuscatus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22699748A118651319.en
<i>Coccyua cinerea</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22684318A130095337.en
<i>Coccyzus americanus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22684331A188608493.en
<i>Coccyzus erythrophthalmus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22684328A152319639.en
<i>Coccyzus euleri</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22684334A93025904.en
<i>Coccyzus ferrugineus</i>	2	VU	Stable	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22684340A178653886.en
<i>Coccyzus lansbergi</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22684346A130095627.en
<i>Coccyzus melacoryphus</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22684343A93026842.en
<i>Coccyzus minor</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22684337A152270771.en
<i>Colaptes auratus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22726404A94921271.en
<i>Colorhamphus parvirostris</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22699963A93757121.en
<i>Conirostrum tamarugense</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22722099A180355931.en
<i>Contopus bogotensis</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103683917A104083732.en
<i>Contopus cinereus</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103683886A93749578.en
<i>Contopus cooperi</i>	2	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22699787A110734937.en
<i>Contopus pertinax</i>	2	LC	Decreasing	https://www.iucnredlist.org/species/22699798/138043471
<i>Contopus sordidulus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22699811A138037174.en
<i>Contopus virens</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22699816A138032856.en
<i>Coracias abyssinicus</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22682865A92966179.en
<i>Coracias garrulus</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22682860A154424974.en
<i>Coracias naevius</i>	3	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22682892A92967155.en

<i>Corthylio calendula</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22712567A137575998.en
<i>Cranioleuca sulphurifera</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22702467A93876673.en
<i>Crotophaga major</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22684431A163883583.en
<i>Cuculus canorus</i>	3,4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683873A155496731.en
<i>Cuculus clamosus</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22683866A111671934.en
<i>Cuculus gularis</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683879A93005480.en
<i>Cuculus micropterus</i>	4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22683870A130085980.en
<i>Cuculus optatus</i>	4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22734721A206409798.en
<i>Cuculus poliocephalus</i>	3,4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683889A93005868.en
<i>Cuculus rochii</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683893A93006192.en
<i>Cuculus saturatus</i>	4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22734715A201099367.en
<i>Cuculus solitarius</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683862A93004360.en
<i>Curruca cantillans</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T103874024A155622649.en
<i>Curruca communis</i>	3,4	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22716910A155623300.en
<i>Curruca conspicillata</i>	3	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22716976A155624362.en
<i>Curruca crassirostris</i>	3,4	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22734793A155624874.en
<i>Curruca curruca</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22734992A155625468.en
<i>Curruca deserti</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22734413A111152386.en
<i>Curruca deserticola</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22716980A132114368.en
<i>Curruca hortensis</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22735012A155626439.en
<i>Curruca melanocephala</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22716959A132113832.en
<i>Curruca melanothorax</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22716963A111242444.en
<i>Curruca mystacea</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22716971A87755889.en
<i>Curruca nana</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T103872996A118852574.en
<i>Curruca nisoria</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22716937A87716403.en
<i>Curruca ruppeli</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22716954A155626904.en
<i>Curruca sarda</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22735017A87766144.en
<i>Curruca subalpina</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22735596A155627483.en
<i>Cursorius cursor</i>	3,4	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22735845A155429274.en
<i>Cyanoptila cyanomelana</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T103758039A111161222.en
<i>Cyornis glaucicomans</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103762252A104350561.en

<i>Cyornis magnirostris</i>	5	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2022-1.RLTS.T22735904A207531089.en
<i>Cyornis nicobaricus</i>	5	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T103761482A152177680.en
<i>Cyornis rubeculoides</i>	4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T103761873A111163294.en
<i>Cypseloides fumigatus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22686453A130105673.en
<i>Cypseloides niger</i>	2	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22686440A178440176.en
<i>Cypseloides senex</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22686467A93113213.en
<i>Delichon dasypus</i>	4,5	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712491A94335116.en
<i>Delichon lagopodum</i>	4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103811905A104156685.en
<i>Delichon urbicum</i>	3,4	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T103811886A118748864.en
<i>Dendrocopos hyperythrus</i>	4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22681105A92892942.en
<i>Dendronanthus indicus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22718345A94576548.en
<i>Dicrurus annectens</i>	5	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22706970A111051553.en
<i>Dicrurus hottentottus</i>	4,5	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103711043A95131033.en
<i>Dicrurus leucophaeus</i>	4,5	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22706964A94099735.en
<i>Dicrurus macrocercus</i>	4,5	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22706961A94099367.en
<i>Dicrurus striatus</i>	5	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T103711049A112349969.en
<i>Donacospiza albifrons</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22723144A94805623.en
<i>Edolisoma monacha</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T103702625A112383906.en
<i>Edolisoma tenuirostre</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T103702470A118729711.en
<i>Emberiza aureola</i>	4	CR	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22720966A119335690.en
<i>Emberiza bruniceps</i>	4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22720993A111138222.en
<i>Emberiza buchanani</i>	4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22720909A111135183.en
<i>Emberiza calandra</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22721020A155499724.en
<i>Emberiza chrysophrys</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22720957A94692182.en
<i>Emberiza cia</i>	3,4	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22720894A111134095.en
<i>Emberiza cineracea</i>	3	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22720912A205540097.en
<i>Emberiza leucocephalos</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22720881A111133257.en
<i>Emberiza melanocephala</i>	3,4	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22720990A89314245.en
<i>Emberiza pallasi</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22721007A155521748.en
<i>Emberiza personata</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T103768261A132042793.en
<i>Emberiza rutila</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22720969A94692628.en
<i>Emberiza schoeniclus</i>	3,4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22721012A155430396.en

<i>Emberiza spodocephala</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103768039A94694421.en
<i>Emberiza tristrami</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22720948A94691650.en
<i>Emberiza variabilis</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22721003A132005733.en
<i>Emberiza yessoensis</i>	5	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22721016A181093139.en
<i>Empidonax albigularis</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22699851A138004457.en
<i>Empidonax alnorum</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22699845A138007144.en
<i>Empidonax difficilis</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22699871A187283001.en
<i>Empidonax flaviventris</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22699839A138029777.en
<i>Empidonax fulvifrons</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22699880A137983740.en
<i>Empidonax hammondi</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22699857A138000204.en
<i>Empidonax minimus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22699854A138003012.en
<i>Empidonax oberholseri</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22699864A137996609.en
<i>Empidonax occidentalis</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22699874A187284003.en
<i>Empidonax traillii</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22699848A138005562.en
<i>Empidonax virescens</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22699842A138028636.en
<i>Empidonax wrightii</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22699860A137997593.en
<i>Empidonomus varius</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22700520A110739551.en
<i>Epthianura tricolor</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22704475A110986238.en
<i>Eremophila alpestris</i>	1,2,3,4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22717434A137693170.en
<i>Eudromias morinellus</i>	1,3,4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22693906A86574443.en
<i>Eurostopodus argus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22689656A93241881.en
<i>Eurostopodus exul</i>	5	CR (PE)	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22726340A130437059.en
<i>Eurostopodus mystacalis</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22725660A112390311.en
<i>Eurystomus glaucurus</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22682912A92968062.en
<i>Eurystomus orientalis</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22682920A92968881.en
<i>Euscarthmus meloryphus</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103681055A93732060.en
<i>Ficedula albicilla</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22734119A119301073.en
<i>Ficedula albicollis</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22709315A155539425.en
<i>Ficedula hypoleuca</i>	3,4	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22709308A131952521.en
<i>Ficedula parva</i>	3,4	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22735909A132037161.en
<i>Ficedula semitorquata</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22709319A131879858.en
<i>Ficedula subrubra</i>	4	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22709346A94203872.en

<i>Fluvicola albiventer</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700279A93767091.en
<i>Fringilla coelebs</i>	3,4	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22720030A155432370.en
<i>Geositta cunicularia</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22701981A93855965.en
<i>Geositta rufipennis</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22702003A93857171.en
<i>Geothlypis formosa</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721812A137319618.en
<i>Geothlypis philadelphia</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721824A137320329.en
<i>Geothlypis tolmiei</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721830A138884523.en
<i>Geothlypis trichas</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721836A137315462.en
<i>Gerygone fusca</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22704721A93982036.en
<i>Glareola lactea</i>	4	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22694152A93441581.en
<i>Glareola maldivarum</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22694132A93440161.en
<i>Glareola nordmanni</i>	3,4	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22694136A205787289.en
<i>Glareola nuchalis</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22694144A93440927.en
<i>Glareola ocularis</i>	3	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22694140A180116686.en
<i>Glareola pratincola</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22694127A120026910.en
<i>Grallina cyanoleuca</i>	5	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22707425A131945945.en
<i>Guirra guira</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22684441A93030022.en
<i>Halcyon leucocephala</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683255A92980798.en
<i>Halcyon pileata</i>	5	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2022-1.RLTS.T22683249A212490546.en
<i>Halcyon senegalensis</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683260A92981264.en
<i>Heliotherapis oneilli</i>	2	LC	Stable	https://www.iucnredlist.org/species/216557638/217129881
<i>Helmitheros vermivorum</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721768A137356604.en
<i>Helopsaltes amnicola</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22734059A104196540.en
<i>Helopsaltes certhiola</i>	4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22714664A94423321.en
<i>Helopsaltes fasciolatus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T103783163A112877225.en
<i>Helopsaltes ochotensis</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22714669A94423719.en
<i>Helopsaltes pleskei</i>	5	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22714674A111074931.en
<i>Helopsaltes pryri</i>	5	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22715480A117654950.en
<i>Heteroscenes pallidus</i>	5	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683898A93006424.en
<i>Hierococcyx hyperythrus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22734038A95072673.en
<i>Hierococcyx nisicolor</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22734046A95072929.en
<i>Hierococcyx sparverioides</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22728111A94970879.en

<i>Hierococcyx varius</i>	4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683846A93003793.en
<i>Hippolais icterina</i>	3,4	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22714916A111100735.en
<i>Hippolais languida</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22714904A87610887.en
<i>Hippolais olivetorum</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22714908A87611501.en
<i>Hippolais polyglotta</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22714912A111814759.en
<i>Hirundapus caudacutus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22686677A155548867.en
<i>Hirundinea ferruginea</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22699738A95076112.en
<i>Hirundo aethiopica</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712266A94326273.en
<i>Hirundo albicularis</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22712278A111068030.en
<i>Hirundo angolensis</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712272A94326670.en
<i>Hirundo atrocaerulea</i>	3	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22712318A155549636.en
<i>Hirundo neoxena</i>	5	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22712294A118754829.en
<i>Hirundo rustica</i>	1,2,3,4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22712252A137668645.en
<i>Hirundo smithii</i>	3,4,5	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712299A94328026.en
<i>Hydropsalis torquata</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22690032A93258487.en
<i>Hymenops perspicillatus</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700266A93766598.en
<i>Hypothymis azurea</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103715755A94105987.en
<i>Hypothymis puella</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T103715774A112354842.en
<i>Icteria virens</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22722057A138772425.en
<i>Icterus abeillei</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22729128A138243054.en
<i>Icterus bullockiorum</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22729123A95006716.en
<i>Icterus cucullatus</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22729123A95006716.en
<i>Icterus parisorum</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22724160A136740437.en
<i>Iduna caligata</i>	3,4	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22714891A111100210.en
<i>Iduna opaca</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22734089A15553383.en
<i>Iduna pallida</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22734747A155443669.en
<i>Iduna rama</i>	4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22714894A111986422.en
<i>Inezia inornata</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22699350A93728140.en
<i>Jynx torquilla</i>	3,4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22680683A111819000.en
<i>Knipolegus aterrimus</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103683052A95012475.en
<i>Knipolegus cyanostris</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22700239A130206001.en
<i>Knipolegus hudsoni</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700223A93764804.en

<i>Knipolegus striaticeps</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700220A93764627.en
<i>Lalage melanoptera</i>	4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22706642A118732738.en
<i>Lalage melaschistos</i>	4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22706636A130420674.en
<i>Lalage tricolor</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22706663A130422141.en
<i>Lanius borealis</i>	1,2,4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T103718956A118775235.en
<i>Lanius bucephalus</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22704998A118773936.en
<i>Lanius collurio</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22705001A110988087.en
<i>Lanius collurioides</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22705014A93996066.en
<i>Lanius cristatus</i>	4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22705011A93995637.en
<i>Lanius giganteus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T103718860A129936973.en
<i>Lanius isabellinus</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103718693A93995010.en
<i>Lanius ludovicianus</i>	2	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22705042A179538598.en
<i>Lanius minor</i>	3,4	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22705038A87339356.en
<i>Lanius nubicus</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22705099A155574857.en
<i>Lanius phoenicuroides</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103718714A104092963.en
<i>Lanius senator</i>	3	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2022-1.RLTS.T22705095A209744544.en
<i>Lanius sphenocercus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103718766A93998234.en
<i>Lanius tephronotus</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22705032A93997492.en
<i>Lanius tigrinus</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22704995A93994458.en
<i>Lanius vittatus</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22705026A118774856.en
<i>Larvivora akahige</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T103767606A111165066.en
<i>Larvivora brunnea</i>	4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22709727A155597425.en
<i>Larvivora cyane</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22709730A94221078.en
<i>Larvivora komadori</i>	5	NT	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T103767667A111165348.en
<i>Larvivora sibilans</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22709688A94219394.en
<i>Larvivora tanensis</i>	5	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103767625A104217117.en
<i>Lathrotriccus euleri</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22699751A93745766.en
<i>Legatus leucophaeus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22700596A168369928.en
<i>Leiothlypis crissalis</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22721633A168863036.en
<i>Leiothlypis luciae</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721636A137324184.en
<i>Leiothlypis peregrina</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721621A137338345.en
<i>Leiothlypis ruficapilla</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721627A137323501.en

<i>Leiothlypis virginiae</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721630A137322926.en
<i>Leistes defilippii</i>	2	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22724229A178007403.en
<i>Leistes loyca</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22724243A132173783.en
<i>Leistes supercilii</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22724218A132172992.en
<i>Leptasthenura aegithaloides</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103672675A93863223.en
<i>Lessonia oreas</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700213A93764187.en
<i>Lessonia rufa</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700216A93764389.en
<i>Leucosticte atrata</i>	2	EN	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22720488A131900348.en
<i>Leucosticte australis</i>	2	EN	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22728985A131480347.en
<i>Limnothlypis swainsonii</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22721776A132148361.en
<i>Locustella davidi</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22732200A95043817.en
<i>Locustella fluviatilis</i>	3,4	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22714679A111075343.en
<i>Locustella lanceolata</i>	3,4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22714654A111074459.en
<i>Locustella luscinioides</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22714684A87560838.en
<i>Locustella naevia</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22714657A118740792.en
<i>Locustella thoracica</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T10378585A111287759.en
<i>Lurocalis semitorquatus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22689695A163501030.en
<i>Luscinia luscinia</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22709691A87882842.en
<i>Luscinia megarhynchos</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22709696A111760622.en
<i>Luscinia svecica</i>	1,3,4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22709707A137567006.en
<i>Megabyas flammulatus</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22707807A94138390.en
<i>Melanocorypha bimaculata</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22717288A118713667.en
<i>Melanocorypha calandra</i>	3,4	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22717285A87485192.en
<i>Melanocorypha yeltoniensis</i>	3,4	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22717301A90011765.en
<i>Melithreptus lunatus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103685459A93954156.en
<i>Melospiza georgiana</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721070A138473023.en
<i>Melospiza lincolni</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721064A136869158.en
<i>Merops albicollis</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683714A92997462.en
<i>Merops apiaster</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683756A155512816.en
<i>Merops leschenaulti</i>	4,5	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683761A92999153.en
<i>Merops malimbicus</i>	3	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683764A92999447.en
<i>Merops nubicoides</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683772A93000205.en

<i>Merops nubicus</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683768A92999759.en
<i>Merops orientalis</i>	4	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22725876A119972083.en
<i>Merops ornatus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683753A92998888.en
<i>Merops persicus</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683740A155514718.en
<i>Merops philippinus</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683750A92998513.en
<i>Merops superciliosus</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683744A92998077.en
<i>Merops viridis</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22725900A94905359.en
<i>Mimus patagonicus</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22711038A94274938.en
<i>Mimus triurus</i>	2	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22711044A94275297.en
<i>Mniotilta varia</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721758A137353554.en
<i>Molothrus bonariensis</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22724345A131890003.en
<i>Monarcha melanopsis</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22707243A94112953.en
<i>Monticola cinclorhyncha</i>	4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22708271A155602124.en
<i>Monticola gularis</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22708276A94155107.en
<i>Monticola rufiventris</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22708281A94155365.en
<i>Monticola saxatilis</i>	3,4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22708257A111788908.en
<i>Motacilla alba</i>	1,3,4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22718348A137417893.en
<i>Motacilla cinerea</i>	3,4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22718392A111215843.en
<i>Motacilla citreola</i>	3,4,5	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22718379A154492004.en
<i>Motacilla flava</i>	3,4	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T103822349A155602678.en
<i>Motacilla grandis</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22718360A132117451.en
<i>Motacilla tschutschensis</i>	1,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T103822471A154735918.en
<i>Muscicapa striata</i>	3,4	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22709192A155605346.en
<i>Muscipipra vetula</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700329A93769376.en
<i>Muscisaxicola albilora</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700173A93763028.en
<i>Muscisaxicola capistratus</i>	2	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22700152A155606600.en
<i>Muscisaxicola cinereus</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700183A93763249.en
<i>Muscisaxicola flavinucha</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700198A93763651.en
<i>Muscisaxicola frontalis</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22700203A118649839.en
<i>Muscisaxicola macloviatus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700142A93762202.en
<i>Muscisaxicola maculirostris</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700132A93761808.en
<i>Myadestes townsendi</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22708587A139385014.en

<i>Myiagra cyanoleuca</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22707403A118760627.en
<i>Myiagra rubecula</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22707377A94120225.en
<i>Myiarchus cinerascens</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22700427A137971239.en
<i>Myiarchus crinitus</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22700433A137947972.en
<i>Myiarchus tuberculifer</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700399A93773259.en
<i>Myiarchus tyrannulus</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700436A93776022.en
<i>Myioborus pictus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22721894A137115733.en
<i>Myiodynastes luteiventris</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22700580A137935994.en
<i>Myiodynastes maculatus</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103682222A93785126.en
<i>Myiopagis viridicata</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22699248A93721019.en
<i>Myiophobus fasciatus</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103682408A93744147.en
<i>Myiothlypis leucoblephara</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22722031A132149695.en
<i>Neophedina cincta</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22712194A155606880.en
<i>Neoxolmis rufiventris</i>	2	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700069A93760286.en
<i>Nyctibius griseus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22689646A163600335.en
<i>Oenanthe chrysopygia</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22734803A154597778.en
<i>Oenanthe cypriaca</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22710312A155607749.en
<i>Oenanthe deserti</i>	3,4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22710325A89516443.en
<i>Oenanthe finschii</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22710292A155608126.en
<i>Oenanthe hispanica</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22710302A155608614.en
<i>Oenanthe isabellina</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22710333A87931767.en
<i>Oenanthe oenanthe</i>	1,3,4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T103773898A132192232.en
<i>Oenanthe picata</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22710295A155609933.en
<i>Oenanthe pleschanka</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22710308A87927176.en
<i>Oenanthe seebohmi</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103773966A104220422.en
<i>Oenanthe xanthopyrna</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22735267A154494331.en
<i>Oporornis agilis</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721818A137322306.en
<i>Oreoscoptes montanus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22711096A94277324.en
<i>Pachycephala rufiventris</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22705537A130405979.en
<i>Pachyramphus polychopterus</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22700647A118552972.en
<i>Pachyramphus validus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22700683A130264229.en
<i>Pardalotus striatus</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22704499A118665507.en

<i>Parkesia motacilla</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721803A137355852.en
<i>Parkesia noveboracensis</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721793A137354632.en
<i>Passerculus bairdii</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22721141A136882241.en
<i>Passerculus henslowii</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721138A189208786.en
<i>Passerculus rostratus</i>	2	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22721115A104288502.en
<i>Passerculus sandwichensis</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T103780243A138559631.en
<i>Passerella iliaca</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T103779110A138567122.en
<i>Passerina amoena</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22723948A94841556.en
<i>Passerina caerulea</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22723939A132170886.en
<i>Passerina versicolor</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22723954A132171640.en
<i>Pericocotus divaricatus</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22706735A130428286.en
<i>Pericocotus ethologus</i>	4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22706757A130429247.en
<i>Pericocotus roseus</i>	4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22706728A130426419.en
<i>Pernis apivorus</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22694989A206749274.en
<i>Pernis ptilorhynchus</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22694995A199637824.en
<i>Petrochelidon ariel</i>	5	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712463A94334690.en
<i>Petrochelidon fluvicola</i>	4	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712458A94334424.en
<i>Petrochelidon fulva</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22712435A137673174.en
<i>Petrochelidon nigricans</i>	5	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22712449A118751748.en
<i>Petrochelidon pyrrhonota</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712427A94333165.en
<i>Petrochelidon rufigula</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712405A94332502.en
<i>Petrochelidon spilodera</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22712412A118750418.en
<i>Petroica boodang</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22735719A112749310.en
<i>Petroica goodenovii</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22735719A112749310.en
<i>Petroica phoenicea</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2022-1.RLTS.T22704819A211339793.en
<i>Petroica rodinogaster</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22704825A93987153.en
<i>Petroica rosea</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22704822A93986961.en
<i>Phacellodomus striaticeps</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22702613A93882830.en
<i>Phalaenoptilus nuttallii</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22689735A189013377.en
<i>Phedina borbonica</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712198A94324072.en
<i>Pheucticus ludovicianus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22723813A132168899.en
<i>Pheucticus melanocephalus</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22723816A94835325.en

<i>Phleocryptes melanops</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22702646A93884618.en
<i>Phoenicurus erythrogastrus</i>	3,4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22710072A113283079.en
<i>Phoenicurus erythronotus</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22710034A111061640.en
<i>Phylloscopus fasciatus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22699072A130199777.en
<i>Phylloscopus affinis</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22715270A118853090.en
<i>Phylloscopus bonelli</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22715255A87665883.en
<i>Phylloscopus borealis</i>	1,3,4,5	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103845882A87673832.en
<i>Phylloscopus burkii</i>	4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22734347A155612883.en
<i>Phylloscopus claudiae</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22734268A95080919.en
<i>Phylloscopus collybita</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T103843725A155613186.en
<i>Phylloscopus coronatus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22715348A94449332.en
<i>Phylloscopus emeiensis</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22724433A94866836.en
<i>Phylloscopus examinandus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103845868A104146281.en
<i>Phylloscopus fuscatus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22715264A94445738.en
<i>Phylloscopus goodsoni</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22734273A95081115.en
<i>Phylloscopus griseolus</i>	4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22715278A113285596.en
<i>Phylloscopus humei</i>	4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22729514A95017938.en
<i>Phylloscopus ijimae</i>	5	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22715353A94449596.en
<i>Phylloscopus inornatus</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22715310A146638886.en
<i>Phylloscopus kansuensis</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22732653A95048180.en
<i>Phylloscopus magnirostris</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22715334A132106786.en
<i>Phylloscopus neglectus</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22715249A155614617.en
<i>Phylloscopus nitidus</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22731553A155615035.en
<i>Phylloscopus occipitalis</i>	4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22715344A94449130.en
<i>Phylloscopus omeiensis</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22732738A95048624.en
<i>Phylloscopus orientalis</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22729503A104142739.en
<i>Phylloscopus plumbeitarsus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103845702A104145587.en
<i>Phylloscopus proregulus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22734364A95083830.en
<i>Phylloscopus schwarzi</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22715284A94447312.en
<i>Phylloscopus sibilatrix</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22715260A87668662.en
<i>Phylloscopus sindianus</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22728939A155615784.en
<i>Phylloscopus soror</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22732744A95048801.en

<i>Phylloscopus tenellipes</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22715324A94448249.en
<i>Phylloscopus tephrocephalus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22732750A95048998.en
<i>Phylloscopus trochiloides</i>	4,5	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T103845399A119302608.en
<i>Phylloscopus trochilus</i>	3,4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22715240A87636348.en
<i>Phylloscopus tytleri</i>	4	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2022-1.RLTS.T22715339A210549545.en
<i>Phylloscopus valentini</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22732755A95049194.en
<i>Phylloscopus xanthodryas</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22735629A113113489.en
<i>Phylloscopus yunnanensis</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22732052A95041483.en
<i>Pinarocorys erythropygia</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22717133A94521893.en
<i>Pinarocorys nigricans</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22717137A94522155.en
<i>Pipilo chlorurus</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721304A136950106.en
<i>Piranga flava</i>	2	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T103811599A119471621.en
<i>Piranga ludoviciana</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22722471A94768218.en
<i>Piranga olivacea</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22722466A94767758.en
<i>Piranga rubra</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22722456A94767173.en
<i>Pitta angolensis</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22698671A93696398.en
<i>Pitta brachyura</i>	4	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22698681A93696932.en
<i>Pitta moluccensis</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22698688A93697612.en
<i>Pitta nympha</i>	5	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22698684A116880779.en
<i>Pitta sordida</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103656903A93693998.en
<i>Platysteira peltata</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22707938A94143186.en
<i>Pluvialis apricaria</i>	3,4,5	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22693727A86551440.en
<i>Pluvialis dominica</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22693740A93420396.en
<i>Pluvialis fulva</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22693735A155529922.en
<i>Pluvianellus socialis</i>	2	NT	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22693570A93413261.en
<i>Polioptila caerulea</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22711581A94302237.en
<i>Polystictus pectoralis</i>	2	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22699420A181985168.en
<i>Poocetes gramineus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721188A136927420.en
<i>Progne chalybea</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22712110A137689287.en
<i>Progne cryptoleuca</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712101A94319636.en
<i>Progne dominicensis</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712104A94319815.en
<i>Progne elegans</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22731723A95037131.en

<i>Progne sinaloae</i>	2	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22712107A179699060.en
<i>Progne subis</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712098A94319217.en
<i>Progne tapera</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22712092A137688210.en
<i>Protonotaria citrea</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721765A137344170.en
<i>Prunella atrogularis</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22718644A88042898.en
<i>Prunella collaris</i>	3,4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22718617A88039291.en
<i>Prunella modularis</i>	3,4	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22718651A132118966.en
<i>Prunella montanella</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22718630A89519348.en
<i>Prunella rubida</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22718656A94590770.en
<i>Psalidoprocne albiceps</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712515A94336107.en
<i>Psalidoprocne obscura</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712562A94336767.en
<i>Psalidoprocne pristoptera</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22712540A118747961.en
<i>Pseudochelidon eurystomina</i>	3	DD	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712036A94316261.en
<i>Pseudocolopteryx acutipennis</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22699430A93731569.en
<i>Pseudocolopteryx citreola</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22736493A118644494.en
<i>Pseudocolopteryx flaviventris</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22736488A95135456.en
<i>Pseudocolopteryx sclateri</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22699427A93731375.en
<i>Pseudoleistes virescens</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22724262A132174404.en
<i>Ptyonoprogne fuligula</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T104005679A94325303.en
<i>Ptyonoprogne obsoleta</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22712230A111067634.en
<i>Ptyonoprogne rufigula</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T104005790A104344586.en
<i>Ptyonoprogne rupestris</i>	3,4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22712216A118840565.en
<i>Pygochelidon cyanoleuca</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22712122A137683572.en
<i>Pyrocephalus nanus</i>	2	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T103682926A119555197.en
<i>Pyrocephalus rubinus</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T103682912A187307157.en
<i>Regulus ignicapilla</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22735002A87781502.en
<i>Regulus regulus</i>	3,4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22734997A132183740.en
<i>Regulus satrapa</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2022-1.RLTS.T22712594A139443885.en
<i>Remiz consobrinus</i>	5	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22711632A118699812.en
<i>Rhinoptilus chalcopterus</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22694095A93438523.en
<i>Rhipidura albiscapa</i>	5	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22735714A104329202.en
<i>Rhipidura dryas</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22735724A112344992.en

<i>Rhipidura fuliginosa</i>	5	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22735745A94093611.en
<i>Rhipidura rufifrons</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T103710458A112343271.en
<i>Riparia chinensis</i>	4	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103815539A104326369.en
<i>Riparia paludicola</i>	3	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103815402A94322868.en
<i>Riparia riparia</i>	1,2,3,4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T103815961A155536007.en
<i>Salpinctes obsoletus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22711332A137628554.en
<i>Satrapa icterophrys</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700315A93768627.en
<i>Saxicola caprata</i>	3,4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22710209A94238854.en
<i>Saxicola insignis</i>	4	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22710172A131880644.en
<i>Saxicola torquatus</i>	3,4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22710184A181614254.en
<i>Sayornis nigricans</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22699892A137981772.en
<i>Sayornis phoebe</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22699886A137980753.en
<i>Sayornis saya</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22699889A187298299.en
<i>Schoenicola striatus</i>	4	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22715559A111102835.en
<i>Seiurus aurocapilla</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721779A139133223.en
<i>Serpophaga griseicapilla</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22736536A118645226.en
<i>Serpophaga nigricans</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22699334A93727073.en
<i>Serpophaga subcristata</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T103681997A93727485.en
<i>Setopagis parvula</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22734667A95094030.en
<i>Setophaga americana</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721639A138880067.en
<i>Setophaga caerulea</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721673A138798556.en
<i>Setophaga castanea</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721734A138876918.en
<i>Setophaga cerulea</i>	2	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721740A174436982.en
<i>Setophaga chrysoparia</i>	2	EN	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22721692A181039629.en
<i>Setophaga citrina</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721876A137314200.en
<i>Setophaga coronata</i>	2	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T103798425A119479879.en
<i>Setophaga discolor</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721725A137240441.en
<i>Setophaga dominica</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721725A137240441.en
<i>Setophaga fusca</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721695A137271384.en
<i>Setophaga magnolia</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721667A137273211.en
<i>Setophaga nigrescens</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721679A137231762.en
<i>Setophaga occidentalis</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721686A138786560.en

<i>Setophaga palmarum</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721731A138795720.en
<i>Setophaga pensylvanica</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721664A137263338.en
<i>Setophaga petechia</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721657A137268484.en
<i>Setophaga pinus</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721719A137255800.en
<i>Setophaga ruticilla</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721762A137278860.en
<i>Setophaga striata</i>	2	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22721737A131459482.en
<i>Setophaga tigrina</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721670A137276381.en
<i>Setophaga townsendi</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721683A137225271.en
<i>Setophaga virens</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721689A138782707.en
<i>Sialia currucoides</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22708556A137560639.en
<i>Sitta canadensis</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22711196A132094796.en
<i>Spizella breweri</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22734705A138492496.en
<i>Stelgidopteryx ruficollis</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22712162A137675816.en
<i>Stelgidopteryx serripennis</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712152A95102742.en
<i>Stenostira scita</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22714939A94433078.en
<i>Stigmatura budytoides</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22699365A93728524.en
<i>Stiltia isabella</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22694157A93441878.en
<i>Streptoprocne biscutata</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22686479A130107375.en
<i>Streptoprocne rutila</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22686424A168003265.en
<i>Streptoprocne zonaris</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22686476A168005398.en
<i>Stumella magna</i>	2	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22735434A179984605.en
<i>Sublegatus modestus</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22699211A93719594.en
<i>Suiriri suiriri</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22734643A95093172.en
<i>Surniculus dicruroides</i>	4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22736080A95124166.en
<i>Surniculus lugubris</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22728167A94972858.en
<i>Sylvia borin</i>	3,4	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22716906A111812037.en
<i>Symposiachrus trivirgatus</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22707277A118762990.en
<i>Synallaxis albenscens</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22702301A138175036.en
<i>Synallaxis frontalis</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22702287A130273281.en
<i>Systellura longirostris</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22725678A94899321.en
<i>Tachuris rubrigastra</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22699410A93730354.en
<i>Tachycineta bicolor</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712057A94316797.en

<i>Tachycineta leucorrohoa</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22712068A94317424.en
<i>Tachycineta meyeri</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22712071A118842769.en
<i>Tachycineta thalassina</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22712077A118842397.en
<i>Tachymarpis aequatorialis</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22686788A111670750.en
<i>Tachymarpis melba</i>	3,4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22686774A86109107.en
<i>Tapera naevia</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22684444A163880785.en
<i>Tarsiger chrysaeus</i>	4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22709738A94221404.en
<i>Terpsiphone atrocaudata</i>	5	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22707151A94108789.en
<i>Terpsiphone incei</i>	5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T103716012A119717853.en
<i>Terpsiphone paradisi</i>	4	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T103715992A155628184.en
<i>Thryomanes bewickii</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22711377A139737836.en
<i>Tichodroma muraria</i>	3,4,5	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22711234A155489183.en
<i>Tmetothylacus tenellus</i>	3	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22718401A94578651.en
<i>Toxostoma bendirei</i>	2	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22711108A179833350.en
<i>Toxostoma rufum</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22711099A94277500.en
<i>Tringa solitaria</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22693239A130186218.en
<i>Troglodytes aedon</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T103886826A111242743.en
<i>Troglodytes hiemalis</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T103885731A137612867.en
<i>Troglodytes pacificus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T103884879A137614280.en
<i>Troglodytes troglodytes</i>	3,4,5	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T103883277A132200296.en
<i>Turdus chrysolaus</i>	5	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22708800A94177916.en
<i>Tyrannus albogularis</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700482A93778796.en
<i>Tyrannus crassirostris</i>	2	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22700494A137919372.en
<i>Tyrannus dominicensis</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22700509A137916521.en
<i>Tyrannus forficatus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22700500A137915793.en
<i>Tyrannus melancholicus</i>	2	LC	Increasing	https://www.iucnredlist.org/species/22700485/137934745
<i>Tyrannus savana</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700503A93780761.en
<i>Tyrannus tyrannus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22700506A137917704.en
<i>Tyrannus verticalis</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22700497A137918644.en
<i>Tyrannus vociferans</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22700491A137922716.en
<i>Upucerthia dumetaria</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22736290A95129638.en
<i>Upucerthia saturator</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22736295A95129820.en

<i>Upupa epops</i>	3,4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22682655A181836360.en
<i>Vanellus chilensis</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22694075A163620949.en
<i>Vanellus gregarius</i>	3,4	CR	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22694053A155545788.en
<i>Vanellus leucurus</i>	3,4	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22694064A153819832.en
<i>Vanellus lugubris</i>	3	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22694033A93434744.en
<i>Vanellus spinosus</i>	3	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22693983A86582288.en
<i>Vanellus superciliosus</i>	3	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22694048A195046264.en
<i>Vanellus vanellus</i>	3,4,5	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22693949A111044786.en
<i>Veniliornis mixtus</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22681144A92894172.en
<i>Vermivora bachmanii</i>	2	CR (PE)	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T22721607A180043024.en
<i>Vermivora chrysoptera</i>	2	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22721618A132145282.en
<i>Vermivora cyanoptera</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22721610A139129165.en
<i>Vireo atricapilla</i>	2	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22705159A153734511.en
<i>Vireo bellii</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22705156A189753196.en
<i>Vireo cassinii</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22705228A137791516.en
<i>Vireo crassirostris</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22705200A130373121.en
<i>Vireo flavifrons</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22705237A137791991.en
<i>Vireo flavoviridis</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22705248A139912775.en
<i>Vireo gilvus</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22735122A137781453.en
<i>Vireo griseus</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22705188A137793946.en
<i>Vireo olivaceus</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T155115462A137780032.en
<i>Vireo philadelphicus</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22705240A137782775.en
<i>Vireo plumbeus</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22705231A139902720.en
<i>Vireo solitarius</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T22705234A137787829.en
<i>Vireo vicinior</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22705209A137793019.en
<i>Xanthocephalus xanthocephalus</i>	2	LC	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22724169A94852992.en
<i>Xenus cinereus</i>	3,4,5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22693251A155505422.en
<i>Xolmis coronatus</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700019A93758957.en
<i>Xolmis irupero</i>	2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700035A93759331.en
<i>Xolmis rubetra</i>	2	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22700038A93759552.en
<i>Zosterops erythropleurus</i>	5	LC	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22714027A94398060.en

Supplement 2 List of migratory insectivorous bat species sorted by zoogeographical region (Hutson et al. 2001), zone (Fleming 2019), IUCN status and population trend. Species taken from Hutson et al. (2001) and classified according to Popa-Liseseanu & Voigt (2009) and IUCN (2023).

Species List	Region Code	Zone	IUCN Category	Population Trend	DOI or Link
<i>Eptesicus serotinus</i>	3,5	1,2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2021-1.RLTS.T85199559A195834153.en
<i>Lasionycteris noctivagans</i>	1	1	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-1.RLTS.T11339A22122128.en
<i>Lasiurus blossevillii</i>	1,2	1,2	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T88151055A22120040.en
<i>Lasiurus borealis</i>	1	1	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T11347A22121017.en
<i>Lasiurus cinereus</i>	1,2	1,2	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T11345A22120305.en
<i>Miniopterus schreibersii</i>	3,4	1,2	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2020-2.RLTS.T81633057A195856522.en
<i>Myotis brandtii</i>	3	1	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2020-2.RLTS.T85566997A195857637.en
<i>Myotis daubentoni</i>	3	1	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2020-2.RLTS.T85342710A195858793.en
<i>Myotis grisescens</i>	1	1	VU	Increasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T14132A22051652.en
<i>Myotis lucifugus</i>	1	1	EN	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-3.RLTS.T14176A208031565.en
<i>Myotis myotis</i>	3	1	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-2.RLTS.T14133A22051759.en
<i>Myotis nattereri</i>	3	1	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2020-2.RLTS.T85733032A22052584.en
<i>Myotis septentrionalis</i>	1	1	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T14201A22064312.en
<i>Myotis sodalis</i>	1	1	NT	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T14136A22053184.en
<i>Nyctalus lasiopterus</i>	3	1	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2016-2.RLTS.T14918A22015318.en
<i>Nyctalus leisleri</i>	3,5	1,2	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-2.RLTS.T14919A22016159.en
<i>Nyctalus noctula</i>	3	1	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-2.RLTS.T14920A22015682.en
<i>Nycticeius humeralis</i>	1	1	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2019-1.RLTS.T14944A22015223.en
<i>Nyctinomops macrotis</i>	1,2	1,2	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2015-4.RLTS.T14996A22010988.en
<i>Pipistrellus nathusii</i>	3	1	LC	Unknown	https://dx.doi.org/10.2305/IUCN.UK.2016-2.RLTS.T17316A22132621.en
<i>Pipistrellus pipistrellus</i>	3	1	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2020-2.RLTS.T85333513A196581936.en
<i>Perimyotis subflavus</i>	1,2	1,2	VU	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T17366A22123514.en
<i>Plecotus auritus</i>	3	1	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2020-2.RLTS.T85535522A195861341.en
<i>Plecotus austriacus</i>	3	1	NT	Decreasing	https://dx.doi.org/10.2305/IUCN.UK.2021-1.RLTS.T85533333A195862345.en
<i>Rhinopoma microphyllum</i>	3,4,5	1,2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-2.RLTS.T19600A21998943.en
<i>Tadarida brasiliensis</i>	1,2	1,2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2015-4.RLTS.T21314A22121621.en
<i>Taphozous nudiventris</i>	3,4	1,2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2017-2.RLTS.T21462A22109884.en
<i>Vespertilio murinus</i>	3,5	1,2	LC	Stable	https://dx.doi.org/10.2305/IUCN.UK.2016-2.RLTS.T22947A22071456.en