Measuring the pulse
of European biodiversity

European Red List of Butterflies

Chris van Swaay, Martin Warren, Sam Ellis, Joanna Clay,
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Version 1.1

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Version 1.1 (December 2025): This updated version includes minor editorial corrections and typographical edits. Figure 4b on page 16 has been revised to show the correct number of EU endemic species (81 in total, with 42 classified as LC). No other substantive changes have been made.

All data produce through this project are available via the IUCN Red List Data Repository:
www.iucnredlist.org/resources/data-repository

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Executive summary

Aim

This European Red List provides an updated summary of the conservation status of the European species of butterflies, evaluated according to the IUCN Red List Categories and Criteria (IUCN, 2012a) and IUCN's global (IUCN Standards and Petitions Committee, 2024) and regional guidelines (IUCN, 2012b). It is a comprehensive update of the last European Butterfly Red List published in 2010 (Van Swaay et al., 2010). It identifies species threatened with extinction at the European and EU27 Member State levels so that appropriate policy measures and conservation actions can be taken to improve their status, based on the best available evidence.

Scope

The geographic scope of this *European Red List of Butterflies* spans the entirety of the European continent. It extends from Iceland, Svalbard and Franz Josef Land (Земля́ Фра́нца-Ио́сифа) in the north to the Canary Islands in the south, and from the Azores in the west to the Urals in the east, including the European part of Türkiye ('Türkiye-in-Europe') and most of the European parts of the Russian Federation. Cyprus, the European Macaronesian islands and the Spanish North African Territories are included in the assessment region, whereas the North Caucasus parts of European Russia fall beyond the scope of this European Red List. Red List assessments were made at two regional levels: for geographical Europe and for the 27 Member States of the European Union (hereafter, EU27).

This *European Red List of Butterflies* has assessed the status of all species of butterfly native to Europe or naturalised there before AD 1500, a total of 501 species (462 in EU27). Of these, 149 species are endemic to Europe and 81 species to the EU27. Species introduced to Europe by humans after AD 1500, those with less than 1% of their global population in Europe, and vagrant species (taxa found only occasionally in Europe) were assessed as Not Applicable (NA), a total of 59 species. The initial species list was based on Wiemers et al. (2018) and for additional North African species, Numa et al. (2016) was followed. In comparison with the *previous European Red List of Butterflies* (Van Swaay et al., 2010) the EU region now includes Croatia but no longer includes the United Kingdom (see Figure 1).

Results

Of the 442 species assessed (excluding NA), one species is extinct: *Pieris wollastoni* (the Madeiran Large White), a species that was restricted to the island of Madeira (Portugal) that has not been reported since 1986 and is excluded from all further percentage calculations. Of the 441 extant species, 14.7% (65 species) are considered as threatened at the European level; comprising 1.4% (6 sp.) Critically Endangered, 7.9% (35 species) Endangered, and 5.4% (24 species) Vulnerable. A further 13.6% (60 species) of species are classified as Near Threatened. Most of these are declining rapidly in parts of their range and are in urgent need of conservation action. Within the EU27 region there are 431 extant species, 15.8% of these (68 species) are threatened with extinction, of which 1.2% (5 species) are Critically Endangered, 9.0% (39 species) Endangered and 5.6% (24 species) Vulnerable. In addition, 15.1% (65 species) of species are considered as Near Threatened. Significantly, no species are considered Data Deficient (DD), a testament to the extensive long-term research undertaken by European butterfly experts.

Comparing the present Red List with the previous one (Van Swaay et al., 2010), the number of species assessed has increased from 435 to 442, due to the recognition of a few taxa as new species. However, the percentage of species that are now threatened has increased significantly over the last 14 or so years between assessment

periods. The percentage of threatened species has increased by 73% (from 8.5% to 14.7%). In pure numerical terms this equates to an increase of 76% (from 37 to 65 species). When Near Threatened species are included, the number of species listed has risen by 54.3% (from 81 to 125).

This means that 28.3% (125 species) of extant butterflies are now threatened or Near Threatened at the European level and almost one-third (30.9%) in the EU27. These changes are partly due to some Near Threatened or Least Concern species becoming threatened in the last 10+ years but also because some of the newly identified taxa are extremely range restricted and declining, so immediately fall into a threatened category. The threat level of a few species has decreased since the previous assessment, often because they went through a period of rapid decline in the 1990s to qualify last time, but their rate of decline has slowed in the last decade, so they do not now reach the threshold to be assessed as threatened (at least a 30% decline in the previous 10 years).

The situation is even worse when it comes to endemic species for which Europe has a unique responsibility. Of the 148 extant endemic species, 19.6% (29 species) are threatened and 21.6% (32 species) Near Threatened. Thus over 40% of Europe's endemic butterflies are now threatened or close to being so. Within the EU27, that proportion rises to nearly half of all endemic species (47.5%: 38 of 80 extant species). This compares to the last assessment when 23.2% of European endemic species were threatened or nearly so and 29.5% in the EU27.

Threats to butterflies

The biggest threats to butterflies in Europe now and in the past are habitat loss and degradation. The primary causes of these changes are agricultural intensification, wetland drainage, land abandonment and overgrazing from livestock. As a result of these changes, many species are now suffering from the consequences of habitat fragmentation, which greatly increases the chances of local extinction.

Over the last few decades, climate change has had a major impact on European butterflies. In this new assessment 52% (34) of all threatened species in Europe are threatened by climate change and this number is expected to grow in future.

Climate change has resulted in the expansion of the range of many butterflies, sometimes by many hundred kilometres north. However, it is now having a severe effect on several species whose habitats are changing rapidly, either due to extended hot periods of weather or extreme events such as drought and fire. Species that live solely on mountain tops are especially threatened, for example three Endangered endemic species in the mountain ranges of southern Spain: *Agriades zullichi, Polyommatus golgus* and *Polyommatus violetae*. Eight montane species in Spain have also been added as Near Threatened because recent climate models predict that they will lose most of their climate space in the next 50 years (Romo et al., 2023).

Climate change is also threatening another suite of mainly Holarctic species in the northern Alpine/Boreal zones where warmer and drier conditions are allowing scrub to spread and encroach on sensitive bog and tundra habitats. Several species are now classed as Endangered as a result, including *Agriades aquilo, Boloria freija, Erebia disa* and *Oeneis bore* (which were assessed as Least Concern in 2010); *B. chariclea*, *Euphydryas iduna* (Near Threatened in 2010); *B. polaris* (Vulnerable in 2010); and *B. improba* (Endangered in both assessments). In the Mediterranean region, climate change is adding new threats to species because of the increasing frequency of extreme drought and wildfires. This is threatening several endemic species that are confined to islands such as the Critically Endangered *Hipparchia christenseni* (on Karpathos), as well as the Endangered *H. tamadabae* (Gran Canaria), *H. tilosi* (La Palma), and *Gonepteryx cleobule* (Canary Islands).

Other threats that require further research include nitrogen deposition and new pesticides such as neonicotinoids, which persist in the environment.

Recommendations

This report shows that the number of butterfly species under threat in Europe has increased considerably since the last assessment (from 81 to 125 species threatened or Near Threatened, Section 3.2). It is clear that far greater effort is needed urgently to conserve butterflies in Europe.

The main mechanism to ensure the favourable management of butterflies in the EU is the Habitats Directive. This Directive lists 29 butterfly species and three sub-species in its annexes for conservation, 22 of which are listed in Annex II, which requires the conservation of the habitats of the listed species. Member States are required to designate Special Areas of Conservation (Natura 2000 sites) for these species and maintain and restore them to a 'Favourable Conservation Status'. Butterfly Conservation Europe has published a list of Do's and Don'ts for the species of the Habitats Directive (Van Swaay et al., 2012). The main recommendations for these and other butterflies are to:

1. Manage at a landscape scale (because butterflies usually exist as networks of populations across the landscape and cannot survive in the long term unless habitats are connected).

2. Maintain active pastoral systems (that are essential for many butterflies).

3. Manage for variety (as each species has its own special requirements).

4. Avoid uniform management, especially in hay meadows (as cutting can be harmful if done at the wrong time of year, but the best time varies from species to species and year to year).

5. Maintain habitat mosaics (to create a variety of habitats for different species to breed).

6. Maintain active management in woodland as this is often essential for threatened woodland butterflies.

7. Have monitoring in place (to inform decisions on management and evaluate conservation progress).

Unfortunately, most of the butterfly species listed in the EU Habitats Directive have continued to decline despite the introduction of this piece of legislation in 1992, and a number of the key habitats they inhabit are currently in unfavourable condition (e.g. over 80% of grasslands are rated in poor or bad condition; EEA, 2020). The EU Biodiversity Strategy for 2030 is the EU's current long-term plan for nature conservation, containing specific actions and commitments to protect nature and put Europe's biodiversity on the road to recovery. As part of this strategy, the new EU Nature Restoration Regulation (NRR) sets out the main target of restoring at least 20% of the EU's land and sea areas by 2030, and all ecosystems in need of restoration by 2050. This regulation includes a legally binding obligation for EU Member States to improve pollinator diversity, reverse pollinator decline by 2030, and achieve increasing trends for both pollinator diversity and populations onwards (Article 10). The EU Grassland Butterfly Indicator (Van Swaay et al., 2025) is one of the three indicators (along with organic carbon stock and high-biodiversity landscape features) that can be selected by EU Member States to improve the status of agricultural ecosystems under Article 11 of the regulation.

Recommended Action

Butterfly species in Europe would benefit from a range of research and protection, such as the inclusion of threatened species in legislation, the protection and management of Prime Butterfly Areas, and production of Species Action Plans. Further research should include targeted surveys for species with unclear distributions, continuing to monitor butterfly populations across Europe through the European Butterfly Monitoring Scheme and ecological research to identify habitat management preferences of threatened species to underpin conservation programmes. It is also important to consider how land can be sustainably managed. For this, it would be helpful to produce and disseminate advice for the management of relevant European Priority Habitats for butterfly species.

Butterflies would also benefit from the development of measures aimed at conserving entire landscapes in Europe to reduce the impact of habitat fragmentation and isolation. Continuing to highlight threatened butterfly species in various contexts, and sustain and strengthen the network in Europe to coordinate and implement conservation is also recommended.

Site protection: 1) Take European threatened butterfly species into account when revising relevant national and regional legislation; 2) Protect and manage the network of Prime Butterfly Areas that have been identified in Europe as a priority (Van Swaay & Warren 2003). 3) Improve the protection of butterfly habitats throughout Europe, at both the site and landscape-scale.

Survey, monitoring and ecological research: 1) Encourage European butterfly distribution recording and data flow; 2) Undertake targeted surveys for those threatened European species whose distributions require confirmation; 3) Encourage butterfly monitoring by transect and/or timed counts in all European countries by maintaining and developing the European Butterfly Monitoring Scheme; 4) Use butterfly recording and monitoring data for future Red List and other priority assessments; 5) Conduct further ecological research on threatened European species, including identifying habitat management preferences, to underpin conservation programmes.

Species conservation: 1) Draw up Species Action (Recovery) Plans (SAPs) for threatened European species, prioritising those where an SAP has been identified as an urgent conservation action; 2) Develop and implement conservation projects for Europe's most threatened butterfly species.

Land management: 1) Produce and disseminate land management guidance for relevant European Priority Habitats and for relevant European threatened species; 2) Ensure that all semi-natural habitats are managed appropriately for threatened butterflies and ensure continuation of traditional agricultural and forestry management systems on which so many species depend; 3) Develop measures to conserve entire landscapes in Europe and reduce the impact of habitat fragmentation and isolation; 4) Research and develop measures to reduce the impact of climate change on threatened European butterflies.

Advocacy: 1) Use the Red List assessment data and analyses to produce a European butterfly atlas which highlights the ongoing threat to European butterflies and their habitats; 2) Continue to use butterfly monitoring data to produce butterfly indicators to inform policy measures that can help conserve wildlife habitats in Europe.

Partnership building: Sustain and develop the existing effective network of partners through Butterfly Conservation Europe, to enable the above conservation measures for European threatened species to be co-ordinated and implemented.

Pseudochazara williamsi *Nevada Grayling (Critically Endangered) is restricted to a few mountain ranges in south-east Spain where is threatened by both climate change and changes in grazing management.* © Sam Ellis

1. Background

1.1. The European context

Europe is one of the seven continents on Earth, and both physically and geologically it is the westernmost peninsula of Eurasia. Europe is bound to the north by the Arctic Ocean, to the west by the Atlantic Ocean, to the south by the Mediterranean Sea, and to the southeast by the Black Sea and the Caucasian Mountains. In the east, Europe is separated from Asia by the Ural Mountains and by the Caspian Sea (see Figure 1 below). Europe is the second-smallest continent in terms of area, covering approximately 10,530,000 km^2.

The European Union, comprising 27 Member States, is Europe's largest political and economic entity. It is the world's largest economy with an estimated GDP in 2022 of 18.8 trillion euros (Eurostat, 2022). Per-capita GDP in many EU states is among the highest in the world, and rates of resource consumption and waste production are correspondingly high – the EU's "ecological footprint" has been estimated to exceed the region's biological capacity (the total area of cropland, pasture, forest, and fishing grounds available to produce food, fibre and timber, and absorb waste) by 2.6 times (WWF, 2007).

The EU's Member States stretch from the Arctic Circle in the north to the Mediterranean in the south, and from the Atlantic coast and several Atlantic islands in the west to the Danube Delta and Cyprus in the east – an area containing a great diversity of landscapes and habitats, and a wealth of flora and fauna. Mediterranean Europe is particularly rich in plant and animal species and has been recognised as a global "biodiversity hotspot" (Cuttelod et al., 2008; Mittermeier et al., 2004).

Europe has arguably the most highly fragmented landscape of all continents, and only a tiny fraction of its land and freshwater surface can be considered as wilderness. For centuries most of Europe's land has been used by humans to produce food, timber and fuel and provide living space. About 80% of Europe's land surface has been shaped by human activities: covered with buildings, roads, industrial infrastructure or used for agriculture. The way the land is used constitutes one of the main drivers of environmental degradation and climate change (EEA, 2024). Consequently, European species are to a large extent dependent upon semi-natural habitats created and maintained by human activity, particularly traditional, non-intensive forms of land management. These habitats are under pressure from agricultural intensification, urban sprawl, infrastructure development, land abandonment, acidification, eutrophication and desertification. Many species are directly affected by overexploitation, persecution and impacts of alien invasive species, and climate change is now an increasingly serious threat.

Europe is a huge, diverse region and the relative importance of different threats varies widely across its biogeographic regions and countries. Although considerable efforts have been made to protect and conserve European habitats and species, biodiversity decline and the associated loss of vital ecosystem services (such as water purification, crop pollination, and carbon sequestration) continue to be a major concern in the region.

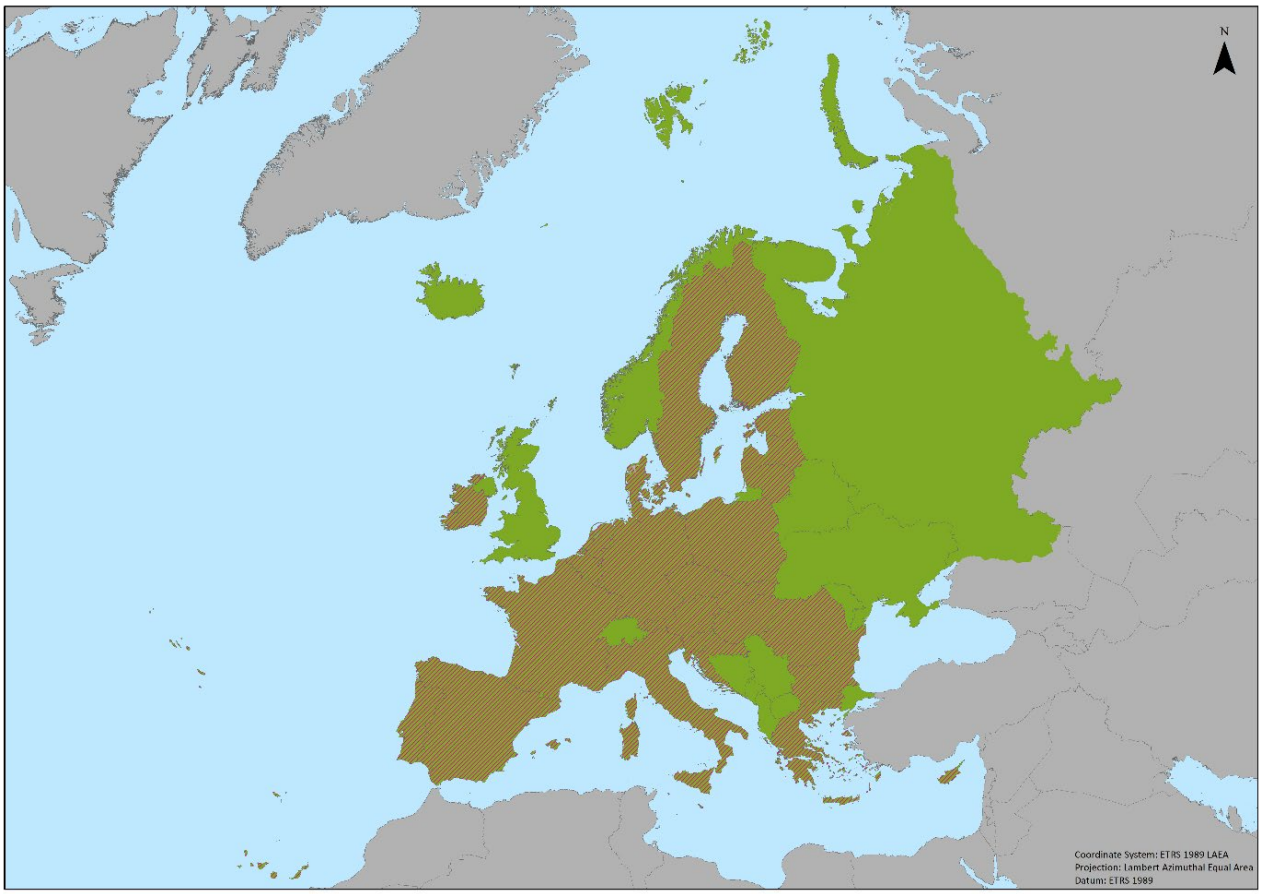

Figure 1. *The European Red List terrestrial assessment boundaries. Regional terrestrial assessments were made for two areas: for geographical Europe (green), and for the EU27 Member States (hatched area).*

1.2. The European policy context

Biodiversity is integral to sustainable development by providing essential goods and services, which are currently being degraded at an alarming rate. Pollination services are vital to agriculture, horticulture and ecosystem health. Wild insect pollinator populations and their habitats are adversely impacted by a cluster of direct and indirect pressures, including toxic pesticides, habitat loss and degradation, nitrogen deposition and climate change. Evidence from the long-running European Butterfly Monitoring Scheme (eBMS) shows declines in butterfly abundance across Europe of more than 50% since 1990 (Van Swaay et al., 2025). This demonstrates the scale of change needed and the urgency of reversing the declines.

Global Biodiversity Framework

The Kunming-Montreal Global Biodiversity Framework (GBF) was adopted in December 2022. This historic Framework sets out an ambitious pathway to reach the global vision of a world *living in harmony with nature* by 2050. Among its key elements are four overarching goals for 2050 and 23 action-oriented targets for 2030. GBF Target 4 specifically commits to "Ensure urgent management actions to halt human induced extinction of known threatened species and for the recovery and conservation of species, in particular threatened species, to significantly reduce extinction risk…". Red List assessments can be one of the key conservation tools to monitor the progress on this target.

The Bern Convention

The Council of Europe's Convention on the Conservation of European Wildlife and Natural Habitats (1979), or the Bern Convention, was one of the first international treaties to protect both species and habitats. This convention was adopted to protect Europe's wild plants and animals and formed the backbone of later European legislation on nature conservation and protection. Several butterflies are mentioned as strictly protected species in Annex II (see Table 1).

Existing EU and Member State legislation

The European Union has had key biodiversity legislation in place for decades, notably the Birds Directive (1979) and the Habitats Directive (1992), as well as subsequent policies to support biodiversity. The Habitats Directive contains a series of Annexes that mostly identify habitats and species of European Community concern. Member States are required to designate Natura 2000 sites for the species listed in Annex II, which includes 22 butterflies; Annex IV species are subject to a strict protection system and include 27 butterflies (NB some also in Annex II, see Table 1). However, the current degree of implementation of the Directives in Member States has been insufficient to halt the losses of biodiversity across the EU. In particular, the Grassland Butterfly Indicator (adopted as a key indicator on the EU Biodiversity Strategy Dashboard) shows a decline of 51% since 1990 (50% in the EU since 1991) (Van Swaay et al., 2025; EUROSTAT, 2025).

Recognising that little progress was being made to halt biodiversity loss led to the adoption of the EU Biodiversity Strategy for 2030 as part of the EU Green Deal Initiative. This strategy includes specific actions and commitments to protect nature and to reverse the degradation of ecosystems by 2030. Its key targets include protecting 30% of the EU's land and sea areas and restoring 20% of the EU's currently degraded land and sea areas by 2030.

In 2018, the European Commission (EC) also adopted the EU Pollinators Initiative (EPI), the first-ever EU framework to help tackle the decline of wild pollinators, including butterflies. The initiative set three objectives for 2030:

- to improve knowledge about wild insect pollinators.
- to tackle the causes of pollinator declines.
- to promote stakeholder and societal engagement in building solutions to the problem.

One of the key actions was to strengthen the monitoring of pollinator species and implementation of an EU Pollinator Monitoring Scheme (EU PoMs). This includes monitoring of butterflies, moths, wild bees and hoverflies. The European Commission revised the EU Pollinators initiative in January 2023.

To help reverse the decline in biodiversity and implement its Biodiversity Strategy for 2030, the EU has adopted a new Nature Restoration Regulation (NRR) which came into force in August 2024. The regulation puts measures in place to restore at least 20% of the EU's land and sea areas by 2030, and all ecosystems in need of restoration by 2050. It sets specific, legally binding targets and obligations for nature restoration in each of the listed ecosystems — from agricultural land and forests to marine, freshwater and urban ecosystems. EU Member States will have to submit National Restoration Plans to the Commission by September 2027, outlining how they plan to deliver on the targets provided by the regulation. They are also required to monitor and report on the implementation of the National Restoration Plans and the progress made on a regular basis, as well as review and revise their plans on set occasions.

Two provisions are particularly relevant to butterflies: Article 10 is a legally binding obligation to reverse pollinator decline by 2030 and improve pollinator diversity and populations thereafter; and Article 11 requires Member States to put in place measures to improve biodiversity in agricultural ecosystems by 2030 with butterfly monitoring and the Grassland Butterfly Indicator (calculated at Member State level) as one of the measures of success. On 19 September 2025, the European Commission

adopted a Delegated Regulation setting out the standardised method to be followed by all Member States for the pollinator monitoring under Article 10 of the NRR.

The IUCN Red Lists will be important tools that Member States can use when developing their National Restoration Plans including the target to reverse the decline in pollinators by 2030. The development and publication of this updated European Red List of Butterflies was made within this context.

Table 1. *Overview of butterfly species mentioned in the Bern Convention Annex II and the EU Habitats Directive Annexes II and IV. Species endemic to Europe (*) and the EU27 (**) are marked with an asterisk.*

Current name (Wiemers et al., 2018)	Listed name	Habitats Directive Annex		Bern Convention Annex
Papilio alexanor	*Papilio alexanor*		IV	II
Papilio hospiton **	*Papilio hospiton*	II	IV	II
Parnassius mnemosyne	*Parnassius mnemosyne*		IV	II
Parnassius apollo	*Parnassius apollo*		IV	II
Zerynthia polyxena	*Zerynthia polyxena*		IV	II
Hesperia comma catena	*Hesperia comma catena*	II		
Leptidea morsei	*Leptidea morsei*	II	IV	
Colias myrmidone	*Colias myrmidone*	II	IV	
Lycaena helle	*Lycaena helle*	II	IV	
Lycaena dispar	*Lycaena dispar*	II	IV	II
Phengaris arion	*Maculinea arion*		IV	II
Phengaris teleius	*Maculinea teleius*	II	IV	II
Phengaris nausithous	*Maculinea nausithous*	II	IV	II
Pseudophilotes bavius	*Pseudophilotes bavius*	II	IV	
Agriades aquilo	*Agriades glandon aquilo*	II		
Polyommatus golgus **	*Plebicula golgus*	II	IV	II
Polyommatus eros eroides [1]	*Polyommatus eroides*	II	IV	
Polyommatus ripartii galloi [2]	*Polyommatus galloi*			II
Polyommatus humedesae **	*Polyommatus humedesae*			II
Fabriciana elisa **	*Fabriciana niobe elisa*		IV	II
Boloria improba	*Clossiana improba*	II		

Apatura metis	*Apatura metis*		IV	II
Nymphalis vaualbum	*Nymphalis vaualbum*	II	IV	
Euphydryas aurinia	*Euphydryas aurinia*	II		II
Euphydryas maturna	*Hypodryas maturna*	II	IV	II
Coenonympha oedippus	*Coenonympha oedippus*	II	IV	II
Coenonympha hero	*Coenonympha hero*		IV	II
Lopinga achine	*Lopinga achine*		IV	II
Melanargia arge **	*Melanargia arge*	II	IV	II
Protorebia phegea dalmatia	*Protorebia afra dalmatia*	II	IV	
Erebia calcarius **	*Erebia calcaria*	II	IV	II
Erebia sudetica *	*Erebia sudetica*		IV	II
Erebia polaris	*Erebia medusa polaris*	II		
Erebia christi *	*Erebia christi*	II	IV	II

** Endemic to both Europe and the EU27
* Endemic to Europe
[1] *P. eroides* is now considered a subspecies of *P. eros* (Tshikolovets, 2011)
[2] *P. galloi* is now considered a subspecies of *P. ripartii* (Wiemers et al., 2018)

1.3. European butterflies: diversity and endemism

Butterflies are a large group of insects, belonging to the order Lepidoptera, which means 'scaly wing'. They are characterised by their large, often colourful wings and by their proboscis, which they use to suck flower nectar. They lay eggs that hatch into larvae (called caterpillars), which have a totally different appearance to the adult, with a cylindrical body, and feed mainly on plant leaves, before going through metamorphosis to form a chrysalis.

The butterflies are a group of two closely related superfamilies of Lepidoptera which form a small fraction (ca. 5%) of European Lepidoptera. The remaining species, which belong to 29 superfamilies, are colloquially referred to as moths because most of them fly during the night.

This report only analyses the extinction risk of butterflies. Many butterflies are valued for their beauty, but they also have an economic interest and play an important role in ecosystems through pollination and as prey for other species. They support a wide range of parasitoids, many of which are specific to their host and worthy of conservation in their own right.

In Europe, there are 501 species of butterflies (an increase from the 482 in the previous Red List due to the recognition of a few taxa as new species, see Appendix 1), divided into six families (Table 2): the largest one is the Nymphalidae, also called brush-footed butterflies, with often large and brightly-coloured species, such as the fritillaries, admirals, emperors, and tortoiseshells; the subfamilies Libytheinae and Satyrinae were until recently a separate family, the latter including the large group of the browns; next biggest are the Lycaenidae, including the blues, the coppers and the hairstreaks, generally small brightly coloured butterflies, sometimes with a metallic gloss; the Pieridae, where the adults

are mostly white or yellow with black spots; the Hesperiidae, named skippers due to their quick and darting flight; the Papilionidae, or swallowtail butterflies, which often have, as their name suggests, forked tails like some swallows. Finally, there is one representative of the Riodinidae family whose members are mainly distributed in the Neotropical region: *Hamearis lucina*, which is similar in appearance to the fritillaries, although the family is closely related to Lycaenidae.

Nearly one-third (30%) of European butterflies are endemic (i.e. are found only in Europe), whereas less than a fifth (18%) of species that occur in the EU27 are endemic (Table 2). The family with the highest rate of endemism is the Nymphalidae, while the Papilionidae is a mainly tropical family, which explains the lower percentage of European endemics.

The global range of 436 (87% of the total) European species is restricted to the Palearctic biogeographic region of which 309 (62%) are only found in the Western Palearctic. The global ranges of a further 32 species (6%) are restricted to the Holarctic (circumpolar region combining the northern parts of the Palaearctic and Nearctic biogeographic regions). The remaining 33 species (7%) have ranges that extend outside the Palaearctic and Holarctic regions and include several species with worldwide distributions (e.g. *Vanessa cardui*, *Lampides boeticus*), a few European species that have been introduced elsewhere by humans (e.g. *Thymelicus lineola*, *Pieris rapae* to North America) and one South African species introduced to Europe (*Cacyreus marshalli*).

Table 2. *Diversity and endemism in butterfly families in Europe, including Not Applicable species.*

			Europe			EU27		
Class	**Order**	**Family**	**Number of species**	**Number of endemic species**	**% of endemic species**	**Number of species**	**Number of endemic species**	**% of endemic species**
Insecta	*Lepidoptera*	*Papilionidae*	15	3	20%	15	3	20%
		Hesperiidae	49	10	20%	49	4	8%
		Pieridae	58	14	24%	57	9	16%
		Riodinidae	1	0	0%	1	0	0%
		Lycaenidae	131	29	22%	120	22	18%
		Nymphalidae	247	93	38%	220	43	20%
Total			**501**	**149**	**30%**	**462**	**81**	**18%**

1.4. Threatened status of species – assessment of extinction risk

The conservation status of plants, animals and fungi is one of the most widely used indicators for assessing the condition of biodiversity. At the global scale, the primary source of information on the extinction risk of plants and animals is The IUCN Red List of Threatened Species™, which contributes to understanding the conservation status of assessed species. The *IUCN Red List Categories and Criteria* (IUCN, 2012a) are designed to determine the relative risk of extinction of a taxon, with the main purpose of cataloguing and highlighting those taxa that

are facing a high risk of extinction. Red List assessments are policy-relevant and can be used to inform conservation planning and priority-setting processes, but they are not intended to be policy-prescriptive and are not in themselves a system for setting biodiversity conservation priorities.

The IUCN Red List Categories are based on a set of quantitative criteria linked to population trends, size and structure, threats, and geographic ranges of species. There are nine categories, with species classified as Vulnerable (VU), Endangered (EN) or Critically Endangered (CR) considered 'threatened'. When conducting regional or national assessments, the *Guidelines for Application of IUCN Red List Criteria at Regional and National Levels* (IUCN, 2012b) must be applied, and two additional categories are used: Regionally Extinct (RE), and Not Applicable (NA) (Figure 2). As the extinction risk of a species can be assessed at global, regional or national levels, a species may be classified under different Red List Categories depending on the scale of assessment, considering the species population and threats to it at each geographical level. Logically, a species that is endemic to the EU27 region would have a single assessment, as it is not present anywhere else in the world, and its EU27 regional assessment by default is also its European and Global assessment.

1.5. Objectives of the assessment

The European Red List of Butterflies had four main objectives:

- To update the European Red List of butterflies, taking into account new information, recent trends and threats that butterflies experienced.
- To identify prioritised geographical areas and habitats in need of urgent protection to prevent extinctions and to ensure that European butterflies reach and maintain a favourable conservation status.
- To identify the major threats to European butterflies and to propose potential mitigating measures and conservation actions to address them.
- To use the knowledge mobilised to contribute to regional butterfly conservation planning.

The assessment produces two main outputs:

- A summary report on the status of all European butterflies (this report).
- A website (www.iucnredlist.org) and data portal (www.iucnredlist.org/resources/datarepository) showcasing these data in the form of species factsheets for all European butterflies included in this study.

This European Red List is a completely revised third edition. It is a comprehensive, region-wide assessment of butterflies and builds on the previous work done for the first European Red List of Butterflies (Van Swaay et al., 2010), and incorporates many new data contributed from personal and institutional databases from across the European region. The substantial amount of fieldwork, data and accumulated knowledge means that this assessment is based on a robust trend analysis by many experts.

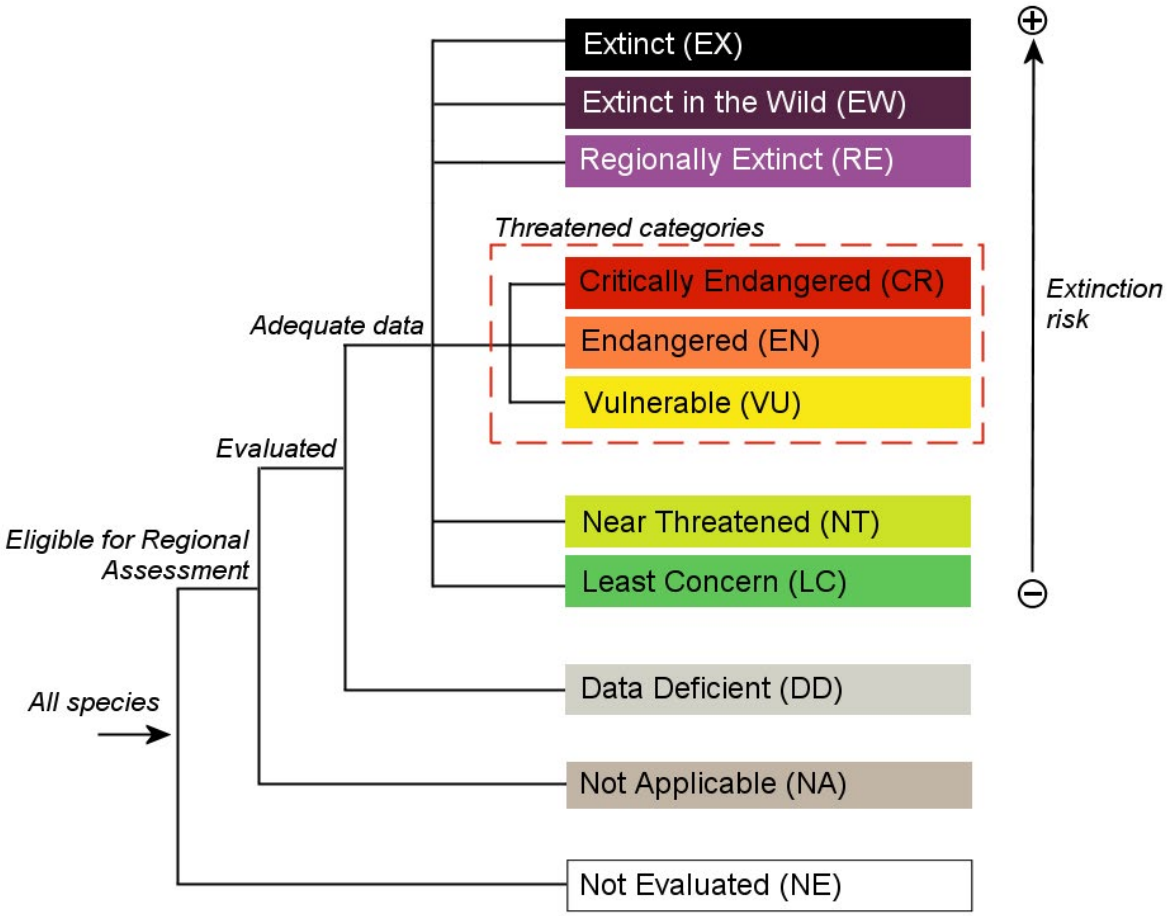

Figure 2. *The IUCN Red List Categories at the regional scale (IUCN, 2021b).*

Hipparchia tamadabae Gran Canaria Grayling *is endemic to the island of Gran Canaria (Spain) and is now seriously threatened by wildfires.* © Yeray Monasterio León

2. Assessment methodology

2.1. Global and regional assessment - geographic scope

The geographic scope of this European Red List spans the entirety of the European continent. It extends from Iceland, Svalbard and Franz Josef Land (Земля́ Фра́нца-Ио́сифа) in the north to the Canary Islands in the south, and from the Azores in the west to the Urals in the east, including the European part of Türkiye ('Türkiye-in-Europe') and most of the European parts of the Russian Federation. Cyprus, the European Macaronesian islands (the Canaries, Madeiran and Azores archipelagos) and the Spanish North African Territories (Ceuta, Melilla, and the Plazas de soberanía (which are not consistently mapped)) are included in the assessment region, whereas the North Caucasus parts of European Russia (e.g. Krasnodar Krai, Republic of Dagestan, Stavropol Krai and other administrative units within the Russian Northern Caucuses) fall beyond the European scope of this European Red List.

Red List assessments were made at two regional levels: 1) for geographical Europe (limits described above); and 2) for the area of the 27 Member States of the European Union. In comparison with the previous European Red List of Butterflies (Van Swaay et al., 2010) the EU region now includes Croatia but no longer includes the United Kingdom (see Figure 1).

2.2. Taxonomic scope

The *European Red List of Butterflies* has assessed the status of all species of butterflies native to Europe or naturalised there before AD 1500. A total of 503 species were considered, though two of these were excluded when their global distribution was subsequently found not to extend to Europe, resulting in a total of 501 butterflies in Europe. Species introduced to Europe by humans after AD 1500 (e.g. *Cacyreus marshalli*, a South African species that was introduced in the Balearic Islands in 1989 (Eitschberger & Stamer, 1990) and is rapidly spreading across the Mediterranean region and up to the Netherlands and Sweden), and those with less than 1% of their global population in Europe, and vagrant species (taxa found only occasionally in Europe) were assessed as Not Applicable (NA), a total of 59 species. The initial species list was based on Wiemers et al. (2018). For additional North African species found within the assessment region, *The status and distribution of Mediterranean butterflies* (Numa et al., 2016) was followed.

The endemic status and global range of the 501 species was reviewed using distribution data collated for this assessment (see 2.4) and a range of published sources, especially the 26 volumes of *Guide to the Butterflies of the Palaearctic Region* volumes by Bozano (1998 – 2024), and the 15 volumes of *The Butterflies of Palaearctic Asia* by Tshikolovets et al. (1998 – 2020). Species were allocated to one or more of six categories: 1) endemic to Europe, 2) endemic to the EU 27, 3) global range restricted to the Western Palearctic 4) global range restricted the Palearctic, 5) global range restricted to the Holarctic or 6) global range extends beyond the Palearctic and Holarctic biogeographic region boundaries. The Western Palearctic boundary adopted for this study is similar to that used by Pittaway (1993): extending to approximately 90°

East, largely following the line of the Yenesei River south from the Arctic Sea to the Tien Shan, then south-west along the north-western edge of the mountains of Kazakhstan, Kyrgyzstan and Tajikistan and the Iran-Afghanistan plateau to the Gulf of Oman (including most of western Iran).

2.3. Assessment protocol

Assessments were based on the *IUCN Red List Categories and Criteria Version 3.1* and the *Guidelines for the application of the IUCN Red List Criteria at Regional and National levels* (IUCN 2012a,b). In addition, a correct interpretation of terms and application of criteria were ensured through training workshops.

The IUCN Species Information Service (SIS) online database was used to store relevant information for each species, based mostly on published data but also unpublished data and expert knowledge. This online database includes:

- Taxonomic classification and notes.
- Geographic range (area of occupancy, extent of occurrence).
- List of countries of occurrence.
- Population information and overall population trend.
- Habitat preferences and primary ecological requirements.
- Major threats.
- Conservation measures (in place and needed).
- Red List assessment.
- Key literature references.

For each species, a Red List category is applied via a set of standardised criteria and justified by an assessment rationale (IUCN, 2012a,b). Population size reduction (criterion A) and geographic range (criterion B) were the most often used criteria for assessing butterflies in Europe. Provisional assessments were agreed within the expert group and later submitted to external scientists for an independent review and final agreement.

The Yellow-banded Ringlet Erebia flavofasciata *is a very local alpine species found above the tree line on steep, sunny slopes.*
© Chris van Swaay

2.3.1. Assessing population trend

Population trends for 169 species were available from the European Butterfly Monitoring Scheme (eBMS), gathered under the Assessing Butterflies in Europe (ABLE) project for the 10-year period 2009-2018 (Van Swaay et al., 2020). For these trends, data were used from 22 countries: Andorra, Austria, Belgium, Czechia, Estonia, Finland, France, Germany, Hungary, Ireland, Jersey, Latvia, Lithuania, Luxembourg, Norway, Romania, Slovenia, Spain, Sweden, Switzerland, the Netherlands and the United Kingdom. During 2018, almost 5,000 standardised butterfly transects were counted.

Trends were calculated separately for Europe and the EU27 countries. Trends were classified based on the multiplicative slope estimate, as in TRIM (Pannekoek & Van Strien, 2005), using a 95% confidence interval (see also Van Swaay et al., 2020 Annex II). Although the trend does not fully cover the ten years of this Red List period (2012-2022), these are by far the best and most precise data available and represent a huge step forward from previous Red Lists, where European trends were often the result of expert consultation. However, these trends are only available for the 169 most widespread European butterflies. Of these, 68 were significant at a European level and given more weight in the assessments. These and other trends were confirmed at the series of regional workshops with experts.

2.3.2. Assessing distribution trend

All available distribution data on butterflies was collected from gbif.org, observation.org, iNaturalist.org, ndff.nl and some other datasets (see 2.4). For the calculation of the distribution trend, data could only be used with a precision of 10x10km or finer from the sources described under section 2.4 (*Species mapping*) and with at least information on the year of the record. This means that data from LepiDiv and the Article 17 reporting could not be used, as those records are only available for periods and not a specific year.

Distribution trends were then calculated using the method described by Szabo et al. (2010). Analyses were performed in R 4.2.1 (R Development Core Team, 2022) and the programme JAGS (Plummer, 2003) via the R package R 2 JAGS, using the LISZT package (Barnes et al., 2012).

As distribution data is not collected in a standardised way (unlike data for the population trend), these opportunistic observations can show strong fluctuations in the number of occupied cells per year. In order to minimise these effects, the distribution trend was first calculated with data over the period 2005-2021, and then the change in distribution over the period 2012-2021 was extracted including the 95% interval.

Distribution trends could be calculated for 320 species on European and EU27 level. For species occurring in less than 50 squares of 10x10km this method could not be used. Significant trends were given more weight in the assessments and required collaboration with regional experts.

The method by Szabo et al. (2010) does have its limitations, as indicated by Isaac et al. (2014). For example, a substantial change in the number of examined squares can have a significant impact. However, a more detailed occupancy modelling was beyond the scope and resources of the current project.

2.3.3. Habitat preferences

The description of species' habitat preferences is based on Van Swaay et al. (2006). This paper used data collected for the first Red Data Book of European Butterflies (Van Swaay & Warren, 1999). Over 50 national experts from 45 European countries classified the main biotopes used for each species in their country according to the main Corine biotope classes. A biotope profile was calculated for each species by counting the number of biotope-mentions (= biotope mentioned in a country) and then calculating the percentage of biotope-mentions for each biotope (the biotope profile). Since species with a wide distribution have a long list of biotopes mentioned only once or twice, the biotopes referred to in less than 5% of the biotope-mentions were considered to be of minor importance to the species and were omitted from further analysis. For example, biotope data for *Glaucopsyche*

alexis were collected from 38 countries with 17 biotopes listed and 60 biotope-mentions in total. However, only six biotopes were mentioned more than twice (i.e. at least 5% of total) and hence only these biotopes contributed to the biotope profile. Dry calcareous grasslands and Steppes and Mesophile grasslands were the most important for *G. alexis* with 18.3% of biotope-mentions. Biotope-mention percentages are given in the Habitat and Ecology section of each species.

2.3.4. Reviews and checks

Between November 2022 and January 2023 six online workshops were held with regional experts. These were organised by region (Macaronesia, Central Europe, Balkans, Alpine, Boreal and Mediterranean) to review and discuss a selection of species assessments and distribution maps, add new information to the assessments, and agree on the final IUCN Red List Category and Criteria for the species (both at the European and EU 27 levels). The remaining species were reviewed and discussed by email correspondence with relevant experts.

Following the workshops, the data were edited, and remaining issues were resolved through communications with the experts. Consistency in the use of IUCN Categories and Criteria was checked by IUCN staff, and the assessments then submitted for publication on the IUCN Red List. The resulting finalised IUCN Red List assessments are a product of scientific consensus concerning species status and are supported by relevant literature and data sources.

2.4. Species mapping

All available distribution data on butterflies was collected from gbif.org, observation.org, iNaturalist.org and ndff.nl which contained at least the following fields: species name, date and coordinates. Additional data was used from LepiDiv (which was made available in two periods: before 2012 and 2012-2021), as well as the Article 17 map data on the distribution of butterflies listed on Annex II and IV from the Habitats Directive (covering the periods 2007-2012 as well as 2013-2018). The latter data is only available on a 10x10km scale in the ETRS projection (epsg 3035), the standard projection used by the EU. In December 2023, additional data were supplied, especially from the Balkans and Hungary: Serbian Red List (Popović, in press), also including data from some surrounding countries: www.izeltlabuak.hu (via Károlyi Balázs), Magyarországi Nagylepke Térkép-Conservation of Macrolepidoptera in Hungary (lepketerkep.termeszet.org), Hungarian National Park Directorate's Database (via Adrienn Patalenszki), timed-count occurrences in the Hungarian BMS (via András Szabadfalvi), Lithuania (via Giedrius Svitra), Ceuta and Melilla (Yeray Monasterio León from Zerynthia) as well as personal data from Rudi Verovnik (Slovenia). All records were transformed into the ETRS projection (epsg 3035).

Distribution data on butterflies is widely available for Northwestern Europe, but much scarcer for Eastern and Southern Europe. The polygon maps were created using the following procedure:

- Using the existing distribution data (see above) we generated for each species a map with the 10x10km squares where the species has been recorded.
- These data were used to produce Species Distribution Models (SDM):
    - Absence points were created based on the estimated species richness at the 10x10km grid cells from the IUCN Red List report on European butterflies (Van Swaay et al., 2010). After calculating the species richness with the distribution data, this was compared to the estimated species richness. For generating the absence data, the following rule for each grid cell was applied: if the ratio between the observed species richness and estimated species richness was greater than 0.5 (observed/estimated > 0.5), then species without recorded presences were assumed to be absent. If the ratio was

lower than 0.5, non-presence data was not transformed into absence data.

- The SDMs were made using the R package biomod2 (v4.0), an ensemble platform for modelling species distributions (Thuiller et al., 2022) using ensemble models, computing across more than one modelling technique (Thuiller et al., 2009). The biomod2 package provides a tool to fit, compare and combine different models. All R functions mentioned further on are part of the biomod2 package. Two distinct types of algorithms were used: Random Forests (RFs) and Boosted Regression Trees (Generalised Boosted Models: GBMs).

- The following environmental data were used: four climate variables (BIO5 - Max Temperature of Warmest Month, BIO6 - Min Temperature of Coldest Month, BIO13 -Precipitation of Wettest Month and BIO14 - Precipitation of Driest Month, all from WorldClim) and the global habitat type map as published by Jung et al. (2020), with the habitat classification according to the types defined by the IUCN.

- The KAPPA cut-off value of 281 was used to transform the ensemble model predictions (0-1000) into binary predictions (0 or 1).

- The resulting SDM was added to the distribution map for all squares where no presence was recorded or absence generated (see above).

- The new map, now including real presences as well as predictions, was transformed to 50x50km squares, and then an alphahull (Pateiro-Lopez & Rodriguez-Casal, 2022) was created over these points based on Mathews et al. (2018). This resulted in a new polygon map with the estimated distribution of each species.

- This method could be used for 405 species. For all other remaining species maps were drawn by hand.

The data available varied immensely in terms of quality; for some regions, distributional data were available as point locality data (latitude/longitude) or in grid cell format and were therefore spatially precise. Where point or grid data were available, these were projected in a Geographical Information System (GIS) (ESRI ArcMap). Polygons were then drawn manually, clustering occurrence data where appropriate and selecting sub-country units or an entire country for species known to be present or extinct, but with no localised occurrence data. For some species, it was only possible to assign presence at the country level, and therefore the distribution was mapped for the whole country.

The spatial analyses presented in this publication were analysed using a geodesic discrete global grid system, defined on an icosahedron and projected to the sphere using the inverse Icosahedral Snyder Equal Area (ISEA) Projection (S39). This corresponds to a hexagonal grid composed of individual units (cells) that retain their shape and area (865 km^2) throughout the globe. These are more suitable for a range of ecological applications than the most commonly used rectangular grids (S40).

According to the Mapping Standards and Data Quality for the IUCN Red List Spatial Data (IUCN SSC Red List Technical Working Group 2024), all distribution polygons were assigned the relevant presence, origin and seasonality codes. The presence, origin and seasonality codes can be found here. For the spatial analyses, species distributions with the following presence, origin and seasonality codes were included: presence = extant, possibly extinct; origin = native, reintroduced, assisted colonisation; and all seasonality codes (resident, breeding season, non-breeding, passage, seasonal occurrence uncertain) and converted to the hexagonal grid. Polygons coded as 'possibly extant', 'extinct', 'presence uncertain', 'introduced', 'vagrant' and/or 'origin uncertain' were not considered in the analyses. Coastal cells were clipped to the coastline. Thus, patterns of species richness considered 452 species (some species which were eventually assessed as NA also had their distributional data included) (Figure 6) and were mapped by counting the number of species in each cell (or cell section, for species with a coastal distribution).

Patterns of endemic species richness (148 species) were mapped by counting the number of species in each cell (or cell section for coastal species) that were flagged as being endemic to geographic Europe as defined in this project (Figure 8). Patterns of threatened species richness (categories CR, EN, VU at the European regional level, 65 species) (Figure 7) were mapped by counting the number of threatened species in each cell or cell section.

The Spanish Greenish Black-tip Euchloe bazae *is a Spanish endemic species listed as Endangered.* © Chris van Swaay

3. Assessment results

3.1. Threatened status of butterflies in Europe

The status of butterflies was assessed at two regional levels: geographical Europe and the EU27 region. Out of the 442 species assessed at the European level, one species is Extinct: *Pieris wollastoni*, a species restricted to the island of Madeira (Portugal) that has not been reported since 1986 despite several visits by lepidopterists to its former habitat (Gardiner, 2003; Wiemers et al., 2022; B. de Sousa *pers. comm.*; P. Russell *pers. comm.*). This species is excluded from all further percentage calculations. Of the 441 extant species, 14.7% of the species (65 species) are considered threatened (Categories VU, EN and CR), with 1.4% being Critically Endangered, 7.9% Endangered and 5.4% Vulnerable (Table 3 and Figure 3). A further 13.6% (60 species) of species are classified as Near Threatened. Most of these are declining rapidly in parts of their range and are in urgent need of conservation action.

Within the EU27 region, there are 431 extant butterflies, of which 15.8% (68 species) are threatened with extinction: 1.2% are Critically Endangered, 9.0% Endangered and 5.6% Vulnerable. In addition, 15.1% (65 species) are considered as Near Threatened. Species classed as threatened (Critically Endangered, Endangered and Vulnerable) or Near Threatened at the European and EU27 level are listed in Table 4; see Appendix 2 for a full list of species included in the project.

Fifty-nine species were considered as Not Applicable, either due to their marginal occurrence in Europe or because they were introduced after AD 1500.

Table 5 summarises the threat status of extant European butterflies in the context of their global ranges. Whilst overall around 15% of assessed species are threatened, the proportion of European species with a Holarctic distribution that are threatened is much higher (50%).

Table 3: *Summary of the number of European butterfly species within each Red List category. *This table does not include Not Applicable species in Europe and/or the EU (species introduced after AD 1500 or species of marginal occurrence).*

IUCN Red List categories	No. Species Europe (no. Endemic species)	No. Species EU27 (no. Endemic species)
Extinct (EX)	1 (1)	1 (1)
Critically Endangered (CR)	6 (5)	5 (4)
Endangered (EN)	35 (18)	39 (11)
Vulnerable (VU)	24 (6)	24 (5)
Near Threatened (NT)	60 (32)	65 (18)
Least Concern (LC)	316 (87)	298 (42)
Total number of species assessed*	**442 (149)**	**432 (81)**

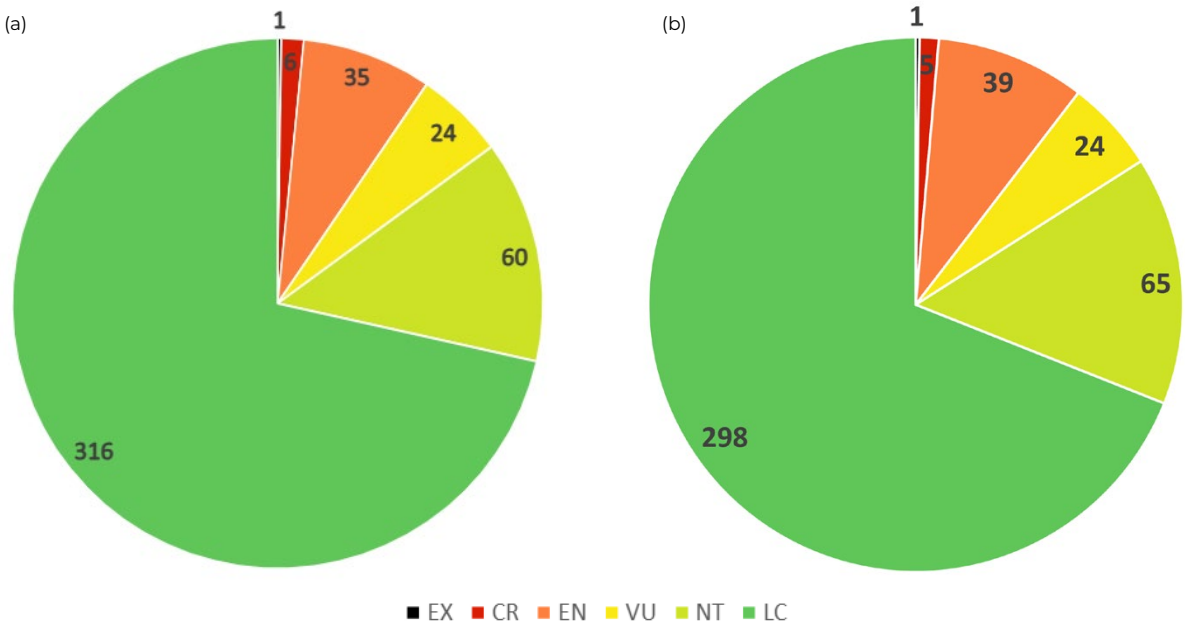

Figure 3: *Red List status of butterflies in (a) Europe and (b) EU27, number of species in each category is shown. NA species are excluded.*

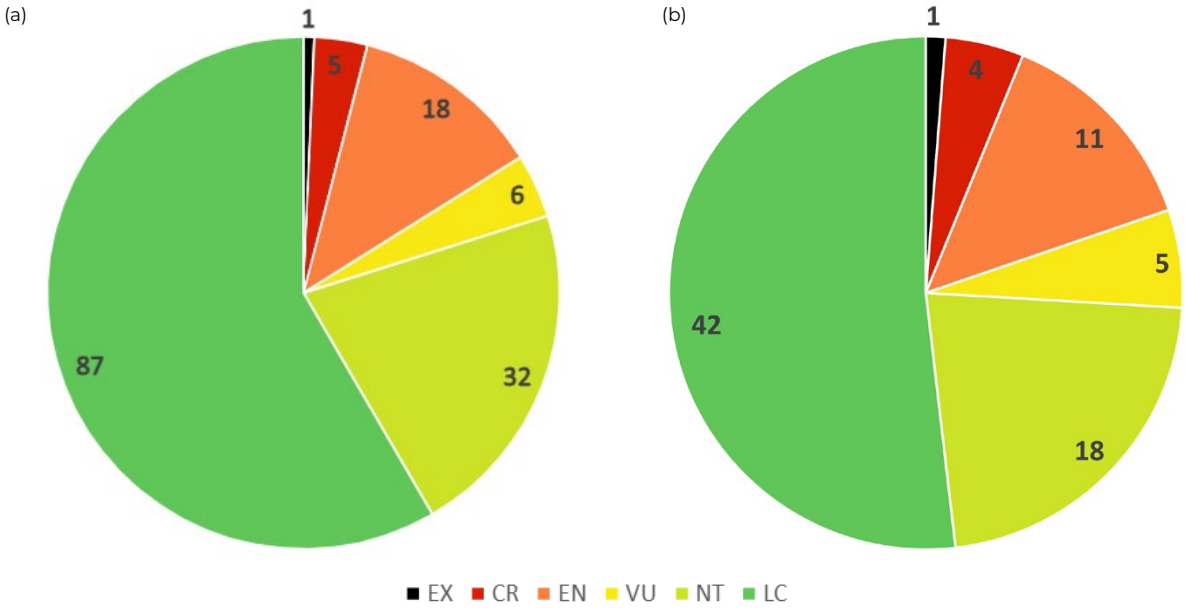

Figure 4: *Red List status of butterflies which are endemic to (a) Europe and (b) EU27, number of species in each category is shown. NA species are excluded.*

Table 4. *Threatened and Near Threatened butterfly species at the European and EU27 levels. Species endemic to Europe or to EU27 are marked with an asterisk (*).*

Family	Species	Common Name	Europe	EU27
Pieridae	*Pieris wollastoni*	Madeiran Large White	EX*	EX*
Lycaenidae	*Polyommatus humedasae*	Piedmont Anomalous Blue	CR*	CR*
Nymphalidae	*Hipparchia sbordonii*	Ponza Grayling	CR*	CR*
Nymphalidae	*Hipparchia christenseni*	Karpathos Grayling	CR*	CR*
Nymphalidae	*Pseudochazara williamsi*	Nevada Grayling	CR*	CR*
Nymphalidae	*Coenonympha phryne*	Pallas' Heath	CR	
Nymphalidae	*Pseudochazara cingovskii*	Macedonian Grayling	CR*	
Lycaenidae	*Agriades dardanus*	Bosnian Blue	EN	CR
Pieridae	*Gonepteryx cleobule*	Canary Brimstone	EN*	EN*
Pieridae	*Gonepteryx maderensis*	Madeiran Brimstone	EN*	EN*
Pieridae	*Colias chrysotheme*	Lesser Clouded Yellow	EN	EN
Pieridae	*Pontia chloridice*	Small Bath White	EN	EN
Pieridae	*Pieris cheiranthi*	Canary Islands Large White	EN*	EN*
Pieridae	*Euchloe bazae*	Spanish Greenish Black-tip	EN*	EN*
Pieridae	*Anthocharis damone*	Eastern Orange-tip	EN	EN
Lycaenidae	*Turanana taygetica*	Odd-spot Blue	EN	EN
Lycaenidae	*Pseudophilotes barbagiae*	Sardinian Blue	EN*	EN*
Lycaenidae	*Agriades zullichi*	Zullich´s Blue	EN*	EN*
Lycaenidae	*Agriades aquilo*	Arctic Blue	EN	EN
Lycaenidae	*Kretania trappi*	Alpine Zephyr Blue	EN*	EN
Lycaenidae	*Polyommatus golgus*	Nevada Blue	EN*	EN*
Lycaenidae	*Polyommatus nephohiptamenos*	Higgins' Anomalous Blue	EN*	EN*
Lycaenidae	*Polyommatus violetae*	Andalusian Anomalous Blue	EN*	EN*
Lycaenidae	*Polyommatus orphicus*	Kolev's Anomalous Blue	EN*	EN
Nymphalidae	*Boloria polaris*	Polar Fritillary	EN	EN
Nymphalidae	*Boloria improba*	Dusky-winged Fritillary	EN	EN
Nymphalidae	*Boloria freija*	Frejya's Fritillary	EN	EN
Nymphalidae	*Boloria chariclea*	Arctic Fritillary	EN	EN
Nymphalidae	*Euphydryas iduna*	Lapland Fritillary	EN	EN
Nymphalidae	*Melitaea aetherie*	Aetherie Fritillary	EN	EN
Nymphalidae	*Melitaea asteria*	Little Fritillary	EN*	EN
Nymphalidae	*Hipparchia tilosi*	La Palma Grayling	EN*	EN*
Nymphalidae	*Oeneis bore*	Arctic Grayling	EN	EN
Nymphalidae	*Chazara prieuri*	Southern Hermit	EN	EN
Nymphalidae	*Pseudochazara geyeri*	Grey Asian Grayling	EN	EN
Nymphalidae	*Pseudochazara amymone*	Brown's Grayling	EN*	EN
Nymphalidae	*Pseudochazara orestes*	Dils' Grayling	EN*	EN*
Nymphalidae	*Erebia disa*	Arctic Ringlet	EN	EN

Family	Species	Common Name	Europe	EU27
Nymphalidae	*Erebia sudetica*	Sudeten Ringlet	EN*	EN
Nymphalidae	*Erebia flavofasciata*	Yellow-banded Ringlet	EN*	EN
Nymphalidae	*Coenonympha tullia*	Large Heath	EN	VU
Nymphalidae	*Pseudochazara euxina*		EN*	
Hesperiidae	*Thymelicus lineola*	Essex Skipper	VU	EN
Pieridae	*Colias myrmidone*	Danube Clouded Yellow	VU	EN
Pieridae	*Colias tyche*	Pale Arctic Clouded Yellow	VU	EN
Pieridae	*Colias hecla*	Northern Clouded Yellow	VU	EN
Nymphalidae	*Oeneis norna*	Norse Grayling	VU	EN
Papilionidae	*Archon apollinus*	False Apollo	VU	VU
Hesperiidae	*Thymelicus sylvestris*	Small Skipper	VU	VU
Hesperiidae	*Muschampia cribrellum*	Spinose Skipper	VU	VU
Hesperiidae	*Carcharodus baeticus*	Southern Marbled Skipper	VU*	VU
Hesperiidae	*Pyrgus centaureae*	Northern Grizzled Skipper	VU	VU
Pieridae	*Leptidea morsei*	Fenton's Wood White	VU	VU
Pieridae	*Colias caucasica*	Balkan Clouded Yellow	VU	VU
Lycaenidae	*Satyrium pruni*	Black Hairstreak	VU	VU
Lycaenidae	*Satyrium spini*	Blue-spot Hairstreak	VU	VU
Lycaenidae	*Phengaris teleius*	Scarce Large Blue	VU	VU
Lycaenidae	*Agriades optilete*	Cranberry Blue	VU	VU
Nymphalidae	*Boloria frigga*	Frigga's Fritillary	VU	VU
Nymphalidae	*Euphydryas maturna*	Scarce Fritillary	VU	VU
Nymphalidae	*Hipparchia bacchus*	El Hierro Grayling	VU*	VU*
Nymphalidae	*Hipparchia tamadabae*	Gran Canaria Grayling	VU*	VU*
Nymphalidae	*Maniola chia*	Chios Meadow Brown	VU*	VU*
Nymphalidae	*Erebia embla*	Lapland Ringlet	VU	VU
Nymphalidae	*Erebia epistygne*	Spring Ringlet	VU*	VU*
Nymphalidae	*Erebia scipio*	Larche Ringlet	VU*	VU*
Lycaenidae	*Neolysandra coelestina*	Pontic Blue	NT	EN
Hesperiidae	*Carterocephalus silvicola*	Northern Chequered Skipper	NT	VU
Hesperiidae	*Carterocephalus palaemon*	Chequered Skipper	NT	VU
Lycaenidae	*Tomares nogelii*	Nogel's Hairstreak	NT	VU
Papilionidae	*Papilio alexanor*	Southern Swallowtail	NT	NT
Papilionidae	*Zerynthia cretica*	Cretan Festoon	NT*	NT*
Hesperiidae	*Spialia orbifer*	Hungarian Skipper	NT	NT
Hesperiidae	*Carcharodus lavatherae*	Marbled Skipper	NT	NT
Hesperiidae	*Pyrgus malvoides*	Southern Grizzled Skipper	NT*	NT
Hesperiidae	*Pyrgus malvae*	Grizzled Skipper	NT	NT
Hesperiidae	*Pyrgus onopordi*	Rosy Grizzled Skipper	NT	NT
Pieridae	*Pieris krueperi*	Krueper's Small White	NT	NT
Pieridae	*Euchloe eversi*		NT*	NT*

Family	Species	Common Name	Europe	EU27
Pieridae	*Euchloe grancanariensis*		NT*	NT*
Pieridae	*Euchloe penia*	Eastern Greenish Black-tip	NT	NT
Pieridae	*Zegris eupheme*	Sooty Orange-tip	NT	NT
Lycaenidae	*Lycaena helle*	Violet Copper	NT	NT
Lycaenidae	*Callophrys avis*	Chapman's Green Hairstreak	NT	NT
Lycaenidae	*Cyclyrius webbianus*	Canary Blue	NT*	NT*
Lycaenidae	*Tarucus theophrastus*	Common Tiger Blue	NT	NT
Lycaenidae	*Phengaris alcon*	Alcon Blue	NT	NT
Lycaenidae	*Phengaris arion*	Large Blue	NT	NT
Lycaenidae	*Phengaris nausithous*	Dusky Large Blue	NT	NT
Lycaenidae	*Iolana iolas*	Iolas Blue	NT	NT
Lycaenidae	*Cupido minimus*	Small Blue	NT	NT
Lycaenidae	*Kretania psylorita*	Cretan Argus	NT*	NT*
Lycaenidae	*Kretania hesperica*	Spanish Zephyr Blue	NT*	NT*
Lycaenidae	*Lysandra bellargus*	Adonis Blue	NT	NT
Lycaenidae	*Polyommatus ripartii*	Ripart's Anomalous Blue	NT	NT
Lycaenidae	*Polyommatus fabressei*	Oberthür's Anomalous Blue	NT*	NT*
Lycaenidae	*Polyommatus dolus*	Furry Blue	NT*	NT*
Lycaenidae	*Polyommatus timfristos*		NT*	NT*
Nymphalidae	*Aglais urticae*	Small Tortoiseshell	NT	NT
Nymphalidae	*Melitaea britomartis*	Assmann's Fritillary	NT	NT
Nymphalidae	*Coenonympha oedippus*	False Ringlet	NT	NT
Nymphalidae	*Coenonympha orientalis*	Balkan Heath	NT*	NT
Nymphalidae	*Lopinga achine*	Woodland Brown	NT	NT
Nymphalidae	*Pararge xiphia*	Madeiran Speckled Wood	NT*	NT*
Nymphalidae	*Hipparchia wyssi*	Canary Grayling	NT*	NT*
Nymphalidae	*Hipparchia miguelensis*	Le Cerf's Grayling	NT*	NT*
Nymphalidae	*Hipparchia azorina*	Azores Grayling	NT*	NT*
Nymphalidae	*Hipparchia leighebi*	Eolian Grayling	NT*	NT*
Nymphalidae	*Oeneis jutta*	Baltic Grayling	NT	NT
Nymphalidae	*Pseudochazara amalthea*		NT*	NT
Nymphalidae	*Pseudochazara tisiphone*	Dark Grayling	NT*	NT
Nymphalidae	*Maniola halicarnassus*	Thomson's Meadow Brown	NT	NT
Nymphalidae	*Erebia hispania*	Spanish Brassy Ringlet	NT*	NT*
Nymphalidae	*Erebia rondoui*	Pyrenees Brassy Ringlet	NT*	NT*
Nymphalidae	*Erebia nivalis*	De Lesse's Brassy Ringlet	NT*	NT
Nymphalidae	*Erebia neleus*		NT*	NT
Nymphalidae	*Erebia sthennyo*	False Dewy Ringlet	NT*	NT
Nymphalidae	*Erebia palarica*	Chapman's Ringlet	NT*	NT*
Nymphalidae	*Erebia gorgone*	Gavarnie Ringlet	NT*	NT
Nymphalidae	*Erebia rhodopensis*	Nicholl's Ringlet	NT*	NT

Family	Species	Common Name	Europe	EU27
Nymphalidae	*Erebia triarius*	de Prunner's Ringlet	NT*	NT
Nymphalidae	*Erebia christi*	Rätzer's Ringlet	NT*	NT
Nymphalidae	*Erebia orientalis*	Bulgarian Ringlet	NT*	NT
Nymphalidae	*Erebia melas*	Black Ringlet	NT*	NT
Nymphalidae	*Erebia lefebvrei*	Lefèbvre's Ringlet	NT*	NT
Nymphalidae	*Erebia zapateri*	Zapater's Ringlet	NT*	NT*
Hesperiidae	*Muschampia tessellum*	Tessellated Skipper	LC	EN
Lycaenidae	*Eumedonia eumedon*	Geranium Argus	LC	VU
Hesperiidae	*Erynnis tages*	Dingy Skipper	LC	NT
Pieridae	*Colias palaeno*	Moorland Clouded Yellow	LC	NT
Lycaenidae	*Lycaena virgaureae*	Scarce Copper	LC	NT
Lycaenidae	*Cupido osiris*	Osiris Blue	LC	NT
Nymphalidae	*Limenitis populi*	Poplar Admiral	LC	NT
Nymphalidae	*Boloria aquilonaris*	Cranberry Fritillary	LC	NT
Nymphalidae	*Nymphalis antiopa*	Camberwell Beauty	LC	NT
Nymphalidae	*Lasiommata petropolitana*	Northern Wall Brown	LC	NT
Nymphalidae	*Erebia gorge*	Silky Ringlet	LC*	NT

Table 5: *Summary of the number of extant European butterfly species within each IUCN Red List category, by region. *This table does not include the Not Applicable species in Europe and/or the EU (species introduced after AD 1500 or species of marginal occurrence).*

IUCN Red List categories	No. Western Palearctic species	No. Palaearctic species	No. Holarctic species	No. species with global range extending beyond Palaearctic and Holarctic
Critically Endangered (CR)	6	6	0	0
Endangered (EN)	24	27	8	0
Vulnerable (VU)	11	18	5	1
Near Threatened (NT)	45	57	2	1
Least Concern (LC)	203	289	11	16
Total number of species assessed*	**289**	**397**	**26**	**18**
% Threatened species assessed*	**14.1%**	**12.8%**	**50%**	**5.6%**

It should be noted that the figures for butterflies represent minimum estimates as population trend data from which to calculate population reduction rates over the last ten-year period (for IUCN Red List criterion A) are not available for many species, especially in several large eastern European countries that comprise a large part of the study region. In such cases, a distribution trend was used to infer population reductions, but such a trend is much less sensitive to declines than a population trend (e.g. a butterfly has to completely disappear from a 10km square

to be included as a distribution loss, whereas the population will have declined for a long time already). In countries with good population trend data, a considerably greater proportion of butterflies are declining and assessed as threatened. Better population trend data are available through butterfly monitoring schemes that have been established in 22 countries, though some started only recently, and these have been used to compile population trends for 169 species (Van Swaay et al., 2020).

Note that for many western European countries, major declines of butterflies occurred in the 1950s-70s, and loss rates have slowed as species have been reduced to very low levels, often just below the IUCN thresholds for being assessed as threatened (e.g. *Phengaris arion*) over the past ten years. Many more species are therefore important conservation priorities as they are still declining, but not at a sufficient rate to be classified as threatened. The species classified both as threatened and Near Threatened (28% of the total) are thus all high conservation priorities.

3.2. Comparison with the last assessment

Comparing the present Red List with the previous one (Van Swaay et al., 2010), the number of species assessed has increased from 435 to 442, due to the recognition of seven new species. However, the percentage of species that are now threatened has increased significantly over the last 14 or so years between assessment periods. The percentage of threatened species has increased by 73% (from 8.5% to 14.7%). In purely numerical terms this equates to an increase of 76% (from 37 to 65 species). When Near Threatened species are included, the number of species listed has risen by 65% (from 81 to 125). Moreover, the number of Endangered and Critically Endangered species has more than doubled from 15 to 41, an increase of 173%.

This means that 28.3% (125 species) of butterflies are now threatened or Near Threatened at the European level and almost one-third (30.9%) in the EU27. These changes are partly due to some Near Threatened species becoming threatened in the last 10+ years but also because a few of the newly identified taxa are extremely range restricted and immediately fall into a threat category. The threat level of a few species has decreased since the previous assessment, often because they went through a period of rapid decline in the 1990s to qualify for threatened or Near Threatened status last time, but their rate of decline has slowed in the last decade, so they do not now reach the threshold to be assessed as threatened (at least a 30% decline in 10 years) or Near Threatened (at least a 20% decline in 10 years).

In contrast to the first European Red List (Van Swaay et al., 2010), no species are now considered Data Deficient at the European Level. *Polyommatus damocles* has moved from DD to NA on the basis of marginal occurrence in the European Red List assessment region and the revised species concept of *Melitaea telona* no longer occurs within the European region, whilst two further DD species have been removed on taxonomic grounds (*Polyommatus eleniae* is now considered a synonym of *Polyommatus orphicus*, and *Polyommatus pljushtchi* now placed as a subspecies of *P. damone*).

3.3. Status of endemic species

The situation is even worse when it comes to endemic species for which Europe has a unique responsibility. One is extinct, and of the remaining 148 endemic species, 19.6% (29 species) are threatened and 21.6% (32 species) Near Threatened (Figure 4). Thus over 40% of Europe's endemic butterflies are now threatened or close to being so. Within the EU27, that proportion rises to nearly half of all endemic species (47.5%: 38 of 80 extant species). In comparison, just 23.2% of European endemic species and 29.5% of EU27 endemics were threatened or Near Threatened in the last assessment.

3.4. Status and population trends of European butterflies

Documenting population trends is key to assessing species status, and for 169 species population trends were available from the eBMS (Van Swaay et al., 2020) up to 2018. For some species the population trend was also inferred from the distribution trend. Distribution trends are defined by changes in the number of sites that the species occur in.

Of the European butterfly species whose trends are known, over 50% are considered to be declining. About a third (35%) of them seem to have stable populations, while only 14% are increasing (Figure 5). However, many species (43%) have unknown population trends, either because they are too rare to be picked up in the eBMS, have too few documented records for a distribution trend, or a (very) large part of their distribution is in parts of (especially Eastern) Europe with no data available (see section 3.7 for more discussion on why trends remain unknown for many species). Population trend data are available for 68 of 148 (46%) European endemic butterflies of which 69% are in decline, 27.5% are stable and around 4% increasing. For EU 27 endemics, trend data exists for 35 of 80 (44%) species with 80% declining, around 17% stable and less than 3% increasing.

It should be noted that although many species are declining, the rate of loss is often not always sufficient to meet the IUCN Red List Criteria for threatened species (i.e. a population decline of 30% in the last 10 years). Also, the distribution and population size of numerous species have declined severely during the 21st and early 21st centuries (especially in western Europe) but not in the timeframe of the last 10 years considered by the IUCN methodology. For example, *Coenonympha hero* was classed as Vulnerable in the last assessment because of its overall population decline but is now classed as Least Concern because it has either become extinct or rare in much of its former distribution and is reported to be stable in most of its remaining distribution (e.g. in northern Europe), thus with a low current extinction risk.

In the previous Red List (Van Swaay et al., 2010) fewer species' population trends were considered to be unknown. This assessment relied to a greater extent on expert information. The rise in the number of threatened butterflies (section 3.1) illustrates that butterflies are not doing well in Europe.

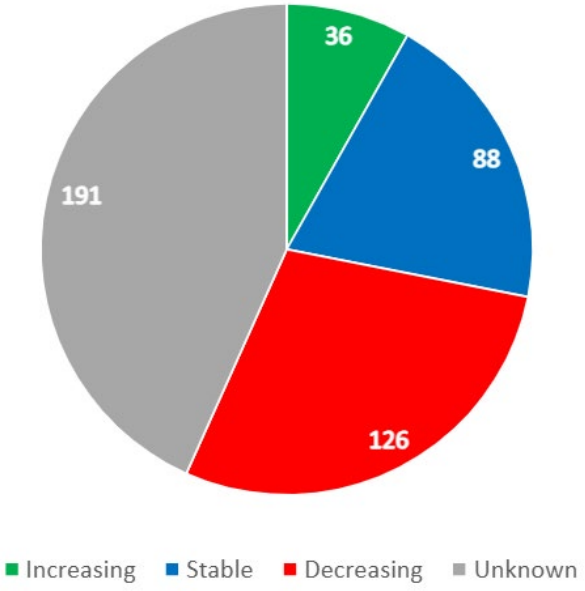

Figure 5. *Population trends of European butterflies, number of species in each assessment category is shown.*

3.5. Spatial distribution of European butterfly species

3.5.1. Species richness

Figure 6 highlights areas with particularly high concentrations of butterfly species. The greatest richness clearly coincides with mountainous areas in the south of Europe: the Cantabrian Mountains, the Pyrenees, the Alps, the Apennines, the Dinaric Alps, the Carpathians and the mountains of the Balkans (which host numerous species of very restricted range). Southern Russia also has a high number of species.

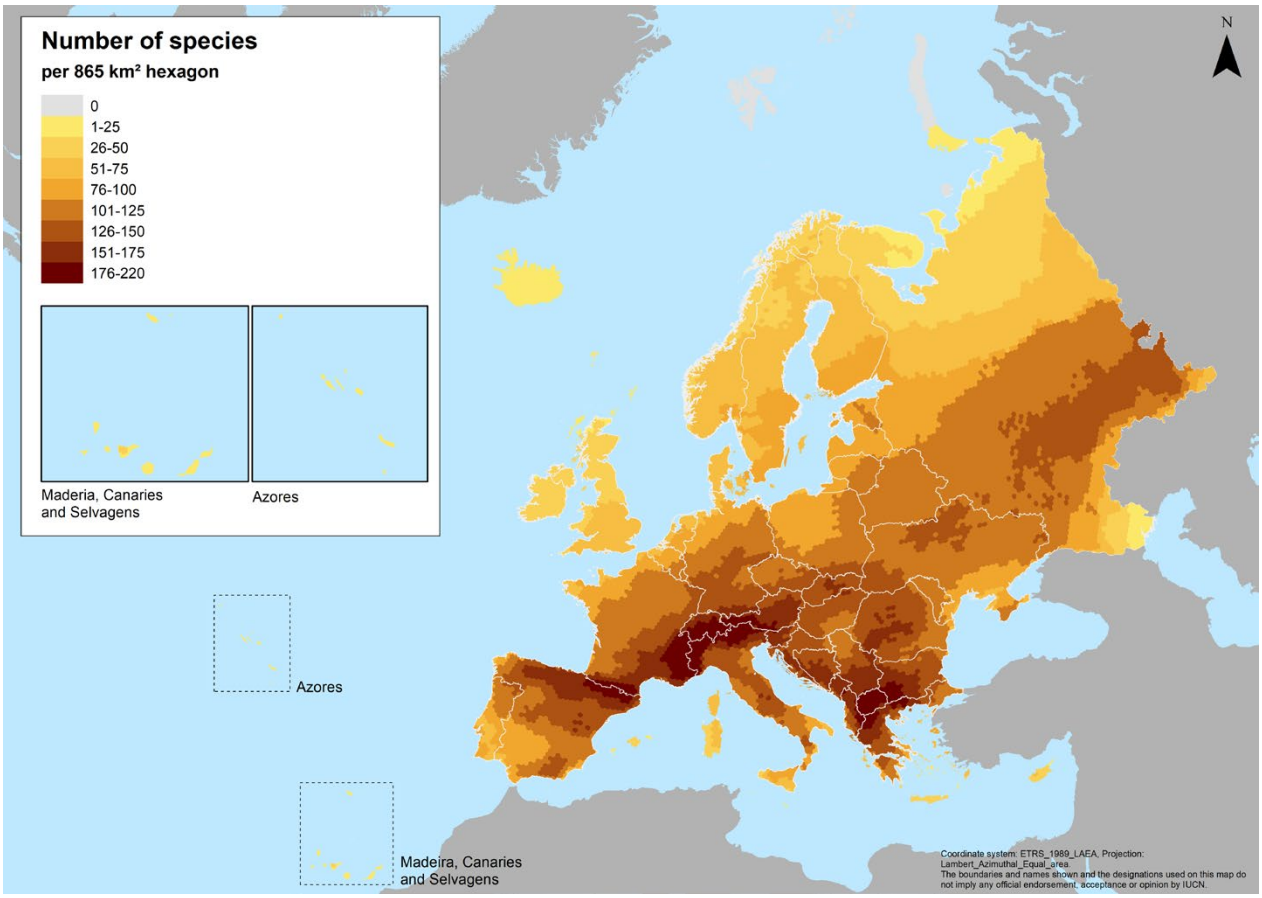

Figure 6. *Species richness of European butterflies. For all species richness maps (Figures 6, 7 and 8), the following presence, origin and seasonality codes were included: presence = extant, possibly extinct; origin = native, reintroduced, assisted colonisation; and all seasonality codes (resident, breeding season, non-breeding, passage, seasonal occurrence uncertain). For descriptions of these codes, see: https://www.iucnredlist.org/resources/mappingstandards*

3.5.2. Distribution of threatened species

The distribution of threatened butterflies in Europe (Figure 7) shows different patterns from the picture of the overall species diversity. This is especially evident in the north of Europe where several species are now threatened by climate warming.

There is also a concentration of threatened butterfly species from the Alps and Carpathian Mountains and then east through the Ukrainian and Russian steppes. Smaller areas with a higher number of threatened species occur in the Sierra Nevada and South-Balkan mountains.

The reasons for this pattern are likely to be complex and a combination of a wide range

of factors. One factor is that these regions hold concentrations of habitats used by threatened species, notably mountain grasslands and wet meadows. Another is that they coincide to some extent with general butterfly diversity and regions where eastern and western faunas overlap. A third factor is that species in western Europe that have suffered major historical declines and loss rates have now slowed to just below IUCN thresholds, whereas species in eastern Europe appear to be suffering from more recent loss of habitat and hence decline in populations. Lastly, the pattern is strongly influenced by the impact of climate change that is now threatening many species in the far north of Europe (e.g. northern Scandinavia and northern Russia) and other species in the far south (e.g. southern Spain and the Mediterranean region).

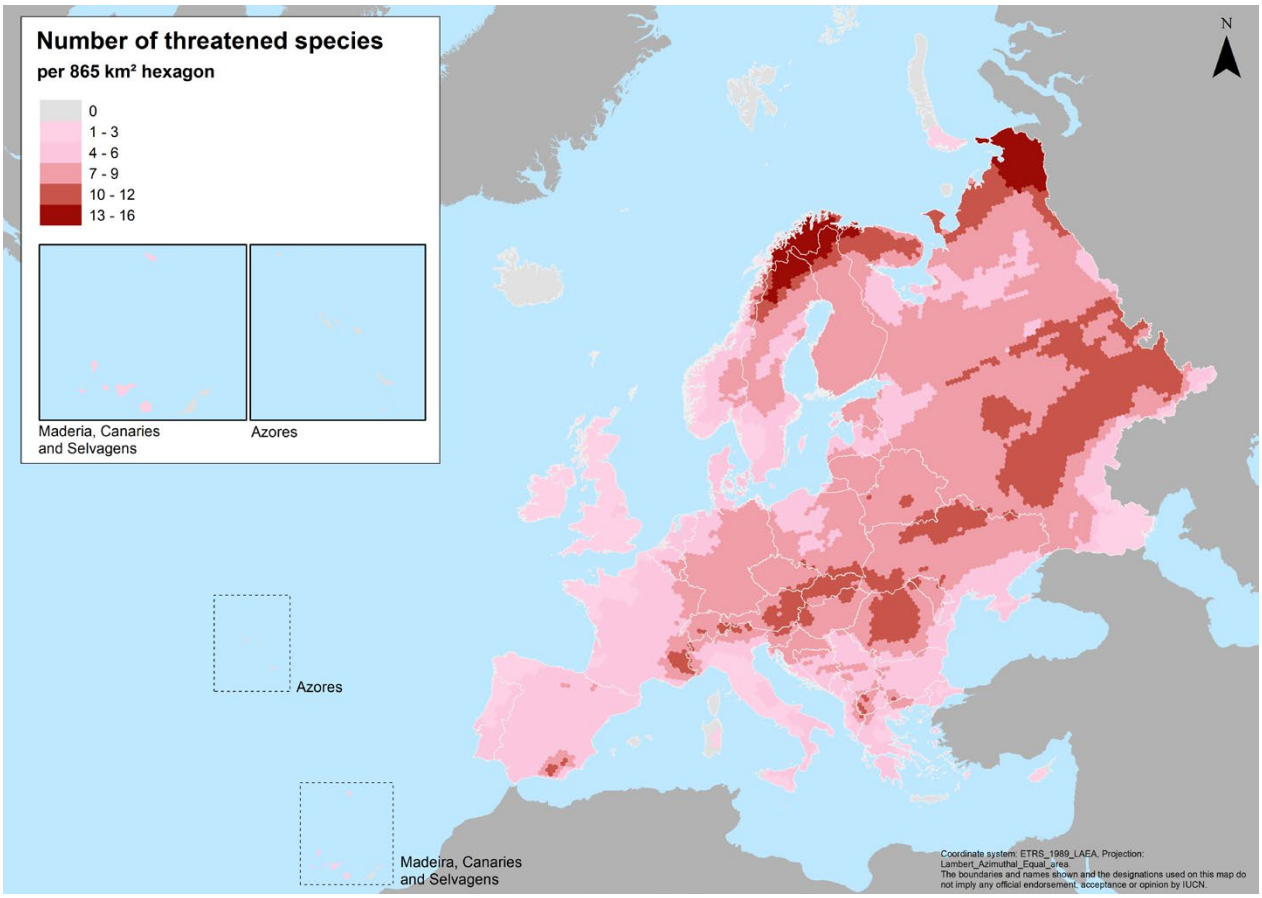

Figure 7: *Species richness of threatened butterflies in Europe.*

3.5.3. Endemic species richness

Figure 8 shows the distribution of endemic butterfly species (e.g. those that are unique to Europe and are found nowhere else in the world). Particularly high numbers of endemic species are found in the southern and western Alps and the eastern Pyrenees. Other important concentrations of endemics are found in mountainous areas in Spain (e.g. the Sierra Nevada and the Cantabrian Mountains) and in Italy (the Apennines), as well as in the Balkans.

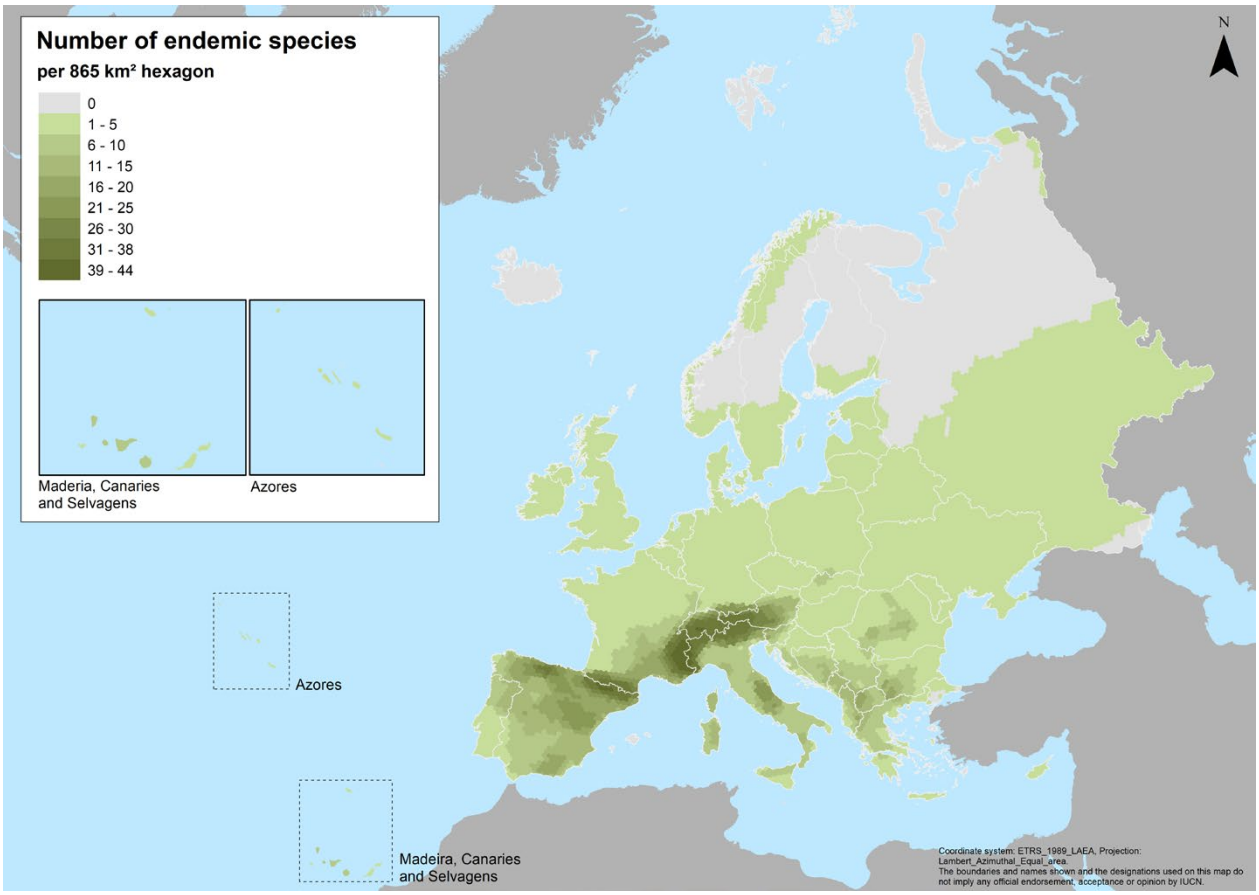

Figure 8: *Butterflies endemic species richness.*

3.6. Major threats to butterflies in Europe

The major threats to each species were coded using the IUCN Threats Classification Scheme Version 3.3. A summary of the relative importance of the different threats is shown in Figure 9.

Butterflies have very specific food and habitat requirements at different stages of their life cycle. They are therefore particularly sensitive to modifications of their environment and serve as an excellent indicator of the status of the ecosystems because of their sensitivity to habitat degradation and changes in management (Warren et al., 2021). The most important habitat for European butterflies is grassland (notably dry, humid and montane grasslands), followed by woodland, scrub, heathland and bogs (Van Swaay et al., 2006).

The biggest threats to butterflies in Europe now and in the past are habitat loss and degradation (though climate change is now having a major impact, see below). These affect butterflies in all habitats, but particularly grasslands and wetlands, two of the most important habitats for threatened species. The primary cause is agricultural intensification, through conversion of natural and semi-natural grasslands and wetlands to both arable crops and improved grassland, the associated use of high amounts of inorganic and organic fertilizer (especially nitrogen), pesticides (including herbicides), the increase in wetland drainage and overgrazing by livestock. As a result of these reductions in habitat area and quality, many species are now suffering the consequences of habitat fragmentation which greatly increases the chances of local extinction in the small patches of habitat that remain.

These changes affect a wide range of butterflies, many of which are declining in Europe.

A growing threat to butterflies in many habitats is from nitrogen deposition, which leads to more rapid growth of vegetation, changing the micro-climate for larval development and reducing the abundance of certain hostplants (Wallis de Vries & Van Swaay, 2006; Nijssen et al., 2017). Several species such as *Lasiommata megera* have declined in western Europe as a result but declines have not reached the threshold for a threatened Red Listing.

Pesticides undoubtedly affect both adult butterflies and caterpillars that occur close to the arable or permanent crops where they are applied, but they can also reach the core of protected areas up to several kilometers away, where even low concentrations can cause declines of butterflies (Gols et al., 2020; Van Deynze et al., 2024). The impact of persistent neonicotinoids that are known to affect wild bee populations (e.g. Hladick et al., 2018) requires further research on butterflies. Even though we know that intensive and large-scale agriculture is one of the major threats to butterfly populations, there is not yet enough evidence to disentangle the impact of each of the individual pressures such as the application of pesticides, herbicides, inorganic fertilizers, large quantities of manure and lowering of the groundwater table.

The European Grassland Butterfly Indicator (comprising trends of 17 widespread species) shows that their populations have undergone a decline of more than 50% between 1990-2023 (Van Swaay et al., 2025; EUROSTAT, 2025). While agricultural intensification tends to take place on more productive land, the decline of traditional agriculture on more marginal areas leads to abandonment of land and to the subsequent invasion of shrubs and trees (especially in eastern Europe and in the Mediterranean). This trend is affecting a wide range of species groups (Poole et al., 1998; Tucker & Heath, 1994) and is considered to be the second major threat to European butterflies, affecting threatened species such as *Phengaris arion*, *Lycaena helle*, *Melitaea aetherie*, and *Colias myrmidone*. (Note that in the IUCN Threats Classification Scheme version 3.3, this is coded under natural system modifications, see Figure 9).

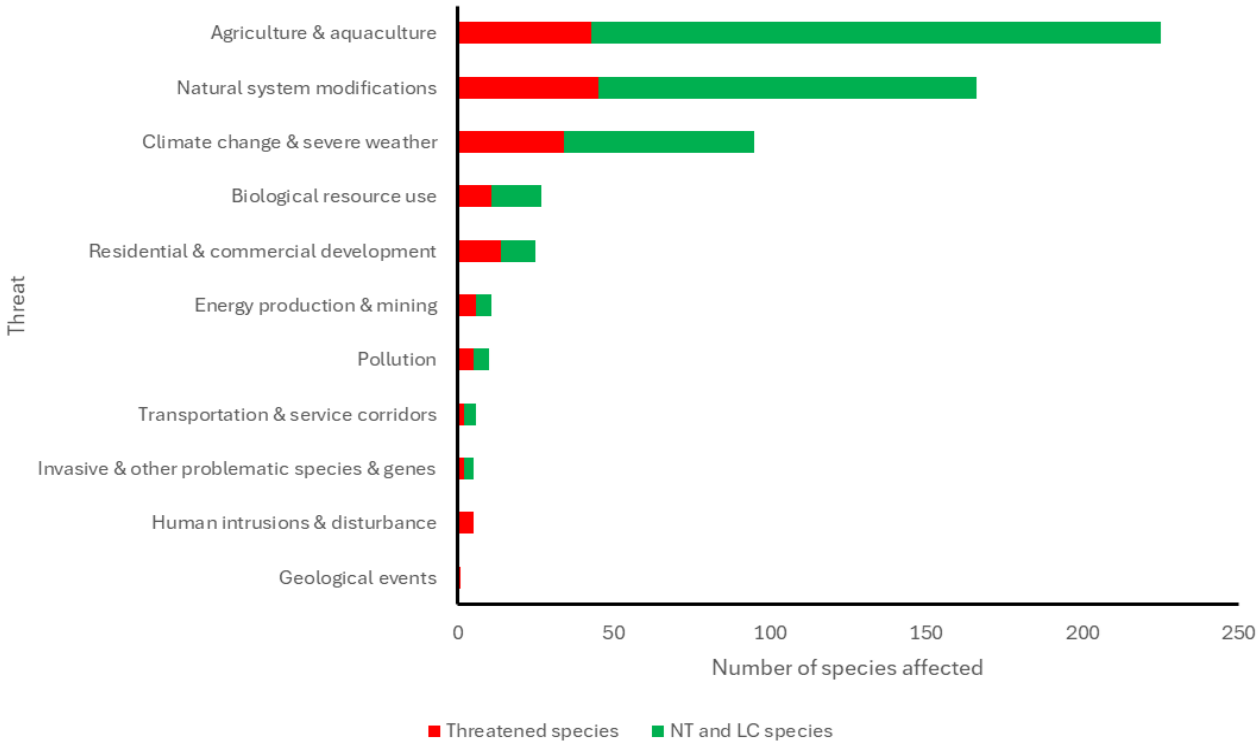

Figure 9. *Major threats to butterflies in Europe.*

The woodland area of Europe is steadily increasing, partly due to abandonment in mountain regions as mentioned above but also due to tree planting schemes and climate change. Some woodland butterflies have spread as a result, but many threatened and declining species rely on open areas, clearings, grass patches or woodland margins and require regular forest management (Van Swaay et al., 2006; Warren et al., 2021). Changes in the woodland management and especially lack of management are a major threat to these species.

Climate change

Over the last few decades, climate change has had a major impact on European butterflies. In this new assessment, 52% (34) of all threatened species in Europe are threatened by climate change and this number is expected to grow in future.

Climate change has led to the spread of many species, sometimes by many hundred kilometres north (e.g. Parmesan et al., 1999; Devictor et al., 2012; Sunde et al., 2023). However, it is now having a severe effect on several species whose habitats are changing rapidly, either due to extended hot periods of weather or extreme events such as drought and fire. Several cold-adapted species are shifting their distributions uphill as a result, often becoming rarer in the process (Wilson et al., 2005; Hill et al., 2021). Certain species that live solely on mountain tops are especially threatened, including some endemic species in the mountain ranges in southern Spain (Munguira et al., 2017). They include three Endangered species: *Agriades zullichi, Polyommatus golgus* and *Polyommatus violetae*.

Boloria improba *Dusky-winged Fritillary is a northern Alpine butterfly threatened by climate change in Scandinavia. As the climate warms, several northern Alpine butterflies are threatened by tree invasion of bog and tundra habitats. © Nils Ryrholm*

Eight montane species in Spain have also been added as Near Threatened because recent climate models predict that they will lose most of their climate space in the next 50 years (Romo et al., 2023). Other studies predict that many more species will become threatened in the future (Settele et al., 2008).

Climate change is threatening another suite of mainly Holarctic species in the northern Alpine/Boreal zones where warmer and drier conditions are allowing scrub to spread and encroach on sensitive bog and tundra habitats. Several species are now classed as Endangered as a result, including *Agriades aquilo, Boloria freija, Erebia disa* and *Oeneis bore* (which were assessed as Least Concern in 2010); *B.*

chariclea, *Euphydryas iduna* (Near Threatened in 2010); *B. polaris* (Vulnerable in 2010); and *B. improba* (Endangered in both assessments). In the Mediterranean region, climate change is adding new threats to species because of the increasing frequency of extreme drought and wildfires. This is threatening several endemic species that are confined to islands such as *Hipparchia christenseni* (on Karpathos), *H. tamadabae* (Gran Canaria), *H. tilosi* (La Palma), and *Gonepteryx cleobule* (Canary Islands).

Pieris wollastoni *is the only European butterfly species to become globally extinct. As far as can be ascertained there are no photographic images of this butterfly and the Museu Municipal do Funchal on Madeira holds only nine specimens (five females and four males) in its collection, though a few more are held in other museums. The female butterfly is more heavily marked than the male; the black markings in both sexes are better developed than in* P. brassicae *but less so than in* P. cheiranthi. © *Sam Ellis*

Wildfires are a growing problem in the Mediterranean region and threaten several island endemics in the Macaronesia Islands. © Yeray Monasterio León

3.7. Gaps in knowledge

Previous butterfly Red List assessments were largely based on collating the opinion of experts who reviewed species data for their countries. In contrast, this butterfly Red List assessment is based on an analysis of pan-European distribution and abundance data, a more quantitative approach although still moderated by expert opinion. Nevertheless, significant knowledge gaps remain, which means that for some species their assessments are still somewhat subjective and reliant on expert opinion. Particular gaps in knowledge that have been identified for the current assessment are as follows:

Distribution data

Although far more open access distribution data are available than in the past, some parts of Europe remain under-recorded (see also section 2.4). In general, distribution data, in terms of both extent and location precision, are more readily available for north-western Europe than for southern and eastern Europe. Furthermore, for some geographically restricted species, particularly in under-recorded or remote areas, too few surveys have been undertaken to accurately map their distributions at all. Limited datasets make calculating statistically meaningful distribution trends for some species more difficult, and in some cases impossible.

Monitoring data

Thanks to EU funded projects, butterfly monitoring schemes now exist in all EU Member States. These are collated by the European Butterfly Monitoring Scheme (eBMS). However, many country schemes have only recently been established and therefore have limited datasets, both in terms of the number of transects and the length of time they have been running. Butterfly monitoring schemes have been established in other non-EU European countries, but not in all. As with distribution data, monitoring schemes are more likely to be absent or less well established in countries in southern and eastern Europe than in north-west Europe.

In general, better quality monitoring data exists for more widely distributed species than for some geographically restricted species. This is because rare species are often located in remote or mountainous areas where it is difficult to monitor them by standard transect counts. The development of the 15-minute Count method by the eBMS is therefore particularly welcome, enabling some monitoring data to be collected in less accessible terrain.

As with distribution data, limited monitoring datasets make calculating statistically meaningful abundance trends for some species more difficult or not possible at all. However, we expect that statistically significant trends will become available for more species in the future if the eBMS gets more support from Member States and coverage improves.

Autecological studies

Butterflies remain one of the most intensively studied invertebrate taxa, especially in Europe. However, the ecology of only a minority of species has been studied in sufficient detail to understand their habitat requirements fully. Consequently, it can be difficult to identify either the threats to these species or the conservation actions required to improve their conservation status with precision.

For example, the majority of threatened species are dependent upon semi-natural grasslands and are therefore threatened by both agricultural intensification and abandonment. Whilst the extremes of both intensification and abandonment are likely to affect all such threatened grassland butterflies, for many species the effects of subtle changes to grazing regimes leading to overgrazing or undergrazing are less well understood. Many more autecological studies are needed of threatened species to plan effective conservation strategies.

4. Conservation action for European butterflies

4.1. Conservation management of butterflies in the European Union

The main mechanism to ensure the favourable management of butterflies in the EU is the Habitats Directive. This Directive lists 29 butterfly species and three sub-species, 22 of which are listed in Annex II, which requires the conservation of the habitats of these listed species. EU Member States are required to designate Special Areas of Conservation (Natura 2000 sites) for these species and to maintain and restore them to a 'Favourable Conservation Status'.

Unfortunately, most of the butterfly species listed in the Habitats Directive have continued to decline despite the introduction of this Directive and a number of the key habitats they use are in unfavourable condition. For example, over 80% of grasslands are rated in poor or bad condition (EEA 2020). Of the 28 butterfly species assessed in the recent Article 17 reports from Member States, 16 (57%) were in unfavourable condition in all bioregions where they occurred, 3 (11%) were mixed favourable and unfavourable, and nine were in favourable condition (32%) (BC Europe analysis of data).

The EU Biodiversity Strategy to 2030 includes specific actions and commitments to conserve, protect, and reverse EU's nature by 2030. Deriving from this strategy, the recent EU Nature Restoration Regulation sets out the overarching target to restore at least 20% of the EU's land and sea areas by 2030, and all ecosystems in need of restoration by 2050. The regulation includes the legally binding obligation to reverse pollinator decline by 2030 and improve pollinator diversity and populations thereafter under Article 10. In addition, Article 11 requires Member States to put in place measures to improve biodiversity in agricultural ecosystems by 2030 with butterfly monitoring and the Grassland Butterfly Indicator (calculated at Member State level), as one of the measures of success (Van Swaay et al., 2025). Moreover, Article 6 of the Habitats Directive states that for Special Areas of Conservation, Member States shall 'Establish the necessary conservation measures involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans, and appropriate statutory, administrative or contractual measures which correspond to the ecological requirements of the natural habitat types in Annex I and the species in Annex II present on the sites'. European funding instruments, such as the LIFE programme and Horizon Europe, support this requirement by providing the funding for research and management of these Special Areas of Conservation, with a number of projects including threatened butterflies species as part of their objectives.

In addition to more general guidelines to manage the habitats of protected butterfly species, specific Species Action Plans have been produced for the following butterflies: *Colias myrmidone* (Marhoul & Dolek, 2010); *Agriades zullichi* (Munguira et al., 2015a); *Euchloe bazae* (Munguira et al., 2015b); *Polyommatus golgus* (Munguira et al., 2015c); *Polyommatus violetae* (Munguira et al., 2015d); *Gonepteryx maderensis* (Ellis et al., 2022); *Pararge xiphia* (Teixeira et al., 2022); and *Pieris wollastoni* (Wiemers et al., 2022).

4.2. The Red List versus priority for conservation action

Assessment of extinction risk and setting conservation priorities are two related but different processes. Assessment of extinction risk, such as the assignment of IUCN Red List Categories, generally precedes the setting of conservation priorities. The purpose of the Red List categorization is to produce a relative estimate of the likelihood of extinction of a taxon. Setting conservation priorities, on the other hand, normally includes the assessment of extinction risk, but also takes into account other factors such as ecological, phylogenetic, historical, economical, or cultural preferences for some taxa over others, as well as the probability of success of conservation actions, availability of funds or personnel, cost-effectiveness, and legal frameworks for conservation of threatened taxa. In the context of regional risk assessments, a number of additional pieces of information are valuable for setting conservation priorities. For example, it is important to consider not only conditions within the region but also the status of the taxon from a global perspective and the proportion of the global population that occurs within the region. The decision on how these three variables, as well as other factors, are used for establishing conservation priorities is a matter for the regional authorities to determine.

The Black Hairstreak Satyrium pruni *is threatened by a lack of suitable woodland, scrub and hedgerow habitat management.* © Julia Moning

5. Recommendations

5.1. Recommended action

This report shows that the number of butterfly species under threat in Europe has increased considerably since the last assessment (from 81 to 125 species threatened or Near Threatened, Section 3.2).

In order to improve the conservation status of European butterflies and to reverse these negative trends, further conservation actions are urgently needed.

Butterfly Conservation Europe has published a list of Do's and Don'ts for species of the EU Habitats Directive, both the general principles and the requirements for each species (Van Swaay et al., 2012). Their main recommendations are applicable to most European butterflies:

- Manage at a landscape scale (because butterflies usually exist as networks of populations across the landscape and cannot survive in the long term unless habitats are connected).
- Maintain active pastoral systems (that are essential for many butterflies).
- Manage for variety (as each species has its own special requirements).
- Avoid uniform management, especially in hay meadows (as cutting can be harmful if done at the wrong time of year, but the best time varies from species to species and year to year).
- Maintain habitat mosaics (to create a variety of habitats for different species to breed).
- Maintain active management in woodland as this is often essential for threatened woodland butterflies.
- Have monitoring in place (to inform decisions on management and evaluate conservation progress).

Specific recommendations to conserve butterfly species are as follows:

Species and site protection

- Take European threatened species into account when revising relevant national and regional legislation.
- Protect and appropriately manage the network of Prime Butterfly Areas that have been identified in Europe as a priority (Van Swaay & Warren, 2003). In the European Union, these should be integrated into the Natura 2000 network.
- Improve the protection of butterfly habitats throughout Europe, at both the site and landscape-scale.

Survey, monitoring and ecological research

- Encourage European butterfly distribution recording and data flow by promoting the use of international, national and regional recording platforms.
- Undertake targeted surveys for those threatened European species whose distributions require confirmation.
- Encourage butterfly monitoring by transect and/or timed counts in all European

countries by maintaining and developing the European Butterfly Monitoring Scheme (currently collates and analyses data from 36 national/regional schemes from 30 countries).

- Use butterfly recording and monitoring data for future Red List and other priority assessments, and for assessing the impact of conservation measures and future environmental change, including climate change.

- Conduct further ecological research on threatened European species, including identifying habitat management preferences, to underpin conservation programmes.

Species conservation

- Draw up Species Action (Recovery) Plans (SAPs) for threatened European species, prioritising those where an SAP has been identified as an urgent conservation action.

- Develop and implement conservation projects for Europe's most threatened butterfly species.

Land management

- Produce and disseminate land management guidance for relevant European Priority Habitats and for European threatened species dependent on appropriate land management.

- Ensure that all semi-natural habitats are managed appropriately for threatened butterflies and ensure continuation of traditional agricultural and forestry management systems on which so many species depend.

- Develop measures to conserve entire landscapes in Europe and reduce the impact of habitat fragmentation and isolation.

- Research and develop measures to reduce the impact of climate change on threatened European butterflies.

Advocacy

- Use the Red List assessment data and analyses to produce a European butterfly atlas which highlights the ongoing threat to European butterflies and their habitats.

- Continue to use butterfly monitoring data to produce butterfly indicators to influence policy measures (e.g. Common Agricultural Policy) which can help conserve wildlife habitats in Europe.

Partnership building

- Sustain and develop the existing effective network of partners through Butterfly Conservation Europe to enable the above conservation measures for European threatened species to be co-ordinated and implemented.

- Engage with additional international partners, such as the IUCN and especially IUCN Species Survival Commission, on conservation planning and action.

5.2. Application of project outputs

This Butterfly Red List is part of a wider project aimed at comprehensively re-assessing several taxa, whose previous assessment is already, or is close to becoming, out of date: mammals, amphibians, reptiles, freshwater fishes, non-marine molluscs, butterflies, dragonflies, bees, a selection of saproxylic beetles, medicinal plants and a selection of vascular plants. It has gathered large amounts of data on the population, ecology, habitats, threats and recommended conservation measures for each species assessed. These data are freely available on the IUCN Red List website, on the European Commission website and through paper publications (see the list of European Red Lists published at the end of this report).

The European Red List of Butterflies provides a key resource for decision-makers, policy makers, resources managers, environmental planners and NGOs. This Red List is a dynamic tool that will evolve over time, as species are reassessed according to new information or situations. It is aimed at stimulating and supporting research, monitoring and conservation action at local, regional and international levels, especially for threatened or Near Threatened species.

The outputs of this project can be applied to inform policy, to identify priority sites and species to include in research and monitoring programmes and to identify internationally important areas for biodiversity. It also contributes to broadening the coverage of invertebrates on the global IUCN Red List, thanks to the assessment of endemic European butterflies.

5.3. Future work

Through the process of gathering and compiling butterfly data across Europe, several knowledge gaps have been identified. For example, there are still significant geographical biases in the quality and quantity of data available on the distribution and status of species. Gathering distribution data and monitoring changes in abundance are especially problematic for threatened or Near Threatened species of limited geographical range, especially for those butterflies restricted to remote regions. Further effort is therefore needed to document the distribution and population changes of European butterflies by increasing recording and monitoring efforts and expanding the European Butterfly Monitoring Scheme (see above).

This European Red List of Butterflies should be periodically updated, to enable the changing status of butterfly species to be tracked through time via the production of a Red List Index (Butchart et al., 2004, 2005, 2006, 2007). To date, this indicator has been produced for birds at the European regional level and was adopted as one of the headline biodiversity indicators to monitor progress towards halting biodiversity loss in Europe by 2010 (EEA, 2007), and is proposed as one of the tools to be used to monitor progress towards the targets of the strategy to 2030, alongside Red List assessments (Viti et al., 2024). By regularly updating the data presented here we will be able to track the changing fate of European butterflies to 2030 and beyond.

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Appendix 1

Summary of changes in taxonomy of European butterfly fauna since the first European Red List assessment in 2010.

Family	Species	Change since the previous European Red List of Butterflies
Papilionidae	*Iphiclides podalirius*	New restricted concept of *I. podaliruis* after the recognition of *Iphiclides feisthamelii* as a valid species.
Papilionidae	*Iphiclides feisthamelii*	Not assessed in 2009. This is a split from *Iphiclides podalirius* where it was previously considered a subspecies.
Hesperiidae	*Spialia sertorius*	New narrower concept of *S. sertorius* after the promotion of *Spalia rosae* as a valid species.
Hesperiidae	*Spialia rosae*	Not assessed in 2009. This is a split from *Spialia sertorius*.
Pieridae	*Leptidea juvernica*	Not assessed in 2009. This is a split from *Leptidea reali*.
Pieridae	*Leptidea reali*	New restricted concept of *L. reali* in recognition of *Leptidea juvernica* as a separate species.
Lycaenidae	*Iolana iolas*	New restricted concept of *I. iolas* after the recongition of *Iolana debilitate* as a valid species.
Lycaenidae	*Iolana debilitate*	Not assessed in 2009. This is a split from *Iolana iolas* where it was previously considered a subspecies.
Lycaenidae	*Polyommatus damone*	New taxonomic concept which includes *Polyommatus pljushtchi* which has been reduced to synonymy.
Lycaenidae	*Polyommatus pljushtchi*	Now considered to be a subspecies of *Polyommatus damone*.
Lycaenidae	*Polyommatus ripartii*	New taxonomic concept which includes *Polyommatus galloi* which has been reduced to synonymy.
Lycaenidae	*Polyommatus galloi*	Now considered to be a synonym of *Polyommatus ripartii*.
Lycaenidae	*Polyommatus violetae*	New taxonomic concept of *Polyommatus violetae* which includes *subbaeticus* which is now considered to be a subspecies of *P. violetae*.
Lycaenidae	*Polyommatus orphicus*	New taxonomic concept which includes *Polyommatus eleniae* which has been reduced to synonymy.
Lycaenidae	*Polyommatus eleniae*	Reduced to a synonym of *Polyommatus orphicus*.
Nymphalidae	*Melitaea phoebe*	New restricted concept of *M. phoebe* after the reconition of *Melitaea ornata* as a separate species.

Family	Species	Change since the previous European Red List of Butterflies
Nymphalidae	*Melitaea ornata*	Not assessed in 2009. This is a split from *Melitaea phoebe* following the revision of the group where it was previously considered a subspecies.
Nymphalidae	*Melitaea telona*	Following the revision of the *Melitaea phoebe* group, the revised species concept of *M. telona* no longer occurs within the ERL region.
Nymphalidae	*Meilitaea celadussa*	Not assessed in 2009. This is a split from *Melitaea athalia* where it was previously considered to be a subspecies.
Nymphalidae	*Melitaea athalia*	New restricted concept of *M. athalia* after the recognition of *Melitaea celadussa* as a valid species.
Nymphalidae	*Oeneis ammon*	Not assessed in 2009 as there were no records of this species in Europe at the time.
Nymphalidae	*Pseudochazara anthelea*	New narrower concept of *P. anthelea* after the recognition of *Pseudochazara amalthea* as a valid species.
Nymphalidae	*Pseudochazara amalthea*	Not asssessed in 2009. This is a split from *Pseudochazara anthelea* where it was previously considered a subspecies.
Nymphalidae	*Pseudochazara williamsi*	Not assessed in 2009. This is a split from the former *Pseudochazara hippolyte* (now *P. mercurius*).
Nymphalidae	*Pseudochazara mercurius*	New restricted concept of *P. mercurius* after the recognition of *Pseudochazara williamsi* as a valid species.
Nymphalidae	*Pseudochazara mniszechii*	New restricted concept of *P. mniszechii* after the promotion of *Pseudochazara tisiphone* from a subspecies of *P. mniszechii* to a separate species.
Nymphalidae	*Erebia cassioides*	New restricted concept of E. cassioides after the recognition of *Erebia arvernensis* and *Erebia neleus*.
Nymphalidae	*Erebia neleus*	Not assessed in 2009. This is a split from *Erebia cassioides* where it was previously considered a subspecies.
Nymphalidae	*Erebia arvernensis*	Not assessed in 2009. This is a split from *Erebia cassioides* where it was previously considered a subspecies.

Appendix 2

Full list of European Red List of butterflies assessed.

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
PAPILIONIDAE								
Iphiclides podalirius	Scarce Swallowtail	LC		LC				Palearctic
Iphiclides feisthamelii	Iberian Scarce Swallowtail	LC		LC				Western Palearctic
Papilio alexanor	Southern Swallowtail	NT	A2c	NT	A2c			Western Palearctic
Papilio machaon	Swallowtail	LC		LC				Range extends outside the Palaearctic and Holarctic
Papilio hospiton	Corsican Swallowtail	LC		LC		Yes	Yes	Europe
Papilio demoleus	Lime Swallowtail	NA		NA				Range extends outside the Palaearctic and Holarctic
Parnassius mnemosyne	Clouded Apollo	LC		LC				Western Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Parnassius phoebus	Small Apollo	LC		LC				Holarctic
Parnassius apollo	Apollo	LC		LC				Palearctic
Archon apollinus	False Apollo	VU	B2ab(v)	VU	B2ab(v)			Western Palearctic
Zerynthia cerisy	Eastern Festoon	LC		LC				Western Palearctic
Zerynthia cretica	Cretan Festoon	NT	B1b(iii,v)+2b(iii,v)	NT	B1b(iii,v)+2b(iii,v)	Yes	Yes	Europe
Zerynthia rumina	Spanish Festoon	LC		LC				Western Palearctic
Zerynthia polyxena	Southern Festoon	LC		LC				Western Palearctic
Zerynthia cassandra	Italian Festoon	LC		LC		Yes	Yes	Europe
HESPERIIDAE								
Heteropterus morpheus	Large Chequered Skipper	LC		LC				Palearctic
Carterocephalus silvicola	Northern Chequered Skipper	NT	A2b	VU	A2b			Palearctic
Carterocephalus palaemon	Chequered Skipper	NT	A2b	VU	A2b			Holarctic
Pelopidas thrax	Millet Skipper	NA		NA				Range extends outside the Palaearctic and Holarctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Borbo borbonica	Zeller's Skipper	NA		NA				Range extends outside the Palaearctic and Holarctic
Gegenes pumilio	Pygmy Skipper	LC		LC				Range extends outside the Palaearctic and Holarctic
Gegenes nostrodamus	Mediterranean Skipper	LC		LC				Western Palearctic
Ochlodes sylvanus	Large Skipper	LC		LC				Palearctic
Hesperia comma	Silver-spotted Skipper	LC		LC				Holarctic
Thymelicus christi	Canarian Skipper	LC		LC		Yes	Yes	Europe
Thymelicus acteon	Lulworth Skipper	LC		LC				Western Palearctic
Thymelicus hyrax	Levantine Skipper	LC		LC				Western Palearctic
Thymelicus sylvestris	Small Skipper	VU	A2b	VU	A2b			Western Palearctic
Thymelicus lineola	Essex Skipper	VU	A2b	EN	A2b			Range extends outside the Palaearctic and Holarctic
Thymelicus hamza	Moroccan Small Skipper	NA		NA				Western Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Spialia phlomidis	Persian Skipper	LC		LC				Western Palearctic
Spialia sertorius	Red-underwing Skipper	LC		LC				Western Palearctic
Spialia therapne	Corsican Red-underwing Skipper	LC		LC		Yes	Yes	Europe
Spialia rosae	Spanish Red-underwing Skipper	LC		LC		Yes	Yes	Europe
Spialia orbifer	Hungarian Skipper	NT	A2c	NT	A2c			Palearctic
Spialia ali		NA		NA				Western Palearctic
Carcharodus tripolinus	False Mallow Skipper	LC		LC				Western Palearctic
Carcharodus alceae	Mallow Skipper	LC		LC				Palearctic
Muschampia cribrellum	Spinose Skipper	VU	B2ab(iii,v)	VU	B2ab(iii,v)			Palearctic
Muschampia tessellum	Tessellated Skipper	LC		EN	B2ab(iii,v)			Palearctic
Muschampia proto	Sage Skipper	LC		LC				Western Palearctic
Carcharodus lavatherae	Marbled Skipper	NT	A2b	NT	A2b			Western Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Carcharodus orientalis	Oriental Marbled Skipper	LC		LC				Western Palearctic
Carcharodus floccifera	Tufted Marbled Skipper	LC		LC				Western Palearctic
Carcharodus stauderi	Eastern Marbled Skipper	NA		NA				Western Palearctic
Carcharodus baeticus	Southern Marbled Skipper	VU	A2c	VU	A2c	Yes		Europe
Erynnis tages	Dingy Skipper	LC		NT	A2b			Palearctic
Erynnis marloyi	Inky Skipper	LC		LC				Western Palearctic
Pyrgus malvoides	Southern Grizzled Skipper	NT	A2b	NT	A2b	Yes		Europe
Pyrgus malvae	Grizzled Skipper	NT	A2b	NT	A2b			Palearctic
Pyrgus carthami	Safflower Skipper	LC		LC				Western Palearctic
Pyrgus sidae	Yellow-banded Skipper	LC		LC				Western Palearctic
Pyrgus centaureae	Northern Grizzled Skipper	VU	B2ab(iii,v)	VU	B2ab(iii,v)			Holarctic
Pyrgus cacaliae	Dusky Grizzled Skipper	LC		LC		Yes		Europe
Pyrgus andromedae	Alpine Grizzled Skipper	LC		LC		Yes		Europe
Pyrgus serratulae	Olive Skipper	LC		LC				Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Pyrgus armoricanus	Oberthür's Grizzled Skipper	LC		LC				Western Palearctic
Pyrgus alveus	Large Grizzled Skipper	LC		LC				Palearctic
Pyrgus warrenensis	Warren's Skipper	LC		LC		Yes		Europe
Pyrgus foulquieri	Foulquier's Grizzled Skipper	LC		LC		Yes	Yes	Europe
Pyrgus onopordi	Rosy Grizzled Skipper	NT	A2c	NT	A2c			Western Palearctic
Pyrgus carlinae	Carline Skipper	LC		LC		Yes		Europe
Pyrgus cirsii	Cinquefoil Skipper	LC		LC				Western Palearctic
Pyrgus cinarae	Sandy Grizzled Skipper	LC		LC				Western Palearctic
PIERIDAE								
Leptidea duponcheli	Eastern Wood White	LC		LC				Western Palearctic
Leptidea morsei	Fenton's Wood White	VU	B2ab(iii)	VU	B2ab(iii)			Palearctic
Leptidea juvernica	Cryptic Wood White	LC		LC				Palearctic
Leptidea sinapis	Wood White	LC		LC				Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Leptidea reali	Réal's Wood White	LC		LC		Yes		Europe
Gonepteryx rhamni	Brimstone	LC		LC				Western Palearctic
Gonepteryx cleobule	Canary Brimstone	EN	B2ab(iii)	EN	B2ab(iii)	Yes	Yes	Europe
Gonepteryx cleopatra	Cleopatra	LC		LC				Western Palearctic
Gonepteryx maderensis	Madeiran Brimstone	EN	B1ab(iii,iv,v)+B2ab(iii,iv,v)	EN	B1ab(iii,iv,v)+B2ab(iii,iv,v)	Yes	Yes	Europe
Gonepteryx farinosa	Powdered Brimstone	LC		LC				Western Palearctic
Catopsilia florella	African Migrant	NA		NA				Range extends outside the Palaearctic and Holarctic
Colias hyale	Pale Clouded Yellow	LC		LC				Palearctic
Colias alfacariensis	Berger's Clouded Yellow	LC		LC				Western Palearctic
Colias phicomone	Mountain Clouded Yellow	LC		LC		Yes		Europe
Colias aurorina	Greek Clouded Yellow	LC		LC				Western Palearctic
Colias chrysotheme	Lesser Clouded Yellow	EN	B2ab(ii)	EN	B2ab(ii)			Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Colias erate	Eastern Pale Clouded Yellow	LC		LC				Western Palearctic
Colias crocea	Clouded Yellow	LC		LC				Western Palearctic
Colias myrmidone	Danube Clouded Yellow	VU	B2ab(i,ii,iii,iv,v)	EN	B2ab(i,ii,iii,iv,v)			Western Palearctic
Colias caucasica	Balkan Clouded Yellow	VU	B2ab(iii,v)c(iv)	VU	B2ab(iii,v)c(iv)			Western Palearctic
Colias palaeno	Moorland Clouded Yellow	LC		NT	A2c			Holarctic
Colias tyche	Pale Arctic Clouded Yellow	VU	A2c; B2ab(iii)	EN	B2ab(iii)			Holarctic
Colias hecla	Northern Clouded Yellow	VU	A2c; B2ab(iii)	EN	B2ab(iii)			Holarctic
Colotis evagore	Desert Orange-tip	LC		LC				Range extends outside the Palaearctic and Holarctic
Aporia crataegi	Black-veined White	LC		LC				Palearctic
Pontia chloridice	Small Bath White	EN	B2ab(v)	EN	B2ab(v)			Palearctic
Pontia callidice	Peak White	LC		LC				Palearctic
Pontia edusa	Eastern Bath White	LC		LC				Palearctic
Pontia daplidice	Bath White	LC		LC				Western Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Pieris krueperi	Krueper's Small White	NT	B2a	NT	B2a			Western Palearctic
Pieris brassicae	Large White	LC		LC				Palearctic
Pieris wollastoni	Madeiran Large White	EX		EX		Yes	Yes	Europe
Pieris cheiranthi	Canary Islands Large White	EN	B2b(ii,iii)c(iv)	EN	B2b(ii,iii)c(iv)	Yes	Yes	Europe
Pieris rapae	Small White	LC		LC				Range extends outside the Palaearctic and Holarctic
Pieris mannii	Southern Small White	LC		LC				Western Palearctic
Pieris ergane	Mountain Small White	LC		LC				Western Palearctic
Pieris bryoniae	Mountain Green-veined White	LC		LC				Western Palearctic
Pieris napi	Green-veined White	LC		LC				Palearctic
Pieris balcana	Balkan Green-veined White	LC		LC		Yes		Europe
Euchloe tagis	Portuguese Dappled White	LC		LC				Western Palearctic
Euchloe eversi	Tenerife Green-striped White	NT	B1b(iii)+B2b(iii)	NT	B1b(iii)+B2b(iii)	Yes	Yes	Europe

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Euchloe grancanariensis	Gran Canarian Green-striped White	NT	B1b(iii)+B2b(iii)	NT	B1b(iii)+B2b(iii)	Yes	Yes	Europe
Euchloe hesperidum	Fuerteventura Green-striped White	LC		LC		Yes	Yes	Europe
Euchloe belemia	Green-striped White	LC		LC				Range extends outside the Palaearctic and Holarctic
Euchloe insularis	Corsican Dappled White	LC		LC		Yes	Yes	Europe
Euchloe crameri	Western Dappled White	LC		LC				Western Palearctic
Euchloe simplonia	Mountain Dappled White	LC		LC		Yes		Europe
Euchloe ausonia	Eastern Dappled White	LC		LC				Palearctic
Euchloe charlonia	Greenish Black-tip	LC		LC				Western Palearctic
Euchloe penia	Eastern Greenish Black-tip	NT	B2a	NT	B2a			Western Palearctic
Euchloe bazae	Spanish Greenish Black-tip	EN	B2ab(i,ii,iiii,iv)	EN	B2ab(i,ii,iiii,iv)	Yes	Yes	Europe

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Zegris pyrothoe	Eversmann's Sooty Orange-tip	NA						Western Palearctic
Zegris eupheme	Sooty Orange-tip	NT	B2b(iv)	NT	B2b(iv)			Western Palearctic
Anthocharis euphenoides	Provence Orange-tip	LC		LC		Yes		Europe
Anthocharis cardamines	Orange-tip	LC		LC				Palearctic
Anthocharis gruneri	Grüner's Orange-tip	LC		LC				Western Palearctic
Anthocharis damone	Eastern Orange-tip	EN	B2ab(v)	EN	B2ab(v)			Western Palearctic
Anthocharis belia	Moroccan Orange-tip	NA		NA				Western Palearctic
RIODINIDAE								
Hamearis lucina	Duke of Burgundy	LC		LC				Western Palearctic
LYCAENIDAE								
Lycaena dimorpha		NA						Western Palearctic
Lycaena helle	Violet Copper	NT	A2c	NT	A2c			Palearctic
Lycaena alciphron	Purple-shot Copper	LC		LC				Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Lycaena thetis	Fiery Copper	NA		NA				Western Palearctic
Lycaena thersamon	Lesser Fiery Copper	LC		LC				Western Palearctic
Lycaena dispar	Large Copper	LC		LC				Palearctic
Lycaena hippothoe	Purple-edged Copper	LC		LC				Palearctic
Lycaena candens	Balkan Copper	LC		LC				Western Palearctic
Lycaena ottomana	Grecian Copper	LC		LC				Western Palearctic
Lycaena bleusei	Iberian Sooty Copper	LC		LC		Yes	Yes	Europe
Lycaena phlaeas	Small Copper	LC		LC				Range extends outside the Palaearctic and Holarctic
Lycaena virgaureae	Scarce Copper	LC		NT	A2b			Palearctic
Lycaena tityrus	Sooty Copper	LC		LC				Western Palearctic
Cigaritis acamas	Levantine Leopard	NA		NA				Range extends outside the Palaearctic and Holarctic
Deudorix livia	Pomegranate Hairstreak	NA		NA				Range extends outside the Palaearctic and Holarctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Thecla betulae	Brown Hairstreak	LC		LC				Palearctic
Favonius quercus	Purple Hairstreak	LC		LC				Western Palearctic
Laeosopis roboris	Spanish Purple Hairstreak	LC		LC		Yes		Europe
Tomares ballus	Provence Hairstreak	LC		LC				Western Palearctic
Tomares nogelii	Nogel's Hairstreak	NT	B2a	VU	D2			Western Palearctic
Tomares callimachus	Caucasian Vernal Copper	LC						Western Palearctic
Tomares mauretanicus	Moroccan Hairstreak	NA		NA				Western Palearctic
Callophrys avis	Chapman's Green Hairstreak	NT	A2b	NT	A2b			Western Palearctic
Callophrys suaveola	Alpine Green Hairstreak	NA						Palearctic
Callophrys rubi	Green Hairstreak	LC		LC				Palearctic
Callophrys chalybeitincta	Sovinsky's Green Hairstreak	NA						Western Palearctic
Neolycaena rhymnus		LC						Western Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Satyrium pruni	Black Hairstreak	VU	A2c	VU	A2c			Palearctic
Satyrium ilicis	Ilex Hairstreak	LC		LC				Western Palearctic
Satyrium esculi	False Ilex Hairstreak	LC		LC				Western Palearctic
Satyrium ledereri	Orange-banded Hairstreak	NA		NA				Western Palearctic
Satyrium w-album	White-letter Hairstreak	LC		LC				Palearctic
Satyrium spini	Blue-spot Hairstreak	VU	A2b	VU	A2b			Western Palearctic
Satyrium acaciae	Sloe Hairstreak	LC		LC				Western Palearctic
Leptotes pirithous	Lang's Short-tailed Blue	LC		LC				Range extends outside the Palaearctic and Holarctic
Cyclyrius webbianus	Canary Blue	NT	B2c(iv)	NT	B2c(iv)	Yes	Yes	Europe
Azanus ubaldus	Desert Babul Blue	NA		NA				Range extends outside the Palaearctic and Holarctic
Azanus jesous	African Babul Blue	NA		NA				Range extends outside the Palaearctic and Holarctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Lampides boeticus	Long-tailed Blue	LC		LC				Range extends outside the Palaearctic and Holarctic
Cacyreus marshalli	Geranium Bronze	NA		NA				Range extends outside the Palaearctic and Holarctic
Celastrina argiolus	Holly Blue	LC		LC				Palearctic
Tarucus theophrastus	Common Tiger Blue	NT	B2b(iii)	NT	B2b(iii)			Range extends outside the Palaearctic and Holarctic
Tarucus balkanicus	Little Tiger Blue	LC		LC				Range extends outside the Palaearctic and Holarctic
Phengaris alcon	Alcon Blue	NT	A2c	NT	A2c			Palearctic
Phengaris arion	Large Blue	NT	A2c	NT	A2c			Palearctic
Phengaris teleius	Scarce Large Blue	VU	A2c	VU	A2c			Palearctic
Phengaris nausithous	Dusky Large Blue	NT	A2b	NT	A2b			Western Palearctic
Turanana taygetica	Odd-spot Blue	EN	B1ab(v)+B2ab(v)	EN	B1ab(v)+B2ab(v)			Western Palearctic
Pseudophilotes bavius	Bavius Blue	LC		LC				Western Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Pseudophilotes barbagiae	Sardinian Blue	EN	B2ab(iii)	EN	B2ab(iii)	Yes	Yes	Europe
Pseudophilotes abencerragus	False Baton Blue	LC		LC				Western Palearctic
Pseudophilotes panoptes	Panoptes Blue	LC		LC		Yes	Yes	Europe
Pseudophilotes vicrama	Eastern Baton Blue	LC		LC				Palearctic
Pseudophilotes baton	Baton Blue	LC		LC		Yes		Europe
Scolitantides orion	Chequered Blue	LC		LC				Palearctic
Praephilotes anthracias		NA						Palearctic
Iolana iolas	Iolas Blue	NT	A2c	NT	A2c			Western Palearctic
Iolana debilitata		LC		LC				Western Palearctic
Glaucopsyche melanops	Black-eyed Blue	LC		LC				Western Palearctic
Glaucopsyche paphos	Paphos Blue	LC		LC		Yes	Yes	Europe
Glaucopsyche alexis	Green-underside Blue	LC		LC				Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Zizeeria knysna	African Grass Blue	LC		LC				Range extends outside the Palaearctic and Holarctic
Zizeeria karsandra	Dark Grass Blue	NA		NA				Range extends outside the Palaearctic and Holarctic
Tongeia fischeri	Fischer's Blue	NA						Palearctic
Cupido argiades	Short-tailed Blue	LC		LC				Palearctic
Cupido decoloratus	Eastern Short-tailed Blue	LC		LC				Western Palearctic
Cupido alcetas	Provençal Short-tailed Blue	LC		LC				Western Palearctic
Cupido osiris	Osiris Blue	LC		NT	A2b			Palearctic
Cupido minimus	Small Blue	NT	A2b	NT	A2b			Palearctic
Cupido lorquinii	Lorquin's Blue	LC		LC				Western Palearctic
Luthrodes galba	Small Desert Blue	NA		NA				Western Palearctic
Freyeria trochylus	Grass Jewel	LC		LC				Range extends outside the Palaearctic and Holarctic
Plebejus argus	Silver-studded Blue	LC		LC				Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Plebejus idas	Idas Blue	LC		LC				Holarctic
Plebejus bellieri	Bellier's Blue	LC		LC		Yes	Yes	Europe
Plebejus argyrognomon	Reverdin's Blue	LC		LC				Palearctic
Agriades orbitulus	Alpine Blue	LC		LC				Palearctic
Agriades optilete	Cranberry Blue	VU	A2c	VU	A2c			Holarctic
Agriades pyrenaicus	Gavarnie Blue	LC		LC		Yes	Yes	Europe
Agriades dardanus	Bosnian Blue	EN	B2ab(v)c(iv)	CR	B1ab(v)c(iv)			Western Palearctic
Agriades zullichi	Zullich´s Blue	EN	B1ab(v)c(iv)+2ab(v)c(iv)	EN	B1ab(v)c(iv)+2ab(v)c(iv)	Yes	Yes	Europe
Agriades glandon	Glandon Blue	LC		LC		Yes		Europe
Agriades aquilo	Arctic Blue	EN	B2ab(iii,v)c(iv)	EN	B2ab(iii,v)c(iv)			Holarctic
Plebejidea loewii	Loew's Blue	NA		NA				Western Palearctic
Eumedonia eumedon	Geranium Argus	LC		VU	A2b			Palearctic
Kretania psylorita	Cretan Argus	NT	B1a+B2a	NT	B1a+B2a	Yes	Yes	Europe
Kretania hesperica	Spanish Zephyr Blue	NT	B2a	NT	B2a	Yes	Yes	Europe
Kretania eurypilus	Eastern Brown Argus	NA		NA				Western Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Kretania trappi	Alpine Zephyr Blue	EN	B1ab(iii,iv,v)+B2ab(iii,iv,v)	EN	B1ab(iii,iv,v)+B2ab(iii,iv,v)	Yes		Europe
Kretania sephirus	Balkan Zephyr Blue	LC		LC				Western Palearctic
Kretania pylaon	Zephyr Blue	NA						Western Palearctic
Cyaniris semiargus	Mazarine Blue	LC		LC				Palearctic
Glabroculus cyane		NA						Palearctic
Aricia morronensis	Spanish Argus	LC		LC		Yes		Europe
Aricia anteros	Blue Argus	LC		LC				Western Palearctic
Aricia cramera	Southern Brown Argus	LC		LC				Western Palearctic
Aricia nicias	Silvery Argus	LC		LC				Western Palearctic
Aricia artaxerxes	Northern Brown Argus	LC		LC				Western Palearctic
Aricia montensis	Southern Mountain Argus	LC		LC				Western Palearctic
Aricia agestis	Brown Argus	LC		LC				Palearctic
Neolysandra coelestina	Pontic Blue	NT	B2a	EN	B1ab(v)+B2ab(v)			Western Palearctic
Lysandra hispana	Provence Chalkhill Blue	LC		LC		Yes	Yes	Europe

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Lysandra bellargus	Adonis Blue	NT	A2b	NT	A2b			Western Palearctic
Lysandra coridon	Chalkhill Blue	LC		LC		Yes		Europe
Lysandra caelestissima	Azure Chalkhill Blue	LC		LC		Yes	Yes	Europe
Lysandra albicans	Spanish Chalkhill Blue	LC		LC				Western Palearctic
Polyommatus escheri	Escher's Blue	LC		LC				Western Palearctic
Polyommatus thersites	Chapman's Blue	LC		LC				Palearctic
Polyommatus daphnis	Meleager's Blue	LC		LC				Western Palearctic
Polyommatus amandus	Amanda's Blue	LC		LC				Palearctic
Polyommatus golgus	Nevada Blue	EN	B1ab(iii,v)+B2ab(iii,v)	EN	B1ab(iii,v)+B2ab(iii,v)	Yes	Yes	Europe
Polyommatus nivescens	Mother-of-Pearl Blue	LC		LC		Yes	Yes	Europe
Polyommatus dorylas	Turquoise Blue	LC		LC				Western Palearctic
Polyommatus celina	Southern Blue	LC		LC				Western Palearctic
Polyommatus icarus	Common Blue	LC		LC				Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Polyommatus eros	Eros Blue	LC		LC				Palearctic
Polyommatus damon	Damon Blue	LC		LC				Palearctic
Polyommatus damone	Crimean Blue	LC						Palearctic
Polyommatus damocles		NA						Western Palearctic
Polyommatus admetus	Anomalous Blue	LC		LC				Western Palearctic
Polyommatus ripartii	Ripart's Anomalous Blue	NT	A2c	NT	A2c			Palearctic
Polyommatus nephohiptamenos	Higgins' Anomalous Blue	EN	B1ab(iii,v)+B2ab(iii,v)	EN	B1ab(iii,v)+B2ab(iii,v)	Yes	Yes	Europe
Polyommatus iphigenia	Chelmos Blue	NA		NA				Western Palearctic
Polyommatus violetae	Andalusian Anomalous Blue	EN	B2ab(iv)	EN	B2ab(iv)	Yes	Yes	Europe
Polyommatus fulgens	Catalonian Furry Blue	LC		LC		Yes	Yes	Europe
Polyommatus fabressei	Oberthür's Anomalous Blue	NT	B2a	NT	B2a	Yes	Yes	Europe
Polyommatus dolus	Furry Blue	NT	B2b(iv,v)	NT	B2b(iv,v)	Yes	Yes	Europe

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Polyommatus humedasae	Piedmont Anomalous Blue	CR	B1ab(iii,iv)	CR	B1ab(iii,iv)	Yes	Yes	Europe
Polyommatus timfristos		NT	B2a	NT	B2a	Yes	Yes	Europe
Polyommatus orphicus	Kolev's Anomalous Blue	EN	B1ab(iii)+B2ab(iii)	EN	B1ab(iii)+B2ab(iii)	Yes		Europe
Polyommatus aroaniensis	Grecian Anomalous Blue	LC		LC		Yes	Yes	Europe
NYMPHALIDAE								
Neptis sappho	Common Glider	LC		LC				Range extends outside the Palaearctic and Holarctic
Neptis rivularis	Hungarian Glider	LC		LC				Palearctic
Limenitis reducta	Southern White Admiral	LC		LC				Western Palearctic
Limenitis populi	Poplar Admiral	LC		NT	A2c			Palearctic
Limenitis camilla	White Admiral	LC		LC				Palearctic
Issoria lathonia	Queen of Spain Fritillary	LC		LC				Western Palearctic
Issoria eugenia		NA						Palearctic
Brenthis hecate	Twin-spot Fritillary	LC		LC				Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Brenthis ino	Lesser Marbled Fritillary	LC		LC				Palearctic
Brenthis daphne	Marbled Fritillary	LC		LC				Palearctic
Argynnis paphia	Silver-washed Fritillary	LC		LC				Range extends outside the Palaearctic and Holarctic
Argynnis pandora	Cardinal	LC		LC				Palearctic
Argynnis laodice	Pallas' Fritillary	LC		LC				Range extends outside the Palaearctic and Holarctic
Speyeria aglaja	Dark Green Fritillary	LC		LC				Palearctic
Fabriciana elisa	Corsican Fritillary	LC		LC		Yes	Yes	Europe
Fabriciana niobe	Niobe Fritillary	LC		LC				Palearctic
Fabriciana adippe	High Brown Fritillary	LC		LC				Western Palearctic
Boloria eunomia	Bog Fritillary	LC		LC				Holarctic
Boloria graeca	Balkan Fritillary	LC		LC				Western Palearctic
Boloria pales	Shepherd's Fritillary	LC		LC		Yes		Europe
Boloria alaskensis	Alaskan Fritillary	NA						Holarctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Boloria napaea	Mountain Fritillary	LC		LC				Holarctic
Boloria aquilonaris	Cranberry Fritillary	LC		NT	A2c			Palearctic
Boloria tritonia		NA						Palearctic
Boloria polaris	Polar Fritillary	EN	B2ab(i,ii,iii,iv)c(iii,iv)	EN	B2ab(i,ii,iii,iv)c(iii,iv)			Holarctic
Boloria thore	Thor's Fritillary	LC		LC				Palearctic
Boloria selene	Small Pearl-bordered Fritillary	LC		LC				Holarctic
Boloria euphrosyne	Pearl-bordered Fritillary	LC		LC				Palearctic
Boloria dia	Weaver's Fritillary	LC		LC				Palearctic
Boloria improba	Dusky-winged Fritillary	EN	B2ab(iii,v)c(iv)	EN	B2ab(iii,v)c(iv)			Holarctic
Boloria frigga	Frigga's Fritillary	VU	A2c; B2ab(ii,iii)	VU	A2c; B2ab(ii,iii)			Holarctic
Boloria freija	Frejya's Fritillary	EN	A2c	EN	A2c			Holarctic
Boloria selenis		NA						Palearctic
Boloria oscarus		NA						Palearctic
Boloria titania	Titania's Fritillary	LC		LC				Palearctic
Boloria chariclea	Arctic Fritillary	EN	A2c; B2ab(ii,iii,v)c(iv)	EN	A2c; B2ab(ii,iii,v)c(iv)			Holarctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Boloria angarensis		NA						Palearctic
Apatura iris	Purple Emperor	LC		LC				Palearctic
Apatura metis	Freyer's Purple Emperor	LC		LC				Palearctic
Apatura ilia	Lesser Purple Emperor	LC		LC				Palearctic
Araschnia levana	Map	LC		LC				Palearctic
Vanessa virginiensis	American Painted Lady	NA		NA				Range extends outside the Palaearctic and Holarctic
Vanessa cardui	Painted Lady	LC		LC				Range extends outside the Palaearctic and Holarctic
Vanessa vulcania	Canary Red Admiral	LC		LC		Yes	Yes	Europe
Vanessa atalanta	Red Admiral	LC		LC				Holarctic
Aglais io	Peacock	LC		LC				Palearctic
Aglais urticae	Small Tortoiseshell	NT	A2b	NT	A2b			Palearctic
Aglais ichnusa	Corsican Small Tortoiseshell	LC		LC		Yes	Yes	Europe

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Polygonia egea	Southern Comma	LC		LC				Western Palearctic
Polygonia c-album	Comma	LC		LC				Palearctic
Nymphalis vaualbum	False Comma	LC		LC				Holarctic
Nymphalis polychloros	Large Tortoiseshell	LC		LC				Western Palearctic
Nymphalis xanthomelas	Yellow-legged Tortoiseshell	LC		LC				Palearctic
Nymphalis antiopa	Camberwell Beauty	LC		NT	A2b			Holarctic
Hypolimnas misippus	Danaid Eggfly	NA		NA				Range extends outside the Palaearctic and Holarctic
Euphydryas desfontainii	Spanish Fritillary	LC		LC				Western Palearctic
Euphydryas aurinia	Marsh Fritillary	LC		LC				Palearctic
Euphydryas cynthia	Cynthia's Fritillary	LC		LC		Yes		Europe
Euphydryas iduna	Lapland Fritillary	EN	A2c; B2ab(ii,iii,iv,v)c(iv)	EN	A2c; B2ab(ii,iii,iv,v)c(iv)			Palearctic
Euphydryas maturna	Scarce Fritillary	VU	A2c	VU	A2c			Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Euphydryas intermedia	Asian Fritillary	LC		LC				Palearctic
Melitaea trivia	Lesser Spotted Fritillary	LC		LC				Palearctic
Melitaea didyma	Spotted Fritillary	LC		LC				Western Palearctic
Melitaea arduinna	Freyer's Fritillary	LC		LC				Western Palearctic
Melitaea aetherie	Aetherie Fritillary	EN	B2ab(iii,iv)	EN	B2ab(iii,iv)			Western Palearctic
Melitaea phoebe	Knapweed Fritillary	LC		LC				Palearctic
Melitaea ornata	Eastern Knapweed Fritillary	LC		LC				Western Palearctic
Melitaea cinxia	Glanville Fritillary	LC		LC				Palearctic
Melitaea diamina	False Heath Fritillary	LC		LC				Palearctic
Melitaea celadussa	Southern Heath Fritillary	LC		LC		Yes		Europe
Melitaea deione	Provençal Fritillary	LC		LC				Western Palearctic
Melitaea britomartis	Assmann's Fritillary	NT	B2b(iii,v)	NT	B2b(iii,v)			Palearctic
Melitaea athalia	Heath Fritillary	LC		LC				Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Melitaea varia	Grisons Fritillary	LC		LC		Yes		Europe
Melitaea parthenoides	Meadow Fritillary	LC		LC		Yes		Europe
Melitaea aurelia	Nickerl's Fritillary	LC		LC				Western Palearctic
Melitaea asteria	Little Fritillary	EN	B2ab(i,ii,iv)c(iv)	EN	B2ab(i,ii,iv)c(iv)	Yes		Europe
Libythea celtis	Nettle-tree Butterfly	LC		LC				Western Palearctic
Danaus plexippus	Monarch	NA		NA				Range extends outside the Palaearctic and Holarctic
Danaus chrysippus	Plain Tiger	NA		NA				Range extends outside the Palaearctic and Holarctic
Charaxes jasius	Two-tailed Pasha	LC		LC				Range extends outside the Palaearctic and Holarctic
Coenonympha phryne	Pallas' Heath	CR	B1ab(v)					Western Palearctic
Coenonympha oedippus	False Ringlet	NT	B2ab(iii,v)	NT	B2ab(iii,v)			Palearctic
Coenonympha dorus	Dusky Heath	LC		LC				Western Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Coenonympha thyrsis	Cretan Small Heath	LC		LC		Yes	Yes	Europe
Coenonympha pamphilus	Small Heath	LC		LC				Western Palearctic
Coenonympha tullia	Large Heath	EN	A2b	VU	A2c			Holarctic
Coenonympha rhodopensis	Eastern Large Heath	LC		LC		Yes		Europe
Coenonympha amaryllis	Mustang Heath	NA						Palearctic
Coenonympha glycerion	Chestnut Heath	LC		LC				Palearctic
Coenonympha corinna	Corsican Heath	LC		LC		Yes	Yes	Europe
Coenonympha leander	Russian Heath	LC		LC				Western Palearctic
Coenonympha hero	Scarce Heath	LC		LC				Palearctic
Coenonympha gardetta	Alpine Heath	LC		LC		Yes		Europe
Coenonympha orientalis	Balkan Heath	NT	B2b(iii,v)	NT	B2b(iii,v)	Yes		Europe
Coenonympha arcania	Pearly Heath	LC		LC				Western Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Coenonympha arcanioides	Moroccan Pearly Heath	NA		NA				Western Palearctic
Kirinia roxelana	Lattice Brown	LC		LC				Western Palearctic
Kirinia climene	Lesser Lattice Brown	LC		LC				Western Palearctic
Lopinga achine	Woodland Brown	NT	A2c	NT	A2c			Palearctic
Pararge xiphia	Madeiran Speckled Wood	NT	B1b(v)+B2b(v)	NT	B1b(v)+B2b(v)	Yes	Yes	Europe
Pararge xiphioides	Canary Speckled Wood	LC		LC		Yes	Yes	Europe
Pararge aegeria	Speckled Wood	LC		LC				Western Palearctic
Lasiommata maera	Large Wall Brown	LC		LC				Western Palearctic
Lasiommata deidamia		NA						Palearctic
Lasiommata petropolitana	Northern Wall Brown	LC		NT	A2c			Palearctic
Lasiommata paramegaera	Corsican Wall Brown	LC		LC		Yes	Yes	Europe
Lasiommata megera	Wall	LC		LC				Western Palearctic
Melanargia russiae	Esper's Marbled White	LC		LC				Western Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Melanargia larissa	Balkan Marbled White	LC		LC				Western Palearctic
Melanargia lachesis	Iberian Marbled White	LC		LC		Yes		Europe
Melanargia galathea	Marbled White	LC		LC				Western Palearctic
Melanargia ines	Spanish Marbled White	LC		LC				Western Palearctic
Melanargia arge	Italian Marbled White	LC		LC		Yes	Yes	Europe
Melanargia pherusa	Sicilian Marbled White	LC		LC		Yes	Yes	Europe
Melanargia occitanica	Western Marbled White	LC		LC				Western Palearctic
Hipparchia fatua	Freyer's Grayling	LC		LC				Western Palearctic
Hipparchia statilinus	Tree Grayling	LC		LC				Western Palearctic
Hipparchia tilosi	La Palma Grayling	EN	B1ab(iii,iv)+B2ab(iii,iv)	EN	B1ab(iii,iv)+B2ab(iii,iv)	Yes	Yes	Europe
Hipparchia bacchus	El Hierro Grayling	VU	D2	VU	D2	Yes	Yes	Europe
Hipparchia wyssii	Canary Grayling	NT	B2b(ii,iii,v)	NT	B2b(ii,iii,v)	Yes	Yes	Europe
Hipparchia tamadabae	Gran Canaria Grayling	VU	B1ab(iii,iv)+B2ab(iii,iv)	VU	B1ab(iii,iv)+B2ab(iii,iv)	Yes	Yes	Europe

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Hipparchia gomera	Gomera Grayling	LC		LC		Yes	Yes	Europe
Hipparchia fidia	Striped Grayling	LC		LC				Western Palearctic
Hipparchia neomiris	Corsican Grayling	LC		LC		Yes	Yes	Europe
Hipparchia autonoe		LC						Palearctic
Hipparchia hermione	Rock Grayling	LC		LC				Western Palearctic
Hipparchia syriaca	Eastern Rock Grayling	LC		LC				Western Palearctic
Hipparchia fagi	Woodland Grayling	LC		LC				Western Palearctic
Hipparchia mersina	Samos Grayling	NA		NA				Western Palearctic
Hipparchia miguelensis	Le Cerf's Grayling	NT	B1a+B2a	NT	B1a+B2a	Yes	Yes	Europe
Hipparchia azorina	Azores Grayling	NT	B1b(iii,iv)+ B2b(iii,v)	NT	B1b(iii,iv)+ B2b(iii,v)	Yes	Yes	Europe
Hipparchia senthes	Balkan Grayling	LC		LC				Western Palearctic
Hipparchia maderensis	Madeiran Grayling	LC		LC		Yes	Yes	Europe
Hipparchia semele	Grayling	LC		LC		Yes		Europe

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Hipparchia blachieri	Sicilian Grayling	LC		LC		Yes	Yes	Europe
Hipparchia aristaeus	Southern Grayling	LC		LC		Yes	Yes	Europe
Hipparchia volgensis	Delattin's Grayling	LC		LC		Yes		Europe
Hipparchia neapolitana	Italian Grayling	LC		LC		Yes	Yes	Europe
Hipparchia leighebi	Eolian Grayling	NT	B2a	NT	B2a	Yes	Yes	Europe
Hipparchia pellucida	Lesbos Grayling	LC		LC				Western Palearctic
Hipparchia sbordonii	Ponza Grayling	CR	B1ab(iii,iv,v)c(iv)+ B2ab(iii,iv,v)c(iv)	CR	B1ab(iii,iv, v)c(iv)+ B2ab(iii,iv,v)c(iv)	Yes	Yes	Europe
Hipparchia cypriensis	Cyprus Grayling	LC		LC		Yes	Yes	Europe
Hipparchia cretica	Cretan Grayling	LC		LC		Yes	Yes	Europe
Hipparchia christenseni	Karpathos Grayling	CR	B1ab(iii,v)	CR	B1ab(iii,v)	Yes	Yes	Europe
Minois dryas	Dryad	LC		LC				Palearctic
Brintesia circe	Great Banded Grayling	LC		LC				Western Palearctic
Arethusana arethusa	False Grayling	LC		LC				Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Oeneis tarpeia		LC						Palearctic
Oeneis bore	Arctic Grayling	EN	A2c; B2ab(ii,iii)	EN	A2c; B2ab(ii,iii)			Holarctic
Oeneis ammon		NA						Palearctic
Oeneis melissa	Melissa Arctic	NA						Holarctic
Oeneis magna		NA						Palearctic
Oeneis jutta	Baltic Grayling	NT	A2c	NT	A2c			Holarctic
Oeneis norna	Norse Grayling	VU	B2ab(iii,iv,v)	EN	B2ab(iii,iv,v)			Palearctic
Oeneis polixenes	Polixenes Arctic	NA						Holarctic
Oeneis glacialis	Alpine Grayling	LC		LC		Yes		Europe
Satyrus ferula	Great Sooty Satyr	LC		LC				Palearctic
Satyrus virbius	Crimean Sooty Satyr	LC				Yes		Europe
Satyrus actaea	Black Satyr	LC		LC		Yes		Europe
Chazara briseis	The Hermit	LC		LC				Palearctic
Chazara prieuri	Southern Hermit	EN	B2ab(ii,iv,v)	EN	B2ab(ii,iv,v)			Western Palearctic
Chazara persephone	Russian Hermit	LC		LC				Palearctic
Pseudochazara geyeri	Grey Asian Grayling	EN	B1ab(iii,v)+B2ab(iii,v)	EN	B1ab(iii,v)+B2ab(iii,v)			Western Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Pseudochazara graeca	Grecian Grayling	LC		LC		Yes	Yes	Europe
Pseudochazara amymone	Brown's Grayling	EN	B1ab(ii,iii,iv,v)+B2ab(ii,iii,iv,v)	EN	B1ab(ii,iii,iv,v)+B2ab(ii,iii,iv,v)	Yes		Europe
Pseudochazara anthelea	White-banded Grayling	LC		LC				Western Palearctic
Pseudochazara amalthea		NT	B2c(iv)	NT	B2c(iv)	Yes		Europe
Pseudochazara williamsi	Nevada Grayling	CR	A3c; B1ab(i,ii,iii,iv)	CR	A3c; B1ab(i,ii,iii,iv)	Yes	Yes	Europe
Pseudochazara euxina		EN	B1ab(v)			Yes		Europe
Pseudochazara mercurius		NA						Palearctic
Pseudochazara cingovskii	Macedonian Grayling	CR	A3c			Yes		Europe
Pseudochazara tisiphone	Dark Grayling	NT	B2a	NT	B2a	Yes		Europe
Pseudochazara orestes	Dils' Grayling	EN	B1ab(iii,v)+B2ab(iii,v)	EN	B1ab(iii,v)+B2ab(iii,v)	Yes	Yes	Europe
Ypthima asterope	African Ringlet	NA		NA				Range extends outside the Palaearctic and Holarctic
Proterebia phegea	Dalmatian Ringlet	LC		LC				Western Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Hyponephele huebneri		NA						Palearctic
Hyponephele lycaon	Dusky Meadow Brown	LC		LC				Palearctic
Hyponephele lupina	Oriental Meadow Brown	LC		LC				Western Palearctic
Aphantopus hyperantus	Ringlet	LC		LC				Palearctic
Pyronia cecilia	Southern Gatekeeper	LC		LC				Western Palearctic
Pyronia tithonus	Gatekeeper	LC		LC				Western Palearctic
Pyronia bathseba	Spanish Gatekeeper	LC		LC				Western Palearctic
Maniola jurtina	Meadow Brown	LC		LC				Western Palearctic
Maniola nurag	Sardinian Meadow Brown	LC		LC		Yes	Yes	Europe
Maniola chia	Chios Meadow Brown	VU	B1ab(iii,iv,v)+B2ab(iii,iv,v)	VU	B1ab(iii,iv,v)+B2ab(iii,iv,v)	Yes	Yes	Europe
Maniola megala	Turkish Meadow Brown	NA		NA				Western Palearctic
Maniola cypricola	Cyprus Meadow Brown	LC		LC		Yes	Yes	Europe
Maniola telmessia	Aegean Meadow Brown	LC		LC				Western Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Maniola halicarnassus	Thomson's Meadow Brown	NT	B1a+B2a	NT	B1a+B2a			Western Palearctic
Erebia edda		NA						Palearctic
Erebia fasciata	Banded Alpine	NA						Holarctic
Erebia discoidalis	Red-disked Alpine	LC						Holarctic
Erebia rossii	Ross's Alpine	NA						Holarctic
Erebia cyclopius		NA						Palearctic
Erebia embla	Lapland Ringlet	VU	A2c; B2b(ii,iii,iv,v)c(iv)	VU	A2c; B2b(ii,iii,iv,v)c(iv)			Palearctic
Erebia disa	Arctic Ringlet	EN	A2c; B2ab(ii,iii)	EN	A2c; B2ab(ii,iii)			Holarctic
Erebia meolans	Piedmont Ringlet	LC		LC		Yes		Europe
Erebia dabanensis	Four-dotted Alpine	NA						Palearctic
Erebia jeniseiensis		NA						Palearctic
Erebia claudina	White Speck Ringlet	LC		LC		Yes	Yes	Europe
Erebia manto	Yellow-spotted Ringlet	LC		LC		Yes		Europe
Erebia ottomana	Ottoman Brassy Ringlet	LC		LC				Western Palearctic
Erebia hispania	Spanish Brassy Ringlet	NT	A3c	NT	A3c	Yes	Yes	Europe

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Erebia rondoui	Pyrenees Brassy Ringlet	NT	A3c	NT	A3c	Yes		Europe
Erebia callias	Colorado Alpine	NA		NA				Holarctic
Erebia tyndarus	Swiss Brassy Ringlet	LC		LC		Yes		Europe
Erebia cassioides	Common Brassy Ringlet	LC		LC		Yes	Yes	Europe
Erebia nivalis	De Lesse's Brassy Ringlet	NT	B2b(v)	NT	B2b(v)	Yes		Europe
Erebia neleus		NT	B2a	NT	B2a	Yes		Europe
Erebia calcarius	Lorkovic's Brassy Ringlet	LC		LC		Yes	Yes	Europe
Erebia arvernensis	Western Brassy Ringlet	LC		LC		Yes		Europe
Erebia oeme	Bright-eyed Ringlet	LC		LC		Yes		Europe
Erebia gorge	Silky Ringlet	LC		NT	B2b(i,ii,iv)	Yes		Europe
Erebia sthennyo	False Dewy Ringlet	NT	A3c	NT	A3c	Yes	Yes	Europe
Erebia pandrose	Dewy Ringlet	LC		LC				Western Palearctic
Erebia eriphyle	Eriphyle Ringlet	LC		LC		Yes		Europe
Erebia epistygne	Spring Ringlet	VU	A2c	VU	A2c	Yes	Yes	Europe
Erebia euryale	Large Ringlet	LC		LC				Western Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Erebia palarica	Chapman's Ringlet	NT	A3c	NT	A3c	Yes	Yes	Europe
Erebia ligea	Arran Brown	LC		LC				Palearctic
Erebia pluto	Sooty Ringlet	LC		LC		Yes		Europe
Erebia aethiopellus	False Mnestra Ringlet	LC		LC		Yes	Yes	Europe
Erebia gorgone	Gavarnie Ringlet	NT	A3c	NT	A3c	Yes		Europe
Erebia rhodopensis	Nicholl's Ringlet	NT	B2a	NT	B2a	Yes		Europe
Erebia mnestra	Mnestra's Ringlet	LC		LC		Yes		Europe
Erebia albergana	Almond-eyed Ringlet	LC		LC		Yes		Europe
Erebia sudetica	Sudeten Ringlet	EN	B2ab(ii)	EN	B2ab(ii)	Yes		Europe
Erebia melampus	Lesser Mountain Ringlet	LC		LC		Yes		Europe
Erebia triarius	de Prunner's Ringlet	NT	A2c	NT	A2c	Yes		Europe
Erebia polaris	Arctic Woodland Ringlet	LC		LC				Western Palearctic
Erebia medusa	Woodland Ringlet	LC		LC				Palearctic

Taxonomy		IUCN Red List Category (Europe)	IUCN Red List Criteria (Europe)	IUCN Red List Category (EU27)	IUCN Red List Criteria (EU27)	Endemic to Europe	Endemic to EU27	Global Range
Erebia aethiops	Scotch Argus	LC		LC				Western Palearctic
Erebia pharte	Blind Ringlet	LC		LC		Yes		Europe
Erebia christi	Rätzer's Ringlet	NT	B2a	NT	B2a	Yes		Europe
Erebia orientalis	Bulgarian Ringlet	NT	B2a	NT	B2a	Yes		Europe
Erebia epiphron	Mountain Ringlet	LC		LC		Yes		Europe
Erebia flavofasciata	Yellow-banded Ringlet	EN	B1ab(iii)+B2ab(iii)	EN	B1ab(iii)+B2ab(iii)	Yes		Europe
Erebia montana	Marbled Ringlet	LC		LC		Yes		Europe
Erebia styx	Stygian Ringlet	LC		LC		Yes		Europe
Erebia stiria	Styrian Ringlet	LC		LC		Yes		Europe
Erebia scipio	Larche Ringlet	VU	A2c	VU	A2c	Yes	Yes	Europe
Erebia pronoe	Water Ringlet	LC		LC		Yes		Europe
Erebia melas	Black Ringlet	NT	B2b(iii,iv)	NT	B2b(iii,iv)	Yes		Europe
Erebia lefebvrei	Lefèbvre's Ringlet	NT	A3c	NT	A3c	Yes		Europe
Erebia zapateri	Zapater's Ringlet	NT	A3c	NT	A3c	Yes	Yes	Europe
Erebia neoridas	Autumn Ringlet	LC		LC		Yes		Europe

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