KBA
KEY BIODIVERSITY AREAS

A SCOPING OF KEY BIODIVERSITY AREAS ACROSS EUROPE

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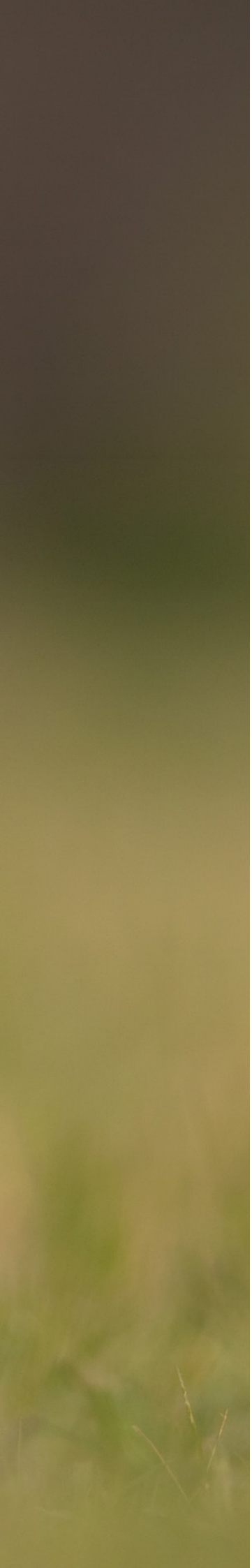
KBA SECRETARIAT

Iberian Lynx © edstubbs

UK Research and Innovation

NATURA CONNECT

European hamster © Johannes S.



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EXECUTIVE SUMMARY

Key Biodiversity Areas (KBAs) are globally significant sites for conservation. They are recognised in the EU Taxonomy and the Corporate Sustainability Reporting Directive (CSRD) as areas of biodiversity significance, sites where negative impacts are to be avoided by the activities of companies. They are also used in indicators of the UN Sustainable Development Goals and the Kunming-Montreal Global Biodiversity Framework (KMGBF). They are increasingly being used by the private sector to identify important areas for biodiversity in reporting frameworks, as well as by funding agencies to guide investment in biodiversity conservation.

Data on the global network of KBAs are stored in the World Database of KBAs, managed by BirdLife International on behalf of the KBA Partnership and wider conservation community. These data are provided for governments to enable reporting to multilateral environmental agreements and provided to the private sector through the Integrated Biodiversity Assessment Tool, providing bespoke reports on companies risks and potential impacts on biodiversity.

All countries in Europe have some KBAs, mostly based on the Important Bird and Biodiversity (IBA) networks, which are incorporated in the World Database of KBAs as legacy sites until they are re-assessed and updated using the KBA criteria published in the Global Standard for the Identification of KBAs (IUCN 2016). As a result, many KBAs in Europe have only been identified for bird species which form 56.6% of all species that qualify KBAs. Additional sites have been identified in Mediterranean countries through the Critical Ecosystem Partnership Fund (CEPF) ecosystem profile for that region, but using legacy criteria (Langhammer et al. 2007). **There is a need to update the KBA networks in all European countries, particularly given their recognition and use in the CSRD and EU Taxonomy, and the need to expand protected and conserved areas in sites of importance for biodiversity to achieve 30% by 2030 in the KMGBF**.

This report summarises a scoping of KBAs across Europe made by the Key Biodiversity Areas Secretariat with United Kingdom Research and Innovation funding (UKRI) as part of a Horizon Europe project called NaturaConnect (naturaconnect.eu). The aim of the scoping was to first identify which existing KBAs might qualify for additional species, secondly identify which existing protected areas might qualify as KBAs, as well as identify areas outside the existing KBA network that might also qualify. The NaturaConnect project is focused on developing methodologies and publishing recommendations for the expansion of the EU's protected area network in a coherent and resilient manner, accounting for the diverse ways in which the EU's societal and bioclimatic realities might develop. Using a complementarity-based systematic conservation planning approach paired with potential future development scenarios, the project has identified the network of areas needed to achieve 30% protection of terrestrial Europe, while maximising biodiversity protection and minimising the risks deriving from potential future socioeconomic and bioclimatic changes (O'Connor et al., 2026). Our scoping therefore also focused on the priority areas for protected area expansion identified in the NaturaConnect prioritisation. The NaturaConnect project is focused on developing a regional strategy for conservation in Europe and the KBA scoping assesses what proportion of the results have global as well as regional significance.

The findings show these key results:

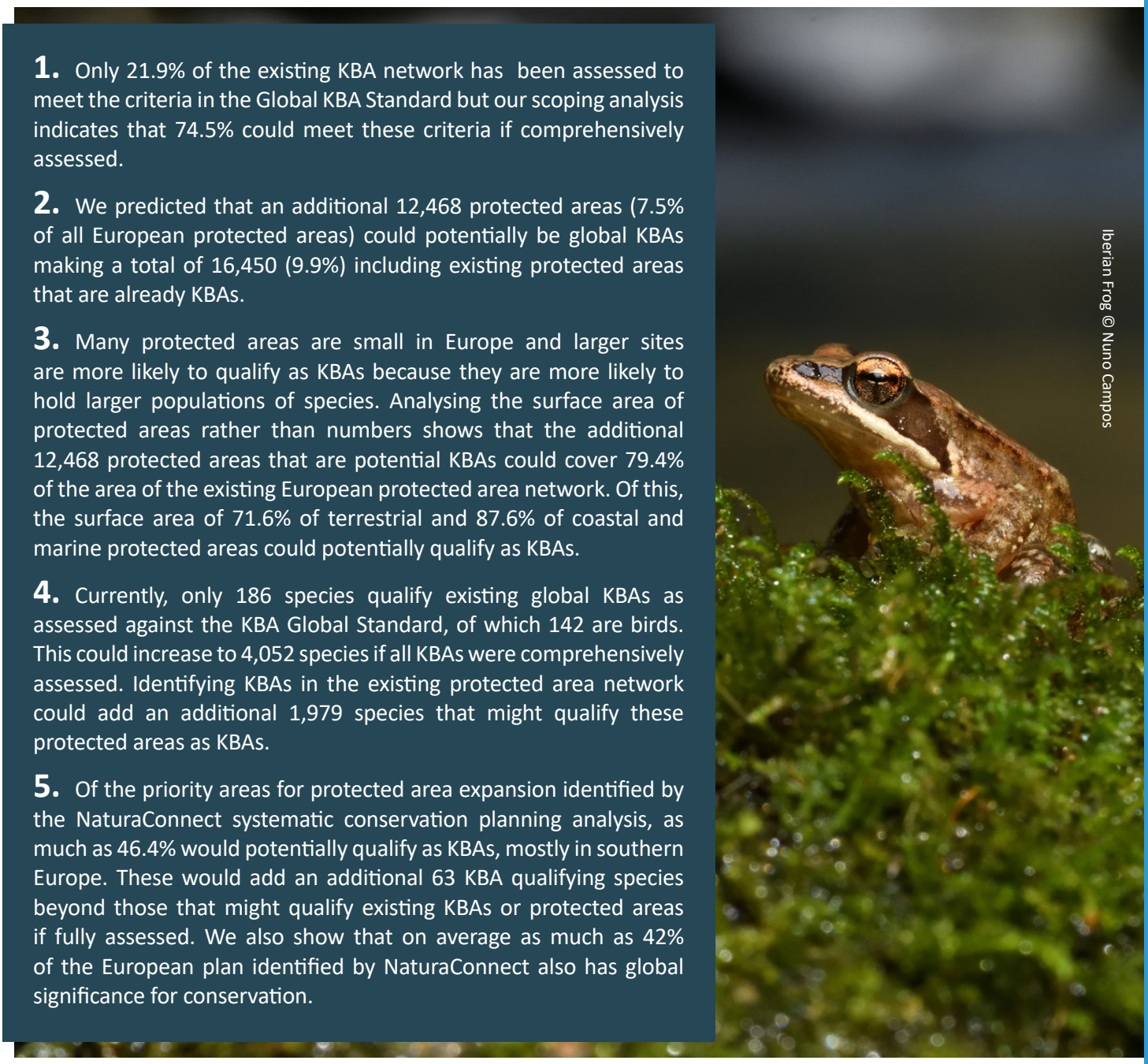
1. Only 21.9% of the existing KBA network has been assessed to meet the criteria in the Global KBA Standard but our scoping analysis indicates that 74.5% could meet these criteria if comprehensively assessed.

2. We predicted that an additional 12,468 protected areas (7.5% of all European protected areas) could potentially be global KBAs making a total of 16,450 (9.9%) including existing protected areas that are already KBAs.

3. Many protected areas are small in Europe and larger sites are more likely to qualify as KBAs because they are more likely to hold larger populations of species. Analysing the surface area of protected areas rather than numbers shows that the additional 12,468 protected areas that are potential KBAs could cover 79.4% of the area of the existing European protected area network. Of this, the surface area of 71.6% of terrestrial and 87.6% of coastal and marine protected areas could potentially qualify as KBAs.

4. Currently, only 186 species qualify existing global KBAs as assessed against the KBA Global Standard, of which 142 are birds. This could increase to 4,052 species if all KBAs were comprehensively assessed. Identifying KBAs in the existing protected area network could add an additional 1,979 species that might qualify these protected areas as KBAs.

5. Of the priority areas for protected area expansion identified by the NaturaConnect systematic conservation planning analysis, as much as 46.4% would potentially qualify as KBAs, mostly in southern Europe. These would add an additional 63 KBA qualifying species beyond those that might qualify existing KBAs or protected areas if fully assessed. We also show that on average as much as 42% of the European plan identified by NaturaConnect also has global significance for conservation.



Iberian Frog © Nuno Campos

In conclusion, these results show that the largest protected areas that are not currently recognised as KBAs across Europe likely qualify as KBAs because they hold globally significant populations of species. Together with existing KBAs they conserve many of the potential species that might qualify sites as KBAs in Europe, although there are some important areas outside of both the existing protected area and KBA networks that might also meet KBA status. However, the scoping is based on species assessed on the IUCN Red List of Threatened Species and this is not comprehensive for species across Europe. Many plants and invertebrates are not assessed on the Red List and it is likely that more species may be found and additional sites identified if additional data on un-assessed species are included.

Our results highlight the real need to update national KBA networks across Europe and for countries to do this as part of the planning for 30 x 30 under the European Green Deal and Kunming-Montreal Global Biodiversity Framework.

GLOSSARY

APDB – KBA Assessment Parameter Database

CBD – Convention on Biological Diversity

CSRD – Corporate Sustainability Reporting Directive

ESRS – Environmental Sustainability Reporting Standards

EU – European Union

IBA – Important Bird and Biodiversity Area

IUCN – International Union for the Conservation of Nature

KBA – Key Biodiversity Area

KMGBF – Kunming-Montreal Global Biodiversity Framework

SAC – Special Areas for Conservation

SCP – Systematic conservation planning

SPA – Special Protection Areas

TEN-N – Trans-European Nature Network

WDPA – World Database of Protected Areas

WDKBA – World Database of Key Biodiversity Areas

Atlantic puffin © JieGe

The European Union Green Deal was developed to guide European countries towards a cleaner and more sustainable future (Fetting, 2020). One of the key priorities for the Green Deal is to protect the continent's biodiversity and ecosystems. A core component of the EU Green Deal is the EU's Biodiversity Strategy for 2030 which has an aim of establishing a larger EU-wide network of protected areas on land and at sea, expanding the existing network of Natura 2000 areas to include more sites, with strict protection for areas of very high biodiversity and climate value (European Commission 2020). The EU aims to designate 30% of its land as PAs by 2030, with a third (10%) being strictly protected (Hermoso et al., 2022). At the core of this strategy is the establishment of a seamlessly integrated Trans-European Nature Network (TEN-N). This initiative aims to enhance coherence, and expand, on the existing Natura 2000 network, the world's largest coordinated system of PAs. The critical consideration for success lies in prioritizing efforts to expand the TEN-N within a strategic framework that not only addresses current gaps and immediate threats posed by habitat loss but also aligns with the broader goals for biodiversity conservation amidst climate change (Pressey et al., 2007; Kujala et al., 2013). While not all countries in Europe are part of the EU Green Deal, most of these other countries have similar goals that also aim to meet the goals and targets of the Kunming-Montreal Global Biodiversity Framework (KMGBF – CBD, 2022), and that also aim to expand their protected area networks to support Target 3 of the KMGBF to achieve 30% protection by 2030. The key question is where this expansion should occur in order to maximise the conservation benefits for biodiversity and to halt human-induced extinctions, a key part of Goal A of the KMGBF.

The Natura 2000 network is the main tool used to conserve biodiversity across EU countries in Europe. This network is comprised of sites identified under the Nature Directives: The Birds Directive and the Habitats Directive. Many Natura 2000 sites are also Important Bird and Biodiversity Areas (IBAs), sites that are recognised as Special Protection Areas (SPAs) in the Natura 2000 network in EU legislation, designated under the Birds Directive (1972). The IBA approach brought in a standardised set of criteria that helped identify SPAs more rigorously (Tucker, 2023). The Birds Directive covers all naturally occurring wild birds, and requires special habitat conservation measures for 197 taxa (i.e. species and subspecies – listed in the Birds Directive Annex I) as well as for other migratory species. IBAs were also used to map the initial Key Biodiversity Area (KBA) network, which is a global network of sites of global significance for biodiversity (IUCN 2016). This initial KBA network was augmented by the inclusion of sites identified by the Critical Ecosystem Partnership Fund (CEPF) in their ecosystem profile for the Mediterranean as well as some sites from the Alliance for Zero Extinction (AZE). The Habitats Directive concentrates on selected 'natural habitats and species of wild fauna and flora of Community Interest', which comprise the 233 habitats listed in Habitats Directive Annex I, and 1,389 species listed in Habitats Directive Annexes II and/or IV or V (which do not include any bird species). Both directives have two main approaches (pillars) by which they aim to achieve their objectives:

1. The protection of sites of particular importance for Biodiversity and Habitats Directive habitats and species, through the establishment of the Natura 2000 network (under the Habitats Directive), which comprises:

- Sites of Community Importance (SCIs) designated as Special Areas of Conservation (SACs) under the Habitats Directive (for habitats listed in Habitats Directive Annex I and species listed in Habitats Directive Annex II); and
- Special Protection Areas (SPAs) designated under the Birds Directive (for bird taxa listed in Birds Directive Annex I and for migratory species).

2. General protection measures that apply to all birds (with some exceptions) and stricter protection for selected non-bird species (listed in Habitats Directive Annexes IV or V) wherever they occur.

Finally, the Emerald Network of Areas of Special Conservation Interest is a broader network of sites across Europe that is used in countries outside the EU, established under the Bern Convention (1989), and sharing the same principles, goals, and data. Broadly speaking they are equivalent to Natura 2000 sites and are often combined as such in analyses of protected area coverage of Europe.

In addition to these regional site networks, countries can designate additional sites for conservation at a national level. Approximately 18% of Europe is covered by Natura 2000/Emerald Network sites on land and about 11% in the seas, but national sites increase this to 26% of land (Tucker 2023). These protected areas are provided to the World Database of Protected Areas (WDPA) managed by UNEP-WCMC. In this study we used protected areas from December 2025 in this database. Tucker (2023) points out that not all protected areas provided to the WDPA have a strong objective to conserve nature (see also Starnes et al. 2021), despite UNEP-WCMC being clear that countries are not supposed to include sites in the WDPA that do not meet the IUCN or CBD criteria (UNEP-WCMC, 2019).

Krka National Park, Croatia © Bill Higham

NaturaConnect is a European Union Horizon Europe funded project that is guiding the development of the Trans-European Nature Network (TEN-N). It uses systematic conservation planning (SCP) approaches to analyse the trade-offs in predicted development pathways and biodiversity conservation for the continent, while at the same time integrating predicted shifts in species distributions under future climate changes. The project is evaluating most European species for which data exist for their distributions, as well as maps of habitats and other ecosystems of policy importance (e.g. old-growth forests, carbon-rich ecosystems, pollinator habitats), and using complementarity-based approaches in SCP (Pressey 2007) to identify areas that would maximise biodiversity benefits outside the existing Natura 2000 and Emerald site networks. More details on the prioritisation methodology and input data are described in Deliverable 7.1 of the NaturaConnect project (Jung et al., 2024).As part of this planning process, an assessment of Key Biodiversity Areas (KBAs) across Europe was integrated into the project. KBAs have been shown to be useful in supporting SCP processes because they are globally important and identified through rigorous criteria (Plumptre et al. 2024b).

KBAs are sites of global significance for biodiversity because they are sites that contain significant populations/extents of threatened or geographically restricted species or ecosystems, or that have significant ecological integrity or irreplaceability, or significance for the maintenance of biological processes (Plumptre et al. 2024a). KBA criteria use quantitative thresholds, usually a percentage of the global population (or percentage of the area of distribution if population data are not available) of a species or global extent of an ecosystem.

Applying quantitative criteria enables comparisons to be made between different sites, countries and regions of the world which makes KBAs useful as indicators for multilateral environmental agreements (Plumptre et al. 2024a). They are indicators for the KMGBF and the Sustainable Development Goals and also used by the private sector. Protected and Conserved Area coverage of KBAs also forms the basis of several indicators for the UN Sustainable Development Goals 14 & 15, as well as a disaggregation of the headline indicator for Target 3 in the Kunming-Montreal Global Biodiversity Framework. KBAs are identified as 'biodiversity sensitive' areas in the Environmental Sustainability Reporting Standards (ESRS 4) of the Corporate Sustainability Reporting Directive (CSRD), as well as in the EU Taxonomy.

KBAs currently published in the World Database of KBAs (WDKBA) from Europe mostly derive from the IBA programme and hence have mostly been identified for birds only. Additional sites in the Mediterranean were identified across more taxonomic groups through the Critical Ecosystem Partnership Fund ecosystem profiling for the Mediterranean hotspot region and AZE sites were provided by the AZE alliance. Currently 686 species are identified as qualifying 3,821 sites as KBAs in Europe, of which 57% are bird species. However, many of these have been assessed against legacy KBA criteria or IBA criteria and require re-assessment and updating against the KBA criteria published in 2016 (IUCN 2016). As a result, countries are missing most KBAs for other taxonomic groups, ecosystems, and sites of outstanding ecological integrity and irreplaceability. Where countries have made a comprehensive update of their KBA networks they have on average doubled the number and area of KBAs for the country (Plumptre et al. 2025).

Under the Natura Connect project we further developed and expanded a KBA Scoping Tool to identify potential sites that might be KBAs. The tool can be used to identify potential species that qualify a site as a KBA applying some (but not all) of the KBA criteria and assessing whether the species exceed the percentage thresholds to potentially meet the KBA criteria. We applied the tool to existing KBAs and protected areas across Europe as well as the areas identified under the Natura Connect SCP analysis as important for biodiversity conservation. Our analysis described here identified which additional protected areas may be KBAs as well as areas outside the protected area network but within the Natura Connect SCP results. The KBA scoping presented here complements the NaturaConnect analysis of priority areas for European Conservation by helping identify which areas also have potential global significance for conservation as well as European significance.

KBA SCOPING TOOL

The KBA Secretariat, based in Cambridge UK, has developed a KBA Scoping Tool (KBA Programme 2025). This tool uses data from the IUCN Red List of Threatened Species (IUCN Red List – IUCN 2025) for all species that have a range map of their distribution (approximately 95,000 species; including terrestrial, freshwater, marine and subterranean species). Area of Habitat (AoH) maps are calculated for each species based on data in the IUCN Red List account of the habitats the species uses as well as its altitudinal distribution limits and its distribution map (Brooks et al. 2019). The AOH and range map data are then incorporated into an Assessment Parameter Database (APDB) across a grid of hexagonal cells at 2.5 km intervals, by calculating the area of range and AoH for each species within each cell. The KBA scoping tool takes a GIS polygon of one or more sites and will query each site to obtain the sum and percentage of the area of each species' range and AoH within the site from the intersecting hexagon cells and the global range or AOH for each species. The KBA Scoping Tool identifies potential species that qualify a site as a KBA by assessing the percentage of the global range and AoH at a site with the thresholds in the various KBA criteria. As an output it provides a list of sites which may be potential KBAs with the KBA criteria potentially triggered, as well as a list of species that may occur at each site with those that may qualify the site as a KBA (both as .csv files). A geopackage is also provided that gives data for each of the sites on the criteria that may be triggered, number of potentially qualifying species as well as additional statistics such as the irreplaceability of the site (Baisero et al. 2021) and other metrics such as the STAR score for the site (Mair et al. 2022).

The Criteria considered include A1 (threatened species on the IUCN Red List – different percentage thresholds occur for CR/EN species and VU species – subcriteria A1a-e), B1 (geographically restricted single species), B2 (restricted-range species in a taxonomic group) and B3 (ecoregion or bioregion restricted species). The KBA scoping tool only identifies sites as potentially qualifying as KBAs. In order to be recognised and published as a KBA in the WDKBA, there must also be relatively recent confirmation the species is present at the site and that sufficient reproductive units of the species are present to allow maintenance of the population (the number varies according to the KBA criterion). A KBA proposer can therefore use the outputs of the tool to develop a shortlist of species to assess and then look for supporting information to confirm that the species is present within the site and there are sufficient reproductive units to qualify the site as a KBA. The analyses in this report have not confirmed this additional information and therefore only identify **potential KBAs** and species that potentially qualify them.

KBA SCOPING ANALYSES MADE

Our analyses focused on the broader Europe as analysed by the NaturaConnect project, including all EU member states plus the United Kingdom, Norway, Switzerland, Iceland, and Balkan countries. While NaturaConnect analyses primarily focused on terrestrial conservation, our analyses included both terrestrial and marine for the scoping of existing KBAs and existing protected areas and the results are given for each realm separately. We made three broad analyses to identify potential KBAs across Europe as follows:

1. ***Scoping of existing Key Biodiversity Areas***. The aim of this analysis was to identify which additional species could qualify existing sites as KBAs. We scoped the latest network of KBAs published in the WDKBA (September 2025).

2. ***Scoping of existing protected areas and OECMs***. This analysis aimed to identify which existing protected areas might qualify as KBAs. We scoped all protected areas and OECMs from the WDPCA (IUCN and UNEP-WCMC 2025). Some protected areas in Europe are already recognised as KBAs, and we identified these using a union of the KBA and WDPA layers to identify those protected areas with complete KBA coverage (>98% cover).

3. ***Scoping of NaturaConnect output***. The NaturaConnect SCP analyses produce outputs of selected 1 km² cells that achieve the best solution given certain constraints (development pathways and climate change scenarios). A harmonised output across all scenarios was provided to us by project partners at IIASA running these SCP analyses (within WP7 of NaturaConnect, Task 7.3) (O'Connor et al., 2026). We then scoped this harmonised solution for cells that fall outside the existing protected area network. We scoped the 1 km² cells that were located within individual 10 x 10 km cells used by the EU as a standard grid across the continent. Scoping results vary depending on the scale of 'cells': the larger a cell the more likely it will qualify as a KBA. We selected the 1 km² cells within the 10x10 grid as a scale that was likely to be useful in identifying potential areas that may be KBAs outside existing protected areas and where specific sites could be delineated considering these results.

Marsh orchids © Andrew Plumptre

The scoping work covered 39 countries of Europe, the same countries that are a focus of all other NaturaConnect analyses.

SCOPING OF EXISTING KBAS

A total of 3,821 existing KBAs occur in the WDKBA for these 39 countries. As mentioned above, most of these are IBAs, CEPF sites and AZE sites. KBAs currently cover 19.6% of land in Europe and 11.2% of the exclusive economic zone (EEZ) of countries that have jurisdiction over parts of the sea.

Currently 836 (21.9%) of these KBAs are recognised as Global KBAs, again mostly for bird species. Of the remainder 2,520 (66.0%) are considered regional KBAs for the species listed for the sites, meaning that existing data suggest that they do not meet the global KBA criteria. As defined in the KBA standard, these sites are treated as regional KBAs. There is currently insufficient data in the WDKBA for the remaining 465 (12.2%) to determine their global/regional status.

Our scoping of all existing KBAs indicates that a significant number would potentially qualify as global KBAs. We estimated that 2,538 (66.4%) of the existing KBAs could potentially qualify as Global KBAs (under criteria A1, B1, B2 and/or B3), if all taxonomic groups included in the scoping tool were assessed. However, 836 existing sites qualify as Global KBAs under criteria that the scoping tool cannot currently apply (e.g. D1a for aggregations of species which requires numbers of mature individuals, not area-based estimates of the population). Of these, 310 sites are not among the sites identified as potentially global KBAs in the scoping analyses. Therefore, including all existing global KBAs with those identified as potential global KBAs would increase the number of existing KBAs in Europe that already or potentially could qualify as global KBAs to 2,848 (74.5%).

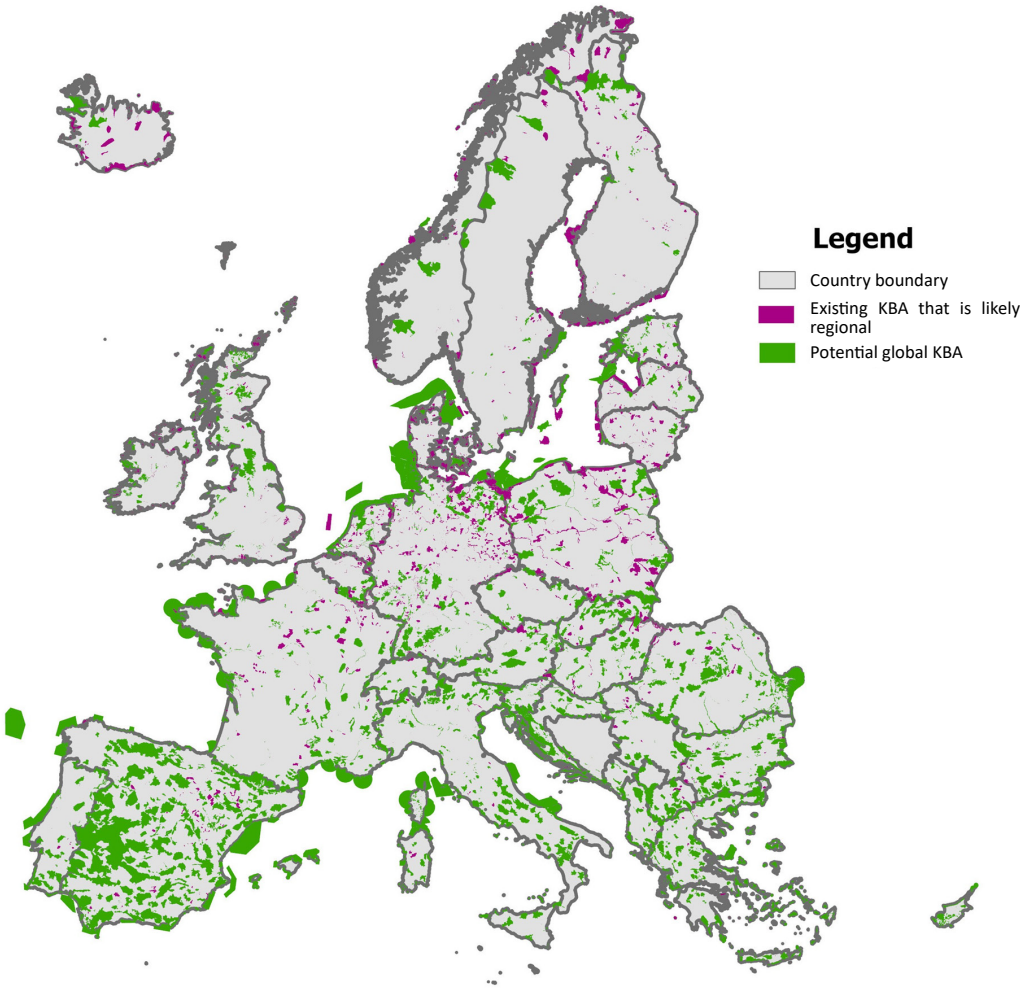


Figure 1. Existing Key Biodiversity Areas that may qualify as global KBAs (dark green) based on results of the KBA scoping tool. KBAs that would not qualify as global sites as assessed by the scoping tool were more common in northern Europe (purple).

Currently, 186 species qualify existing KBAs as global KBAs across Europe, of which 142 (76.3%) are bird species. The scoping of all these KBAs indicates that 3,915 species (Table 1) assessed on the IUCN Red List potentially qualify sites as KBAs, which includes 49 of the existing species that qualify sites. This identifies potentially 4,052 species that currently or potentially qualify existing KBAs across Europe. It should be noted that more bird species have been identified as KBA-qualifying species under the current KBA assessments rather than through the scoping tool (142 vs 30) because for this taxonomic group many species have global and site population estimates and it is possible to apply numbers of mature individuals as an assessment parameter. Many birds also qualify KBAs based on their aggregations (Criterion D1) which require numbers of mature individuals to be known and cannot be assessed with the KBA scoping tool. Many plants, fungi and invertebrate species have also not been assessed on the IUCN Red List, and we would therefore expect there to be more potential species that could qualify sites if countries were to work on updating their KBA networks in Europe.

Table 1. Numbers of species that currently qualify sites as KBAs in Europe compared with those that potentially could qualify sites as KBAs according to the KBA scoping Tool.

Kingdom	Phylum	Class	Number of current KBA-qualifying species	Number of potential KBA-qualifying species from scoping
Animalia	Annelida		0	2
	Arthropoda		0	923
	Chordata	Actinopterygii	20	362
		Amphibia	2	32
		Aves	142	30
		Chondricthyes	0	34
		Mammalia	1	51
		Petromyzonti	0	8
		Reptilia	0	33
	Cnidaria		0	1
	Mollusca		12	1,606
Fungi	Ascomycota		0	3
	Basidiomycota		0	61
Plantae	Anthocerotophyta		0	1
	Bryophyta		0	55
	Marchantiophyta		0	17
	Tracheophyta		9	696
Total			**186**	**3,915**

SCOPING OF EXISTING PROTECTED AREAS AND OECMs

We scoped 166,116 protected areas and OECMs across Europe of which 157,479 (94.8%) are terrestrial and 8,673 (5.2%) marine or coastal. Many of these sites overlap with each other, which make the analysis of the data, and particularly area of coverage more complicated. We therefore dissolved all of the protected areas into one layer that was used to calculate coverage values. On average, protected areas cover 25.5% of land and 16.8% of seas per country using our GIS-based calculation of cover.

Of these existing protected areas, 19,655 (11.8%) are completely within KBAs (>98% cover), 21,429 (12.9%) are partially covered by KBAs (2-98%), and the remaining 125,032 (75.3%) are outside any KBA (<2% cover). Assessing the numbers of KBAs that are covered by protected areas we find 1,514 (39.6%) are completely covered by protected areas, 2,122 (55.5%) are partially protected (2-98% cover), and only 186 (4.8%) are completely unprotected (<2% cover). If we assess the total area of KBAs at a country level, we find an average of 76.8% of the area of KBAs per country are currently covered by protected areas.

Our analysis identified 16,450 (9.9%) protected areas that might qualify as global KBAs, of which 12,468 (7.5%) are additional to existing protected areas that are fully covered by KBAs. Of these it is predicted that 8.9% of terrestrial protected areas and 27.8% of coastal and marine protected areas would qualify as global KBAs. Many protected areas in Europe are small, however, and when area of protected areas and KBAs is compared we find that it tends to be the larger sites that are potential KBAs (Figure 2). If confirmed as KBAs these sites would add an additional 3,033,675 km² of protected area that would be recognised as KBA, about 65.8% of the extent of all protected area across Europe. Combined with existing KBAs, the extent of KBAs in protected areas could reach79.4% of all current coverage. Of this 71.6% of terrestrial and 87.6% of coastal and marine surface area of protected areas could potentially qualify as KBAs. The mean percentage area of each country that currently, or might, qualify as global KBAs is 69.6%. Guernsey, Jersey, Iceland, Luxembourg, and Lithuania have the lowest percentages (<20%), while Andora, Gibraltar and Monaco might achieve 100% potential cover, Cyprus 99%, and North Macedonia and Montenegro could achieve 97%.

The scoping of all protected areas in Europe identified 5,776 species as potentially qualifying one or more sites as a KBA. Of these, 3,797 species also were potential qualifying species for the KBA scoping (above), and 1,979 species were additional to those that potentially qualify existing KBAs. An additional 30 species only qualified existing KBAs but did not qualify any protected areas (Table 2). Across both protected areas and KBAs in Europe, 5,806 species were identified as potentially qualifying one or more protected areas or KBAs, with the largest numbers in Mollusca, Arthropoda, Tracheophyta, and Actinopterygii (Table 2).

Aran Rock Lizard © Thomas Florion

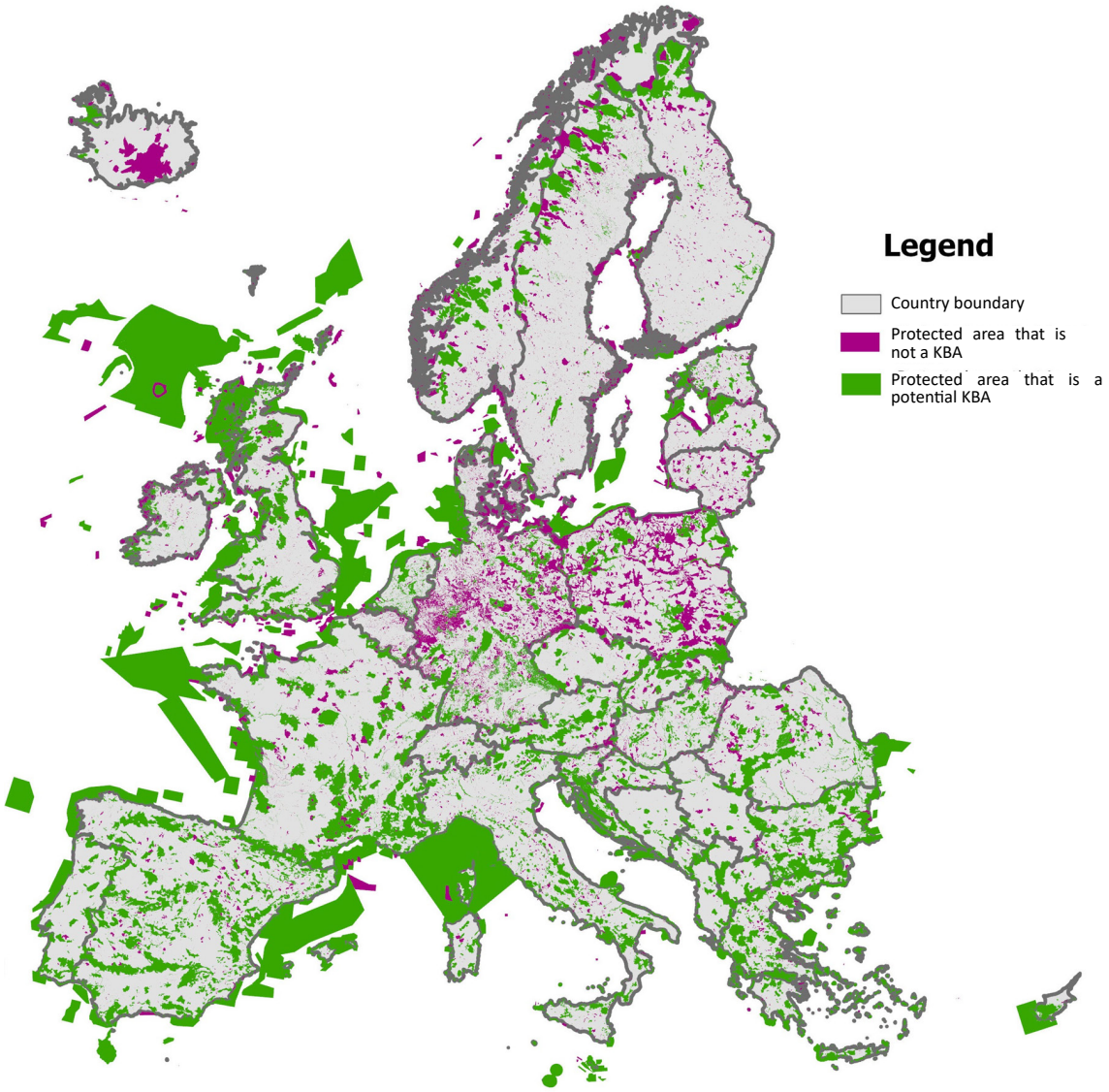


Figure 2. Scoping of existing terrestrial and marine protected areas in Europe identifying those protected areas that potentially qualify as global KBAs (dark green).

Table 2. Numbers of species that potentially qualify protected areas (PAs) and KBAs, separating those that only qualify KBAs, from those that only qualify PAs and those that qualify both KBAs and PAs.

Kingdom	Phylum	Class	KBA but not PA	PA but not KBA	Both PA & KBA	Total number
Animalia	Annelida				2	2
	Arthropoda		4	553	889	1,446
	Chordata	Actinopterygii	1	108	348	457
		Amphibia		8	32	40
		Aves		26	28	54
		Chondricthyes		52	12	64
		Mammalia		14	49	63
		Petromyzonti		1	8	9
		Reptilia		26	31	57
	Cnidaria			6		6
	Echinodermata			3		3
	Mollusca		20	662	1,563	2,245
Fungi	Ascomycota			7	3	10
	Basidiomycota		1	15	60	76
Plantae	Anthocerotophyta				1	1
	Bryophyta			50	54	104
	Marchantiophyta			19	17	36
	Tracheophyta		4	459	670	1,133
Total			**30**	**2,009**	**3,767**	**5,806**

SCOPING OF NATURACONNECT SOLUTION

The NaturaConnect planning process developed more than 100 scenarios with different solutions that identified where to prioritise conservation. The team making these analyses provided a harmonised solution layer which covered an area of 2,223,601 km². Much of this solution falls within existing protected areas (70.0%) and only 666,134 km² (30.0%) falls outside. Analysing the area of the NaturaConnect solution outside both KBAs and protected areas together we find that only 605,267 km² (27.2%) falls outside both. A scoping of the NaturaConnect solution that falls outside the existing protected area network identified 308,576 km² (46.3% of the area outside protected areas) that could potentially qualify as global KBAs (Table 3). These sites mostly are found in southern Europe (Figure 3).

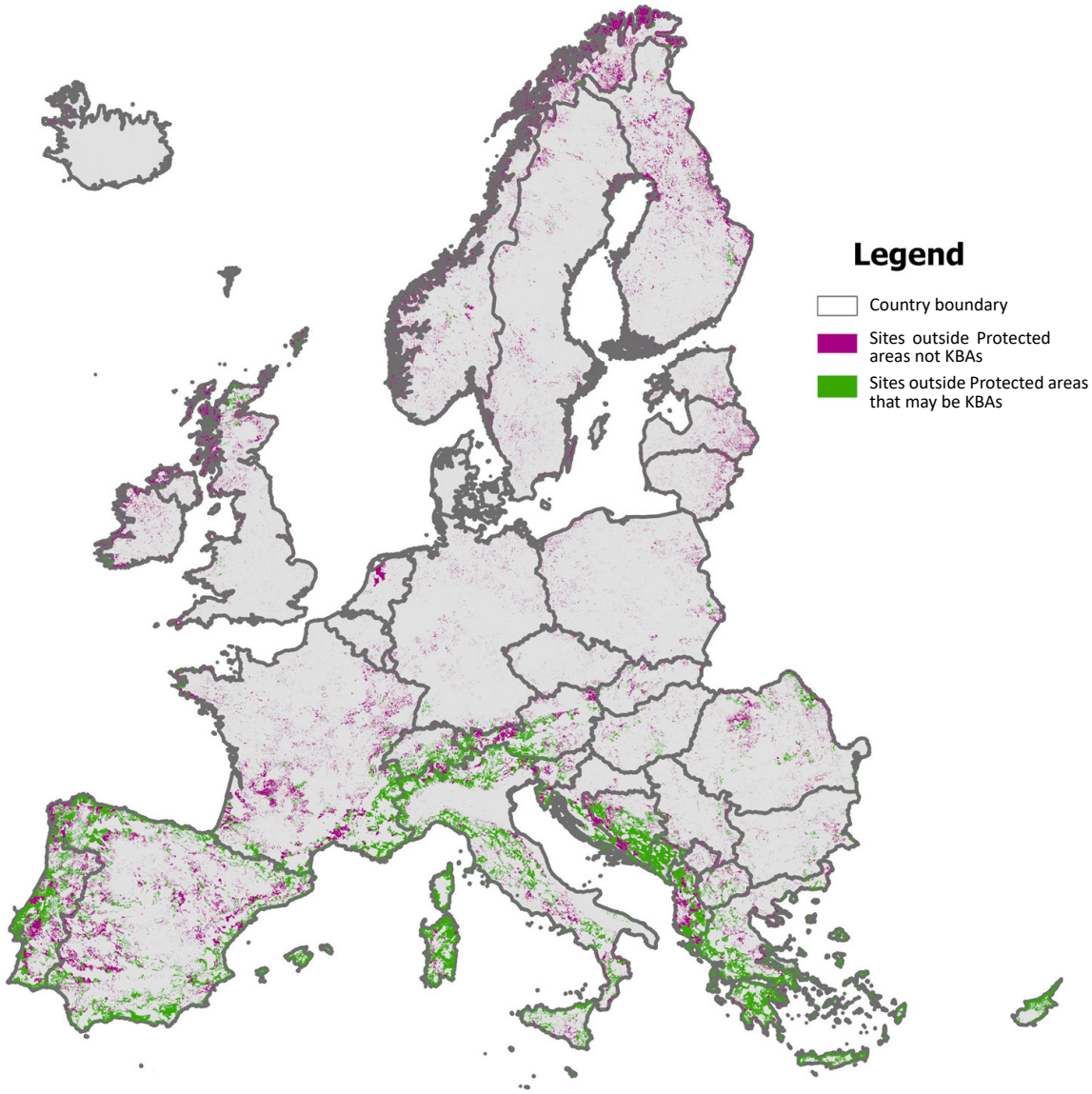


Figure 3. Scoping of the NaturaConnect harmonised solution focusing on the area of the solution outside existing protected areas. Those that potentially qualify as global KBAs are dark green.

We break down the analysis of the harmonised NaturaConnect solution in Table 3. Here we look at the proportion of the whole solution that might be identified as KBAs, the proportion of the solution within protected areas and existing KBAs that might qualify as KBAs using the same scoping method we applied to the solution outside these areas. We found a fairly consistent percentage of the solution between 40-50% might qualify as global KBAs (Table 3). One of the findings is that only 48% of the NaturaConnect Solution within existing KBAs might qualify as KBAs. This is likely to be because the solution will not have covered the whole area of these KBAs, because the analysis was focused on different species, and was focused on developing a regional plan for Europe, including regional priorities as well as global ones. Overall, as much as 989,457 km2 of the 2,223,601 km2 harmonised solution potentially qualifies as globally important (45%).

Table 3. Areas and percentage of the NaturaConnect (NC) harmonised solution and those areas that might potentially qualify as KBAs based on the scoping analysis.

Analysis result	Total area of NC Solution (km²)	Percentage of total NC solution	Potential Global KBA area Km²	Percentage total NC solution that may be KBAs
NC solution	2,223,601	100.0	989,457	44.5
NC solution intersected by Protected Areas (PAs)	1,557,467	70.0	617,201	39.6
NC solution intersected by existing KBAs	772,594	34.7	371,979	48.1
NC solution intersected by PAs and KBAs	711,727	32.0	332,435	46.7
NC solution not intersected by PAs	666,134	30.0	308,576	46.3
NC solution not intersected by PAs or KBAs	605,267	27.2	269,616	44.5
NC solution outside PAs & KBAs and not potential KBA	335,651	15.1	0	0.0

A total of 3,726 species potentially could qualify sites outside the existing protected area network as KBAs based on the scoping analysis. Many of these are also species that could qualify existing protected areas and KBAs (Table 4). Only 63 species are unique and were not potential KBA species for the protected area or KBA network. Of these 48 species are molluscs, seven are plants and six are arthropods (Table 4). A combined total of 5,869 species could potentially qualify sites within protected areas, KBAs and outside these networks across Europe (Table 4). These include only the species assessed on the IUCN Red List of Threatened Species and there will likely be other species, particularly plants, invertebrates and fungi, that could qualify sites as KBAs that have not been assessed on the IUCN Red List and therefore are not incorporated in the KBA scoping tool. Given that currently only 186 species qualify global KBAs across Europe, there is significant work needed to update Europe's KBA networks and qualifying species.


Southern Marbled Newt © Borja Fierro

Table 4. Species groups potentially qualifying sites as KBAs outside the existing protected area (PA) and KBA network compared with those inside these networks.

Kingdom	Phylum	Class	Only outside PAs & KBAs	Only in PAs & KBAs	Common to all areas	Total
Animalia	Annelida			1	1	2
	Arthropoda		6	486	960	1,452
	Chordata	Actinopterygii		136	321	457
		Amphibia		13	27	40
		Aves		29	25	54
		Chondricthyes		64		64
		Mammalia		20	43	63
		Petromyzonti		5	4	9
		Reptilia		23	34	57
	Cnidaria			6		6
	Echinodermata			3		3
	Mollusca		48	723	1,522	2,293
Fungi	Ascomycota			5	5	10
	Basidiomycota		2	56	20	78
Plantae	Anthocerotophyta				1	1
	Bryophyta			33	71	104
	Marchantiophyta			6	30	36
	Tracheophyta		7	534	599	1,140
Total			**63**	**2,143**	**3,663**	**5,869**

Oystercatchers & Knot © Andrew Plumptre

THE VALUE OF UPDATING KBA NETWORKS IN EUROPEAN COUNTRIES

Currently 24% of existing KBA area is not covered by protected areas and we have shown that 74.5% of this area can potentially qualify as global KBAs. The NaturaConnect analysis identifies where across Europe is needed to conserve most of the continent's biodiversity as efficiently as possible to guide 30 x 30 expansion of protected and conserved areas; building on these results, we find that an additional 44% of that solution which falls outside existing protected areas and KBAs (269,600 km²) could qualify as KBAs. These areas should be a focus for expansion of protected and conserved area networks to achieve 30% coverage under the EU Green Deal and CBD KMGBF. It was predicted that an additional 12,468 protected areas might qualify as KBAs increasing the area of protected areas that qualify as KBAs to 65%. Combined that with existing protected areas that are currently KBAs would result in 79% of the area of existing protected areas qualifying as global KBAs, with a higher percentage of 88% for marine and coastal protected areas and lower value of 72% for terrestrial protected areas. This shows that the existing large protected areas in Europe are generally found in sites of global importance for biodiversity even if not recognised as such yet but that we currently haven't conserved all KBAs. Focusing on KBAs will help European governments best build on their existing protected area networks to maximise biodiversity conservation.

It is clear that the current KBA network in countries across Europe needs reassessment and updating. It has chiefly been identified for birds and many of the KBA criteria have not been applied. Many of the sites were also identified many years ago and haven't been updated with changes in species numbers and distributions that have occurred over time. This work is now underway. Some European countries have already established KBA National Coordination Groups which are overseeing the updating of their KBA networks; notably Spain, Italy and Greece. Other countries such as Denmark, United Kingdom, Germany, and France, have NGOs that have indicated interest in forming such groups but are seeking funds to do so. Our results show that there is a value in working to update KBA networks in all countries in Europe.

Protected and Conserved Area coverage of KBAs forms the basis for several indicators for UN Sustainable Development Goals 14 & 15, as well as a disaggregation of the headline indicator for Target 3 in the Kunming-Montreal Global Biodiversity Framework. European countries are therefore asked to report on this indicator for these two multi-lateral agreements. Similar indicators using KBAs are used by the Convention on Migratory Species (CMS) and the Ramsar Convention on Wetlands.

KBAs are also identified as 'biodiversity sensitive' areas in the Environmental Sustainability Reporting Standards (ESRS 4) of the Corporate Sustainability Reporting Directive (CSRD), as well as in the EU Taxonomy, together with Ecologically or Biologically Significant Marine Areas (EBSAs), and areas in IUCN Red List of Ecosystems or habitats of species listed in IUCN Red List of Threatened Species (which are scientifically recognised for its importance for biodiversity). KBAs are being used by most banks to screen requests for lending by business through the Integrated Biodiversity Assessment Tool (IBAT). As a result, companies are required to avoid or minimize negative impacts on KBAs and to monitor their impacts at KBAs where they operate. They are also required to assess impacts on KBAs in their value chains. This is not possible to do completely if not all KBAs have been identified in each country.

If European countries are to report on their KBAs as indicators for the UN Sustainable Development Goals and for Target 3 of the

Kunming-Montreal Global Biodiversity Framework, and if European companies are to report on their impacts on KBAs as part of their CSRD reporting then it is critical that all European nations update their KBA networks. These results clearly show that many sites are as yet not identified in the World Database of KBAs and available for business to use in IBAT. Business likes to know where such sites are when planning so that they can evaluate the risks of any investment and they can get frustrated when the conservation community cannot provide a complete assessment of these sites. As KBAs are globally significant sites for biodiversity conservation, updating the network will also help with planning for the 30 x 30 and 10% strict protection of the European Green Deal as well as helping identify other effective area-based conservation measures (OECMs) in each country.

Updating national KBA inventories typically involves first establishing a KBA National Coordination Group to bring together all relevant stakeholders, usually including scientists in institutions with data on biodiversity distribution, conservation practitioners in government and NGOs, and sometimes representatives of local communities or industry. This group then identifies and secures funding to update the KBA network in their country. Given the potential impacts on the private sector, it may be possible to obtain partial funding from businesses for this process. In the KBA identification process, countries usually establish small groups with different taxonomic expertise who apply the KBA criteria to species for which they have data. A training programme of about 4 days is then held to train these experts and they then work for about one to two years to identify KBAs and formally propose them for publishing in the World Database of KBAs. It is important to bring the groups together regularly to look at overlapping sites that they will likely identify so that they can harmonise boundaries and propose one site. Once common boundaries are agreed the sites are formally proposed in the World Database of KBAs where they are reviewed to confirm the KBA criteria have been applied correctly and then confirmed as KBAs. This process has been successfully implemented in eleven countries (Plumptre et al. 2025) and is currently underway in eleven other countries, with many others in the pipeline. Once sites are published in the World Database of KBAs, the data are shared with the private sector through IBAT and used to report on the indicators for the SDGs and KMGBF.

Many countries prioritise sites for conservation based on a mix of national, regional and global significance of sites, but this is not often identified explicitly. Identifying KBAs in a country leads to a recognition of the sites and species/ecosystems that have globally significant populations of species/extents of ecosystems and for which the country has a global responsibility to conserve. If the KMGBF is to succeed in its Goal A and halt human-caused extinctions of known threatened species immediately then it is critical that these important populations of species at sites are identified, mapped and conserved. KBAs will contribute significantly to the KMGBF because when conserved they protect some of the most important populations of a species. KBA status is also valuable for safeguarding sites because of their recognition and use by the private sector. A growing number of private sector companies, donors and governments are using KBAs as a tool to guide conservation investment globally. **It is critical therefore that European governments update their KBA networks to make them comprehensive to strengthen conservation across Europe.**

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