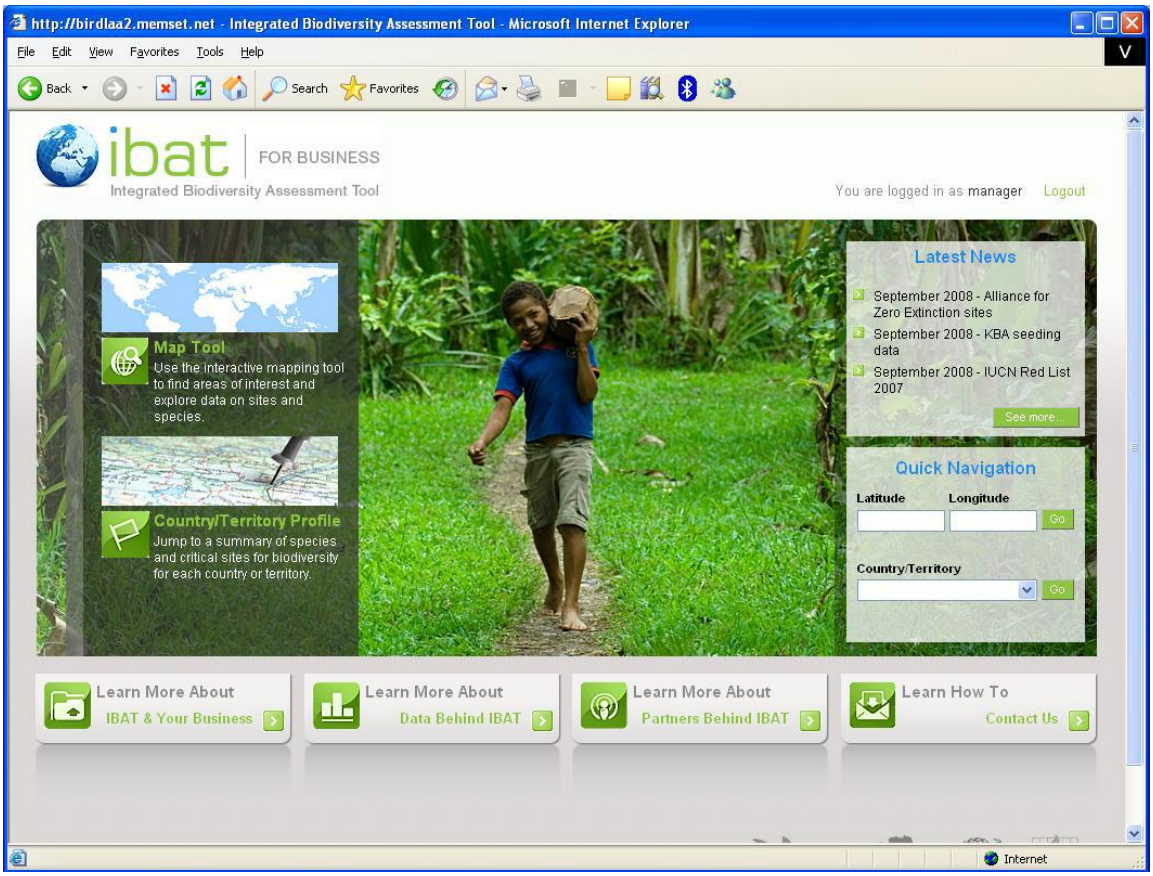
Cement Sustainability Initiative (CSI)



Guidelines for using the Integrated Biodiversity Assessment Tool (IBAT)

October 2012

wbcsd

IBAT PARTNERS

IUCN

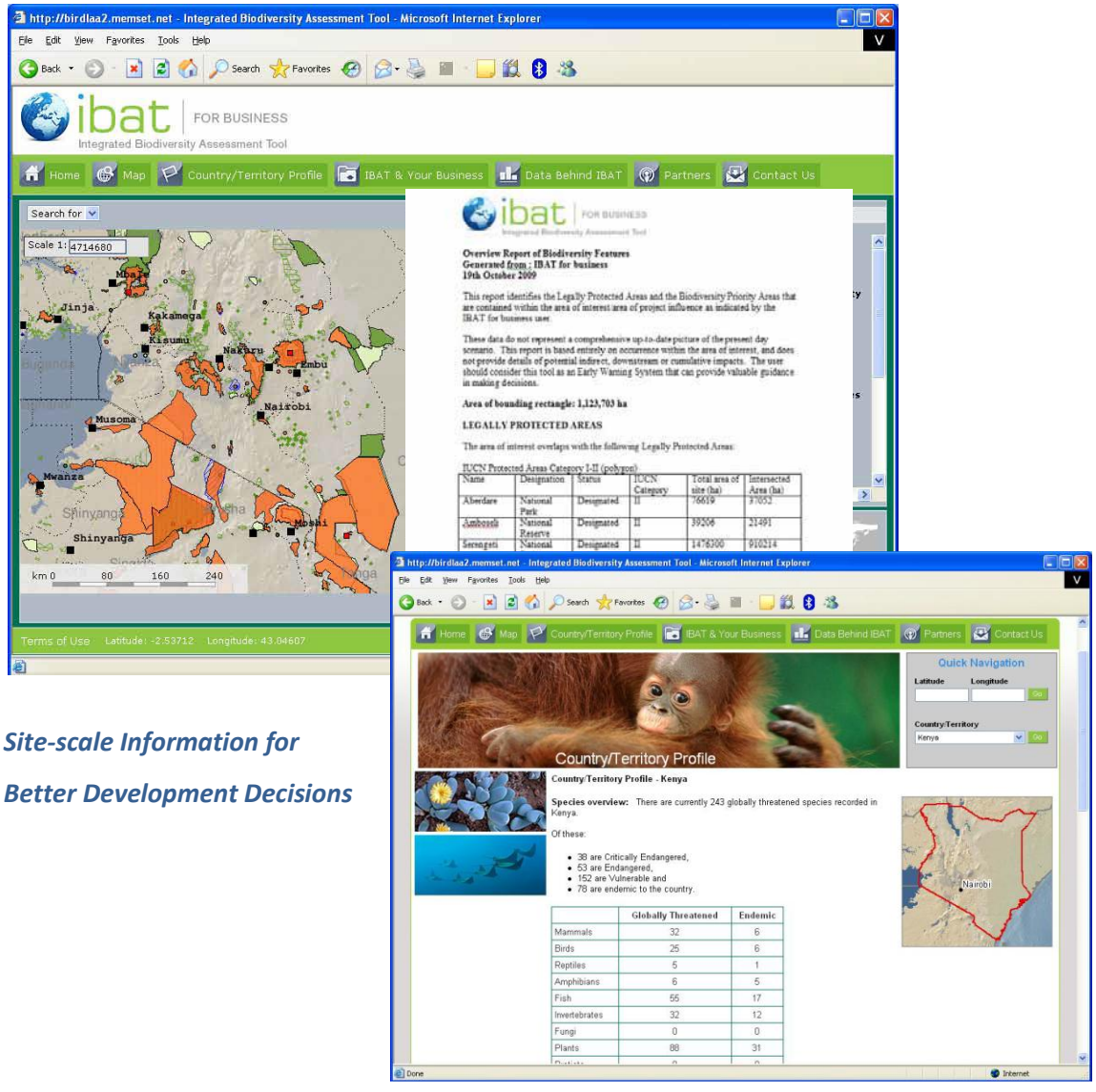
UNEP WCMC

BirdLife INTERNATIONAL

CONSERVATION INTERNATIONAL

Preface

The Integrated Biodiversity Assessment Tool (IBAT) for business was the first decision-support system released by the IBAT alliance/partnership. This tool was designed with and for private sector users to support fine scale risk assessment across the globe. IBAT for business is a critical first step in the project assessment and planning process. It aims to inform — not replace — subsequent efforts by business users to ensure responsible development.



Site-scale Information for Better Development Decisions

In brief, the present Guidance conists of the following:

- Introductory part.
- Discussion on the pros & cons of using the Tool, and resources needed.
- Technical Annex (considered as 'supplement') that details the different methodologies to employ, and provides elements of technical guidance on the use of the IBAT.

1. Introduction

Basic features of the Tool

The Integrated Biodiversity Assessment Tool (IBAT) is a web-based mapping platform, which provides the location of biodiversity sensitive sites at the global and national level, and allows access to important information, leveraging on worldwide databases of conservation.

The Tool is the result of a ground-breaking conservation partnership among Conservation Leaders and Specialists, namely: Bird Life Intl., Conservation International, the International Union for Conservation of Nature, and the United Nations Environment Program World Conservation Monitoring Center. By design, the Tool contains locations of Key Biodiversity Areas (KBA's), legally protected sites from the World Database of Protected Areas (WDPA), and the habitat ranges of Globally Threatened Species. KBA's are important for the protection of sensitive species, whether sites are legally protected or not. Globally Threatened Species originate from, and refer to, the IUCN Red List. Important features:

- The interactive map tool gives an overview of sensitive sites, within and in the proximity of the area(s) of interest,
- Information can be downloaded and imported into either a GIS database or a Google Earth file,
- A country profile summarises the sensitive species and areas and indicates the number of threatened and endemic species identified, the number of KBA's identified, and the number of protected areas. This gives an indication of the level of sensitivity in each country.

Why, when and how to employ the Tool?

The IBAT as a 'tool' is neither a software nor a mapping system that companies could tailor-make to their needs. It is a service package, or alternatively: a 'platform' or network of spatial databases, that provides some (necessary) geo-referenced mapping capabilities, and up-to-date, 'pre-screened', and dependable sources of info. *(Pledged by the Developers)*

As a screening tool, the IBAT can be used in the assessment of Greenfield quarries and other sites, as well as 'brown fields', and also operating quarries. In the preliminary stages of assessing alternatives, addressing risks and reviewing technical feasibility, the IBAT can give a broad brush view of potential high biodiversity important areas in or close to the site of interest. The initial screening can provide information for scoping of an on-site assessment either as part of the ESIA or a rapid assessment.

For existing sites, the IBAT indicates POTENTIAL presence of important biodiversity which can be confirmed with an onsite rapid assessment or survey. This becomes particularly

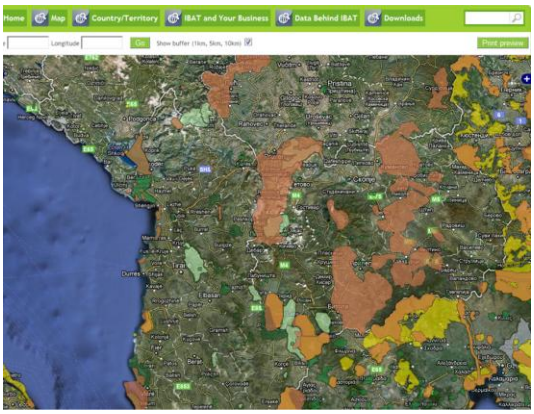
important when a company is initiating a new Environmental and Social Impact Assessment, e.g. for (and before) committing to a major expansion of an operating quarry.

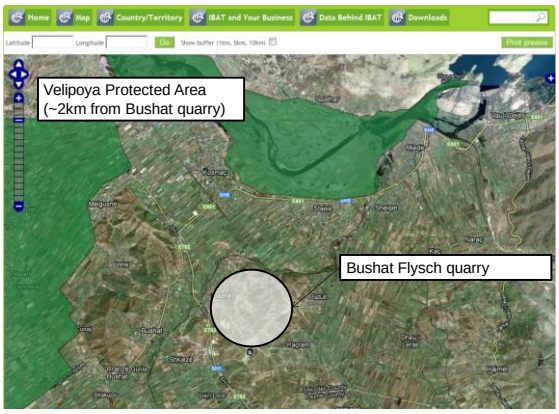
The IBAT-derived information can be used effectively in order to aid and inform decision making, in relation to a wide range of issues, including capital investment and stakeholder engagement, working on the principle that good environmental management is an intrinsic element of good plant management. The IBAT adoption and application should be based on the needs for effective 'screening', and determining priorities with respect to high biodiversity areas, in specific quarry areas. This in turn, should lead in the efficient planning and allocation of (scarce) resources, namely: costs, and experienced personnel, both internal and external. In summary, the IBAT allows for capabilities in the following:

- Screening potential investments, and locating existing and future operations in a given geographic region;
- Identifying biodiversity issues and help assessing risks, related to operating and also future quarry sites and respective expansion plans, associated with existing and potential sourcing regions;
- Completing Environmental and Social Impact Assessments, and developing action plans to manage for biodiversity impacts (Biodiversity Management Plans);
- Developing action plans to manage for biodiversity impacts locally;
- Reporting on biodiversity KPI's and performance, at corporate level.

How is the output of the IBAT screening presented?

There is background 'mapping' information over the entire world, including the most important cities, where all protected designated areas according to Natura, Ramsar, IUCN classification, etc and also to local or 'Country-specific' information (national parks, wildlife refuge areas etc.) are included. An illustration is provided next for Albania:





The tool presents all protected areas in different layers, in a flexible info-map framework (could support with GIS) and provides reports, while it 'mines' information through links to relevant (updated) databases/sites of Internet.

2. Pros & Cons

Strengths and Weaknesses of adopting and using the Tool

Strengths or advantages:

- Developed by Conservation Leaders and Specialists: The Tool is the result of a ground-breaking **conservation partnership** among: Bird Life International, Conservation International, and International Union for Conservation of Nature, and United Nations Environment Program World Conservation Monitoring Centre. This element adds to the credibility, transparency, robustness of the information, and it ensures frequent updates of (dynamic, changing) information.
- Enables good **overview of the geographic location** and shape of nature protection areas. As an example for Europe, exact site boundaries are available for the large majority of protected areas (e.g. 90%). Further: since the IBAT is compatible with GIS, is can also provide files for direct use inside Google Earth. IBAT also offers information for assessing complex cases of 'fragmented' habitats.
- Provides easy-to-navigate **access to information** on nature protection areas globally. This is particularly useful to regions and continents where access to biodiversity data is far less centralized and managed than what we know in Europe, from experience. Further, the IBAT saves time and efforts in searching for information about protected areas from multiple sources, as it provides a centralized access point. Versatility: Information for nature protected areas is provided by connecting with various Databases sites that are available on the Internet, and it offers an efficient reporting capability as well.
- Through **recent improvements** by the Developers, the 2012 IBAT version enables the user to save all relative coordinates onto an 'account' or catalog that serves as a database. Reporting capabilities have also been upgraded: The user can choose to view reports that document all protected areas and key biodiversity areas found within 1 km, 10 km and 50 km of any location in focus (allows for broader coverage). Such reports report can also list globally threatened and near threatened species, that, given suitable habitat could be found at or near the location. An IBAT overview report by the Developers, as example, is **attached as Appendix** to this Guidance.
- Serves as a good **starting point** for any analysis of whether your operations are likely to have impact on nature and where. This helps to specify further what impacts can be expected, and better utilize (rationalize) and align the available human resources

on the organization, while saving unnecessary costs. In other words: The IBAT is an initial screening tool that does not replace, but can 'inform' an onsite impact assessment or rapid survey of the base line, and – in this respect – complement the efforts of the organization in the planning and managing of biodiversity issues.

- Enables the analysis of **geographical proximity** to nature protected areas and other areas important for biodiversity to be made with simple means and without expensive software and IT skills. It follows: The IBAT can add value to the technical capacity of an organization, by enabling quick and high level queries to be made with little extra effort.
- The above could justify the choice of a 3-year or 5-year **frequency of conducting the screening**, assuming that: (a) local-country conditions w.r.t. legislative requirements remain quasi-stable, and (b) the company is not heavily engaged in mergers and aquisitions for business growth. In the opposite case, selective employment of the IBAT could cover the needs, even if an 'addition' of the IBAT application is deemed necessary before the next 3-year campaign.

Weaknesses, possible 'gaps' and inefficiencies (from experience):

- **Not a 'one-stop shop':** Despite of attempt to provide an "all in one place" service, it still is not easy to non-experts to understand the data and types of information contained. For example, the definitions of protected area types and the various systems used to classify them are complex and the information provided by IBAT is just the first step in understanding them.
- **Accuracy issues:** The success of an IBAT powered information search is dependent on data provided by external data holders (we call them the *'Developers'*). Despite of the regular maintenance (updates on a quarterly basis) IBAT provides no guarantee if this data would be available online at any given moment. Sometimes it returns "broken links" to these external systems. In that sense, the information provided by IBAT is only as accurate and up to date as the external data sources are. As an

example from experience: Comparing the limits of Natura protected areas for European countries through *'Natura Viewer'* for real examples, with the limits of Natura areas in the IBAT (polygons presented in Google Earth), cases of deviation have been evidenced. In contrast, perhaps as a possible solution to the above:

Local and national data sets are available in many countries and in local language (especially in the EU, where: for Natura 2000 sites the link leads to the Standard Data forms on the European Environmental Agency database, while better data may be available from the national authorities). This might be more accepted by local operations, so the IBAT could be used in combination with country-specific capabilities available in the net.

- **Granularity of reporting-mapping:** If users look for summarized information, such is only available at national level and not on lower levels. At the site level the IBAT provides links to the lists of protected species in a particular site provided for that site by an external data source. It is limited by the "coarse" distribution data incorporated into the system. In that sense it cannot replace the need to obtain detailed data for individual sites from other sources. This later issue is in the core of the need to have detailed, area-specific, assessment of the base line for biodiversity.
- **'Gaps'** with the up to date available information: Not all Countries are effectively and exhaustively assessed through the databases of the IBAT. Therefore gaps in the data do exist. From experience, many protected areas in the USA (mainly concerning wetlands) are not represented in the IBAT. Perhaps a particular issue for the Developers is how frequent and how effectively the Tool is updated for the USA.

Concluding on the pros & cons:

While there may be other ways to organize database links better, IBAT was designed to strike a balance between user-friendliness, accuracy and complexity, while providing easy learning. The solutions provided by IBAT clearly prioritize ease of access and quick results to accuracy and precision. It is geared towards the preliminary environmental screening and support for early planning, rather than in-depth analyses of impacts.

IBAT is a tool that has the potential and capabilities to support and rationalize the work of any biodiversity analyst in the business, but not to replace it. Therefore organizations that plan to use IBAT should not underestimate the need to employ trained expert staff who may be the most relevant users of IBAT. By adopting the IBAT as a 'preferred' tool for screening areas (for high biodiversity value), CSI members would improve in the robustness and transparency of their reporting, plus move towards standardizing their practices.

3. Technical Annex for the IBAT Guidance

Screening methods and presentation of results

We have identified two main options in order to conduct the screening by using the IBAT, and present the respective results:

A. The 'Google Earth' approach

The basic idea for presenting the results of the screening is that all the interested areas and also all of the protected areas that are queried inside the IBAT to be inserted into the platform of Google Earth. This procedure adds the benefit of evaluating whether any of the interested areas would affect any of the protected areas, and also gives the opportunity for measuring distances between the interested area (e.g. quarry areas) and the nearby important protected (biodiversity) areas.

Methodology of working with the IBAT:

Step 1. *Inserting the quarry limits inside Google Earth software ('kml' files):*

Kml files are the most common files in order to insert and depict a polygon line inside the platform of the Google Earth. These files usually are provided from the topographers who are surveying the area of interest; however there are easy methods with the help of AutoCAD or GIS software, in order to create these *kml* files as below:

Arc Map and Arc Catalog (GIS software) was used for this purpose. Basic files/steps:

- An AutoCAD map of the quarry (geo-referenced). By using Arc-Catalog, the coordinates system of the AutoCAD file is defined;
- By using Arc-Map an *'.mxd'* file is created;
- By using Arc-Toolbox, the *'.mxd'* file is being converted to *'.kml'* file.
- Double click on the *'.kml'* file and the interested area (usually quarry) is presented in Google Earth platform.

*Note: There is also the option through AutoCAD software to create '**kml**' files, but using **GIS** is the optimal way.*

Step 2. *Screening for Protected Areas within, adjacent or in near areas of interest:*

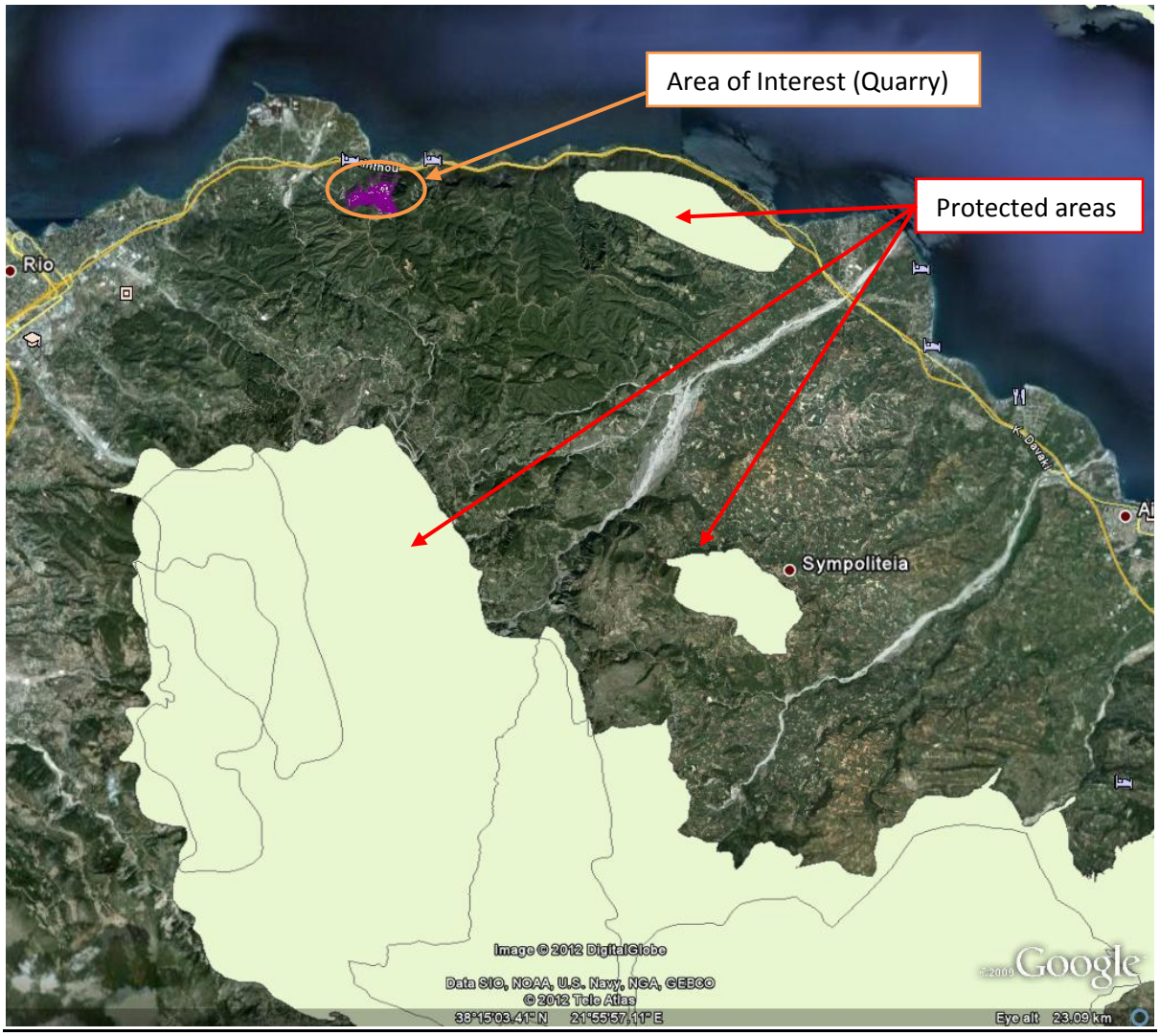
- Zoom close to the area of the interested quarry and all the Protected Areas that are located (close or inside to the interested quarry) are presented.
- There is an option to identify what kind of Protected Area is located close or inside the quarry (Natura, Ramsar, Important Birds Area (IBA), etc.), and also links are provided for further queries regarding protected areas.
- Download the *'kml'* file from the site of IBAT in order to represent these protected areas (polygons) in the Google Earth platform.

Step 3. In cases of EU Countries (and perhaps beyond EU), there are also available 'mapping' tools in the Internet, for efficiently cross-checking of the IBAT results (for example: Natura Viewer for EU Countries). In such cases, the info of various sources needs to collectively used, and synthesis of 'mapping' from different sources must be employed.

Note: All polygons are 'correlated' and presented jointly ('interested' and 'protected' areas), in Google Earth for further evaluation of areas of particular interest that could be operating or green-field sites.

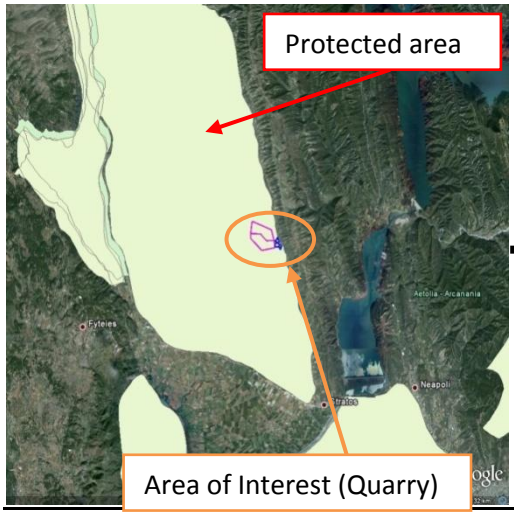
Examples *(see the following views 1-3, derived from real case studies of Titan in Greece [Geographic Regions of Achaia, Aetolia, and Attica], and also a case of an operating quarry of Votorantim in Brazil [see View 4]):*

A. View 1:

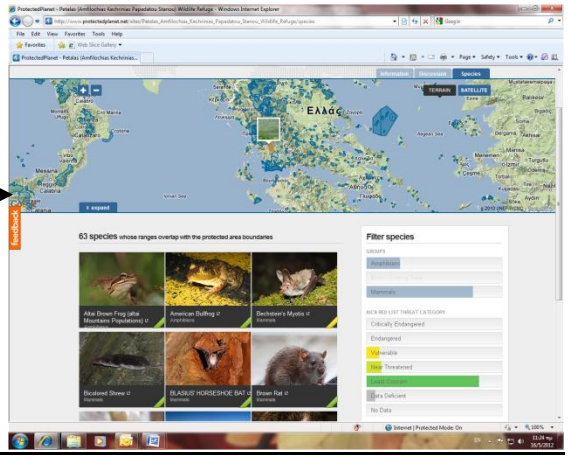


A. View 2:

A. View 3:

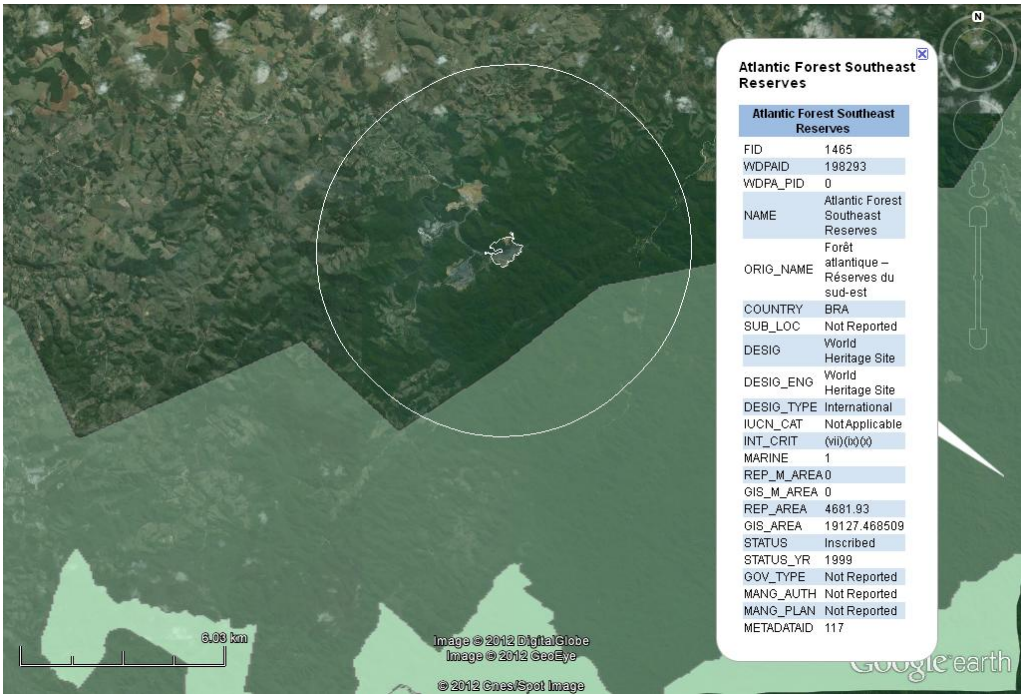


Link from IBAT site for further information for the protected area



A. View 4:

Example quarry/site:
- ⇨ Open Pit boundary
- ⇨ 5Km buffer from open pit boundary
- ⇨ IUCN polygon (from IBAT)



B. The GIS approach ('global approach')

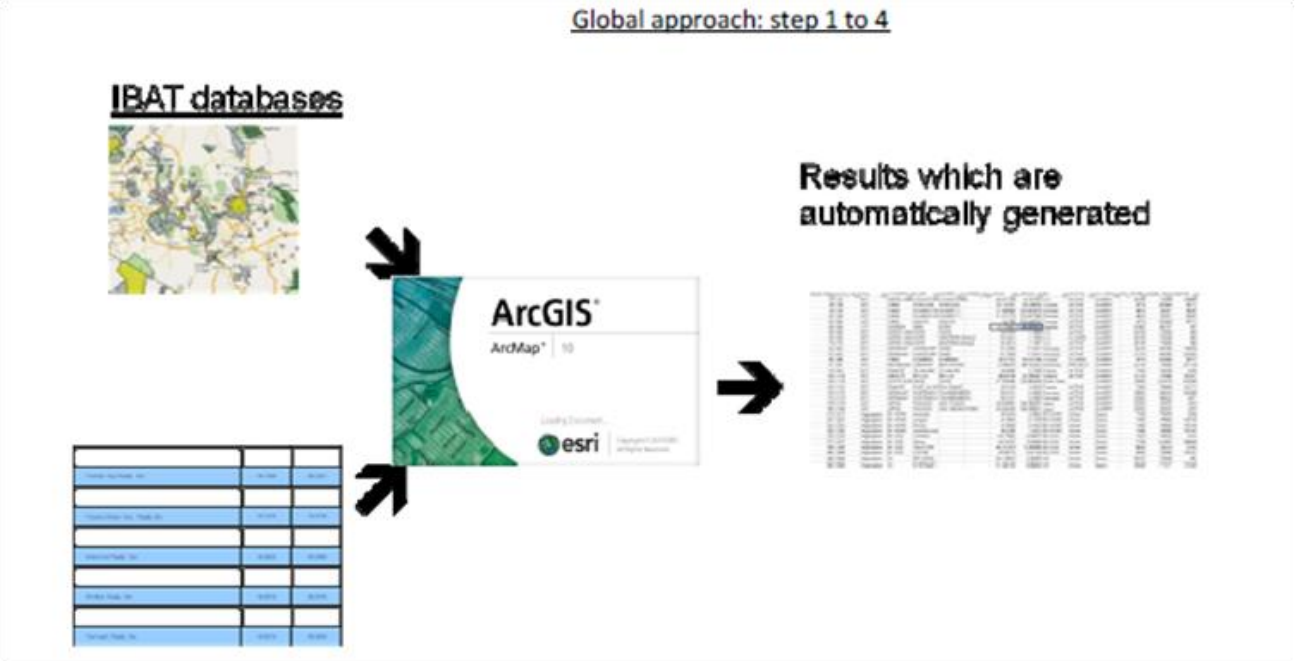
The target is to identify sensitive sites for biodiversity and to prioritise which sites require fact sheets and biodiversity management plans. The IBAT databases are updated regularly and there is an option to develop an approach which would enable to update the results as and when necessary, and with ease.

This methodology can be split into **5 steps**:

- **Step 1**: Create a GIS database which includes the areas of interest (IBAT databases) and the quarries (at this stage, we use the coordinates of each quarry as a reference)
- **Step 2**: Create a buffer zone of 500m around each quarry
- **Step 3**: Automatically locate the intersections between the buffer zones and the areas of interest for each type of area of interest (using the geo-processing functions: Union, Spatial Join and Intersect)
- **Step 4**: Export and consolidate the data into an excel file
- **Step 5**: Share the results with all the Business units/quarries and ask for feedback to improve the quality of the data (i.e. Check the results; take into account the boarders of the quarry etc.).

Note: This should be rated as an 'optimized' method technically speaking, that could be used for efficient screening. However this 'global' approach requires certain GIS capabilities and specialized software and other (human) resources in order to effectively apply in a systematic manner, especially when large number of quarries or other sites are targeted for screening.

Global approach in a **Schematic View** of Steps 1 to 4:



C. A technical note from available references

Yet there are no well-developed standard methods for quantifying and predicting impacts on biodiversity (*Gontier, 2006*). Habitat suitability models (statistics), meta-population models (single species monitoring), expert models (literature lists) and empirical models (fieldwork data based) are methods that differ in many aspects, like local pattern phenomena and the scales of study. In this way, GIS-based modelling like IBAT appears to fill the gap between first biodiversity approach and deep biodiversity assessment, mainly because it provides the regional context where the project is settled.

Reference: Gontier, M. 2006. Biodiversity in environmental assessment – current practice and tools for prediction. Environmental Impact Assessment Review 26: 268-286

Databases of Protected Areas that support the use of the IBAT

IUCN Category I-II

Part of IUCN's (The International Union for Conservation of Nature) global set of standard categories to classify protected areas, both terrestrial and marine, based on management objectives. These allow comparison between countries; unlike national naming designations (e.g. national park or forest reserve) which are not standardized internationally and do not necessarily convey information on management targets.

Category	Main management target	Definition
Ia	Science	Area of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring.
Ib	wilderness protection	Large area of unmodified or slightly modified land, and/or sea, retaining its natural character and influence, without permanent or significant habitation, which is protected and managed so as to preserve its natural condition.
II	ecosystem protection and recreation	Natural area of land and/or sea, designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations, (b) exclude exploitation or occupation inimical to the purposes of designation of the area and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.

IUCN Category III-IV

Part of IUCN's global set of standard categories to classify protected areas, both terrestrial and marine, based on management objectives. These allow comparison between countries; unlike national naming designations (e.g. national park or forest reserve) which are not standardized internationally and do not necessarily convey information on management targets.

Category	Main management target	Definition
III	conservation of specific natural features	Area containing one or more, specific natural or natural/cultural feature which is of outstanding or unique value because of its inherent rarity, representative or aesthetic qualities or cultural significance.
IV	conservation through management intervention	Area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats and/or to meet the requirements of specific species

IUCN Category V-VI

Part of IUCN's global set of standard categories to classify protected areas, both terrestrial and marine, based on management objectives. These allow comparison between countries; unlike national naming designations (e.g. national park or forest reserve) which are not standardized internationally and do not necessarily convey information on management targets.

Category	Main management target	Definition
V	landscape/seascape conservation and recreation	Area of land, with coast and sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character with significant aesthetic, ecological and/or cultural value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance and evolution of such an area.
VI	sustainable use of natural ecosystems	Area containing predominantly unmodified natural systems, managed to ensure long term protection and maintenance of biological diversity, while providing at the same time a sustainable flow of natural products and services to meet community needs.

IUCN Category Unknown

Part of IUCN's global set of standard categories to classify protected areas, both terrestrial and marine, based on management objectives. These allow comparison between countries; unlike national naming designations (e.g. national park or forest reserve) which are not standardized internationally and do not necessarily convey information on management targets.

These sites have either been degazetted or proposed protected areas that currently have no national recognition.

Internationally Recognized Areas

Natura 2000

Natura 2000 is the centrepiece of EU nature & biodiversity policy. It is an EU-wide network of nature protection areas established under the 1992 Habitats Directive. The aim of the network is to assure the long-term survival of Europe's most valuable and threatened species and habitats. It is comprised of Special Areas of Conservation (SAC) designated by Member States under the Habitats Directive, and also incorporates Special Protection Areas (SPAs) which they designate under the 1979 Birds Directive. Together, SPAs and SACs make up the Natura 2000 series. All EU Member States contribute to the network of sites in a Europe-wide partnership from the Canaries to Crete and from Sicily to Finnish Lapland.

- *Special Protection Areas (SPAs)* are classified under the Birds Directive to help protect and manage areas which are important for rare and vulnerable birds because they use them for breeding, feeding, wintering or migration.
- *Special Areas of Conservation (SACs)* are classified under the Habitats Directive and provide rare and vulnerable animals, plants and habitats with increased protection and management.

Ramsar Wetlands

The Convention on Wetlands (Ramsar, Iran, 1971) - called the "Ramsar Convention" - is an intergovernmental treaty that embodies the commitments of its member countries to maintain the ecological character of their Wetlands of International Importance and to plan for the "wise use", or sustainable use, of all of the wetlands in their territories. Unlike the other global environmental conventions, Ramsar is not affiliated with the United Nations system of Multilateral Environmental Agreements, but it works very closely with the other MEAs and is a full partner among the "biodiversity-related cluster" of treaties and agreements.

World Heritage Sites

This designation, administered by the United Nations Educational, Scientific and Cultural Organization (UNESCO) covers sites, protected and unprotected, which are recognized as having outstanding natural and/or man-made features which are considered of international importance to all people. The aim of such recognition is in promoting international cooperation in protecting such sites. This is based on the Convention Concerning the Protection of the World Cultural and Natural Heritage, adopted in 1972. Sites are nominated by the countries in which they occur and evaluated by a World Heritage Committee. Such sites do not necessarily recognize areas of high biodiversity value or nationally designated protected areas.

International other

This layer includes the following internationally recognized areas:

ASEAN Heritage Parks

The Association of Southeast Asian Nations (ASEAN) Heritage Parks have been defined as “Protected areas of high conservation importance, preserving in total a complete spectrum of representative ecosystems of the ASEAN region”. Under this definition, ASEAN member states have declared certain national parks and reserves as ASEAN Heritage Parks (AHPs) based on their uniqueness, diversity and outstanding values, in order for their importance as conservation areas to be appreciated regionally and internationally. The original declaration was signed in 1984 by Brunei Darussalam, Indonesia, Malaysia, Philippines, Singapore and Thailand, declaring a total of 11 AHPRs, and this was updated in 2003 after Cambodia, Lao PDR, Myanmar and Vietnam joined.

Barcelona Convention

The Barcelona Convention of 1976, amended in 1995, and the Protocols drawn up in line with this Convention aim to reduce pollution in the Mediterranean Sea and protect and improve the marine environment in the area, thereby contributing to its sustainable development. Specially Protected Areas of Mediterranean Importance (SPAMIs) are sites recognized under the Barcelona convention Protocol to conserve amongst other things: “the components of biological diversity in the Mediterranean, ecosystems specific to the Mediterranean area or the habitats of endangered species, are of special interest at the scientific, aesthetic, cultural or educational levels”.

OSPAR Marine Protected Areas

At the Ministerial Meeting in Sintra in 1998, OSPAR Ministers agreed to promote the establishment of a network of marine protected areas (MPAs) and following a period of preparatory work, the 2003 OSPAR Ministerial Meeting in Bremen adopted Recommendation 2003/3 on a network of marine protected areas with the purpose of establishing an ecologically coherent network of well-managed MPAs in the North-East Atlantic by 2010. The aims of the OSPAR network of MPAs are:

- to protect, conserve and restore species, habitats and ecological processes which have been adversely affected by human activities;
- to prevent degradation of, and damage to, species, habitats and ecological processes, following the precautionary principle;
- to protect and conserve areas that best represent the range of species, habitats and ecological processes in the maritime area.

UNESCO MAB

A designation assigned to existing protected areas by the United Nations Educational, Scientific and Cultural Organization (UNESCO). These reserves are not covered by any one international convention and instead form part of the UNESCO Man and the Biosphere (MAB) Programme. The protected areas selected to receive this designation do not necessarily protect unique or important areas, and can exhibit a variety of objectives including research, monitoring, training and demonstration, as well as conservation.

Key Biodiversity Areas

A site identified as a conservation priority for a variety of species (not only birds) based on quantitative criteria used for BirdLife's Important Bird Areas (IBAs) - see below for further details on IBAs. These sites are ideally based on manageable land units defined by local experts using global standards. The identification of these sites is an ongoing process and aims to provide defined manageable units for conservation management.

Important Bird Area (IBA): A site identified as a conservation priority for bird species based on four criteria: presence of globally threatened species; significant populations of restricted range species; a representative sample of biome-restricted species; important congregations of species. This model of site prioritization was pioneered by BirdLife International and has been used by other organizations to define similarly important sites for other groups of species, culminating in the development of the Key Biodiversity Area concept.

Alliance for Zero Extinction

Alliance for Zero Extinction (AZE) sites are the last refuges for some of the highest threatened species on the planet. AZE sites are discrete areas that contain 95% of the known global population of an Endangered (EN) or Critically Endangered (CR) species or 95% of one life history segment (e.g. breeding or wintering) of an EN or CR species. The loss of an AZE site would result in the extinction of a species in the wild. These sites are effectively the subset of Key Biodiversity Areas and Important Bird Areas which are the most immediate priority for conservation action.

Species grid *(generic layer)*

The threatened species grid layer is derived directly from the species distribution maps produced as part of each individual Red List assessment. The species distribution maps, commonly referred to as 'limits of distribution' or 'field guide' maps, aim to provide the current known distribution of the species within its native range. The limits of distribution are determined by using known occurrences of the species, along with knowledge of habitat preferences, remaining suitable habitat, elevation limits, and other expert knowledge of the species and its range. A polygon displaying the limits of a species distribution is essentially meant to communicate that the species likely only occurs within this polygon, but it does not mean that it is distributed equally within that polygon or occurs everywhere within that polygon.

The Red List deals with species of widely varying range sizes - from very restricted range species to species whose ranges exceed many hundreds of thousands of square kilometers, despite possibly being quite rare within that vast range. Therefore, one must be conscious of these factors

when using the Globally Threatened Species Grid within IBAT. When one clicks on a grid cell within IBAT and reveals the species underlying that grid cell, they are revealing species whose 'limits of distribution' intersect with that grid cell. This should not be confused with actual occurrence; rather, this should be interpreted as possible occurrence.

Should a user wish to explore a specific species' distribution map, the species list contains a link that will display the limits of distribution map (Range map) for that single species.

KBA Completeness *(generic layer)*

This layer gives an indication of the current state of the KBA directories within a country/territory. The layer is split up into 7 categories as described below.

1. Full coverage for all birds and other major taxa
2. Full coverage for all birds, partial coverage for other major taxa
3. Full coverage for all birds, in preparation for other major taxa
4. Full coverage for all birds
5. Partial coverage for birds and other major taxa
6. In preparation
7. No sites identified

An additional comments field is available when an individual country/territory is queried which gives further details on the status of the KBA identification and boundary delineation.

WDPA Completeness *(generic layer)*

This map describes the quality of protected areas in the WDPA by country. Quality is calculated statistically by scoring each country based on the presence of polygons versus points, completeness of attribute information and currency of dataset. The 'restricted' category represents a country which has placed a restriction on the data that prevents UNEP-WCMC from displaying the dataset or otherwise making it available. 'Poor' represents a dataset that does not have polygons in addition to incomplete attributes and has not been updated in the past 3-5 years; 'Deficient' represents a dataset that has fewer polygons than points and is also lacking in currency and attributes; 'Good' has received a good score in 2 out of three of the criteria; finally 'Very Good' represents countries which have most or all polygons in their dataset, complete attributes and have been updated recently.

Endemic Bird Areas

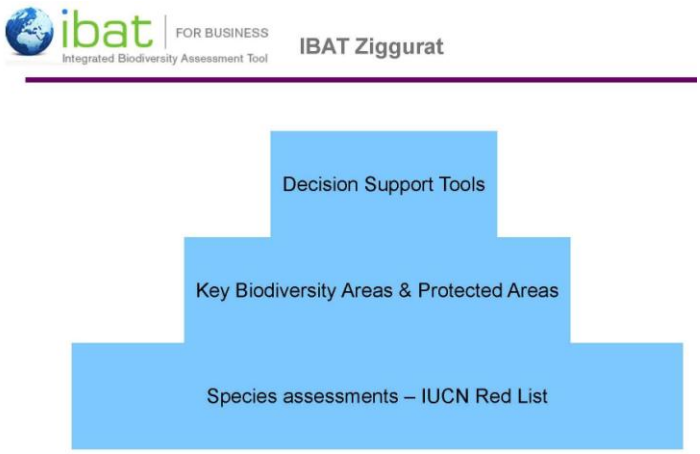
Endemic Bird Areas (EBA) are regions of global conservation importance, identified by BirdLife International, where the distributions of two or more restricted-range bird species overlap. About 25% of all bird species have a 'restricted' range, i.e. they are restricted (endemic) to a very small area in global terms (defined as 50,000 km² or smaller). Half of all restricted-range species are already globally threatened or Near Threatened, while the other half remain forever vulnerable to the loss or degradation of habitat owing to the smallness of their ranges. The unique landscapes where these species occur, amounting to just 4.5% of the earth's land surface, are thus BirdLife International's priorities for broad-scale ecosystem conservation. The EBAs also support many of the world's more widespread bird species, are also important for the conservation of restricted-range species from other animal and plant groups, and are often particularly rich in human cultures and languages.

Biodiversity Hotspots

Biodiversity Hotspots are regions of global conservation importance defined by the presence of high levels of threat (at least 70% habitat loss) in areas with high levels of species endemism (at least 1,500 endemic plant species). One hotspot can include multiple ecoregions. These hotspots represent the set of broad-scale priority regions for work by Conservation International. These are currently terrestrially focused but the process of identifying marine hotspots is under way.

High Biodiversity Wilderness Area

High Biodiversity Wilderness Areas (HBWAs) are large areas (at least 10,000 km^2) consisting of regions defined by their relatively undisturbed nature (at least 70% intact) and high level of species endemism (at least 1,500 endemic plant species). These form a supplementary broad-scale priority to biodiversity hotspots for Conservation International.



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The '✓' mark refers to the TF5 members that took the IBAT 'road test' in 2012, by applying the Tool fully or partly.

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Integrated Biodiversity Assessment Tool

THE IBAT VISION: ***"Decisions affecting critical natural habitats are informed by the best scientific information and in turn decision-makers support the generation and maintenance of that scientific information."***

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Overview Report Of Biodiversity Features

Location Mount Kenya

Latitude/Longitude 0° 4" 36' North 37° 30" 18' East

About this report

This IBAT point-based intersection report identifies the Legally Protected Areas, Internationally Recognised Areas and Priority Sites for Biodiversity that are located within 1 km, 10 km and 50 km of the location.

The report provides an indication of the potential biodiversity-related features close to the location, and does not provide details of potential indirect, downstream or cumulative impacts. The user should consider this tool as an Early Warning System that can provide valuable guidance in making decisions. This information could also be used to compare with biodiversity data provided in an EIA or related assessment.

How to interpret this report

PLEASE NOTE: The distance calculations are performed by reprojecting the spatial data to an equal distance projection, and so may not match precisely the results shown on the map.

FEATURES WITHIN 1 km

Legally Protected Areas		
IUCN Category Unknown	Imenti or Upper Imenti	122 ha

FEATURES WITHIN 10 km

Internationally Recognised Areas		
World Heritage	Mount Kenya National Park/Natural Forest	1824 ha
Priority Sites for Biodiversity		
Alliance for Zero Extinction Site	Mount Kenya Triggers: CR/EN, VU, endemic, other	271000 ha
Key Biodiversity Area	Mount Kenya Triggers: CR/EN, VU, endemic, other	271000 ha

FEATURES WITHIN 50 km

Legally Protected Areas		
IUCN Category II	Mount Kenya	590 ha
IUCN Category Unknown	Kibithewa	2 ha
Internationally Recognised Areas		
UNESCO-MAB Biosphere Reserve	Mount Kenya	718 ha

IUCN RED LIST OF THREATENED SPECIES

Given suitable habitat, the following species are potentially found close to the area of interest:

Taxonomic group	Species	IUCN Red List category
Amphibians	*Hyperolius cystocandicans*	VU
Amphibians	*Mertensophryne lonnbergi*	NT
Birds	*Aquila heliaca* Eastern Imperial Eagle	VU
Birds	*Ardeola idae* Madagascar Pond-heron	EN
Birds	*Balearica regulorum* Grey Crowned-crane	VU
Birds	*Cinnyricinclus femoralis* Abbott's Starling	VU
Birds	*Circaetus fasciolatus* Southern Banded Snake-eagle	NT
Birds	*Circus macrourus* Pallid Harrier	NT
Birds	*Coracias garrulus* European Roller	NT
Birds	*Euplectes jacksoni* Jackson's Widowbird	NT
Birds	*Falco cherrug* Saker Falcon	VU
Birds	*Falco naumanni* Lesser Kestrel	LC
Birds	*Gallinago media* Great Snipe	NT

Birds	*Glareola ocularis* Madagascar Pratincole	VU
Birds	*Gyps africanus* White-backed Vulture	NT
Birds	*Gyps rueppellii* Rueppell's Vulture	NT
Birds	*Limosa limosa* Black-tailed Godwit	NT
Birds	*Neophron percnopterus* Egyptian Vulture	EN
Birds	*Neotis denhami* Denham's Bustard	NT
Birds	*Polemaetus bellicosus* Martial Eagle	NT
Birds	*Terathopius ecaudatus* Bateleur	NT
Birds	*Torgos tracheliotos* Lappet-faced Vulture	VU
Birds	*Trigonoceps occipitalis* White-headed Vulture	VU
Birds	*Turdoides hindei* Hinde's Pied-babbler	VU
Mammals	*Acinonyx jubatus* Cheetah	VU
Mammals	*Bdeogale jacksoni* Jackson's Mongoose	NT
Mammals	*Caracal aurata* African Golden Cat	NT
Mammals	*Crocidura fumosa* Smoky White-toothed Shrew	VU
Mammals	*Diceros bicornis* Black Rhinoceros	CR
Mammals	*Grammomys gigas* Giant Thicket Rat	EN
Mammals	*Hippopotamus amphibius* Large Hippo	VU
Mammals	*Hyaena hyaena* Striped Hyaena	NT
Mammals	*Loxodonta africana* African Elephant	NT
Mammals	*Lycaon pictus* African Wild Dog	EN
Mammals	*Oryx beisa* Beisa/fringe-eared Oryx	NT
Mammals	*Otomops martiensseni* Large-eared Free-tailed Bat	NT
Mammals	*Panthera pardus* Leopard	NT
Mammals	*Surdisorex polulus* Mt. Kenya Mole Shrew	VU
Mammals	*Tragelaphus eurycerus* Bongo	NT
Mammals	*Tragelaphus imberbis* Lesser Kudu	NT

EXPLANATIONS AND DEFINITIONS

LEGALLY PROTECTED AREAS

IUCN Protected Areas

Ia. Strict Nature Reserve

Category Ia are strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphical features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values. Such protected areas can serve as indispensable reference areas for scientific research and monitoring.

Ib Wilderness Area

Category Ib protected areas are usually large unmodified or slightly modified areas, retaining their natural character and influence without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

II National Park

Category II protected areas are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible, spiritual, scientific, educational, recreational, and visitor opportunities.

III Natural Monument or feature

Category III protected areas are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value

IV Habitat/Species Management area

Category IV protected areas aim to protect particular species or habitats and management reflects this priority. Many Category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.

V Protected Landscape/Seascape

A protected area where the interaction of people and nature over time has produced an area of distinct character with significant, ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.

VI Protected Area with sustainable use of natural resources

Category VI protected areas conserve ecosystems and habitats together with associated cultural values and traditional

natural resource management systems. They are generally large, with most of the area in a natural condition, where a proportion is under sustainable natural resource management and where low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area.

IUCN category unknown

INTERNATIONALLY RECOGNISED AREAS

World Heritage Sites

World Heritage Sites are places on earth that are of Outstanding Universal Value (OUV) to humanity and therefore, have been inscribed on the World Heritage List to be protected for future generations. The World Heritage Convention was adopted by United Nations Educational, Scientific and Cultural Organization's (UNESCO) General Conference in 1972, and came into force in 1975, for the identification, protection, conservation, presentation and transmission to future generations of the world cultural and natural heritage. Under this international legal instrument, sites are nominated for inclusion on the World Heritage List, either for their natural or cultural values, or a mixture of the two. The secretariat to the World Heritage Convention is the UNESCO World Heritage Centre, whilst three organisations: International Council on Monuments and Sites (ICOMOS), International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) and the International Union for Conservation of Nature (IUCN) act as its advisory bodies. The advisory body on natural heritage is IUCN.

To be included on the World Heritage List, sites must be of outstanding universal value and meet at least one out of ten selection criteria. Following the adoption of revised Operational Guidelines for the Implementation of the World Heritage Convention, in 2005, there are currently ten criteria. Of these, (i) to (vi) relate to cultural values and (vii) to (x) to natural values. This report includes sites that trigger natural values or a mix of natural and cultural.

For ease of reference, the definitions for criteria (vii) through (x) are provided below.

- (vii) to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;
- (viii) to be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features;
- (ix) to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;
- (x) to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

Ramsar Wetlands

The Convention on Wetlands (Ramsar, Iran, 1971) - called the "Ramsar Convention" - is an intergovernmental treaty that embodies the commitments of its member countries to maintain the ecological character of their Wetlands of International Importance and to plan for the "wise use", or sustainable use, of all of the wetlands in their territories. Unlike the other global environmental conventions, Ramsar is not affiliated with the United Nations system of Multilateral Environmental Agreements, but it works very closely with the other MEAs and is a full partner among the "biodiversity-related cluster" of treaties and agreements.

Natura 2000

Natura 2000 is the centrepiece of EU nature & biodiversity policy. It is an EU-wide network of nature protection areas established under the 1992 Habitats Directive. The aim of the network is to assure the long-term survival of Europe's most valuable and threatened species and habitats. It is comprised of Special Areas of Conservation (SAC) designated by Member States under the Habitats Directive, and also incorporates Special Protection Areas (SPAs) which they designate under the 1979 Birds Directive. Together, SPAs and SACs make up the Natura 2000 series. All EU Member States contribute to the network of sites in a Europe-wide partnership.

- Special Protection Areas (SPAs) are classified under the Birds Directive to help protect and manage areas which are important for rare and vulnerable birds because they use them for breeding, feeding, wintering or migration.
- Special Areas of Conservation (SACs) are classified under the Habitats Directive and provide rare and vulnerable animals, plants and habitats with increased protection and management.

Natura 2000 is not a system of strict nature reserves where all human activities are excluded. Whereas the network will certainly include nature reserves most of the land is likely to continue to be privately owned and the emphasis will be on ensuring that future management is sustainable, both ecologically and economically.

Man and the Biosphere Programme

Biosphere reserves are areas of terrestrial and coastal marine ecosystems, internationally recognized under UNESCO's Man and the Biosphere Programme, which innovate and demonstrate approaches to conservation and sustainable development. Biosphere Reserves are designed to promote and demonstrate a balanced relationship between people and nature. They are nominated by national governments and remain under the sovereign jurisdiction of the States where they are situated.

Barcelona Convention

The Barcelona Convention of 1976, amended in 1995, and the Protocols drawn up in line with this Convention aim to reduce pollution in the Mediterranean Sea and protect and improve the marine environment in the area, thereby contributing to its sustainable development. Specially Protected Areas of Mediterranean Importance (SPAMIs) are sites recognized under the Barcelona convention Protocol to conserve amongst other things: "the components of biological diversity in the Mediterranean, ecosystems specific to the Mediterranean area or the habitats of endangered species, are of special interest at the scientific, aesthetic, cultural or educational levels".

ASEAN Heritage Parks

The Association of Southeast Asian Nations (ASEAN) Heritage Parks have been defined as "Protected areas of high conservation importance, preserving in total a complete spectrum of representative ecosystems of the ASEAN region". Under this definition, ASEAN member states have declared certain national parks and reserves as ASEAN Heritage Parks (AHPs) based on their uniqueness, diversity and outstanding values, in order for their importance as conservation areas to be appreciated regionally and internationally. The original declaration was signed in 1984 by Brunei Darussalam, Indonesia, Malaysia, Philippines, Singapore and Thailand, declaring a total of 11 AHPRs, and this was updated in 2003 after Cambodia, Lao PDR, Myanmar and Vietnam joined.

OSPAR Marine Protected Areas

OSPAR is the mechanism by which fifteen Governments of the western coasts and catchments of Europe, together with the European Community, cooperate to protect the marine environment of the North-East Atlantic. It started in 1972 with the Oslo Convention against dumping. It was broadened to cover land-based sources and the offshore industry by the Paris Convention of 1974. These two conventions were unified, up-dated and extended by the 1992 OSPAR Convention. The new annex on biodiversity and ecosystems was adopted in 1998 to cover non-polluting human activities that can adversely affect the sea.

The fifteen Governments are Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom. Finland is not on the western coasts of Europe, but some of its rivers flow to the Barents Sea, and historically it was involved in the efforts to control the dumping of hazardous waste in the Atlantic and the North Sea. Luxembourg and Switzerland are Contracting Parties due to their location within the catchments of the River Rhine.

Within OSPAR, MPAs are understood as areas for which protective, conservation, restorative or precautionary measures have been instituted for the purpose of protecting and conserving species, habitats, ecosystems or ecological processes of the marine environment.

PRIORITY BIODIVERSITY AREAS

Key Biodiversity Areas

Key Biodiversity Areas (KBA) are nationally mapped sites of global significance for biodiversity conservation that have been selected using globally standard criteria and thresholds. Their identification follows best practice protected area guidelines developed by IUCN.

Based on a framework of vulnerability and irreplaceability widely used in systematic conservation planning, KBAs could largely be divided into the following categories. Those defined for the presence of:

- Critically Endangered and Endangered species
- Vulnerable species
- Endemic and restricted-range species
- Migratory species and species that form congregations
- Biome-restricted species

Note: Important Bird Areas (IBAs) are sites identified as a conservation priority for bird species based on four criteria: presence of globally threatened species; significant populations of restricted range species; a representative sample of biome-restricted species; important congregations of species. This model of site prioritization was pioneered by BirdLife International and has been used by other organizations to define similarly important sites for other groups of species, culminating in the development of the KBA concept.

Alliance for Zero Extinction

Alliance for Zero Extinction (AZE) sites are the last refuges for some of the highest threatened species on the planet. AZE sites are discrete areas that contain 95% of the known global population of an Endangered (EN) or Critically Endangered (CR) species or 95% of one life history segment (e.g. breeding or wintering) of an EN or CR species. The loss of an AZE site would result in the extinction of a species in the wild. These sites are effectively the subset of Key Biodiversity Areas and Important Bird Areas which are the most immediate priority for conservation action.

IUCN Red List of Threatened Species (species grid)

The IUCN Red List of Threatened Species™ is widely recognized as the most comprehensive, objective global approach for evaluating the conservation status of plant and animal species. This is based on a scientifically rigorous approach to determine risks of extinction that is applicable to all species, and has become a world standard. In order to produce the IUCN Red List of Threatened Species™, the IUCN Species Programme working with the IUCN Survival Commission (SSC) and with members of IUCN draws on and mobilizes a network of scientists and partner organizations working in almost every country in the world, who collectively hold what is likely the most complete scientific knowledge base on the biology and conservation status of species. Spatial information, where available, on potential occurrence of these species is presented via IBAT.

The threatened species grid layer is derived directly from the species distribution maps produced as part of each individual Red List assessment. The species distribution maps, commonly referred to as 'limits of distribution' or 'field guide' maps, aim to provide the current known distribution of the species within its native range. The limits of distribution are determined by using known occurrences of the species, along with knowledge of habitat preferences, remaining suitable habitat, elevation limits, and other expert knowledge of the species and its range. A polygon displaying the limits of a species distribution is essentially meant to communicate that the species likely only occurs within this polygon, but it does not mean that it is distributed equally within that polygon or occurs everywhere within that polygon.

The Red List deals with species of widely varying range sizes - from very restricted range species to species whose ranges exceed many hundreds of thousands of square kilometers, despite possibly being quite rare within that vast range. Therefore, one must be conscious of these factors when using the Globally Threatened Species Grid within IBAT. When one clicks on a grid cell within IBAT and reveals the species underlying that grid cell, they are revealing species whose 'limits of distribution' intersect with that grid cell. This should not be confused with actual occurrence; rather, this should be interpreted as possible occurrence.

ABOUT IBAT

The Integrated Biodiversity Assessment Tool (IBAT) provides key decision-makers with access to critical information on biodiversity priority sites to inform risk management and decision-making processes that address potential biodiversity impacts. Developed through a partnership of BirdLife International, Conservation International, International Union for Conservation of Nature (IUCN) and United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), the vision of IBAT is that decisions affecting critical natural habitats are informed by the best scientific information and in turn decision makers will support the quest to collect and enhance the underlying datasets and maintain that scientific information.