



# IUCN Knowledge Products

The basis for a partnership to support the functions and work programme of IPBES



INTERNATIONAL UNION FOR CONSERVATION OF NATURE





## About IUCN

IUCN, International Union for Conservation of Nature, helps the world find pragmatic solutions to our most pressing environment and development challenges.

IUCN works on biodiversity, climate change, energy, human livelihoods and greening the world economy by supporting scientific research, managing field projects all over the world, and bringing governments, NGOs, the UN and companies together to develop policy, laws and best practice.

IUCN is the world's oldest and largest global environmental organization, with more than 1,200 government and NGO members and almost 11,000 volunteer experts in some 160 countries. IUCN's work is supported by over 1,000 staff in 45 offices and hundreds of partners in public, NGO and private sectors around the world.

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A document prepared for the second session of a plenary meeting on the Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES), on 16-21 April 2012, in Panamá City, Panamá



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Available from: IUCN (International Union for Conservation of Nature)  
Rue Mauverney 28  
1196 Gland  
Switzerland  
Tel +41 22 999 0000  
Fax +41 22 999 0002  
[ipbes@iucn.org](mailto:ipbes@iucn.org)  
[www.iucn.org/ipbes](http://www.iucn.org/ipbes)  
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# Executive Summary

The Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES) aims to strengthen the science-policy interface on biodiversity and ecosystem services to improve decision-making. IPBES is evolving into an authoritative global mechanism recognized by the scientific and policy communities to pull together dispersed information, syntheses, and analyses targeting decision-makers. By building on existing processes and initiatives, and only in the case of gaps creating new processes, the intention is that decisions and research investment will be more efficient. The International Union of Conservation of Nature (IUCN), established in 1948, has a history of creating and providing credible and trusted knowledge on biodiversity. This has been made possible through the scientific expertise and support of the large group of volunteer experts associated to IUCN through the Species Survival Commission (SSC) and the World Commission on Protected Areas (WCPA). The IUCN flagship knowledge products particularly relevant to the work of IPBES are: The IUCN Red List of Threatened Species™, Protected Planet (including the World Database on Protected Areas - WDPAs), the IUCN Standard for identification of areas of global significance for biodiversity (“key biodiversity areas” - KBAs), and the IUCN Red List of Ecosystems. As a Union comprising government and civil society Members, IUCN is well placed to bring together key actors at all levels. IUCN knowledge products are directly linked to the four overarching IPBES Functions determined by the Busan Outcome.

IUCN is a leading provider of biodiversity knowledge, tools and standards used to influence policy, undertake conservation planning and guide action on the ground. IUCN will further develop this role based on the integration of its flagship knowledge products. The increased integration and linkage between these products illustrated in this report highlights opportunities to firmly embed conservation in land use planning and development. Continuously increasing connections between the datasets will demonstrate the linkages between



ecosystems and human well being, providing a means of assessing and rewarding good ecosystem management such as through payments for ecosystem services.

IUCN knowledge products have already contributed to valuable global assessments and analyses including: the Millennium Ecosystem Assessment, The Economics of Ecosystems and Biodiversity study, the Global Biodiversity Outlooks, and the development of indicators for reporting against the Millennium Development Goals. IUCN data is also the basis of several global indicators for reporting on and measuring progress towards the achievement of many of the Aichi Targets of the Strategic Plan for Biodiversity, adopted by governments at the Conference of the Parties to the Convention on Biological Diversity (CBD) in Nagoya, Japan, in October 2010.

This report describes IUCN knowledge products focusing on those which incorporate the spatial distribution of biodiversity information on the land and in the sea. Such knowledge is used to underpin conservation, restoration, marine and land use planning and natural resource management. In addition to the four area-based knowledge products, IUCN has critical information on invasive species available through the Global Invasive Species Database (GISD). Additional knowledge products that inform effective governance of biodiversity and ecosystem services include ECOLEX: the Gateway to Environmental Law, and the IUCN Green List of Well-Managed Protected Areas. IUCN is also developing the IUCN Natural Resource Governance Framework and the IUCN Index of Human Dependency on Nature.

IUCN is offering these knowledge products to IPBES as a contribution to establishing a firm strategic partnership, support the developing of the IPBES workplan and thereby deliver crucial information for decision-makers.

# Introduction

The International Union for Conservation of Nature (IUCN) presents this report to throw light on a possible collaboration and partnership with the Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES). IUCN knowledge products have indeed a potential to contribute to the four overarching functions of IPBES<sup>1</sup>. IUCN builds on previous presentations to IPBES of relevant experience (IUCN<sup>2</sup>; UNEP<sup>3</sup>). Specifically, this report describes some of the key IUCN tools and processes for biodiversity<sup>4</sup> conservation and planning, referred to as IUCN knowledge products. IUCN illustrates the power of the union of Secretariat, Commission and Members, supported by additional partnerships, to generate and supply knowledge and experience for IPBES. Concrete case studies provide examples of existing IUCN activities, as well as planned future activities with the potential to contribute to IPBES. A key aspect of this 'offering' to IPBES is IUCN's experience of integrating its knowledge products with each other and with the tools, processes and mechanisms of its partners, as well as ensuring their application through policies and programmes. In referring to Knowledge Products, IUCN includes global datasets of biodiversity-related information maintained in databases that are subject to peer-review for quality-control and are regularly updated.

IUCN experience, expertise and planning processes for 2013-2016 (draft IUCN Programme 2013-2016<sup>5</sup>) are also supportive of and can contribute to IPBES. This draft IUCN programme will be discussed, finalised and approved at the 5<sup>th</sup> World Conservation Congress in September 2012 in Jeju, Republic of Korea. At this meeting more than 1000 institutional members of IUCN<sup>6</sup> made up of 89 national governments, 124 IUCN government agencies, 976 non-governmental organisations, 42 affiliate members and a multitude of additional partners will reflect on the science, policy, and conservation status and impact of activities since 2008 including the development of IPBES, the adoption of the Strategic Plan for Biodiversity 2011-2020 with its 20 Aichi Biodiversity Targets, and the endorsement of the Strategic Plan as a framework for the biodiversity-related Multilateral Agreements.

IUCN knowledge products have a history, dating from IUCN's establishment in 1948 and the earliest lists of extinct species and species at risk of extinction maintained through index-card systems and data sheets on wild mammals and birds. Since 1962, IUCN work in compiling information on Protected Areas such as World Heritage Sites, Ramsar Sites and UNESCO Man and Biosphere Reserves and contribution to the production of the United

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1 IPBES Busan outcome 2011 paragraph 6 (b) to (e) and paragraph 7

2 [www.iucn.org/ipbes](http://www.iucn.org/ipbes)

Various IUCN position papers and supporting information for IPBES; IUCN Members and Resolutions 2012;

3 UNEP, 2009: UNEP/IPBES/2/INF/1 Gap analysis for the purpose of facilitating the discussions on how to improve and strengthen the science-policy interface on biodiversity and ecosystem services; UNEP, 2011: Potential Relationship between IPBES and existing institutions

4 IUCN working definition of biodiversity is the definition in Article 2 of the text of the Convention on Biological Diversity (CBD, 1992): "Biological diversity" means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. This definition is further elaborated in the Millennium Ecosystem Assessment, 2005.

5 [www.iucn.org/](http://www.iucn.org/) ..... IUCN Draft Programme 2013-2016

6 [www.iucn.org/about/union/members/who\\_members/members\\_database](http://www.iucn.org/about/union/members/who_members/members_database)

Nations List of Protected Areas have been recognized under a mandate from the UN General Assembly. The tools and mechanisms have evolved in response to global and local conservation needs. These tools gained recognition and guidance via their expansion and application through IUCN policy mandate from the 19 IUCN General Assemblies and 4 World Conservation Congresses. The influence on global policy of the IUCN World Conservation Congress is presented separately and available in “A Review of the Impact of IUCN Resolutions on International Conservation Efforts” (IUCN, 2012).<sup>7</sup>



7 [www.iucn.org/members](http://www.iucn.org/members)

## Main features of IUCN Knowledge Products

The IUCN knowledge products presented in this document are tools for the conservation of biodiversity that unite global standards, mechanisms, processes, datasets, analytical methods and applications, web-portals and publications. These IUCN products and associated tools are:

1. **Accessible** via open-access, online tools delivered via maps, online search functions, and online repositories of information on methods, guidelines of best practice, and publications of analyses including in peer-reviewed journals and the publications of various United Nations agencies and processes.
2. **Credible.** Quality and credibility of the results obtained and analyses produced are ensured by the application of global standards for data collection and processing, peer-review of assessments and analyses, regular publication of methods and protocols in academic peer-reviewed journals, and transparency and access to results and method through free online web portals in the three official languages of IUCN: English, French and Spanish.
3. **Global** assessments and analyses that contribute to the monitoring of status, trends, threats, management, investment and projects, and policy responses for biodiversity conservation.
4. **Geographically diverse** with geospatial information from all IUCN regions and most countries to allow analyses of datasets for mapping and the production of indicators. These features of the data are essential to monitor the global status and trends in biodiversity over time. The information that is maintained is used for multiple purposes and different scales and for different users.
5. **Inclusive** in their processes: IUCN opens for a broad consultation its knowledge and endeavours to consult relevant stakeholders who could be impacted by its findings. Moreover, several products or methodologies are using multidisciplinary and/or interdisciplinary approaches, since IUCN recognized the added value of such pluralistic expertise.

The IUCN knowledge products presented in this document include area-based knowledge products which incorporate the spatial distribution of biodiversity information that is used to underpin conservation (primarily *in situ* but informing *ex situ*), restoration, land use planning and natural resource management. Additional knowledge products inform effective management and governance of biodiversity and ecosystem services.

All IUCN knowledge products are underpinned by science, used to build capacity, support decision-making by policy-makers, and relevant to the IPBES functions and possible elements of its work programme<sup>8</sup>. For each knowledge product, IUCN presents the de-

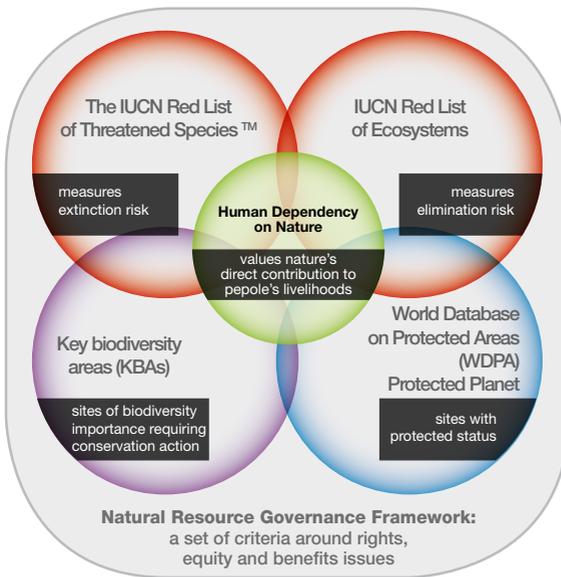
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8 UNEP/IPBES.MI/2/2 Possible elements of the work programme of the platform

scription, the purpose, history and evolution, use, indicative cost, and case studies. The examples of use and case studies for these tools illustrate past, current or potential future applications of IUCN knowledge products to support the four overarching functions of IPBES endorsed in Busan (Paragraph 6 b-e and paragraph 7).

IUCN knowledge products which inform and underpin area-based conservation of biodiversity, restoration, and land use and marine spatial planning include:

- The IUCN Red List of Threatened Species™
- Protected Planet (including World Database on Protected Areas - WDPA)<sup>9</sup>
- IUCN Standard for identification of areas of global significance for biodiversity (“key biodiversity areas”)
- IUCN Red List of Ecosystems
- Global Invasive Species Database (GISD)



**Figure 1: Once, developed the IUCN Natural Resource Governance Framework aims to improve governance of the world's key biodiversity sites and of human dependency on nature.**

IUCN Knowledge Products which support effective management and governance of biodiversity include:

- ECOLEX: the Gateway to Environmental Law<sup>10</sup>
- IUCN Green List of Well -Managed Protected Areas
- IUCN Natural Resource Governance Framework
- IUCN Index of Human Dependency on Nature

9 Protected Planet including the World Database on Protected Areas is a joint product of IUCN and the United Nations Environment Programme (UNEP) prepared by the UNEP World Conservation Monitoring Centre (WCMC) and the IUCN World Commission on Protected Areas (WCPA) working with governments and collaborating non-governmental organisations.

10 The principal partners of ECOLEX are FAO, IUCN and UNEP. These partners form its Steering Committee which directs and monitors activities.

The figure shows, firstly, how the database on Human Dependency on Nature will link up with IUCN's area-based biodiversity databases, and secondly how the Natural Resource Governance Framework aims to assist decision-makers at all levels to manage and govern the use of nature. The five datasets shall provide the best possible knowledge base for effective and equitable governance of nature's use.

<b>Values and Costs</b>	Free access to users for non-commercial purposes (but with restrictions on redistribution, reposting and derivative products) Costs borne by IUCN and partners, including for development, maintenance, coordination, dissemination of results and analyses, and capacity-building of users on various applications
<b>Web Functions</b>	Web-based portals with search functions and user-interface Multiple languages Downloads: Data and information extracted from the database is available to stakeholders to use in research, review, assessments etc. Information is disseminated to a wide global audience ranging from school students, grass-root practitioners to species specialists, decision and policy makers
<b>Systematic updates and quality control</b>	Peer review and scientific rigor Standards for data collection Standardized presentation of information for users Meta data management and source acknowledgement
<b>Tool for capacity building</b>	Guidelines Case studies Training programmes Materials for outreach and dissemination
<b>Geo-spatial data and mapping</b>	Relevant for analyses, modelling and mapping Can be integrated with other global geographical information systems and databases
<b>Policy mandate and recognition</b>	Recognised in IUCN Policy- World Conservation Congress Resolutions Recognised in United Nations policy fora and multi-lateral agreements Taken into account in countless decisions of MEAs The basis of indicators on status and trends
<b>Users</b>	Academia and for teaching and capacity building of students and professionals Policy-makers and inter-governmental organisations, non-governmental organisations Private sector (by informing on their operations in Environmental Impact Assessments (EIA), and to reduce risk including accident response)
<b>Communication, dissemination and public outreach</b>	Widely dispersed Transformed into accessible and relevant information for ease of access by communities and decision makers

**Table 1: The common characteristics of IUCN Knowledge Products for biodiversity**

## Integrated and interoperable processes and products

Several IUCN knowledge products are integrated and inter-operable with each other to different degrees. This allows access to information across portals and tools managed by different partnerships and external institutions. This is possible due to adherence to and development of global data standards and commitment to facilitating access to biodiversity information. The on-going integration and interoperability of databases and tools ensures that stronger analyses and more tailored information can be generated to meet the needs of decision-makers and to prioritise investment in capacity-building, nature-based solutions for global challenges, and investment in action on the ground.

**Web portals:** The interoperable nature of the web interfaces allows seamless linkages to serve information from one database with a separate underlying system to another portal without the need to transfer data. This allows access to a much broader range of information by users when visiting a single website, and an understanding of the inter-relationships between species, protected areas ranging from World Heritage Sites to locally managed protected areas, areas of global significance for biodiversity, and threats and risks to ecosystems.

**Visualisation tools:** The mapping and visualisation tools of IUCN and its partners, particularly the IUCN Red List of Threatened Species<sup>TM11</sup>, and Protected Planet<sup>12</sup> are helping to engage wide groups of society. Decision-makers, scientists and the public gain access to massive compilations of information simply and are able to make informed decisions that reflect the status of biodiversity as well as potential threats and risks.

### Example: Integration of the Global Invasive Species Database (GISD) with other major related databases

The facilitation of inter-operability between the GISD and other major related databases such as the IUCN Red List of Threatened Species, and the Global Islands Database (GID) illustrates the value of common web and data standards. The restructured GISD is being optimised for integration into the IUCN Species Information Service and with the other IUCN knowledge products namely the IUCN Red List of Threatened Species, the World Database on Protected Areas, IUCN Key Biodiversity Area Database and the upcoming IUCN Red List of Ecosystems.

The IUCN Red List in its species datasheets enumerates the various threats to that species with a brief description of the threat type; in the case of the invasive species threat mechanisms such as predation, habitat degradation, hybridisation, disease transmission etc. are described. The invasive species causing the harm is identified in most cases.

The GISD which presents information on invasive alien species in the form of species profiles includes a section that describes the general impacts of the species including impacts on

11 <http://maps.iucnredlist.org/>

12 [www.protectedplanet.net](http://www.protectedplanet.net)

threatened species. Also included is distribution information of the invasive species in the form of individual location records at a fine scale. Distribution records include information on the impact to native and threatened species with a description of the threat and information on management actions completed, on-going or planned and the conservation outcomes as a result of this action.

The on-going implementation of inter-operability between these two knowledge products will enable users of both products to access additional information on species and their management. The link is being implemented at the species level with reciprocal links being established in the threat (IUCN Red List) and impact information (GISD). In the case of users of the IUCN Red List the link will provide access to detailed information on the impacts of the specific invasive species, management options, ecology, distribution etc. In the case of the GISD user the link will provide access to additional information on the species under threat including its Red List status, population numbers other threat processes etc. It is envisaged that these links will assist in decision making, analyses prioritisation etc.

### Example: Integrating biodiversity information for private sector planning and investment

Since 2006, recognizing the value of areas of global significance for biodiversity (“key biodiversity areas”) to the private sector, conservation organizations (currently BirdLife International, and Conservation International, with IUCN as an observer) have partnered with UNEP and business leaders to develop the Integrated Biodiversity Assessment Tool (IBAT) for business<sup>13</sup> — an internet-based tool designed to facilitate corporate sector access to these critical data.

This tool combines conservation planning analyses with information on threats from the IUCN Red List and protected area boundaries, and in many cases also on management categories and governance type from the World Database on Protected Areas (WDPA). IBAT is being used by the petrochemical, mining, aggregate and financial industry to support the reduction in negative impact on biodiversity and promote more sustainable production. The access to this biodiversity information allows businesses to accommodate biodiversity concerns early in the project development cycle.

In 2010, the International Council on Mining and Metals produced a collection of case studies two of these related to IBAT are presented here in a concise form<sup>14</sup>. Such integrated approach to planning and decision making contributes to greater efficiency and contributes to minimizing future risks and costs. From 2008 onwards, De Beers began using IBAT as part of the De Beers Biodiversity Overlap Assessment (BOA) which aimed to determine where the company’s ground holdings/licenses overlap with or are adjacent to legally designated

<sup>13</sup> <https://www.ibatforbusiness.org/about>

<sup>14</sup> ICMM 2010: Mining and Biodiversity A collection of case studies – 2010 edition

protected areas (under any of the six protected area management categories<sup>15</sup> and four governance types<sup>16</sup>) and areas of high biodiversity value. IBAT enabled an initial evaluation of De Beers' Environmental Policy commitment across the Family of Companies for all prospecting and operations sites. With this assessment De Beers was able to strengthen its commitment to biodiversity in their Environmental Policy.

Together with IFC staff, a modified tool has been developed to meet the specific needs of lenders. This customized version of IBAT directly supports the implementation of IFC Performance Standards by aligning data outputs with IFC language and definitions. The IBAT Alliance also continues to work closely with standards bodies to review biodiversity definitions and ensure that policy language is consistent with the latest conservation science.



15 [www.iucn.org/dbtw-wpd/edocs/PAPS-016.pdf](http://www.iucn.org/dbtw-wpd/edocs/PAPS-016.pdf)

16 [www.unep-wcmc.org/governance\\_589.html](http://www.unep-wcmc.org/governance_589.html)



# The IUCN Red List of Threatened Species™

Available from [www.iucnredlist.org](http://www.iucnredlist.org)

## Description of the IUCN Red List of Threatened Species™

The IUCN Red List of Threatened Species™ (or the IUCN Red List) is the world's most comprehensive information source on the global conservation status of plant, fungi and animal species. It is based on an objective system for assessing the risk of extinction of a species. Species are assigned to one of eight categories of threat based on whether they meet criteria linked to population trend, population size and structure and geographic range. Species listed as Critically Endangered, Endangered or Vulnerable are collectively described as 'Threatened'. The status of assessed species provides a category that indicates the risk of extinction of a species should no conservation action be taken.

The IUCN Red List is not just a register of names and associated threat categories. It is a rich compendium of information on the threats to the species, their ecological requirements, where they live, utilisation of the species and information on conservation actions that can be used to reduce or prevent extinctions. A particular advancement has been the creation of geographic range maps in Geographic Information System (GIS) software, with digital maps now available for 30,000 species and growing.

The 2011.2 version of the IUCN Red List includes data for 61,914 species. Coverage is complete for a number of major taxonomic groups, including amphibians, birds, mammals, horseshoe crabs and gymnosperms (which includes all conifers and cycads); however, there is also complete coverage for all freshwater crabs and crayfish, lobsters, mangroves, reef-building corals, seagrasses, and selected groups of fishes, including all chondrichthyan fishes (sharks and rays) and sturgeons.

The IUCN Red List is a joint effort between IUCN's Global Species Programme and its Species Survival Commission, working with an alliance of Red List partners: BirdLife International; Botanic Gardens Conservation International; Conservation International; NatureServe; Royal Botanic Gardens, Kew; Sapienza University of Rome; Texas A&M University; Wildscreen; and Zoological Society of London.

## Purpose of the IUCN Red List of Threatened Species™

The goal of the IUCN Red List is to provide information and analyses on the status, trends and threats to species in order to inform and catalyse action for biodiversity conservation. This goal includes the "traditional" role of the IUCN Red List in identifying particular species at risk of extinction. While the role of the IUCN Red List in underpinning priority-setting processes to stimulate conservation action for single species remains of critical importance, the goal has been expanded to encompass the use of data from the Red List for multi-species analyses in order to identify and monitor trends in species status and to catalyse appropriate wide scale conservation action.

To achieve this goal, the IUCN Red List aims to:

1. Establish a baseline from which to monitor the change in status of species;
2. Provide a global context for the establishment of conservation priorities at the local level; and
3. Monitor, on a continuing basis, the status of a representative selection of species (as biodiversity indicators) that cover all the major ecosystems of the world.

## History and evolution of the IUCN Red List of Threatened Species™

The pre-cursors to the IUCN Red List began with a card index set up in IUCN in the 1940s with publications on extinct and vanishing mammals and birds. In the 1950s a card index systems was used to document data on threatened mammals and birds which was transformed into data sheets in the 1960s. The first Red Data book was published in 1966. The IUCN Red List of Threatened Animals was first published in book form in 1986 with regular. An IUCN Red List of Threatened Plants was published in 1997. While the coverage of taxonomic groups and total number of species assessed grew, the methods to assess these species also evolved. Since 1994, these assessments have been conducted following a standardized process using the IUCN Red List Categories and Criteria. The collation, management, maintenance and assessment of information is supported by the Species Information Service (SIS). This information management tool is used before and during the assessment process. The systems supports assessors and experts to collect, manage, process, and report on species data - to the point of publication on The IUCN Red List. The SIS allows the contributors to participate in the Red List assessment work more easily than was the case in the past. With the improved data exploration capabilities on The IUCN Red List website, the world's most accurate, up-to-date information source on species, their distribution and their conservation status is easily accessible to support sound environmental decision-making.

## Use of the IUCN Red List of Threatened Species™

The IUCN Red List has a wide range of users including conservationists, policy makers, and businesses. Below are some examples of different uses.

**Evaluating the status of biodiversity:** Complete and sampled assessments have yielded a better picture of the state and distribution of global biodiversity. For instance, complete assessments on The IUCN Red List show that that the proportion of warm-water coral, bird, mammal and amphibian species expected to survive into the near future without additional conservation actions has declined over time. The Red List Index (RLI) for all these species groups is decreasing. Coral species are moving most rapidly towards greater extinction risk, while amphibians are, on average, the group most threatened.<sup>17</sup>.

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<sup>17</sup> [www.cbd.int/gbo3/](http://www.cbd.int/gbo3/)

**Monitoring the changing state of biodiversity:** Governments have agreed various targets to reduce biodiversity loss, including Goal 7 of the Millennium Development Goals and the Convention on Biological Diversity Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets. Indicators are vital in tracking progress in achieving these. The IUCN Red List Index (RLI), which reveals trends in the overall extinction risk of species, provides one such indicator. The RLI has been used to report against the Convention on Biological Diversity 2010 target and is an adopted indicator to measure progress towards Target 7b under Millennium Development Goal 7 by providing the information required for indicator 7.7 (i.e. 'proportion of species threatened with extinction'). It has been proposed (SBSTTA ref) as an operational indicator for measuring progress at the global level against several the targets of the Strategic Plan for Biodiversity: Aichi Biodiversity Targets 4, 5, 6, 8, 9, 10, 11, 12,13 and 14.

The Red List Index complements population-level indicators like the Living Planet Index (LPI), which is more sensitive to change over time, but more biased geographically and taxonomically.

**Informing Policy:** The IUCN Red List can usefully inform national legislation and multi-lateral environmental agreements; for example, it is often used as a guide to revise the annexes of some agreements, such as the Convention on International Trade in Endangered Species (CITES) and the Convention on Migratory Species (CMS). The IUCN Red List plays a key role in supporting national governments to report on progress towards implementing the Convention on Biological Diversity: including through the use of IUCN Red List assessments, indicators and indices for reporting in the periodic Global Biodiversity Outlook, the 5<sup>th</sup> National Reports and various programmes of work including for the Global Strategy for Plant Conservation.

**Influencing Resource Allocation:** The Global Environment Facility has included information from the Red List in its resource allocation framework (currently termed the System for Transparent Allocation of Resources) since 2008. Other foundations and funding instruments use the results of IUCN Red List assessments to influence investments including the Critical Ecosystem Partnership Fund, Save Our Species<sup>18</sup> Fund, and Mohamed bin Zayed Species Conservation Fund.

**Informing Conservation Planning:** Several conservation planning methodologies rely on The IUCN Red List, including Important Bird Areas and Important Plant Areas and Alliance for Zero Extinction sites (all encapsulated under the Key Biodiversity Areas approach). IUCN Red List data are also frequently used in systematic conservation planning.

**Improving Decision-making:** The IUCN Red List can help guide environmental impact assessments. The wealth of information on habitats and threats to species are used in biodiversity management plans and site rehabilitation plans. Combining conservation planning analyses with information on threats from the IUCN Red List has also lead to partnerships

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18 [http://sospecies.org/about\\_sos/about\\_sos/](http://sospecies.org/about_sos/about_sos/) SOS - Save Our Species, is a global coalition initiated by the 3 founding partners IUCN, GEF and World Bank to build the biggest species conservation fund.

with industry to explore opportunities to reduce the negative impact on biodiversity and promote more sustainable production. Initiatives of the petrochemical, mining, aggregate and financial industry such as Net Positive Impact (NPI) and No Net Loss, benefit from access to the distribution of species and their conservation status.

**Guiding scientific research:** Species listed as Data Deficient on the IUCN Red List represent a priority for future research including species-specific survey work and research into threatening processes across multiple species. Data gaps identified in the assessment process can help guide future research.

**Communication and raising awareness:** Red for Danger... Red as a 'Wake up Call? Biodiversity loss is one of the world's most pressing crises with many species declining to critical levels. Media coverage on the IUCN Red List is increasing each year helping to build awareness of how biodiversity underpins human livelihoods. The IUCN Red List scale is being used in Zoos, Aquariums and Botanic Gardens to communicate the conservation status of many species. However, it is still the case that there is little overall public awareness of human dependency on nature or of the severity of the ongoing decline and loss of all three components of biodiversity.

## Indicative cost of the IUCN Red List of Threatened Species™

More than US\$ 4 million is spent annually to maintain and enhance the IUCN Red List<sup>19</sup>. This figure is a conservative estimate and does not reflect the voluntary contributions of thousands of biologists worldwide or those of the IUCN Red List Partners. Conservative estimates also suggest that US\$ 50 million has been invested to get the IUCN Red List with its associated processes, systems and training materials to where it is today in 2012. Currently more than 50 IUCN staff is involved in support the IUCN Red List and many more are involved from the IUCN Red List Partnership<sup>20</sup>. The institutions also contribute through their own programmes and projects.

Activities are also undertaken but not paid for by volunteers. This massive "in-kind" contributions comes from more than 7,500 volunteer members of the IUCN Species Survival Commission.

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19 J.-C. Vifé, personal communication.in Stuart et al 2010-11 Barometer of Life.

20 [www.iucnredlist.org/partners/partners-and-technical-support](http://www.iucnredlist.org/partners/partners-and-technical-support)

# Evidence and case studies on the IUCN Red List of Threatened Species™

## Case Study: Indicators to monitor trends in biodiversity

The IUCN Red List Index (RLI) is an aggregated measure of extinction risk to indicate trends in the status of biodiversity. The RLI is calculated from the change in IUCN Red List categories of all assessed species in a taxon over time. To avoid introducing errors owing to non-genuine changes in categories, the RLI only considers when a threat drives a species from a lower to a higher category of threat and genuine improvements typically, when threat mitigation leads to a change from a higher to a lower category of threat in conservation status. IUCN ensures that species moving categories for non-genuine reasons such as because of new information becoming available do not confound the index.

A decreasing RLI value means the expected rate of extinctions (i.e. biodiversity loss) is increasing, i.e. the rate of biodiversity loss is increasing. An upward trend or increasing RLI value means that there is a decrease in expected future rate of species extinctions, i.e. a reduction in the rate of biodiversity loss.

National RLIs can be produced by repeatedly assessing extinction risk at the national scale. Many countries have compiled national red lists (generally for all vertebrate species) which form the basis of the latter approach<sup>21</sup>. Currently, the number of national RLIs is small; however, as countries increasingly move to reassess their species, many more national RLIs will become available.

As a member of the Biodiversity Indicators Partnership (BIP), IUCN works with to develop materials to build capacity and assist the production of national RLIs<sup>22</sup>. Additional guidance and case studies can be found in the 2010 BIP publication: IUCN Red List Index – Guidance for National and Regional Use, available from the 2010 BIP website.

In addition, the work of the Convention on Biological Diversity Ad Hoc Technical Expert Group on indicators identified global indicators which could be particularly useful from a communications perspective. A table listing the different information sources for each of the indicators, as well as their status of development and other relevant information is accessible through the CBD website<sup>23</sup>.

21 [www.nationalredlist.org](http://www.nationalredlist.org)

22 [www.bipindicators.net/guidancedocumentsforationaluse](http://www.bipindicators.net/guidancedocumentsforationaluse)

23 [www.cbd.int/doc/meetings/ind/ahateg-sp-ind-01/official/ahateg-sp-ind-01-03-add1-en.xls](http://www.cbd.int/doc/meetings/ind/ahateg-sp-ind-01/official/ahateg-sp-ind-01-03-add1-en.xls)

## Case Study: Monitoring biodiversity for food and medicine

The Biodiversity for Food and Medicine Indicator has been developed by IUCN and TRAFIC with the close collaboration of the IUCN-SSC Medicinal Plant Specialist Group and with assistance from the IUCN Global Species Programme and BirdLife International. The Red List Index indicator for food and medicine is one of two indicators developed to investigate the use of wildlife for food and medicine and the impacts on ecosystem integrity and ecosystem goods and services.

The Red List Index indicator for food and medicine provides a measure of change over time in the conservation status of animals used for food and medicine and a baseline for the conservation status of medicinal plants. Plants harvested for food have not been included; apart from medicinal use, collection of data on harvest for other purposes is not as advanced as for terrestrial animals.

In 2010, this work on species used for food and medicine found that of the 9,956 known bird species, 14% are thought to be used for food and or medicinal purposes. Of all bird species 12% are classified as threatened but of those used for food and medicinal purposes 23% are threatened. Similarly mammal species used for food and medicines (22% of all known mammal species) are more threatened on average than those not utilised in this way.

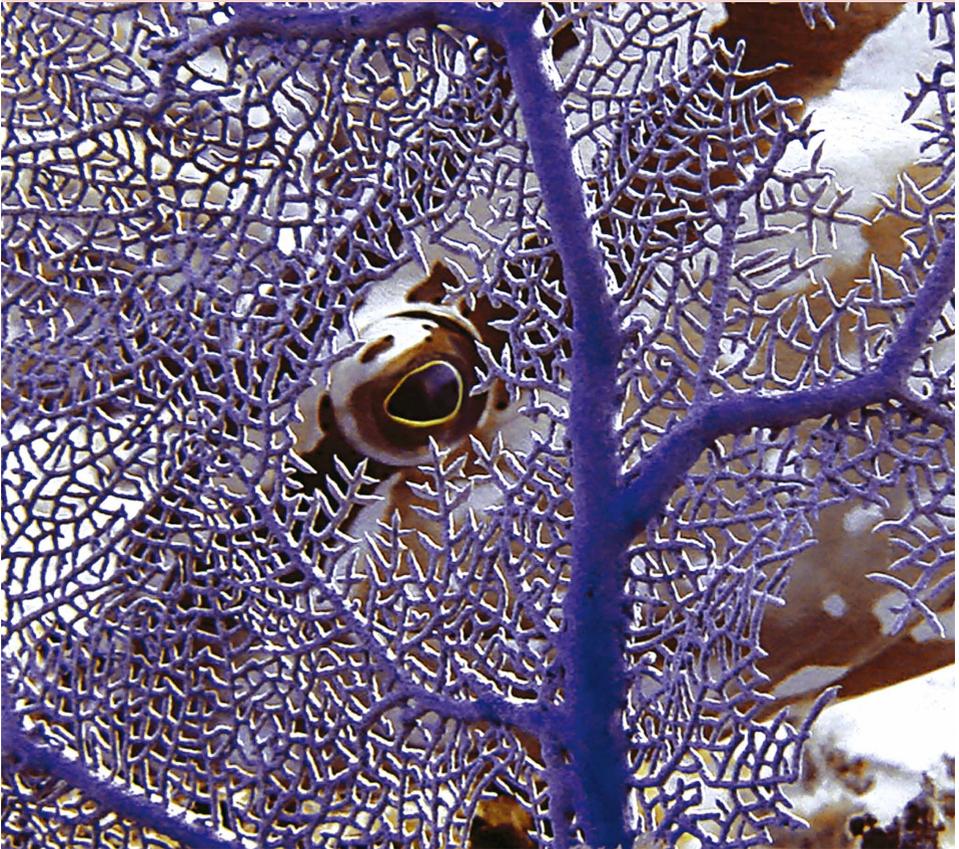
Just 3% of the world's well-documented medicinal flora has been evaluated for global conservation status. The proportion of medicinal plants flora considered to be threatened appears to have remained relatively stable (ca 40% to 45%) between 1997 and 2008. This stability however may be the artefact of a number of variables. The conservation status of medicinal plants is alarming if this pattern is maintained by assessment of a larger and more representative sample of medicinal plant species.'



## Case Study: Global Assessment of Corals highlights perils to livelihoods and biodiversity

For the first time 845 species of warm water reef-building corals have been included on the Red List with more than one-quarter (27%) listed as threatened, representing an elevated risk of extinction and 17% as Data Deficient meaning that there is insufficient information on these species (Carpenter et al. 2008). The decline in tropical reef-building corals represents the fastest rate of decline of the groups in which 100% of species have been assessed and are on the IUCN Red List of Threatened Species. The rapid declines in reef-building corals since 1996 are being driven primarily by the worldwide coral bleaching events in 1998 (Polidoro et al. this volume, Carpenter et al. 2008).

In addition to showing that reef-building corals are declining at a rate greater than mammals, amphibians, birds and other groups of species, the information recorded during the assessments help to distinguish individual species' responses to climate change impacts. To date, most climate change studies have focused on reef-level spatial impacts rather than at the species level.





# Protected Planet (including the World Database on Protected Areas - WDPA)

Available from [www.protectedplanet.net](http://www.protectedplanet.net)  
and [www.wdpa.org](http://www.wdpa.org)

## Description of Protected Planet (including the World Database on Protected Areas - WDPA)

Protected Planet (including the World Database on Protected Areas), maps all of the world's protected areas<sup>24</sup>. In 1962 the UN General Assembly formerly recognized IUCN contribution to production of United Nations List of Protected Areas. This official United Nations List of Protected Areas, comprises information submitted by governments. Today, governments and non-governmental organizations collect, submit and maintain the accuracy of data including information on protected areas of all categories<sup>25</sup> and governance types<sup>26</sup> in a 21st Century web-accessible format.

Attributes maintained include the geo-referenced boundaries of protected areas and details such as year of establishment, IUCN management category, governance type, and any overlapping designation such as through the World Heritage and Ramsar Conventions and the UNESCO MAB programme. Protected Planet also allows protected area stakeholders of all types to update the accuracy of data holdings, submit photographs and interact with one another.

Protected Planet is a joint product of the IUCN and the United Nations Environment Programme (UNEP) prepared by the UNEP-World Conservation Monitoring Centre (WCMC) and the IUCN World Commission on Protected Areas (WCPA) working with governments and collaborating non-governmental organisations.

As of end 2011, there are over 197,000 protected areas within the WDPA.

## Purpose of Protected Planet (including World Database on Protected Areas - WDPA)

The goal of Protected Planet is to be the global platform for the acquisition, analysis, exchange and communication of data and knowledge on the status and trends of protected areas that engages the full spectrum of stakeholders, and is instrumental in the achievement of the Millennium Development Goals, the CBD Strategic Plan for Biodiversity, informed decision-making and enhanced action.

Protected Planet does this by

1. BUILDING a comprehensive database that maintains the quality of data on PAs world-wide and ensures its accessibility to a wide constituency of user groups under defined conditions;

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24 IUCN protected area definition as: A protected area is a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long term conservation of nature with associated ecosystem services and cultural values.

25 IUCN Protected Area Management Categories: [www.iucn.org/dbtw-wpd/edocs/PAPS-016.pdf](http://www.iucn.org/dbtw-wpd/edocs/PAPS-016.pdf)

26 Protected Area Governance Types [www.unep-wcmc.org/governance\\_589.html](http://www.unep-wcmc.org/governance_589.html)

2. EXPLORING and developing insight and understanding concerning the effectiveness of protected areas in meeting conservation and development targets and goals;
3. CONNECTING an informed and interactive global protected areas constituency of PA managers and experts who are empowered to influence policy, practice and public awareness; and
4. CHANGING the behaviour of national, institutional, business and community leaders to support policies, investment, institutional capacity and incentives that strengthen and mainstream protected area systems.

Protected Planet Strategy for 2011-2015 has been developed. The overall vision for Protected Planet is, “a world where the values of protected areas are recognised and positive action is taken to maintain and improve them”. The strategy focuses on four key objectives with specific activities under each one:

1. increase, diversify and mobilise the constituency;
2. enhance the website platform;
3. report on trends and issues; and
4. develop campaigns and communications.

These aims, goals and objectives are supported by various standards including the WDPA Interoperability Standard whose aim is a common standard to allow the sharing of protected areas data between organizations, countries and industry ultimately resulting in a globally complete and accurate dataset for protected areas. Protected Planet also incorporates standards for protected area management categories and governance types, management effectiveness assessment, governance assessment, and conservation outcomes through the Green List of Well-Managed Protected Areas. Its premier output is the Protected Planet Report due to be released for the first time in 2012.

## History and evolution of Protected Planet (including World Database on Protected Areas - WDPA)

The pre-cursors of the World Database on Protected Areas, and its public face ProtectedPlanet, is the United Nations List of Protected Areas. At the 27th Session of the UN Economic and Social Council (ECOSOC) in 1959, ECOSOC recognised ‘National Parks and Equivalent Reserves’ as an important factor in the wise use of natural resources and invited IUCN to assist, together with other International Organisations and non-governmental organizations, the Secretary-General the preparation of the proposed list of protected areas. This request was recognized and repeated at the 1962 United Nations General Assembly.

Since 1981, The WDPA is a joint project of UNEP and IUCN, produced by UNEP-WCMC and the IUCN World Commission on Protected Areas working with governments and collaborating NGOs. Since 1981, WDPA has been hosted by UNEP-WCMC through its Protected Areas Programme, has been compiling protected area information and making it

available to the global community. The national governments and others working in protected area management, supply information which is freely accessible via a global Web platform.



## Use of World Database on Protected Areas (WDPA)

**Indicators of Biodiversity Status and Trends:** The World Database on Protected Areas provides information on the coverage and distribution of protected areas. These are two key indicators for global policy and decision making. The protected area coverage indicator measures policy response to biodiversity loss. An increase in protected area coverage indicates increased efforts by governments and civil society to protect land and sea areas with a view to achieve the long-term conservation of biodiversity with associated ecosystem services and cultural values.

The CBD's 2010 target is to achieve a significant reduction in the rate of loss of biodiversity. Increasing the coverage of protected areas can contribute to achieving the 2010 target. This indicator is complemented by other protected area indicators that measure how well the planet's biodiversity is covered by protected areas, and how well protected areas are managed.

This indicator, and various subsets, is used to contribute to monitoring of biodiversity under Millennium Development Goal 7, Strategic Plan for Biodiversity 2011-2020 and its 20 Aichi Biodiversity Targets, and global reporting such as in the Global Environment Outlook and the Global Biodiversity Outlook. Governments use the national protected areas information for their country to monitor and report on progress under several other global and regional environmental agreements such as for the CBD Programme of Work on Protected Areas, World Heritage Convention, Ramsar Convention and many regional agreements.

**Policymaking:** The WDPA is a tool that supports implementation, management and monitoring of several conventions and designations including Natural and Mixed World Heritage Sites, Ramsar Sites, Biosphere Reserves, ASEAN Heritage Sites, and the European Commission Directive on the Conservation of Wild Birds.

**Public and Private Site Management:** The wealth of information on protected areas, their boundaries and management categories are used by governments and the private sector to help site industrial and commercial activities.

The private sector consult the WDPA to comply with environmental safeguard policies of many governments, industry groups such as the International Council on Mining and Metals (ICMM), and major development and investment banks (e.g. the World Bank Group's International Finance Corporation (IFC) and over 60 financial institutions that have adopted the Equator Principles), and conduct environmental impact assessments and risk assessments for existing and potential operations. The WDPA is also used for international oil spill and other emergency response action planning.

**Public engagement and raising awareness:** The WDPA is now available online through the National Geographic World Map and can be viewed through Google Earth.

**Management Categories and objectives of protected areas:** The development, refinement and finally adoption in 1994 and revised in 2008 of the IUCN Protected Areas Management Categories system reflects the range of protected area management objectives. The growth in the global protected areas network, with diverse management objectives, also reflects the high social and cultural values that societies place on these areas. In particular, the growing application of Category VI (Managed Resource Protected Areas), in many countries suggests an increasingly close link between protection and sustainable use. The classification of protected areas into IUCN Management Categories enables a distinction to be made on the basis of management objectives that countries are applying to their conservation estate, ranging from sites that are strictly protected through to those under sustainable use. This helps to understand the implementation of policies and the responses at the national level in terms of management of biodiversity and the degree of protection accorded to different resources and areas.

## Features of Protected Planet (incorporating World Database on Protected Areas - WDPA)

Since the beginning of 2011, 105 countries have been partially or completed updated in the WDPA: this includes spatial and attribute updates, corrections to data, and updates to World Heritage and Ramsar sites. All Ramsar sites are now in the database and a dedicated staff member is working to ensure the dataset is regularly maintained. In total there were around 40,000 new protected areas added to the WDPA, with a significant proportion of this due to the integration of the Natura 2000 dataset comprising over 25,000 protected areas. In addition over 35,000 protected areas were updated in

the WDPA, of which 1,800 were previously represented as centre point locations and are now represented by digital polygon boundaries. Also of significance is that 5,287 sites were removed from the database over 2011 because they were either degazetted or the WDPA team were told that they did not represent protected areas according to the IUCN definition.

All of the marine protected areas in MPA Global have now been consolidated into the WDPA. Two new fields have been added to the WDPA and Protected Planet – No Take and No Take Area – that detail whether a marine protected area has a no take portion. This is part of the process to reconcile the orphaned MPA Global with the WDPA, with the aim to consolidate all MPA data on Protectedplanet.net



## Users of Protected Planet (WDPA)

With the continual development of Protected Planet, there have been significant increases in the number of persons exposed to protected areas and the WDPA. The following statistics are since October 2010 until now (UNEP WCMC 2012):

Number of visitors to Protected Planet	230,000
Number of registered users	7,400
Number of edits to protected areas information	883
Number of Wikipedia articles added by users	288
Number of data downloads	11,100
Number of full datasets downloaded	763
Number of protected areas downloaded	131,948,343
Number of photos ranked	29,238

**Figure 2: Visitors to ProtectedPlanet.net since October 2011 to February 2012**

## Indicative cost of World Database on Protected Areas (WDPA)

Various multi-national environmental agreements contribute to the operations, functioning and funding of WDPA including initiatives and programmes with the World Heritage Convention, Ramsar Convention, UNESCO Man and Biosphere Programme, Natura 2000, and ASEAN Heritage sites.

### In kind support

The 1,200 Members of the IUCN World Commission on Protected Areas, government national park agencies and non-governmental organisations contribute to the population and maintenance of information in the WDPA.

### Partnerships

The Proteus Partnership remains an important source of income for updating WDPA data. The use of the WDPA by the Proteus partners through the Integrated Biodiversity Assessment Tool (IBAT), Protected Planet and directly through the provision of monthly data releases is key for their use to support companies' compliance to safeguard policies.

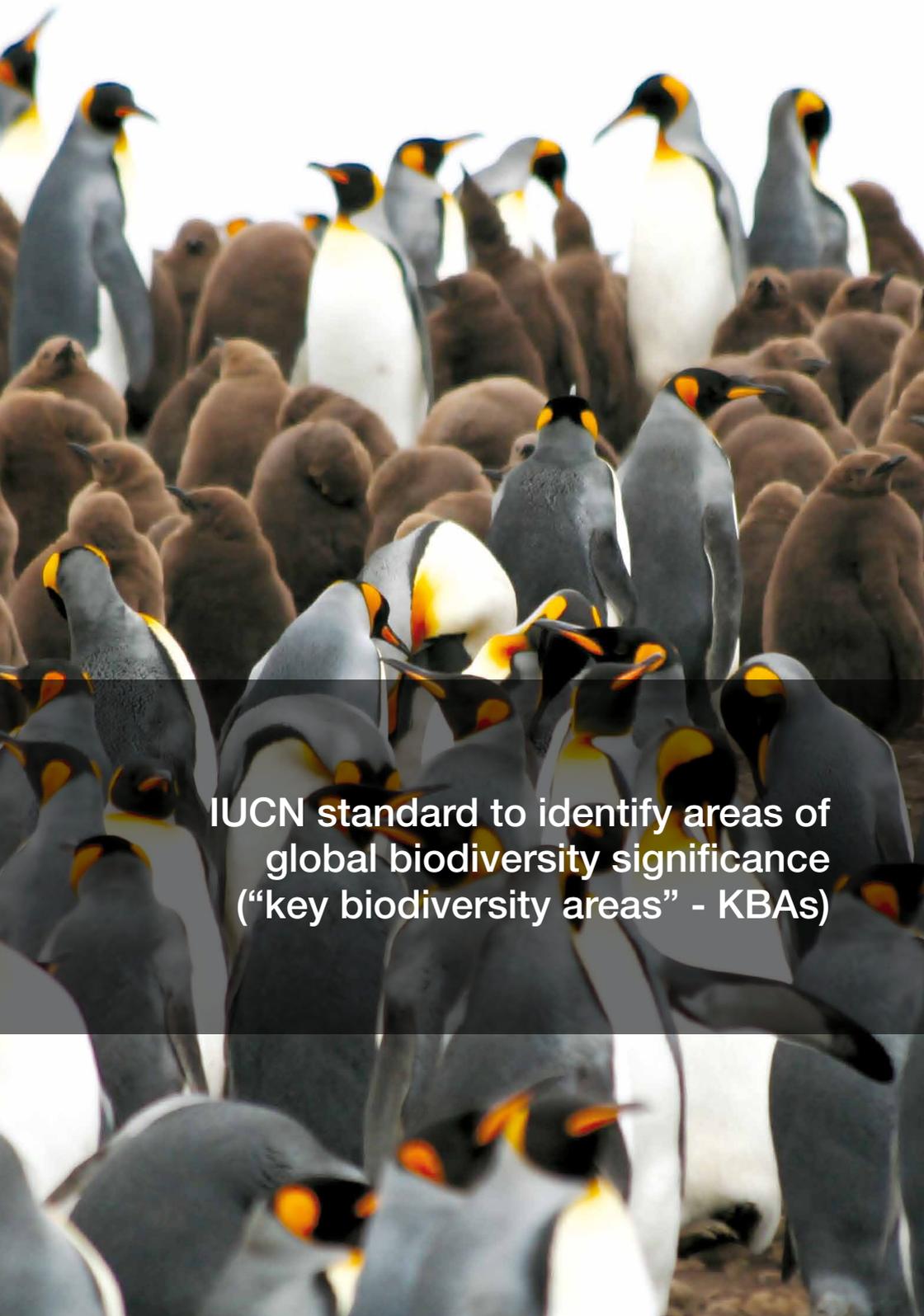
Other partnerships include the ongoing relationship with the European Environment Agency who provide the European Common Database on Designated Areas to the WDPA every year, and MoUs with various national governments, such as Canada and the Republic of Korea. An agreement with the Republic of Korea, finalised in 2011, provides some resources to continue the WDPA expert review process in China, Japan and Korea

# Evidence and case studies of World Database on Protected Areas (WDPA)

## Case Study: Global indicator to monitor trends in biodiversity protection and management

The number and coverage of protected areas is used for Millennium Development Goal 7, the former and current Strategic Plan Biodiversity (2002-2010; 2011-2020), Global Biodiversity Outlook reports, Aichi Biodiversity Targets and various indicators. Protected area designations used by countries are not necessarily directly comparable across countries therefore a standard application of protected area definition and protected area management categories allows comparison of 'like with like' to support robust and scientifically rigorous analyses.





IUCN standard to identify areas of global biodiversity significance (“key biodiversity areas” - KBAs)

## Description of the IUCN standard to identify areas of global significance for biodiversity

The IUCN standard to identify ‘key biodiversity areas’ as sites of global significance for biodiversity conservation will unify approaches to delineate areas important for global biodiversity conservation. Such sites are currently known as “key biodiversity areas” - (KBAs) although this name may change in the future. The standard will serve as an independent benchmark for documenting the occurrence of biodiversity features (species and ecosystems) of conservation significance in specific protected areas and other management units. The standard will span terrestrial, freshwater, and marine ecosystems (in the latter case, such sites are known as “ecologically and biologically significant areas”).<sup>27</sup> This provides a basis for the planning and implementation of site level conservation actions for a wide range of societal sectors including intergovernmental mechanisms, national governments, civil society, local and indigenous communities, and the private sector. It will also form the basis of a baseline against which to measure effectiveness of such site level management responses and conservation.

## Purpose of the IUCN standard to identify areas of global biodiversity significance

IUCN aims to consolidate the global standards for the identification of sites of biodiversity conservation significance and thereby inform decisions related to in-situ conservation. This is one of the two objectives of the Species Survival Commission (SSC)/World Commission on Protected Areas (WCPA) Joint Taskforce on Protected Areas and Biodiversity<sup>28</sup>. A consolidated approach will reduce confusion, be applicable across taxonomic groups, and provide a metric against which to monitor progress in in-situ conservation such as location of new protected areas, investment in conservation or achievement of Aichi Biodiversity Target 11. Much work and experience exists in the identification of important sites for biodiversity conservation - such as Important Bird Areas<sup>29</sup>, Important Plant Areas<sup>30</sup>, Prime Butterflies Areas, among others- many of which are protected areas already, the remainder of which are targets for protection through various potential appropriate mechanisms. The standard will build from the existing approaches, without taking away from them and produce a comprehensive set of guidelines for measuring the biodiversity conservation significance of sites. This process will undertake a broad community consultation under the IUCN umbrella.

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27 [www.cbd.int/cop/cop-10/doc/gobi-briefing-ebbsa-process-en.pdf](http://www.cbd.int/cop/cop-10/doc/gobi-briefing-ebbsa-process-en.pdf) and <http://ebbsa.cbd.int/>

28 [www.iucn.org/biodiversity\\_and\\_protected\\_areas\\_taskforce](http://www.iucn.org/biodiversity_and_protected_areas_taskforce)

29 [www.birdlife.org/action/science/sites/](http://www.birdlife.org/action/science/sites/)

30 [www.plantlife.org.uk/wild\\_plants/important\\_plant\\_areas/](http://www.plantlife.org.uk/wild_plants/important_plant_areas/)

## History and evolution of standards to identify areas of global biodiversity significance and concept

The IUCN standard will build on and reunite more than thirty years of site-based conservation approaches that began with the Important Birds Areas IBA Approach first published in 1981 by Birdlife. IUCN members have pioneered the development of various methods for identifying priority conservation sites, including Important Bird Areas (Birdlife International), Important Plant Areas (Plantlife International), and Alliance for Zero Extinction Sites. The “Alliance for Zero Extinction<sup>31</sup>”, a coalition of 67 conservation organizations, has identified all sites holding the entire population of at least one species listed as Endangered or Critically Endangered species on the IUCN Red List. These efforts by IUCN and its members and the conservation community more generally have produced complementary methods focusing on subsets of biodiversity and include: Important Bird Areas, Important Plant Areas, Prime Butterfly Areas, Alliance for Zero Extinction sites, Areas of Importance for Freshwater Biodiversity, and Ecologically and Biologically Significant Areas.

In 2004, IUCN recognized in World Conservation Congress Resolution 3.013 that data from the IUCN Red List of Threatened Species are essential for the implementation of these methods. This resolution requested “the SSC, working in partnership with IUCN members, to convene a worldwide consultative process to agree a methodology to enable countries to identify key biodiversity areas, drawing on data from the IUCN Red List of Threatened Species and other datasets, building on existing approaches and paying particular attention to the need to: (i) enlarge the number of taxonomic groups used for site-based priority setting approaches; (ii) have quantitative, transparent and objective criteria to identify key biodiversity areas.

Over the last five years, the term “key biodiversity areas” has been proposed in both scientific and technical literature as a joint umbrella for these initiatives to identify site conservation significance. However, a number of issues that have been raised in the discussion remain to be resolved, concerning, for example, thresholds for significance, criteria for biomes and habitats, and site delineation. One of the objectives of the SSC/WCPA Joint Taskforce on Biodiversity and Protected Areas is therefore to convene a process to consolidate global standards and criteria for the identification of sites of biodiversity conservation significance. This draws on IUCN’s demonstrated power in convening scientific stakeholder processes; recent examples include the processes to develop the IUCN Red List categories and criteria (IUCN 2001) and to refine the Protected Areas management categories (Dudley 2008).

IUCN is therefore currently leading a major consultation process to consolidate these scientific criteria, embracing Important Bird Areas, Important Plant Areas, Alliance for Zero Extinction sites, Ecologically and Biologically Significant Areas in the marine realm, Important Sites for Freshwater Biodiversity in the freshwater biome, and other similar approaches. Key biodiversity areas are closely related to several Aichi Targets, in particular Target 11

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31 [www.zeroextinction.org/](http://www.zeroextinction.org/)

which calls for the protection of such sites as “areas of particular importance for biodiversity”: many key biodiversity areas are already protected areas, and all of them require some kind of safeguard action.

The key biodiversity areas (KBAs) approach is a consistent methodology for identifying and mapping important natural habitat at this site scale — the scale of individual protected areas, concessions and land management units. These sites are identified at a national level by local stakeholders using a set of transparent and globally standardized criteria.



## Use of Key Biodiversity Area approaches to identifying sites of global conservation significance

Clear standards for measuring the biodiversity conservation significance of individual sites are fundamentally important to numerous sectors of society. A wide range of users including conservationists, policy makers, and businesses will benefit from the IUCN emerging standard. These may include national governments, international processes. Examples of users and potential beneficiaries include: (1) international MEAs such as the World Heritage Convention, Ramsar Convention, Man and Biosphere Programme; (2) Finance corporations such as The World Bank; (3) donor organisations and national development agencies; (4) certification bodies such as the Forest Stewardship Council, Marine Stewardship Council, High Conservation Value network; (4) local communities and indigenous peoples organisations; (5) Climate changes processes such as UNFCCC and the REDD+ standards; and various additional industrial and professional groups and associations such as ecotourism organisations.

The potential uses for standards to identify areas of global biodiversity significance and concept include:

**Indicator of Biodiversity Status and Trends:** The standard will be key to determine whether the current protected area coverage succeeds in protecting significant sites for biodiversity conservation.

**Policymaking:** The identification of sites of global biodiversity conservation significance has a long history of application to policy instruments. The 1971 Ramsar Convention on Wetlands establishes nine standard criteria for the identification of “wetlands of international importance”, which have been applied in 160 countries to identify 1,960 sites in total to date.<sup>32</sup> The 1972 World Heritage Convention similarly draws from ten standard criteria, of which four have so far been used to identify 211 natural and natural/cultural World Heritage Sites.<sup>33</sup> All of these criteria can be broadly classified as being based on either irreplaceability or vulnerability.

The 1992 Convention on Biological Diversity (CBD)<sup>34</sup> added great momentum to the documentation of sites of global biodiversity conservation significance following standard criteria. Its Conference of the Parties Decision VI/9 established a Global Strategy for Plant Conservation, within which Target 5 requires “Protection of 50 per cent of the most important areas for plant diversity assured”, with Decision X/17 increasing this to 75%. Under the Thematic Programme on Marine and Coastal Biodiversity, Decision IX/20 established seven “scientific criteria for identifying ecologically or biologically significant marine areas in need of protection”; the Global Ocean Biodiversity Initiative<sup>35</sup> has been established to support such identification. Meanwhile, the Thematic Programme on Mountain Biodiversity aims to “Establish effectively and appropriately managed protected areas in line with the program of work on protected areas to safeguard the highest priority key biodiversity areas in mountain ecosystems” (Decision X/30).

Decision VII/28 of the CBD established the Programme of Work on Protected Areas, to “to support the establishment and maintenance, by 2010 for terrestrial and by 2012 for marine areas, of comprehensive, effectively managed, and ecologically representative national and regional systems of protected areas”. In 2010, further guidance was provided in Decision X/31 to “Consider standard criteria for the identification of sites of global biodiversity conservation significance, when developing protected area systems drawing on the IUCN Red List of Threatened Species, established criteria in other relevant processes including those of the UNESCO Man and Biosphere Programme, the World Heritage Convention, the Ramsar Convention on Wetlands, threatened ecosystem assessments, gap analysis, key biodiversity areas and Important Bird Areas”.

Most important of all, the 2010-2020 Strategic Plan for the Convention on Biological Diversity establishes a shared vision, mission, strategic goals and 20 Aichi Targets<sup>36</sup>, of

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32 [www.ramsar.org](http://www.ramsar.org)

33 [whc.unesco.org](http://whc.unesco.org)

34 [www.cbd.int](http://www.cbd.int)

35 [www.gobi.org](http://www.gobi.org)

36 [www.cbd.int/sp/targets](http://www.cbd.int/sp/targets)

which the eleventh requires the establishment of protected areas covering “by 2020, at least 17 per cent of terrestrial and inland water areas, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity”. Decision X/20 also calls for the scientific bodies and the Liaison Group of the Biodiversity-related Conventions to enhance cooperation regarding “scientific criteria for the identification of ecologically or biologically significant areas in need of protection”. The CBD’s Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) has now recommended including a sub-indicator, “Overlays with areas of key importance to biodiversity” thereby giving a mandate for site scale biodiversity conservation relevant to Ramsar and CMS and UNCCD.

5<sup>th</sup> World Parks Congress (Durban, September 2004) prompted several IUCN World Conservation Congress outputs relevant to “key biodiversity areas”: e.g. (1) safeguard all globally and nationally important areas for biodiversity” (Congress Message to the Convention on Biological Diversity); (2) Congress Resolution 4 also sets targets and timetables for the effective in situ conservation of threatened, congregatory and/or restricted-range species.

Numerous other sub-global policy instruments draw on standard criteria for identification of sites of biodiversity conservation significance. For example, the European Union’s 1979 Birds Directive and 1992 Habitats Directive require, respectively, the designation of Special Protection Areas and Special Areas of Conservation, which together comprise the Natura 2000 network.<sup>37</sup> Many national governments draw upon such criteria in undertaking gap analysis and protected-area system planning, towards meeting their commitments to Ramsar, World Heritage, the Convention on Biological Diversity, and other instruments.



37 [www.natura.org](http://www.natura.org)

**Conservation Planning:** For institutions with conservation mandates and resources which are flexible for investment within a given geographic scope, key biodiversity areas can play a particularly important role in informing the planning of conservation actions. The data necessary to define “key biodiversity areas”, including information on species and ecosystem occurrence and threat can be coupled with data on probabilities of success and persistence, viability, and threats to sites from land use and climate change to derive conservation priorities. Moreover, where fixed budgets are available for investment across a given spatial extent, data on potential ecosystem service benefits and management and opportunity costs can be incorporated to inform the optimal allocation of scarce conservation resources across different sites and management actions. These techniques are in wide use among international funding agencies like the Global Environment Facility and Critical Ecosystem Partnership Fund, and national protected area agencies, as well as global, regional, and national civil society organizations.

**Public and Private Site Management:** In the private sector, the International Finance Corporation’s Performance Standard 6 draws for its safeguard policies on the fact that “Critical habitats are areas with high biodiversity value, including (i) habitat of significant importance to Critically Endangered and/or Endangered species; (ii) habitat of significant importance to endemic and/or restricted-range species; (iii) habitat supporting globally significant concentrations of migratory species and/or congregatory species; (iv) highly threatened and/or unique ecosystems; and/or (v) areas associated with key evolutionary processes” (IFC 2012). Similar safeguard policies are in place in other international financial institutions (notably the >70 banks which are signatories to the Equator Principles), while the High Conservation Value Resource Network<sup>38</sup> similarly uses six criteria as safeguards within the certification of high conservation forests and other habitats and ecosystems. A promising new field involves the use of “key biodiversity areas” as a basis for guiding the location of biodiversity offsets, with the data necessary to define “key biodiversity areas” in the first place being essential in guiding offsets to deliver “like-for-like or better” in terms of the biodiversity features of the offset site. “Key biodiversity areas” are also incorporated within tools such as the Integrated Biodiversity Assessment Tool for Business<sup>39</sup> that is specifically aimed at ensuring decisions affecting critical natural habitats are informed by the best scientific information, for example, to develop action plans to manage biodiversity impacts (i.e.: mining and oil companies).

**Local communities:** The identification of Key Biodiversity Areas has enormous significance to local and indigenous communities. While difficult to document comprehensively, cases abound whereby local “site support groups” have emerged to implement conservation subsequent to global recognition of such significance. These harness such recognition to generate conservation-related employment and income, stabilization of land tenure, maintenance of ecosystem services, resilience and ecosystem-based adaptation to climate change, educational opportunities, and community pride in local nature. Ultimately, the long-term persistence of the biodiversity for which Key Biodiversity Areas are important will depend as a first line of defence on the people living in and around such sites.

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38 [www.hcvnetwork.org](http://www.hcvnetwork.org)

39 [www.ibatforbusiness.org](http://www.ibatforbusiness.org)

**Communication and raising awareness:** Alliance for Zero Extinction has been a widely successful programme that has been very efficient in raising awareness on areas of global significance for biodiversity conservation. It was developed by a broad group of international conservation groups to identify and safeguard “key sites where species are in imminent danger of disappearing”. Alliance for Zero Extinction areas are a subset of areas of global significance for biodiversity “key biodiversity areas” and use a similar methodology to target areas containing the only known populations of highly threatened species.

## Indicative cost of the IUCN standard to identify areas of global significance for biodiversity

IUCN has been working through projects and related initiatives with partner institutions and IUCN Commissions to carry out the consolidation process for this tool. An annual operation budget has not yet been established.



## Evidence and case studies related to the identification of areas of global significance for biodiversity

### Case Study: Use of Important Bird Areas (“key biodiversity areas” for birds) to identify areas for potential protection through protected area designation and other land-use management approaches

As the official Red List Authority for birds, BirdLife International collates information from the published literature and from a worldwide network of experts to evaluate the status of each species using the IUCN Red List categories and criteria. Information on Globally Threatened birds is used to focus global conservation efforts and to guide BirdLife’s priorities for action. It is therefore essential that data on Globally Threatened birds are kept up to date and regularly reviewed and revised.

The BirdLife Important Bird Area (IBA) Programme identifies, protects and manages a network of sites that are significant for the long-term viability of naturally occurring bird populations, across the geographical range of those bird species for which a site-based approach is appropriate. These IBAs are the original “key biodiversity areas” for birds and are identified using criteria that include the results of the IUCN Red List assessments for Birds. IBA networks are good at capturing threatened, endemic and representative species for other terrestrial fauna and flora. The effectiveness of the IBA network has already been shown for terrestrial vertebrates in East Africa; globally threatened wildlife species in the mountains and coastal forests of Kenya and Tanzania; butterflies, large moths, small mammals and woody plants in Ugandan forests; butterflies and dragonflies in all Ugandan habitats; and plants, mammals, reptiles, amphibians and freshwater fish in Turkey. It appears that IBAs can be used with confidence as a ‘first cut’ for the overall network of key biodiversity areas, with extra sites for other taxa being added when data become available.



## Case Study: IUCN Freshwater Biodiversity Assessments and identification of areas of importance for freshwater biodiversity

IUCN Global Species Programme and scientific partners<sup>40</sup> developed and applied a globally applicable methodology to identify river and lake catchments that represent, or contain, freshwater Key Biodiversity Areas. This was possible due to the recent assessment of 4203 species freshwater species added to the IUCN Red List of Threatened Species™. Areas of global significance for freshwater biodiversity were identified across continental Africa, and conservation planning software used to prioritise a network of catchments that captures 99% of the total species complement within catchments covering ca. 20% of the total land area. Within these prioritised catchments only 19% of river length falls within existing Protected Areas suggesting that, given the high connectivity within freshwater ecosystems and their dependence upon catchment management for effective conservation, modification or expansion of the protected area network is required to increase effective conservation of freshwater species. By applying this methodology, gaps in the coverage of freshwater species by existing protected areas can be identified and used to inform conservation policy and investment to ensure it is inclusive of, and effective for, freshwater biodiversity.



40 Holland et. al. (2012) Conservation priorities for freshwater biodiversity: The Key Biodiversity Area approach refined and tested for continental Africa, in *Biological Conservation*



**IUCN Red List of Ecosystems**

## Description of IUCN Red List of Ecosystems

The IUCN Red List of Ecosystems is being developed as the global standard for the assessment of ecosystem status, applicable at local, national, regional and global levels based on a unifying risk assessment framework for ecosystems. This establishes risk assessment criteria and thresholds to enable attribution to 1 of 3 threat categories for the risk of collapse of an ecosystem, through loss of area, degradation or major functional change.

## Purpose of IUCN Red List of Ecosystems

The primary goal of the IUCN Red List of Ecosystems is to identify ecosystems at risk of undergoing changes that reduce their ability to sustain their biota. By using a unified system for assessment of ecosystem risk, a consistent and widely accepted scientific framework will be available to monitor the status of Earth's ecosystems and identify those with a high probability of loss, degradation or functional decline. This will also serve as an empirically based means for conservation to engage with land (and water) use or marine spatial planning and decision making, particularly at the national level.

## History and evolution of IUCN Red List of Ecosystems

In 2008 IUCN resolved through its World Conservation Congress Resolution 4.020 on Quantitative thresholds for categories and criteria of threatened ecosystems to carry out a “process for the development, implementation and monitoring of a global standard for the assessment of ecosystem status, applicable at local, regional and global levels.”

A working group sponsored by the IUCN Commission on Ecosystem Management (CEM), building on the experience and expertise of the IUCN Species Survival Commission (SSC), produced a preliminary research agenda and presented draft IUCN Ecosystem Red List Categories and Criteria for testing by the global scientific community<sup>41</sup>. This document is available in the three IUCN official languages (English, Spanish and French), and is summarized in Bahasa Indonesian, Chinese and Danish.

## Use of IUCN Red List of Ecosystems

The IUCN Red List of Ecosystems has a wide range of users including conservationists, policy makers, land use planners, and businesses. Below are some examples of different uses.

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41 <http://onlinelibrary.wiley.com/doi/10.1111/j.1523-1739.2010.01598.x/full>

**Scientific knowledge and understanding for use by policy-makers:** The IUCN Red List of Ecosystems uses a systematic and standardized approach to identify, quantify and monitor ecosystems. This systematic approach will allow analyses that combine with other global datasets such as the IUCN Red List of Threatened Species™, World Database on Protected Areas, and Key Biodiversity Areas.

**Indicator of Biodiversity Status and Trends:** The IUCN Red List of Ecosystem assessments will be scientifically comparable, allowing assessors from different parts of the world and at different geographical scales to systematically contrast their results. Adoption of such a standardized system by the conservation community and recognition by governments would allow for objective, transparent and repeatable assessments of ecosystem collapse risk and loss of ecosystems functions and services. The results will provide a global indicator on the status of elements of biological and abiotic diversity complementary to species assessments.

**Policymaking:** To monitor implementation of biodiversity-related international conventions such as the Convention on Biological Diversity (Aichi Biodiversity Target 5 of the Strategic Plan for Biodiversity adopted at CBD COP10 in Nagoya in October, 2010) and the sites designated under the Ramsar Convention on Wetlands of International importance.

**Prioritize investment and resources:** It is intended that the results of the IUCN Red List of Ecosystem assessments will fill a gap in current scientific knowledge and provide an instrument to guide policy makers particularly to help prioritise investments to help achieve several Millennium Development Goals, as poverty reduction and improvements in health are dependent on the healthy functioning of ecosystems that provide important ecosystem services for human well being.

**Conservation Planning:** By using information on ecosystem benefits to society in the IUCN Red List of Ecosystem risk assessment criteria, an IUCN Red List of Ecosystems will provide and strengthen links between biodiversity conservation and land use planning.

**Land Use Planning:** the Red List of Ecosystems has the potential (through internationally agreed assessment criteria) to directly inform and influence national level land use planning, and the related areas of macro-economic planning and national level investment. The Red List of Ecosystems will be able (through additional work on economic valuation of, in particular, the ecosystem services) to demonstrate the importance of improved ecosystem management, and the importance of ecosystem restoration of ecosystems under threat.

**Climate Change:** Because the assessments can be done on a regular basis, the Red List of Ecosystems can be one tool to assess the impacts of climate change at the ecosystem level, and be one basis for decision making for adaptation strategies.

**Materials and systems to support capacity-building:** IUCN is producing a “Guidebook on the Application of Quantitative Criteria for the Designation of Elimination Risk Categories to Ecosystems,” a portfolio of case studies and training materials, all available in English, Spanish and French.

Communication and raising awareness: The website [www.iucnredlistofecosystems.org](http://www.iucnredlistofecosystems.org) and the Facebook page "IUCN Red List of Ecosystems" are under development and should be available in mid- to late 2012.

## Indicative cost of IUCN Red List of Ecosystems

The project has attracted approximately US\$ 3.6 Million to cover its core activities between 2011 and 2014. These funds will be used to accelerate development and piloting of this risk assessment knowledge product, particularly to support: 1) development of quantitative categories and criteria for ecosystems; 2) testing of these criteria worldwide in a variety of institutional settings and for diverse ecosystem types; 3) launching of the communications strategy; 4) provision of technical support and training materials; 5) engagement with policy makers and academia; and 6) development of the IUCN Red List of the Continental Ecosystems of the Americas.



# Case studies of IUCN Red List of Ecosystems

## Case Study

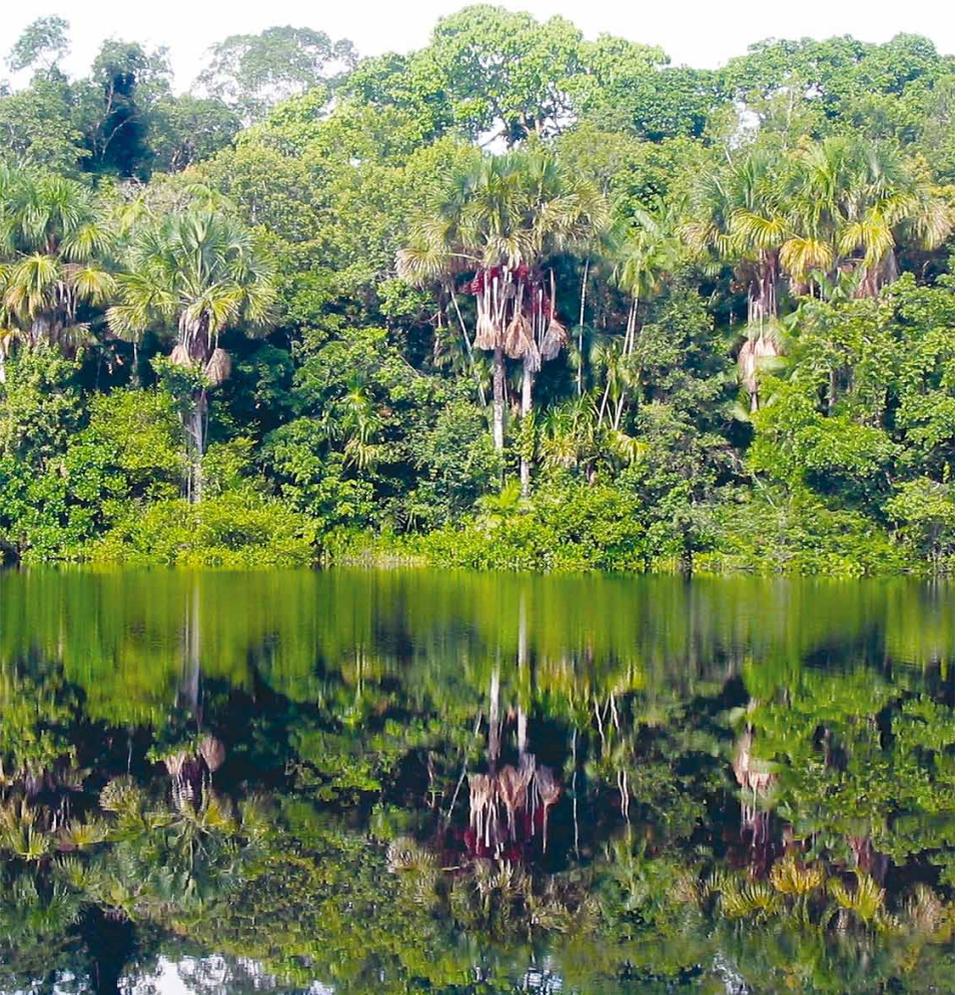
To illustrate the effect of scale of assessment on the designation of red list categories to Venezuelan forests, IUCN performed analyses on evergreen forest ecosystems at the national and state level. Relatively large stable patches located south of the Orinoco River dominated the national designation of evergreen forests ecosystems as Least Concern, the lowest level of risk recognized. However, when degradation was taken into consideration, and the smaller patches of forest ecosystems in the north were examined at the state level, the national classification of this evergreen forest ecosystem increased to Vulnerable. Focusing on some northern locations indicated that patches of evergreen forest ecosystem were categorised with the highest level of risk of collapse, which is as Critically Endangered ecosystems. This means that the scale at which the assessment took place had different implication for policy, as a high risk status would require a different intervention than a low risk designation. Thus, policy makers in the northern states might consider requiring detailed impact assessments on any development project affecting evergreen forests in their region, while the approach in the south may be more flexible. More information can be found in *Libro Rojo de los Ecosistemas Terrestres de Venezuela*<sup>42</sup> A national level designation of ecosystem threat category may not always provide sufficiently high resolution information for decision-making below the national level scale.



42 [http://cmsdata.iucn.org/downloads/rodriguez\\_et\\_al\\_2010\\_lretv\\_2\\_.pdf](http://cmsdata.iucn.org/downloads/rodriguez_et_al_2010_lretv_2_.pdf)

## Case Study

Interest in the assessment of risk of collapse of ecosystems using the IUCN Red List of Ecosystems approach is growing and tests at the national level are under different stages of development in Australia, Brazil, Chile, Colombia, Costa Rica, Senegal and Venezuela. For many of these projects, IUCN is supporting partnerships with academia, governmental bodies, non-governmental organizations and the private sector. Demand for performing national assessments is growing, and this is expected to be one of the primary mechanisms for gradually expanding the geographical coverage of the IUCN Red List of Ecosystems.





# Global Invasive Species Database (GISD)

Available from [www.issg.org/database](http://www.issg.org/database)

## Description of the Global Invasive Species Database (GISD)

The Global Invasive Species Database (GISD) is a free, online searchable source of information about introduced species that negatively impact biodiversity.

Biological invasions are recognised as a key threatening process driving biodiversity loss. This register and the data and information held in the GISD is a key source of reliable and authoritative data and information on invasive alien species, mechanisms and pathways of spread, their impacts on biodiversity and ways to control and manage their spread. The information and data can be used for analyses, prioritisation of action and for decision taking and policy making.

## Purpose of the Global Invasive Species Database (GISD)

The Global Invasive Species Database (GISD) aims to increase public awareness about invasive species and to facilitate effective prevention and management activities by disseminating specialist's knowledge and experience to a broad global audience. It focuses on invasive species that threaten native biodiversity and natural ecosystems and covers all taxonomic groups from micro-organisms to animals and plants.

## History and evolution of the Global Invasive Species Database (GISD)

The GISD is managed by the Invasive Species Specialist Group (ISSG) of the Species Survival Commission (SSC) of the IUCN, the International Union for Conservation of Nature. It was developed in 2001 as part of the global initiative on invasive species led by the Global Invasive Species Programme (GISP) and is supported by partnerships with the University of Auckland and the Institute for Environmental Protection and Research- ISPRA, Italy. The ISSG manages the Global Invasive Species Database (GISD) an online, freely available premier resource of information on invasive species, their ecology, spread, management and impacts. The GISD aims to increase public awareness about invasive species and to facilitate effective prevention and management activities by disseminating specialist's knowledge and experience globally to a broad audience.

Since its inception the GISD has focused on collating and disseminating invasive species data in a standardized way. The ISSG has contributed to the development of invasive species data and data models (such as Species\_Status, Species\_Dispersal, Species\_Impacts and Species\_Management) by the Global Invasive Species Information Network-GISIN that can be used by other invasive species data providers facilitating the sharing of information. The ISSG has contributed to the development of other information networks such as Inter-American Biodiversity Information Network-IABIN Invasives Information Network (I3N).

# Use of the Global Invasive Species Database (GISD)

The GISD features descriptions and images for identification, invasiveness history, advice on early detection and appropriate responses, and information about introduction and dispersal pathways and vectors. For established species, the GISD offers detailed management information such as eradication and control techniques along with a wealth of reference material and links to other sources of information. GISD profiles also include the names and contact details of experts who can provide more management information and advice. The information provided by GISD support decision making in terms of prevention and management of invasive species at global to local levels.

The IUCN has a wide range of users including conservationists, policy makers, and businesses. Below are some examples of different uses.

## **Management**

Information on distribution of species (if they are present in trading partner countries, neighbours), and which species are invasive in their introduced range, their pathways of spread have been provided to policy makers on request to assist decision making in pre-border and post-border biosecurity, regulating trade in species through the nursery and pet trade business, allowing import of certain aquarium fish that are known to be invasive etc.

## **Communication and raising awareness**

Species on the list of “100 of the World’s Worst Invasive Alien Species” were the first list of species to have profiles compiled.

## **Data**

Invasive alien species information is presented in the form of species profiles consisting of both narrative as well as downloadable information. The GISD now features over 850 species profiles.

Information and data collection are achieved through dedicated desktop literature surveys on individual species while compiling the basic species profile. Key species experts are identified to request for a peer review of the content of the species profile. Revisions are made and the profile is presented on the GISD. Species experts, practitioners and conservation managers are made aware of the species that are profiled on an on-going basis through the extensive ISSG networks and are invited to contribute to enhance content on management action, case studies, new research etc.

Quality of content is enabled through the peer review process; currency of content is maintained through planned cyclical major updates for selected species profiles on a two or three yearly basis, this is dependent on the availability of funds. Incremental updates of all species profiles are an on-going process.

## Analyses

GISD data and information including of the native ranges and known introduced range of species, pathways of spread, impacts on biodiversity and ecosystems, is suited to conduct assessments and analyses such as 'pathways of spread analysis'; assessment of the impact of invasive species on different biomes/ecosystems; on threatened species and other specific taxa.

## Future developments

The GISD is under a major reconstruction that seeks to improve functionality, easier access to information and data and facilitate integration with other global related information resources such as the IUCN Red List of Threatened Species, the Global Islands Database etc. the restructuring will also pave the way for the integration of the proposed Global Register of Introduced and Invasive Species (GRIIS) an early warning tool for biological invasions.

## Users

The GISD is recognised as one of the premier repositories of global invasive species information by practitioners and conservation managers.

One of the key aims while evolving this awareness raising tool was to develop it into a dynamic resource which encouraged use of and contribution to its content by global stakeholders. The evidence of its successful application and fulfilment of purpose can be measured by the usage of the database through its monitored traffic report and the contribution of information received by the ISSG information services -on management and impacts, case studies, research and innovation. The GISD has an encouraging traffic report of an average of 110,000 hits per day with close to 3000 unique visitors per day. These figures have grown over the past years rising from 3000 hits per day in 2003. Over 15 exchanges per week are being recorded with regards to contributions of information and engagement with users of the database.

The GISD offers Multilanguage functionality offering limited French language content, this has been enabled by support from French institutions so GISD information is available to a French speaking audience especially in the French Overseas territories where their unique biodiversity is under threat from the spread of invasive species. The GISD has been recognised as a premier resource by Academia Sinica, Taiwan; and a major part of its content (650 profiles) has been translated into Traditional and Simplified Chinese with plans in place for on-going translation.

The data and information from the GISD is made freely available to researchers and scientists on request. Data and information have been used for analyses and modelling.

## Indicative cost of the Global Invasive Species Database (GISD)

The GISD maintenance, enhancement and management are a low cost initiative. The budget implication for this valuable resource is US\$ 250,000 per year.

The on-going implementation of inter-operability between these two knowledge products will enable users of both products to access additional information on species and their management. The link is being implemented at the species level with reciprocal links being established in the threat (IUCN Red List) and impact information (GISD).

### In-kind support

The IUCN Species Survival Commission (SSC) Invasive Species Specialist Group (ISSG) consists of a wide and active global network of scientists and practitioners who contribute to its content and review. The ISSG and the GISD networks can be key collaborators in the work of the IPBES

## Evidence and case studies related to the Global Invasive Species Database (GISD)

### Case Study: list of “100 of the World’s Worst Invasive Alien Species”

Species on the list of “100 of the World’s Worst Invasive Alien Species” were the first list of species to have profiles compiled. International species experts assisted in developing the draft profiles. Species on the “100 of the World’s Worst Invasive Alien Species” were selected based on two criteria: their serious impact on biological diversity and/or human activities, and their illustration of important issues surrounding biological invasion. The list has indeed proven a very effective awareness raising tool. The compilation has been published in the form of a booklet in English, French and Spanish. The list is widely cited in several peer reviewed publications related to invasive alien species.

### Case Study: Invasive species global early warning and rapid response tool

An integral part of the restructured GISD will include a global early warning and rapid response tool in the form of the Global Register of Introduced and Invasive Species (GRIIS). This annotated register of introduced and invasive species will include annotated country inventories including bio-status information. GRIIS can serve as an early warning tool to decision makers and practitioners. The register will report new and emerging alien species and help prevent unwanted species introductions through provision of invasive species information to countries on their neighbours, trading partners, other regions with similar ecosystems and climate. The register can be used to conduct basis risk analysis, develop alert or watch lists etc. and can also be used by countries when reporting to the CBD.

## Case Study: Island Biodiversity and Invasive Species Database (IBIS)

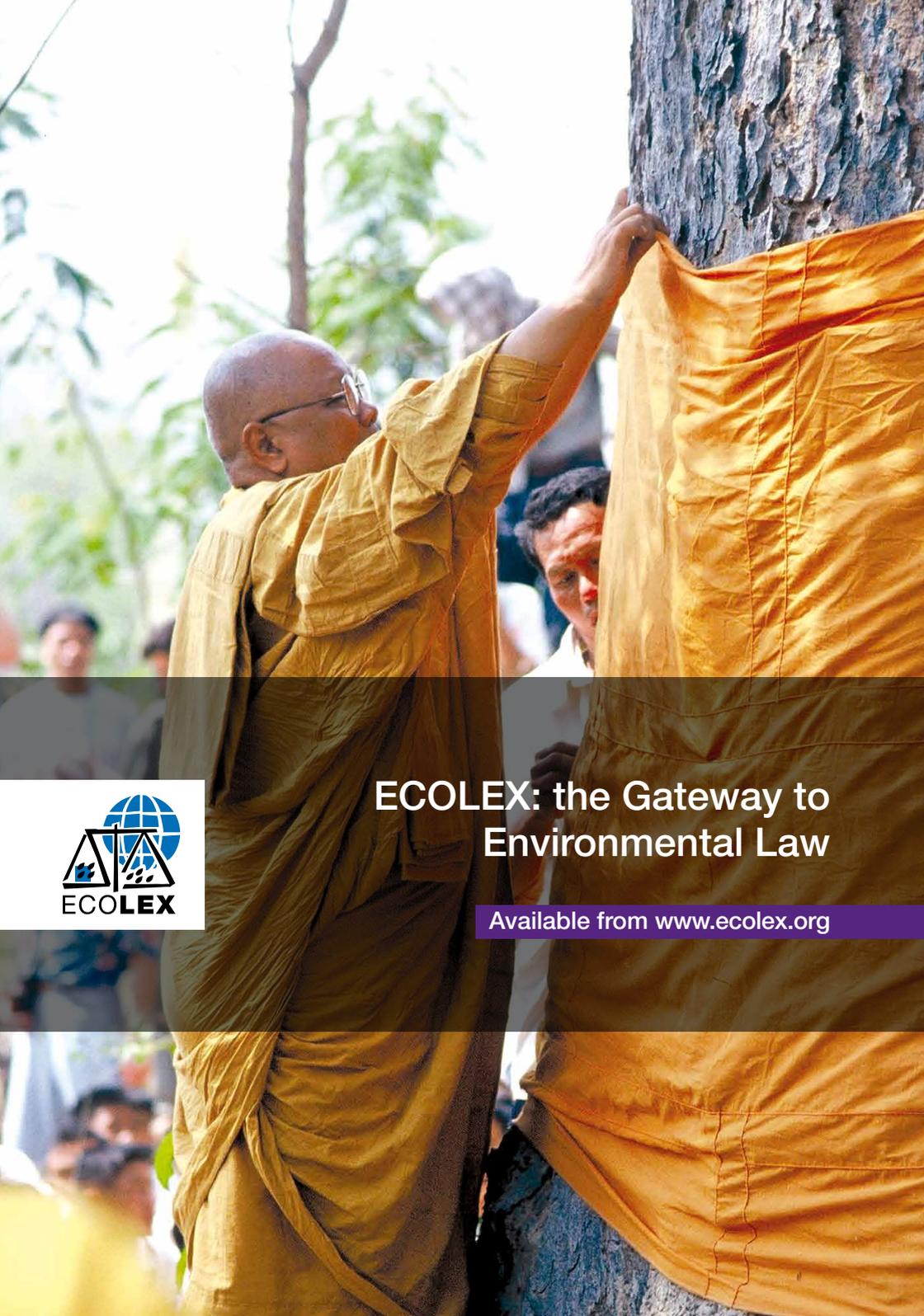
IUCN and partners conceived the Island Biodiversity and Invasive Species Database – IBIS (under construction) in 2009. This project idea evolved in response to feedback from practitioners working on invasive species management on oceanic islands, specifically on the availability and access to information on native and introduced species, invasive species management on a local island scale including best practice and lessons learned.

Islands that comprise only 3% of the Earth's land mass, harbour close to 20% of bird, reptile and plant species. Extinction rates are higher on islands, with most extinction events caused by the spread of invasive alien species. Management of these invasive species is critical in halting loss of biodiversity.

Information presented in IBIS includes inventories of native threatened species, introduced and invasive species at an island scale, protected and other designated areas. Also included are invasive species threat summaries, summaries of management action (completed, on-going and planned) and conservation outcomes. These narratives are peer reviewed. The database also includes an extensive bibliography with links to feasibility studies, operational plans and project reports both published and unpublished.

Supported by the Critical Ecosystems Partnership Fund (Polynesia-Micronesia Hotspot) IBIS was developed in 2011. Data and information on threatened native species, the impact of the spread of invasive species on them, management action and conservation outcomes related to the 24 Pacific Island Nations and Territories in the South Pacific have been collated for inclusion in the database. In addition to the integration of relevant data and information from the GISD, other on-going projects that will add content to IBIS include one that focuses on the just inscribed World Heritage Site – the Bonin Ogasawara Island group of Japan and island of the sub-Antarctic.





## ECOLEX: the Gateway to Environmental Law

Available from [www.ecolex.org](http://www.ecolex.org)

## Description of ECOLEX: the Gateway to Environmental Law

ECOLEX is an information service on environmental law, operated jointly by FAO, IUCN and UNEP. ECOLEX is an internet-based information service that is also referred to as “the gateway to environmental law”. ECOLEX is the most comprehensive global source of information on national and international environmental and natural resources law.

The portal includes extensive information on multilateral and bilateral environmental treaties, national legislation, court decisions and law and policy literature’ including monographs, articles from periodicals, and grey literature, as well as related news and links to other websites. Search functions are possible using a variety of terms including country, geographical area and river basins.

The ECOLEX Steering Committee is composed of FAO, IUCN and UNEP, the principal partners of ECOLEX. This committee directs and monitors activities.

## Purpose of ECOLEX: the Gateway to Environmental Law

The overall long term objective of ECOLEX is to increase knowledge of, and build capacity on, environmental law at local, national and global levels, to support the achievement of sustainable development. ECOLEX supports increased access to authoritative information on environmental law by establishing a single gateway on the Internet ([www.ecolex.org](http://www.ecolex.org)) and publishing a range of products on specific topics.

## History and evolution of ECOLEX: the Gateway to Environmental Law

The IUCN Environmental Law Centre (ELC) created a comprehensive information system on environmental law (ELIS) in the 1960’s, which was one of the first computerized legal information systems. This pioneering data bank on law was demonstrated for the first time at the United Nations Conference on the Human Environment in Stockholm, Sweden in 1972. This system evolved into a large set of references to treaties, national legislation, soft law and legal literature, linked to documents held in the libraries of the ELC. This digital library continues to be one of the main assets of the capacity building activities of the IUCN Environmental Law Programme, as well as a constant source of expertise for the work in the fields of law development, technical assistance, and expertise building.

Cooperation between the United Nations Environment Programme (UNEP) and IUCN on the dissemination of environmental legislation in digital form was first mandated by the Governing Council of UNEP in 1995. In 2001, IUCN, UNEP and the United Nations Food and

Agriculture Organization (FAO) signed a partnership Agreement for the integration of their data. Each partner contributes to ECOLEX through the maintenance and development of one or more data sets for which it has accepted custodial responsibility (FAO = legislation; IUCN = treaties and legal and policy literature; UNEP= court decisions). ECOLEX is directed by a steering committee comprising representatives of the partners and chaired by UNEP. It meets in regular session each year.

IUCN ELC has served as the Management Unit (MU) of ECOLEX since the partnership exists. As such it plays a key coordinating and managerial role, assumes budgetary and accounting services, and hosts the ECOLEX server. The MU reports to the Steering Committee of ECOLEX.

In 2009, ECOLEX was expanded to include decisions of the Conference of the Parties to selected multi-lateral environmental agreements, as a searchable database within the treaty database. The data were made available to ECOLEX by the Center for International Earth Science Information Network (CIESIN), a centre within the Earth Institute at Columbia University.

## Use of ECOLEX: the Gateway to Environmental Law

Environmental law has evolved into an important tool to support effective environment and natural resources management, in the context of sustainable development. Within this field, there has been a significant growth in multilateral and bilateral agreements, national legislation, international “soft law” documents, and law and policy literature, as well as related jurisprudence and court decisions.

Taken together, this pool of global, regional and national legal instruments and policies constitutes the sum of controls, incentives and remedial mechanisms that govern the relationships between humans and the environment. It also constitutes a large reservoir of knowledge on the legal tools and mechanisms so far used in the world for building sustainable development and the related appropriate governance mechanisms.

Yet, much of this wealth of information is difficult to access, even for those whose profession is to develop and implement legal instruments in practice. There are two causes for this difficulty: first, there is limited knowledge about the existence and location of this information; second, even when this information is available, access is limited. In developing countries and countries with economies in transition, where government officials, practitioners, environmental managers, non-profit institutions and academia have difficulty accessing legal information, ECOLEX provides easy access to the legal information they need for developing the necessary legal tools to promote environmental management.

There is a constantly growing number and variety of requests for data, and for assistance in locating information on specific environmental law topics, which FAO, IUCN and UNEP receive from governments, academia, including NGOs, companies and members of the public.

A future challenge of ECOLEX will be the development of links with other data providers in the fields covered by ECOLEX, and build common products (i.e. mapping, conceptual tools). Sophisticated products in the biodiversity field which can be developed from ECOLEX are for instance links between legal instruments and scientific data on (a) species, and (b) protected areas. This would permit to obtain information on the legal status of a species in one (or more) country, or on the type of protection provided for specific PA sites.

## **Data**

Four data sets constitute the backbone and structure of ECOLEX: the first, on international treaties, contains extensive information on multilateral and bilateral instruments, along with status (signatures, ratifications, withdrawals, entry into force, etc.); the second, on national legislation, includes information from countries around the world, at both the national and sub-national level (the latter for countries with decentralized form of government); the third, still in development, is on significant international and national judicial decisions; last but not least, the law and policy literature data pool contains information on monographs, articles in periodicals and also grey literature.

Each ECOLEX record describes one document; it provides extensive bibliographic information, as well as textual information in the form of an abstract and descriptive keywords, and is linked to the full text of the original document, unless its use is prevented by copyright law.

The data sets can be searched separately or in combination, thus enabling users to browse through all or parts of the information pool (e.g. treaties only, or treaties and legislation, etc.). Once this initial decision has been made, the selected data set(s) can be searched in a variety of ways: through any of the bibliographical information, through the keyword list, or through textual information contained either in the documents records (titles, abstracts), or in their full text.

The user interface is available in English, French and Spanish. The keywords are also available in those three languages, and abstracts are provided in either of them.

## **Specialist fields of knowledge**

Types of law and policy-related instruments: international treaties, national legislation, and regional instruments (such as for the European Union), court decisions and law and policy literature.

The major environmental and natural resources fields covered include 15 subject areas: agriculture, air and atmosphere, cultivated plants, energy, environment general, fisheries, food, forestry, land and soil, livestock, mineral resources, sea, waste & hazardous substances, water and wild species and ecosystems.

ECOLEX now provides information on:

- 2,070 treaties, of which 670 multilateral, and the remaining are bilateral treaties);
- 110,000 national laws and regulations;
- 33,700 legal and policy literature records;
- 1,100 court decisions.

### **Monitoring biodiversity policy response**

ECOLEX may be able to serve as a barometer of action taken on different biodiversity related issues. An easy example is searches for countries with endangered species legislation or protected areas.

Another application would be to allow users to obtain information on particular countries and on various subjects. For instance, a search can be made to find out to which treaties country X is a Party; or what legislation has country X taken in the field of endangered species. IUCN could present subject-specific profiles in responses to demand and need.

### **Developing or improving national environmental legislation**

IUCN, in particular through the IUCN Environmental Law Centre and the IUCN Commission on Environmental Law, helps Parties to develop and improve national environmental legislation using ECOLEX as a tool.

The main beneficiaries are decision-makers in developing countries and countries in transition. By obtaining information on the law existing in relevant thematic areas in other countries, policy-makers benefit from guidance on how to contribute to the development of new legislation or reform of existing legislation. NGOs, academics and advocacy groups are also important beneficiaries.

### **Public and private site management**

Business and industry, particularly multi-national companies, also benefit from facilitated access to information on environmental law including on legal mechanisms dealing with waste, pollution and EIA.

### **Access**

Access to ECOLEX is free of charge and the user interface of ECOLEX is trilingual thereby accessible to users in English, French and Spanish.

### **Users**

The statistics indicate that for 2011, the minimum visits per month were 5,931, and the maximum 12,594.

## Indicative cost of ECOLEX: the Gateway to Environmental Law

Each ECOLEX partner pays for the maintenance of the data set(s) for which it is custodian. The combined individual contributions of the partners are in the order of US\$ 670,000 per year. Additional in-kind contribution occurs through the ECOLEX joint budget developed each year by the ECOLEX Steering Committee, to cover yearly maintenance costs, as well as development needs (e.g. new software). Partners share the costs of the budget, or fundraise to cover them.

## Evidence and case studies related to ECOLEX: the Gateway to Environmental Law

### Case Study: Access to ECOLEX directly from other systems

Some institutions are interested in gaining access to the data for use in their own system. This is the case of CIESIN (the Centre for International Earth Science Information Network, at Columbia University), which captures the IUCN data on treaties and uses them in their own information system, called ENTRI. In exchange for this service, CIESIN inter alia provides ECOLEX with a retrievable data set of COP decisions from a number of biodiversity-related conventions.

### Case Study: Future developments planned between ECOLEX and InforMEA

IUCN collaborating on the development of InforMEA, the information system developed and managed by a growing number of MEAs for the use by their parties and secretariats. This UNEP-hosted initiative plans to establish direct links to selected parts of ECOLEX. Reciprocally, the InforMEA data on COP decisions will be accessible from ECOLEX. <http://informea.org/about>

### Case Study: Future developments planned between ECOLEX and the Judiciary Portal

In 2009, the IUCN Commission on Environmental Law signed a Memorandum of Understanding (MoU) with the Superior Court of Justice of the Federative Republic of Brazil (STJ) to provide a framework of cooperation for the creation and development of the Judiciary Portal. This project is giving judges from around the world an opportunity to interact and have access to selected court decisions of relevance to environmental law. This Portal is an online tool that gathers environmentally-relevant judicial decisions from different countries around the globe. The Judiciary Portal is available in four languages (Spanish, English, French and Portuguese), and the material selected will be made available to ECOLEX.



**IUCN Green List of  
well-managed Protected Areas**



## Description of the IUCN Green List of well-managed Protected Areas

The IUCN Green List of Well Managed Protected Areas is an initiative to encourage, measure, celebrate and share the success of protected areas in reaching good standards of management.

The IUCN Green List will focus on celebrating protected area management success and sharing best-practice, as opposed to solely recognizing protected areas on the basis of the significance of their values or attributes.

## Purpose of the IUCN Green List of well-managed Protected Areas

The IUCN Green List of Well Managed Protected Areas is designed to assist national governments and their community partners in conservation to meet the commitments embodied in the CBD Strategic Plan for Biodiversity and particularly Target 11. A requirement of this target is the effective and equitable management of protected areas.

The IUCN Green List of Well Managed Protected Areas aims to:

1. Establish and improve standards for protected area management in accordance with Aichi Biodiversity Target 11 by working with protected areas agencies, other management bodies, private owners, protected areas and their stakeholders;
2. Encourage, recognize and measure progress, celebrate success, innovation and endeavour in protected area management;
3. Share good practice in all aspects of protected area management.

The IUCN Green List is designed to assist national governments and their community partners in conservation to meet the commitments embodied in the Strategic Plan for Biodiversity and particularly Aichi Biodiversity Target 11. A requirement of this target is the effective and equitable management of protected areas.

## History and evolution of the IUCN Green List of well-managed Protected Areas

The origins of the IUCN Green List of Well Managed Protected Areas derives from work of IUCN particularly through the IUCN World Commission on Protected Areas (WCPA) and other conservation organizations on assessing the effectiveness of management of protected areas that began in the late 1990s. IUCN developed the Protected Area Management Effectiveness (PAME) Framework which has been widely adopted at an international

and national policy level (e.g., in the Convention on Biodiversity Programme of Work on Protected Areas (CBD PoWPA)) and has been widely applied around the world. A global review of management effectiveness evaluations in 2010 identified more than 9000 sites that had been assessed in over 140 countries (Leverington et al. 2010). The CBD PoWPA has set a target for signatory countries to have assessed management effectiveness of 60% of their reserves by 2015. Assessing the achievement of the CBD Target 11 will also depend on having data available from management effectiveness assessments.

In 2009, IUCN conducted a workshop that shaped the initial ideas for a Green List of Well-Managed Protected Areas, set objectives for the system and outlined possible approaches that could be adopted. The current proposed system and pilot studies developed from these workshop outcomes.

This initiative is being led and overseen by IUCN's Global Protected Areas Program (GPAP), Regional Protected Area staff and the IUCN WCPA in partnership with protected area management agencies or other responsible management bodies, including private and community managed protected areas. This collaboration should ensure the process is independent and consistent while acknowledging regional contexts and allowing for full participation of management partners.

IUCN WCPA has identified good practices in protected areas at the global levels, based on the experiences and lessons in evaluating and improving protected area management effectiveness. These good practices were identified through a Global Study of management effectiveness assessments conducted by IUCN WCPA, the University of Queensland and UNEP- World Conservation Monitoring Centre (Leverington et al. 2010). The identified good practices form the basis for criteria and standards for protected area management to be adopted by the Green List, globally and regionally. The Green List criteria and standards provide a framework to be applied, with appropriate adaptation, at the regional and national/system levels, in order to ensure consistency across the world while allowing for differences in regional and state context.

## Use of the IUCN Green List of well-managed Protected Areas

The IUCN Green List of well-managed Protected Areas has a wide range of potential users including conservationists, policy makers, and businesses. Below are some examples of different uses that this tool:

### **Indicator of Biodiversity Status and Trends:**

The IUCN Green List will support the monitoring of progress towards the achievement of Aichi Biodiversity Target 11 on area-based conservation and protected areas.

## Management

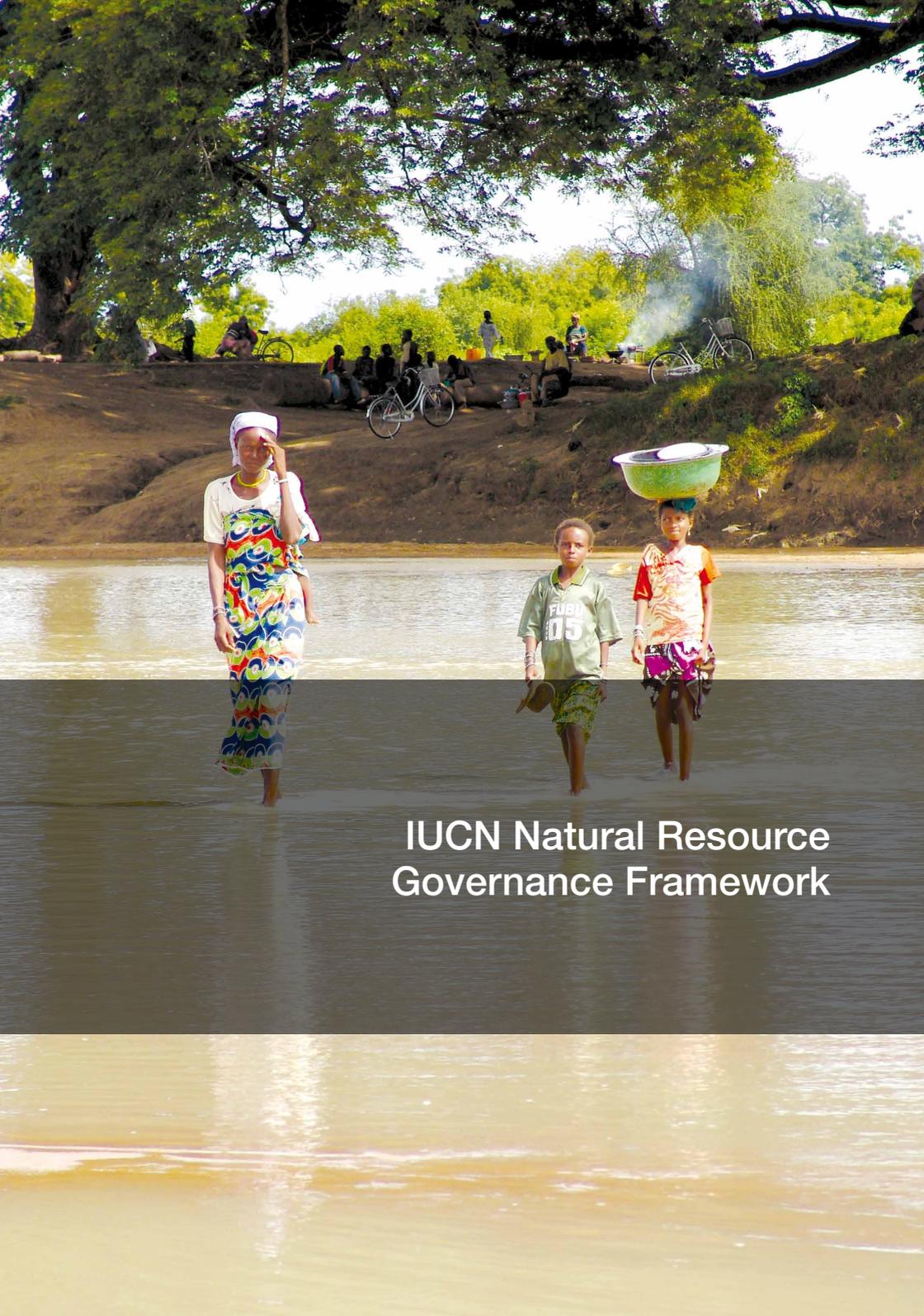
The IUCN Green List is intended to provide an incentive for improved protected area management and a positive reward for achieving international standards.

## Certification

For Protected Area Managers, the IUCN Green List may provide direct and indirect benefits from certification, depending on the context, possibly including: (1) International recognition for the PA and its management authority bring prestige and provide a benchmark and an incentive to maintain standards; (2) increased national profile can bring enhanced political support for management objectives and increasing budget allocations; and (3) well-managed protected area may be able to articulate needs for external support and project requirements and gain greater support from potential donors.

For National and local government authorities the IUCN Green List is intended to: (1) reward and encourage enabling policies and investments in local or national protected areas and systems; (2) raise the profile of their agency or department and encourage further support for PA's in their jurisdiction; (3) encourage investment in programs and policies that measure and enhance Management Effectiveness; and (4) provide positive contributions to national communications to the CBD, especially Target 11.





# IUCN Natural Resource Governance Framework

## Description of the IUCN Natural Resource Governance Framework

While there are many encouraging examples of how different stakeholders can come together to effectively negotiate fair outcomes and take better decisions with regard to the management and conservation of natural resources, there is no single consistent framework that can be used to analyze and compare how well specific natural resource governance arrangements function and subsequently indicate the best options for further strengthening such arrangements.

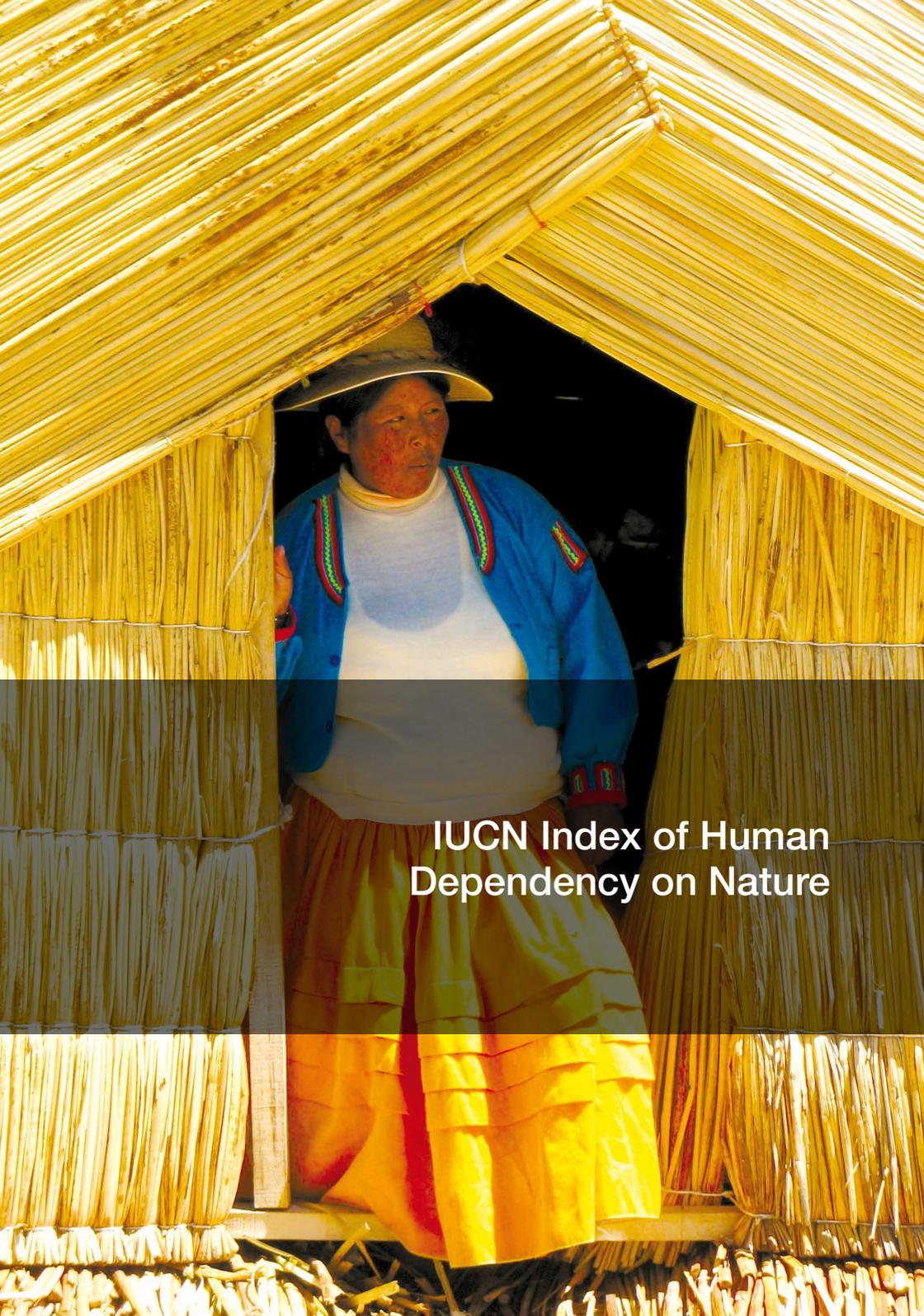
IUCN's 2013 -2016 Programme is committed to develop, test and apply a new framework that will provide the same coherency and consistency of approach to understanding and assessing natural resource governance as the IUCN Red List of Threatened Species™ does for the conservation status of threatened species.

The IUCN Natural Resource Governance Framework will draw on the collective insights and knowledge of IUCN's strong network of social scientists and will aim to:

- Help diagnose the “best options” for stepwise improvements in the governance of a specific natural resource at the global, regional, national or sub-national level;
- Help answer “key” questions on the best way to achieve effective and equitable governance reform in common situations– for example whether it is better to pursue improved governance through participatory approaches, concerted action, softer policy options, and/or legal and institutional reform;
- Document changes and improvements in governance reform processes in a credible and consistent way identifying the means that might be necessary to enforce them;
- Provide a common basis to enable broader meta-analysis to assess broader trends in the state of natural resource governance.

## Purpose of the IUCN Natural Resource Governance Framework

The rules, institutions and contracts – be they legal or social; formal or informal – that shape people's actions and decisions constitute the governance arrangements that ultimately determine how well nature is managed and conserved. The primary goal of the IUCN Natural Resource Governance Framework will be to provide an independent, robust and credible method to ascertain the strengths and weaknesses of natural resource decision-making and implementation processes. In doing so it seeks to support decision-makers, whether citizens, economic agents or political authorities, to make better and fairer decisions that will underpin the sustainable management of natural resources and help guide them making improvements in existing governance arrangements.



IUCN Index of Human  
Dependency on Nature

## Description of the IUCN Index of Human Dependency on Nature

Historically, conventional wisdom dictated that natural resources made relatively minor contributions to the income of most rural and coastal communities and, at best, constituted a safety net – a means of last resort to be drawn on in times of hardship. Several studies now challenge this understanding and appear to suggest that wild resources typically provide at least 25% of household income. The IUCN Index of Human Dependency on Nature aims to systematically collect and analyze data on the scope, nature and contribution of natural ecosystems and wild resources to rural and coastal livelihoods. In doing so, it will fill a major knowledge gap within both the development and conservation communities.

The IUCN Index of Human Dependency on Nature will be developed through a coalition of partners that bring together household economic survey expertise, economic analytical skills and knowledge of the use and contribution of natural ecosystems and wild resources. Existing datasets will be interrogated and supplemented with additional surveys that explicitly document the contribution to rural and coastal livelihoods from natural resources. IUCN has already worked with several partners and members to develop survey methodologies to capture such information that tends to be overlooked in standard household surveys. These approaches will be refined in such a way as to complement mainstream household economic datasets and distributed to IUCN members and partners. IUCN will also supplement this information with relevant data from the Red List of Threatened Species which details how individual species are used.

Products will include: quantification and trend analysis of human dependence on natural resources; seasonal analysis of when natural resources are particularly important, gender and social grouping analysis of the degree of differentiated reliance, vulnerability analysis of policy changes (e.g. restricting community access to a forest resource via REDD+) and economic and climatic shocks; national and regional variation mapping.

## Purpose of the IUCN Index of Human Dependency on Nature

Evidently, humans depend on nature for their livelihood. Wild natural resources contribute more to livelihoods in rural and coastal communities than hitherto recognized. The primary goal of the IUCN Index of Human Dependency on Nature is to provide policy makers and programme managers from the development, environment and other sectors with an independent, robust and differentiated assessment of the degree to which natural ecosystems and wild resources contribute to the material needs of rural and coastal communities as a proportion of total household income. In doing so it seeks to improve the sustainable management of natural resources to better meet local needs, sharpen the targeting of national development and conservation policies and avoid unintended impacts of policies and programmes on rural and coastal livelihoods.

Progress towards achieving effective and equitable governance of nature's use will be assessed by measuring: (1) enhancement of institutional and governance arrangements based on a new IUCN natural resource governance framework; (2) extent of protected areas managed in accordance with the IUCN's natural resource governance framework; (3) area (in ha.) of agriculture, fisheries and forestry managed according to IUCN's natural resource governance framework; (4) extent of high seas administered in accordance with the ecosystem approach and IUCN's Natural Resource Governance Framework.



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**INTERNATIONAL UNION  
FOR CONSERVATION OF NATURE**

WORLD HEADQUARTERS

Rue Mauverney 28  
1196 Gland, Switzerland  
Tel +41 22 999 0000  
Fax +41 22 999 0002  
ipbes@iucn.org  
[www.iucn.org/ipbes](http://www.iucn.org/ipbes)