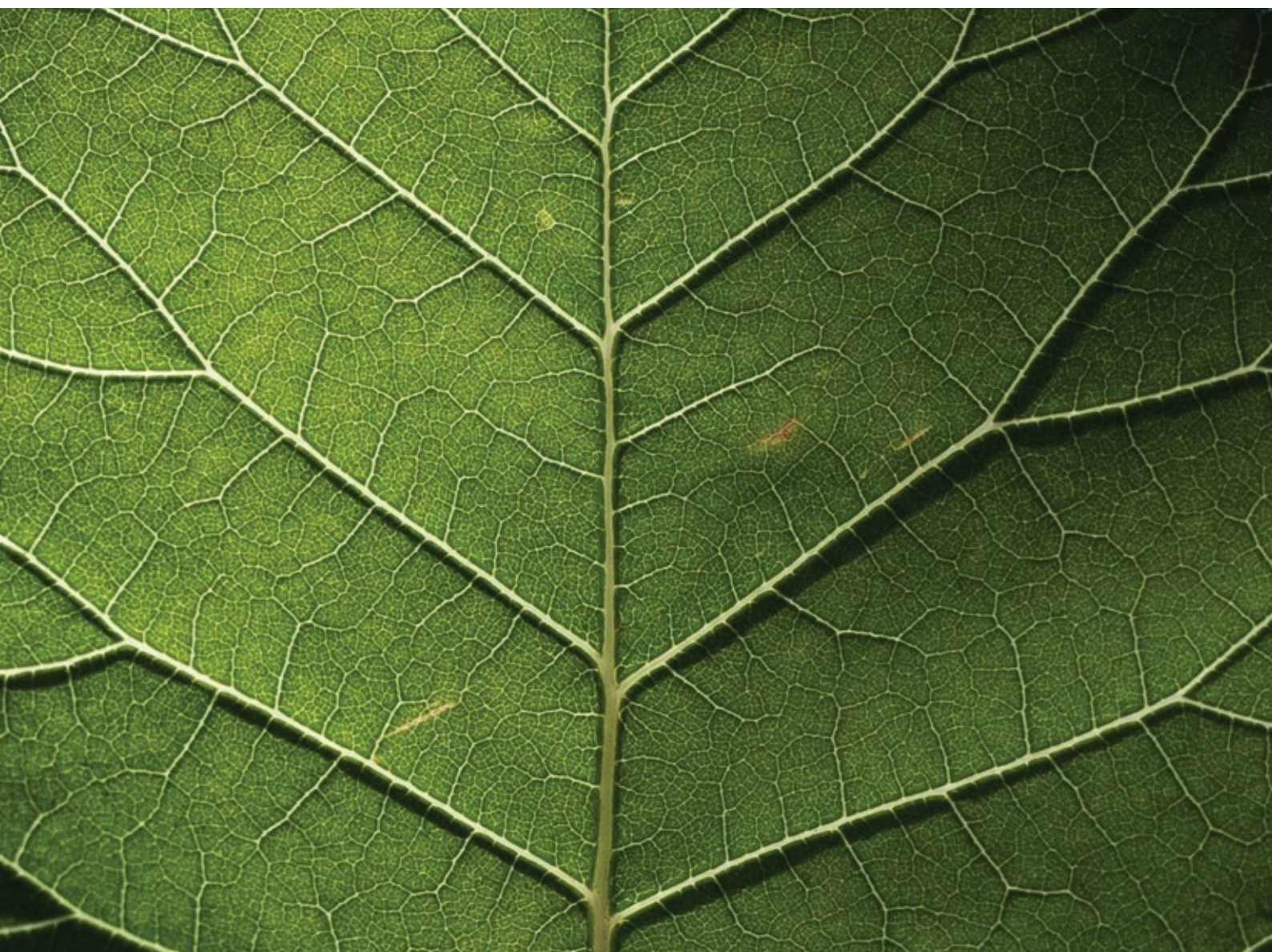




Applications of Key Biodiversity Areas: End-user consultations

Edited by: Nigel Dudley, Jessica L. Boucher, Annabelle Cuttelod, Thomas M. Brooks and Penny F. Langhammer



International Union for Conservation of Nature



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Introduction and summary

Introduction to Key Biodiversity Areas

Over the last four decades, a large number of approaches have been developed for identifying places of significance for biodiversity. These generally focus on one group of species or one biome, or are applied at a very large scale. In consequence, they use a diverse array of assessment criteria and thus produce a variety of different results, which has caused some confusion among decision-makers and risked duplication of efforts. Someone wanting to understand sites of importance in an area will often need to look at multiple, disconnected databases and other information sources. To address this and to provide a coherent, global approach, IUCN Member organisations requested the IUCN to convene a worldwide consultative process to agree on an overarching methodology to identify *Key Biodiversity Areas* (KBAs).

KBAs are sites that contribute significantly to the global persistence of biodiversity. They are identified using globally standardised criteria and thresholds applied by national and international constituencies. KBAs are sites, in that they are relatively limited in extent, and could thus potentially be managed as protected areas or by other effective means to conserve biodiversity. They therefore differ from broad-scale approaches, such as Ecoregions, Endemic Bird Areas, Wilderness Areas and Biodiversity Hotspots, which identify large regions of interest, often spanning several countries. KBAs instead identify the most important sites for biodiversity within all countries and regions. However, while identification of a KBA is recognition of a site's significance to biodiversity, it does not on its own imply any one management response. KBAs are thus a data set used to help processes such as systematic conservation planning and implementation and monitoring of intergovernmental commitments, as well as responsible development plans and applications of safeguards such as the International Finance Corporation's Performance Standard 6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources.

The KBA standard builds on earlier, long-standing efforts to identify sites of importance to biodiversity, most notably the Important Bird and Biodiversity

Areas (IBAs) identified by BirdLife International and partners for several decades now, and Important Plant Areas (IPAs) identified by Plantlife International and others. There are for instance already over 12,000 IBAs identified covering every part of the planet.

The concept of KBAs has been recognised for over a decade and was the subject of an earlier IUCN publication (Langhammer et al., 2007). Countries such as Turkey have already identified national KBAs drawing on this methodology (Eken et al., 2006). To update this work, and consolidate it into a global standard, the IUCN Species Survival Commission (SSC) and World Commission on Protected Areas (WCPA) established a Joint Task Force on Biodiversity and Protected Areas, one objective of which was to finalise a standard methodology for KBA identification. This has been approached through a series of expert workshops, regional consultations and the end-user interviews reported on herein.

Objectives of this report

Given the many different stakeholders with an interest in the management of the world's remaining natural ecosystems, the IUCN WCPA-SSC Joint Task Force coordinated a major effort to identify and speak with a range of different existing or potential end-users of KBAs. While it has certainly not been possible to speak with everyone we would have wished to, the exercise represents an effort to gain an improved understanding of how different end-users view KBAs, what their hopes and concerns are, and their opinions about the methodology. These opinions have been enormously helpful in framing the KBA standard.

The following report summarises findings from a two-year survey of existing and potential end-users of the KBA standard and, in particular, of the resulting KBA data generated under it. It describes what stakeholders need from KBAs; how they would like to see data presented; how KBAs fit with existing and emerging policies; any concerns or fears end-users have about the identification of KBAs and the implementation of the KBA standard. Implications for the development of the KBA standard are then outlined. Opinions are presented without seeking unanimity

among different end-users (or between them and IUCN), although differences in opinion are identified. Unanimous points are listed first in the overview below. Comments in the overview section are anonymous, and the opinions of specific end-user groups can be found in the individual case studies that follow.

The purpose of the end-user consultation has been to seek honest opinions from a range of different end-users, not for IUCN to influence, debate, or advocate for a particular position, nor to reach consensus. The process thus seeks and reports feedback but does not commit IUCN to implement all the ideas that emerge – this would be impossible in any case as opinions amongst end-users differ – but all issues raised have been documented and will be considered by the IUCN WCPA/SSC Joint Task Force on Biodiversity and Protected Areas to build and strengthen the process of consolidating the KBA Standard. IUCN will try to meet the full range of end-user needs; any points not taken on board are discussed and as far as possible explained. Commentary from

IUCN is provided where appropriate in boxes in the summary.

The conversations that are reported here took place via face-to-face meetings, phone calls and Skype conversations, email and by written submission. No attempt was made to be comprehensive in interviewing end-users: we did not have the time or resources to talk to everyone. Rather, opinions were elicited from 49 interviewees representing 32 organisations and 13 end-user groups. A typology of end-users was developed at the KBA Framing Workshop in Cambridge in 2012 (IUCN, 2012), which also provided the mandate for this study.

Identifying KBA end-user groups

A preliminary typology of potential KBA end-user groups was identified by a working group¹ at the KBA Framing Workshop in Cambridge, UK in June 2012 (IUCN, 2012), and has been modified slightly since as a result of input from end-users involved in



Framing Workshop © IUCN

¹ Achilles Byaruhanga (Nature Uganda); Nigel Dudley (Equilibrium Research); Laurens Geffert (IUCN); Craig Groves (The Nature Conservancy); Andrew Knight (Stellenbosch University; now at Imperial College of London); Kathy MacKinnon (IUCN World Commission on Protected Areas); Martin Sneary (Integrated Biodiversity Assessment Tool); Nadinni Sousa (Ministério do Meio Ambiente do Brasil); David Stroud (Joint Nature Conservation Committee, UK); Phil Weaver (Global Ocean Biodiversity Initiative).

the survey. While KBAs may be relevant to any interested person, the following typology distinguishes between primary and secondary end-users. A definition of primary end-users was proposed as follows:

Primary end-users lead or influence decision-making processes linked to mechanisms to secure biodiversity or to avoid biodiversity loss.

This might include, for example: (1) government protected area agencies planning a national protected area system; (2) an indigenous peoples' group planning management of their territory; or (3) a mining company seeking to avoid operations in the most sensitive sites. Although the emphasis is on those influencing decisions, it was noted that there may also be significant stakeholder or right-holder groups that are deliberately or accidentally omitted from

decisions and yet that are affected by decisions about KBAs. Such groups require particular consideration, possibly including principles and codes of practice for implementation; these have yet to be developed. By contrast, secondary end-users are those who have an interest in KBAs, for a variety of reasons, but are not responsible for or influential over relevant decision-making processes.

The typology was prepared and presented in a matrix (Table 1), which outlines end-user groups at different scales, summarising the reasons that each might use KBAs and the products that they would require. This is summarised below with some slight modifications that emerged during the survey. The typology does not imply an order of importance. KBAs will usually be an *input* to decisions rather than the sole source of information.

Table 1: Potential end-user groups of Key Biodiversity Areas

| Scale | End-user | Purpose – input to: | Examples |
|---|--|---|--|
| Global / Regional <i>End-users are replicated at global and regional scale</i> | Intergovernmental conventions (e.g. CBD, Ramsar, CMS) | Meeting convention obligations. | Target 11 of Aichi Targets of CBD. |
| | Intergovernmental agencies (e.g. UNDP, UNEP) | Predominantly for guiding investment, also setting policy. | Priorities for GEF projects. |
| | Intergovernmental coalitions (e.g. Africa Union, Micronesia Challenge) | Meeting convention obligations, also helping to plan regional initiatives. | Planning multi-country protected areas (e.g. in Micronesia Challenge). |
| | Multi-lateral Development Banks (e.g. World Bank IFC, ADB) | Implementing safeguards. | Donor policy for World Bank loans. |
| | Donors (e.g. bilateral donors such as USAID, DGIS) | Guiding conservation investments. | Support for Indigenous Protected Areas. |
| | Multinational companies and industry associations (e.g. Shell, Rio Tinto, FSC, MSC, roundtables) | Helping to implement safeguard policies and inform environmental risk management. | Avoiding sensitive sites while locating fossil fuel and mineral exploration areas. |
| | Multinational companies and industry associations (e.g. Nestlé, Asda, Mondi) | Enhancing the status of nature that companies depend upon. | Identifying dependencies upon nature, and current status of management. |
| | International conservation and development NGOs (e.g. WWF, CI) | Guiding investment and also helping to set policies | Identifying priority places for investment in field projects. |
| | Global assessments (e.g. MEA, IPBES) | Informing research, helping to identify priorities and case studies. | Assessment of threat to different regions. |

| Scale | End-user | Purpose – input to: | Examples |
|---|--|---|--|
| National/ sub-national <i>Government takes place at many different levels: in some countries sub-national levels (state, province, canton, etc.) may be more important than national government in taking land-use decisions. The sub-categories are the same whatever the level and are listed as one here.</i> | Government: conservation agencies (e.g. ministries of environment, parks agencies) | National government priority setting for conservation. | Identifying priorities through identification of national level KBAs, and setting associated policy. |
| | Government: agencies managing living resources (e.g. forestry, fisheries, agriculture) | Compliance with policy, in some cases direct management of KBAs. | Identifying sites for fishing restrictions and for locating new agricultural areas. |
| | Government: other agencies (e.g. transport, mining) | Compliance with policy (e.g. in terms of mine and quarry location, new roads and rail links etc.). | Zoning for mineral exploration. |
| | Industry/industry associations (including national certification bodies) | Risk management, informing Environmental Impact Assessments, policy formulation. | Potential input to High Conservation Value assessments for the Forest Stewardship Council. |
| | Investors | Risk assessment, implementing safeguards. | Providing investment advice to major banks. |
| | Cultural/spiritual institutions (e.g. faith groups, cultural protection organisations) | Policy, identifying priorities. | Working with faith groups to increase protection for sacred natural sites. |
| | Non-Governmental Organisations (NGOs) | Priority setting, investment, advocacy. | Planning for investment in land purchase within a country. |
| | Communities: Indigenous Local | Formal protection of conserved territories and resources, opposing industrial exploitation and infrastructures ('No Go' areas). Natural resource negotiations, access funding, guiding investment. Building local support and pride in place. | Management plans for indigenous peoples' territories. |

This typology formed the basis for identification of a series of end-user case studies, which were then conducted on an *ad hoc* basis depending on the availability and willingness of interviewees. Institutions and individuals within them were approached from each of the sub-sectors included in the typology; many (26) took part and the results are presented here; two others were happy to participate but were not able to sign off on public release of the resulting case study; and some 5-6 others were not available to take part. Efforts were made to ensure that all the end-user groups were represented and that coverage remained even. Despite this, it was not possible to distribute case studies across sectors as broadly as we would have desired. In particular,

we would have been happy to include some case studies of national and local governments; such case studies may be developed, as resources permit, in the future. Key findings are summarised below and individual case studies follow in the remainder of the report.

The role of KBAs

There was generally positive feedback about the potential of KBAs to help inform planning and decision-making, albeit with some caveats mentioned below. Several institutions use the general concept in their work on an unofficial basis, while others are willing

to do so more formally (e.g. World Bank Group, Global Environment Facility). Other institutions are using KBAs as a framework for their own efforts (e.g. Bat Conservation International in its development of Significant Bat Areas). One important implication of this is ***that the time available to agree on a standard for KBA identification and to develop a working database is limited*** particularly in the case of countries with limited biodiversity data and a high rate of development; major decisions about development over large areas of the planet are being taken now, and policies within major end-user groups are also being developed in the coming months and years, so that there is a trade-off between developing a perfect system and developing an initial system fast enough to be immediately useful.

Amongst the roles envisaged for KBAs are:

- **Identifying priority sites for conservation including designation by international conventions:** e.g. candidate Ramsar sites; completing ecologically-representative protected area networks; and as a component of High Conservation Value Areas.

IUCN Comment

While KBAs are important for biodiversity, they are not necessarily all important for any particular type of conservation action, such as protected area establishment; many other factors (e.g. threats, opportunities,) need to be taken into account in prioritisation. KBAs can inform the early stages of conservation planning processes and the selection of site-scale conservation priorities.

- **Providing a centralised source of data for end-users:** that draws and builds upon existing approaches and databases to provide a centralised source of data for all realms, all regions, all ecosystems, and all taxa. The need for a centralised data source was strongly supported although there were differences of opinion between end-user groups about whether or not this should be freely available for all users.
- **Informing, validating and confirming existing approaches:** that have been developed to

identify important sites for biodiversity in different taxonomic groups, regions, ecosystems, or realms (i.e. marine, freshwater).

- **Guiding investment:** in conservation; for donors to be able to ensure that funds go to the most important places for the global persistence of biodiversity, through the GEF and other funding sources.
- **Making decisions about development:** particularly through identification of places requiring specialised forms of management.
- **Providing additional political recognition:** for existing sites that currently lack recognition from governments and others, e.g. indigenous peoples and community conserved areas; and important wetlands not yet on the Ramsar list.
- **Identifying core sites for restoration:** or maintenance of ecosystem services within a landscape, such as priority sites within the IUCN Bonn Challenge on restoration.
- **Identifying globally significant sites that require local action:** for example, major flyways that are being undermined by degradation at particular sites on the migration route.
- **Identifying no-go areas:** some end-user groups saw KBAs as providing data that would help identify areas to be set aside from development; other end-user groups were strongly resistant to the idea that every KBA should be considered as 'no-go'.
- **Stabilising land tenure:** in some cases, identification of KBAs has provided indigenous peoples and community groups with additional arguments to help secure their collective governance over territories and natural resources (though situations can be imagined when the reverse might happen).
- **Prioritising biodiversity research:** in places where data are lacking, identification of KBAs, even if preliminary, can provide a focus for scientists carrying out more detailed surveys.
- **Meeting international commitments:** in terms of completing representative protected area networks as required by the CBD Programme of Work on Protected Areas, or the European Union's Natura 2000 network.
- **Identifying ecosystem services:** additional information on ecosystem services collected alongside KBA data will be useful in prioritising sites for

agencies with a split conservation and development remit.

End-user needs

End-users stressed the importance of a flexible, practical and comprehensive approach to KBA identification with close links to, and advice on, management implications of a site being identified as a KBA.

- **An accessible, constantly updated and comprehensive source of data**, including information for decision support such as: geo-referenced maps showing clear boundaries; a regularly updated database on important species and ecosystems including unique assemblages; status of and threats to the site; an indication of data quality; and underlying meta-data. A credible yet simple spatial tool would be most useful for people who do not deal with biodiversity as part of their core business.
- **Clear guidance on updating and maintenance of information** and a process to ensure that information stays up to date, which implies streamlining and speeding up of data flows.
- **Effective communication and coordination**, particularly to persuade end-users that there are clear conservation outcomes from identifying KBAs and an explanation of what the identification of a KBA does and does not mean. The KBA methodology could be used to galvanise the global community in terms of data sharing, planning, management and monitoring. It must appeal to the stakeholders who make major decisions.
- **Consideration of the accessibility of KBA data and information**, using simple language and a user-friendly interface, to suit both developed and developing country needs, with some end-users stressing that KBA data should be freely available to all sectors, at least in basic form.
- **Methodological guidance for using the standard**, including scientifically robust process for identifying KBAs, information on selection criteria and on why a particular KBA has been identified. KBAs need a strong governance process (including with respect to use of traditional ecological knowledge) and should include guidance regarding the potential opportunities to manage, restore and protect a KBA.
- **Drawing and building upon existing processes**: many end-users stressed the need to build on and align with existing processes, such as Important Bird and Biodiversity Areas, World Heritage sites and Ramsar sites, making data compatible with other databases. KBAs must be acknowledged as building from, rather than replacing other efforts.
- **Different types of KBA?** Some end-users identified the option of defining sub-categories or tiers



of KBAs, to facilitate prioritisation among sites, and also distinguishing between confirmed KBAs, provisional KBAs and KBAs where data are outdated.

- **Clarity regarding the scope and scale of KBAs**, and distinguishing between KBAs meeting thresholds at global, regional, and national levels, including areas beyond national jurisdiction (high seas); many end-users stressed the importance of both national and local processes for identification of KBAs.
- **A means of informing prioritisation**, including integration with existing prioritisation tools, to differentiate significant sites from areas where development safeguards can be less stringent. Other end-users suggested that information from KBAs could help end-users to rank sites and prioritise based on their own set of criteria.
- **Advice on implementation and management** including early consideration of management implications, enforcement and monitoring.
- **Alternative values and associated information** on ecosystem services and socio-economic data would be beneficial, viewed within a development planning framework, including poverty alleviation and sustainable livelihoods. Arguments that demonstrate the added value of keeping Indigenous and Community Conserved Areas under their current tenure can sometimes persuade authorities to maintain traditional rights. Similarly, faith groups and conservation institutions may well find common cause in terms of practical management implications, even if their motives are very different.
- **Legitimacy and credibility** in the KBA approach would be helpful when engaging with non-conservation partners and local partners. It will be important for KBAs to feed into international safeguards to add strength to the approach and to enable advocacy and on-site conservation.

Fears

A series of fears were identified:

- **Lack of KBA data**: for large areas:
- **KBAs will end up being one more additional process alongside many others**: this is clearly linked to the point immediately above, but was

IUCN Comment

This may require a process to identify the critical gaps in the KBA data set and raise funds to fill these as quickly as possible: maybe the top 20-30 countries in the world requiring KBA data within the next couple of years. Such investment needs to be balanced with investment in KBAs already identified. It should be noted that IBAs and Alliance for Zero Extinction (AZE) sites already exist on a global basis and can help fill data gaps while data for other taxonomic groups and ecosystems are being collated.

raised several times, particularly by donors who have to screen projects, and is worth emphasising: if KBAs become another screening process alongside IBAs, IPAs, AZE etc., rather than providing a single source of information, then it will add extra work rather than streamlining.

- **KBAs will undermine existing systems**: from producers of data on important biodiversity sites – that is by coming up with different boundaries and sites, particularly if many existing priority sites derived from other processes were eliminated. There was a strong implication that this would result in dual processes, as organisations that had agreed their priorities would not abandon them lightly. This has implications: if criteria vary too much from existing approaches the KBA standard will lose partners along the way.

IUCN Comment

It is hoped this risk will be minimised by aligning criteria and thresholds and the fact that sites recognised by IUCN as meeting the criteria and global thresholds of the KBA Standard will be complemented by additional lists of sites of regional and national-level significance.

- **Fears about availability of sufficient capacity to identify KBAs** given changing priorities within some NGOs, shortages of funding and the urgency of KBA identification.
- **Long-term iterative process versus rapid access to a functional KBA list**: there is a mismatch between the desire from some users for a fully functioning global list of KBAs in a year or so and

the reality that IUCN is starting a long-term process. This also contributed to discussions about the need for a prioritised list of countries where identification of KBAs is most urgent; particularly data poor countries undergoing rapid rates of development.

- **An overly academic process:** rather than a pragmatic process that has a chance of being implemented.
- **No-go areas:** some end-user groups strongly resist the idea of KBAs becoming or being regarded as no-go areas or leading to major land-use restrictions, while others are very supportive of this option and see it as a key use for KBAs.
- **Major areas of the world being delineated:** there were related fears that if KBAs became too large they would create unworkable restrictions on development and other activities and would likely be ignored by many stakeholders.
- **KBAs competing with local or national legislation:** some end-user groups were concerned that KBAs could duplicate or come into conflict with existing legislation, creating additional confusion amongst end-users.
- **Exclusion of key stakeholders:** there are fears that KBAs could become a top-down instrument, selected in ways that miss out a proportion of stakeholders.

Implications for the development of the KBA standard

There was considerable variation in what end-users would like and a wide range of requirements that may not always be realistic or within the current time and budgetary constraints. All are presented below.

All end-users would like an agreed database of sites, with both spatial data and numeric and tabular data, geo-referenced and up to date, with information about why a site was triggered to be a KBA (most end-users did not view the KBA process as finishing with an agreed methodology but assumed it would also result in a global list of KBA sites, and end-users wanted the maximum of data possible).

The idea of a unifying system and platform for identifying sites that contribute significantly to the global

persistence of biodiversity areas was regarded as very important; if KBAs were one more type of 'important biodiversity area' alongside many others then this would be far less useful (clearly this has implications for the KBA standard). There was much discussion about whether KBAs were a single designation or more nuanced into different types or ranked according to relative importance, as outlined below.

Amongst the other issues raised were:

- **Open access:** the question of whether KBA data should be transparent and freely available to all end-user sectors.

IUCN Comment

We will need to define terms and conditions for access; for example, IUCN already has Council policy on 'commercial use' of its data (http://www.iucnredlist.org/documents/Annex_15_to_IUCN_Council_Decision_C78_24_Policy_for_Commercial_Use_of_IUCN_Data.pdf). We also note that in some cases providing open access, spatially explicit data on KBAs could endanger their existence or values (this is true both in the case of some biological sites and, for example, sacred natural sites). 'Fair' access may be a better approach, including Free Prior and Informed Consent before sensitive information is made available and the possibility of recording data without making it generally or publicly available.

- **Spatial data:** were considered of particular importance, ideally in the simplest form possible and usable by people without GIS expertise. Data on KBAs need to be used in conjunction with other data sets (e.g. protected areas, mining or logging concessions) through overlays or similar. Maps were the single most important presentational style required.
- **Ranking:** potentially KBAs might be classified depending on level of importance or irreplaceability, or sub-divided into categories that require different management approaches.
- **Conservation action classification:** several users said they would like KBAs to include a finer level

of site-specific management prescriptions – possibly a typology of different management actions suitable or not suitable in particular types of KBAs, aligned with particular species or ecosystems.

- **Opportunities for synergy and alignment with other social goals:** several users felt it was important for KBAs to reflect wider goals, for example, the needs and opportunities for restoration, ecosystem services, or maintenance of cultural and spiritual values, etc.
- **Interactive:** the question was raised about whether KBA data would or should include options for comment; clearly a KBA list should not be open to unmoderated changes but inclusion of a comment or reaction space within the database could strengthen data quality (e.g. like the IUCN Red List user forums).
- **Inclusion of associated data:** such as ecosystem services, current governance type, development/threats in the area, etc.
- **Inclusion of a wide range of data sources:** for

IUCN Comment

Minimum required documentation for KBAs will necessarily be quite limited, but data providers will be encouraged to include additional information if available.

example, drawing from traditional ecological knowledge and indigenous knowledge as appropriate.

- **Transferable data:** the point was made that if software were designed in a way that KBA data could easily be transferrable to other data sets (e.g. CBD, WDPA, Ramsar list) then this would both streamline processes and reduce the chances of error.
- **Updating:** questions about how and how often data would be revised in light of changing knowledge, changing conditions, etc.; this has particular importance in light of likely climate change and its implications on KBA location – can boundaries change?
- **Timeliness:** several users commented on the need for prioritisation in development of national KBA studies, for example, to those places that have poor data but are undergoing rapid development.
- **Languages:** the global database should be avail-

able in English, French and Spanish; national databases should be in national languages and at least key parts of the standard and methodology should be widely translated. Explaining key terms and phrases carefully in the standard IUCN languages can help accurate translation.

- **Free:** several users argued strongly that the database should be free of charge to all users in all sectors.

Other points

The need for greater involvement of other IUCN commissions was noted: **CEESP** for ICCAs and indigenous peoples' issues; **CEM** for ecosystem services; **CEC** for communications; and **WCEL** regarding some of the legal issues involved. Broader acceptance of the KBA process is still required, although it was noted that great progress had been made in this direction. There is a willingness to engage, both personally and through official recognition of the KBA process, but many questions will still need to be answered along the way.

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Individual case studies



The main body of the report contains a series of case studies that provide the data for the conclusions outlined in the previous section. Case studies fall into two main types: opinions from particular end-user groups and a smaller number of thematic studies. In the first case, they have been compiled

through a structured interview (in person or by phone) with one or more experts, the responses compiled into a case study draft and then revised by the interviewee and colleagues. The case studies are listed in Table 2 below.

Table 2: List of interviewees, dates and format

| # | Organisation/ Theme | Name(s) | Job Title(s) at time of interview | Date | Type |
|--|---|--|--|---------------------|--|
| Intergovernmental conventions | | | | | |
| 1 | Ramsar Sites | <ul style="list-style-type: none"> Christopher Briggs Nick Davidson | <ul style="list-style-type: none"> Secretary General Deputy Secretary General | 13/09/13 | Skype |
| 2 | World Heritage Sites | <ul style="list-style-type: none"> Tim Badman Bastian Bertzky | <ul style="list-style-type: none"> Director, IUCN World Heritage Programme Senior Programme Officer Protected Areas, UNEP-WCMC | 28/02/14 | Skype |
| 3 | Ecologically and Biologically Significant Areas | <ul style="list-style-type: none"> Phil Weaver David Johnson | <ul style="list-style-type: none"> Scientific Coordinator, GOBI Coordinator, GOBI | 23/05/14 | Skype |
| International agencies and donors (including 'Intergovernmental agencies', 'Multilateral development banks', and 'Donors' from Table 1) | | | | | |
| 4 | United Nations Development Programme | <ul style="list-style-type: none"> Jamison Ervin | <ul style="list-style-type: none"> Global Project Manager on Early Action Grants for Protected Areas, UNDP | 04/03/14 | Skype |
| 5 | World Bank Group | <ul style="list-style-type: none"> Valerie Hickey John Fraser Stewart Lori-Anna Conzo | <ul style="list-style-type: none"> Senior Biodiversity Specialist, Environment and Natural Resources Management Global Practice, World Bank Senior Natural Resources Management Specialist Senior Environmental Specialist, Biodiversity Focal Point, International Finance Corporation | 12/12/12 & 04/02/13 | In person (VH and JFW) and by phone (LAC). |
| 6 | Global Environment Facility | <ul style="list-style-type: none"> Mark Zimsky | <ul style="list-style-type: none"> Senior Biodiversity Specialist, GEF | 13/12/12 | In person |
| 7 | Critical Ecosystem Partnership Fund | <ul style="list-style-type: none"> Jack Tordoff | <ul style="list-style-type: none"> Grant Director, CEPF | 04/06/13 | By phone |
| Private sector and industry associations | | | | | |
| 8 | Oil and gas | <ul style="list-style-type: none"> Gertjan Roseboom Mark Johnston Sarah Terry | <ul style="list-style-type: none"> Environmental Manager, Shell Group Ecology Expert, BP Senior Principle Consultant, Environment, ConocoPhillips | 15/10/13 | Skype |

| # | Organisation/ Theme | Name(s) | Job Title(s) at time of interview | Date | Type |
|---|--------------------------------|--|--|---------------------------|------------------------|
| 9 | Mining and metals | <ul style="list-style-type: none"> Ross Hamilton Ruth Thomas | <ul style="list-style-type: none"> Director, Environment and Climate Change, ICMM Manager, Environment and Climate Change, ICMM | 26/11/13 & 09/05/14 | By phone |
| 10 | Commercial banks | <ul style="list-style-type: none"> Courtney Lowrance Barbara Oliveira de Loreto Maria Silvia Zanardi Chicarino Nigel Beck | <ul style="list-style-type: none"> Director, Environmental and Social Risk Management, Citi Environmental and Social Risk Analyst, Bradesco Brazil Environmental and Social Risk Specialist, of Santander (Brazil) Executive, Investment Banking, Standard Bank South Africa | 10/12/13 | By phone and by email |
| 11 | Food industry | <ul style="list-style-type: none"> Duncan Pollard | <ul style="list-style-type: none"> Head of Stakeholders Engagement in Sustainability, Nestlé | 14/03/14 | By phone |
| 12 | High Conservation Values (HCV) | <ul style="list-style-type: none"> Ellen Brown Nigel Dudley (drawing on a paper by Christopher Stewart and Conrad Savy on KBAs) Mark Leighton | <ul style="list-style-type: none"> High Conservation Value Areas Resource Network Senior Advisor, Sustainability and Environmental Management Program, Harvard Extension School | | By phone and email |
| International Non-Governmental Organisations | | | | | |
| 13 | BirdLife International | <ul style="list-style-type: none"> Leon Bennun Lincoln Fishpool | <ul style="list-style-type: none"> Director of Science, Policy & Information, BirdLife International Global Important Bird Area Coordinator, BirdLife International | 27/06/13 | In person and by email |
| 14 | The Nature Conservancy | <ul style="list-style-type: none"> Edward Game | <ul style="list-style-type: none"> Senior Scientist, TNC | 17/03/14 | Skype |
| 15 | Conservation International | <ul style="list-style-type: none"> Will Turner | <ul style="list-style-type: none"> Chief Scientist, Conservation International | 07/03/14 | Skype |
| 16 | Bat Conservation International | <ul style="list-style-type: none"> David Waldien Andrew Walker | <ul style="list-style-type: none"> Director of Global Programs, Bat Conservation International Executive Director, Bat Conservation International | 29/07/13 | Skype |
| 17 | Zoological Society of London | <ul style="list-style-type: none"> Carly Waterman Nisha Owen | <ul style="list-style-type: none"> EDGE of Existence Programme Manager, ZSL EDGE of Existence Programme Conservation Biologist, ZSL | 22/05/14 | Skype |
| Regional, national, and local organisations (including 'Intergovernmental coalitions' and the various categories of national and local community institutions listed in Table 1) | | | | | |
| 18 | Parks & Wildlife Finland | <ul style="list-style-type: none"> Dr Rauno Väisänen | <ul style="list-style-type: none"> Director of Parks & Wildlife Finland | 15/11/14 | In person |

| # | Organisation/ Theme | Name(s) | Job Title(s) at time of interview | Date | Type |
|------------------------------|--|--|---|-----------------------------------|-------------------------|
| 19 | NatureServe and the Natural Heritage Network | <ul style="list-style-type: none"> Leslie Honey Christopher Tracey | <ul style="list-style-type: none"> Vice President of Conservation Services, NatureServe Conservation Planning Coordinator, Pennsylvania Natural Heritage Program | 06/03/14 | Skype |
| 20 | ASEAN Centre for Biodiversity | <ul style="list-style-type: none"> Sheila Vergara | <ul style="list-style-type: none"> Director, Biodiversity Information Management, ASEAN Centre for Biodiversity | 24/02/14 | In writing |
| 21 | European Union | <ul style="list-style-type: none"> Angelika Rubin Anne Teller Dominique Richard Ivone Pereira Martins Frank Wugt Larsen | <ul style="list-style-type: none"> Nature Unit, DG Env, European Commission Biodiversity Unit, DG Env, European Commission European Environment Agency's European Topic Centre on Biological Diversity European Environment Agency's Biodiversity Group European Environment Agency's Biodiversity Group | 04/07/14, 18/07/14 23/09/14 | By phone and in person |
| 22 | Pacific region | <ul style="list-style-type: none"> James Atherton Bruce Jefferies | <ul style="list-style-type: none"> Consultant SPREP (retired) | 06/03/14 | In writing and by Skype |
| 23 | Dominican Republic | <ul style="list-style-type: none"> Yolanda León from Grupo Jaragua | <ul style="list-style-type: none"> Secretaria de Directiva, Grupo Jaragua | 06/03/14 | Skype |
| 24 | ICCAs | <ul style="list-style-type: none"> Grazia Borrini-Feyerabend | <ul style="list-style-type: none"> Global Coordinator, ICCA Consortium Comments from the ICCA Consortium | 28/06/13 | In person |
| Thematic perspectives | | | | | |
| 25 | Ecosystem Services | <ul style="list-style-type: none"> Nigel Dudley | <ul style="list-style-type: none"> Consultant, Equilibrium Research | 05/09/13 | In writing |
| 26 | Climate change | <ul style="list-style-type: none"> Nigel Dudley James Watson | <ul style="list-style-type: none"> Consultant, Equilibrium Research Wildlife Conservation Society and University of Queensland | 06/06/13 | In writing |
| 27 | Restoration | <ul style="list-style-type: none"> Karen Keenleyside Nigel Dudley | <ul style="list-style-type: none"> Society for Ecological Restoration, Parks Canada and IUCN WCPA Consultant, Equilibrium Research | 06/09/13 | In writing |
| 28 | Spiritual Values | <ul style="list-style-type: none"> Robert Wild Bas Verschuuren Nigel Dudley | <ul style="list-style-type: none"> IUCN Co-chair - Cultural and Spiritual Values of Protected Areas at WCPA IUCN, freelance researcher and project coordinator and core member of EarthCollective Consultant, Equilibrium Research | 22/05/14 | In writing |

Intergovernmental conventions

1 Ramsar Sites

Christopher Briggs and Nick Davidson



Wetland, USA © picturesofyou

Summary

The Ramsar Convention is an inter-governmental treaty concerning the conservation and wise use of wetlands. The Ramsar secretariat identified three main roles for KBAs in its work: (i) to identify candidate sites for Ramsar listing, allowing parties to carry out gap analyses; (ii) to confirm the value of existing Ramsar sites that are also KBAs; and (iii) to stimulate discussion, research and analysis with respect to any Ramsar sites that are not KBAs (this last depending on the criteria eventually selected to identify KBAs). Ramsar would welcome data in the form of maps and ideally downloadable information (say in Excel form) comparable and consistent with information required on Ramsar Information Sheets. There is a strong argument for identifying different sub-categories of KBAs depending on their selection criteria. There are no serious risks envisaged so long as general agreement is reached on criteria and it is clear that a KBA does not automatically equate to a protected area. Questions remain about the spatial scale envisaged for sites. KBA delineation should be pragmatic and realisable rather than overly academic. Key implications for development of the KBA standard are examined with respect to: (i) gap analysis of candidate sites; (ii) data type and options for transfer of data; and (iii) sub-classes of KBAs.

Introduction

The Convention on Wetlands of International Importance – the Ramsar Convention – is an intergovernmental treaty for the conservation and wise use of wetlands and their resources, with 168 contracting parties throughout the world. It is the only global

environmental treaty that deals with a particular ecosystem. Its mission is *'the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world'*. Ramsar applies a broad definition of 'wetland', including lakes and rivers, marshes, wet grasslands,

peatlands, oases, estuaries, deltas, near-shore marine areas, mangroves and coral reefs, and human-made sites such as fish ponds, rice paddies, reservoirs, and salt pans. Ramsar philosophy includes the 'wise use' concept, defined as '*the maintenance of [wetlands'] ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development*' (http://www.ramsar.org/cda/en/ramsar-home/main/ramsar/1_4000_0_).

Needs

The Ramsar secretariat identified three key uses of the KBA concept within the Convention:

- Gap analysis to identify candidate sites for Ramsar listing: wetland KBAs that are not also Ramsar sites would form a list of potential sites that might help governments to complete their lists of Wetlands of International Importance;
- Confirmation of the quality of existing Ramsar sites: identification as a KBA would provide important additional affirmation of the significance of Ramsar wetlands;
- Identification of research needs: with respect to matching the Ramsar criteria with those for KBAs.

Types of product required

To be of maximum use to the Ramsar secretariat and parties, KBAs would need to be identified with:

- Maps: showing clear geo-referenced boundaries and geographical extent of a KBA;
- Downloadable data: information in a form that can be extracted and used, probably in Excel form;
- Detail: comparable and consistent with level of information required on Ramsar Information Sheets;
- Sub-classes: there's a strong presumption that KBAs may need to be divided into more than one sub-category, depending on particular criteria used.

Match with existing procedures

The Ramsar Secretariat is currently requesting that parties identify candidate sites for listing and the

KBA analysis could fit well with this gap analysis initiative (hence some of the product details outlined above). The new Ramsar Site Information Sheet (RIS) system will be launched in 2015, matching well with the KBA timetable. If data were consistent with or adaptable to the Ramsar information sheets, site information could be 'dropped in', speeding up the process of reporting and ensuring consistency between Ramsar and KBA listing (conversely, the now rather outdated *Wetland Directories* formerly produced by Ramsar could provide a basic data set for identifying additional potential wetland KBAs, albeit one that would require updating and checking).

Fears

A well defined and agreed list of KBAs should support the Ramsar process and thus pose no real risks, provided that (i) there is general agreement on the criteria for and thus the location of KBAs and (ii) it is clear that not all *formally designated* Ramsar sites will need to become official protected areas as recognised by IUCN. The 'wise use' concept and landscape approach of the Ramsar Convention favour a portfolio of management responses to Ramsar designation, ranging from full protection through to various forms of sustainable use.

The question of spatial scale is important, along with the extent to which KBAs will be defined solely by species or also by ecosystems. Ramsar operates mainly at the landscape, watershed or basin level and the secretariat assumes that KBAs might often be identifiable sites within such larger areas, but would nonetheless be substantial, generally measured in square kilometres rather than hectares for instance. The Criteria and Delineation workshop identified a process whereby boundaries of KBAs are defined adaptively, informed by management considerations, land tenure and customary rights: ideally freshwater KBA delineation needs to take place at the broader sub-catchment scale with zoned management within them. It is also important that the process and implementation of KBA delineation remains practical and achievable and does not get mired in excessive academic detail – pragmatism not pedantry.

Implications for KBA standard development

There are a number of important suggestions that relate to development of the KBA standard and its implementation:

- The role for KBAs in identifying candidate sites for Ramsar listing – this could clearly have similar implications in different situations for other designations such as World Heritage sites, biosphere reserves, etc;
- The suggestion that data should be transferable from KBAs directly to Ramsar databases, and by implication other databases. This makes sense in terms of efficiency and minimising the risk of

transfer error, but has software implications for the development of any database system;

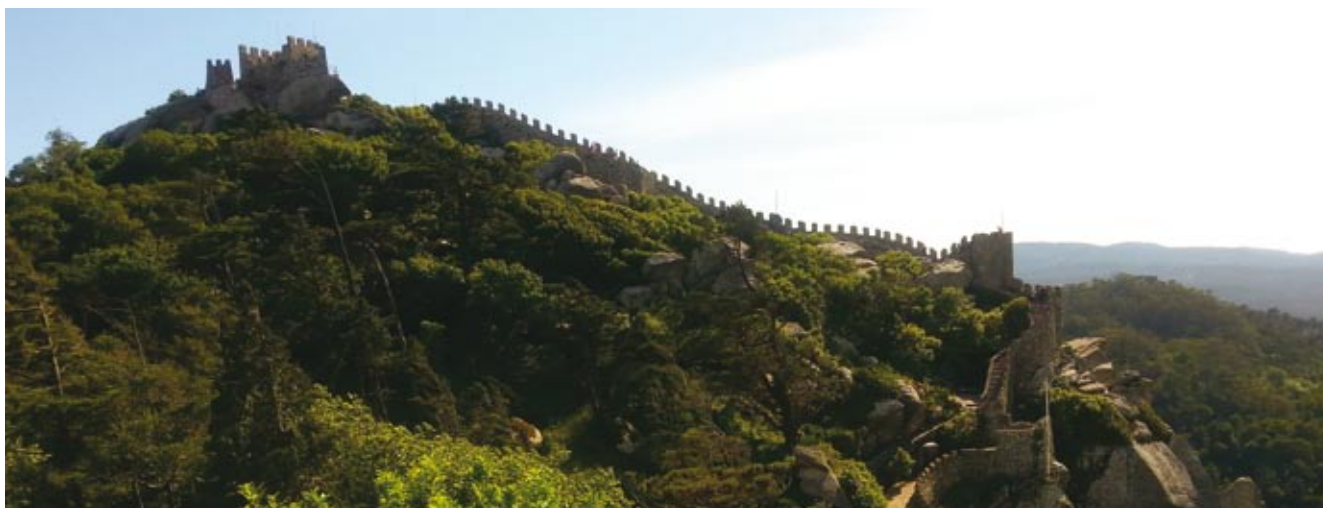
- The proposal that KBAs might be subdivided (between those directed at species issues, ecosystem issues, and ecological function issues) needs further development.

Sources

Discussion with **Christopher Briggs** (Secretary General, Ramsar) and **Nick Davidson** (Deputy Secretary General, Ramsar) by Skype, 18 September 2013, further input from Marcella Bonells, Ian Harrison, Vicky Jones and Randy Milton.

2 World Heritage Sites

Tim Badman and Bastian Bertzky



Castelo dos Mouros, Portugal © Tola A

Summary

The 1972 UNESCO World Heritage Convention maintains the World Heritage List – a global list of natural, cultural and mixed sites characterised by Outstanding Universal Value. The IUCN World Heritage (WH) Programme, the official Advisory Body to the World Heritage Committee on natural heritage, is using those KBA analyses that are already available, at a global level in gap analyses of terrestrial and marine natural WH sites and at a site level to help assess new nominations. KBAs are being deliberately integrated into UNESCO operating procedures and a new comparative analysis methodology for nominations, and use is expected to increase in the future, for example, in the gap analyses which it is planned to repeat every 5-10 years. There are some concerns to manage: realistic expectations that WH status cannot extend to all KBAs; over-emphasis on KBAs could undermine conservation in other areas, and reduce attention to other aspects of nature conservation such as geodiversity; lack of data; and influencing a narrower focus on the interpretation of criteria ix and x in WH nominations, away from large ecosystems and wilderness areas (although this may be addressed by a new KBA criterion for ecological integrity). KBA analysis needs to be more than simply identification of sites towards consideration of implementation. Governance, procedures and approaches developed over the years for WH could also be transferred partly or wholly to KBAs and the WH Programme would welcome discussion on these issues.

Introduction

The UNESCO World Heritage Convention, established in 1972, links together the protection of natural heritage and cultural heritage, the ways in which people interact with nature and culture and the importance of keeping a balance between these values. The central component of the World Heritage Convention is the World Heritage List: a global list of

natural, cultural and mixed sites that represent the finest examples of global heritage. Being entered onto the List requires a detailed screening process, including proof that a site has *Outstanding Universal Value*, a hard-to-define measure of the highest level of global significance, combined with integrity, authenticity and high quality protection and management. Inclusion on the List, which is decided by the World Heritage Committee, brings with it obliga-

tions in terms of maintaining the Outstanding Universal Value for which it was inscribed, and failure to do this results first in entrance onto a Danger List and, in extreme cases, deletion from the List. There are currently (Spring 2014) 759 cultural sites, 193 natural sites and 29 mixed sites on the List, with a total of 44 being listed as 'In Danger'. IUCN and its WH Programme is the official Advisory Body to the World Heritage Committee on natural heritage.

Needs

- At a global level, KBA data can support the identification of potential natural WH sites, as discussed in the two recently published global gap analyses for terrestrial and marine sites (Bertzky et al., 2013; Abdullah et al., 2013). In the terrestrial study, available KBA analyses were used to review the existing coverage of the natural WH network, and the most irreplaceable subset of KBAs (Alliance for Zero Extinction sites (<http://www.zeroextinction.org/>) was also used to identify potential candidate sites. All natural WH sites have already been identified as KBAs (Foster et al., 2010). The gap analyses are intended to be updated at 5-10 year intervals and it is expected that KBA analysis will play an increasingly important part in this process (but see first point under Fears below).
- At the site level, KBA data, where available, are already also being used as a source of information for assessing new nominations in terms of their importance to biodiversity.

Types of product required

The key products required are GIS layers with mapped KBA boundaries, plus data on which KBA criteria are met in a particular site such as trigger species and ecosystems, plus details of the status of the site.

Match with existing procedures

The WH Programme is integrating KBAs into its operating procedures, both in terms of the periodic gap analyses (Bertzky et al., 2013; Abdullah et al., 2013)

and the standardised methodology for assessing new sites (Belle et al., 2014). It is anticipated that WH methodologies will be updated periodically and incorporate further KBA results and procedures as they become available.

Fears

Whilst supporting and implementing KBAs as an important conservation tool, there are some potential dangers in its adoption:

- There are already over thousands of KBAs identified around the world and World Heritage will only be able to provide recognition and protection of a small proportion of these sites as being of Outstanding Universal Value. Thus there will still be a need to prioritise among these sites and focus on only the most significant sites. This is where the WH criteria and conditions of integrity and additional considerations such as irreplaceability come in. Realistic and proactive communication should be envisaged on this matter.
- More guidance is needed on the way in which nature outside KBAs is supposed to be viewed: does KBA analysis mean (or can it be interpreted as meaning) that anything outside a KBA is open for development? Equally, we may well find that KBAs are included in WH sites whilst not representing part of the recognised Outstanding Universal Value, so we need to foresee how guidance can be provided on those situations.
- A focus on biodiversity conservation could reduce emphasis on other aspects of 'nature conservation' that are important in IUCN's role in the World Heritage Convention, as highlighted in the IUCN definition of a protected area, such as geology and geomorphology.
- Lack of, or uncertainty about, data could reduce the usefulness of KBAs in some areas.
- Some danger on confusing or overly simplifying decisions made under criteria ix and x (*see box below*) of the World Heritage Convention, with a perceived KBA emphasis that might lead towards a narrow focus on species and ecosystems and away from issues such as wilderness, which has hitherto been an important component of natural WH sites.
- A vital need for greater clarity and coordination in terms of the different emerging Knowledge

Products in IUCN, to ensure seamlessness and synergy, and avoid any danger of conflicting advice and disconnects in implementation between the IUCN Red List of Threatened Species™, KBAs, and the emerging IUCN Red List of Ecosystems, and with roles such as IUCN's advisory function on World Heritage.

BOX

Criteria ix and x of the World Heritage Convention

(ix) to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;

(x) to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

<http://whc.unesco.org/en/criteria/>

Implications for KBA standard development

There are three main implications:

- KBA methodology needs to develop beyond simple identification of sites to aspects of implementation, including but not limited to a consideration of how KBA analysis might influence (positively or negatively) more landscape approaches to conservation.
- IUCN's World Heritage Programme also believes that there are aspects of governance, procedures and approaches that have been developed and tested over a long period of time in the context of IUCN's World Heritage work and that could help to shape KBA methodologies and welcome the opportunity of discussing these.

- Development of the KBA standard needs to be fully coordinated in the suite of emerging flagship knowledge products mobilised through IUCN (including its Commissions, Secretariat, Members, and partners), all of which require a coordinated approach, to avoid conflicting advice and policy disconnects in the positions taken by IUCN. The development of other flagship knowledge products should learn from the KBA process and seek to emulate this, and IUCN's internal governance of the whole suite of knowledge products should be strengthened to establish a fully coordinated approach.

Sources

Discussion with **Tim Badman** (Director, IUCN World Heritage Programme) by Skype, 28 February 2014, and later inputs from **Bastian Bertzky** (formerly Senior Programme Officer Protected Areas, UNEP-WCMC, now at the Joint Research Centre of the European Commission).

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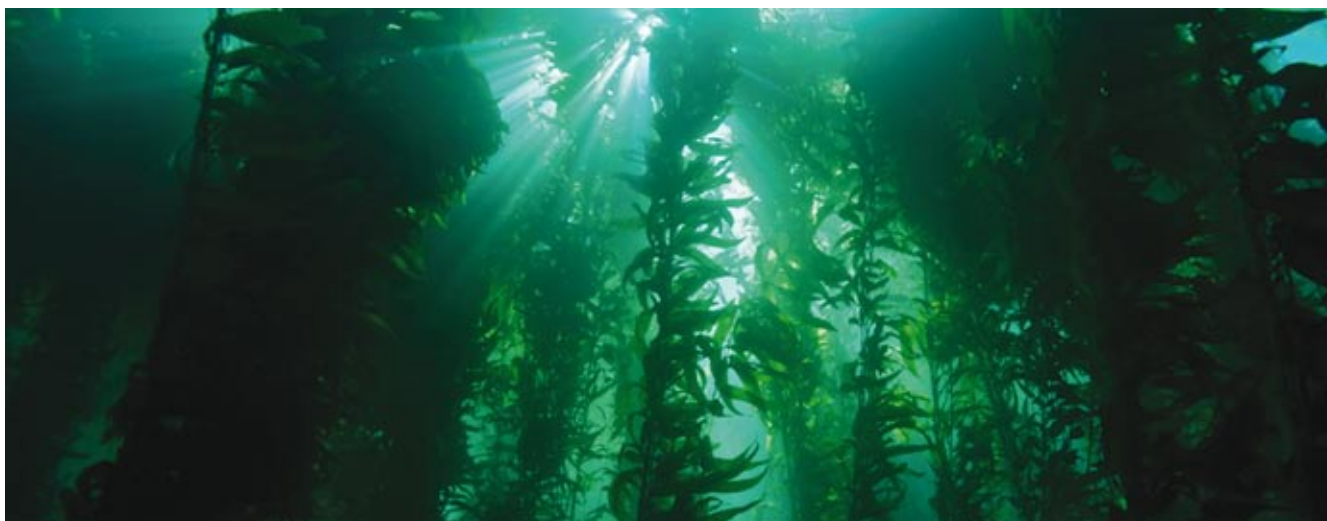
Belle, E., Shi, Y. and Bertzky, B. (2014). *Comparative Analysis Methodology for World Heritage Nominations under Biodiversity Criteria*. UNEP-WCMC, Cambridge, UK and IUCN, Gland, Switzerland.

Bertzky, B., Shi, Y., Hughes, A., Engels, B., Ali, M.K. and Badman, T. (2013). *Terrestrial Biodiversity and the World Heritage List*. IUCN, Gland, Switzerland and UNEP-WCMC, Cambridge, UK.

Foster, M.N., Mittermeier, R.A., Badman, T., Besancon, C., Bomhard, B., Brooks, T.M., De Silva, N., Fishpool, L., Parr, M., Radford, E. and Turner, W. (2010). Synergies between World Heritage Sites and Key Biodiversity Areas. *World Heritage* 56: 4–17.

3 Ecologically or Biologically Significant Marine Areas

Phil Weaver and David Johnson



Kelp Forest, USA © NOAA's National Ocean Service

Summary

Ecologically or Biologically Significant Marine Areas (EBSAs) are described using a set of ecological criteria adopted by the Convention on Biological Diversity (CBD), and designated on this basis by the CBD parties. KBAs have the potential to provide additional support for the description of future EBSA proposals. The advantages of KBAs for EBSAs are that: (i) they could draw attention to new sites through the systematic analysis of global data sets; (ii) they can provide information for spatial analysis or management options within an EBSA; (iii) they are an avenue for scientists to put data forward; and (iv) they ensure the consistency and repeatability of the data that complement the EBSA process. Key concerns include: the need to clearly communicate that the EBSA approach is an intergovernmental and independent process; and that there may be confusion between the two concepts, which are quite different in origin and intent. There is a need for increased communication regarding the complementarity of the KBA approach with existing approaches, but the potential for the KBA identification to galvanise cooperation and data integration is an important benefit.

Introduction

The Global Ocean Biodiversity Initiative (GOBI) is an international partnership advancing the scientific basis for conserving biological diversity in the deep seas and open oceans. GOBI works with the Convention on Biological Diversity (CBD) and governments worldwide to identify critical areas where marine biodiversity is of special importance and to support the CBD process to describe these areas as Ecologically or Biologically Significant Areas (EBSAs). EBSAs

were defined by the CBD Conference of Parties (COP) (CBD COP 9 Decision IX/20 Annex I) and seven criteria were adopted to identify EBSAs in need of protection (Dunn et. al., 2014). A large percentage (68 per cent) of the global oceans has been considered through regional EBSA workshops and future workshops are planned in order to complete a global coverage of the world's oceans. The current list of 47 EBSA descriptions, which have already been considered by COP 11 and submitted to the UN, will be augmented by 160 proposed EBSAs reviewed by

the CBD Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) in June 2014 and by member parties during the COP 12 in October 2014. Understanding how EBSAs can then inform management decisions and be used to achieve marine conservation targets is the next phase of the process.

The KBA process, once established, can complement the EBSA process. EBSAs are described by an expert-led scientific and technical evaluation against one or more of the ecological or biological criteria, with subsequent political designation, whereas it is intended that KBAs meet quantitative thresholds for one or more biodiversity features (e.g. species or ecosystems) triggering the criteria at a given site. Other approaches to identifying areas of importance for marine species (such as marine Important Bird and Biodiversity Areas (IBAs), International Marine Mammal Areas (IMMAs) and others) apply or envisage criteria and threshold methods similar to that of the KBA approach. KBAs and other approaches can feed into the EBSA process by providing a list of potential new EBSA sites as well as identifying areas within EBSAs that are highly threatened and/or require more formal protection. EBSAs offer a precautionary approach whereby generally larger areas are identified in order to open the door to broader (or rather more detailed) conservation planning, management and monitoring measures (Weaver & Johnson, 2012).

Needs

International agreement and consultation: the ability of the KBA standard to act as an overarching internationally agreed upon approach to identifying areas contributing significantly to the global persistence of biodiversity could assist in adding credibility to existing areas of significance in the marine realm. It will be of most use for marine and coastal species and ecosystems where thresholds and direct threats are capable of identification. The paucity of data in the marine realm, particularly with respect to the deep seas and open ocean, can render this type of approach more difficult, and hence is not a substitute for EBSAs but rather a vehicle for additional

information where such is available. Coordinated approach: the KBA methodology could be used to galvanise the global community in terms of data sharing, planning, management and monitoring.

Types of product required

The added value of KBAs must be clearly communicated. Improved understanding and experience related to how we move from the descriptive stage to informing management will be valuable to both the KBA and EBSA processes.

Match with existing and emerging procedures

It is important to note that, in general, most EBSAs are based on habitats and most KBAs are based on species. These differences can be highlighted through the following example: imagine a large seamount complex where one or two seamounts are higher than others and enter into the photic zone. The seamounts in the photic zone may include the feeding grounds of a particular seabird species and may be considered KBAs. The whole seamount complex, however, could be described as an EBSA if it contained rare or threatened habitats and/or species (e.g. sponges). The two approaches should be viewed as complementary to one another and may often rely upon similar experts and data. As for other official denominations (such as the Ramsar Convention or the World Heritage Convention), KBAs could provide a list of sites for consideration as potential EBSAs. The advantages of KBAs for EBSAs are:

- That they have the potential to inform the description of new sites through the systematic analysis of global data sets;
- That they provide information for spatial analysis or management options within an EBSA;
- That they are an avenue for scientists to put data forward;
- That they ensure the consistency and repeatability of the data that can further support the EBSA process.

Fears

- It is important to continue to clearly communicate that the KBA approach differs from the EBSA approach. They are independent and parallel processes. EBSAs are based on globally adopted scientific criteria for marine areas described through cross-disciplinary workshop processes facilitated by the CBD, and subsequent political designation. KBAs are identified through an independent process developed as cross-cutting quantitative criteria applicable to multiple biomes and species.
- There is a risk that additional levels of complexity might result from a lack of understanding of the KBA approach. The potential for confusion must be acknowledged and addressed as this could lead to further excuses (such as the need for more scientific proof or rigour) and delay action and decisions towards safeguarding these areas.
- If people feel as though an area can only be protected once quantitative data is obtained and thresholds are reached then this becomes very problematic for the oceans where data availability is, and will likely remain, low.

Implications for KBA standard development

- Clear communication is needed regarding the complementarity of the KBA approach. This will help to avoid misunderstanding and confusion.
- The KBA process should be used to galvanise different groups of scientists working on their unique areas of expertise. These groups can often be disparate and through using a common set

of criteria, thresholds and delineation methods, new approaches to collaborations, data integration and knowledge management could result in improved outcomes for biodiversity.

- The EBSA process driven by workshops using experts derived from a formal nomination procedure is quite different to the KBA process of determining whether sites meet thresholds based on quantitative data. The two processes are likely to identify areas with quite different boundaries though in some cases these may overlap or one (usually a KBA) be nested within the other (usually an EBSA).

Sources

Discussion with **Phil Weaver** (Scientific Coordinator, GOBI) and **David Johnson** (Coordinator, GOBI) via Skype on 23 May 2014.

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International agencies and donors

4

United Nations Development Programme

Jamison Ervin



Farming, Kenya © CIAT

Summary

UNDP is a major implementing agency for funds for protected area projects, particularly through the UN Global Environment Facility (GEF), with a global portfolio worth US\$ 5.1 billion, covering 2,000 protected areas in 85 countries. UNDP uses KBAs and sees them as an important proxy for biodiversity, particularly in data-poor countries, by providing a spatially explicit method of priority-setting. KBA data should be easily accessible, ideally in the form of simple maps that do not require full GIS capability and which can be overlaid on other mapped data sets, such as protected area boundaries. GEF procedures provide a good match with KBAs; UNDP does not have explicit procedures mentioning KBAs. Potential problems for UNDP come from the narrow focus on biodiversity, meaning that KBA data need to be used with other indicators for a development organisation; lack of information about likely future shifts due to climate change; and lack of information about minimum area requirements and connectivity. These observations have a number of implications for KBA methodology development: the need for a simple, mapped data set; further information on issues such as sequencing, the urgency of action required and trade-offs between sites; the importance of associated information on ecosystem services; and ideally additional information on the degree of vulnerability of individual KBAs.

Introduction

The United Nations Development Programme (UNDP) is the UN's global development organisation. It provides expert advice, training, and grant support to developing countries, with increasing emphasis

on assistance to the least developed countries. UNDP is the major disbursing agent of funds from the Global Environment Facility (GEF) and is thus perhaps the world's largest protected area donor. It works to help countries achieve the Millennium Development Goals, currently being updated, and publishes an

influential annual *Human Development Report* (<http://hdr.undp.org/en>).

Needs

UNDP sees a clear need for KBAs as an elegant way of identifying spatially explicit priorities for donor funding in countries which have few or no other sources of spatially explicit biodiversity data. In this way KBAs are used as proxies for identifying priority places for investment of GEF funds. Available KBA data are already being widely used by UNDP and its recipient countries and this use is likely to continue into the future.

Types of product required

UNDP does not use the data itself so much as advise recipient countries to use KBAs.

For national level end-users, data need to be available in a form that is as easily accessible and understandable as possible, either as GIS or even better in a map-based format that does not require access or knowledge of sophisticated GIS systems; for example, as an overlay that can be used with a map of protected areas to undertake a quick gap analysis. Many end-users do not have good working knowledge of GIS.

Match with existing procedures

The precise ways in which UNDP uses KBAs will vary between offices; there is probably no official written policy. However there is official policy within the GEF, which should guide all UNDP usage.

Fears

There are a number of potential problems:

- Development issues: as a development agency, UNDP needs to consider a range of different needs and drivers of change; as KBAs focus narrowly on biodiversity this can be a problem if they are not backed up by use of complementary criteria.

- Climate change: KBAs currently identify static sites, and thus do not factor in spatial variations projected as a result of climate change or other environmental variables (as compared, for example, with the mapping site run by the Joint Research Council, which can make adjustment to boundaries in its models depending on various climate change projections). This makes KBAs less useful than would otherwise be the case for UNDP planning.
- Functionality: as currently constituted, KBAs do not supply sufficient information with respect to ecosystem functionality, particularly with respect to whether identified sites are of sufficient size to maintain minimum viable populations and to maintain key ecological processes.
- Connectivity and landscape approaches: similarly, KBAs do not give explicit information about connectivity, a critical factor for maintaining ecosystem functions, and a factor that UNDP looks for in planning protected area projects.
- Ecosystem services: the focus of KBAs is on species, while UNDP is concerned not only with biodiversity conservation, but the values of biodiversity, particularly key ecosystem services. A focus on species concentrations alone would be an insufficient basis for planning.

Implications for KBA standard development

Drawing on the foregoing:

- UNDP would like to see KBA data available in a very simplified, easy to use map format that does not require GIS.
- UNDP needs to use KBAs in the context of broader planning processes, taking into account issues such as trade-offs between different land uses (including potentially different KBAs); sequencing of actions; prioritising within and between important sites; and the degree of urgency with which action is required. It would be very useful if such associated information could be written into the KBA documentation standards.
- For UNDP KBAs also need to be viewed within a development planning framework, which includes use of socio-economic data: so that, for example, associated data on ecosystem services would be

particularly valuable, particularly services related to poverty alleviation and sustainable livelihoods.

- It is also important for UNDP that information relating to KBAs includes some guidance, where possible, of the degree of vulnerability of the site and the window of opportunity before an ecosystem goes into serious or irreversible decline.

Sources

Discussion with **Jamison Ervin** (Global Project Manager on Early Action Grants for Protected Areas, UNDP) by Skype, 4 March 2014.

5 The World Bank Group

Valerie Hickey, Lori-Anna Conzo and John Fraser Stewart



Road reconstruction, Bosnia and Herzegovina © World Bank Photo Collection

Summary

The World Bank Group would welcome the KBA approach as long as it provided a single, coherent source of information at an operational scale that would support better decision-making at the site level. It matches well with existing and planned procedures. The Bank's chief uses would be as follows: (i) to help screen potential public or private sector investments; (ii) to avoid, minimise or manage damage to important biodiversity sites during public and private sector projects; (iii) to help determine the types of assessment and mitigation needed for projects situated in or near high biodiversity value areas; and, (iv) to link conservation financing to priority spaces. KBAs are also potentially useful in managing offsets.

This implies a need for spatially-based standards and associated tools, including location of sites, management and mitigation implications and scoping questions for Environmental Impact Assessments (EIAs); KBAs should also be updatable and interactive (e.g. to take account of climate change). They must be useful and appeal to those parts of government (and the private sector) with power to make major decisions – ministries of planning and finance for instance.

The Bank's main fears are a) that KBAs will be one more competing tool amongst many others; b) that they will take too long to complete; c) global focus might undermine national priorities; and d) that KBAs will be too numerous and/or too big to provide useful information at the site level (i.e. regional-size priority areas are not helpful for project planning purposes). This must be a practical rather than an academic exercise. KBAs should be used to strengthen existing safeguard processes by provision through a decision-support tool. These conclusions have important implications for development of the KBA approach, particularly in using KBAs to identify management options and guide EIAs. The World Bank would be willing to cooperate with IUCN in testing the KBA standard in real-life situations.

Introduction

The World Bank Group is a major development organisation, including both public (World Bank) and private sector (International Finance Corporation (IFC)) arms, and with a history of applying environmental and social safeguards to manage its footprint. It also, to a large extent, helps set standards and initiatives for other similar international bodies (e.g. IFC Performance Standards have been adopted by 78 other commercial banks - Equator Principle Association Financial Institutions (<http://www.equator-principles.com/>)). It is potentially a key partner in developing and implementing KBAs and already guides its priority setting using information such as Important Bird and Biodiversity Areas (IBAs), Alliance for Zero Extinction Sites (AZEs), and other existing KBAs, provided through decision support tools such as the Integrated Biodiversity Assessment Tool (IBAT).

Needs

Avoiding damage and making development more resilient: the principle need of the World Bank Group is a comprehensive and consensus tool to help decision-makers avoid or minimise damage to high biodiversity value areas, and assess the costs – in time, treasury and reputation – of having to mitigate (including offset) adverse impacts of development projects. This means that the KBA standard must also differentiate significant sites from the rest of the landscape where the application of safeguards results in fewer mitigation measures.

The KBA standard could therefore be used to inform:

- Initial screening of projects to help with investment decision-making.
- Planning development projects near, next to or inside KBAs (in terms of assessment, mitigation and management).
- Conservation investment planning.

A tool with broad appeal: the KBA process must appeal to the stakeholders who make major decisions (primary targets should include the Ministries

of Planning, Development, Finance and Agriculture and the Treasury financial intermediaries and companies) with environment ministries, NGOs and others as important but secondary targets. For the public sector, issues need to be couched in language end-users will relate to – as much as possible in economic terms, but with a focus on units of finance (e.g. jobs, income, etc.). For the private sector, companies are looking for clear indications of site-level priority biodiversity areas.

A comprehensive data set: Improved KBAs would include a greater emphasis on ecosystems in addition to species data. 'Unique and threatened ecosystems' is a new criterion of critical habitat as defined by revised IFC's Performance Standard 6 (2012), and globally available information is very much needed.

Types of product required

Ideally the KBA standard will support the following attributes:

- Accurate, spatially-based data
- Dynamic – to take into account new data, changing exogenous factors.
- Additionally, The World Bank Group would like the tool to be accompanied by management and mitigation implications (e.g. identifying for each KBA its limits of acceptable change and translating that into a set of terms of reference for what EIAs should explore, to ensure that sufficient attention is paid to biodiversity concerns and the costs of avoidance, and that on-site mitigation and offsetting adverse impacts beyond that limit are accurately captured).

The IFC and World Bank would ideally like a further layer of information to be included:

- Tiering of KBAs (such as Tier 1 & 2) to distinguish between the very exceptional sites in terms of irreplaceability and vulnerability (e.g. AZEs) from those that are also important priority sites, but where conservation might be less urgent due to spatial alternatives in the landscape and/or less threat.

Match with existing and emerging procedures

The KBA standard, if designed well and available quickly, could match extremely well with existing World Bank Safeguard Policies for public sector lending and the IFC's Performance Standards for private sector lending.

The World Bank is currently revising its safeguard policies, with a planned completion date of end 2014. Consultations on these new policies began in August 2014. The IFC recently completed a three-year update process of its Performance Standard 6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources. IFC already recognises the existing set of KBAs as high biodiversity value habitat.

Fears

The World Bank Group identified a series of fears regarding KBAs:

- One more tool: the process will simply result in another tool that will have to compete with the application of existing processes such as AZE and IBAs, further complicating the work of end-user groups rather than simplifying.
- The perfect being the enemy of the good: agreeing the KBA method and populating the data set will take so long that most major development decisions will already have been made.
- Global focus undermines sites of national importance: prioritising based on global conservation priorities reduces the relevance and hence the buy-in for national governments (the Bank's primary client) who often see biodiversity through the lens of the delivery of direct benefits (from goods or services) rather than global criteria. National stakeholders would need to be involved in this process to ensure ownership.
- Too many and too big: so many KBAs will be identified, or they will be so large (e.g. covering whole countries) that they will not be of use to the private sector when planning their projects or to financiers screening projects.

Implications for KBA standard development

The process has a number of implications, which require discussion within the broader KBA community:

- Getting started: the Bank will not wait several years for a perfect standard, but would be willing to discuss working with IUCN in helping to field-test the KBA approach in an unfinished form. Liberia, Mongolia and Mozambique would provide potential test sites given their current state of planning and development. Field testing should focus in particular on process, timescale needed and leverage points.
- Granularity: there are a number of potential implications from the stated desire to include management prescriptions within the KBA process:
 - ▶ Should KBAs include different 'zones'?
 - ▶ Should the process set thresholds not just for internationally important KBAs but also for nationally important KBAs?
 - ▶ Should IUCN develop a typology of management prescriptions to be used within KBA identification?
 - ▶ Should IUCN develop a list of standard questions for EIAs – targeted to the tier of KBA – to be included within KBA identification?
 - ▶ Should KBAs be ranked or tiered according to relative importance?
- One system: the strong desire for one unified system for identifying significant sites, rather than multiple systems, implies that IUCN should, as far as is possible, attempt to broker accord between different 'owners' of such systems about if and how they can be incorporated within KBAs either completely (e.g. all Alliance for Zero Extinction sites would likely also be KBAs) or partially.
- Stakeholders: the approach requires testing with people involved in, and with an understanding of, industry perspectives – such people might be involved in field testing for instance. The approach needs to be demand driven and be established as a decision-support tool, not an awareness raising tool.
- NBSAP: If the KBA approach is really going to link

into broad scale development processes it needs to link to the revision of National Biodiversity Strategy and Action Plan processes being led by UNDP.

Sources

Discussion with **Valerie Hickey** (Senior Biodiversity

Specialist, Environment and Natural Resources Management Global Practice, World Bank) and **John Fraser Stewart** (Senior Natural Resources Management Specialist, GEF Coordination Unit, World Bank) at the World Bank headquarters, Washington DC, 12 December 2012. Further discussion by phone with **Lori-Anna Conzo** (Senior Environmental Specialist, Biodiversity Focal Point, International Finance Corporation) 4 February 2013.

6

The Global Environment Facility (GEF)

Mark Zimsky



Amazon Rainforest, Brazil © CIFOR

Summary

The GEF would welcome a simple online tool that maps significant biodiversity areas. Its principle use to GEF would be to ascertain whether project applications were improving the management of 'globally significant' biodiversity sites as stipulated in the organisation's mandate. There is a window of opportunity to include the KBA framework into the 2014-2018 GEF strategy although this would require rapid action by IUCN as the strategy is being developed at the moment. Use by the GEF would require, ideally, access to an online, GIS based reference tool with multiple data layers to visualise KBAs in any part of the world.

Introduction

The GEF is the world's largest single donor to biodiversity projects. Since 1991 the GEF has provided more than US\$ 3.46 billion, leveraging US\$ 10.04 billion in co-financing, to support implementation of more than 1,200 projects in more than 155 countries to conserve and sustainably use biodiversity (<http://www.thegef.org/gef/whatisgef>).

Needs

An internationally agreed, robust system to help countries identify sites that meet the GEF requirement that they be globally significant: GEF grants support management of sites that are 'globally sig-

nificant' for biodiversity: currently, ensuring that applications refer to places that meet this criteria means searching through multiple data sources and often seeking local and international opinions.

An agreed global data source for filtering applications would dramatically shorten the time required and also reduce the chance of potential challenges to the legitimacy of funding.

Types of product required

Ideally a website providing spatial data made up of overlaid GIS images of KBAs (potentially different classes of KBA). It would be important to include

areas beyond national jurisdiction (high seas), in support of the legal designation of EBSAs.

Match with existing procedures

A 2014-2018 strategy has been developed and the KBA process could potentially be included: it is proposed that this is presaged in the strategy. The start date for this quadrennial strategy was 1 July 2014.

Fears

- A proliferation of categories of 'important' sites for biodiversity is currently making the GEF's job more confusing, and so it would be important for the KBA process to harmonise these different categories.
- Too long a time period until the KBA system is finalised and agreed – ideally, it should input into the 2014-2018 strategy.

Implications for KBA standard development

If the GEF is to use the KBAs as a tool to help ensure that sites are globally significant from 1 July 2014, this requires the system to be operational in 18 months from January 2013. Given that not all data will be available in this period, this perhaps assumes that a partial system can be launched and applied in those places where KBAs have been identified, with the rest of the database being populated later.

Sources

Discussion with **Mark Zimsky** (Biodiversity Focal Area Coordinator, Senior Biodiversity Specialist, GEF) at the GEF headquarters, Washington DC, 13 December 2012, with subsequent updating.

7

The Critical Ecosystem Partnership Fund

Jack Tordoff



Grevy's Zebra, Kenya © RayMorris1

Summary

The Critical Ecosystem Partnership Fund (CEPF) was established in 2000 to provide grants to non-government organisations, community groups, private companies and other civil society organisations for conservation projects in the biodiversity hotspots. The CEPF has always used KBAs as a key prioritisation tool: for the spatial targeting of funds; for monitoring of CEPF's impacts; as a way of stimulating external funding; and as a tool to pass on to partners. KBAs are presented mainly in the form of a GIS system with attached metadata relating to trigger species, management status, political situation, etc. Data are usually also presented to users in the form of printed maps; the binary classification is helpful in being simple to understand and apply, although the approximate nature of KBA boundaries in some cases is recognised. The KBA system currently matches CEPF needs very well. There are no major fears but some concerns about maintaining data quality, particularly for species and KBA boundaries. The importance of broadening stakeholder participation and achieving greater consistency of application are both also acknowledged.

Introduction

The Critical Ecosystem Partnership Fund (CEPF) was founded in 2000 to enable civil society to participate in and benefit from conserving some of the world's most critical ecosystems, by providing grants for NGOs, community groups, private sector organisations and other civil society organisations to help protect the biodiversity hotspots. CEPF is a joint programme of l'Agence Française de Développement, Conservation International, the European Union, the Global Environment Facility, the Government of Japan, the MacArthur Foundation and the World Bank. Over US\$ 150 million in grants has been given to date in more than 60 countries (<http://www.cepf.net/Pages/default.aspx>).

Needs

CEPF has used KBAs since 2000. As well as being an end-user, it is also a major sponsor of KBA identification: since 2003, CEPF has drawn on the extensive stakeholder consultation processes it follows to develop its investment strategies to identify and document more than 4,000 KBAs, or more than one in four of the KBAs identified in the world. There is considerable ownership of these KBAs by local and international civil society and national governments. CEPF uses a range of prioritisation processes at different scales: it only works in identified biodiversity hotspots; then focuses on KBAs within hotspots; and finally uses a series of additional prioritisation criteria to select projects – not all of which are biological but may include, for example, the need for additional donor investment, urgency of conservation action, etc. CEPF uses KBAs in four main ways:

- Spatial targeting to identify the most suitable sites for projects in terms of their ecological importance.
- Monitoring of CEPF funds, with one metric being the number of hectares of KBA under strengthened management as a result of CEPF investment (other portfolio-level metrics might be e.g. number of KBAs designated as protected areas, or land cover change in KBAs funded by CEPF compared with other KBAs).
- Identifying KBAs supported by CEPF funds that then later receive external project support (e.g.

to undergo protected area gap analysis; to mainstream biodiversity into land use planning; etc.).

- Making KBA analysis available to partners (e.g. the World Bank uses KBAs in its safeguard policies).

Types of product required

- The principal product required is a GIS system with attached metadata (including e.g. trigger species, management status, political factors, etc.). All KBA information should ideally be on the World Biodiversity Database (<http://wbd.etibioinformatics.nl/bis/index.php>) although resource shortages mean that this is not the case and there is currently a backlog in terms of the database.
- It is usually also useful to have image maps, both in PDF format and printed out and widely distributed to partners in a given region.
- From a CEPF perspective the *binary system* is effective and important – i.e. a site clearly is a KBA or it is not – rather than having a greyscale system that includes halfway stages or different 'levels' of KBA. This is admittedly less nuanced but important when dealing with users who are not biologists or planners.

Match with existing procedures

To a large extent the CEPF has been designed around hotspots and the existing KBA process, so the match is currently very good. However the KBA process needs to keep abreast of the possibility of CEPF having slightly different priorities in the future. CEPF currently does not have the resources to redo KBA analysis at scale in parts of the world already covered. It is therefore important to CEPF that any new KBA standard is consistent with the current standard and, as far as possible, sites that have already been identified as qualifying as KBAs should continue to do so. Broadening of the criteria to enable identification of additional sites under new criteria is welcome.

Speculatively, additional needs from a revised CEPF might include more systematic incorporation of ecosystem services, such as carbon sequestration and hydrological processes, into the decision-making and prioritisation framework.

With respect to data quality, it may also be necessary to distinguish between **confirmed** KBAs, **provisional** KBAs and KBAs where data are **outdated** (for instance over 15 years old).

Fears

No real fears; the process of KBA identification seems to be going in the right direction and IUCN's involvement is welcomed. However, some areas need to be strengthened; failure to do so will weaken the overall approach, in particular:

- Improved species data, including filling gaps in the data set and revising key data that are out of date.
- Improved boundary data, ideally using on-the-ground data rather than remote sensing data, although the latter are constantly improving.
- Broadened stakeholder ownership of the process, particularly among governments.
- Greater consistency with which KBA processes are applied.

Implications for KBA standard development

There are two implications in addition to the general need to maintain the current rate and direction of progress:

- A broader acceptance of KBAs as a standard, including by government, private sector and international development banks, will increase the relevance of CEPF's investments in the identification and conservation of KBAs.
- A more secure and consistent way of collecting data is required, which does not jeopardise the project if one or two donors pull out.

Sources

Discussion with **Jack Tordoff** (Grant Director, CEPF) by phone, 4 June 2013, plus reference to CEPF website: then incorporating further comments from CEPF staff.

A close-up photograph of a sea slug, likely a nudibranch, showing its intricate body patterns. The body is covered in yellow, white, and brown markings, with prominent white circular spots and yellow patches. The background is a soft, out-of-focus brown.

Private sector and industry associations

8 Oil and gas

Gertjan Roseboom, Mark Johnston and Sarah Terry

Summary

The three oil and gas companies interviewed agreed that the KBA standard would provide a simple, clear and legitimate method for the identification of sites contributing significantly to the global persistence of biodiversity. The KBA standard should aim to align with existing approaches for identifying areas of importance for biodiversity and in particular with the definition of critical habitat. A map based tool would be most useful and should be integrated with existing tools such as the Integrated Biodiversity Assessment Tool (IBAT). In order to get high uptake by various end-users, it was emphasised that KBAs should help to identify areas of importance for biodiversity for stakeholders to then make decisions about operations in or near KBAs.

The KBA approach must be:

- *Site level (i.e. manageable and able to inform management at the landscape level) to ensure that the identification of sites can be used by end-users as a knowledge product to inform the prioritisation and/or design of development and conservation projects;*
- *Carefully developed with good oversight to ensure credibility and legitimacy;*
- *Consistent over time, however, the implementation methodology and database will need to continuously improve over time in an iterative way to reflect ongoing environmental change and data availability.*

Introduction

Oil and Gas companies have both upstream and downstream operations. Many companies aim to deliver sustainable growth and provide competitive returns to shareholders, while helping to meet global energy demand in a responsible way. Protecting biodiversity has become an increasingly important factor, especially for new projects or large expansions to existing operations as projects can be located in sensitive environments such as natural or critical habitat². The oil and gas companies interviewed endeavour to develop such assets in a way that does the least harm to natural or critical habitats and in an effort to contribute to conservation and the safeguarding of areas of importance for biodiversity. Mitigating potential impacts to biodiversity

helps to ensure that projects meet legal and regulatory requirements and also reduces operational and financial risk. The environment teams are tasked with setting internal requirements, improving impact mitigation performance and ensuring transparent reporting.

Needs

- Clear set of criteria and guidance regarding areas that are of importance for biodiversity: a clear definition and set of criteria for ecologically sensitive areas is of great importance for prioritising management action and for ensuring that attention is being given to the areas of primary importance. The KBA methodology would be helpful in identi-

2 IFC PS6 definition of critical habitat: '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.'

fying sites that are important to the global persistence of biodiversity. KBAs, similarly to protected areas, would trigger the need for careful attention. KBAs could potentially be used to signify and help with early identification of critical habitat or high biodiversity value areas.

- Enabling the identification of priority areas for biodiversity: KBAs could provide an indication of areas that are in need of safeguarding or support. Understanding where oil and gas companies could contribute to the greatest conservation outcomes would be an important benefit of the KBA approach. In addition, KBAs may provide an indication of the level of biodiversity related risk involved in operations.
- Simple and clear tool to communicate internally regarding potential impacts to areas of importance to biodiversity: simple language and a user-friendly interface would help to clarify whether a project is located in an area of importance to biodiversity. A mapping tool that quickly allows users to visualise whether a potential development is in or near a KBA would be useful. To maintain consistency it is important that existing KBAs (such as those within IBAT) conform with, or are brought in line with, the new KBA approach. Terms such as *species*, *ecosystem*, *evolutionary processes*, *biophysical* and *migratory* need to be simplified or clearly defined for all end-users. A quick way to recognise whether the project area requires further examination/attention would be valuable. Internally, communication will be required regarding the need for further evaluation (e.g. that this is a first step in the initial assessment and that further data collection and research may be necessary at the local and international level to determine the updated status of a particular area).

Types of product required

Ideally:

- A simple, clear and applied map based tool that provides more than just the basic criteria.
- Underlying meta-data that indicates what has triggered a site. What makes it a KBA? What makes it special? What study is the underlying data from? What year was the study conducted? When will a review of the data be required?

- Fact sheets containing conservation status, management plans/objectives/options and threats (similar to IBAT). This will allow for an analysis and comparison of how new development could cumulatively add threat to the area (or not).
- The KBA approach does not have to tell us everything, however, additional comments and qualitative information (such as: the level of development in the area, management plans, legal protection, distribution ranges, migration routes) would be very helpful.

Match with existing and emerging procedures

International best practice may include working with the International Finance Corporation (IFC) definition of critical habitat and requires the development of environmental management plans and, in some instances, separate biodiversity action plans (BAPs) for new projects located in critical habitat. The KBA approach would link well to this effort and may help by providing a clear indication of likelihood of critical habitat.

The oil and gas companies interviewed all spend effort, time and resources on due diligence for potential future projects that are in or near areas of particular importance in terms of safeguarding biodiversity. The KBA concept works well with this approach by informing which future projects may have impacts on areas of high biodiversity value. This is where the highest level of scrutiny should be, from both oil and gas companies and the conservation community.

The 2012 update of the IFC's performance standards also specifies the need to achieve net positive gains for projects in Critical Habitat. In the future, some oil and gas companies may follow that approach and aim to have 'Net Positive Impact' or Net Positive Gain if a project is located in critical habitat. The availability of better information on critical habitat is a prerequisite for companies who make such commitments. A well-developed KBA methodology and KBA database would form an important input to understanding where projects would overlap with critical habitat. In Net Positive Impact policies, the mitigation hierarchy (avoid, minimise, restore, offset) is applied

to ensure projects ultimately have a positive impact on the ecological features that make the area qualify as critical habitat. The KBA methodology will help identify the biodiversity features for which Net Positive Impact should be achieved. Also, in those cases where offsets are required, KBAs may help identify areas where these would have the greatest positive impact for biodiversity.

Fears

- That the KBA standard will not be specific enough. KBAs must truly be identified at site scale in order to be useful for the prioritisation and/or design of development and conservation projects. If they are too large in scale they will not have the resolution to inform oil and gas or, for that matter, other development.
 - That the KBA Standard will not be based on robust scientific criteria. The legitimacy, credibility and usefulness of the KBA standard depend upon the methodology being science-based and supported with strong evidence.
 - That everything will become a KBA (based on triggers from all realms (marine, freshwater and terrestrial) and taxa. This would, again, not allow for prioritisation and/or design of potential development. The KBA standard must truly differentiate a specific site within the wider landscape.
 - That KBAs may become or are advertised as ‘no go’ areas for development. KBAs should help to identify areas of high biodiversity importance that need to be safeguarded, but should not be prescriptive of the management actions. Action plans can then be put in place to ensure that oil and gas activities in or near KBAs are managed to avoid and minimise any potential impact. Otherwise, the KBA approach may be counterproductive, and may not get the support it needs from governments and other stakeholders.
- KBA identification will require careful development and oversight. There should be some form of oversight on quality of data and information. It will be important in terms of credibility and legitimacy to be clear about how field observations and proposals will be reviewed and verified to ensure that KBAs truly identify high value areas.
 - The KBA approach is not starting from scratch, however, it is an important implication to note that the process will be iterative and it may take until 2025 before the exercise will be ‘finished’. Aligning the KBA standard with existing definitions is important at this stage as it helps to allow for immediate use of the existing KBA data set. Although the KBA concept is already in use, the formal globally agreed standard will add credibility to the approach.
 - It will be important for the KBA standard to be iterative and to continuously improve over time. Future dynamic shifts, environmental change, climate change adaptation and development will place more (and/or different) species and habitats under pressure. This will likely result in the need for the KBA data set to grow and improve over time.
 - It is clear that we can work with the data that already exist and contribute to the continued improvement of the application of the KBA standard over time.
 - Clear guidance and support must be provided regarding how to use the KBA standard to delineate sites and some capacity building will be required to support countries who will be designating and managing KBAs.

Implications for KBA standard development

- KBAs should primarily be used to identify important biodiversity features at the site level. KBAs should not be seen as a direct conservation priori-

tisation tool. The data and information can be used by end-users as appropriate and should be seen as a knowledge product and not a policy instrument. Information can then be used in the policies of end-users as needed.

Sources

Telephone discussion with **Gertjan Roseboom** (Environmental Manager, Shell) on 15 October 2013. Further correspondence, group discussions and input with/from **Mark Johnston** (Group Ecology Expert, BP) and **Sarah Terry** (Senior Principle Consultant, Environment, ConocoPhillips) throughout January/February 2014.

9 Mining and metals



Telluride, USA © Klaus Stiefel

Summary

The application of KBAs will need to find a suitable balance between usability and usefulness in order to effectively inform decisions towards positive long-term outcomes for biodiversity. Guidance regarding the potential to enhance KBAs as well as a mechanism for bridging global KBA data to local contexts is important. A clear indication of what the identification of a KBA does and does not mean will help to clarify implications for mining operations. Understanding how KBAs interface with existing areas of importance for biodiversity would be useful.

Introduction

The mining and metals industry can have positive and negative impacts, both directly and indirectly, on biodiversity throughout the project lifecycle. Companies can avoid and minimise many impacts through careful due diligence and land use planning. The potential to restore biodiversity and/or offset impacts also offers unique opportunities for companies to deliver net benefits to biodiversity.

The International Council on Mining and Metals (ICMM) was established in 2001 to act as a catalyst

for improved contributions to sustainable development from the mining and metals industry. The membership includes 21 mining and metals companies and 34 national and regional mining associations and global commodity associations.

Needs

Existing principles, policies and international standards and safeguards outline the need for positive long-term outcomes for biodiversity, which can be achieved in a number of different ways. Certain

financing requirements also stipulate a need to credibly prove that 'additional' positive contributions to biodiversity have been made. The application of KBAs will need to find a suitable balance between usability and usefulness in order to effectively inform decisions towards positive long-term outcomes for biodiversity.

If the opportunity to enhance or restore biodiversity exists within the area of influence, especially where a KBA may overlap with the lease area and surrounding areas, this could provide a way for companies to contribute to good management of KBAs whilst also directly benefiting the area in or around their lease.

Complexity can be quite daunting, especially for people who do not deal with biodiversity as part of their core business, therefore a credible yet simple tool would be of most benefit.

Types of product required

Ideally:

- A filter for early project screening that includes information regarding what has triggered the site as a KBA.
- A local level tool that can provide information regarding all KBAs in the surrounding area.
- Simple guidance for bridging the globally important KBAs to the local KBA context.
- General principles to help to address additionality. Perhaps this could be done in a generic way for each major habitat type.
- Indication and clarity regarding the opportunities for restoration/rehabilitation, protection or safeguarding for particular KBAs.
- A spatial tool similar to Integrated Biodiversity Assessment Tool (IBAT), allowing access to data.

Match with existing and emerging procedures

The mining and metals industry is striving to make a positive contribution to biodiversity, and KBAs provide an important avenue for targeted efforts. If KBAs

are identified in a standardised way and threats are identified and quantified following industry standards, then these can be navigated and avoided, where possible.

The industry strives for global good practice and all ICMM members have committed to not operate in UNESCO World Heritage Sites (WHS), therefore understanding how KBAs interface with natural WHS would be useful.

Fears

Land-use options for KBAs need to involve upfront and participatory discussion with stakeholders, given the potential implications of strict conservation designation if countries decide to confer protected status to one or more KBAs.

Implications for KBA standard development

The main implications for development and implementation of the KBA standard include:

- The need to begin with existing data and information and build from there.
- Clear terms and guidance regarding what the identification of KBAs means and does not mean.
- Ensure that opportunities, such as positive contributions to the enhancement of sites, are not precluded.
- Balance between developing a scientifically robust model supported by strong evidence and a pragmatic, usable tool that still works in data-poor environments and without excessive cost.

Sources

Based on discussions with **Ross Hamilton** (Director, Environment and Climate Change, ICMM) on 26 November 2013, by phone. Additional comments and discussion with **Ruth Thomas** (Manager, Environment and Climate Change, ICMM) on 9 May 2014, by email and phone.

10 Commercial banks

Courtney Lowrance, Barbara Oliveira de Loreto, Maria Silvia Zanardi Chicarino and Nigel Beck



Manhattan, USA © Carsten Lorentzen

Summary

Banks can use KBAs, in particular for project risk screening and management in association with client companies and governments. Data need to be available at the national scale. The KBA process must be transparent about the reasons for identification, scale at which the KBA is relevant (global versus sub-global) and uncertainty and data deficiency, as well as accessible to non-specialists (including multiple language options). Information should be available both spatially (GIS map form) and in a list format. Cost is an important factor for banks, and at least the basic data should be available for free to all institutions and sectors. The KBA process matches those used in Equator Principle (EP) Association projects and aligns well with the International Finance Corporation Performance Standard 6 (IFC PS6), making KBAs relatively straightforward to integrate into internal bank policies. Fears focus on cost, accessibility, level of detail, regularity of updating and a concern that KBAs may be so large that they become impractical. Prioritisation should be given to identifying KBAs in: (i) threatened biomes that do not overlap with Important Bird and Biodiversity Areas (IBAs); (ii) tropical jurisdictions; and (iii) countries with rapid development and low levels of political governance. IUCN should collaborate with local institutions to assemble national KBA data.

Introduction

Banks are often the second or third filter on approval of projects in natural or semi-natural ecosystems,

after the project developers themselves and the government officials who have given or will give permission for development. Banks thus increasingly apply internal environmental and social safeguards to

avoid extending credit to projects that carry unacceptably high ecological or social risks.

Banks, particularly Equator Principles Finance Institutions (<http://www.equator-principles.com/>), have staff either dedicated to or at least responsible for corporate social responsibility (CSR) application, policies and tools.

Needs

The primary role of KBAs is seen as providing information for risk assessments and as a negotiating tool for the implementation or location of projects and landscape-level planning. Ideally KBAs should be identified early in the process and could provide a single unified tool to integrate some existing prioritisation tools. Risk assessment based on KBAs would provide banks with an opportunity to discuss, where relevant, alternative locations and mitigation strategies with clients and governments, particularly the Ministry of Environment (KBAs also provide a tool for the Ministry of Environment to discuss biodiversity issues with other branches of government, particularly the Ministry of Energy).

It is important to know the details of *why* a KBA has been identified (e.g. for a single species, many species or an ecological process) and the selection criteria. These can help to determine the relative importance of a KBA in any particular situation. It is also important to know if the KBA is significant at a global, regional or national scale. Anything less than national coverage is unlikely to provide the level of detail required by banks.

The KBA process needs to be clear and transparent about issues relating to uncertainty and data deficiency. Ideally, the quality of the data set would be scored as high, medium or low (or on a scale 0-100 per cent uncertainty) so that informed finance decisions can be made. KBAs can, by following global criteria, help remove some of the subjectivity from impact assessments and can provide a broader and more accurate process for identifying important sites for biodiversity than the use of protected areas alone.

Data need to be accessible to non-specialists working within the bank (of the >70 banks in the Equator Principles Association there are only three specialist biologists). Projects typically need to go through the specialist sustainability/CSR departments; however, it would be good for other departments to gain some autonomy regarding how they assess risk to biodiversity.

The Equator Principles III has strengthened its requirements related to public disclosure of Environmental and Social Impact Assessments (ESIAs), and opportunities may exist to develop a mechanism for banks and their clients to submit reports/data that could then be used to improve data sets (i.e. ESIAs or specialist ecological reports for specific areas). Linked to this it would be useful to highlight areas of poor data so that banks and their clients can make technical reports available.

Types of product required

Ideally:

- Delineated boundaries with GIS data available in map form and searchable by latitude and longitude.
- List of KBAs, subdivided or identified by key criteria (e.g. by country, for particular high value species or different biomes).
- Details written in language that is understandable to the non-biologist.
- Ideally available in multiple languages (e.g. the official IUCN languages of English, Spanish and French) and in the language of the country in question.
- Freely available, at least in basic form (it is already difficult for many banks to obtain approval to subscribe to the Integrated Biodiversity Assessment Tool (IBAT), for instance).

Match with existing procedures

The KBA process aligns well with the Equator Principles and IFC Performance Standard 6 in terms of identifying critical habitat and areas requiring careful due diligence. It should be relatively straightforward to integrate KBAs into internal policies (other

equivalent tools are already included, such as Conservation Units in Brazil), either through IFC PS6 or independently.

Fears

Main fears include:

- Access to KBA data being too expensive.
- The technical information provided being inaccessible to most users.
- KBAs being so large that they become irrelevant because of governments and industry not being prepared to set aside so much land from development.
- KBAs not providing the level of detail required.
- KBAs not being updated regularly enough, thus no longer being relevant (e.g. existing KBAs will have been degraded, newly identified KBAs will be omitted from the list).

Implications for KBA standard development

In the short term, countries should prioritise KBA identification in:

- Biomes that are most at risk and that do not overlap with Important Bird and Biodiversity Areas (e.g. the Red Sea region).
- Tropical jurisdictions (e.g. Democratic Republic of the Congo).
- Countries with low levels of governance but high economic development (e.g. Mongolia).
- Governments (particularly energy ministries) must be involved in identifying and delineating KBAs if these are to be effective.

Key recommendations and implications for the development of KBAs are:

- IUCN should find local partners to help manage national or regional-scale data, much of which may exist already.
- There needs to be discussion about multiple language versions of the KBA data and the overall accessibility of the system.
- KBA analysis needs to be available down to the national level.
- Updating must be regular: as close to real time as possible.
- It is important to understand why sites have been triggered. What biodiversity feature is the site important for?
- Major banks would be wary of paying for the KBA system.
- KBA development must engage closely with governments.

Sources

Based initially on discussions with **Courtney Lowrance** (Director, Environmental and Social Risk Management, Citi), **Barbara Oliveira de Loreto** (Environmental and Social Risk Analyst, Bradesco Brazil) and **Maria Silvia Zanardi Chicarino** (Environmental and Social Risk Specialist, Santander Brazil) on 10 December 2013, by phone. Following circulation of the draft case study to the Equator Principle Biodiversity Working Group for comment, **Nigel Beck** (Executive, Investment Banking, Standard Bank South Africa) also provided input.

11 Food industry

Duncan Pollard



Coffee, Colombia © McKay Savage

Summary

Nestlé, as a global food and food products company, could envisage using KBAs at three levels of operation: (1) reporting on conservation targets; (2) to help identify important sites at screening, supply chain and operational levels; and (3) in development of strategic planning. Data would ideally be in the form of easily usable maps, along with information on why an area is considered a KBA; its current status; and what efforts are currently being made to protect KBA values, which Nestlé might engage with. Nestlé would probably refer to a functioning KBA system in its own operating procedures. The main dangers foreseen are lack of agreement between stakeholders about what constitutes a KBA and information being presented in an overly complex and hard to digest fashion. One implication for KBA development is to consider producing national summary information sheets along with annual global overviews of key developments in KBAs to help end-users.

Introduction

Nestlé is a global food and food products company, based in Switzerland. Over the past two decades the company has made efforts to address social and environmental issues related to its products and operations. Nestlé has made a number of policy commitments related to protection of environment and biodiversity (<http://www.nestle.com/csv/environmental-sustainability>).

Needs

Nestlé can envisage using a KBA system in three different levels of its business model:

- Reporting: under the Global Reporting Initiative, the company is obliged to list operations within and adjacent to protected areas and in areas of high biodiversity; these criteria are currently only loosely defined (e.g. with respect to what *adjacent* means and regarding how to define 'high

biodiversity'). Currently, Nestlé uses an internal composite index (developed for them by UNEP-WCMC) but a more consistent measure, such as KBAs, would be useful in standardising and simplifying reporting processes.

- Operations: the same principle applies in terms of identifying risks to biodiversity within operations of Nestlé and its suppliers – with respect to screening, supply chain, at operational levels and within agricultural systems. Currently proxies are used to identify areas of particular importance such as the Global Forest Watch (<http://www.globalforest-watch.org/>) maps. A more consistent approach would allow identification of where Nestlé operations are located in areas of high biodiversity and strategic decisions could then be made in response. KBAs could have direct relevance to some ongoing projects. For example, Nestlé is currently assembling baseline assessments of farmers and communities in over 20 supplier countries over a 2 year period. These baseline assessments would benefit from a stronger method for defining natural capital and KBAs could address some of these questions by supplying simple metrics.
- Strategic planning: Nestlé could also use the KBA concepts and data at a more strategic planning level. A forthcoming review of global commodities important to Nestlé to determine the direction of the responsible sourcing and traceability programme is focused on a variety of sustainability issues. An easy to use global assessment of biodiversity can feed into this review.

Types of product required

Data would be needed in the form of easily understandable maps, ideally with the following additional information:

- What makes the area a KBA.
- The status of the KBA (intact, partially degraded, under pressure, virtually destroyed, etc.).
- Programmes in place to help conserve the KBA that Nestlé might be able to engage with if it is working within or near the KBA.

Match with existing procedures

There is currently no language in Nestlé's procedures that refers to KBAs, but they match well with existing operational and reporting requirements as discussed above. In time, if KBAs are successful, they will likely be reflected explicitly within Nestlé policies.

Fears

Potential dangers:

- Lack of consensus between stakeholders about what does and does not constitute a KBA, leading to mixed messages for end-users. The fact that IUCN is coordinating the process probably gives greater credence than if it were coming from a single NGO.
- Impenetrable data sets: information in a form that is not easily understood by non-specialists or will take too long to digest.

Implications for KBA standard development

KBA information needs to be concise and digestible, ideally in multiple forms that build from an 'elevator conversation' through to a complete analysis. Particularly useful would be:

- Briefings: 1-2 page outlines of key issues on a national basis.
- Multi-client reports on status of KBAs: briefings on global situation, new analyses, hotspots and changes issued by IUCN on an annual basis.

In addition, KBA data could include current attempts to conserve KBA values as an additional voluntary field in the KBA data set.

Sources

Discussion with **Duncan Pollard** (Head of Stakeholders' Engagement in Sustainability, Nestlé); by phone, 14 March 2014.

12 High Conservation Value areas

Nigel Dudley, Ellen Brown and Mark Leighton



Tropical stream, Hawaii © jar ()

Summary

The KBA process has a clear and recognised role in providing methodologies and approaches for the identification of some, but not all, High Conservation Values at site-level. In particular, KBAs could serve as proxies or indicate potential species relevant to HCV 1: Globally, regionally or nationally significant concentrations of biodiversity, and possibly also HCV 2 and 3. KBAs are already noted as potential tools in the Forest Stewardship Council's use of HCV and also in an HCV Resource Network guidance document, coordinated by WWF and Proforest. Close cooperation is needed to ensure greater complementarities between HCV and KBA. In particular, the main way that HCV will use KBAs within management units to identify areas to set aside for conservation purposes, is probably on a different scale from many KBAs. However, in a complementary role, HCV assessments conducted in unsurveyed regions may contribute significant data on populations of rare or endangered species; habitats and species assemblages that help identify or delineate KBAs.

Introduction

The High Conservation Value approach exists to identify resources and areas of particular conservation value, from biological, ecological and social perspectives. Originally developed for use within forests it is being broadened to grasslands and freshwater ecosystems and is principally designed as a site-based tool for use within commodity certification schemes such as the Forest Stewardship Council. Six HCVs are recognised: (<http://www.hcvnetwork.org/about-hcvf/the-six-high-conservation-values>).

- HCV 1 – Species diversity: Concentrations of biological diversity including endemic species, and rare, threatened or endangered species (RTE), that are significant at global, regional or national levels.
- HCV 2 – Landscape-level ecosystems and mosaics: Large landscape-level ecosystems and ecosystem mosaics that are significant at global, regional or national levels, and that contain viable populations of the great majority of the naturally occurring species in natural patterns of distribution and abundance.

- HCV 3 – Ecosystems and habitats: Rare, threatened, or endangered ecosystems (RTE), habitats or refugia.
- HCV 4 – Ecosystem services: Basic ecosystem services in critical situations, including protection of water catchments and control of erosion of vulnerable soils and slopes.
- HCV 5 – Community needs: Sites and resources fundamental for satisfying the basic necessities of local communities or indigenous peoples (for livelihoods, health, nutrition, water, etc.), identified through engagement with these communities or indigenous peoples.
- HCV 6 – Cultural values: Sites, resources, habitats and landscapes of global or national cultural, archaeological or historical significance, and/or of critical cultural, ecological, economic or religious/sacred importance for local communities or indigenous peoples, identified through engagement with these local communities or indigenous peoples.

Needs

KBA criteria overlap significantly with the HCV criteria used in practical toolkits. The KBA national process, as carried out to date, has strong parallels with

national interpretations of HCVs. Both can be triggered if the site meets one or more of the criteria identified.

The KBA process is not a substitute for HCV because it only addresses some of the HCVs (it has no bearing on the social HCVs for instance). It matches HCV 1 almost completely and perhaps contributes to parts of HCVs 2 and 3. KBAs at the national level are also probably applied on a different scale from many KBAs applied within certification schemes.

A paper for the Integrated Biodiversity Assessment Tool (IBAT) process (IBAT) compares the two as follows (Table 1)

The HCV Resource Network has developed guidelines for HCV identification (e.g. Brown et al., 2013) and HCV management and monitoring. The KBA process offers a short-cut to addressing, in particular, HCV 1, by providing both a methodology and an internationally accepted approach. Even where KBAs have not been identified, the guidelines and criteria being developed for KBAs may offer a set of minimum and consistent standards that could be applied within HCV manuals and national interpretations. The link with IUCN provides additional credibility.

Table 1: Comparison of High Conservation Value criteria and KBA criteria

| HCV criteria | KBA criteria |
|--|--|
| HCV1: Protected areas | Not applicable |
| HCV 1: Concentrations of rare and threatened species | KBA A1: Threatened taxa |
| HCV 1: Concentrations of endemic species (restricted range) | KBA B1: Geographically restricted species |
| HCV 1: Areas of critical temporal use (e.g. breeding and migration sites) | KBA D1: Demographic aggregations |
| HCV 2: Large natural areas HCV 3: Rare or threatened ecosystems | KBA B3: Biome restricted assemblages KBA A2: Threatened ecosystem types KBA B4: Geographically restricted ecosystem types |

Types of product required

Ideally:

- A clear and applicable methodology and set of criteria that can be integrated into existing HCV identification processes;
- Access to KBA data sets (spatial data and reasons for designation) as these are developed within particular countries.

Match with existing procedures

The KBA process has already been identified as a potential tool and/or collaborative process within the Forest Stewardship Council approach to certification (initially at a workshop in Bonn in January 2011). It was introduced more formally in a modular handbook on HCV identification, developed by Proforest on behalf of the HCV Resource Network (Proforest, 2013).

Fears

- A prolonged timetable for development of the KBA standard may cause the process to lose step with the HCV Resource Network (e.g. with the preparation of further guidance documents).
- Criteria for deciding KBAs may be too complex to be used easily within other processes.

Implications for KBA standard development

There is an obvious overlap between HCVs and KBAs and a clear mutual interest in collaboration; though this implies a two-way process and the needs of the HCV Resource Network should be taken into account during the development of the KBA standard.

In particular, certification processes are likely to look frequently at HCVs (and therefore KBAs) on a much smaller scale than the general KBA identification process; applied at the management unit level to identify particular areas that may need to be set aside. In other words, while national level KBA

processes might be important as an input to systematic conservation planning and the identification of suitable sites for commercial management, use within the HCV process inside concessions will likely need data on a much finer, more local scale.

Conversely, HCV processes have implications for development of KBAs. Many HCV assessments are conducted in remote areas lacking surveys to identify ranges of rare, threatened and endangered species, habitats and species assemblages. In many of these cases, the assessments, including both ground surveys and detailed GIS analyses of broader landscapes, provide valuable and unique data and are conducted by reliable ecological and conservation experts in these ecosystems. Procedures should be developed to incorporate relevant HCV assessment findings into the processes of KBA nomination and delineation.

Sources

Based initially on discussions at the **Forest Stewardship Council** workshop in Bonn in 2011, discussions with Christopher Stewart (Associate Director, Proforest) in 2013, a paper by Christopher Stewart and Conrad Savy on KBAs and the IBAT process, input from **Nigel Dudley** and **Ellen Brown**, and editorial advice from **Mark Leighton**.

References

Brown, E., Dudley, N., Lindhe, A., Muhtaman, D.R., Stewart, C., and Synnott, T. (Eds) (October 2013). *Common guidance for the identification of High Conservation Values*. HCV Resource Network, Oxford.

IBAT (undated). *IBAT in HCV Assessments: Guidance for use of the Integrated Biodiversity Assessment Tool (IBAT) and related conservation datasets in High Conservation Value assessments*. IBAT.

ProForest. (2003). *HCVF Toolkit*, Oxford.

International non-governmental organisations

13

Birdlife International and Important Bird and Biodiversity Areas

Leon Bennun and Lincoln Fishpool



Spot-breasted Lapwing, Bale Mountains Ethiopia © Paul Donald

Summary

The Important Bird and Biodiversity Area (IBA) network is the most complete of existing efforts to define consistent site-based conservation priorities, being global in extent and drawing on agreed criteria. The IBA network should match well with plans to extend this thinking to all biodiversity through KBAs although success will depend on how well KBAs match with IBAs in terms of criteria, decisions on boundaries, etc. Perceived needs include clear ground rules for the criteria and process of identification, more understanding on the inter-relationship between KBAs for different taxa and higher levels of recognition for the approach. KBAs need to be named and defined by a single, clear boundary and ideally be backed by additional data on threats, opportunities and status. BirdLife International has a range of concerns, mainly linked to the potential for mismatches between KBAs and existing prioritisation processes such as IBAs and Important Plant Areas, including different criteria ending up with different results; the risk of having too many 'priority' sites; lack of quality control; lack of data; an overly academic approach and the time needed to develop the KBA system to the full extent. Discussions on criteria, governance and implementation of the KBA standard are therefore critical to their success.

Introduction

The Important Bird and Biodiversity Area (IBA) programme of BirdLife International aims to identify, monitor and protect a global network of IBAs for the conservation of the world's birds and other biodiversity (<http://www.birdlife.org.uk/>). BirdLife Partners take responsibility for the IBA Programme nationally; it is embedded within their conservation programmes, and relies heavily on local involvement.

The BirdLife secretariat takes the lead on overall standards and methods, international aspects as well as in non-Partner countries and for the high seas. A site is recognised as an IBA only if it meets certain criteria, based on the occurrence of key bird species that are vulnerable to global extinction or whose populations are otherwise irreplaceable. An IBA must be amenable to conservation action and management. The IBA criteria are internationally agreed, standardised, semi-quantitative and scientifically

defensible. Ideally, each IBA should be large enough to support self-sustaining populations of as many as possible of the key bird species for which it was identified or, in the case of migrants, fulfil their requirements for the duration of their presence. By definition, an IBA is an internationally agreed priority for conservation action.

Table 1 provides a list of the principal international end-users of IBA information.

Needs

Most of the needs identified by BirdLife International concern the relationship between existing IBAs and the KBA standard:

- IBAs should fit clearly into the KBA process, which should build on and not undermine the past 30

years of progress in identifying IBAs and developing associated conservation actions.

- Clear ground rules for identifying KBAs are essential, to provide clarity on criteria and processes and take account of existing experience. This should include agreed criteria and agreed processes for delineation.
- Greater understanding is needed of how effectively IBAs capture key taxa in different groups, in order to determine those which best complement birds, thereby including other biodiversity most effectively. Existing data suggest that current IBAs would likely have smaller KBAs (e.g. for plants and invertebrates) nested within them and scattered outside, but we lack adequate comparative information.
- Higher recognition is needed for KBAs of all types and the KBA process could help to achieve this.

Table 1: End-users of IBAs

| End-user | Relevance of IBAs |
|--|---|
| European Union Birds Directive | IBAs are regarded as candidate SPAs with case law establishing their legal status as equivalent to those of designated SPAs |
| Berne Convention, Emerald network | Although not mentioned specifically, IBAs are considered candidates for Emerald sites in Europe outside the EU |
| Ramsar Convention | Selection criteria are closely aligned with two criteria for identifying Ramsar Sites; wetland IBAs meeting these criteria are promoted as candidate or 'shadow' Ramsar Sites |
| CBD | IBAs are mentioned and promoted in the context of the POWPA, while marine IBAs fit into the criteria for EBSAs and are being used to propose candidate EBSAs for birds |
| International Finance Corporation | Performance Standard 6: definition of Critical Habitats is closely aligned with IBA criteria |
| World Bank | WB Social and Environmental Safeguards include definition of Critical Natural Habitat which overlaps with IBA criteria |
| Regional development banks | Similar to IFC PS6 definition of Critical Habitat |
| National governments of, for example, Mexico and Ecuador | IBAs are referred to as key sites for the conservation of birds and embedded in national conservation policy |

Source: BirdLife International

Types of product required

KBAs need to be defined with a *single boundary* and each should be *named* to aid identification. There is an urgent need for better information about individual KBAs relating particularly to associated habitat types, threats and drivers of change, needs, opportunities and suggested conservation actions.

Match with existing procedures

IBAs are defined in much the same way and for the same purposes as KBAs, with the latter drawing inspiration and ideas from experiences with IBAs. The match should therefore be very good, although whether this is the case in practice will depend on decisions taken with respect to criteria, thresholds and governance processes for KBAs. Ideally all IBAs should be recognised as KBAs.

Fears

BirdLife International has a range of fears relating principally but not wholly to how well IBAs fit into the KBA framework and particularly the risks of duplicating a proven system that is 'just' for birds but already has high recognition and associated data, and captures a high proportion of other biodiversity, with a broader system for all species that is theoretically more complete but lacks information. Issues include:

- The possibility of KBA criteria clashing with those of existing systems, resulting in different sites and boundaries being selected, with, for example, some global IBAs and Important Plant Areas 'fitting' KBAs while others do not. This would be a particular issue in places where IBAs have gained legal or policy relevance: for example, in the European Union where IBAs are used to define Special Protection Areas (SPAs).
- Too many sites, if analysis of different taxa results in very different sites and creates such a large list that its policy relevance is diluted.
- Lack of quality control, particularly if governments control the process: a clear and agreed process of quality control needs to be developed.

- Data challenges and the risk of endless data gathering as efforts to agree KBAs for different taxa gather pace, and noting that several existing KBA-type processes have either slowed or fizzled out in the last few years.
- Academic takeover, with KBAs becoming research projects rather than a practical conservation tool.
- Time needed to develop the KBA framework and data sets already poses some challenges for an overstretched organisation.
- Presentation of sub-global KBAs: all IBAs should be KBAs, but how will sites not meeting the new global thresholds be recognised and presented? Full endorsement is needed to ensure that the profile and validity of these sites, and of the measures taken to conserve them, are not undermined.
- IUCN capacity and resources to co-ordinate application of the KBA standard following its launch (including data management).

Implications for KBA standard development

There are several implications:

- Continuing discussions on governance and thresholds for KBAs are critical in determining how institutions like BirdLife International will engage with the KBA process in the future.
- Different scales of sites are likely to emerge for different taxa and this will require some careful planning and processes to address potential confusion.
- It is important that detailed discussions and planning take place regarding next steps *before* the standard is agreed.

Sources

Discussion with **Leon Bennun** (formerly Director of Science, Policy & Information, BirdLife International, now Technical Director at The Biodiversity Consultancy) and **Lincoln Fishpool** (Global Important Bird Area Coordinator, BirdLife International) at the BirdLife Secretariat in Cambridge, 27 June 2013.

14 The Nature Conservancy (TNC)

Edward Game



Grand Teton National Park, USA © Dave Hensley

Summary

The Nature Conservancy (TNC) has not been very engaged in the KBA concept to date; however, they have used a similar internal approach in the past that identified portfolios of sites of importance for conserving the biodiversity of particular regions. TNC's current spatial planning procedures could make use of KBA data where applicable and when the process has been proven legitimate and credible in the area. Clear links to the mitigation hierarchy and other values would be helpful. The importance of accessible and up to date information was emphasised. TNC indicated that it could support local NGOs and partners with KBA identification and delineation where appropriate and relevant to their projects.

Introduction

TNC is a conservation organisation whose mission is to conserve the lands and waters on which all life depends (<http://www.nature.org/>). TNC's global science programme leads on efforts related to spatial planning, and research and development on emerging issues such as climate change adaptation, community based conservation opportunities, community engagement and improved usage of ecosystem services data. In the past, a conservation planning approach based on eco-regional assessments was used and planning products were targeted at the conservation community. TNC now requires tools to inform multi-sector spatial planning efforts (including both public and private sector). TNC has not been very engaged in the KBA concept, however, their eco-regional assessments involved a very simi-

lar approach that identified a portfolio of sites that would conserve the biodiversity of the region in question.

Needs

- Increased public legitimacy in the KBA concept: this would be helpful for TNC when engaging with non-conservation partners (i.e. companies and governments). TNC could then build upon a credible process endorsed by global conservation practitioners thus providing external validity.
- Alignment with the mitigation hierarchy concept: indicating which areas should be avoided and where it would be suitable to minimise and restore would be helpful. Clear information is needed on which areas should not be developed.

- Guidance regarding how to improve the way information is elicited from experts: how to make the most of the experts we have? Biodiversity information is particularly vulnerable to bias – improved guidance on how to control for bias is needed. This should focus on behavioural psychology of how people provide information about biodiversity and common traps that they can fall into.
- Clear objectives: articulation of what the fundamental objectives of the KBA approach are. Identification is only one tool and establishment of conservation areas is another. In order to make progress with safeguarding sites, the values that the landscape, biodiversity or socio-ecological system contains and supports must be understood.
- There must be a clear link made between biodiversity and other values. The following questions should be posed: Whose values? Can we reach agreement on a set of values? Why are these important? Who do they belong to? How will working in this area safeguard these values? By asking these questions and seeking agreement the KBA approach would be in a stronger position to manage trade-offs, meet multiple objectives and achieve safeguarding of agreed upon common values.

Types of product required

Accessibility and maintenance of data (shape files, meta-data including who, when, for what species) is important and also difficult in practice. Longevity of the KBA database must be considered. As personnel and projects change maintenance becomes an issue. Data becomes out of date quickly and the information must be consistently useful to practitioners. Clear endorsement/certification will help with communications and uptake. TNC will not likely nominate areas, however, they would be in a position to advocate and support local NGOs and partners as this fits well with TNC's expertise and interests.

Match with existing and emerging procedures

New standardised planning procedures within TNC involve understanding the best places to work and

developing tailored strategies for these areas. Planning focuses on a series of questions that teams are required to answer and a wide variety of tools can be used to answer them. Every team needs to articulate the strategy, the direction they are going in and the desired end result for biodiversity and human well-being. This is how TNC's spatial planning is taking shape and the KBA concept fits with this in a few different ways. Teams use tools that are useful and well developed in their area. Developing currency and credibility with local partners in the KBA approach will be important.

Fears

There has been reduced emphasis within TNC on the term biodiversity. Many within TNC believe that biodiversity should not be an amorphous measure; they feel as though it is important that people would feel the loss of a species or ecosystem, rather than a focus on the quantification of biodiversity loss more generally. Therefore, if the KBA approach ends up being an emphasis on biodiversity (representativeness, uniqueness) without further articulation of what this biodiversity is, it will not gain much traction.

Implications for KBA standard development

- Ensure that the KBA standard can be realistically interpreted and implemented by people everywhere.
- Guidance on how to identify and delineate KBAs (for example, the IUCN Red List is useful; however, there are some problems with interpreting how to do assessments).
- Big endorsement is needed from a lot of different players (for example, bilateral and multilateral agencies). This would be helpful for TNC and for local NGOs and organisations in terms of leveraging funding.

Sources

Discussion with **Edward Game** (Senior Scientist, TNC) via Skype on Monday, 17 March 2014.

15 Conservation International

Will Turner



Cañete basin, Peru © CIAT

Summary

Conservation International (CI) has a long history of supporting the identification of KBAs. CI emphasised the need to align the KBA approach in a coordinated way with broader values and tools related to ecosystem services and natural capital. They also noted the importance of developing and coordinating effective decision support tools for end-users. Key concerns include issues related to building consensus and the need to implement the KBA approach at scale in areas that have not previously been identified. A recommendation to convene strategic thoughtful discussions about how to align with existing approaches and decision support tools was made.

Introduction

When CI was founded in 1987 (<http://www.conserva-tion.org/>), they focused on working with communities to protect species and prevent habitat destruction. CI continues to focus efforts on protecting species and their habitats, but this represents only one facet of their work. CI's new mission builds on a strong foundation of science, partnership and field demonstration to empower societies to responsibly and sustainably care for nature for the well-being of humanity. To that end, CI is focused on six global ini-

tiatives: climate change, food security, freshwater security, human health, cultural services and biodiversity protection.

As KBAs focus on the global persistence of biodiversity, a big question has been to consider how KBAs fit into CI's evolved work programme. KBAs are still an important approach to identifying areas of prioritisation for action for CI. CI's current projects fit into three broad categories: (i) important sites for biodiversity conservation (based on KBAs); (ii) the benefits that sites of importance for biodiversity provide to

people; and (iii) additional places that do not meet the KBA criteria and thresholds but that are important for the delivery of other ecosystem services. CI's recent work has focused on (ii) and (iii) as the methods and frameworks needed to move these concepts from theory to action were lacking.

CI works very closely with the Critical Ecosystem Partnership Fund (CEPF) whose ecosystem profiles (http://www.cepf.net/resources/publications/Pages/ecosystem_profiles.aspx) use the KBA approach within their rapid assessments of biodiversity hotspots and priority areas. Most recently, CEPF has worked to quantify ecosystem services across Madagascar and the Indian Ocean Islands, including within KBAs, to assist with prioritisation and engagement with stakeholders. Both CI and the CEPF have interest in continuing to explore and develop the identification of ecosystem services in KBAs and within other important places for biodiversity around the world.

CI also makes use of KBA information when developing metrics for tracking progress towards sustaining natural capital, sustainable production, governance and human well-being.

Needs

- Determining how to relate KBAs to broader values of natural capital and ecosystem services (ES). The focus on global biodiversity is clear, however, a deliberate effort to understand how to link the KBA process to closely related processes for ES would be valuable. Advancing discussions concerning KBAs and ES and coordinating a strong set of complementary frameworks would be helpful.
- Coordinated processes and communication with donors, governments and the private sector. End-users do not want to see disconnected conversations and processes. Ensuring that approaches are well connected will be good for both public and private sector partners. This will not happen automatically and therefore must be undertaken in a deliberate and strategic manner.
- Identification of KBAs in more places. This is a basic need, however, the KBA process must be

advanced to the areas where identification has not yet taken place.

Types of product required

The types of products required fall into three main categories: the framework, implementation and decision support tools. The **KBA framework** has been in development for several decades and substantial progress has been made. Understanding how to relate and connect the KBA framework to the broader set of ES approaches and concepts of natural capital will be imperative. This will help to meet the needs and interests of different stakeholders. **Implementation of the KBA approach** (data collection, engagement, workshops, identification, delineation) will need to ensure that as much additional data as possible is collected. The sites will then need to be endorsed and supported to ensure credibility and legitimacy. **Decision support tools** based on spatially explicit data will provide the interface between KBAs and various decision-making processes. Having effective and efficient interfaces that support decision-making will be an important component of the KBA process. In addition, if progress is made on linking KBAs to other processes – making sure that the decision support tools reflect this will be important.

Match with existing and emerging procedures

As mentioned above, KBAs relate to CI's existing and emerging projects in terms of identifying priority areas for action, working with CEPF on ecosystem profiling and the identification of ecosystem services within high biodiversity areas and through the development of metrics to track progress.

Fears

- That KBAs maintain a strict focus on biodiversity without consideration of how KBAs interact or should interact with closely related tools/concepts.

- Issues related to building support and reaching consensus while seeking to develop a standard approach to KBA identification. It is important not to compromise on the replicability and scientific robustness of the KBA methodology. It is also important not to alienate those who disagree with decisions taken to get to the agreed standard approach. Future disagreements may surface as the discussions about how KBAs relate to other approaches, concepts and tools evolve.
- That the KBA approach will not be implemented at the scale needed. There is enormous promise for the potential uses of KBAs, but being able to implement the approach in the places where they are needed most will be a slow process.
- Implementation: the way forward involves finding effective ways of obtaining resources and taking advantage of opportunities to achieve complete roll out or substantial roll out.
- Decision support tools: strategic thoughtful discussions about decision support tools are needed. These need to be developed and supported in a coordinated way. We must ensure that there is not simply a proliferation of tools by different parties. One of the values of KBAs is buy-in from different stakeholders and the combination of effort towards a common goal. Each organisation or consultant will then not need to use time and resources to develop their own tools, but can use the KBA knowledge product to support decisions.

Implications for KBA standard development

- Framework: strategic and thoughtful discussion on the substance of the framework and how KBAs and related frameworks collectively fulfil a set of needs for information on important areas for protecting nature.

Sources

Discussion with **Will Turner** (Chief Scientist, Conservation International) via Skype, 7 March 2014.

16 Bat Conservation International

David Waldien and Andrew Walker



Honduran white bat, Costa Rica © Wanja Krah

Summary

Bat Conservation International (BCI) is launching a Significant Bat Area (SBA) initiative that will focus on the conservation of endangered bat species, mega-populations of bats, range-restricted and endemic bats, and areas with species-rich bat communities characterised by their ecological integrity. In collaboration with multiple partners, BCI plans to use the SBA initiative to accelerate conservation of the world's bats, with emphasis on preventing further extinctions of bat species. To set increasingly rigorous and objective priorities for on-the-ground conservation BCI, in partnership with NatureServe, will create a global bat database that links with other databases within the constraints of a globally agreed-to and peer reviewed data set of bat occurrences, population numbers and trends and other data important for effective conservation.

The SBA initiative evolved out of the Latin American Bat Conservation Network's similar initiative and IUCN's KBA initiative. BCI wishes to make the SBAs as complementary with KBAs as possible, so that SBAs would be a subset of any national or global KBA list. BCI's main concerns at present rest with its own process of development: in particular finding a balance between developing the SBA initiative as an internal priority-setting tool and launching it as a global initiative for organisations and government agencies to populate with data and use in their own conservation and land-use decision-making. By partnering with NatureServe, with its 35-year track record of creating databases designed to provide actionable scientific information, BCI hopes to create a database that transmits easily into conservation action. Given the parallel processes of developing SBAs and the global KBA programme, it is particularly important that BCI maintains close contact with IUCN during the development phase. The concept of interactive databases requires further consideration.

Introduction

Bat Conservation International is a global conservation NGO based in Austin, Texas, with a second office in Washington DC (<http://www.batcon.org/>). BCI is committed to lasting protection at scale of the world's 1,300+ species of bats, with priority attention to preventing further extinctions of bats. BCI is expanding its non-US programmes and will work closely with partners at all levels of society in Latin America, Asia-Pacific, and Africa, including multinational development agencies and large international conservation NGOs already at work there. BCI will transition from a US organisation with a few non-US programmes to a true global organisation whose volunteer leadership and staff reflect the diversity of countries in which we work. BCI also owns and manages Bracken Cave Preserve in Texas, the world's largest known bat colony.

Needs

BCI is developing the concept of Significant Bat Areas (SBAs) to identify areas of particular importance to its mission. BCI plans to align the SBA concept closely with the KBA approach. Ideas are still under development and discussions currently focus on three criteria:

- **Rarity:** the initial focus of SBAs will be aimed pragmatically at threatened species, based in part on the Alliance for Zero Extinction (AZE) concept. There are currently 19 AZEs related to bat species, one of which (on Christmas Island) is now believed to be extinct.
- **Further, range-restricted species,** many of which may be endemics, are often vulnerable to extinction due to their small range distributions.
- **Areas with High Bat Species Diversity Recognised by their Ecological Integrity:** Species-rich areas present an opportunity for proactive conservation and getting ahead of the extinction downward spiral. BCI will identify and protect areas with high bat diversity throughout the world.
- **Mega-Populations of Bats:** Very large congregations of bats numbering in the millions provide considerable ecosystem services and are essential to the health of their ecosystems.

In general there is a need for streamlining and speeding up data flows: nearly a hundred and fifty recently described bat species, for example, are not included on the IUCN Red List, which limits awareness, slows conservation actions and limits resources needed to protect them.

Types of product required

The main product envisaged is a database managed by BCI and NatureServe, which would be publicly accessible (with appropriate levels of confidentiality to protect the precise location of sensitive bat colonies) and link to other relevant databases to ensure the information is as comprehensive and as widely available as possible. BCI will work with scientists and organisations to add data to the database on an ongoing basis.

Match with existing procedures

SBAs are being developed concurrently with the KBA concept, giving an excellent opportunity to ensure good compatibility. It is assumed that every SBA will meet the criteria to be recognised as a KBA, and SBAs will be nested as a subset of KBAs. Some additional nuanced information and criteria may be needed to define SBAs.

Fears

- **Being perceived as solely top-down:** BCI is relying heavily on the work of many scientists and partner organisations to identify the species and SBAs in greatest immediate need of protection. BCI will actively engage many organisations and individuals in helping to identify and conserve priority SBAs, and will set priorities from this broader SBA list and encourage other organisations to identify and act upon their own priorities. We expect the list to be updated with some regularity as new information about threatened species and bat diversity 'hotspots' comes to light. The global bat database will not be 'BCI's database'. BCI's goal is to nest the database within NatureServe's data

systems, an international consortium of country-by-country species and natural community inventories. BCI will act as a funnel for information being submitted to the database by BCI itself and many others.

- Impeding conservation by over-consultation: BCI's conservation planning process will be transparent and open to ongoing input from the scientific and conservation community, but given the number of bats facing extinction, BCI is committed to launching on-the-ground conservation at multiple sites throughout the world over the next several years, even as it refines its planning and prioritisation, and works to populate the database and identify SBAs.
- Lack of information hampering action: Bats remain one of the most poorly studied families of mammals, and at least 200 species are considered 'Data Deficient' by the IUCN. BCI is committed to accelerating research on critical gaps in our knowledge about priority species, but on-the-ground conservation must take the best available information and act on it if further species extinctions are to be avoided.

Implications for KBA standard development

There are several implications for the wider KBA concept:

- BCI is the first end-user group to talk explicitly about an interactive database. There are clearly advantages to this, which is very much in line with developments in science and data management in general, but there are also challenges for information that is meant to represent a global standard. Other institutions have had problems with the interactive element of databases, for instance in terms of how to make use of inputs from both official and unofficial sources. Further discussion on how KBAs might become more interactive is required.
- BCI identified the need for closer liaison with the Species Survival Commission; the longer-term roles of the various IUCN Commissions in KBAs have still not been fully teased out.
- Developing and launching SBAs and the wider KBA concept simultaneously creates the opportunity to work closely together – this implies cooperation during agreement of criteria and indicators in particular.

Sources

Discussion with **David Waldien** (Senior Director, Global Conservation, Bat Conservation International) by Skype, 29 July 2013; further input by **Andrew Walker** (Executive Director, Bat Conservation International).

17 ZSL EDGE of Existence programme

Carly Waterman and Nisha Owen



Axolotl, Mexico © John Clare

Summary

The Zoological Society of London's EDGE of Existence programme highlights and conserves Evolutionarily Distinct and Globally Endangered (EDGE) species. The KBA methodology could play a role in helping to rank areas of importance for EDGE species; however, the explicit incorporation of information regarding phylogenetic diversity within the KBA methodology would be of most interest to the EDGE of Existence programme. Additional information regarding the level of threat, protection and the management actions needed within KBAs would also be valuable. The potential to develop a subset of EDGE KBAs based on the phylogenetic distinctiveness of a site would be useful to end-users interested in conserving sites containing significant evolutionary history. The main concerns discussed included issues related to the amount of information available, the process of updating existing KBAs and the scale of KBAs. Further discussions regarding the links between the KBA approach and the EDGE of Existence programme are needed.

Introduction

The Zoological Society of London (ZSL), founded in 1826, is an international scientific, conservation and educational charity whose mission is to promote and

achieve the worldwide conservation of animals and their habitats (<http://www.zsl.org/>). The mission is realised through groundbreaking science, field conservation projects in more than 50 countries and two Zoos (ZSL London Zoo and ZSL Whipsnade Zoo).

ZSL's EDGE of Existence programme (www.edgeofexistence.org) highlights and conserves threatened species that represent a disproportionate amount of unique evolutionary history. The programme has scored the world's mammals, amphibians, corals and birds according to their Evolutionary Distinctiveness (ED; calculated from a species-level phylogeny) weighted by Global Endangerment (GE; derived from the IUCN Red List) to develop priority lists for conservation. The aim of the EDGE of Existence programme is to raise awareness of the importance and plight of EDGE species and catalyse conservation action to secure their future.

The EDGE of Existence programme is currently expanding its remit beyond a species focus to protect, enhance or develop larger scale landscape level initiatives, referred to as EDGE Zones (see Safi et al., 2013). EDGE Zones are regions of the world that contain exceptionally high concentrations of EDGE species. EDGE Zones have been identified for mammals and amphibians and work is now underway to identify EDGE Zones for all terrestrial vertebrates. EDGE Zones cover large biogeographic regions and are helpful for setting geographic priorities at a global scale. However, additional criteria, such as the location of specific sites, such as KBAs, that are important for EDGE species, would be helpful for finer-scale conservation planning either within EDGE Zones or at globally important sites outside EDGE Zones.

Needs

The EDGE of Existence programme would ideally like to see the incorporation of information pertaining to the phylogenetic diversity of a site included in the KBA identification process. This could be embedded in the criteria and thresholds or required in additional site related information fields. It will be important to understand if and how phylogenetic diversity is included in the criteria and thresholds in order to avoid duplicating efforts when end-users, such as the EDGE of Existence programme, select a subset of sites based on how evolutionarily distinct a particular KBA might be. This subset of sites would then be useful for identifying priority sites for conservation. Careful consideration of how the KBA standard will link with EDGE Zones and other landscape scale

approaches is needed. KBA data and the prospective subset of EDGE KBAs could be used to inform where to prioritise support for existing protected areas (e.g. through the use of protected area management tools such as Instant Wild (<http://www.zsl.org/conservation-initiatives/conservation-technology/instant-wild>) and patrol-based monitoring) and help to identify areas in need of increased management and/or protection.

Types of product required

Spatially explicit data including shape files and layers that could be used and incorporated into other tools. Clear indication of what triggered a site as a KBA and detailed information on the species of interest is needed, as is information regarding the existing level of threat and protection and potential actions. The more information provided the more options exist for end-users to rank and prioritise based on their own set of criteria.

Phylogenetic distinctiveness is rarely recognised or considered in conservation planning and the EDGE of Existence programme encourages wider adoption of the use of information relating to phylogenetic diversity in conservation. While there are numerous methods for calculating species' contributions to phylogenetic diversity, many of them are highly correlated. If the new KBA framework is to provide a mechanism for incorporating phylogenetic diversity then the EDGE approach, which provides a simple and easily communicated method for identifying distinct and threatened species, could easily be adopted.

Match with existing and emerging procedures

EDGE Zones are useful for conservation planning at the global level but less suitable for fine-scale conservation planning. KBAs located within EDGE Zones, or a global subset of EDGE KBAs, could therefore be used to prioritise efforts at the site-level. A clearer understanding of the scale of KBAs would assist with understanding the relevance of the KBA approach in this regard. A subset of EDGE KBAs would be useful

to end-users interested in prioritising site-based conservation efforts in order to maximise the conservation of evolutionary history.

Fears

- Concerns regarding the ability to both nominate new KBAs whilst simultaneously updating existing KBAs. There will inevitably be a time lag in the nomination and updating process. Clear communication regarding the added value of the new approach is needed.
- The iterative updating process will make it difficult to maintain a ranked list of KBAs based on other types of priorities such as EDGE KBAs. It will be important to provide sufficient information about each site (e.g. EDGE scores) so that end-users can then rank the sites based on their own set of criteria and periodically review and update their rankings.
- Finding a balance between small and large scale units will be important. A compromise between manageability and avoiding small/disparate areas will be imperative.

Implications for KBA standard development

- The KBA process should recognise the importance of incorporating phylogenetic diversity in conservation prioritisation. It is important that this is included at the outset of the KBA methodology.

With that said, if maximising phylogenetic diversity is not explicitly incorporated into the KBA criteria and thresholds, the EDGE of Existence programme remains keen to develop a subset of EDGE KBAs that can be used for prioritising site-level conservation efforts.

- The development of a subset of EDGE KBAs would provide essential information to end-users who are focused on maintaining evolutionary history and would help to prioritise investment and conservation within larger landscape scale EDGE Zones.
- EDGE KBAs could provide additional data to inform where to prioritise the implementation / deployment of management tools for maximum effect.

Sources

Discussion with **Carly Waterman** (EDGE of Existence Programme Manager, ZSL) and **Nisha Owen** (EDGE of Existence Programme Conservation Biologist, ZSL) via Skype on 22 May 2014.

References

Safi, K., Armour-Marshall, K., Baillie, J.E.M., Isaac, N.J.B. (2013). Global Patterns of Evolutionary Distinct and Globally Endangered Amphibians and Mammals. *PLoS ONE* 8(5): e63582. doi:10.1371/journal.pone.0063582

Regional, national and local organisations



18 Parks & Wildlife Finland

Rauno Väisänen



Isojärvi National Park © Metsähallitus/Timo Nieminen

Summary

Parks & Wildlife Finland have well established and diverse processes and priorities that could make use of KBA data. Information regarding connectivity would be particularly useful and the freedom to combine and use KBA information independently is important. Understanding how KBAs fit with existing legislation would help Parks & Wildlife Finland to better understand the value of these sites. Concerns include the potential for KBA information to complicate decision-making, overlapping objectives of existing approaches, sensitivity of this type of information and the context specific nature of the implementation of the KBA approach. Feasibility studies and a gap analysis of existing biodiversity information (i.e. which KBAs are currently outside of existing protected areas) would be a good starting point. The main implications discussed were that careful communication was needed as well as alignment with similar approaches to limit the duplication of efforts. In addition, the need for a good understanding of different information management systems was stressed as well as the need to consider data quality control and potential manipulation or misinterpretation of results.

Introduction

Parks & Wildlife Finland manage government protected areas, nature reserves, wilderness areas and

other protected areas. In total they manage four million hectares of land and three million hectares of coastal waters. They employ over 600 people and operate with a budget of 60 – 65 million euros per

year. Parks & Wildlife Finland is a government organisation supervised by parliament and the Ministry of Environment.

Needs

- Parks & Wildlife Finland have well established processes and priorities. It is important that these are not undermined.
- The KBA approach must be applied to all taxa (particularly those often overlooked such as invertebrates and plants) and must go beyond birds and typical structural aspects.
- The ability to apply the KBA concept to challenges related to connectivity would be useful.
- Improved baseline biodiversity information would be useful to the existing procedures and software that Parks & Wildlife Finland uses. A diversity of data, software and analysis approaches are used to inform decision-making and KBA data could provide additional information to be compiled and used in existing decision-making systems (especially fine grained information and detail).
- Clarification is required regarding the added value of the KBA approach to decision-making. If it is science based this would be of use; however, important to note that it would not be used in isolation from existing processes and procedures.
- The KBA approach could be helpful for cooperative international projects that take place in data scarce regions by providing a comprehensive snapshot of areas that contribute significantly to the global persistence of biodiversity.

Types of product required

It would be useful to have products that do not combine all information together. The freedom to combine information independently is important.

A gap analysis of existing comprehensive information (for example identifying which KBAs are outside of existing protected areas) would be a good starting point. Then more detailed work on these sites could be undertaken.

National park agencies and NGOs would be the most likely end-users of this type of information as it could

enable them to propose areas for protection using a strong evidence base. They would also be the ones who would conduct more detailed studies on the importance of these areas.

Feasibility studies and a better understanding of how KBAs fit with existing legislation would help to better understand the value of these sites.

Match with existing and emerging procedures

Finland has not undertaken a comprehensive gap analysis of their protected areas and KBAs might be a useful approach to assist with promoting the need for this. Several national processes have a narrow focus on particular features (such as old growth forest) and the KBA approach may offer a valuable addition to these processes. In addition, the ability to identify areas of importance outside the protected areas network would help to indicate potential “red flag” areas in need of further research/investigation.

Three million hectares of coastal waters are under management in Finland and are experiencing increased threats. Further coastal region data would assist with management and decision-making (for example: to supplement the sparse data on marine biodiversity that currently informs offshore wind farm developments).

Fears

The KBA approach provides an additional source of information that may need to be taken into account in decision-making processes. This may complicate decision-making due to the use of multiple sources of information.

The use of parallel/overlapping processes may also result in limited resources being used inefficiently.

This type of information can be sensitive, especially for private land owners. In Finland, information concerning biodiversity values on private land is not openly available. In some cases, private land owners

do not want their land to be protected as this may restrict land use.

The accuracy and detail of the information collected will depend upon each specific context therefore perhaps making it difficult to apply the KBA standard consistently.

Implications for KBA standard development

- Important to consider similarities between the status of designated World Heritage Sites and future identified KBAs in relation to conflicts and industrial uses.
- Careful use of communication is needed and must be linked to strategic targets.
- Align with similar approaches in order to avoid: creating reporting burdens, the need to provide data to multiple processes and duplication of efforts. Public data are becoming more available which may help.
- Acknowledge that some practitioners may be keen to contribute/participate and others may be hesitant.
- Updated information management systems are currently in development in Finland. Good databases and information management systems are rare. It will be important to understand the variety of different information management systems that may use KBA information as open access may result in inconsistent use of the data and inappropriate interpretation. The KBA data may require additional explanation and support regarding how it can be used and how quality is controlled.
- Data will need to be collected from different places (from experts and citizens) – each with different levels of credibility. Participatory data can result in interesting data and a sense of ownership. However, it can be difficult to use this type of data as regional authorities are reluctant to make legal decisions based participatory data. How do they manage quality and participatory data within BirdLife International?
- Important to be aware that there is a risk that environmental NGOs might manipulate results.

Sources

Discussion with **Rauno Väisänen** (Director of Parks & Wildlife Finland) in person, 15 November 2014.

19 NatureServe and the Natural Heritage network

Leslie Honey and Christopher Tracey



Merry Lea Nature Sanctuary, USA © David Cornwell

Summary

Many of NatureServe's past and existing approaches mirror the KBA methodology; however, each programme and region is unique and therefore the methods used across the network vary considerably. The following needs were expressed: clear guidance on delineation, scientifically rigorous methods, close alignment with existing processes and thoughtful engagement at the local level. The main concerns included issues related to property rights, global vs. local areas of importance, potentially conflicting areas of importance, involvement of partners and networks, capacity, funding and the flexibility of the approach. These needs and concerns have certain implications for the development of the KBA standard. The KBA process should encourage and support cooperation, align with existing approaches, collaboratively fundraise and build capacity across a number of different sectors.

Introduction

NatureServe is a non-profit conservation organisation whose mission is to provide the scientific basis for effective conservation action. NatureServe, NatureServe Canada, and their network Member Programs in the United States, Canada and Latin

America are leading sources of information about rare and endangered species and threatened ecosystems (<http://www.natureserve.org/>).

NatureServe conducts spatial data analyses and develops specially tailored products. Many NatureServe Member Programs use methods similar to the

KBA approach to identify areas of importance for biodiversity; however, each programme and region is unique and therefore the methods used across the network may vary considerably.

Needs

- Clear guidance on delineation: including procedures, mapping standards, technical information and a governance protocol.
- Scientifically rigorous methods: the methodology must be thoroughly documented and the intended use of KBAs should be clearly communicated. It is important to note that KBAs will be useful for some things, but should not be applied out of context.
- Fit with existing activities and processes: clear indication of how KBAs fit into well-established existing processes. It will be important to minimise conflicts that may arise between products/end-users.
- Engagement at the local level: it will be essential to consider implementation needs at the local level as well as how to ensure consistency at this scale. A clear message from NatureServe Member Programs at a workshop held during NatureServe's 2013 Biodiversity Without Boundaries conference on 17 April 2013 was that members would like to implement the KBA standard themselves at the local level (i.e. not at the national level).

Types of product required

A spatial mapping product would be incredibly useful; however, engagement is needed throughout the NatureServe Member Program network to ensure that the KBA methodology is taken up and implemented. As many Member Programs are stretched in terms of funding and capacity, demonstration of clear conservation outcomes (e.g. avoidance of KBAs by industry) will be vital to justify expenditure on KBA identification. The ability to access data and information (e.g. downloadable GIS layers) to consolidate with other data sources would suit the different end-user needs. The ability to maintain map services, web services and effective data management will be essential. The incorporation of KBA data

into existing decision-making tools would be encouraged. Including multiple layers to inform projects from various sectors would be useful. It will be important to ensure that the data and information are available and accessible whilst also using a common lexicon and language. The consistent application of the KBA methodology will be critical.

Match with existing and emerging procedures

NatureServe Member Programs have been using habitat mapping and site-ranking approaches similar to the KBA methodology (but at different scales) for many years. NatureServe's B-ranking approach, which is still used by some Member Programs (e.g. Colorado Natural Heritage Program), also has similar elements to the KBA methodology. The identification of sites of importance for biodiversity is typically undertaken by local experts within the NatureServe network; however, as mentioned above, this has not always been done in a consistent way. NatureServe's new data management efforts (Biotics5) should make it easier to apply approaches in a more unified way.

Fears

- Land tenure and property rights: in many areas of the US, there is a fairly vocal local rights constituency. One concern is that if the KBA methodology is associated with a global level institution, such as the IUCN, this may prove to be a hindrance to local uptake due to perceived top down implementation. To address this concern, it will be important to approach implementation from the local level.
- Global vs. local importance: the fact that the KBA approach is focused on identifying sites that contribute significantly to the global persistence of biodiversity may result in a lack of interest or engagement at the national and/or sub-national levels.
- Conflicting areas of importance: it will be important to ensure that KBAs do not conflict with local level priorities as this could undermine existing efforts.

- Involvement of partner organisations: this will be particularly important when working within jurisdictions where local experts have the best knowledge of the area. NatureServe Member Programs have already stated that they would like to be involved as they feel that this is within the remit of their expertise.
- Capacity and funding: securing funding, resources and capacity will be challenging. One solution would be to build/connect strong networks that can provide support to one another. For example, neighbouring institutions, states or nations with varying levels of expertise and experience can assist one another with the KBA process. The development of a strong programme to spread expertise and encourage collaboration (including across borders) will be important.
- Flexibility: the standard should provide broad guidance; however, it must remain flexible in order to be relevant and applicable at the local level.
- The NatureServe Member Programs have indicated a desire to be involved in the process. It will be important to consider how best to involve the network and how to collaboratively fundraise to leverage a partnership role in the areas where NatureServe Member Programs have high levels of expertise. Perhaps a similar model to the species experts within IUCN would be effective. It will be very difficult to keep data and information current and do the work that needs to be done if fundraising does not occur.
- Buy-in from both the NatureServe network and government bodies will be necessary for successful implementation. Otherwise sites will be identified and delineated but not used.
- The KBA process should encourage collaboration across borders. The creation of networks that can support one another would strengthen the KBA approach.

Implications for KBA standard development

- Despite existing inconsistencies in approaches, the more carefully the KBA process aligns itself with existing processes, the easier it will be to gain/maintain support and uptake.

Sources

Discussion with **Leslie Honey** (Vice President of Conservation Services, NatureServe) and **Christopher Tracey** (Conservation Planning Coordinator, Pennsylvania Natural Heritage Program) via Skype on Thursday, 6 March 2014.

20 ASEAN Centre for Biodiversity

Sheila Vergara



Small scale fisheries, Cambodia © WorldFish

Summary

In the Association of Southeast Asian Nations (ASEAN) Region, the greatest national efforts in KBA identification have come from the Philippines and Malaysia. Other ASEAN Member States have access to Important Bird and Biodiversity Areas (IBA) data made available by Birdlife International, and broader KBA data from CEPF. Recognition of the need for KBA analysis remains low although circulation of existing reports and the publication of a regional protected area gap analysis are raising some interest. Maps and easily understood information will be most useful from a policy perspective, although researchers would also welcome more detailed databases. Despite efforts to include all stakeholders in the consultative process, some industry stakeholders (particularly mining interests) are concerned that all KBAs will be 'no go' areas. A regional KBA process would now be ideal, although this is dependent on building support among ASEAN Member States.

Introduction

The ASEAN Centre for Biodiversity (ACB) is an inter-governmental regional centre that facilitates cooperation and coordination among the members of ASEAN, relevant national governments and regional and international organisations on the conservation

and sustainable use of biological diversity. Guided by fair and equitable sharing of benefits arising from the use of such biodiversity, the ACB was launched in 2005 (building on the earlier ASEAN Regional Centre for Biodiversity Conservation Project). It is based in the Philippines and involves other ASEAN Member States, including: Brunei Darrussalam, Cambodia,

Indonesia, Lao PDR, Malaysia, Myanmar, Thailand, Singapore and Viet Nam (<http://www.aseanbiodiversity.org/>).

Needs

In the ASEAN Region, the Philippines and Malaysia have invested greatest effort into identification of KBAs. There is a widespread need for KBAs, but this has not generally been officially recognised by governments and relevant stakeholders. The idea has been introduced through the preparation of a protected area gap analysis for the region (ACB, 2010), and specifically the distribution of the Philippine KBA map (Ambal et al., 2012). This lack of a KBA process has resulted in variable methods of selecting protected areas in the region, which may include political decisions, personal interest, and ease of accessibility, among others – separate from a science-based process.

Types of product required

As the audience of the KBA process are usually policy makers at various levels of government, (who may not have time to read technical documents), visual documents explaining the process would be the best format to use. The need to have a science-based tool to select the best areas/patch of areas to conserve biodiversity should be clearly explained. Maps and graphs accompanied with brief and concise articulations may be useful (i.e. in the form of posters). Databases would be useful to academic communities that lend support to policy development.

Match with existing procedures

Despite the consultative approach to preparation of the KBA development process in the Philippines, the KBA outputs have not been officially recognised by the government. The KBA map has at times been misinterpreted to mean that all KBAs have to be declared as protected areas. Some areas have been identified by industries as key sources of revenue but

the locations of some resource extraction areas overlap with high biodiversity areas.

Implications for KBA standard development

A region-wide KBA process would benefit the ASEAN Region in the form of a systematic approach to protected area identification and later on provide a reference by which management effectiveness can be gauged. This, however, would rely on convincing the ASEAN Member States to accept the KBA idea and its benefits. A wider KBA development process would, in the more physical sense, preserve ecosystem services, increase the progress of protected area management, allow for baseline information to be documented, and provide a systematic protected area management approach.

Sources

Written answers provided by **Sheila Vergara** (Director, Biodiversity Information Management, ASEAN Centre for Biodiversity).

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European countries and the European Union



European Parliament, Belgium

Summary

Key Biodiversity Areas (KBAs) are seen both by the European Commission and the European Environment Agency (including its European Topic Centre on Biological Diversity) as a useful concept to support their official mission, in particular by highlighting the value of biodiversity in Europe and of the Natura 2000 network and by supporting the identification of gaps, for example in the marine biome. To serve this purpose, they would need to be supported by easily accessible spatial data, from an integrated database, that would not only list KBAs, but also indicate for which features the site is important. A main concern is the possible risk of confusion that a new concept can bring to policy makers in a situation where there are already many different site-labels for conservation and biodiversity (e.g. with other existing site-based inventories, such as Important Bird and Biodiversity Areas, or with existing official denominations, such as Natura 2000), the diversion of resources, the undermining of existing conservation actions, and the impression that areas outside KBAs can be freely developed.

Introduction

The European Union (EU) is an economic and political partnership between 28 European countries. The EU work is founded on treaties, voluntarily and democratically agreed by all member countries.

One of the roles of the European Commission (EC) is to ensure that the agreed treaties and related legis-

lation are being implemented in the Member States. The Commission's staff is organised into departments, known as directorates-general (DGs) and services (such as the Legal Service). DG Environment is responsible for guaranteeing consistent implementation of environmental legislation, guiding European environment policy until 2020 and in particular protecting, conserving and enhancing the Union's natural capital. One of the flagship measures

is the management of Natura 2000, a European network of areas designed to protect species and habitats of European interest in their natural environment.

The European Environment Agency (EEA) is an agency of the European Union. Its task is to provide sound, independent information on the environment. EEA is a major information source for those involved in developing, adopting, implementing and evaluating environmental policy, and also for the general public. Currently, the EEA has 33 member countries. The regulation establishing the EEA was adopted by the European Union in 1990 and also established the European environment information and observation network (EIONET). Through EIONET, European countries can share environmental information on a voluntary basis, in particular – in the nature area – with regards to nationally designated areas. The European Common Database on Designated Areas (CDDA) ensures standardisation of data, and is providing the European contribution to the World Database on Protected Areas (WDPA).

The European Topic Centre (ETC) on Biological Diversity is an integral part of EIONET and is a European consortium which assists the EEA under a framework partnership agreement in building capacity in information systems to support implementation of biodiversity related policies. The EEA and its ETC provide scientific and technical assistance in building the knowledge base to support the implementation of the Natura 2000 network. They also provide assistance to the Council of Europe, secretary of the Bern Convention, in the implementation of the Emerald network, outside the EU.

Needs

The main interests for the EC, the EEA and the larger network of EEA members in the KBAs are:

- Reinforcing the value of Natura 2000 and Emerald sites: over the last 25 years, each EU Member State has identified Natura 2000 sites in its territory, comprising Special Areas of Conservation designated under the 1992 Habitats Directive, and Special Protection Areas designated under the 1979 Birds Directive. The Emerald Network of

Areas of Special Conservation Interest, developed by the Council of Europe under the Bern Convention extends the concept of the Natura 2000 network to countries (sites) outside the EU.

- Support a better understanding of the aim of the Natura 2000 network on the international scene: Natura 2000 sites encompass not only formal strictly protected areas but also sites including economic activities, provided they are sustainably managed. This diversity is sometimes not properly understood.
- Support identification of potential sites to be designated in the marine biome: while the assessment of important sites for biodiversity in the European terrestrial biome is well covered, there is still some work to do to identify and agree on sites of importance for biodiversity in the marine biome.
- Help to highlight the main environmental issues at the European level: to allow mapping of biodiversity critical areas in Europe and to compare the environmental issues in Europe with those in the rest of the world.
- To carefully communicate about KBAs in a way that does not undermine other site-related initiatives.

Types of product required

The main types of data needs and requirements are the following:

- List of KBAs.
- The features (sites, taxonomic groups, ecosystems, etc.) for which the site is considered to be important.
- Spatial information and maps, to allow for spatial analysis.
- Easy access to these data in an integrated database.

Match with existing procedures

The KBA inventory could inform several pieces of environmental legislation in the EU, that are site-based and aiming to conserve species and their habitats, in particular, the Water Framework Directive, and the nature directives (Birds and Habitats Direc-

tives), which together support the Natura 2000 network of sites, the Marine Strategy Framework Directive and the Emerald network.

The KBA inventory could also be relevant to inform reports on the State of the Environment in Europe, produced every five years by the EEA and that also covers non EU countries.

Fears and dangers

A number of potential dangers

- Bring confusion and undermine current conservation efforts: there is a risk of creating confusion for policy makers by adding an additional scheme that claims to define the (globally) most important areas for biodiversity which might not fully correlate with European priorities. With well managed communication and a clear KBA concept for Europe, this could be handled but one must be aware of the inherent danger of undermining ongoing site related conservation efforts.
- Divert resources from implementing what already exists: The budgets and resources dedicated to environmental issues have been reduced recently and there is already a struggle to implement the existing legislation and schemes, so the added-value of an additional scheme in Europe needs to be clearly defined before resources are allocated to it.
- Misinterpretation of KBA delineation as a policy zoning (such as Natura 2000): land-use planning, such as zoning of protected areas, needs to take into consideration numerous factors in addition to biological relevance. In that respect, KBAs should not be included as such in the CDDA or the World Database on Protected Areas. Doing so would confuse protected areas (some of which will not have global significance for biodiversity) and KBAs (of which not all are protected). At least for Europe, only sites formally designated with a legal act are to be included in the CDDA.

Implications for KBA development

An important point is to ensure that:

- KBA identification builds on existing approaches.

- Communication on the relationship between KBAs and existing national and European networks of sites, such as the Natura 2000 network and Emerald network, needs to be clear to avoid creating confusion with policy makers or the general public.
- National-level pilots examining the relationships between Natura 2000 (and Emerald network) sites, protected area categories, and KBAs, and policy implications of these relationships, should be undertaken for a number of countries (possibly even building up to a Europe-wide collaborative publication).

Sources

Discussion with **Angelika Rubin**, Nature Unit, and **Anne Teller**, Biodiversity Unit, both in the DG Environment, European Commission (Brussels), by phone, 4 July 2014; with **Dominique Richard**, from the European Environment Agency's European Topic Centre on Biological Diversity (Paris), by phone, 18 July 2014; and with **Ivone Pereira Martins** and **Frank Wugt Larsen**, from the European Environment Agency's Biodiversity Group (Copenhagen), in person, 23 September 2014.

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Emerald Network
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22 KBAs in the Pacific region

James Atherton and Bruce Jefferies



Rangiroa Atoll, French Polynesia © dany13

Summary

The Key Biodiversity Area (KBA) approach has already been applied in the Pacific and initiatives such as the Rapid Biodiversity Assessment (BIORAP) were developed explicitly to provide data for KBA identification and refinement. Most government officials and others can relate to the logic of identifying sites based on criteria for threatened and restricted-range species. Information is needed in GIS form and easily used maps. It should be stressed that KBAs are complementary to existing conservation priority setting exercises rather than a replacement. Concerns about the future of KBAs include uncertainty about funding and institutional support, lack of comprehensive and current biodiversity data across the region, lack of implementation and some limitations in the KBA methodology itself, namely an emphasis on species rather than ecosystems and less relevance to marine systems where many endangered species tend to be more wide-ranging. Some of these may be addressed by changes to the new standard, which now address biodiversity at the ecosystem level as well as biological processes.

Introduction

The Pacific region has undertaken a number of important protected area initiatives in the last few years, including the Micronesia Challenge, work by Secretariat for the Pacific Regional Environment Program (SPREP), NGOs in the region and individual

conservation commitments by a range of individual states. The following end-user case study therefore attempts to summarise information from a range of states and actors in the region to present an overview of how KBAs have been, and might in the future be, applied within the Pacific.

Needs and opportunities

The KBA approach has already been initiated in the Pacific. For example, in Samoa, the KBA approach is recognised by the government and KBAs have been adopted as official conservation targets within the National Biodiversity Strategy and Action Plan (NBSAP). Most government officials and others relate to the logic of identifying sites based on criteria *for threatened and restricted-range species*, especially if this can be shown to build on past conservation target setting approaches, rather than replacing them. The BIORAP process, involving rapid biodiversity surveys in parts of the Pacific that are otherwise data poor with respect to biodiversity, developed directly out of discussions about data needs for KBAs.

KBAs are therefore seen principally as a contribution to conservation target setting. KBAs need to be developed and refined iteratively, as new information becomes available and in conjunction with, and building on, other conservation target setting approaches and goals – for example, as a means of achieving a comprehensive coverage of native ecosystems within protected areas.

Types of product required

In Samoa, Excel spreadsheets of species and sites were developed and then mapped into GIS (for map information, see Conservation International et al., 2010).

Map outputs are fundamental to the usefulness of KBAs in order to visualise the data and to look for patterns, so a GIS system is a necessity.

Match with existing procedures

KBAs can easily be applied with existing procedures (e.g. the TNC and WWF conservation target setting approaches) and must be acknowledged as being complementary, rather than replacing other efforts. It is very important that this complementarity is articulated, as in most countries there have been past conservation target setting efforts and KBAs should be seen as building on these, rather than replacing them.

Fears

There are limitations to the KBA approach, the main one being that the focus is on identifying sites for particular species, rather than on trying to achieve a comprehensive coverage of natural ecosystems/habitats; in practice some important native ecosystems may not contain rare or threatened species. Analysis of situations where KBAs have been used in Samoa found that all native ecosystems were in fact represented in KBAs (Conservation International et al., 2010); but this risk remains.

Specific concerns include the following:

- Lack of funding to complete KBA analysis and maintain databases. Withdrawal of some organisations that previously supported KBA development gives cause for concern.
- Lack of implementation of conservation action regarding some of the KBA analysis made to date.
- Lack of good data creating a danger of distorting results. The lack of comprehensive and recent data on threatened species to use as a basis for KBA identification is a limitation. Some local specialists question the accuracy of the IUCN Red List. Many threatened species in the Pacific are not on the Red List or not identified as threatened and some others on the Red List probably should be taken off as they are common and not threatened. Some people have referred to KBAs as 'Known Biodiversity Areas' as they often simply identify the areas for which good data are available, and omit less well known areas. Although the BIORAP exercises seek to fill knowledge gaps, data remain very incomplete.
- KBAs are mainly terrestrial and less well suited to application in marine environments, in part because many globally threatened marine species are not location-specific.

Implications for KBA standard development

Key issues to be addressed in the Pacific are getting greater clarity on who is supporting (including funding) the KBA approach; what refinements are needed and how such refinements in methods are best

communicated to users; how can we ensure that the Pacific Red List better reflects reality (IUCN Oceania is working on this but there is a long way to go); and how KBA information can best be managed nationally and globally to ensure that KBAs can be more easily revised and improved. A final critical issue is to use the resulting information to try and ensure that KBAs are actually conserved. That will require raising the profile of conservation in general and particular within governments.

Showing the ecosystem coverage of KBAs is a necessary refinement of the KBA approach as it can help allay fears that too narrow a focus on highly threatened species may miss habitats and ecosystems that are important for, for example, cultural usage, ecosystem services, climate change resilience etc.

Methodological implications of the above are that KBA assessment requires more work on matching analysis based on species with the needs of ecosys-

tem conservation, and in particular, ensuring representation of all native ecosystems in conservation strategies, and addressing questions of KBAs in marine environments.

Sources

Based on text from **James Atherton** and discussions with him and **Bruce Jefferies**.

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23

Dominican Republic – Grupo Jaragua

Yolanda León



Mangroves, Dominican Republic © K@mphuis

Summary

Grupo Jaragua has experience with supporting the identification of KBAs in the Dominican Republic. They emphasised the need for a flexible KBA approach that suits both developed and developing country needs. Keeping the approach simple and providing coherent information for outreach and capacity building was also noted in order to help communicate the importance of these sites. Implementation, enforcement and monitoring should be considered at an early stage in order to ensure that KBAs are not simply an additional identification/designation process resulting in ‘paper parks/KBAs.’ A recommendation to start with the information that is currently available and to build upon this in an iterative way was made.

Introduction

Grupo Jaragua is a non-governmental organisation from the Dominican Republic that works for the sustainable management of biodiversity. Grupo Jaragua is a member of the Dominican Environmental Consortium (CAD); the International Union for the Conservation of Nature (IUCN); Dominican Man and the Biosphere (MaB) Committee; and is the national affiliate

of BirdLife International (http://www.grupojaragua.org.do/index_english.html).

Grupo Jaragua convened a national KBA workshop in June 2009 at the Instituto Tecnológico de Santo Domingo (INTEC). The workshop involved working with experts to identify KBAs in the Dominican Republic. This process drew from previous work on identifying IBAs.

The Dominican Republic is quite unique as it has a very extensive protected area (PA) network (nearly reaching 25 per cent of its land area, plus 54 per cent of its territorial seas). So, the majority of the KBAs identified during the KBA workshop were already within existing PAs. The delineating of KBA boundaries was therefore quite straightforward as the existing PA boundaries were often adopted, although a few areas were added based on new information; in those cases Landsat images were used to approximate natural habitat extent for their delineation. There was also one case in which the IBA/KBA process identified the need to increase the boundary of an existing PA (Sierra de Bahoruco National Park) to preserve some endangered species habitats. This was later proposed to the government and a new protected area adjacent to Sierra de Bahoruco was successfully gazetted in October 2009 (Loma Charco Azul Biological Reserve). It is important to note, however, that in the case of the Dominican Republic, there are now so many PAs (120 units under different management categories) that few are being effectively managed or enforced. Many are simply 'paper parks'.

Needs

- Information on additional taxa: past efforts focused on vertebrates and higher plants. Lack of additional data on invertebrates and other less studied groups is often due to a lack of expertise, and for islands, with limited vertebrate species (in comparison with continental areas), other taxa may be key for identifying high biodiversity areas. More studies with more taxa are needed (for existing sites and for the identification of new ones).
- More help with gathering/presenting unique species assemblage information would assist in site-level conservation and in communicating the importance of the conservation of natural habitats (in comparison with a single species approach which can be addressed *ex situ*).
- Clear simple guidance on KBA delineation: a straightforward and scientifically robust process for delineating identified KBAs is needed, especially where conflicting uses are in place or are planned for.
- Communication and outreach: the KBA approach should be a gold standard for the identification of

globally important sites and may aid some countries in defining a robust protected area system. Effective communication is therefore essential. Also, by combining data on different taxa at the site-level, they provide a great platform for communication and outreach efforts to a broad audience on the different biodiversity values of these sites.

- International safeguards: if the KBA approach could feed into international safeguards, such as the International Finance Corporations Performance Standard 6, this could add additional strength to the approach and enable advocacy and on-site conservation (as opposed to species level only).
- KBAs should help strengthen management of protected areas: even though many KBAs are designated PAs, they are not being protected or adequately managed. Decision-makers in the Dominican Republic will often sign on to a process but they do not embrace what this means in practice. This may be due to a lack of financial resources, expertise, or simply lack of interest by decision-makers/managers. The KBA approach could help convey the global significance of these sites to mobilise national-level decision-makers to act on behalf of conservation. It might also help by strengthening monitoring, enforcement, advocacy efforts, seeking inter-sectoral integration of KBAs, etc. This should be done without interfering with a country's existing legislation, of course.

Types of product required

Clear guidance on the delineation process will be important to ensure consistency. Outreach and capacity building materials would help raise awareness regarding what KBAs are, why they are important and would lead to improved understanding of the value of these areas. This information must be presented in a coherent and accessible way. There is a need for clear links regarding how KBAs relate to existing PA systems in order to strengthen their management. Recognition of the different considerations and approaches required for implementation in developed vs. developing countries is needed. Some sort of global monitoring system (i.e. through land cover change analyses via remote sensing) that alerts

managers to threats to KBAs would be an important contribution. In addition, more biodiversity assessments by taxonomic experts are needed.

Match with existing and emerging procedures

Grupo Jaragua has used KBAs to justify the importance of particular areas facing immediate threats. They have also been used for education and outreach by highlighting key species and habitats of importance. Grupo Jaragua has also found that KBAs help to add more weight to particular sites when communicating with environmental authorities, particularly with the 'endorsement' provided by the IUCN, as they are not only of local importance but also of global importance. KBAs have also led to the identification of other important biodiversity values within existing PAs that were outside existing biological expertise. KBAs help to advance research and advocacy by combining data on different taxonomic groups in a coherent and straightforward way. The KBA approach is intuitive and more easily understood by a broader audience than some other approaches to conservation prioritisation that use complex modelling approaches.

Fears

- Overlooking other areas of conservation value: there is a need to ensure that we do not only concentrate on KBAs that have been identified and that we continue to look for additional areas of conservation value.
- Complex process: concerns that the KBA process might become difficult and elaborate. It must be flexible and adaptable.
- Funding: considerable efforts and/or funds are sometimes required to undertake a KBA assessment.
- Timing: we are rapidly losing important habitats. Particularly in developing countries with weak land use planning practices.
- Urgency: There is a need for a quick way to inform the state and the public that a particular place is

important and should be safeguarded. There is a need to act with existing information, however incomplete it may be. Perhaps a nested approach could be proposed, where KBAs are initially identified based on one or two trigger species and then additional important species/assemblages information is then added in an iterative way. Also, in cases of dubious data or delineation difficulties, candidate KBAs (similar to candidate IBAs) could be proposed until data validation or field studies are done.

- Repetition: KBAs may replicate efforts of existing approaches and therefore there is a fear of ending up with another designation that is not properly used to implement conservation. Important to look beyond identification. What can KBAs do that is different from national legislation? What can we add to the conservation 'toolbox'?

Implications for KBA standard development

- Keep it simple. Make it understandable and accessible to non-experts (such as decision-makers, community members and the general public).
- Layered and dynamic process. Define initial KBAs based on the information available (including consultation with experts, data records, citizen science, etc.) and then add other assemblage, genetic or population information afterwards. This method may then stimulate/motivate further research and data collection in an area.
- Important to ensure that KBAs are safeguarded on the ground. Identification and even designation can mean very little to some governments, especially in countries with weak management capabilities. An international mechanism that helps to put pressure on governments to effectively protect KBAs would be helpful.

Sources

Discussion with **Yolanda León** (Secretaria de Directiva, Grupo Jaragua) by Skype, Thursday, 6 March 2014.

24

Indigenous Peoples' and Community Conserved Territories and Areas (ICCA) Consortium

Grazia Borrini-Feyerabend



Maasai, Kenya © Hendrik Terbeck

Summary

Indigenous Peoples' and Community Conserved Territories and Areas (ICCAs) are places governed by indigenous peoples or local communities that have high conservation values and are effectively conserved. Some are officially recognised as protected areas while most can be described as 'other effective area-based conservation measures'. Although the biodiversity values of ICCAs are increasingly documented, many ICCAs are under a high degree of threat from development and other pressures. The recognition of the frequent overlapping of KBAs with ICCAs provides arguments and political justification for ICCAs to be maintained under current governance and management regimes, thus securing the biodiversity and other values they provide. However, that recognition could also result in loss of rights, as governments may take over the governance and management of ICCAs, disempowering or expelling the traditional owners. The effective incorporation of ICCAs within the KBA framework must be accompanied by the recognition and support of the collective rights and traditional ecological knowledge and institutions of indigenous peoples and local communities.

Introduction

The term **Indigenous Peoples' and Community Conserved Territories and Areas (ICCAs)** is used by IUCN to describe 'natural and/or modified ecosystems, containing significant biodiversity values, eco-

logical benefits and cultural values, voluntarily conserved by indigenous peoples and local communities, both sedentary and mobile, through customary laws or other effective means' (<http://www.iccaconsortium.org/>). For the ICCA Consortium, they have three essential characteristics:

- an indigenous people or local community possesses a close and profound relation with a site (territory, area or habitat);
- the people or community is the major player in decision-making related to the site and has *de facto* and/or *de jure* capacity to develop and enforce regulations;
- the people's or community's decisions and efforts lead to the conservation of biodiversity, ecological functions and associated cultural values, regardless of original or primary motivations (Borrini-Feyerabend et al., 2013; Borrini-Feyerabend and Hill, 2014).

Many ICCAs have existed for long periods of time; others have been established more recently. Motivation for establishing and maintaining ICCAs varies and can include amongst others: managing natural resources (e.g. providing places for fish to breed and be harvested sustainably); mitigating natural disasters (e.g. maintaining forested slopes to prevent landslides); and protecting sites of sacred value, cultural significance or their importance for their landscape or conservation values (Borrini-Feyerabend et al., 2010). Many ICCAs are formally recognised as *protected areas* but there is not a direct equivalence. Some communities managing ICCAs do not recognise ICCAs as protected areas and sometimes the management aims of ICCAs do not match the IUCN definition of a protected area (which implies that conserving biodiversity is the first aim of the protected area management, Lausche and Burhenne, 2011). In the latter cases, ICCAs can be considered as part of the 'other effective area-based conservation measures' mentioned in CBD's Aichi Target 11.

Needs

Many indigenous peoples and local communities are facing pressure with respect to their traditional lands and waters, from encroachment by outsiders, theft of natural resources or takeover for development by large-scale mining, infrastructure, ranching or agriculture. Traditional custodians are seeking ways in which ICCAs can be effectively protected and are seeking partners who can help. In these circumstances arguments that demonstrate the value of

keeping such places under their current governance can sometimes persuade authorities to maintain traditional rights (Kothari et al., 2012).

It is well established that biological diversity has a strong overlap with territories and areas of indigenous peoples, as it does with sacred natural sites and even areas of linguistic diversity. Recognition of the overlap between ICCAs and KBAs can provide support to the importance of maintaining governance regimes that have been compatible with the conservation of biodiversity. In other words securing collective governance by indigenous peoples and local communities can be recognised as valuable within national biodiversity strategies, possibly but not necessarily as part of the protected areas that permit traditional use (often IUCN category V or VI).

Recent experience in the Philippines – as in the Islamic Republic of Iran, Australia, Colombia or Italy – suggests that such approaches can work. The Philippines government has been stressing the value of traditional governance by indigenous peoples for the country's KBAs and is seeking ways to recognise their collective rights and capacities both within and outside their formal protected areas. Noticeably, ICCAs are recognised as valuable for the conservation of KBAs *but also* for the support of sustainable livelihoods and the recognition of collective rights and responsibilities.

Types of product required

Ideally:

- A clear and agreed list of criteria for identifying KBAs.
- Maps and records of legal and customary collective rights and responsibilities to territories and natural resources.
- Use and recognition of traditional ecological knowledge (TEK) in helping to identify KBAs, along with full collaboration with rightsholder peoples and communities in seeking permission for fieldwork, and access and use of data and TEK.
- Access to KBA data within ICCAs regulated by the Free, Prior and Informed Consent of the rightsholder peoples and communities.

- Descriptions of the types of governance institutions and management approaches that maintain the KBAs through time.

Match with existing procedures

The existence of KBAs that match, include or intersect with ICCAs could be added as a field into the ICCA registry, which is being developed as part of the UNEP-WCMC protected planet database.

Fears

- That some governments may be reluctant to recognise KBAs within indigenous territories.
- That KBA status will encourage governments to take over governance of the ICCA as an 'official' protected area, resulting in loss of rights to the traditional owners.
- That some governments may relinquish their obligations of conserving KBAs by 'dumping' them on some of society's weakest sectors without appropriate compensation and support.
- That recognition of KBAs may heighten the interest of users (from outside or within the communities) who would damage the conservation status and/or privacy of ICCAs.

Implications for KBA standard development

There is a clear match of interests and objectives. KBA analysis may be expected to take greater note of existing governance types rather than simply the status of the site. The use of traditional ecological knowledge in KBA identification might be more formally recognised and incorporated than at present. But the support of indigenous peoples and local communities will be secured only upon recognition of their collective rights and responsibilities and value of their traditional ecological knowledge and institutions.

Sources

Based initially on discussions between **Grazia Borrini-Feyerabend** and **Nigel Dudley** in Switzerland, in April 2013 and input from other members of the ICCA Consortium, including Giovanni Reyes and Ashish Kothari.

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Thematic perspectives

25 Ecosystem services

Nigel Dudley



Chong Kneas, Cambodia © Asian Development Bank

Summary

Although identification of ecosystem services is not within the scope of the KBA standard, it has been agreed that they should be documented in KBAs as part of the assessment. Natural ecosystems supply a range of important ecosystem services, such as food and water provision, disaster risk reduction, etc. There is also growing evidence that biodiversity is directly related to both the quantity and stability of ecosystem services. Utilisation of ecosystem services can usually be integrated well with conservation of ecosystems and biodiversity, although potential conflicts of interest occur in some cases. Four issues are important to consider in KBA development: (1) Ecosystem services can provide significant motivation, political support and resources for safeguarding KBAs; (2) The KBA framework should therefore consider a standardised method for recording ecosystem services within or impacted by ecosystem processes within KBAs; (3) The existence of ecosystem services may often have important implications for the ways in which KBAs are managed; and (4) Particular ecosystem services might also in some cases influence the boundary of a KBA although this requires further discussion.

Introduction

It has been agreed that identification of ecosystem services is not within the scope of the KBA standard (IUCN, 2012). It was also agreed, however, that the

ecosystem services and benefits for human well-being resulting from the safeguarding of identified KBAs should be documented, communicated, and incorporated into decision-making. The implications of these decisions are examined below.

Issues

Natural ecosystems supply a range of important ecosystem services. The Millennium Ecosystem Assessment (2005) divides these into four main groupings:

- Provisioning services: food, freshwater, fuelwood, fibre, biochemicals and genetic resources.
- Regulating services: climate regulation, disease regulation, water regulation, water purification and pollination.
- Cultural services: spiritual, religious, recreational, aesthetic, inspirational, educational, cultural heritage and contributing to a sense of place.
- Supporting services: soil formation, nutrient cycling and primary production.

Natural ecosystems can, for instance, supply clean water, help mitigate natural disasters such as floods and desertification, maintain food supplies including fish stocks and protect genetic resources that provide us with goods such as crop breeding material and raw materials for pharmaceuticals.

There is growing evidence that biodiversity is directly related to both the quantity and stability of ecosystem services. In particular: biodiversity loss reduces the efficiency by which ecological communities capture biologically essential resources, accumulate biomass and cycle nutrients; there is mounting evidence that biodiversity increases the stability of ecosystem functions through time; change accelerates as biodiversity loss increases; diverse communities are more productive; and loss of diversity across trophic levels has the potential to influence ecosystem functions even more than biodiversity loss within trophic levels (Cardinale et al., 2012).

In addition, some ecosystem services are directly related to biodiversity. These include anything relying on genetic material from wild species, along with some aspects of providing greater food security (Larsen et al., 2012). For example, the value of crop wild relatives to food production is worth billions of dollars every year, as is the profit from pharmaceuticals that are based on wild genetic resources.

Utilisation of ecosystem services can usually be integrated well with conservation of ecosystems and biodiversity, although potential conflicts of interest

can occur. Ecosystem services such as provision of clean drinking water, maintenance of mangroves or corals as shoreline protection, forests managed for avalanche control and maintenance of natural vegetation against soil erosion can all match well with conservation objectives. Indeed, some of these ecosystem services have provided incentives for conservation management in places where governments resist the concept of 'national parks' or other protected area designations (Stolton and Dudley, 2010). But in other cases ecosystem services carry actual or potential costs for biodiversity conservation. Examples include over-use for recreational purposes, over-collection of medicinal herbs and, potentially, changes of management to maximise carbon sequestration within natural ecosystems.

Implications for KBA standard development

It has already been agreed that ecosystem service values will not be included amongst the criteria for identifying KBAs. However, the accompanying agreement to document ecosystem service values has implications both for the KBA framework and for approaches to management. Four issues require further discussion.

- Ecosystem services can provide important motivation, political support and resources for safeguarding KBAs. Ecosystem services also create the opportunity to work with a wider range of partners, some of whom may have little direct interest in biodiversity, thus providing the political recognition necessary for good management even in places where conservation values have little political capital or legal protection.
- The KBA framework should consider a standardised method for recording ecosystem services within or impacted by KBAs. This will help comparison between sites, ensure that all ecosystem services are considered in documentation and help build global data on KBA values.
- The existence of ecosystem services should therefore have important implications for the ways in which KBAs are managed. In the simplest terms, ecosystem services may provide additional arguments for retaining healthy natural ecosystems

and could also help provide resources for doing so, for example, through Payment for Ecosystem Services (PES) schemes. In other cases, exploitation of ecosystem services, whilst potentially profitable, will have to be balanced with the biodiversity values of KBAs, through for instance sustainable management of wild resource harvest, careful eco-tourism, and balancing carbon sequestration with other values. Management plans for KBAs will almost always need to consider ecosystem services.

- The existence of key ecosystem services might influence the boundaries of a KBA. This requires further discussion, because it would modify some of the decisions made by the KBA Framing Workshop. If, for example, an entire watershed had important ecosystem service values, and part of it also had important biodiversity values, then the boundaries could conceivably be modified to reflect both ecosystem services and biodiversity.

Source

Nigel Dudley (Equilibrium Research).

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26 Climate change

Nigel Dudley and James Watson



Clinton Lake, U.S.A. © Patrick Emerson

Summary

Human-forced climate change will directly and indirectly impact individual species distribution and abundance, creating challenges for fixed, spatially explicit delineations such as KBAs. Will KBAs become redundant under climate change? Five key issues are identified relating to: (1) implications for overall goal-setting for KBAs; (2) potential inclusion of climate refugia as a criterion in KBA selection processes; (3) the potential need for revising KBA locations, boundaries and even status when conditions change; (4) management implications of climate change in KBAs, including tighter restrictions on permissible use in areas likely to undergo major changes; and (5) ecosystem service implications in terms of climate change mitigation strategies. These all have major implications for KBA identification and management, and add important levels of complexity.

The challenge

Climate change is already influencing species, ecosystems and ecological processes throughout the world (Willis and Bhagwat, 2009). Over the last 20 years there has been increasing attention given to climate change by conservation scientists, with numerous studies aimed at offering prediction around how species will fare to studies that measure

actual changes in the field. However, the challenge of understanding how climate change is going to impact biodiversity is immense. As the climate changes, so will key abiotic characteristics that are the basic building blocks of a species' fundamental niche (e.g. temperature, rainfall, cloud formation, rates of evaporation, and evapotranspiration). The distribution and abundance of many species are likely to be affected by climate change induced alter-

ations of the length of the growing season, the timing of seasonal events (e.g. phenology), and the length of the stratification period in lakes. These impacts of climate change are relatively hard to predict and require a depth of knowledge of a species' ecology, which is rare for 99.9 per cent of all species. A related challenge is ascertaining how processes that currently affect species persistence will be indirectly affected (and often exacerbated) by climate change. Again, the knowledge around the interplay between current stressors of biodiversity and human-forced climate-change is not well understood in most places (Watson et al., 2011).

It is now widely recognised that in certain circumstances, conservation practitioners and others will be managing 'novel ecosystems' within the next few decades; we have virtually no experience about what this implies in practice. It also means that objectives that have a focus on maintaining the status quo ('resistant' strategies) are not going to be useful in the long-term in most places.

It is generally assumed that we can expect a major decrease in biodiversity over the next several decades as many species' climate niches will be exceeded. Many conservation actions in the future will be aimed at interventions that reduce these losses, probably targeted at key species and using practices that are non-traditional (e.g. assisted migration). It is also assumed that individual areas set aside for protection will need to be assessed as part of a network, as species move and ecological processes change, the role of the KBA will change but still may be important.

KBAs are currently predicated as fixed, spatially explicit areas, delineated by an agreed set of criteria. How will KBAs fare as a conservation tool in the face of the emergence of novel ecosystems?

The following issues paper outlines some potential implications that need to be considered in the development of KBAs.

Goal setting

Increasing knowledge about climate change may necessitate fundamental changes in goals and time-

lines of KBAs. If species and ecosystems move and alter, how useful will static, spatially explicit delineations be in the future? Some KBAs may lose their values altogether, others may develop different values, or different boundaries. Some KBAs might be set to protect novel ecosystems, or emerging ecosystems, or other, inherently 'non-natural' ecosystems and this needs to be reflected in the overall goals of KBA identification and updating.

Selection criteria

The existence of climate refugia is likely to be a useful additional selection criterion for KBAs. The uncertainty around what climate change looks like at regional and local scales and how species, ecosystems and ecological processes are responding and are likely to respond to increasing change has led conservation planners to assess how species have responded to past rapid warming events. It is now thought that areas of stable climate in past rapid climatic events (known as climate refugia) have been important in allowing species to survive and these areas will become increasingly important in future conservation plans.

The importance of protecting large intact areas is likely to be a useful additional selection criteria for KBAs. It is now well established that intact species assemblages, comprising the composition and abundance of native species and their interactions, within the bounds of natural ranges of variation are likely to be less impacted by climate change than those sites that contain a lot of threatening processes and are degraded (Mackey et al., 2008). These intact sites will likely be more to extremely important in allowing species to naturally adapt to climate change and as such, these areas will become increasingly important in future conservation plans.

Boundary implications

In the future, KBAs may need to change to reflect changing ecosystems. If ecological conditions change dramatically, this will need to be reflected in KBA analysis and identification, although the practical and political challenges involved will be enor-

mous (Watson et al., 2013). Changes might involve, for instance:

- Shifting boundaries of KBAs to reflect local changes in species or ecosystem range or shifting threat frontier if local human communities start changing land use practices based on the changing climate.
- Delineation of new KBAs if they are identified to be important areas for accommodating species and ecosystem change in the future.
- De-listing of existing KBAs if they no longer contain important species and ecosystems due to climatic changes (and are unlikely to contain significant biodiversity in the future).
- Identification of 'temporary KBAs' if for instance species are predicted to need 'temporary' space during a transition phase as climate alters.
- Identification of KBAs based on their holding key abiotic features, even if they do not meet species or ecosystem criteria, but conserve the geographic stage.
- Identification of key landscapes and seascapes; to create some form of protection between KBAs that will accommodate species and ecosystems movement (i.e. enhance connectivity).

None of these changes would be easy to accomplish but all are already being considered in related fields, for example, protected area designation.

A careful and thoughtful stakeholder process would be needed to control such changes, such as a periodic (once a decade?) review by a body made up of respected stakeholder groups, especially as the science around climate change and how we think it will affect biodiversity, is continually updated. The presumption should clearly be that KBAs are permanent but real life conditions may force changes in practice.

Management implications

Climate change may also mean that we need to revise management recommendations and priority setting for KBAs. It is generally recognised that species inhabiting large, intact ecosystems will be more resilient to change than smaller, fragmented and degraded ecosystems. This is because maintaining viable populations of species across natural ranges will maximise intra-species genetic diversity and

thus options for local adaptation and phenotypic plasticity. Moreover, large intact landscapes are more likely to capture the underlying geology, topography, slope, aspect, altitude and the large scale ecological phenomena, flows, and critical processes that sustain habitat resources, each of which constitute selective forces to which species are adapted and are necessary for species response to climate change (Watson et al., 2009).

Institutions managing KBAs may therefore wish to tighten restrictions on what is permitted within KBAs, particularly if these overlap with areas where climate change impacts are likely to be severe. Management may also sometimes have to address the need for temporary changes in cases where ecosystem shifts are taking place or where novel ecosystems are in the process of evolving. All these options are likely to be resisted by many groups interested in development of natural resources.

Climate change mitigation

Natural ecosystems within KBAs may also increasingly be called upon for their mitigation values. The importance of natural ecosystems for mitigating climate change impacts is increasingly recognised (Dudley et al., 2009). This may often act as an additional spur for protecting a KBA but may conversely sometimes have contradictory management implications, such as encouraging additional forest growth for carbon sequestration in areas that would naturally be savannah. Moreover, as the climate changes, and ecosystems respond, the sequestration potential of a KBA will change over time, and this needs to be considered when framing the KBA around its mitigation potential.

Fears

- Shifting climatic conditions will render many KBAs irrelevant if the biodiversity elements for which they were identified are no longer present.
- Shifting climatic conditions will increase threatening processes within and around KBAs.
- Attempts to revise KBAs in line with changing conditions may render them politically ineffective.

Implications for KBA standard development

The implications of climate change for KBA development are too profound to be addressed in a short issues paper. Many specialists are already working on this issue. Two steps are needed now:

- Engagement with experts, in the IUCN Species Survival Commission (SSC) and WCPA, but also in the wider academic and NGO community to comment on and expand the current issues paper.
- Possibly the development of a working group within the WCPA/SSC Joint Task Force to consider in more detail the ways in which KBAs might address questions of climate change.

Sources

Drawing on discussions during two WCPA meetings at the Island of Vilm Academy in Germany (Stolton and Dudley, 2011, MacKinnon et al., 2012); published papers, conversations and input from **Nigel Dudley** and **James Watson** (Wildlife Conservation Society and Associate Professor, University of Queensland) and the IUCN SSC climate change specialist group.

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27 Restoration

Karen Keenleyside and Nigel Dudley



Forest restoration, Indonesia © World Resources Institute

Summary

Many KBAs are degraded and require some measure of restoration. Additional KBAs are currently undergoing or are projected to undergo degradation over the next few years. Climate change will affect certain KBAs and pose additional challenges for conservation. Restoration offers opportunities to regain many, although not all, values lost due to ecosystem degradation. KBA analysis should therefore include the need and potential for restoration, particularly in ecosystems that are already in large part converted. The emphasis of restoration within KBAs should be weighted towards natural ecosystem values, whilst noting the limitations of 'natural' as a concept and the importance of multiple ecosystem functions. Restoration needs to be addressed at a landscape scale, to provide greater ecosystem connectivity and resilience. Stakeholder participation, negotiation and trade-offs are key elements of success.

Introduction

The underlying aim of the KBA approach is to identify and delineate sites that contribute significantly to the global persistence of biodiversity. The assumption is that such sites will be in a near-natu-

ral state and that therefore conservation strategies will be primarily about protection or other forms of management that will not degrade the overall biodiversity. However, this is unlikely to be true in many cases. IUCN's parallel stream of work on restoration – and particularly forest landscape restora-

tion – conversely starts from ecosystems that are destroyed or severely degraded and looks at ways in which the composition, structure and multiple functions of ecosystems – including those of direct use to humans – can be restored. This case study examines the opportunities for restoration to maintain and sometimes regain critical biodiversity within KBAs.

Issues

Many KBAs are already degraded and now require restoration, along with a reduction of existing pressures, to maintain or regain biodiversity. While no global analysis is possible, related prioritisation exercises suggest that many KBAs are already degraded. For example, 40 per cent of Birdlife International's forested Endemic Bird Areas are threatened by biodiversity losses due to forest loss. Similarly, 22 per cent of the 87 WWF Global 200 forest ecoregions have already lost at least 85 per cent of their forests – sometimes only 1-2 per cent of the forest is left – and therefore the long-term survival of biodiversity will only be possible with restoration. Deforestation is also identified as a key threat to water quality in 59 per cent of freshwater ecoregions in the Global 200 and at least 20 per cent have riparian forests at risk (Dudley and Mansourian, 2003). While many of these areas are larger than individual KBAs, they illustrate the scale of degradation that already exists.

Additional KBAs are currently undergoing or are projected to undergo degradation over the next few years. Analysis of a third of the world's 12,000 identified Important Bird and Biodiversity Areas (IBAs) found over half the sites in poor or very poor condition and subject to high or very high local (e.g. land use change) or global (e.g. climate change) pressures. In 2013, the BirdLife network in 95 countries identified 333 *IBAs in Danger*, where sites are judged to be at extreme risk of losing their biodiversity value (BirdLife International, 2013). Restoration not only serves to slow or reverse degradation that has already occurred or is occurring but may also help to increase resilience to degrading forces such as climate change.

Restoration offers opportunities to regain many, although not all, of the values lost due to ecosystem degradation. As our understanding of restoration techniques improves, opportunities for regaining lost values also improve although this is only partial. For example, forest ecologists can detect differences in the ecology between once-cleared forests and pristine forests even after a millennium of re-growth. When rich and poorly researched ecosystems are degraded or lost we are also losing species that remain unknown to science. Thus, it will always be preferable to avoid degradation in the first place – by reducing pressures on the ecosystem and implementing sound ecosystem management practices – than to assume that restoration efforts can always recover what has been lost.

Implications for KBA standard development

Restoration is one key response to conservation challenges within KBAs. Restoration ecologists have already had important successes in bringing back ecosystems that have undergone serious degradation and the need for this is likely to increase. There are several implications for KBAs, outlined below.

- KBA analysis should include the need and potential for restoration. In particular: (i) sites that would be classified as KBAs if they were restored; (ii) sites that are KBAs but are losing their values and need to be restored in order to continue to be KBAs; and (iii) sites that are KBAs but have already lost the values that make them KBAs and could be 'declassified' as KBAs if they are not restored.
- The emphasis should be on the restoration of ecosystem structure, function, and composition, but ancillary values such as ecosystem service provision should also be considered. Restoration of a specific historic ecosystem may often be impossible due to previous losses and changing environmental conditions. While restoration within KBAs should lay emphasis on the values that were the basis for designation, where constraints imposed by climate change or other variables make this unrealistic we may need to accept more novel ecosystems as targets for restoration.

- Restoration needs to be addressed at a landscape scale, to provide ecosystem connectivity particularly in view of likely range shifts and other changes due to climate change.
- Stakeholder participation, negotiation and trade-offs are key elements in successful restoration. 'Degraded land' from the perspective of biodiversity conservation or downstream ecosystem services may be regarded as valuable land for farming, subsistence or other uses by local communities. While opportunities for local communities to benefit from restoration should be identified and promoted (where they are consistent with restoration of KBA values) it should not be assumed that restoration will be welcomed or even tolerated. Engagement, open communication and shared learning will usually be required to identify a balance between local and global needs, along with trade-offs between what might be an ideal from a conservation perspective and the needs and desires of residents and others. Potential benefits for local communities, for example, should be identified and shared with them.

Further discussion on the links between KBAs, restoration and ecosystem services will be an important part of developing realistic conservation strategies over the next few years.

Sources

Based on published material and input received from **Karen Keenleyside** (IUCN WCPA, Parks Canada and Society for Ecological Restoration) and **Nigel Dudley** (Equilibrium Research).

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28 Spiritual values

Robert Wild, Bas Verschuuren and Nigel Dudley



Uluru (Ayers Rock), Australia © Duncan Rawlinson

Summary

Faith groups have enormous influence over the way we manage the planet; areas of high religious practice also coincide with those of high biodiversity. Key issues include: (i) the existence of sacred natural sites, which often have high levels of biodiversity and are frequently incorporated within protected areas or are providing important conservation benefits outside official protected areas; (ii) the role of major religious groups in owning, managing and governing land and water, which opens the opportunity for direct conservation of that land within KBAs; and (iii) the more general influence that faiths have over their adherents, investments and through wider advocacy. There are a number of implications for KBA development. Recognition of the significance of Sacred Natural Sites (SNS) and biodiversity values can help both groups identify responsibilities in management and governance of KBAs or parts of KBAs. Conversely, a KBA coinciding with a site of religious importance to a faith group can boost its importance and that of the faith group looking after it. More generally, it is important to engage with faith groups, both large and small, so that they understand and hopefully support the KBA concept in practice, along with concepts of managing lands and waters for both spiritual and biological values.

Introduction

Most people follow a religious faith (O'Brien and Palmer, 2007). In addition to the 14 so-called 'major

faiths' in the world there are countless local beliefs and spiritualities, some ancient and others newly emerging or re-emerging in different forms. There is also some evidence that active following of religion

is highest in areas of high biodiversity (Bhagwat et al., 2011). Many ancient, local and indigenous nature spiritualities have over time merged with mainstream faiths and created hybrid faiths named folk religions (Verschuuren et al., 2010).

Several forums exist for investigating links between faiths and conservation, including the Cultural and Spiritual Values Specialist Group of the IUCN World Commission on Protected Areas (http://www.iucn.org/about/work/programmes/gpap_home/gpap_people/gpap_tilcepa/gpap_spiritual/); and its associated initiatives, (the Delos Initiative (<http://www.med-ina.org/delos/>), which works mainly on mainstream religions and protected areas in developed countries and the Sacred Natural Site Initiative (<http://sacrednaturalsites.org/>), focuses on custodians from indigenous spiritualities and folk religions in developing countries); and the Alliance on Religions and Conservation (<http://www.arcworld.org/>).

Issues

Faith groups intersect with biodiversity and conservation in a number of different ways, and at several different levels:

Sacred natural sites often contain high levels of biodiversity: many faiths recognise certain places as sacred because of heightened spiritual values that are due to their importance to a deity or saint; their role as ceremonial sites for religious practices and rituals; as a result of traditional stories about events that occurred there in the past; or often because of some peculiarity in the landscape such as an oddly shaped hill or rock. These sacred natural sites (SNS) are used in various ways: for worship, sacrifice, burial and as places of pilgrimage. They may be off-limits to everyone, or all but a select few, or only open for practices such as fruit and herb collection. Common SNS include groves, islands, mountains, springs, lakes, waterfalls and rivers. Whilst closely associated with animist faiths SNS are found in almost all faith groups, including those that officially discourage 'nature worship'. Some are very ancient and may have been passed over from one faith to another as traditions change, and many contain layers of meaning that are shared between traditions; others are

still being created today. Due to the respect with which they are held, many SNS are also rich stores of biodiversity, particularly in settled landscapes where other ecosystems have been altered (Dudley et al., 2009). This has two main implications: (i) SNS are often incorporated into protected areas (and this needs to be reflected in management, Wild and McLeod, 2008); and (ii) other SNS provide important conservation outside the protected area system.

Major religious groups own and manage large areas of land and water: by some estimates up to 7 per cent of the world's land area is under the management of religious groups (Posey, 2000) and they therefore have a direct influence on conservation management. An increasing number of religious groups regard stewardship of nature as an integral part of devotion and practise active conservation management. This is for instance exemplified by Christian monasteries within national parks in Europe (for example, in Spain, Greece and Bulgaria) and some Buddhist temples in the Republic of Korea and Japan.

Religious groups also have the opportunity to influence individuals and groups in society: a consensus on the ethical importance of biodiversity conservation has emerged from most faith groups (Palmer and Finlay, 2003). Translating this into practical action is not necessarily easy (religious belief has not stopped wars or violence) but several significant opportunities exist: (i) sympathetic management (and dialogue with the nature conservation movement) of the biodiversity rich sacred places that they have responsibility for; (ii) direct teaching and instruction to followers regarding the importance of biodiversity; (iii) exercising influence through the very large investments that some religious groups control; (iv) through advocacy and messaging to governments, private sector and other stakeholders; and (v) self-learning and tolerance of each-other's traditions (e.g. Higgins-Zogib et al., 2009).

Implications for KBA standard development

There are increasing efforts to integrate policies relating to conservation of sacred natural sites with

conservation of biology (e.g. Verschuuren et al., in press). These initiatives have three main implications for KBAs:

- Key Biodiversity Areas are likely to contain a disproportionate number of sacred natural sites, posing both challenges and opportunities for their management. Challenges relate to the need to take account of what may be very different views about management when identifying and managing KBAs (for example, access for research may be contrary to belief systems). However, SNS also offer important opportunities, in that they often have existing governance institutions and management approaches that can be aligned with conservation needs. Faith groups and conservation institutions may well find common cause in terms of practical management implications, even if their motives are very different. Toleration and mutual respect are critical.
- Many SNS are currently under threat from within and outside cultural circles: due to changing traditions and loss of interest in old faith practices and because of pressure for development, land grabbing, mining, illegal land clearing and pollution. KBA status may provide additional justification for those people trying to defend their SNS and give governments an extra reason for aiding their conservation and that of the wider KBA.
- Support from all religious groups is important in terms of them influencing their followers, investment patterns and governments; whilst support is slowly being mobilised it remains tenuous in many cases and understanding about biodiversity threats is often at a low level.

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Robert Wild, Bas Verschuuren and Nigel Dudley.

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Conclusions

Blyde Canyon, South Africa © Federico Robertazzi

As stated in the introduction, while we discussed issues with end-users we did not attempt to modify their opinions, which are essential for understanding how people view and intend to use KBAs. This work has highlighted the extremely various potential uses and applications of KBAs, as well as some of the contradictory expectations of end-users. It has been extremely valuable in providing insights and understandings of the needs of end-users.

We hope and believe that some of the concerns and suggestions outlined in the case studies above have already been addressed during the development of the KBA standard. In particular, KBAs are now no longer based purely on species data, although it is true that many existing KBAs are defined in this way. More fundamentally, the relationship between KBAs and other existing taxonomic-, geographic-, and biome-based initiatives is currently being explored. Many users requested a single, overarching approach, but in practice it is likely that there will continue to be many different approaches and tools, and that the KBA approach will provide an overarching standardised approach to those who find this useful to inform their decision making.

The request for specific types of products has also been taken into consideration and efforts are being made to address as many as possible.

Many end-users regarded KBAs – in fact stated that they intended to use KBAs – as tools for prioritisation of land and water for conservation. This is not the intention of IUCN: KBAs are an important tool to inform conservation priorities but will not be the only form of information that needs to be taken into account when deciding where best to invest conservation funds and effort. However, the history of other IUCN standards, such as the IUCN protected area categories, suggests that end-users do not always apply tools in the ways originally envisaged by their developers and IUCN should continue to monitor how KBAs are applied in practice and make modifications as necessary.

Finally, the fears expressed allowed to highlight important issues to keep in mind as the KBA standard gets implemented.

IUCN is very grateful to the many people who were prepared to take time to talk with us and to read and comment on the various drafts of this report. We hope that it will continue to inform the development and even more importantly the roll-out of the KBA standard over the coming years.



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