A Global Review of National Guidance for High Conservation Value

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November, 2012

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Africa Biodiversity Collaborative Group

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Cover Photo:

Conservation International/ Pete Oxford

Suggested Citation:

Neugarten, R., and C.E. Savy. 2012. *A global review of national guidance for High Conservation Value*. Washington, DC: Conservation International & Africa Biodiversity Collaborative Group (ABCG).

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Acronyms

ABCG	Africa Biodiversity Collaborative Group
CEDHFCA	Conference on Ecosystems of Dense and Humid Forests of Central Africa
CI	Conservation International
CITES	Convention on International Trade in Threatened and Endangered Species
COMIFAC	Commission des Forets d'Afrique Central
CR	Critically endangered
EN	Endangered
FPIC	Free, Prior and Informed Consent
FPIC	Free, Prior and Informed Consent
FSC	Forest Stewardship Council
GIS	Geographic Information System
HCV	High Conservation Value
IBAT	Integrated Biodiversity Assessment Tool
IFC	International Finance Corporation
ILO	International Labour Organization
IUCN	International Union for Conservation of Nature
KBA	Key Biodiversity Areas
NGO	Non Governmental Organization
PRA	Participatory Rural Appraisal
RUSLE	Revised Universal Soil Loss Equation
UNEP	United Nations Environment Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development
VGA	Valuable grassland areas
VU	Vulnerable
WCS	Wildlife Conservation Society
WDPA	World Database on Protected Areas
WWF	World Wildlife Fund

Acknowledgments

Thanks to Naamal De Silva, Natalie Bailey, Tom Clark, Marcelo Levy, Tim Rayden, Christopher Stewart, Olive Tatio Sah, Chris Dickinson, Gary Paoli, and Zhivko Bogdanov for providing guidance and input to this study.

Executive Summary

T he concept of High Conservation Value (HCV) areas, or areas of outstanding significance or critical importance, has gained considerable currency in the context of certification for sustainable forest management and agriculture. It has also been applied in the context of conservation planning, land use planning, purchasing and investing. Global guidance for identifying, delineating, and managing HCV areas has been developed and nineteen countries have developed national interpretations. To date, there has not been a systematic review of national HCV guidance.

We reviewed existing toolkits and other guidance material, looking for shared themes and examples that could represent best practice with the potential for developing consistent national guidelines. HCV guidance from all or nearly all of the countries reviewed adhered to best practices related to incorporating stakeholder consultation, referring to international standards such as the IUCN Red List of Threatened Species, and including management recommendations (Figure 1). Guidance from relatively few countries adhered to other best practices such as describing detailed methods for mapping HCV, identifying multiple overlapping values, conducting both preliminary and full assessments, including sample survey instruments, or recommending peer review of HCV assessments. Guidance from different countries was inconsistent in its definition of threatened species, definitions of protected areas, and treatment of primary, secondary, and plantation forests. There were also inconsistencies related to minimum qualifying areas for HCV 2 (large intact ecosystems); different quantitative thresholds for erosion prone areas, buffer zones, and basic needs of local communities; and different management recommendations for maintaining or enhancing HCV values.

We recommend aligning national and global guidance with identified best practices to improve consistency across national HCV interpretations. Guidelines should be developed for any currently missing HCV values, particularly HCV 5 and 6. Areas of inconsistency should be revisited to ensure that different standards are appropriate given the local context rather than simply a byproduct of diverse processes. We recommend requiring peer review of HCV assessments and conducting independent, regular monitoring of identified HCV areas to build up a repository of documentation to support adaptive management and ensure that outstanding values continue to support ecosystem health and human well-being.

Introduction

Governments, the private sector, and environmental interests all have needs related to defining where various activities should be located. Decisions about infrastructure development, oil and gas extraction, agricultural production, water use, timber harvesting, fisheries management, and environmental protection can all be informed by an improved understanding of the distribution and configuration of certain key resources, or *values*. These values can include large intact ecosystems, concentrations of threatened or endangered species, or critical hunting or fishing areas. The concept of "High Conservation Value," or areas of outstanding significance or critical importance has gained considerable traction within both the private and public sector (Dennis et al. 2008). The concept, initially developed in the context of sustainable forest certification, provides a relatively simple framework for identifying areas of vital importance for ecological, social, or economic reasons. Six types of HCV areas have been defined:

HCV 1. Areas containing globally, regionally or nationally significant concentrations of biodiversity values (e.g. endemism, endangered species, refugia).

HCV 2. Globally, regionally or nationally significant large landscape-level areas where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance.

HCV 3. Areas that are in or contain rare, threatened or endangered ecosystems.

HCV 4. Areas that provide basic ecosystem services in critical situations (e.g. watershed protection, erosion control).

HCV 5. Areas fundamental to meeting basic needs of local communities (e.g. subsistence, health).

HCV 6. Areas critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

The concept of High Conservation Value (HCV) differs from previous efforts to define areas of outstanding significance because it does not attempt to define areas that are "pristine" (such as old growth forests), but rather focuses on areas that provide critical values. Secondly, HCV emphasizes maintaining and enhancing values, but does not necessarily require strict protection—that is, an area defined as HCV may still be actively used for forestry or other activities, as long as the activities maintain or enhance the identified values.

The concept of HCV has been applied in the context of forestry, palm oil production, biofuels, marine and grassland conservation, and elsewhere (HCV Network website: http://www.hcvnetwork.org/). ProForest, an independent company, has developed a "global toolkit" with general guiding principles (Jennings et al. 2003). In order to apply the HCV concept in practice, however, more detailed guidance is needed. An international network of experts and practitioners, the HCV Network, recommended that national-level toolkits be developed for each country, with specific guidance related to the specific

ecological and socio-political guidance. The development of country-specific guidance offers opportunities to resolve problems introduced by top-down conservation planning (Rodríguez et al. 2007) but opens up potentially dangerous inconsistencies in the ways HCV is defined between countries (for example, inconsistent treatment of locally common but globally threatened species) (see for example Wells et al. 2010).

To date, nineteen countries have developed guidance related to identifying HCV. In some cases, the guidance consists of comprehensive "toolkits" with detailed recommendations for all six types of HCV. In other cases, the guidance consists of workshop reports, appendices included in longer forest certification standards, or short documents describing general considerations for applying HCV in a particular context. The format, content, and recommendations included in these guidance documents vary considerably from country to country. There is a recognized need to assess existing interpretations of HCV to evaluate the level of consistency and inform development of future HCV guidance within and beyond the forest context (Dennis 2008).

Methods

We conducted a review of existing guidance to extract best examples, analyze areas of consistency, and to link guidance with existing international standards and datasets. Our objective was to analyze the current status of HCV guidance in order to provide recommendations for improving consistency across national toolkits and highlight best examples that could be adapted for future toolkits.

We analyzed existing HCV guidance from nineteen countries (Table 1). Guidance for eighteen of the countries is available on the HCV network website (http://www.hcvnetwork.org/resources/national-hcv-interpretations). We also evaluated a draft framework for assessing HCV in the context of forest certification in the US (FSC-US 2010).

From this analysis we derived "best practice" for HCV identification as well as examples that could be adapted to other contexts. Our criteria for identifying best practices included:

- Guidance that was linked to existing standards and available data (such as national toolkits that referred to international standards and national laws, or cited published literature). A key aspect was alignment with International Union for Conservation of Nature (IUCN) processes given their role as a consensus-based standard setter for the conservation status of species, sites and ecosystems[1].

- Guidance that would support efforts to map or apply HCV criteria in practice (for example, several countries provide species lists to support identification of HCV 1, and a few countries provide detailed GIS methods or example maps)

- Guidance that was consistent across toolkits (for example, several toolkits based their methods for assessing community needs on Indonesia's toolkit)

Based on these three categories, we initially identified 25 best practices, which were grouped into five categories (status of toolkit, adherence to key principles, legality and compliance, technical guidelines, and management/monitoring guidelines.). The draft list of best practices was reviewed by the HCV Resource Network Technical Panel[2]. The list was also reviewed and compared to:

- The global HCV toolkit and generic national toolkit guidance available on the HCV Network website (Jennings et al. 2003).

- Guidance for peer reviews of HCV assessments, including principles and checklists, also available on the HCV Network website (HCV Resource Network 2010)

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[1] http://www.iucnredlist.org,
http://www.iucn.org/about/work/programmes/gpap_home/gpap_biodiversity/gpap_wcpabiodiv/gpap_pabiodiv/
, http://www.iucnredlistofecosystems.org/
[2] http://www.hcvnetwork.org/resource-network/structure-1/technical-panel

Table 1. HCV Guidance Reviewed for This Study

Country	Year	Format	Length (including appendices)	Language(s)	Revised?
Bolivia	2004	HCV toolkit	52	Spanish	
Bulgaria	2005	HCV toolkit	71	English	Yes
Cameroon	2008	Draft HCV toolkit	14	English	
Canada	2005	Draft HCV toolkit	69	English	
Canada	2004	FSC Boreal Standard	26 (HCV) 181 (total)	English	
Chile	2007	Workshop report	23	Spanish	
China	2008	Guidance document	17	English	
Ecuador	2005	HCV toolkit	93	Spanish	
Gabon	2008	Draft HCV toolkit	34	French	
Ghana	2006	HCV toolkit	30	English	
Indonesia	2008	HCV toolkit	139	Bahasa Indonesia, English	Yes
Malaysia	2009	HCV toolkit	64	Bahasa Malaysia, English	Yes
Mozambique	2007	Workshop report & draft guidance	18	English	
Papua New Guinea	2005	HCV toolkit	88	English	Yes
Poland	2006	FSC Principles, Criteria and Indicators	2 (HCV) 40 (total)	Polish, English	
Romania	2005	HCV toolkit	56	English	
Russia	2007	FSC Standard	20 (HCV) 114 (total)	Russian, English	Yes
Slovakia	2010	HCV toolkit	32	Slovak	
US	2010	FSC Draft HCV Assessment Framework	13	English	
Vietnam	2008	HCV toolkit	75	English	Yes

Note: Canada's HCV guidance comes from two documents, a World Wide Fund for Nature (WWF) "HCV Support Document" and HCV guidance developed in conjunction with the FSC Boreal Standard.

The review validated many of the initially identified 25 best practices (such as incorporating precautionary approaches, stakeholder consultation, alignment with international standards/national

laws, management and monitoring recommendations, and others.) This review also resulted in the addition of three best practices: peer review, landscape context, and land tenure and land/resource use rights (described below).

Existing guidance from the 19 countries was then revisited and reviewed for its adherence to these 28 best practices. The categories and best practices are described below, and the results of the review are summarized in Table A-1 (see Appendix).

A. STATUS OF HCV GUIDANCE

- **Guidance for all six categories of HCV**—Detailed guidance for assessing all six categories of HCV has been developed.

- **Toolkit revised**—The guidance has been reviewed by forest certification experts, biological and social scientists, or other stakeholders, or has been field tested, and revised accordingly.

B. ADHERENCE TO KEY PRINCIPLES

- **Precautionary principle**—The guidance invokes the precautionary principle, based on the idea that "with the current level of knowledge about forests [or other natural ecosystems] and their functions, it is not always possible to be sure that a particular management strategy will be suitable in all cases. Therefore, it is essential to use the precautionary approach" (ProForest 2005). The precautionary principle should be invoked when identifying and defining HCV, when interpreting and using data, and in management recommendations (HCV Resource Network 2010).

- **Stakeholder consultation**—Guidance for extensive consultation with a wide array of stakeholders. Stakeholders can include forest managers, certification entities, government representatives, biological and social scientists, local communities, academic or other research institutions, environmental or social NGOs, or others. The consultation process should be in place for HCV identification, management, and monitoring (HCV Resource Network 2010). Relevant stakeholders and stakeholder groups should be appropriately involved, the process should be documented, resulting information should be incorporated in relevant HCV guidance and assessment processes, and conclusions from HCV assessments should be fed back to stakeholders.

- **Adaptive management**—Guidance for modifying activities over time to reflect new information. The status of HCV areas and impacts from management activities such as forestry operations should be monitored regularly, and resulting information should feed back into subsequent management decisions.

C. LEGALITY AND COMPLIANCE

- **Alignment with international standards**—The guidance refers to relevant international standards, conventions, and treaties related to biodiversity, human rights, and cultural sites. These include several identified by the HCV Resource Network (2010):

    o Convention on Biodiversity

    o International Labour Organization (ILO) Convention 169 on the rights of indigenous and tribal peoples

    o UN Declaration of the Rights of Indigenous Peoples

    o Ramsar Convention on Wetlands

    o UNESCO World Heritage Convention

    To this list, we added several that were included in several of the toolkits:

    o IUCN Red List of Threatened Species

    o IUCN Protected Areas categories and definitions

    o Convention on International Trade in Threatened and Endangered Species (CITES)

    o Biodiversity Hotspots as defined by Conservation International

    o Key Biodiversity Areas (KBAs) (Langhammer et al. 2007)

    o WWF Global 200 ecoregions

    Lastly, we recommend adding two additional international standards that were not identified in any of the toolkits to date:

    o International Finance Corporation (IFC) Performance Standard 6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources

    o Free, Prior and Informed Consent (FPIC) is "the principle that a community has the right to give or withhold its consent to proposed projects that may affect the lands they customarily own, occupy or otherwise use" and has been recognized in international law and standards related to indigenous peoples (e.g. the International Labour Organisation's Convention on Indigenous and Tribal Peoples in Independent Countries, the UN Draft Declaration on the Rights of Indigenous Peoples, and others).

- **Alignment with national or sub-national laws**—The guidance refers to relevant national, provincial, or state laws related to land use, natural resource management, the environment, indigenous and traditional peoples, culturally significant sites, or others. Note that this best practice is more important outside the context of credible certification standards such as FSC, which already include compliance with relevant laws. These can include:

    o National or regional land use zoning laws

- o   Environmental laws:

- o   Protected areas

- o   Wildlife laws

- o   Forestry laws

- o   Watershed protection laws

- o   Environmental and Social Impact Assessment laws

- **Addresses land tenure and land/resource use rights**—The guidance addresses land tenure, land and resource use rights, including operational licenses and customary use rights. Note that this best practice is more important outside the context of credible certification standards such as FSC, which already addresses land tenure and use rights.

D. TECHNICAL GUIDELINES FOR IDENTIFYING HCV

- **"Mappable" criteria**—The guidance includes criteria for identifying HCV areas that are easy to translate into maps such as defined buffer areas around protected areas, water courses, or cultural sites; areas above defined elevation thresholds, or designated ecosystem types that have already been mapped for other purposes.

- **Mapping methods**—The guidance includes methods for translating the criteria into maps, such as recommended spatial datasets or geographic information system (GIS) analyses.

- **Maps created**—The guidance includes maps of actual or potential HCV values that have already been identified at national or sub-national scales, such as maps of large intact ecosystems (HCV 2) or rare, threatened and endangered ecosystems (HCV 3).

- **Quantitative thresholds**—The guidance includes quantitative thresholds, such as minimum area for large intact landscapes (HCV 2), minimum number of endemic species (HCV 1), or percent of resources derived from natural ecosystems that a local community depends on for meeting basic needs (HCV 5).

- **Species lists**—The guidance includes lists of endemic and threatened species relevant for identifying HCV 1. IUCN Red List of Threatened Species was a widely referenced basis for such lists. In some cases, it was noted that practical realities may restrict this to a sub-set of a readily observable threatened or endemic species that could serve as surrogates for ecosystem health (C. Dickinson, personal communication).

- **Ecosystem types list**—The guidance includes lists of rare, threatened and endangered ecosystems relevant for identifying HCV 3.

- **Sources of data identified**—The guidance includes possible sources of international or national information for identifying HCV areas, such as websites, reports, publications, academic or

research institutions, non-governmental organizations, or other resources (e.g. IUCN Red List of Threatened Species, Natura 2000, Important Bird Areas, US Natural Heritage Programs).

- **Landscape context**—The guidance addresses the landscape surrounding HCV assessment area, not just the assessment area itself. The landscape context is relevant for identifying and defining HCV (for example, for identifying forest management units that contain portions of large intact ecosystems), for assessing threats (such as understanding the relative contribution of HCV areas given predicted species declines), and for making management recommendations (such as managing HCV areas adjacent to protected areas to maintain or enhance the value of the protected areas.)

- **Overlapping values**—The guidance provides recommendations for identifying, mapping, or managing multiple overlapping HCV values (such as areas that are important for endemic species but are also critical for meeting the basic needs of local communities.)

- **Field survey methods**—The guidance provides recommended methods for collecting data, such as species surveys, assessments of erosion potential, or other information necessary for identifying HCV.

- **Community needs methods**—The guidance provides or references recommended methods for collecting data from local communities, such as key informant interviews or surveys related to community resource use, culturally significant sites, or other information necessary for identifying HCV.

- **Sample data sheets**—The guidance includes example data sheets that can be used to collect biological or social information, such as community resource needs assessment surveys.

- **Threat assessment**—The guidance includes recommendations for assessing threats to HCV areas from proposed management activities (such as forestry operations), existing patterns of resource use such as hunting, or external pressures such as climate change. Management recommendations should include mitigating identified threats, and monitoring recommendations should include assessing changes in threats over time.

- **Low/poor data availability**—The guidance includes recommendations for assessing HCV in areas with limited data availability or poor data quality, such as precautionary approaches for areas that are considered potential HCV or requirements for additional data collection.

- **Justification / literature**—The guidance includes references to published literature or other justification for identifying and delineating HCV, such as publications on the minimum habitat requirements for endangered species, slope or soil characteristics that make areas more prone to erosion, or other resources that validate HCV criteria.

- **Preliminary and full assessment**—The guidance provides recommendations for conducting preliminary assessments based on existing data, expert knowledge, and desktop analyses; as well as full assessments based on field data collection and community consultations. In general, preliminary assessments indicate whether or not an area potentially contains HCV. If an area is identified as potential HCV, then a full assessment must be conducted to verify the existence of HCV and provide more detailed information that can be used for delineation and developing management and monitoring recommendations.

- **Practical examples**—Examples from real HCV assessments are provided to help practitioners apply HCV guidance.

- **Peer review**—The guidance includes recommendations, or references to such recommendations, for peer review of HCV assessments by experts such as representatives from certification entities, biological or social scientists, academic or research institutions, environmental or development organizations, or others. Detailed guidance for conducting peer review of HCV assessments is available on the HCV Network website (HCV Resource Network 2010). Reference to this resource was assessed.

E. MANAGEMENT AND MONITORING GUIDELINES

- **Management recommendations**—The guidance includes recommendations for management activities to maintain or enhance identified HCV areas, such as strict protection, buffer areas, reduced impact operations (such as selective logging or logging only during certain times of year), or restoration. If it can be demonstrated that identified HCV areas will not be affected by proposed activities, or HCV values will be maintained or enhanced through regular best practices, then it might not be necessary to modify management or undertake additional conservation measures. Note that actual management decisions must be based on the specific context and the HCV assessment results, thus national toolkits can provide only general management recommendations.

- **Monitoring recommendations**—The guidance includes recommendations for monitoring to assess status and trends of identified HCV areas, such as periodic surveys for endangered species, remote sensing of forest cover, regular consultations with communities, or other methods. Monitoring results should feed back into management decisions so that activities are modified to reflect new information.

Results

Adherence to the best practices were summarized by country (Table 1). It is important to acknowledge development of national interpretations of HCV guidance in these nineteen countries as a significant milestone achievement. Also, it is important to reiterate that some of these toolkits exist as draft guidance or workshop reports. This review is thus intended to suggest areas for improvement in future iterations of the HCV guidance, or in new national interpretations of HCV, rather than to pinpoint gaps in existing guidance.

Guidance from 18 of the 19 countries included reference to stakeholder consultation (Figure 1). Guidance from 17 countries included references to international standards and management recommendations. Guidance from most (15 or more) countries covered all six categories of HCV, referenced national laws, identified sources of data, and provided monitoring recommendations. Guidance from only three countries (Canada, Malaysia, and Papua New Guinea) included recommendations for identifying areas with multiple overlapping types of HCV. Guidance from only three countries (Chile, China and Indonesia) included sample field surveys. Guidance from relatively few countries (six or fewer) had toolkits that had been revised, described detailed methods for mapping HCV, included recommendations for conducting both preliminary and full assessments, or recommended peer review of HCV assessments.

Six countries (Bolivia, Bulgaria, Indonesia, Malaysia, Papua New Guinea, and Vietnam) had guidance that adhered to most (20 or more) of the 28 best practices (Figure 2). Three countries (Poland, Cameroon, and Chile) had guidance that included relatively few of the best practices (8 or fewer), but it should be noted that the guidance for these countries is currently in draft form or incomplete.
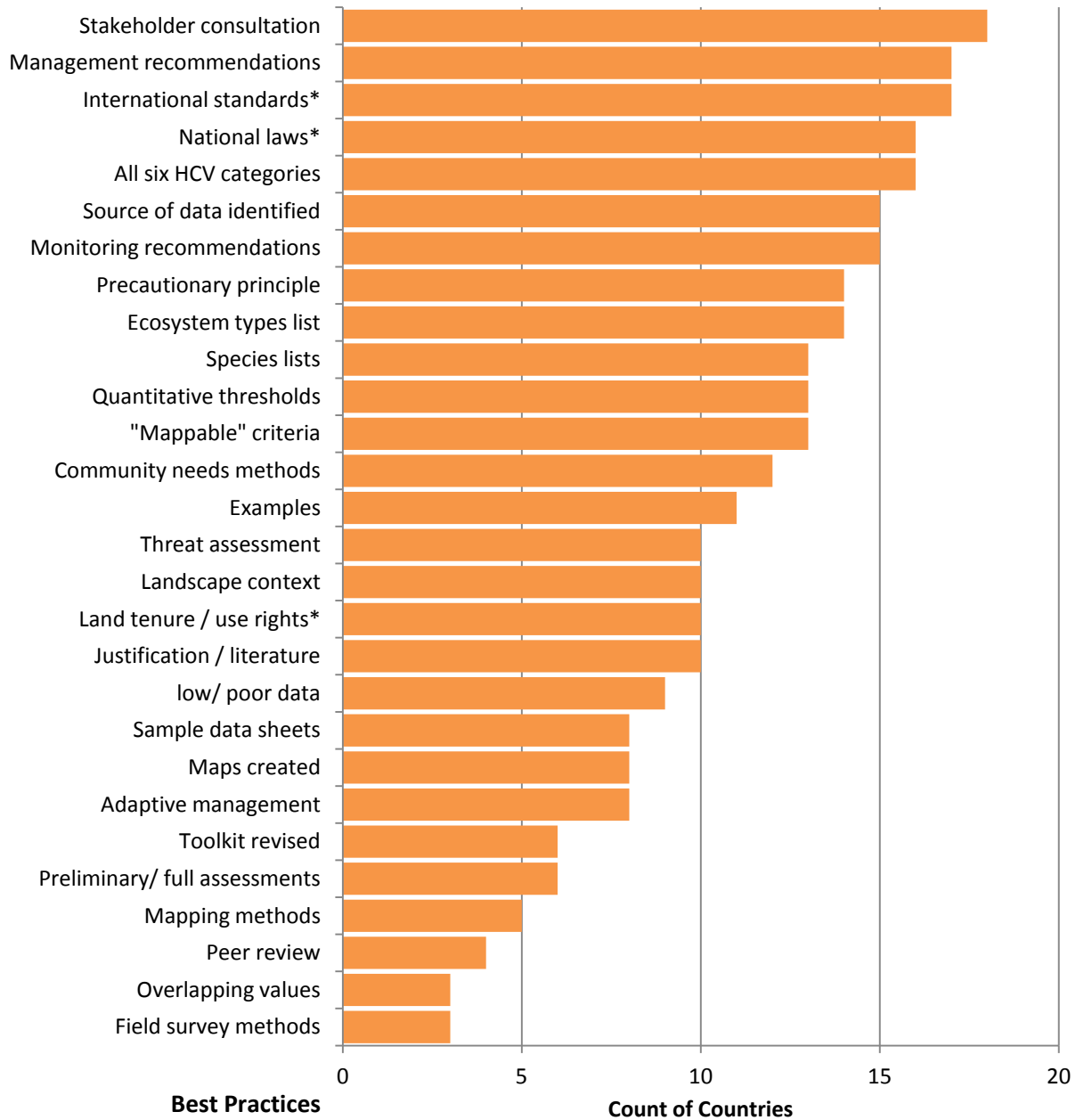
Figure 1. Count of countries with HCV guidance that adhered to each best practice.
Note: Asterisk (*) indicates best practices that are already included in certification standards such as FSC; these are less important to include in HCV guidance unless it is applied outside the context of certification.

Figure 2. Count of best practices included in current national HCV guidance.
Note: Double asterisks (**) indicates only draft or incomplete guidance, such as workshop reports, is currently available.

Areas of consistency and inconsistency

HCV guidance from multiple countries was consistent in some areas, such as:

Use of IUCN Red List of Threatened Species: Guidance from many countries recommended using the IUCN Red List of Threatened Species to assess HCV 1. The IUCN Red List is the only globally consistent system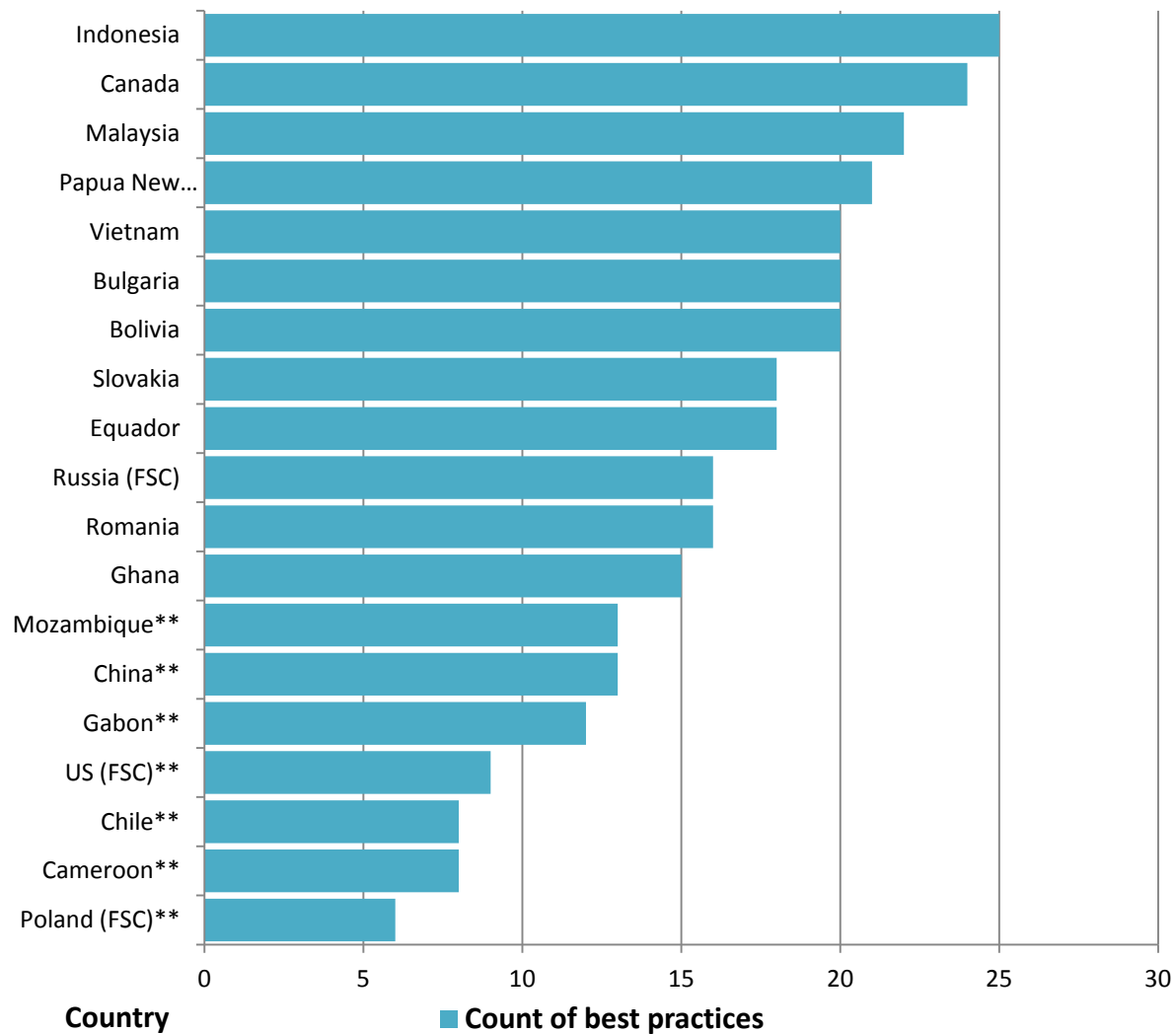 for assessing species that currently exists. IUCN is currently developing additional standards for important sites and ecosystems over the next four years which will facilitate greater consistency on these aspects of biodiversity in future.

Guidance for assessing HCV 5 (basic needs of communities) and HCV 6 (communities' cultural identity): For example, guidance in Malaysia and Vietnam was adapted from the Indonesia toolkit. The need for stakeholder consultation, particularly for assessing HCV 5 and 6, was consistent across many countries, as was an emphasis on precautionary approaches for identifying, delineating, or managing HCV areas.

There were also inconsistencies in the guidance from different countries, such as:

Definition of threatened species: Guidance from Ecuador includes only species listed as CR (critically endangered) in the IUCN Red List as HCV 1.2. Bulgaria and Papua New Guinea recommended including both CR and EN (endangered) species. Guidance from Bolivia and Malaysia included CR, EN, and VU (vulnerable). In Ghana, the guidance states that all forest-dependent species listed on the IUCN Red List should be considered, regardless of threat level. In Indonesia, only CR species qualify as HCV 1.2; but CR, EN, and VU species qualify as HCV 1.3. Guidance from Mozambique does not mention the IUCN Red List at all. The inclusion of nationally listed protected species, national Red List species, and other categories of protected species (such as those listed in CITES Appendices) also varied across countries.

Definition of "protected area": Guidance from some countries treat all categories of protected areas as HCV 1.1, while in other countries, only certain types of protected areas qualify. In Ghana, Bulgaria, Slovakia, and Malaysia, all legally designated protected areas qualify as HCV 1.1. In Russia and Papua New Guinea, both gazetted and proposed areas qualify as HCV 1.1, whereas in Canada, candidate protected areas are recommended to be evaluated for HCV, but do not necessarily qualify. Two countries (Bolivia and Ecuador) cross-walked their protected areas definitions with IUCN Protected Areas Categories I-VI; going forward, this practice could support a more globally consistent definition of protected areas that qualify as HCV.

Quantitative thresholds for defining HCV: examples include different levels of steepness for defining erosion prone areas (>25 degree slope in Malaysia, >50 degree slope in Ecuador, or based on the Revised Universal Soil Loss Equation (RUSLE) formula (Indonesia), different buffer widths around water catchments (either fixed widths, such as 50m in Papua New Guinea, or relative to stream size, such as two times the width of the waterway in Ecuador), and different numbers of generations for a

community use area that is considered "traditional" (three generations in Bolivia, two generations in Malaysia, five years in Mozambique.) For basic needs of local communities met by forests (HCV 5), different countries stated different thresholds for what should be considered "critical." The threshold was at least 50% of basic needs met by forests in Indonesia, Papua New Guinea, Malaysia, and Romania. In Vietnam the threshold varied by type of resource: e.g. 100% of fuel resources or more than 30% of food resources.

Minimum qualifying area: The most striking example is differences in the minimum area that qualifies as HCV 2 (large intact ecosystems). The global HCV toolkit (Jennings et al. 2003) recommends a minimum size of 50,000 ha. National guidance ranged from 10,000 ha in Romania to 500,000 ha in mainland Papua New Guinea. In Ghana, no examples of forested areas 50,000 ha or larger exist, and so the guidance states that there are no instances of HCV 2 in the country. In contrast, in Gabon it was decided that no examples of HCV 2 exist because the forest is still virtually unfragmented, is relatively well protected in the National Park system, and logging is not considered a threat. In Canada, different quantitative measures are used to define HCV 2, based on the density of permanent infrastructure (<0.05 km/km2), non-permanent disturbance (<5%), and proportion of watershed area that consists of late seral stage forest (>30% for eastern boreal forests.) If those criteria are not met, however, a "best of the rest" approach is applied with relaxed thresholds. Guidance from Papua New Guinea also states that if any forest type has been reduced by 50% or more, then remaining examples are considered HCV 2. The forest context varies significantly across countries; however, therefore it may be appropriate for definitions of HCV2 to be tailored to the local context.

Management recommendations: Guidance in Ghana does not include management recommendations for protected areas, as such areas are "already set aside from logging and other forms of disturbance." Guidance from other countries (such as Bulgaria and Indonesia) recommend ensuring compliance with protected areas regulations or considering impacts of proposed management activities on nearby protected areas. For endangered species (HCV 1.2), and ecosystems (HCV 3), guidance from some countries (such as Indonesia) recommended strict protection while guidance from other countries (such as Vietnam) provided a more flexible set of options, including reduced impact logging.

Treatment of forest types: Guidance from different countries also treats primary forest, secondary forest, and plantations differently. Some countries allow secondary forest and even plantations to be considered as HCV, while others exclude it. In Romania, secondary forests are considered HCV if they contain trees over a certain size or have other defined characteristics. In Canada, certain characteristics such as late seral stage forest are included in the definition of HCV.

The biological and social context varies significantly from country to country, however, and we do not mean to imply that all countries should use the exact same criteria. It is likely appropriate that the minimum size for a large intact forest be different in Ghana, which has relatively less forest cover, and in Bolivia, which retains a significant amount of forest. The intention of the global HCV toolkit was that HCV guidelines be developed independently for different countries. Nonetheless, it may be worthwhile reviewing national guidance to increase consistency and reduce duplication of effort whenever possible.

Best Practices for HCV 5 and 6

Guidance for identifying biodiversity values (HCV 1-3) and ecosystem services such as flood prevention and erosion control (HCV 4) has been relatively well defined in most national HCV toolkits. However, guidance for HCV 5 (areas fundamental to meeting basic needs of local communities) and HCV 6 (areas critical to local communities' traditional cultural identity) is often limited . This is despite recognition that socioeconomic and cultural values are critically important and are sometimes missing from national legislation governing forest land use (Ioras et al. 2009). Therefore we will briefly touch on a few best practices and examples of guidance for HCV 5 and 6.

The primary issues in determining the presence of HCV 5 and 6 include identification (i.e. locating areas that are fundamental to meeting basic needs or critical to cultural identity), defining thresholds (e.g. determining what qualifies as "fundamental" or "critical,") and assessing the availability of alternatives. Best practices for assessing HCV 5 and HCV 6 include:

- **Consultation with local communities.** Guidance from eighteen countries and the global HCV toolkit (Jennings et al. 2003) agree that consultation with local communities (including local leaders or representatives of community or indigenous groups, faith groups or cultural leaders, individual community members, and social or cultural experts) is absolutely essential for defining basic needs and cultural values. Groups that should be considered include: peoples in voluntary isolation, indigenous peoples, self-governing local communities, and economically disadvantaged groups that make their living from the forest. Consultation can consist of one-on-one interviews, focus groups, household surveys, participatory mapping, or other methods. Consultation should occur at several steps in the assessment: in the initial identification of potential HCV 5 and 6 areas, validation and vetting of final HCV areas, and decision making related to how those areas should be managed and monitored over time, as those decisions will directly impact local communities.

- **Sustainable use.** Guidance from multiple countries (e.g. Indonesia, Ghana, and Bulgaria) and the global HCV toolkit indicates that if an area is being managed unsustainably (e.g. overfished) then it is not an HCV 5 or 6 area, even if it is fundamental to meeting basic needs or has critical cultural values. Assessing the level of use of an area relative to what can be sustainably maintained over time is therefore an essential step in assessing HCV 5 and 6.

- **Evaluation of alternatives.** Guidance from multiple countries (e.g. Indonesia, Ghana, Bulgaria, Malaysia) and the global toolkit require evaluation of alternatives to forests for meeting a community's basic needs, such as markets or government assistance. Alternatives must be accessible, affordable, acceptable, and available year-round.

- **Respect.** Guidance from several countries includes recommendations for working respectfully with local communities. These include:

- **Preparing adequately** for HCV assessments, including providing the community with adequate lead time prior to meetings and clearly communicating the objectives of the HCV assessment (e.g. Papua New Guinea).

- Involvement of a neutral facilitator in discussions about basic needs and cultural identity. Guidance from Malaysia states "It is recommended that a credible, neutral independent party be present during consultations." Guidance from Indonesia states that facilitators "should preferably have experience in Participatory Rural Appraisal (PRA), speak the local language, and be accepted by local communities."

- **Respecting sensitive or secret information.** Guidance from several countries notes that information about cultural values, in particular, may be sensitive or secret. Guidance from Bolivia states that in such cases, the consultation will have to resort to mechanisms to achieve a voluntary decision of the community to make this information public or to respect and include mechanisms for preserving the cultural values. Guidance from Papua New Guinea states that the facilitator should clarify that secret information or knowledge that is not to be shared with outsiders could still be generally indicated to ensure it is included as HCV.

- **Conflict resolution.** Guidance from a number of countries (including Papua New Guinea, Bolivia, and Indonesia) mentions that conflicts over resource access and use are likely to arise in HCV assessments. Guidance from Indonesia recommends consultative assessment of HCV 5 and 6 as a means for addressing conflict: "In many examples of natural resource management in Indonesia, direct impacts on sources of basic needs for local people are often disregarded. This issue leads to unavoidable conflict between company and community interests. Learning from previous conflicts of this nature, it is extremely important that HCV 5 areas critical for the provision of basic needs of local communities be identified and managed." The guidance states that great care will be needed if a forest manager intends to convert an area critical for meeting basic needs where few alternatives are available; it therefore recommends that the forest manager communicate and consult intensively with local communities and other relevant stakeholders, and states that if agreement cannot be reached, conversion may not be allowed without destruction of HCV 5. Guidance from Malaysia refers to a resource, "Conflict Resolution Guidelines for Sustainable Forest Management" by WWF and the Sarawak Forestry Corporation, however we were unable to track down a copy of the guidelines for this review.

The Indonesia HCV toolkit provides the most comprehensive, rigorous and systematic guidance for assessing HCV 5 and 6. It includes step-by-step guidance on identifying and characterizing key community groups, consultation methods, quantitative thresholds for assessing whether or not resources are "critical" or "fundamental," sample data sheets for collecting the information, and methods for interpreting and applying the resulting information into maps and management guidelines. As mentioned above, guidance from two other countries (Malaysia and Vietnam) was borrowed directly from Indonesia. We recommend that other countries consider adopting or adapting Indonesia's guidance to their own contexts.

Other Best Practices

In addition to the best practices listed above, there were a number of good practices that might be considered for future national HCV guidance. These include:

- Defining key terms. Guidance from a number of countries (including Indonesia, Cameroon, Canada, and the US) provided definitions for terms such as "ecosystem" and "precautionary approach."

- Providing background context on the country including the status of its forest or other high conservation values relative to other countries. For example, Ghana has no forests over 50,000 ha left while Gabon's forests are virtually unfragmented; and in Bulgaria, very few local communities lack alternatives to forests for meeting their basic needs, while this is not the case in many other countries.

- Recommending or requiring involvement of biological or social science experts in HCV assessment is included in guidance from Indonesia, China, Ghana, Mozambique, Papua New Guinea, and other countries.

- Minimum standards for data resolution, how up-to-date data must be, and gaps in data that require new data collection (HCV Resource Network 2010). For example, guidance from Indonesia for assessing HCV 2 states that data layers must be "mapped at a scale of at least 1:1,000,000 (preferably 1:500,000 or better)" and current vegetation cover must be mapped using "satellite images no older than 12 months; in areas where forest cover changes more quickly, images should be no older than 6 months."

- Providing recommendations for assessing HCV in low data environments. The quality and availability of data varies significantly from place to place. If data are poor or of dubious quality, guidance from Canada recommends relaxing HCV thresholds to ensure that areas with potential HCVs are included, consistent with the precautionary approach.

- Providing a summary of the guidance with key steps or high-level recommendations for each of the six HCV categories (Bolivia) or a list summarizing all the data sources, types of information, or data collection required for conducting a complete HCV assessment (China, Indonesia).

- Professional translation into English, and ideally other languages, to facilitate sharing and broad review/uptake. Guidance from five countries (Chile, Ecuador, Gabon, Bolivia, and Slovakia) is not yet available in English. The Cameroon toolkit was translated from French to English but some sections are not clearly translated.

- Guidance for addressing conflict and mechanisms for conflict resolution (Indonesia, Bulgaria, Malaysia). There may be disputes related to land tenure and resource use rights, between multiple user groups that are dependent on the same areas for meeting their basic needs, or between the forest manager and local communities. For example, guidance for Malaysia refers

to Conflict Resolution Guidelines for Sustainable Forest Management (WWF, Sarawak Forestry Corporation 2010) and also recommends that a "credible, neutral independent party be present during consultations" with local communities.

- HCV reports and data should be shared, HCV assessments should be submitted for peer review to the HCV Resource Network; relevant data should be fed back to national partners, the BirdLife partner network, and UNEP-WCMC (World Conservation Monitoring Centre) who are custodians of the World Database on Protected Areas (WDPA), as well as the IUCN Red List of Threatened Species to feed the Integrated Biodiversity Assessment Tool (IBAT) system.

Additional recommendations from the HCV Resource Network guidance for peer reviews (2010) include:

- Free, Prior and Informed Consent (FPIC): FPIC was not mentioned in any of the guidance included in this review, but is part of the HCV peer review guidelines.

- Documentation of decisions related to HCV determination and delineation.

- Addressing uncertainty due to data availability, quality, and future projections (such as climate change and future threats).

- Guidance for addressing non-HCV areas.

- Guidance for addressing conversion of natural ecosystems.

Conclusions & Recommendations

First, we wish to recognize the tremendous effort and resources that have gone into completing HCV guidance in many countries. Many of the toolkits we reviewed provide detailed guidance for conducting HCV assessments, including identifying sources of data, providing lists of species and ecosystems, and even providing examples and maps. We also recognize the challenge of defining consistent criteria for HCV that is appropriate for a range of countries and contexts. Our interest is in reviewing existing guidance for best practices and existing or potential areas of consistency, but we recognize the need for flexibility and pragmatic approaches. In particular, we hope that these examples will be useful in countries or sectors that are developing HCV guidance for the first time.

Our review suggests that certain improvements can be made. We recommend revisiting existing toolkits and developing new guidance in light of the best practices outlined above. In particular: add guidelines for any currently missing HCV values, especially HCV 5 and 6. Revisit areas of inconsistency (e.g. treatment of protected areas, area requirements for large intact ecosystems, and treatment of primary/secondary forest and plantations) to ensure that different standards are appropriate given the local context rather than simply a byproduct of diverse processes. As stated above, however, some differences in guidance across countries are likely to be appropriate. It may make sense for the minimum area for HCV 2 to be different in Romania than it is in Papua New Guinea, for example, as the area required to maintain viable populations of naturally-occurring species is different from place to place.

The lack of quantitative criteria in many toolkits is striking, but likely reflects the challenge of setting thresholds in the context of uncertainty. As the body of existing HCV assessments grows, it may get easier for country guidance to include more "mappable" criteria (either qualitative or quantitative), describe detailed mapping methods, and provide examples from past experience. In Gabon, for example, the Wildlife Conservation Society (WCS), WWF, and Conservation International (CI) are engaged in a project to test the implications of different threshold-setting approaches for large mammals and endemic plants by representing different thresholds on maps and allowing stakeholders to define the levels that seem appropriate in the national context (T. Rayden, WCS, personal communication.)

We also recommend that the Global HCV toolkit be updated to reflect best practices, deriving lessons learned and examples from existing national toolkits, and seeking opportunities for defining more specific, consistent global standards, while still leaving an appropriate level of flexibility to reflect variable conditions across countries. There is currently an effort underway by FSC in partnership with the HCV Resource Network to develop common guidance for the interpretation and identification of HCV across all sectors (C. Stewart, personal communication).

We recommend requiring peer review of HCV assessments following the guidelines of the HCV Resource Network. We also recommend independent, regular auditing or monitoring of identified HCV areas, either as part of certification or as a separate process.

We also recommend revisiting the global toolkit and referring to datasets that are globally applicable, such as the Integrated Biodiversity Assessment Tool (IBAT) which integrates global datasets including the World Database of Protected Areas, Key Biodiversity Areas, the IUCN Red List of Threatened Species, and other datasets such as Biodiversity Hotspots, Endemic Bird Areas, Alliance for Zero Extinction (AZE) sites, High Biodiversity Wilderness Areas, data on populated areas, national and sub-national boundaries and topography. Globally consistent systems for classifying and assessing threat status of ecosystems are currently under development by IUCN (Rodríguez et al. 2011). There are existing global datasets that can be used for assessing forest cover, hydrology and erosion potential in a consistent way (such as NASA Landsat satellite imagery and SRTM digital elevation models). Lastly, consider incorporation of other international standards into the global HCV toolkit, such as IFC Performance Standard 6, FAO Code of Good Forestry, and WWF's Global 200 ecoregions.

Lastly, there is a need for guidance for assessing HCV in non-forest contexts. The HCV network website includes an example of an assessment of "valuable grassland areas" (VGAs) as well as an example of a marine HCV assessment in Southern Chile. The grassland assessment included both biological and cultural values, while the marine assessment focuses only on ecological values; socioeconomic and cultural values were intended to be addressed in a later iteration.

Significant progress has been made both in terms of interpretation and implementation of the HCV concept. We hope to build on the lessons from existing national HCV interpretations, by revisiting or developing new national guidance and refining global guidance to address the full suite of HCV values, incorporate peer review, and align with international standards. This will support the application of the HCV concept within and beyond the forest boundary, ultimately ensuring that critical and outstanding natural and cultural values are sustained.

Limitations of this Study

This review is based on existing written guidance available on the HCV Resource website. If additional guidance exists but is not on the website then it was omitted from the review. The existing guidance is in varying formats and states of completion for different countries—therefore it's not really "fair" to hold a workshop report from Chile to the same standards as a complete, revised toolkit from Indonesia. Highlighting potential areas for improvement in the current guidance is a key objective of this analysis, however; therefore the available guidance from all nineteen countries was included, regardless of the level of completeness.

When English language versions of the guidance were available, they were included in the review; those not available in English were first translated using Google Translate. When possible, French or Spanish language guidance was reviewed in the original language to ensure accuracy of translation. In some cases the translations were poor, however, and some details might have been interpreted incorrectly. We welcome any suggested revisions or corrections from HCV experts in the relevant countries.

The review is based on the content of the guidance only; if the guidance didn't explicitly refer to one of the best practices then it was marked as a blank on the summary table. In some cases the assessment of whether guidance met a certain best practice was subjective. For example, if guidance made no reference to the lands surrounding an HCV assessment area, it received a blank for "landscape context" in the summary table. If the guidance referred to the surrounding landscape but did not provide explicit guidance for assessing landscape context, it received a small "x" (indicating limited guidance). If the guidance explicitly described incorporating the landscape context into HCV assessment it received a large "X" (indicating comprehensive guidance).

Most of the guidance refers to forests, so in many cases the language in the review refers to forests and terrestrial HCVs, but we recognize past efforts and ongoing needs to develop additional HCV guidance for non-forest systems.

Only four best practices (alignment with international standards, peer review, landscape context, and land tenure/use rights) were pre-defined—the rest were derived from existing toolkits. In other words, most of the best practices were not defined independent of the toolkits. This was addressed in part by seeking input from HCV experts, comparing the best practices to existing general guidelines for HCV assessments, and reviewing the published literature on HCV.

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Appendix

Table A-1. Summary of National HCV Toolkits Adherence to 28 Best Practices

Country	Boli	Bulg	Cam*	Can+	Chile*	China*	Ecuad	Gab*	Ghana	Indon	Malay	Moz*	PNG	Pol*	Rom	Russ	Slova	US*	Viet	TOTAL
All HCV categories	X	X	X	X			X	X	X	X	X	x	X	X	X	X	X	X	X	16
Toolkit revised		X								X	X		X			X			X	6
Precautionary principle	X	X		X		X			x	x	X	x	x	x	x	X	X		X	14
Stakeholder consultation	x	X		X	x	X	X	X	x	X	X	X	X	x	X	X	X	x	x	18
Adaptive management			x	x		x					x				x	X	x		x	8
International standards**	X	X	X	X	x	x	X	X	X	X	X	x	X	x	x	X	X		x	17
National laws**	X	X		X		X	x	X	X	X	x	x	x	x	X	X	X		x	16
Land tenure/use rights**	x		x	X				x		X		X	x	x		X		x		10
'Mappable' criteria	x	X		X			x		x	X	x	x	x	x	x	x	X	x		13
Mapping methods	x	X		X						X			x							5
Maps created	X	x		X		x	x			x	x								X	8
Quantitative thresholds	x	X		X			x		x	X	x		X		X	x	X	x	x	13
Species lists	X	X		x			X	X	X	X	X	x	X		X		X	x	X	13
Ecosystems list	X	X	x	x			X	x	X	x	X	x	X		x		X		X	14
Sources of data	X	X		X		x	X	X	X	X	X		X		X	X	X	X	X	15

Country	Boli	Bulg	Cam*	Can+	Chile*	China*	Ecuad	Gab*	Ghana	Indon	Malay	Moz*	PNG	Pol*	Rom	Russ	Slova	US*	Viet	TOTAL
Landscape context	x	**X**		x		x				**X**	x	x				x		x	x	10
Overlapping values				**X**							x		x							3
Field survey methods					x	x				**X**										3
Basic needs methods	**X**	**X**		x	x	x	**X**	**X**	x	**X**	**X**		**X**		**X**				**X**	12
Sample data sheets		**X**			x		x			**X**	x		x		x				x	8
Threat assessment	x	x	**X**	**X**		x			x	**X**		x					x		x	10
Low/poor data				**X**			x	x	x	x			**X**				x	x	x	9
Literature cited	**X**			**X**	x		x	x	x	x	x		x			**X**	x			10
Prelim / full assessments		**X**					**X**			x	x				**X**	**X**	**X**			6
Examples	**X**			**X**	x	**X**	**X**	**X**		**X**	x					**X**	x	x	x	11
Peer review				**X**						**X**		x	x							4
Management resources	**X**	**X**	**X**	**X**	x	x	**X**	**X**	**X**	**X**	**X**	**X**	**X**	x	**X**	**X**	**X**	x	**X**	17
Monitoring resources	**X**	**X**	**X**	**X**	x	x	x	x	x	x	x	x	x	x	x	**X**	**X**	x	x	15
TOTAL	20	20	8	24	8	13	18	12	15	25	22	12	21	6	16	16	18	9	20	-

Note: X = Complete or comprehensive guidance, guidance for multiple HCV categories

x = Limited or draft guidance, or guidance for only selected HCV categories

* Only draft or incomplete guidance currently available, such as workshop reports

**Best practices already included in certification standards such as FSC; these are less important to include in HCV guidance unless outside the context of certification

+ Guidance from two HCV guidance documents were combined for Canada.