THE IUCN GREEN LIST OF PROTECTED AND CONSERVED AREAS: SETTING THE STANDARD FOR EFFECTIVE AREA-BASED CONSERVATION

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ABSTRACT

The IUCN Green List of Protected and Conserved Areas is the first global sustainability standard describing best practice for area-based conservation. The standard is organised around four components — Good Governance, Sound Design and Planning, Effective Management and Successful Conservation Outcomes — subdivided into 17 criteria and 50 indicators. IUCN manages a 'Green List' of protected and conserved areas through a certification process that examines evidence assembled by site managers against each of the criteria and indicators. The assessment of evidence is carried out by an independent group of experts in the governance and management of protected and conserved areas, overseen by an independent reviewer to ensure that proper processes and appropriate evidence are used in the assessment. The objective of the IUCN Green List programme is to increase the number of protected and conserved areas around the world that deliver successful conservation outcomes through good governance, sound design and effective and equitable management. The IUCN Green List programme is currently operating in 40 countries and by August 2019, 46 sites in 14 countries had been awarded the Green List status. There are a further 400+ protected and conserved areas engaged in the process. The challenge remains to scale up the Green List programme to the point where it is truly global in operation and able to provide both a stimulus and a metric for effective conservation.

Key words: IUCN Green List, protected areas, conserved areas, standards, successful conservation, certification

INTRODUCTION

Protected and conserved areas are recognised as one of the most effective measures for conserving biodiversity on land and sea. To ensure biodiversity outcomes in protected and conserved areas, it is essential they are governed and managed effectively. While the extent of protected and conserved areas has increased substantially over recent years, a global assessment has shown that weak governance and ineffective management are contributing to poor conservation outcomes in many protected areas (Leverington et al., 2010; Watson et al., 2014; Barnes et al., 2016; Gill et al., 2017; Geldmann et al., 2018).

Guidelines on assessing management effectiveness have been developed and widely applied around the world

(Hockings et al., 2000; Coad et al., 2015) as a means to encourage more effective and adaptive management. However, the lack of a globally accepted standard for 'good' governance and management of protected areas meant that assessors were often unsure exactly what expectations they were measuring against. In addition, it is recognised that governance and management activities do not always guarantee effective outcomes, due to confounding external factors, including climate change and habitat fragmentation. Recognising these gaps, the IUCN and its World Commission on Protected Areas (WCPA) have been working to develop such a standard to guide managers and as the basis for a certification programme that considers both management and outcomes – the IUCN Green List of Protected and Conserved Areas (the IUCN Green List).

The fifteenth meeting of the Conference of Parties to the Convention on Biological Diversity (CBD), to be held in China in late 2020, will set new targets for the conservation of biodiversity. The nature and content of these targets is currently being debated around the world (Mace et al., 2018). It is likely the targets will call for ambitious expansion of the global system of protected and conserved areas to secure the most important areas for biodiversity conservation (Dinerstein et al., 2019). This strategy will only be successful if these areas are well governed and managed and deliver positive outcomes for biodiversity and for society.

THE IUCN GREEN LIST OF PROTECTED AND CONSERVED AREAS
History and Development

The IUCN Green List builds on many years of work by IUCN in developing and promoting systems for assessing management effectiveness of protected areas. Early work on developing a standard for protected area management was undertaken at the IUCN World Parks Congress in Durban in 2003 (Hockings et al., 2004) and options including certification were canvassed (Dudley et al., 2004). However, reflecting the divergent views that were evident amongst governments and NGOs (Hockings et al., 2004), it was not until 2008 that sufficient support for the development of a standard and certification system was evident and WCPA commenced a pilot programme to examine the idea in detail. Developments in biodiversity policy including the decision of the CBD to include "other effective area-based conservation measures" in Aichi Biodiversity Target 11 in 2010 (Laffoley et al., 2017; Jonas et al., 2018) had emphasised the need to ensure any standard was applicable to both protected and conserved areas. Early work on developing a protected area standard at the end of the decade was reflected in a resolution of the

IUCN World Conservation Congress 2012 in Jeju, Korea, calling on IUCN to develop a Green List of species, ecosystems and protected areas. This paper details work on the protected area component of this programme while other areas of IUCN are working to develop Green List approaches in relation to species and ecosystems (see for example Akçakaya et al. 2018).

The WCPA and IUCN's Global Protected Areas Programme convened a global development and consultation process to develop and test a new IUCN Green List Standard for protected areas (the Standard) and an associated process for certification. A pilot phase was undertaken with results presented at the IUCN World Parks Congress 2014 in Sydney. Pilot studies were conducted in eight countries (Australia, China, Colombia, France, Italy, Kenya, Republic of Korea and Spain) leading to 25 protected and conserved areas receiving a provisional 'Green List' certificate for their achievements.

While the essential structure and process for the Green List established during the pilot phase remains the same, significant changes were made to the detail of criteria that form the Standard, the associated indicators and means of verification, drawing on the lessons from the pilot studies. A mandatory requirement for a site visit and stakeholder and public consultation was also added. The revisions of the Green List Standard were

Delacour's langur (*Trachypithecus delacouri*) in Van Long Nature Reserve, Vietnam; a Green List candidate site © Le Khac Quyet

made by a Standards Committee composed of eleven people from nine countries with diverse experience covering both the physical and social sciences and management of protected areas. Following on from the pilot programme, the development of the Standard has been carried out in conformance with the ISEAL Standard-Setting Codes of Good Practice (ISEAL Alliance, 2014). The draft Standard was made available online for public comment with specific input sought from participating jurisdictions in the pilot phase and IUCN Commission members as well as civil society. The revised Standard was further discussed at the IUCN World Conservation Congress 2016 and approved by the IUCN Council in 2017. The current version (Version 1.1) will be presented at the IUCN World Conservation Congress in 2020 and will then be scheduled for review in 2024, and again following every quadrennial programme of IUCN. This will ensure that the Standard remains robust and relevant to current issues in protected and conserved area management.

IUCN Green List programme objective

The objective of the Green List programme is to increase the number of protected and conserved areas that deliver successful conservation outcomes through good governance, sound design and effective and equitable management. The intent is to use the Standard across all regions and countries of the world, on land and in the sea. In order to do this, the Standard has been designed to be both universal but also adaptable to countries and jurisdictions without compromising quality and sufficiently rigorous to

ensure sites demonstrate the achievement of conservation objectives. It is designed to be globally applicable and inclusive – not only for the most well-resourced areas or sites in the world.

THE IUCN GREEN LIST STANDARD

The four components of the Green List Standard are **Good Governance**, **Sound Design and Planning**, and **Effective Management**, which work together to lead to **Successful Conservation Outcomes**. These components contain a set of 17 criteria (Figure 1), further subdivided into 50 generic indicators with associated means of verification (Appendix 1 Supplementary Online Material).

While these components and criteria are designed to be universal and therefore applicable to all protected and conserved areas, their expression and assessment will be context-dependent. Therefore the Green List process provides for adaptation of the indicators and the recommended means of verification for each jurisdiction (a jurisdiction is a locality, country, region or other geographic area that engages as one entity with the Green List programme). Any adaptations have to be approved by the Green List Standards Committee to ensure that a common global standard of performance is maintained.

Setting and meeting thresholds of success

In establishing criteria, the Standards Committee recognised that many sites would most likely have to

Good Governance
1.1 Guarantee Legitimacy and Voice
1.2 Achieve Transparency and Accountability
1.3 Enable Governance Vitality and Capacity to Respond Adaptively

Sound Design and Planning
2.1 Identify and Understand Major Site Values
2.2 Design for Long-Term Conservation of Major Site Values
2.3 Understand Threats and Challenges to Major Site Values
2.4 Understand Social and Economic Context

Effective Management
3.1 Develop and Implement a Long Term Management Strategy
3.2 Manage Ecological Condition
3.3 Manage Within Social and Economic Context of the Area
3.4 Manage Threats
3.5 Effectively and Fairly Enforce Laws and Regulations
3.6 Manage Access Resources Use and Visitation
3.7 Measure Success

Create

Successful Conservation Outcomes
4.1 Demonstrate Conservation of Major Natural Values
4.2 Demonstrate Conservation of Major Associated Ecosystem Services
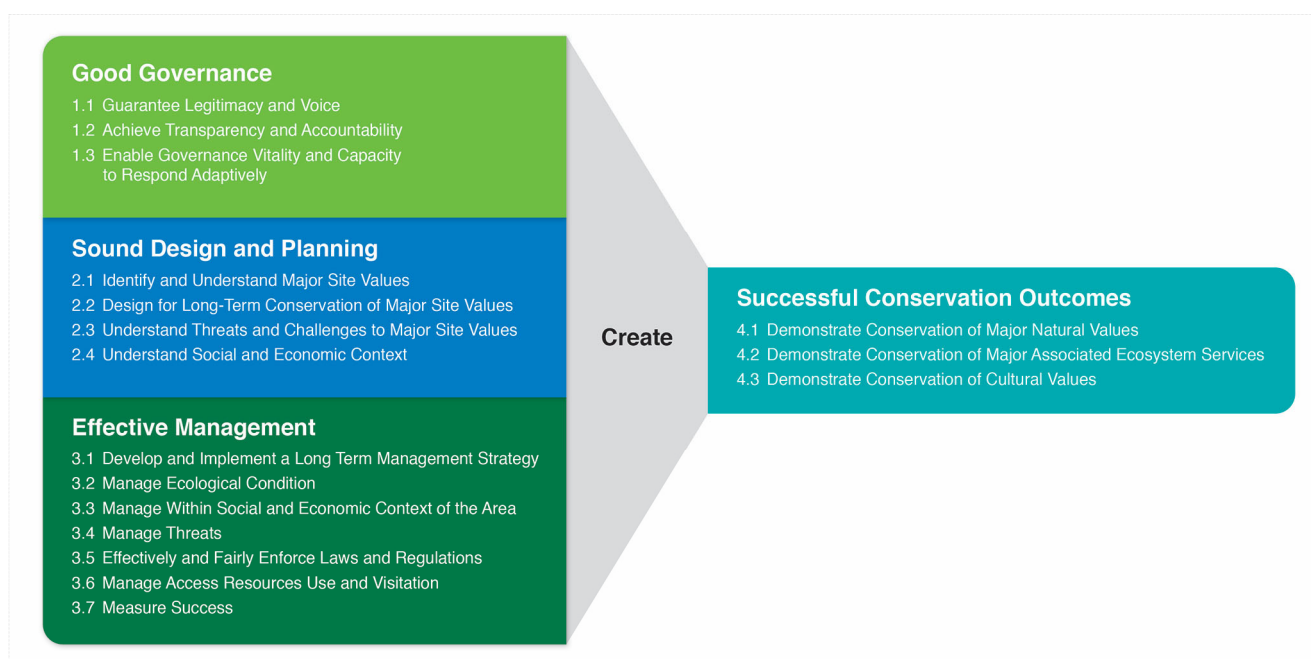4.3 Demonstrate Conservation of Cultural Values

Figure 1. The IUCN Green List Standard components and criteria

implement new initiatives and management processes to meet the Green List Standard. Criterion 3.7 requires that sites have set explicit ecological thresholds that represent success in conservation of their major values. While many protected and conserved areas around the world are monitoring the condition of their major values, only a very small proportion has taken the additional step of setting thresholds for the condition of these values that represent successful outcomes for the conservation of these values. This is a critical element of the Standard.

THE IUCN GREEN LIST PROCESS

The Green List process, governance and other key information is provided in the Green List User Manual (https://www.iucn.org/theme/protected-areas/our-work/iucn-green-list-protected-and-conserved-areas/user-manual). This manual guides the operation of all participants in the Green List process and specifies the

governance structures of the Green List programme: a Green List Committee, Management Committee, Standards Committee and Operations Team (Figure 2).

Formation and operation of the Expert Assessment Group for the IUCN Green List

While the IUCN Green List Standard is designed and managed globally by IUCN, the main activities of the Green List process are implemented regionally or nationally for specific jurisdictions. At the heart of this implementation system, a series of expert groups, together with the managers of sites nominating for the Green List, provide the working mechanisms for the listing process. The Expert Assessment Groups for the Green List (EAGLs) are composed of experts in protected area management who volunteer their time to support the programme at national or regional level. Members of the EAGL are selected by the relevant Regional Vice-Chair of the WCPA from applicants who

Dr Amy Harris studying Gould's Petrel (*Pterodroma leucoptera*) on Montague Island Nature Reserve, a Green List site in New South Wales, Australia © Justin Gilligan

Figure 2. Governance structures for the IUCN Green List

respond to an open call for the position. The Regional Vice-Chair is assisted by an independent reviewer who advises on the selection process. The composition of the EAGL aims to provide gender and disciplinary balance and to ensure that all members are appropriately experienced (minimum of 10 years' relevant experience, except for a young professional member requiring only 5 years of experience).

The first job of the EAGL is to adapt the global Green List indicators and means of verification to the context of the jurisdiction (see Figure 3 for an overview of the Green List process). Any suggested adaptations are then referred to the Standards Committee for ratification.

The adapted Green List Standard is then used by the managers of protected areas participating in the Green List process. Applicants must prepare evidence for five basic indicators to become a Candidate Site. They then prepare evidence for all remaining indicators to show how their site/s comply with the Standard. The nature of evidence needed to show compliance with the indicators is guided by exemplars (means of verification) developed by the Green List programme and in discussion with the EAGL for the jurisdiction. This evidence, with supporting documentation, is then uploaded onto the web-based portal used to manage information and communications for the Green List.

Stakeholder consultation and involvement

Sites participating in the Green List are required to undertake targeted consultation with key rightsholders and stakeholders. Methods for consultation proposed by the site managers are considered and approved by both the EAGL and the independent reviewer to ensure regionally and stakeholder-relevant consultation processes are used. These consultations may include hosting the information on a website, presentations to

relevant committees of stakeholder representatives or meetings with relevant groups or individuals.

Site visit

At least one member of the EAGL must visit the site to assess the operations and performance of the protected area, speak with staff, and view information not available electronically. The site visit provides an opportunity to meet with rightsholders and stakeholders.

Assessment of nominations

Once the site has provided evidence of compliance against all criteria and indicators and the EAGL has conducted a site visit and public consultation, the EAGL members meet to consider the application. Managers from the sites being considered may also be present for part of the meeting so that they can clarify any of the evidence presented in support of the application. The meeting is also attended (in person or remotely) by the independent reviewer, whose role is to ensure that proper processes are followed and appropriate consideration is given to the evidence. The EAGL can either recommend the site for addition to the Green List or indicate to the site managers where they think additional work is needed to meet the Standard. EAGL recommendations are then conveyed, together with a summary of site compliance and the report of the independent reviewer, to the international Green List Committee which takes the final decision on admitting the site to the Green List.

Review and re-listing

Sites are placed on the Green List for a period of five years with a mid-term 'spot-check' review and a full re-listing including a site visit to be conducted at the end of the period. There is also a mechanism for stakeholders or the public to raise an alert if they feel that a site on the Green List has suffered from a material change in management effectiveness or in outcomes that would impact on the appropriateness of the site being on the list. The EAGL then examines the information provided and can recommend a variety of responses including remedial action or removal of the site from the list.

THE IUCN GREEN LIST AND SCALING-UP

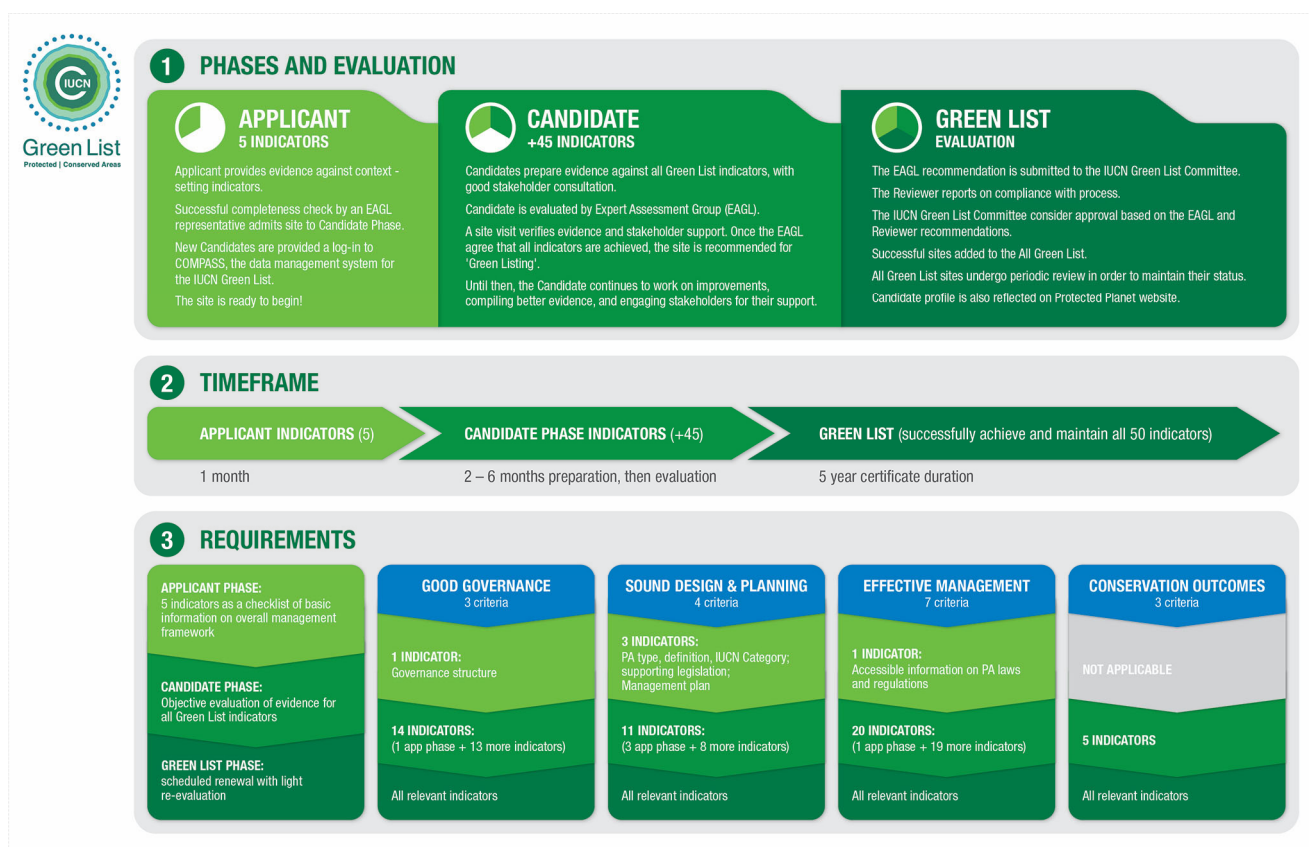The aim is to scale up the Green List so that it can function as the global benchmark against which

Figure 3. Overview of the IUCN Green List process

Lebanese cedar (*Cedrus libani*) in Al Shouf Nature Reserve; the first IUCN Green List site in Lebanon. This tree is estimated to be over 3000 years old © Marc Hockings

protected and conserved areas can be measured and to establish a baseline for what is an accepted and expected standard for protected and conserved areas.

The Green List Standard of four components and 17 criteria with their associated 50 indicators stand on their own outside the certification system. They represent what we understand to be the conditions required to contribute to successful biodiversity outcomes in protected and conserved areas. These concepts are useful in their own right. Protected areas managers, planners, educators and scientists can use these concepts for a variety of purposes outside a formal certification process.

The IUCN Green List programme is currently operating in 40 countries with more applying to join as capacity to manage applications permits. More than 400 protected or conserved areas are currently participating in the programme. By April 2019, 46 sites in 14 countries had been awarded the Green List status. The challenge remains to scale up the Green List programme to the point where it is truly global in operation and able to provide both a stimulus and a metric for effective conservation. A broadly similar and compatible standard has been developed and is being applied for tiger reserves in Asia (Pasha et al., 2018) with the aim of ensuring effective, long-term conservation of tigers.

While the Green List is voluntary and may not engage all the protected areas in a jurisdiction, the Green List Standard can help guide the management of all nature conservation areas. For example, Mexico has already indicated its intention to use the Standard in this way. It will apply for Green List status for its most important reserves and use the Green List Standard as a guide for all protected areas. It will assess sites against this Standard through internal management effectiveness

evaluations on a regular basis (Ignacio March, pers. comm. August, 2019). Colombia is using the components, criteria and indicators to define thresholds for protected area success to mobilise long-term financial sustainability of its National System of Protected Areas.

When the CBD sets new targets for conservation of biodiversity at the 15th Conference of the Parties to the Convention in October 2020, one of these targets is likely to be a successor to the current Aichi Target 11 on protected areas and other effective area-based conservation measures. Just as Target 11 specifies that these sites need to be effectively and equitably managed, the new target is likely to be as strong or even stronger in focusing on the quality of protected and conserved areas. The IUCN Green List provides an ambitious programme and metric to promote and measure this quality.

SUPPLEMENTARY ONLINE MATERIAL
Appendix 1 IUCN Green List Standard with generic indicators and associated means of verification.

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REFERENCES
Akçakaya, H. R., Bennett, E. L., Brooks, T. M., Grace, M. K., Heath, A., Hedges, S., . . . Young, R. P. (2018). Quantifying species recovery and conservation success to develop an IUCN Green List of Species. *Conservation Biology, 32*(5), 1128-1138. doi:10.1111/cobi.13112

Barnes, M. D., Craigie, I. D., Harrison, L. B., Geldmann, J., Collen, B., Whitmee, S., . . . Hockings, M. (2016). Wildlife population trends in protected areas predicted by national socio-economic metrics and body size. *Nature Communications, 7*, 12747.

Coad, L., Leverington, F., Knights, K., Geldmann, J., Eassom, A., Kapos, V., . . . Hockings, M. (2015). Measuring impact of protected area management interventions: current and future

use of the Global Database of Protected Area Management Effectiveness. *Philosophical Transactions of the Royal Society of London B: Biological Sciences, 370*(1681). doi:10.1098/rstb.2014.0281

Dinerstein, E., Vynne, C., Sala, E., Joshi, A. R., Fernando, S., Lovejoy, T. E., . . . Wikramanayake, E. (2019). A Global Deal For Nature: Guiding principles, milestones, and targets. *Science Advances, 5*(4), eaaw2869. doi:10.1126/sciadv.aaw2869

Dudley, N., Hockings, M., & Stolton, S. (2004). Options for guaranteeing the effective management of the world's protected areas. *Journal of Environmental Policy and Planning, 6*(2), 131-142.

Geldmann, J., Coad, L., Barnes, M. D., Craigie, I. D., Woodley, S., Balmford, A., . . . Burgess, N. D. (2018). A global analysis of management capacity and ecological outcomes in terrestrial protected areas. *Conservation Letters, 11*(3), e12434. doi:10.1111/conl.12434

Gill, D. A., Mascia, M. B., Ahmadia, G. N., Glew, L., Lester, S. E., Barnes, M., . . . Fox, H. E. (2017). Capacity shortfalls hinder the performance of marine protected areas globally. *Nature, 543*, 665. doi:10.1038/nature21708

Hockings, M., Ervin, J., & Vincent, G. (2004). Assessing the management of protected areas: the work of the World Parks Congress before and after Durban. *Journal of International Wildlife Law and Policy, 7*(2), 1-12.

Hockings, M., Stolton, S., & Dudley, N. (2000). *Evaluating Effectiveness: A Framework for Assessing the Management of Protected Areas*. Gland, Switzerland and Cambridge, UK: IUCN.

ISEAL Alliance. (2014). Setting Social and Environmental Standards, ISEAL Code of Good Practice Version 6.0 https://www.isealalliance.org/sites/default/files/resource/2017-11/ISEAL_Standard_Setting_Code_v6_Dec_2014.pdf

Jonas, H. D., MacKinnon, K., Dudley, N., Hockings, M., Jessen, S., Dan, L., . . . Woodley, S. (2018). Editorial Essay: Other effective areabased conservation measures: From Aichi Target 11 to the post-2020 biodiversity framework. *PARKS, 24* (Special issue), 9-16. doi:10.2305/IUCN.CH.2018.PARKS-24-SIHDJ.en

Laffoley, D., Dudley, N., Jonas, H., MacKinnon, D., MacKinnon, K., Hockings, M., & Woodley, S. (2017). An introduction to 'other effective area-based conservation measures' under Aichi Target 11 of the Convention on Biological Diversity: Origin, interpretation and emerging ocean issues. *Aquatic Conservation: Marine and Freshwater Ecosystems, 27*, 130-137. doi:10.1002/aqc.2783

Leverington, F., Costa, K. L., Pavese, H., Lisle, A., & Hockings, M. (2010). A Global Analysis of Protected Area Management Effectiveness. *Environmental Management, 46*(5), 685-698. doi:10.1007/s00267-010-9564-5

Mace, G. M., Barrett, M., Burgess, N. D., Cornell, S. E., Freeman, R., Grooten, M., & Purvis, A. (2018). Aiming higher to bend the curve of biodiversity loss. *Nature Sustainability, 1*(9), 448-451. doi:10.1038/s41893-018-0130-0

Pasha, M. K. S., Dudley, N., Stolton, S., Baltzer, M., Long, B., Roy, S., . . . Yadav, S. P. (2018). Setting and Implementing Standards for Management of Wild Tigers. *Land, 7*(3), 93.

Watson, J. E. M., Dudley, N., Segan, D. B., & Hockings, M. (2014). The performance and potential of protected areas. *Nature, 515*(7525), 67-73. doi:10.1038/nature13947

RESUMEN

La Lista Verde de Áreas Protegidas y Conservadas de la UICN es el primer estándar mundial de sostenibilidad que describe las prácticas recomendadas para la conservación basada en áreas. El estándar está organizado en torno a cuatro componentes: buena gobernanza, el diseño y la planificación acertada, la gestión eficaz y los resultados de conservación exitosos –subdivididos en 17 criterios y 50 indicadores. La UICN administra una "Lista Verde" de áreas protegidas y conservadas a través de un proceso de certificación que examina la evidencia reunida por los administradores de los sitios en relación con cada uno de los criterios e indicadores. La evaluación de la evidencia la lleva a cabo un grupo independiente de expertos en la gobernanza y la gestión de áreas protegidas y conservadas, supervisado por un evaluador independiente para garantizar que en la evaluación se empleen los procesos adecuados y la evidencia apropiada. El objetivo del programa de la Lista Verde de la UICN es aumentar el número de áreas protegidas y conservadas en todo el mundo que ofrecen resultados de conservación exitosos a través de una buena gobernanza, un diseño acertado y la gestión eficaz y equitativa. El programa de la Lista Verde de la UICN actualmente opera en 40 países y para agosto de 2019, a 46 sitios en 14 países se les había concedido el estatus de Lista Verde. Hay más de 400 áreas protegidas y conservadas que participan en el proceso. El desafío sigue siendo ampliar el programa de la Lista Verde hasta el punto en que sea verdaderamente global en términos de operación y capaz de proporcionar tanto un estímulo como un método para una conservación eficaz.

RÉSUMÉ

La Liste Verte des aires protégées et conservées de l'UICN est la première norme de durabilité mondiale décrivant les meilleures pratiques en matière de conservation par zones. La norme s'articule autour de quatre composantes: bonne gouvernance, conception et planification solides, gestion efficace et résultats de conservation réussis - subdivisée en 17 critères et 50 indicateurs. L'UICN gère une «Liste Verte» d'aires protégées et conservées grâce à un processus de certification qui examine les éléments de preuve recueillis par les gestionnaires de site par rapport avec chacun des critères et indicateurs. L'évaluation des preuves est effectuée par un groupe indépendant d'experts en gouvernance et gestion des aires protégées et conservées, supervisé par un examinateur indépendant pour s'assurer que les processus conformes et les preuves appropriées sont appliqués lors de l'évaluation. L'objectif du programme de la Liste Verte de l'UICN est d'augmenter le nombre d'aires protégées et conservées dans le monde qui donnent des résultats positifs en matière de conservation grâce à une bonne gouvernance, une conception rationnelle et une gestion efficace et équitable. Le programme de la Liste Verte de l'UICN est opérationnel dans 40 pays et, en août 2019, 46 sites dans 14 pays avaient obtenu le statut de Liste Verte. Actuellement 400 autres aires protégées et conservées sont engagées dans le processus. Le défi reste de développer le programme de la Liste Verte à un point où il est véritablement opérationnel au niveau mondial et capable de fournir à la fois un stimulus et un indicateur pour une conservation efficace.