PAPACO

Newsletter from African protected areas

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Editorial

Geoffroy Mauvais,
Papaco Coordinator

LESSONS LEARNED

From the COVID crisis, we will probably draw a number of useful lessons, even though we will have to wait for the epilogue before drawing out all conclusions.

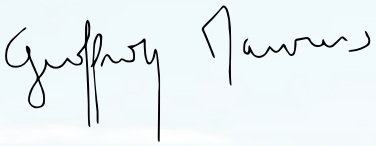
As of now, one can already identify a few key lessons learned, on which it would be good to ponder without delay….whether or not they come with easy solutions.

One of these lessons is that the protected areas system in Africa is extremely vulnerable (way more than anywhere else around the world, to be fair). The overwhelming majority of African protected areas – and I am here speaking only of the territories worthy to be called "protected areas", not of those that have no tangible existence beyond a few lines on a map, or the vague memories of our elders- this overwhelming majority relies almost exclusively on foreign, faraway funding. Whether it is through the drip-line of international public aid in its different forms, tourism revenues coming from so-called "rich" countries, "grants" from NGOs and foreign funds….the parks' essential revenues are linked to factors way beyond the control of park managers, and often beyond the control of the states in which these parks are located. It is not odd, then, to consider the size of the shockwave created by a global pandemic on African protected areas, seeing as their managers do not have any opportunity to formulate an adequate response, a credible alternative, to the collapse of their operational means.

What is in store for us for the coming months and even years, while tourism struggles to recover from the blow and as donor states redefine their investment strategies – in which protected areas will most likely not be among the top priorities? If we abide by the simple logic that has been driving our world over the past few years, reflected in the language of many (managers, donors and NGOs included), and cynically boiled down to the catchphrase: "If it pays, it stays", then there is not much hope to be had for the future.

Under another (unlikely) scenario, we will accept a brutal change of philosophy and return to the basis of why protected areas exist: to conserve nature, for their legacy and cultural (sometimes religious) value, for their contribution to our well-being and that of our children….So many factors that cannot be written out in numbers, simply because they are invaluable. This philosophy would require a deep change of perspective, starting with the necessity to re-situate protected areas in the public's heart. Changing the ill-founded conception that protected areas need to be protected against populations, rather than preserved with and for them: not just the neighboring population, as if only those living near protected areas were affected by them – the entire population, conscious of the immense wealth that protected areas represent. If the parks were understood, respected and loved rather than being dismissed, feared or hated – would we be as worried as we are today for their future?

This approach is not about setting up the usual "redistribution measures" or other small-scale income-generating projects (ridiculously small "compensations" designed to help local communities swallow a bitter potion). We must have the courage to revise the fundamentals, the logic, the nature, the mechanic of protected areas to build a new conservation mode better aligned with our current world. Too ambitious ? Maybe. Risky ? Certainly. What will we achieve, no one really knows at this stage –but do we have another choice? A new era calls for new protected areas, as long as they perform their function, on which our collective survival depends. The world citizens that we have now become may have the necessary maturity to reach this goal – what of the people who decide for these territories, and those who influence them? •



Our courses

MOOCS

- Launch of the Certificate -

On 18 June, the first exam sitting to obtain the Certificate on Protected area conservation will take place. The Certificate is granted by Senghor University.

What is it? Students who completed all PAPACO MOOCs and the IFDD's MOOC on Sustainable development, may sit a single exam, gathering all topics. If they score + 75%, they receive a Certificate worth 15 university credits in theory. Because the IFDD's MOOC is only available in French, for the time being, the exam is strictly available for French-speaking students.

Good luck to the selected students!

The MOOCs are still running, and you have only a month left to enrol. But not to worry, the session closes 19 July, which is more than enough time to start and finish a course. The next session will be from 14 September to 13 December, if you wanted to write that down in your calendars already.

If you're done with a MOOC and wish to receive your certificate of completion, please send a request at moocs@papaco.org.

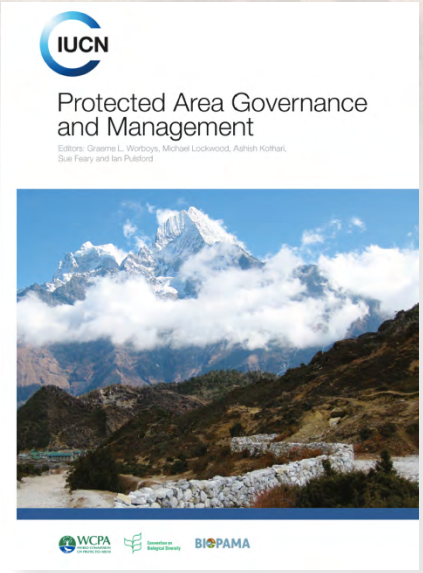
Current session: 17 February to 19 July 2020.

Registrations close: 1 July 2020.

REGISTRATIONS: mooc-conservation.org

MOOC conservation

PA Governance and Management



ABOUT:

'PROTECTED AREA GOVERNANCE AND MANAGEMENT'

Protected Area Governance and Management presents a compendium of original text, case studies and examples from across the world, by drawing on the literature, and on the knowledge and experience of those involved in protected areas. The book synthesises current knowledge and cutting-edge thinking from the diverse branches of practice and learning relevant to protected area governance and management. It is intended as an investment in the skills and competencies of people and consequently, the effective governance and management of protected areas for which they are responsible, now and into the future.

The global success of the protected area concept lies in its shared vision to protect natural and cultural heritage for the long term, and organisations such as International Union for the Conservation of Nature are a unifying force in this regard. Nonetheless, protected areas are a socio-political phenomenon and the ways that nations understand, govern and manage them is always open to contest and debate. The book aims to enlighten, educate and above all to challenge readers to think deeply about protected areas—their future and their past, as well as their present.

The book has been compiled by 169 authors and deals with all aspects of protected area governance and management. It provides information to support capacity development training of protected area field officers, managers in charge and executive level managers.

The entire book is freely accessible online in English on the Australian National University's website: https://press.anu.edu.au/node/372/download. The French translation is currently ongoing and only the first five chapters are currently online. The French translation is currently ongoing and only the first 11 chapters are currently online.

CHAPTER 11 KNOWLEDGE GENERATION, ACQUISITION AND MANAGEMENT

Principal authors: Naomi Kingston, Brian MacSharry, Marcelo Gonçalves de Lima, Elise M. S. Belle and Neil D. Burgess

Introduction

Decisions are made about protected area management every day. Decision-making can occur at different scales, including local, national or global, and by a range of different actors, such as site managers, planners or policymakers, politicians, business managers or funding bodies. In order to make good decisions, all these actors require access to quality data and information to understand and mitigate threats and pressures affecting protected areas and the implications of those threats for biodiversity, ecosystem services and the human communities they support. This chapter focuses on knowledge generation, acquisition and management, with particular reference to protected areas. Very often the terms 'data', 'information' and 'knowledge' are used interchangeably, but there are important distinctions between these terms that are critical to understand in the context of this chapter.

What is knowledge?

Data are raw numbers associated with measurements or observations, perhaps associated with an ecological process or species, and the nature of data, their collection, analysis, management and communication can be represented as a cycle.

Information is obtained when data have been organised or analysed for a particular context, and knowledge is based on an understanding of the meaning of that information. In the case of protected areas, the knowledge would relate to how information based on data is subsequently used to make decisions that inform policy or affect management activities.

Scarce resources mean that data gathering, information generation and knowledge management need to be as efficient as possible. Modern technologies allow for streamlined data flows, from field-based data collection to web-based data analysis producing information in a form that can be interpreted. Over the past years streamlining, interoperability (the ability for systems to link up and work seamlessly together) and internet-based data sharing have resulted in a paradigm shift in knowledge management.

Drivers of knowledge generation

Collecting data and information on protected areas is important for a number of core objectives. The knowledge and deeper understanding generated give us the ability to better locate new protected areas, manage those protected areas successfully for their conservation objectives, promote the value and importance of protected areas for biodiversity and society, make the protected areas more socially just and ensure they are resourced appropriately.

Data also allow us to work to identify where we know too little about sites, where the protected area networks are not representative or whether they are insufficiently managed.

Site management

A primary reason for data collection is to enhance the management of protected areas, which requires access to a wide range of information. Site management is multifaceted, and a large amount of data, information and knowledge is needed to achieve the conservation objectives of a site. This information may vary from spatial or attribute data on boundaries, land tenure, ecological trends, water sources, enforcement and permit records to contact lists for rangers, indigenous communities and landowners, counts of visitor numbers, financial records, habitat management regimes and social impacts. The information required and the scale of collection will depend on the uses for that information, and those responsible for information gathering must therefore consider this at the project design stage.

A number of tools are available to support an information-collection exercise; however, regardless of the tool used, it is critical that a strategic approach is taken, with a focus on gathering and collecting those data relevant to the goal at hand. Site management will often be adaptive and informed by the information collected through monitoring programs. Where protected areas are open to the public, management authorities may decide to collect information on visitor numbers and their use of a site so they can manage visitor facilities and infrastructure, reduce impacts and threats to both visitors and biodiversity and target education and recreation activities.

Systematic conservation planning is a target-based approach for designing protected area networks and other conservation landscapes and seascapes. It seeks to provide transparent and scientifically defensible information that can be used to guide decision-makers and spatial planners. There are numerous tools available to assist with systematic conservation planning, requiring varying levels of complexity and input information.

The Conservation Measures Partnership (CMP) has developed Miradi software that applies the Open Standards for the Practice of Conservation—based on the experiences of several conservation organisations in conservation planning. They rely on project cycles or adaptive management to achieve conservation goals.

In order to measure how well managed protected areas are and whether they are meeting their conservation objectives, a number of systems have been developed and are used around the world. In some cases these assessment mechanisms look at the management activities, and in others they look at monitoring trends in biodiversity responses. Protected area management effectiveness (PAME) assessments can use formats for data acquisition tailored towards the need of an organisation to be informed of the effective use of resources and to plan for further management. More than 40 PAME tools have been developed in recent years and the results of

Ranger Mike Smithson and Fire Management Officer Paul Black, Parks and Wildlife Service, Tasmania, Australia, measuring fire fuel humidity levels as part of planning for fuel-reduction burns
Source: Graeme L. Worboys

these assessments are summarised in Coad et al. (2013). A review of good evaluation methodologies for PAME can be found in Hockings et al. (2009) and Leverington et al. (2010).

Offences against wildlife, notably poaching, are some of the top threats to biodiversity requiring a particular approach to data gathering, monitoring and enforcement, and global initiatives such as the International Consortium on Combating Wildlife Crime (ICCWC) have come together to tackle this problem. The consortium has developed a wildlife and forest crime analysis toolkit, which provides guidance on data collection and analysis (ICCWC 2012). Data collection through dedicated tools such as the Spatial Monitoring and Reporting Tool (SMART) ensures that information collected through day-to-day enforcement activities in sites is standardised and fit for purpose.

National reporting and tracking global change

Countries have signed up to a range of regional and international agreements relevant to protected areas— such as the Convention on Biological Diversity (CBD) National Reports, Aichi Targets and National Biodiversity Strategies and Action Plans (NBSAP); the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention); the World Heritage Convention; and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) National Reports and trade permit system. These agreements have varying levels of protected area reporting requirements for the countries (for an example of reporting to the European Nature Directives). In some cases, detailed site-level information is needed, while in others the information can be generalised at a national level. In all cases, they emphasise the need for reporting to be based on good-quality and relevant information. The reporting required of countries to multiple different agreements is complex and demanding. This has resulted in poor compliance among lower-capacity countries. As a result, efforts are now being made to streamline and harmonise the reporting requirements across all multilateral environmental agreements. The development of online reporting systems—still in its early stages for protected areas—is aimed at reducing the reporting and data access burden (for example, CITES).

Inputs for knowledge generation

In addition to there being a multitude of drivers and motivations for collecting data and information, there are also numerous tools and methods for collecting these data and information. These need to be considered and developed in the context of the project or purpose for which the data are collected. As such it is worth considering five main knowledge categories when discussing data types: 1) scientific knowledge collected as part of field-based surveys; 2) scientific knowledge gathered from remote sensing; 3) knowledge on 'values' such as economic values or human benefits; 4) knowledge gathered through citizen science; and 5) the huge body of traditional knowledge.

In all knowledge categories, given the significant resources required for data collection and analysis to generate information, it is important that the 'collect once, use often' principle is employed where possible. Responsible parties must consider the lifespan of the data they collect beyond the scope of the project they are undertaking at that time. The addition of one or two parameters can often increase

the applicability of datasets and their value beyond a single project, and global data- sharing mechanisms and standards can ensure the data can be integrated and reused by another party or project at a later time.

'Collect once, use often' is a core principle of a number of online data-collection systems. In order to avoid duplication, the various national, regional and international collection systems need to be able to communicate with each other so countries can report once and the data can be used by other systems. Initiatives such as the Global Biodiversity Information Facility (GBIF) can accept data collected for multiple purposes and make it freely available to other researchers around the world. A key element in this 'collect once, use often' ideal is the need for data to come with associated metadata—often referred to as 'data about data'. Metadata allow future users of data and information to understand the background of how those data were collected, for what purpose, at what scale and level of accuracy, and any conditions on the use of the dataset. In addition, metadata can include information on sensible uses of a dataset or information product, and thus reduce inappropriate or misleading results being obtained for future analyses. Additional detail on some of the common data standards in use for both biodiversity and protected areas is presented later in this chapter.

Scientific field knowledge

Probably the largest body of information relevant to protected areas is collected as part of scientific surveys, surveillance and monitoring programs. These programs cover all facets of the biodiversity, environmental, management and socioeconomic processes. They rely on scientific methodology and experimental designs to make results more robust and comparable between sites and over time. Data collection can be done by field researchers or local people who are trained in sampling techniques and data management skills—for example, use of spreadsheets and simple analysis.

Knowledge from citizens

Traditionally, surveys and monitoring have been undertaken by qualified researchers, but increasingly 'citizen science' approaches are being used to engage and educate communities and the general public. If done well, these projects have the added advantage of potentially speeding up the data-collection process, as well as increasing sample size and coverage.

Field data collection by community guards, Conservancy, Namibia
Source: Olga Jones

Remotely sensed knowledge

In addition to field surveys, data also come from remotely sensed sources, ranging from those images acquired via satellite to images and laser scanning data derived from conventional airborne platforms and the emerging use of remotely operated unmanned aerial vehicles. Over the past decade there has been a rapid evolution of enhanced quality, reduced cost and simplified availability in remotely sensed data. These changes have greatly facilitated the use of remotely sensed data to analyse changes in habitat within protected areas over time, including sophisticated comparisons with comparable areas outside protected areas. As these datasets become increasingly detailed they also become much larger, which has increased the challenges of downloading, processing and analysing them.

Knowledge on 'value'

Increasingly, the scientific and economic cases for biodiversity conservation are being made through the

promotion of the value of 'ecosystem services' and 'natural capital' to human wellbeing and the global economy. In order to develop scientifically rigorous approaches to this valuation and subsequent decision- making, data on ecosystem services are being gathered and incorporated into planning processes and used to develop new policy frameworks and finance mechanisms.

Traditional knowledge

Information and knowledge, including techniques and best practices, accumulated over time by communities and passed from generation to generation—often referred to as traditional knowledge or indigenous knowledge— can be difficult to measure and understand, but are no less important aspects of the protected area knowledge base.

Importance of standards

A critical component of any data collection, management or analysis process, not just related to protected area information, is the need to have data standards—documented profiles for the uniform representation and formatting of data. At their most fundamental, data standards allow for the collection of data in a quality- controlled manner, leading to improved quality and an associated confidence in the use of the data collected. The more datasets that exist within a system, the more important it is that there are clear data standards for each dataset. All of this highlights the importance of ensuring that at the onset of a data-collection process, there are clear data standards outlined that allow for the collection of the relevant scientific information as well as ensuring the data can be managed effectively.

For protected areas, the WDPA acts as the global standard, with a set of core attributes any site must have in order to be listed. Standards also ensure the mobilisation of biodiversity information. The Biodiversity Heritage Library is one such collaborative resource enabling open access to major natural history literature collections put together by a group of organisations from around the world.

A basic requirement for data systems is the need for each object or measurement (for example, protected areas) to have a unique identifier. Unique identifiers should as a minimum satisfy two basic criteria: they should be:

1. unique—that is, the identifier should be unique across the organisation
2. persistent—the identifier should remain unchanged for the life of that object.

With the advent of increasingly user-friendly global positioning system (GPS) surveying and the availability of digital datasets, there are increasing possibilities for the collection of highly accurate spatial biodiversity data. As an example, in the case of protected area boundary digitisation, the exact scale used is a function of the resources available. Detailed surveying of sites will produce highly accurate boundaries but at a high cost, while digitising the boundaries from digital cadastral maps at an appropriate scale can provide relatively accurate boundaries in a cost-effective manner

Knowledge sharing

Data sharing means the disclosure of data—in this case, biodiversity data—from one party to a third party either within an organisation or to external organisations. The sharing of data can be influenced by a number of factors, both positive and negative, including: the presence or lack of organisational best-practice documents relating to data sharing; ownership of the data; copyright of the data or indeed the base maps from which data are created; technical challenges; national laws relating to data use and downloading of data; and restrictions on disseminating data to third parties. The ownership of data can be tied up in institutional rules, copyright issues and commercial sensitivities, and the dissemination by digital means may not be covered by national laws or the laws may not cover the use of digital data in online systems and the subsequent downloading of data. There can be restrictions on allowing third parties to disseminate the data. On the positive side, there are a number of national and regional agreements on the use and dissemination of public data, such as the Conservation Commons (2006), which encourages the release of biodiversity data in order to facilitate biodiversity conservation.

The inability to share data is a critical problem in the assessment of global biodiversity: with incomplete data, an incomplete picture emerges. Where there are issues surrounding data sharing, solutions should be found, either in adopting best practice from other countries or organisations or in having clear data-sharing agreements. In the case of ICCAs and many other aspects of traditional and indigenous knowledge, data-sharing restrictions can relate to national

laws, cultural sensitivities or ownership information. All sites submitted to the ICCA Registry undergo an agreed FPIC process. This allows the communities involved to choose whether or not their data are made publicly available.

Knowledge management

In recent years, and as the importance of knowledge management has been recognised, national governments and research organisations in many countries have been putting in place biodiversity information facilities or data centres. These facilities use a range of approaches and models very much dependent on the data and information being gathered, the user base of the system, how accessible the information needs to be and the resources available.

Community-level knowledge management can, however, take a very different approach. Corrigan and Hay-Edie (2013) provide insights into sharing knowledge in ICCAs and other community-led conservation areas, including documenting and mapping, local management planning, monitoring, adaptive learning, communication and sustainable financing. Regional structures also play a role here, particularly in developing regions, as they ensure best practices in information management and access for decision-making, often in some of the world's most biodiverse places, while reducing the management burden and resources required for a state-of-the-area data centre.

The CBD calls on parties to the convention to implement and expand national-level clearing-house mechanisms (Article 18.3). A clearing-house mechanism sets out to provide a web-based information portal and discovery services to facilitate the implementation of national biodiversity strategies and action plans. Such mechanisms have also been implemented at regional and global levels.

Global initiatives play an important role in data management and mobilisation. The IUCN knowledge products make conservation-related knowledge available. In other cases, global information initiatives allow tracking of global biodiversity targets—such as the Biodiversity Indicators Partnership and the WDPA, both managed by the UNEP-WCMC.

Thematic networks, such as BirdLife International, the Ocean

Elephants crossing, Samburu National Reserve, Kenya, an IUCN Category II protected area
Source: Geoffroy Mauvais

Biogeographic Information System or the Global Invasive Species Database (GISD), play an important role in focusing on the information requirements of specific issues, biomes or taxonomic groups. The use of global data management standards, however, ensures that the thematic data can be interchanged seamlessly with regional systems or other networks. In some cases, they allow for the repatriation of data between regions—for example, from museums in the developed world to protected area managers in developing countries where the specimens were collected through the GBIF.

Knowledge use

Access to the best available data on biodiversity is an essential requirement for successful conservation outcomes. In making available the various biodiversity-related datasets that are held by different bodies, conservation practitioners from researchers to policymakers are able to make decisions based on the best data available. In addition, by making datasets available, new and novel analysis and products are created similar to the proliferation of 'mashups' available on the Internet. These 'mashups' have at their heart the principle of using data from multiple sources to present the data in a new manner or to create new products (such as IBAT). This also serves to highlight the key requirements, and the challenges, necessary to expand and enhance the use of the existing datasets. In addition, they remind us of the importance of sustained investment in data collection, collation, management and dissemination; without investment the quality and currency of the data cannot be maintained, and the relevance and accuracy of the 'mashup' decrease.

The key challenges faced have been discussed in previous sections, but it is worth reiterating them as it this issue which acts to link them together. Biodiversity data are often very heterogeneous and not centralised, as they are often located in several organisations, both nationally and internationally. As highlighted in the section on the 'Importance of standards', there is a lack of global standards and procedures relating to quality control of the data, and even data collection can vary dramatically depending on the aims of a project and the organisation involved. It is often not possible for the datasets to communicate with each other, therefore they are not interoperable. There is a need for the skills of information management, technology and biology to overlap to ensure the data that are collected are scientifically robust and stored, managed and disseminated in a manner that will allow them to be used by the wider community.

Using data to generate improved knowledge necessitates that the data are open to be shared and made accessible, are based upon international standards so that the different datasets can be understood, and the data need to be credible (quality checked, scientifically robust). If these conditions can be fulfilled, the potential for meaningful analysis and interpretation of biodiversity datasets will be greatly enhanced. There are, however, issues of sensitivity and risk to be considered, and users should always familiarise themselves with the terms and conditions for the use of data, and review metadata to ensure use cases are appropriate and not liable to misinterpretation. In addition, where there is a likelihood that communities or specific groups (such as women, landowners or pastoralists) may be impacted by the use of the data or the resulting decisions, consideration should be taken of the potential outcomes.

Resourcing considerations

The collection of data, information and knowledge is often seen as an end in itself, without consideration of the longer-term value of managing knowledge as a resource. Too often projects and their associated websites or data management processes end once the project ends and funding dries up. This means that a large amount of potentially valuable information is lost to local managers, communities, scientific and policy communities and on-ground decision-makers. From the outset, projects and initiatives should plan for the full life cycle of the information collection and long-term management. This includes sufficient resource and funding allocation to the preparation of data for long-term maintenance, including submission to global repositories, scientific publications and proper organisation and filing.

Increasingly, national governments are taking note of the value of managing knowledge, and are building policy frameworks and technical infrastructure that mobilise knowledge for public use and ensure it is available for tracking trends in the longer term. Funding is necessary for all activities in the cycle and should be incorporated in the government's budget to guarantee its continuation through long-term financial sustainability alongside proper legislation on data collecting, sharing and storage—as this can be

not only time-consuming but also expensive if not done properly. Costello et al. (2014) recommend that for long-term sustainability databases should become integrated into larger collaborative projects and curated by an organisation or institution with a suitable mandate. In the case of protected area information, this would include organisations such as the IUCN, UNEP-WCMC and the GBIF.

For data acquisition, agencies should consider the costs of field expeditions, continuous training and capacity building of data collectors and analysts. At the field level, data can be collected by researchers or local communities. In both cases the most cost-effective method is to implement permanent plots and transects that can be surveyed by different thematic teams over several years. Such sampling areas need to be maintained as well and protocols should be standardised. To avoid bias and misinterpretation of data and to fine tune data entry (for example, species name, sighting positions along transects) teams need to have frequent training sessions and discussions—all of which have financial implications.

For data analysis and storage, ideally agencies should maintain a permanent team to work on the data as part of the general management of protected areas. If this is not possible, data analysis standards, protocols and metadata should be in place to allow new personnel to continue with work of the same quality. Important initiatives on protected area management have failed due to the higher turnover of trained staff because of variable funding sources and the lack of standard protocols for data collection, analysis and storage.

Conclusion

There are a number of basic principles for consideration when working at the various points in the cycle of the acquisition and generation of data, their analysis and interrogation to provide meaningful information, and the understanding and communication of the resulting knowledge.

- There are many reasons for collecting data, and the data required and the scale of collection will depend on the uses for that information, so those responsible for information gathering must consider whether the data they are collecting are appropriate for the question being asked at the project design stage.
- Consider the lifespan of the data being collected beyond the scope of the project, and potentially modify the data-collection protocol to increase the applicability of datasets and their value beyond a single project.
- The use of global data standards and sharing mechanisms will ensure that the data can be integrated and reused by another party or project at a later time, and will be interoperable with other similar datasets.
- Maintenance of metadata ensures that future users understand how and why the data were collected, and what an appropriate and sensible use or interpretation of the information would be.
- Organisations, individuals or projects generating data should endeavour to ensure that they are made available through one of the global facilities, but at the very least make it available through an online and open-access resource where possible.
- Publication of data through official channels should be encouraged to ensure the above.
- The terms of conditions and appropriate use of data and information must be respected, particularly where there might be an impact on sensitive species, habitats, community groups or sites.
- The long-term resourcing to ensure proper maintenance and accessibility of data needs to be built into project design and close-off. • Click here to read the full document.

Announcements

PANORAMA
SOLUTIONS FOR A HEALTHY PLANET

Holistic Grazing Land Management and Restoration

Pastoralism is a livelihood system that currently faces pressure from various factors. Key among them are climate change-driven droughts and pasture depletion from overgrazing; this has been evident in most parts of Mt. Kulal area, Marsabit County. The main resultant problem from the foregoing situation is degradation of grazing lands beyond ability to support livestock. This trend needs to be stopped and reversed to avoid total collapse of pastoralism as a source of livelihood.

Working in the area, VSF Germany, utilizing an approach called Holistic Natural Resource Management, implemented community-based grazing land management and restoration, focusing on local pasture species and traditional land management practices. The solution is composed of three key approaches or building blocks: improved grazing land management; restoration of degraded grazing land and local grasses; community linking and learning; and livelihood support through introduction of fruit and fodder trees.

Degraded rangeland
© Hausner Wendo

Full article: here.
More info on Panorama: here.

FAUNA & FLORA INTERNATIONAL

Country Manager, Kenya

Where? Nairobi, Kenya

Applications deadline: 21 June 2020

>> Click here to access full job description <<

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