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The fable of the Dodo

Everyone knows the Dodo (*Raphus cucullatus*): a large imbalanced bird that could not fly and lived in Mauritius, three hundred years ago. And who has since then disappeared.

The bird was more or less a cousin of pigeons, measured one meter approximately and was described for the first time in 1598 by Dutch explorers, when they landed on the island. With its greyish atrophied wings and a rather cubic form, it was anything but beautiful. Contemporary reports say it was not very tasty either. It was voluminous and heavy and incapable of flight, having lost this ability over the ages because it had no predators to flee on the ground. For this reason, it did not fear men when they landed and was a very easy prey, considered as "stupid" by the explorers.

The Dodo became extinct within the century that followed its discovery by man. Hunted, yes, but mostly targeted by animals which were introduced, such as dogs, cats, monkeys or pigs. Then the Dodo was forgotten. The only stuffed specimen, preserved at the Oxford Museum in UK, was thrown away in the middle of the eighteenth century because it was falling into dust! The result is that in the early nineteenth century, the Dodo was no more a fact but just a myth, invented to populate children's tales, like other "animals" like the Yeti in Himalaya. It even later became a character in Alice's Adventures in Wonderland (Lewis Carroll); yep, it had definitely been a dream. Nothing but a dream…

Eventually, the first and only documented history of the first animal extinctions caused by human was reduced to a simple fable. Only the expression "dead as a dodo" (which is rather self-explanatory) remained to remember his fate. And it's only thanks to the energy of a few archaeologists, much later, who found its fossil bones, that we got to remember that the myth had indeed been true.

This story reminds us of others, many others, past or present. The IUCN Red List of Threatened Species is full of them and yet, it lacks all those we don't know and will never know (from all known species today, nearly 25 % of mammals, 13 % of birds and 40% of amphibians are threatened with extinction)! Dozens, hundreds of species will continue to disappear under our eyes, like the helpless and hopeless Dodos. Like, recently, the West African Black Rhino (*Diceros bicornis longipes*), officially disappeared forever in 2011. Or gradually, species still present but on a dramatic decline like the lion, so emblematic of Africa and yet so threatened and already eliminated from half its previous range. Everywhere, our incredible "resilience" allows us to forget what we have already lost only to only see what remains; we always forget the previous "standards" and we reinvent new "thresholds of normality" to reassure ourselves. Yes, we've got a fantastic ability to adapt to the "ever less", to always start again with the feeling that, finally, "it's not going so bad"... That's good for our daily peace of mind, but how far can we go and how long can it last?

If someone, one person at least, had just reacted and had warned at that time that the Dodo was going to disappear, maybe it would still be with us...

"The bitter lessons of the past must be constantly relearned" said A. Einstein. To save the Dodo of

Mauritius, we had to do something... three hundred years ago. To save Dodos today, now is the time to act. And it is still possible if we do not forget what the cost of inaction is... and if we really care.

This NAPA letter talks precisely of the importance of environmental monitoring for the management of protected areas, and more importantly, of the need to use this monitoring efficiently for effective management decisions.

WPC – 6 months to go!

Professional training on PA management: the 8th session of the University Diploma has started in Ouagadougou

Direction 4 of the Road Map for African PAs

Eighteen students, coming from ten different countries (Bissau Guinea, Mauritania, Senegal, Mali, Burkina Faso, Guinea, Côte d'Ivoire, Togo, Benin, Niger), have gathered in Ouaga, on the 7th of April this year, to launch the 8th edition of the PA management training course, organized by IUCN and the University Senghor of Alexandria, in Egypt. Targeting young professionals working in and around PAs (PA managers, NGOs, private sector…), this training course mixes theory and practice on the ground in a park in Burkina Faso. It lasts 8 weeks and leads to the deliverance of a university Diploma.

Next session is planned in October – December 2014 for Central Africa and will be organized in Lopé National Park (Gabon)

Wildlife monitoring practices and use in Central Africa

Direction 4 of the Road Map on African Protected Areas

In order to better understand which methodologies of PA monitoring are used and how their results are incorporated into the PA management decision process, IUCN-Papaco has mandated WCS (Gabon) to undertake a rapid survey of the situation in Central Africa. This NAPA letter presents the main findings of this study while the next one (NAPA 76) will present some detailed methods that are currently used on the ground depending on the ecosystems or species targeted. More on www.papaco.org

Introduction

This study is focusing on the Congo Basin and aimed to conduct an initial evaluation to:

1. describe the current state of ecological monitoring practices for Central African protected areas, in terms of methods, frequency and species targeted, focusing on wildlife;
2. identify where and how protected area ecological monitoring is used to inform management practice;
3. identify the major challenges and opportunities for improving ecological monitoring and the use of ecological monitoring data in Central Africa.

The full report and all the bibliography are available on papaco.org. Here is presented a summary of some of the outcomes. The next NAPA will present a set of detailed methodologies to be used as monitoring of PAs.

Ecological monitoring and protected area management

1. Ecological monitoring

Monitoring can be defined as "intermittent recording of the condition of a feature of interest to detect or measure compliance with a predetermined standard". In the field of conservation, the features of interest are ecological: generally habitats and populations of species or groups of species.

The main uses of ecological monitoring are:

Management Tool

In principle at least, appropriate and timely ecological data allows protected area managers to allocate resources and choose between different types or

intensities of management intervention in order to make best use of scarce conservation resources. Ecological monitoring is an essential part of adaptive management: "learning by doing", or "the integration of design, management, and monitoring to systematically test assumptions in order to adapt and learn". Ecological monitoring is necessary for evaluating the outcomes of conservation action and thereby "closing the adaptive management circle".

This role of ecological monitoring in adaptive management has meant that it has become a standard part of almost all protected area planning and management "best practices" and is enshrined in the strategies of governments, donors and conservation NGOs. The monitoring objectives and application of the results are explicit to park management decisions.

Strategic Tool

Apart from adaptive management, ecological monitoring of protected areas has other roles to play in conservation at particular sites. The results of monitoring may be used as a communication tool to demonstrate success of conservation actions or conversely to illustrate the plight of species or habitats in order to raise funds or to build public or political will for conservation actions. Ecological monitoring is necessary and required for demonstrating outcomes in payments for ecosystem services (PES) programmes where payments for conservation are conditioned on results, be that under biodiversity offset schemes, Reducing Emissions from Deforestation and Degradation (REDD) programmes or otherwise. Conversely, ecological monitoring can help prove (and perhaps quantify) liability for damage in the case of environmental impacts, for example due to pollution. Lastly, by providing objective reference points about the state of conservation targets, ecological monitoring can help guard against the shifting baseline syndrome that is as prevalent on land as in the seas.

At a broader scale, as the number of protected areas and investment in conservation increases, there has been a growing call for conservationists to justify the effectiveness of their actions through robust empirical comparisons of the success of different types of protected area with that of other management approaches. Such evaluations are increasingly required by donors to justify investment in protected areas. Reliable ecological monitoring data is the necessary basis for such evaluations of conservation effectiveness.

Since protected area networks are frequently designed to be the "strongholds" for threatened species, ecological monitoring data from protected areas frequently has a high weighting in evaluations of extinction risk under the IUCN red list criteria. For example in Central Africa, data showing population declines within protected areas formed a core part of the argument for listing western lowland gorillas as Critically Endangered. Since IUCN red list classifications are increasingly used to evaluate the level of environmental mitigation required by industrial and other development, for example by the International Finance Corportation (IFC) and the Equator Banks, the quality of protected area ecological monitoring data can have practical impacts well beyond the borders of individual protected areas.

2. INVESTING IN ECOLOGICAL MONITORING

Despite the widespread acceptance that adaptive management is a best practice for conservation, the extent to which ecological monitoring should really be a priority for protected area management remains controversial, for three main reasons:

Expense:

Implementing ecological monitoring that is statistically reliable frequently requires considerable personnel, logistics and time. Deciding how much to spend on monitoring is therefore always a trade-off: money could be better spent on more intensive protection, on other management interventions, on surveys of as-yet non-protected areas, or on something completely different. Given the pressing nature of many threats, and levels of funding that have remained inadequate despite major donor contributions, the trade-off between monitoring and protection is the most controversial.

Data quality:

Much ecological monitoring may not in fact be able to reliably detect ecological changes over time-scales useful for management. This frequently occurs due to poorly-planned or

executed data collection, but even where statistical rigor is applied, data quality may be low as a result of the real-world challenges of detecting elusive species in variable and usually difficult field conditions.

Effective links with management:

Monitoring is clearly not a panacea for effective management and examples where species have been lost or have suffered major declines despite intensive monitoring abound: intensive monitoring of the northern white rhino in Garamba National Park in Democratic Republic of Congo (DRC) was unable to prevent the extinction in the wild of this subspecies in the face of war and insecurity, while repeated surveys of western black rhino in Cameroon failed to help overcome the political apathy responsible for its demise.

The choice about whether or not to invest in ecological monitoring is complex and depends on many different factors. Many different authors have tried to codify the different decisions about monitoring that protected area managers need to make and the factors that should influence them either in general or for particular species or species groups. It is unclear however, to what extent 1) these academic discussions really influence monitoring practice on the ground in protected areas and 2) whether monitoring results are indeed used to influence management. This study aims take the first step to answering these questions by compiling all records of ecological monitoring and documenting how ecological monitoring is conducted in practice in Central Africa.

Results of the study in Central Africa

a. NUMBER AND DISTRIBUTION OF SURVEYS

For this study, the final sample included 121 protected areas in six countries. The analysis concerns 205 technical reports and articles reporting results from 255 individual surveys meeting the identified criteria in protected areas across Central Africa (see the report for details).

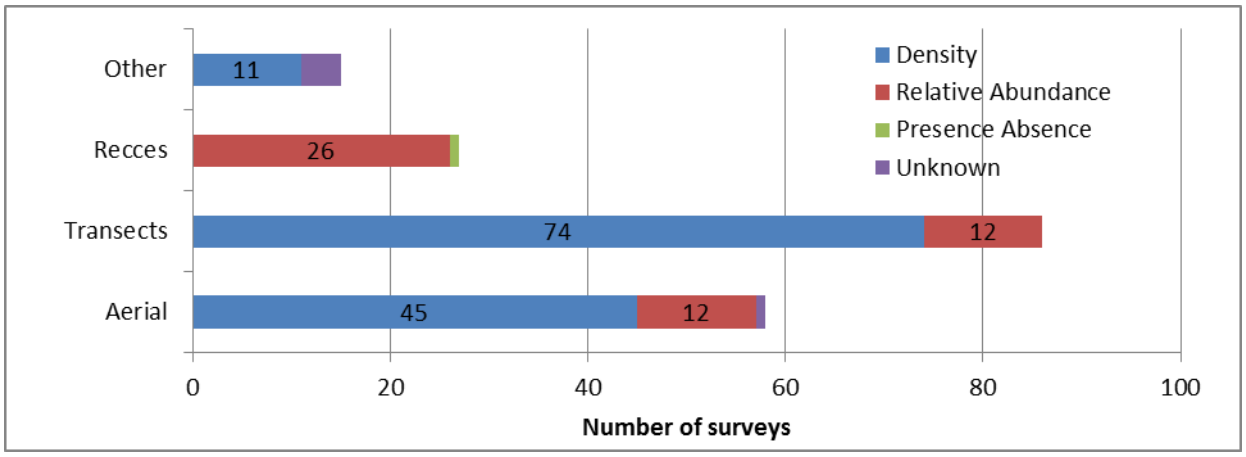
For 33 protected areas, we were unable to confirm whether or not any ecological monitoring has taken place. We believe it is most likely there has been no monitoring in the majority of these protected areas, but cannot confirm this. For the 88 other protected areas where we were able to confirm whether or not monitoring took place, 74 had at least a baseline survey completed and 14 protected areas had no monitoring at all.

Overall, two-thirds (66%) of the combined area of the 121 protected areas had at least some monitoring. The proportion is much higher in Gabon, Republic of Congo and Equatorial Guinea where the vast majority (99-100%) of the protected area estate has been surveyed at least once. However, in Democratic Republic of Congo only about half (49%) of its large protected area estate has been surveyed at least once; this heavily influences the overall average.

A few of the 74 protected areas that have been surveyed have been surveyed on many occasions, but almost half have been surveyed only once (**Error! Reference source not found.**). However, many of the protected areas that have been surveyed repeatedly are large; despite there being many more protected areas that have been surveyed just once (=32 PAs), this cover a similar surface area to protected areas surveyed several times that are, however, fewer in number. Protected areas that have been surveyed once (=32 PAs), cover a similar total surface area to those that have been surveyed three (=9 PAs) or four (=7 PAs) times.

b. MONITORING TECHNIQUE

Ground-based transect surveying is the most frequently used survey technique, which in the most part has provided density information. This is followed by aerial surveys, which also typically provides density information. Recces (ground-based reconnaissance walks) in their nature are restricted to providing relative abundance data, but have also been used for presence-absence information. The category “Other” is composed of questionnaires, complete foot counts, and calling stations.



Number of surveys by grouped survey techniques and the data output

c. What has been monitored

By far the most frequently surveyed species is the African Elephant (*Loxodonta africana*). This is followed by the wide-spread great ape sub-species (*Gorilla gorilla gorilla* and *Pan troglodytes troglodytes*), red duiker (a group of medium-sized duiker species), and red-fronted gazelle (*Eudorcas rufifrons*). All of these apart from the red-fronted gazelle, are frequently surveyed together in ground-based transect surveys and recces. They are also wide-ranging within our survey scope, and found in all six of the six countries included in this study. The red-fronted gazelle distribution range is a broad thin band from West Africa, reaching to the north-western limits of Cameroon where it has been surveyed almost annually in Waza National Park since 1960.

The general trend then is that species with a broad distribution have been more frequently surveyed as they are included in multi-species surveys repeated in a large number of protected areas, while those with restricted range (including endemic species and sub-species) have been less often surveyed as they are found in a small number of protected areas. Some wide-ranging species have been rarely surveyed simply due to difficulty of surveying these species. The giant pangolin (*Smutsia gigantean*) is rare and highly cryptic, while some duiker species can only be distinguished from genetic analysis of the dung if this is the observational sign.

d. Uses of monitoring data for management

Unfortunately, there are few examples of monitoring for decisions at a site level. We were, however, able to find several examples where explicit and scientifically strongly-supported monitoring results were not used for management. For example, in Cameroon, surveys (in 2011) showed that the lion population in the Benoué complex was greatly below the potential level given prey abundance (itself significantly depleted) and that existing quotas for trophy hunting greatly exceeded levels shown to be sustainable. Despite high-quality data, no change in hunting quota (either in number or in age) has yet been implemented… In most cases, monitoring, when properly done, does not influence the decision making process of the PA manager.

Conclusions and recommendations

Some results presented in the report show that:

- Some form of monitoring takes place in the majority (66%) of central African protected areas (PAs). The proportion of surface area that has been surveyed once, twice, three or four times is roughly similar (between 11-16%). The one-fifth of PA surface area in the Democratic Republic of Congo (DRC) with “no monitoring” (does not include PAs with “no information”) is composed of two huge PAs, Bili-Uere Hunting Reserve and Sankuru Natural Reserve, and two smaller sized PAs. Most of the unknown monitoring status can be attributed to the DRC, followed by Central African Republic.

- Most monitoring is focused on wide-ranging species that are also collectively surveyed, such as elephants, apes and some red duikers. This has provides valuable data on the regional population status and trends of these species, as seen in the recent meta-analysis of forest

elephants that showed a 63% population loss and 30% range loss from 2002-2011.

Based on the process of collating biological monitoring information and early analyses, here we suggest a number of recommendations for improving the utility of biological monitoring.

Recommendation 1: Experiment with new methods, but ensure that future surveys remain compatible with existing data.

New methods such as genetics, camera-trapping and acoustic surveys all have potential to greatly increase the effectiveness and efficiency of protected area ecological monitoring in central Africa. However, there is a risk that new techniques, especially those that produce marketable images, are adopted rapidly to the exclusion of more traditional (and perhaps less “sexy”) techniques.

Where new methods are adopted, they should either be used to enhance existing datasets (for example by providing data on the ratio of gorilla to chimpanzee nests) or should be carefully calibrated against existing methods to ensure comparability with older data sets.

Recommendation 2: Recognise the importance of good management of surveys

For good reasons, donors tend to want to reduce what are seen as unnecessary “overhead” costs, especially salaries for non-field staff. However, as this study has shown, logistical delays can be a major factor increasing the cost of surveys. In such situations, money spent on effective managers may in the end result in net cost savings.

Donors and managers could help survey organizers improve performance (and justify management costs) by requiring that survey implementors set targets for effort during surveys according to standardized categories and then report actual effort applied. While recognizing that every protected area has different logistical challenges, and that unforeseeable and unavoidable logistical issues will occur, standardized reporting of survey efficiency could be used to benchmark the performance of different organizations or of different survey teams within organizations. Tracking use of human resources is a management best practice and good managers will already be using a system like this, so requiring it would not be a major additional administrative burden.

Recommendation 3: Ensure that pilot surveys are cost-effective

In the best case, pilot surveys can provide estimates of encounter rates and of variation in encounter rates that can help significantly improve survey precision and cost-effectiveness by identifying required sampling effort and stratification possibilities. However, in some cases, especially large remote areas the cost of pilot surveys can approach that of a complete survey. Where pilot surveys are proposed, they must be clearly justified; this should include an assessment of cost-effectiveness.

Recommendation 4: Create incentives for increasing the quality and dissemination of ecological monitoring results.

Although several Central African nationals have produced journal articles based on ecological

monitoring surveys (e.g. Omari et al., 2009; Inogwabini et al., 2000; Forboseh et al., 2007; Inogwabini et al., 2007), it is unrealistic to expect every survey to be of a uniqueness sufficient to warrant publication in a high quality international peer-reviewed journal. Unfortunately there are an increasing number of "predatory" online journals with limited or no peer-review that will publish poor quality and even plagiarized work. This is not a theoretical issue: we came across a number of instances of potential plagiarism based on wildlife surveys of protected areas during the course of this review.

Establishing a regional peer-reviewed, open access (and probably online-only) journal could help bridge the gap between the major international journals and the "predatory" ones. This could perhaps be similar to Pachyderm, the journal of the African Elephant Specialist Group or Koedoe, the journal of the South Africa National Parks Service or some of the specialist ornithological journals like Malimbe. An outlet such as this would have the benefits of 1) provide an incentive for surveys to be written up to a quality above the "bare-minimum" required for donors, 2) provide much needed feedback to monitoring specialists and 3) improve the transparency and dissemination of monitoring results.

Managing production of such a journal would be an obvious service that a regional conservation organization could provide to the protected area community in Central Africa. It would only be credible if peer-review of a sufficiently high standard was established and maintained. A partnership with an existing high-quality conservation-oriented journal would be one way of ensuring that quality is maintained.

More on www.papaco.org

International Conference *"Ecosystems, Economy and Society: how large-scale restoration can stimulate sustainable development"*

29-30 May 2014 - U.S. National Academy of Sciences - Washington, DC, USA

The Veolia Environment Institute organizes jointly with the Agence Française de Développement (AfD), the International Union for Conservation of Nature and the US National Research Council Water Science and Technology Board an international conference on "Ecosystems, Economy and Society: how large-scale restoration can stimulate sustainable development". The objective of this Conference is to analyze the potential of large-scale restoration for the improvement of people's livelihoods, jobs creation and socio-economic development, in addition to the recovery of ecosystems functionalities, continuity and biodiversity.

Scope of the Conference

Biodiversity underpins humanity by a myriad of ways, including provision of food, freshwater, clean air and disease control. However continued population growth, uncontrolled over consumption of natural resources, increasing pollution and climate change are likely to put additional pressure on ecosystems.

At the same time, there is a growing consensus that restoring ecosystem functionalities contributes not only to preserve biodiversity but also to secure livelihoods, to combating desertification and to both climate-change mitigation and adaptation. Furthermore, ecological restoration could open new economic avenues.

Several initiatives have successfully achieved promising improvements: Watershed Protection for Drinking Water (city supplies), Reforestation and Poverty Alleviation, Wetlands Engineering, Large-Scale Soil Decontamination, Sea Canals, Artificial Reef Programs, Invasive Species Extirpation, Forest and Carbon Sinks Restoration, emergence of the Landscape restoration approach. They all combine unprecedented levels of scientific and technical expertise, collaboration among a plurality of actors – public, private and civil society – new forms of collaborative governance and diversified funds and resources.

There is a need for enriched scientific data, at the first stage, but also context-based practices that facilitate the understanding of highly complex

challenges and the emergence of solutions. With a multidisciplinary and holistic approach, the Conference will collect and promote innovative ideas and tools on how to implement effectively restoration projects at a large-scale.

To do so, it will be structured around:

- A Technical Segment analysing existing restoration projects and practices, to foster a productive dialogue and draw lessons on the conditions of operability, appropriateness and transferability in different contexts.

- A decisions-makers segment aimed at strengthening political will and institutional schemes to translate those ideas and commitments into actions of implementation on the ground.

Acknowledging all that, the two-day Conference will provide a platform for over 500 scientists, practitioners, NGOs, business leaders and policymakers from both the South and the North to discuss remarkable case studies, best practices and share better insights on the potential of large-scale ecosystem restoration towards sustainable development.

In doing so, the Conference will contribute to achieving CBD Aichi Target 15 (restoration of at least 15% of degraded ecosystems), the EU Strategy Biodiversity Strategy to 2020 and the UNFCCC REDD+ goal to slow, halt and reverse the loss of forest and carbon, as well as other international objectives, including those on land degradation and food security. It can also offer a timely contribution in the context of the post-MDGs 2015 period and the preparation of action-oriented SDGs.

Main objectives

Share international experiences on successful ecosystems restoration initiatives and promote evolutive quality scientific research and field experiments in order to provide sound factual knowledge

Analyse the conditions for the projects to be scaled up and replicated elsewhere.

Help the comprehension of adapted regulatory frameworks to facilitate the implementation of such landscape-scale projects.

Foster in-depth dialogue and promoting the exchange of ideas among restoration practitioners, policy makers, scientific experts, funding agencies, public and private operators, multilateral institutions, NGOs and local communities' representatives.

Highlight the potential of large-scale restoration projects in terms of ecosystems preservation, climate mitigation or adaptation and development.

Contribute to informing policy makers on the conditions to develop successful experiences in order to assist decision-making.

Support the implementation of the CBD Aichi targets, the Bonn Challenge and the framing of the UN Sustainable Development Goals

For more info, please consult the conference website: www.ecosystems-economy-society.org
Contact: contact-institut.ve@institut.veolia.org

IUCN WORLD PARKS CONGRESS SYDNEY 2014

Parks, people, planet: inspiring solutions

12 – 19 November 2014

Africa at the World Park Congress

Twenty-two stories to know a little bit more about conservation in Africa... On the road to the World Park Congress!

The preparation of the congress is still going on for the 22 champions we selected to be "the voice of Africa" at the upcoming World Parks Congress in Sydney (see previous NAPA and in particular NAPA 74). The first preparatory meeting took place end of April in Kenya when and where all the stories and experiences have been shared by the participants. And we have started preparing the messages that will be delivered on streams 1 (conservation efficiency), 5 (conservation and development) and 6 (conservation and governance).

More to come in the next months…

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