



## EDITORIAL: BUILDING CAPACITIES FOR CONSERVATION OF NATURE: CAN THIS BE DONE AT DISTANCE?

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Recent journal papers and other reports on biodiversity in Africa underline its incredible richness and yet its extreme fragility. Although the continent is home to some of the largest and most famous protected areas on the planet such as Serengeti, Kruger, Nakuru, Comoé, Aïr or Virunga National Parks, wildlife continues to decline at an unprecedented pace (Mallon et al., 2015). More effective management of protected areas is seen as a potential solution, but this is impeded by a lack of appropriately skilled staff. But what can be done when the number of people to be trained is enormous (several thousand or tens of thousands if one simply considers state-governed protected areas), the competencies needed by managers are numerous (see Appleton, 2016) and the training structures are so scarce, most of the time inadequate or remain inaccessible to most potential candidates? Distance learning, via the Internet, may help to meet this challenge.

If so, protected area managers and their partners wishing to strengthen their capacities will have to get used to new acronyms: MOOC, LMS, OCW, ECTS, COS... These are just a few among many acronyms that could soon offer tremendous potential for improving the future of all stakeholders involved in conservation.

### DISTANCE LEARNING?

Distance learning is not new. Until recently, we would simply use the daily mail to receive course documents and to return our examination copy. This is now mostly in the past and training is largely available online thanks to the development of Learning Management Systems (LMS), which allow the management of training resources directly on the web. The open-source Moodle platform<sup>1</sup> is a good example but proprietary solutions also exist, such as Blackboard<sup>2</sup>. Obviously, the Internet is full of other possibilities for users wishing to access or

create open educational resources. Some of these initiatives are collaborative, like Wikipedia, while some provide more limited access. Some resources are also specifically developed for didactic use such as Open Courseware<sup>3</sup> (OCW) but with generally few interactive functions. There are as many options as there are developers, which means that the field of online learning is extremely innovative and evolving constantly. Massive Open Online Courses (MOOCs) are just the latest development in distance learning.

### WHAT ARE MOOCs?

MOOCs have emerged as a common learning solution to share knowledge and experience in interactive networks. They were first called connective knowledge MOOCs. But soon, order took over and MOOCs evolved into a more traditional form of education, with teachers on one side and learners on the other. They have multiplied since 2012 both in format and in number. These online courses provide access to the best resources (as well as the worst, everything is about selection) and several thousand are now available on the Internet (Kizilcec et al., 2017). They are offered, in particular, by the biggest universities; and some cover nature, conservation and sustainable development issues. Thanks to them, everyone now has an equal chance of accessing training (not just information), even from institutions that were previously out of reach due to location, price or scarcity of places.

As the selection of learners is not made on the basis of a diploma or prior test, it is the subject matter that sorts the audience. The introductory MOOCs have a wider audience but often bring together very disparate targets which may make the cohesion of the course somewhat difficult. The more specific a MOOC becomes in academic focus, the more likely it is to reach a smaller but more appropriate audience.



Grey crowned cranes (*Balearica regulorum*) © Geoffroy Mauvais

### MOOC-GAP

While there is no single recipe for managing protected areas around the world, there are common principles, shared knowledge and similar approaches that can be taught, learned and understood. Since 2009, IUCN-Papaco (Programme on African Protected Areas & Conservation) has been developing training programmes for protected area actors in Africa. They are composed of different courses, from short, targeted training spread

over one to two weeks to a full Master's degree which lasts two years. In between, there also exist eight-week training sessions called university diplomas. All of them are taught on-site. In all cases, the number of applications for registration far exceeds the numbers that can be accommodated (often by a factor of 20 to 30 times). The logical conclusion was that in response to the explosion in demand for training in protected areas in Africa (not to mention all those who actually do not ask

### BOX 1: ESSENTIAL CHARACTERISTICS OF A MOOC

A MOOC is a distance education system that has certain characteristics, as expressed by its acronym:

**Massive:** it is a massive course. It can reach a large number of learners, from different cultures, coming from different backgrounds. The number of participants is virtually unlimited, so the course must be developed with this reality in mind. MOOCs allow for a change of scale, both in the impact of the course, but also in the feed-back sent by the students.

**Open:** it is a course open to all. It is free (in some cases, additional services such as issuing a certificate, may be charged) and there is no choice on who signs up (no possibility to select and no academic prerequisites in most cases). This openness gives free access to everyone, which presents a huge opportunity for new learners and a complete paradigm shift in the selection process that usually applies to courses.

**Online:** this is an online course. It can therefore be followed anywhere if Internet access is available, at any time, under all conditions. This removes the barriers of distance, schedules, time-differences, availability, language or even simply timidity of the participants. Everyone is welcome and everyone has the same chance to succeed.

**Course:** it is a course. There is therefore a pedagogical objective, a determined path to progress, teaching materials, exams, etc. It does not only offer online resources, but rather a constructed approach, generally leading to academic recognition.



The MOOC-GAP identity card

for anything because they do not have access to training), we needed to promote new channels for the much-needed capacity-building of stakeholders in and around protected areas. This is why IUCN-Papaco has embarked on the preparation of the first MOOC on the management of protected areas in Africa: the MOOC-GAP [Gestion des Aires Protégées (GAP) in French, the original language of the MOOC] <sup>4</sup>.

This MOOC has been developed with the Ecole Polytechnique Fédérale de Lausanne (EPFL), one of the leading 'MOOC' factories in Europe (and the 14th university in the Shanghai ranking <sup>5</sup>). Over seven modules, the MOOC-GAP provides an understanding of protected area management issues and their contribution to conservation in Africa. Those who pass all the online exams successfully receive an official certificate of achievement. Those who pass a supervised onsite final exam can then acquire two ECTS credits (in the European Credit Transfer and Accumulation System), which they can then use towards a diploma in the European learning system. The MOOC-GAP is geared primarily to staff working in protected areas and to students and professors interested in this subject, but it also targets a wider audience of people generally interested in the conservation of nature in Africa. It is therefore primarily a teaching tool but also a formidable way to raise awareness on conservation issues.

### HOW DOES IT WORK?

Through the MOOC platform, students watch videos online, complete intermediate quizzes to check their understanding of the course and consult the recommended reading for the week. They can take an exam every week in two main forms: a long quiz with automatic correction and immediate result or an examination with open questions, corrected by their peers within a few days after the submission of the assignment. To accompany the course, in addition to the optional quizzes, participants have access to written material specifically developed for the MOOC and which

summarizes the course. Downloadable in PDF format from the platform, this is much appreciated by the learners once they have watched the videos. An essential quality of any MOOC is the opportunity to interact with teachers or other students in an online forum. About a quarter of the learners of the MOOC-GAP visit this forum regularly and more participate in the Facebook group for the course. Finally, IUCN-Papaco regularly organizes online chats to allow an instant discussion with the participants, for about an hour. This reinforces the cohesion of the course, creates a sense of team belonging and provides a regular and quick feedback on the course that can then be immediately taken into account.

### BOX 2: THE MOOC-GAP IN A FEW LINES

The course is organized in a logical progression allowing the gradual presentation of increasingly detailed subjects. It consists of 56 videos, 16 quizzes, and seven weekly exams.

**Module 1 Presentation of Protected Areas:** importance, role, history, philosophy, definition, IUCN Management Categories.

**Module 2 Protected Area Planning:** issues, modalities, planning of systems, impacts, transboundary areas.

**Module 3 Protected Areas Governance:** definition and different types (government, private, community-based and shared).

**Module 4 Protected Area Effectiveness:** interest, assessment methods, ecological monitoring, research, Green List.

**Module 5 Specific Management of Protected Areas:** nature and culture, capacity building, marine areas, species approach, ecotourism.

**Module 6 Sustainable Financing:** planning, economic value, funding sources, financing mechanisms.

**Module 7 Cross-cutting themes for Protected Areas:** climate change, connectivity, restoration, equity, corruption, law-enforcement.

Each module is supplemented by a presentation of an important international convention for the management of protected areas (e.g. Convention on Biological Diversity, World Heritage, CMS, RAMSAR, CITES, etc.).



From left to right: Olivier Courbon, Polynice Anagonou, Liliane Poinçon and Junior Ngaba

## LEARNERS' TESTIMONIALS

### Olivier Courbon – France

“This MOOC was fundamentally different, in form and content, from the other training courses I have followed. It has enlightened me on issues that I had never addressed, such as sustainable funding for protected areas, and opened my eyes to the idea of working in the medium term, I hope, for the conservation of protected areas in Africa. During my internship at the GIZ, I worked in the transboundary biosphere reserve of the Mono delta (Benin) and the knowledge about community management provided by the MOOC enabled me to be more operational on the ground.”

### Polynice Anagonou – Benin

“I am a teacher in the field of forestry at the agricultural college Medji (Sekou) located 40 km from Cotonou in Benin. My students are in grades 1, 2 and 4. The MOOC-GAP has enabled me to strengthen my skills and abilities in managing protected areas and helped me to identify the key concepts that I need to emphasize to learners for better conservation of natural resources. I take great inspiration from it for my teaching at the College. But also, as an actor in nature conservation, I feel better equipped to participate in the protection of the biodiversity of my country.”

### Liliane Poinçon – Haiti

“I work at the National Agency for Protected Areas in Haiti (ANAP) as a monitoring and evaluation of activities specialist in Haiti’s protected areas. The MOOC-GAP is really useful to me in my work, especially as it has allowed me to better master some essential tools for all protected areas. It creates a common language for all protected area managers, whether African or not. The work I have done in this course has allowed me to better understand the management plan development processes and to be able to make a good evaluation of the activities carried out during the execution of these plans.”

### Junior Ngaba – Cameroon

“I am currently a student in China, following the PhD programme at the Fujian Agriculture and Forestry University (FAFU). The MOOC on protected area management has helped me better take on the main challenges and stakes Africa is facing today for the conservation of its biodiversity. It has also helped me gaining knowledge on management tools and techniques. Above all, it contributed in helping me get the scholarship for my PhD in China!”

## COURSE QUALITY FEEDBACK

### Freddy Padonou

“I took this course because of my general interest. But, it very quickly became for me an opportunity for additional training. So I took it seriously and set myself the goal of finishing it in order to get the certificate at the end... A course of this kind deserves to be replicated as many times as possible to reach many other Internet users in Africa.”

### Hervis Donald Ghomsi

“I decided to take the course on Protected Areas Management with the objective of improving my environmental skills, especially in the tropics... I greatly appreciated the structure of the lessons, each time with a weekly convention (CBD, CITES, RAMSAR...) that help position the learner in the legal framework of conservation. The video montages are impeccable and the courses are well synthesized, idem for the instructors who by their concise and precise interventions, demonstrate a good mastery of the subject.”

## THE EVALUATION OF MOOC-GAP IN 2016

At the end of each MOOC session, an anonymous questionnaire is automatically sent to all registered students to get their opinion on the MOOC. The results are then published online; directly and transparently. The main conclusions drawn from their responses are as follows:

- 97 per cent of respondents are globally satisfied with the course, its level of difficulty (91 per cent) and its duration (80 per cent).
- 96 per cent think that the content of the course corresponds to their expectations and 95 per cent that the videos are of very good quality.
- 92 per cent believe that what they have learned will be of direct benefit to them in their activities related to the conservation of nature in Africa.
- Finally, most participants (91 per cent) are interested in other MOOCs on more specialized subjects and request the implementation of other educational initiatives of this kind.

These statistics are consistent with the mark given by the students to the MOOC-GAP on the platform directly (4.9 out of 5) and with their numerous testimonials, some of which are reproduced here. The seven modules of the MOOC can be completed over 12 weeks, at a pace chosen by the students. The course, originally developed in French, has also been available in English from the end of 2016.

## OUTCOMES IN A FEW FIGURES

In 2016, over 7,000 people from 116 countries registered for the MOOC-GAP and more than 400 learners obtained their final certificate of achievement. We should keep in mind that most MOOC participants do not seek the diploma but rather the knowledge, which explains this relatively low (but typical for MOOCs) rate for the final certificate. The majority of enrollees are professionals, either consultants (17 per cent) or employees of parks, reserves or NGOs (43 per cent). Students (21 per cent) and job seekers (16 per cent) also make up a significant proportion of enrollees.

Nearly 65 per cent of these people are African. African countries with the highest number of participants are Cameroon, Senegal, DRC and Madagascar (Table 1).

An interesting feature of this mode of teaching is that it allows the formation of a strong network during the training itself. Thus, the Facebook group of the MOOC-GAP had more than 2,700 members at the end of 2016 who continue to exchange ideas and information even

Table 1: Country of origin of the participants

Country
Cameroon
France
Senegal
Democratic Republic of the Congo
Madagascar
Burkina Faso
Côte d'Ivoire
Benin
Togo
Rwanda
Gabon
Morocco

after finishing the course. It is therefore a formidable platform for continuous learning and not the time-limited experience that is most often the case in face-to-face training. This also provides a means to measure the impact of the training on the ground by continuing to interact with learners once they have returned to work.

## FROM MOOC TO COS

Developing a MOOC is a great experience but certainly not an end in itself. A longer-term perspective is needed, which will ultimately provide learners with an opportunity to make more progress and for their own improvement to be recognized. This is why IUCN-Papaco is collaborating with the EPFL to set up a Certificate of Open Studies (COS) consisting of several MOOCs to be undertaken progressively in order to obtain this official certificate. Within this framework, a MOOC on ecological monitoring was launched in February 2017 and two new MOOCs are currently being prepared: one on conservation law enforcement and the other on the species approach for protected area management. They will be complemented in 2018 by other MOOCs (on Geographical Information Systems, Communities engagement and negotiation, Technology for Protected Area Management, etc.) to complete the COS which is expected to be made up of eight MOOCs in total.

Diplomas are usually reserved for graduates, meaning that only those who already have reached an academic level are allowed to continue in the system. In the case of MOOCs, since there is no compulsory prior screening, it is up to each student to prove his or her capacity. The COS will also be accessible to all by following different MOOCs until they reach the required number of credits. This represents a major revolution, allowing learners,

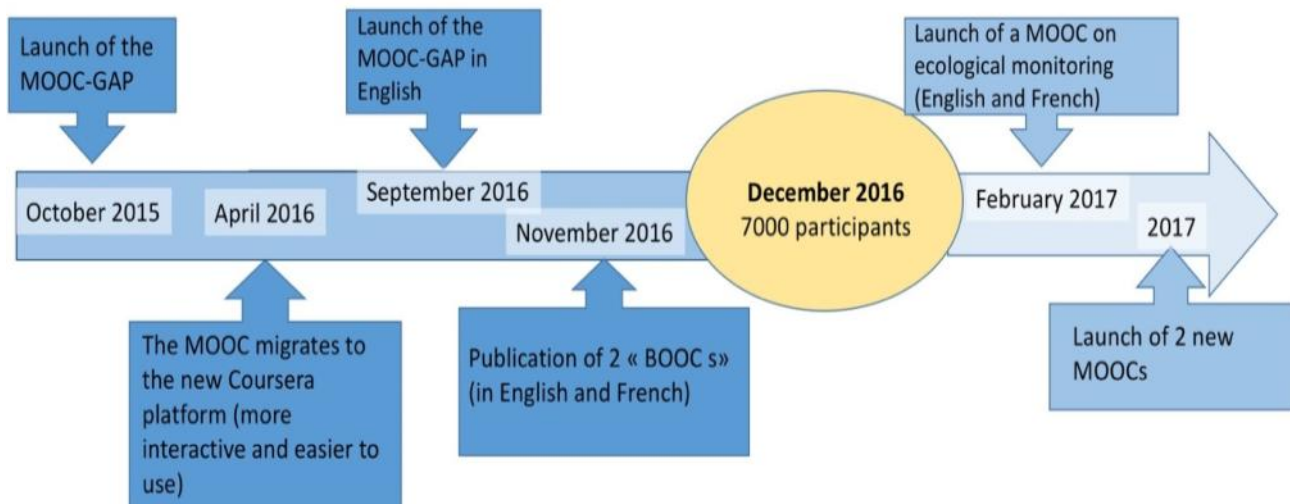


Figure 1: The path to the Certificate of Open Studies

wherever they are, to access a real diploma awarded by a prestigious school. For Africa, it is certainly a solution to the lack of infrastructure and teachers to respond to the current and future explosion in demand. It is also a tremendous opportunity for African universities to enter the open and competitive field of training that is now globalized. Nature conservation has certainly much to gain in this process.

## ENDNOTES

<sup>1</sup> [www.moodle.org](http://www.moodle.org)

<sup>2</sup> Blackboards is a Learning Management System that has been developed in the 1990s and allows sharing the training material developed by universities around the planet, such as [www.blackboard.american.edu](http://www.blackboard.american.edu) or [www.open.ac.uk](http://www.open.ac.uk)

<sup>3</sup> OCW is a free training resource based on a course that is put online. Well-known OCWs are [www.ocw.mit.edu](http://www.ocw.mit.edu) or [www.open.edu/itunes](http://www.open.edu/itunes)

<sup>4</sup> [www.papaco.org/mooc](http://www.papaco.org/mooc)

<sup>5</sup> [www.shanghairanking.com](http://www.shanghairanking.com)

## ABOUT THE AUTHOR

**Geoffroy Mauvais** is a veterinarian specialized in the development and management of protected areas in Africa. He has been coordinating the IUCN-Papaco since 2006. After six years in Ouagadougou and three in Nairobi, he is now based in Johannesburg, South Africa. Papaco's objective is to improve the governance and management of the continent's protected areas, in order to contribute to better conservation of biodiversity. It is therefore aimed both at preserving species and at maintaining ecosystems and all their functions. It also focuses on the sustainable use of this biodiversity, when it strengthens conservation and is possible to achieve in a

sustainable manner. To achieve this, Papaco works primarily on site and network assessments, technical support and information for managers, and training of staff and partners in parks and reserves. He joined EPFL in 2015 to develop MOOC programmes and other scientific activities in this area. See [www.papaco.org](http://www.papaco.org) for more details.

## JOIN THE MOOCS

### MOOC on Protected Area Management:

[www.coursera.org/learn/protected-areas](http://www.coursera.org/learn/protected-areas)

### MOOC on Ecological Monitoring:

[www.courseware.epfl.ch/courses/course-v1:EPFL+eco-monitoring+2017\\_T1/about](http://www.courseware.epfl.ch/courses/course-v1:EPFL+eco-monitoring+2017_T1/about)

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