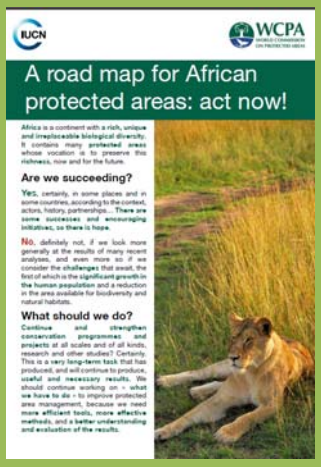

NAPA

News from African Protected Areas

Nouvelles des Aires Protégées en Afrique

N°76
June 2014

Edito (WPC – 5 months)

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Competence and motivation

Imagine that as you get older you develop a cataract. In reality, nothing really serious, something rather banal. When that day arrives, you go to the hospital to undergo surgery at the hands of an ophthalmic surgeon, known for his skills in these matters. But imagine that upon arrival, this eminent person's secretary informs you that he is on vacation in Seychelles, and that he won't return until quite some time! She then offers you an alternative in the person of his obstetrician colleague, a world-renowned one. Of course, he has no clue about how to treat eyes problems and has got Canadian woodcutter hands, but he is still pretty smart and always on the lookout for a new experience ... it is great, and the good news is that he is available this week!

What would you do? Would you place your eyesight (and incidentally, your life) in the hands of this insatiable experimenter? Or would you decide to wait for the return of the vacationer?

Well, we should remember that it goes for protected areas as it goes for hospitals. From the outside, they all look like the same, as all hospitals in the world are alike. Their managers all have the same look, like all these doctors who walk in the corridors, wearing a white coat and with a stethoscope around the neck... But with a closer look, we see that all doctors do not have the same training. Not all do the same thing. That all are not equally competent...

It is a virtue of the protected areas management categories defined by IUCN, certainly in a way slightly stereotypical, to propose six different boxes in which to classify our parks and reserves. As we would define six services in a hospital, each with its specific characteristics, its objectives, its specialists… So that's it? Protected areas are not all the same? This means that there is no omniscient manager? That there is no reason to think that because one is a park manager one day, one can handle all of the world's protected areas. That one has to have specific knowledge for each category, for each context, for each period...

In a word, it means having the skills of the position one occupies, when one occupies it. This is common sense isn't it? And yet how many protected area managers are recognized for their good work? Or if any, sanctioned for their failure? How many of them go from one park to another simply because somebody has to hold the position, and that they must follow their career?

Yet this skill is at the heart of the problem. The future of a protected area, of course, does not only rest on the shoulders of its manager. Governance of the territory, whether it is assumed by the State, private partners or communities, or mixes it all, has a decisive influence on what can or can't be done. The best surgeon will get poor results in a hospital in ruins or under-equipped. But the best hospital can't do anything without good doctors. Qualities of managers, staff of PA, their commitment... all that influences the results, and impacts conservation. This is why we try so hard to train, to inform the managers... to "build capacity" as one says. And that is why we must continue to do so.

Is it useful? Not always. The demand is there, the need is there, the resources are available, the techniques are ready. What often lacks is motivation. Learning properly requires a true desire to learn. If one is only looking for a diploma, a certificate... it is time wasted. If one is not willing to personally invest in the development and implementation of this new skill, nothing will happen. Today, it is so easy to find all the required information online, how many managers simply make the effort to keep abreast? Read what is published regularly? So few, too few. This is a key issue to be addressed, but one which is so difficult to treat effectively because it depends on each of us...

This NAPA letter provides a few examples of applicable techniques for ecological monitoring of protected areas, a field where many skills are needed on the ground...

WPC – 5 months to go!

CALL FOR PROPOSAL

The Fonds Français pour l'Environnement Mondial (FFEM) has launched a fourth phase of the **Small-Scaled Initiatives Program** (SSIP/PPI in French) for the 2013-2016 period. This program aims at **strengthening the civil society contribution of Central and Western African countries, Madagascar and Mozambique to the conservation of biodiversity and fight against climate change by funding local projects**. SSIP targets the issues on **outstanding biodiversity conservation and fight against climate change while improving people's livelihoods**.

In order to reduce time spent by recipients on formulating proposals and designing projects, **project selection projects by SSIP will be first based on a pre-proposal of 4 pages maximum.**

The procedure will follow two steps:

1 Pre-proposals selection

IUCN-FC will assess pre-proposals according to criteria and will invite recipients with the best projects to submit a complete proposal. IUCN PACO may support technically the preselected recipients who want to benefit from help. **This support does not guarantee the approval of the submission as it's a Selection Committee (composed with independent members from SSIP executive team) which takes the final decision among the projects.**

Only preselected organizations (those whose pre-proposals have been selected) will be invited to submit a complete proposal.

2 Selection of complete proposals

Organizations invited to submit the complete proposal according to the provided application form must send it to IUCN-FC. A selection process will then be organized.

The selected projects will be granted **once IUCN-FC and the organization have both agreed on the content of the agreement** and **once all administrative documents1 required by SSIP have been provided.**

Organizations must send **by email only** their pre-proposals to IUCN-CF: ppi@uicn.fr

The pre-proposals form can be downloaded here:
http://www.uicn.fr/Apply-for-the-Small-Scaled.html
or
www.ffem.fr

Consultancy offers

1) EXCHANGES FORUM BETWEEN LOCAL NGOs IN DRC AT THE END OF JUNE 2014

IUCN PACO, IUCN NL and GEF-SGP will organize at the end of June / early July a forum to promote exchanges between local Congolese (DRC) NGOs working on environmental conservation. The purpose will be to facilitate networking between these organizations and stakeholders. Managers of the event are currently looking for a facilitator for the three day workshop who will also be in charge of capitalization. A call for applications has been launched and the deadline is Friday, June 6th 2014. ToRs can be downloaded on www.papaco.org

2) TRAINING WORKSHOP PPI-IUCN / WCS CEDAMM September 2014

WCS-CEDAMM and IUCN-PACO (PPI) will organize, in September, in Brazzaville, a 5 day training course. The main objective of this training is to strengthen the capacity of local development stakeholders in and around PAs providing participants practical and operational tools for the identification of economic opportunities based on the sustainable use of natural resources and tools to respond to calls for proposal available at the local level. IUCN is currently looking for a facilitator of the second part (three days) of the workshop. The deadline is June 15th, 2014. ToRs can be downloaded on www.papaco.org.

Ecological monitoring of protected areas in central Africa: a few methodologies

Direction 4 of the Road Map for PA in Africa

This NAPA letter presents shortly the second part of the study we conducted last year with WCS Gabon on ecological monitoring for protected areas and the way it is used in decision-making processes (see NAPA 75). Here after are presented four different monitoring systems that are used in central African PAs. Each system (monitoring large mammals population by distance sampling along line transects, fixed-points photo monitoring, monitoring of mammals using camera traps and water birds direct observation counts) is presented in details in a fiche.

Other methodologies and the main report are available on **www.papaco.org**

	Monitoring large mammals: distance sampling along line transects
Relevant Values	Important species such as gorillas, chimpanzees, elephants and other species of conservation concern
Monitoring method	Line transects: estimation of the density and abundance of signs or of directly observed animals along predefined lines randomly distributed across an area of interest and of sufficient number to obtain a representative sample of the target species.
Description	Distance sampling along line transects is a robust and easily repeatable methodology to set up monitoring cycles over landscapes, protected areas and other designated zones of interest for large, medium and small mammals, birds, cetaceans and human activities. It is now the standard method used in Central Africa for estimating the density and abundance of a species or group of species, or a proxy indicator for those species, over a predefined area (for example a protected area) using either direct observations of animals or signs for which the associated production and decay rates are available. It is most frequently used for great apes (using nests), ungulates (direct observations or dung) and elephants (dung) and monkeys (direct observations). However it can be used for any species that produces discrete sign on a regular basis, or a species where individuals or groups can reliably be detected. Properly conducted line transects are robust to changes in detectability of wildlife or their sign (for example due to changes in the density of undergrowth or observer efficiency) which allows changes in population densities to be reliably monitored over time. Standard methodology is to carry out monitoring cycles every 4/5 years. Transect data can also be used to map the density distribution of a species over the predefined area and monitor changes in density distribution over time. All sign of human activities should also be recorded to permit analysis of the relationships between the wildlife distribution and abundance and the intensity and distribution of human activity.
Examples of use for management	Minkebe National Park, in Gabon, is a high priority site for forest elephants. Initial surveys conducted in 2003-2004 showed that the park and its periphery contained about 29,000 elephants (95% CI 21,000-40,500) of which almost 23,000 were in the park itself[1]. However after worrying reports of intense poaching, a repeat survey in 2013 indicated a massive decrease: the results of only 13 transects of a pilot survey suggested a decline of 75% in elephant numbers[2]. These shocking results have led to a massive mobilization of human and financial resources in Gabon to reinforce anti-poaching efforts in the area. Time will tell if they are successful. In the Okapi Faunal Reserve (OFR) in the Democratic Republic of Congo line transect surveys carried out in 1995-7 and 2005-7 and in 2011 showed marked declines in forest elephants and Okapi[6-9]. They also showed areas of high artisanal mining. This allowed the park guards to target their patrols to the mine sites and particular high intensity hunting areas. As a result in the OFR mining activities have been reduced.  *A field technician uses a sighting compass to align a transect.*
Basic protocol	A survey design is created using a computer program (Distance software[3]) and ArcGIS. The following ensure a well-designed monitoring survey: • A pilot survey is carried out in the area to obtain an estimate of the encounter rate of animals or their sign for a particular species. Then for a target coefficient of variation (CV, ideally 15% or less, if possible), given the estimated encounter rate, it is possible to

	determine the survey effort needed (total length of all combined transects), to attain the desired precision in the density and abundance estimates. It is important to keep the CV value as low as possible in order to maximize the probability of detecting a statistically significant change in species density between successive monitoring cycles. • About 30 transects are required in Central African forest conditions for reasonable precision. • Sufficient survey effort to obtain at least 60-80 observations. • To improve precision the survey area might need to be stratified if there are known or suspected areas of high / low density. These may be due to environmental factors (e.g. variation by habitat types) or human factors (areas of greatly differing hunting pressure or future plans for large scale human activities in a particular area). Ideally, the transect lines themselves in each survey stratum should also be oriented to follow suspected gradients of density of the species of interest. There are essential assumptions underlying distance sampling: (i) An adequate number of line transects are located randomly with respect to the distribution of the animals. *This ensures reliable extrapolation from observations made during the survey to the entire study area, and reliable extrapolation from the observed distances to estimate detectability.* (ii) All animals and signs directly on or above the transect line are seen. *This ensures estimates of density or abundance are not negatively biased.* (iii) Measurements from the line to the observation are exact. *To avoid biased estimates, all measurements should be recorded accurately and with reasonable precision (for dung this usually means to the nearest centimeter). Rounding off values, especially recording zero for observations close to the line should be avoided.* (iv) Animals do not move away from (or towards) the line prior to their distances being recorded. This is clearly not an issue with animal sign! *This avoids positively or negatively biased estimates due to systematic animal movement towards or away from the observers, respectively, before the animals are detected.*
Data outputs	• Density or abundance estimates of sign, or of the animals themselves for a particular species or group of species • Population density maps across the area surveyed • When cycles are repeated, monitoring of changes in density, abundance and distribution of animals and/or the proxy indicator across the survey site • Maps, relative abundance measures, and changes of human activities across the survey site • Relationships between the distribution and intensity of human activities and of wildlife, and changes over time. This is vital for adaptive management: an assessment of conservation activities can be made and changes implemented as necessary
Situations in which applicable	Where the density of animals, or the number of animals, needs to be known, rather than a relative abundance indicator (such as an encounter rate of sign). Where at least 60-80 observations of the animals or of the proxy indicators can be made in the set of ~30 transects.
Situations in which not applicable	Where there is a low density of the study species, as this makes the required survey effort enormous. Where financial constraints are such that transects are too expensive for the budget of the area- in some areas, poaching pressure is so great that law enforcement swallows up the entire annual budget, and only a measure of relative abundance can be used until poaching is under control.
Technical considerations	• Careful and intensive training (and regular refresher courses) is required to ensure that all field staff are using the same protocols and understand them. All equipment is working, including communication equipment, and there are enough supplies with each team to complete their circuit without delays (including credit on phones, batteries, thread, food, etc). • Each team has the correct maps (plasticized) for their circuit and the right coordinates for the transects they are going to survey. Each team leader and their assistant know how to use all the equipment including GPS, compass, camera and binoculars. • Each team has a field medical kit.
Equipment requirements	• GPS capable of quickly and accurately recording position in forest conditions. The Garmin 60 CSx was the standard GPS used in 2012 for surveys. • Digital camera (waterproof and with a small zoom (e.g. 5x) • Binoculars (waterproof) • Compass and sighting compass

	• Hip chain, with enough thread for each mission • Secateurs for minimally cutting transects • Two tape measures: a 50m one and a smaller 5m pocket one • Waterproof field books (Rite in the Rain) • Thuraya satellite phone and credit • Adequate supply of batteries for GPS and camera • Laptop, hard drive and flash stick (for the office, not the field) • General camping equipment and field clothing for the team
Staff requirements	• Full field team needed consisting of: • Team leader (principal observer) • Assistant team leader (second observer) • Cutter (using secateurs where possible and machete if needed) • Direction person (uses the compass for rapid movement between transects and sighting compass to create a straight transect) • Number of porters dependent upon the number of days in the forest • Expect at least a 3:1 ratio of days in the field to days in the office entering, cleaning and analyzing data and preparing for next circuit
Training and expertise required	Prior training is essential to ensure correct layout of transects and consistent detection and classification of signs. Team leaders and their assistants should have attended one of the dedicated field training courses carried out at various sites across central Africa, usually lasting about 8-10 weeks and covering both theoretical and practical aspects of surveying and analysis. While an expert should be consulted to help with survey design, it is also imperative that the team leader, and preferably the assistant as well, understand the methodology and be able to react to situations that arise in the field. Experience shows that having a team leader who understands how the data will be analyzed greatly increases the quality of data collected. Normally the team leader is expected to carry out most of the analyses (encounter rates, Distance software manipulation, and mapping of the results) There needs to be a communication and evacuation plan, where team leaders and other staff have a regular, planned program of touching base using text messages containing information on the evening's GPS camp point, at least every 2-3 days. At least two people in the team should have received first aid training and how to use the medical kit. All staff should have been vaccinated against yellow fever, polio, tetanus, hepatitis, measles, and TB that can be transmitted to great apes in the field. All staff need to be de-wormed a few days before entering the field. See the IUCN Best practices Great Ape Tourism Guidelines for more detail[4] .
Other considerations	For monitoring purposes seasonality is important, as it affects both decay rate of sign and animal distribution, and the same season should be chosen where possible over different monitoring cycles. Estimating actual population figures from the density of signs requires accurate and precise estimates of the decay rate and production rate of signs. It may be necessary to conduct a separate survey to estimate decay and production rates.
Further reading	A useful set of documents for a more detailed overview of the subject includes a recently published decision tree for monitoring[5], practical training, implementation, and analysis manuals[10-12] and books or papers[13-16] outlining the theory and practice of distance sampling.
Other cited references	1. Blake, S. *Long term system for monitoring the illegal killing of elephants (MIKE). Central Africa forests: Final report on population surveys (2003- 2004)*. 122 (2005). 2. ANPN *Wildlife and poaching assessment in Northeast Gabon Preliminary results*. 24 (ANPN, WCS and WWF: Libreville, Gabon, 2013). 3. Thomas, L. *et al.* Distance. (2006). 4. Macfie, E. & Williamson, E. A. *Best Practice Guidelines for Ape Tourism*. (IUCN/SSC Primate Specialist Group: Gland, Switzerland, 2010). 5. Strindberg, S., Brien, T. O. & Strindberg, B. S. A Decision Tree for Monitoring Wildlife to Assess the Effectiveness of Conservation Interventions A Decision Tree for Monitoring Wildlife to Assess the Effectiveness of Conservation Interventions. 6. Hart, J., et al., *La Réserve de Faune à Okapis: La distribution et fréquence de la grande faune et des activités humaines -Avec une évaluation de l'impact de 10 ans de conflit : 1996 - 2006. IMU Rapport No 9*. 2008, WCS: Kinshasa. 7. Beyers, R., et al., *Resource wars and conflict ivory. The impact of civil conflict on elephants in the Okapi Faunal Reserve: 1995 - 2006.* PLoS One, 2011. **6**(11): p. e27129. 8. Vosper, A., J. Masselink, and F. Maisels, *WCS RFO Program: Great ape and human impact monitoring in Okapi Faunal Reserve, Democratic Republic of Congo. Final report to USFWS- GACF Agreement 96200-0-G100*. 2013, WCS. p. 54. 9. Maisels, F., A. Colom, and B. Inogwabini, *Section 6: Training.*, in *Best Practice Guidelines for Surveys and Monitoring of Great Ape Populations.* , H. Kühl, Maisels, F., Ancrenaz, M., and Williamson, E.A., Editor. 2008, SSC

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11 Maisels, F. and R. Aba'a, *Section 3: Survey design*, in *Best Practice Guidelines for Surveys and Monitoring of Great Ape Populations*, H. Kühl, Maisels, F., Ancrenaz, M., and Williamson, E.A. , Editor. 2010, IUCN Ape Species Specialist Group. p. 16.
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13. Hedges, S., *Monitoring elephants and assessing threats: a manual for researchers, managers and conservationists*, ed. S. Hedges. 2012, Himayatnagar, Hyderabad, India: Universities Press.
14. Thomas, L., et al., *Distance software: design and analysis of distance sampling surveys for estimating population size.* Journal of Applied Ecology, 2010. **47**(1): p. 5-14.
15. Kühl, H., et al., eds. *Best Practice Guidelines for Surveys and Monitoring of Great Ape Populations*. ed. I.A.S.S. Group. 2008, IUCN: Gland, Switzerland. 36.
16. Buckland, S.T., et al., *Advanced distance sampling*. 2004, London & New York Chapman & Hall. 251.

Fixed-point photo-monitoring

Relevant Values	Landscape values, particularly of savanna and other open habitats
Monitoring method	Fixed-point photo-monitoring
Description	**Fixed-point photo-monitoring** is based on taking photos from the same location in the same direction at different times. Comparison of photos taken at different times can reveal insidious landscape changes that occur too slowly to be easily detected by an individual observer. The method is particularly suited to qualitative monitoring of change at large scales particularly of landscape visual quality (presence/absence of human infrastructures, rubbish or erosion for example), large-scale vegetation changes (such as savanna encroachment) and presence of invasive species.
Examples of use for management	The mosaic of savannas, woodlands, galleries and continuous forest in the north of Lopé National Park, Gabon, part of the Lopé-Okanda World Heritage site, are major landscape, economic and educational values that the site aims to protect. However, a comparison of photos taken in the same area of northern Lopé over a period of 15 years (right) clearly showed forest encroachment on savanna despite a prescribed burning plan intended to maintain savanna cover[2]. As a result, the burning plan is being revised. In several areas, burning will be conducted less frequently and later in the dry season to maximize combustible biomass and fire temperature. An expanded fixed-point photo-monitoring will be combined with remote sensing and permanent sample plots to evaluate the impacts of the changed burning procedure. 
Basic protocol	The basic protocol is to identify a number of fixed points from which photos are taken at regular intervals. At each point photos may be taken systematically (for example in each of the cardinal directions), or in a specific chosen direction to capture a feature of interest. Photos should be taken in the same season to ensure comparability. Where there is significant seasonality, it may be useful to photograph the same site in different seasons at each time (e.g. at the height of the rainy season and at the height of the dry season in each year). For each photo taken, the date, time, location of the camera (GPS point and details of the rock on which it was placed, for example), the direction in which the photo was taken and details of the camera used (especially focal length and correction factor) must be recorded. A photo of the tripod itself in its fixed-point location should be taken, and printed out for the subsequent rounds of monitoring: it allows the exact point to be more easily found. The frequency of monitoring depends on the parameters of interest. If change can be rapid and irreversible (such as degradation of sensitive sandy savannas by human presence), frequent monitoring (say every three months) may be justified. For vegetation change, monitoring can take place over longer periods, often every 3 to 5 years. Comparison of photos take in the same direction from the same point over time can reveal changes in factors such as woody cover, burned areas, well-trodden animal and human paths and

	infrastructure development (number and width of roads or presence of buildings for example). While side-by-side comparison of photos is likely to be most useful, semi-quantitative analysis is also possible. In this case, scores are assigned to each photo based on occurrence of features of interest, such as bushiness or presence/absence of human infrastructure. Analysis categories should be defined in advance to ensure effective choice of photo-points. Analysis categories are normally qualitative (e.g. zero, minimal and significant human impact). If many comparable sites are monitoring, simple statistics such as number of photo-points showing positive or negative change over a given time period can help provide an overview of change.
Data outputs	• Variable, depending on the exact landscape value being monitored. • Frequent outputs from comparison of photos include: o Assessment of extent of woody cover vs bare ground vs grassland; o Qualitative assessment of human impact (roads, buildings, litter, erosion etc) according to ordinal categories – none, minimal, significant. o Proportion of photos showing presence/absence of particular (often colonizing or invasive) species.
Situations in which applicable	Any area where a landscape feature of interest that may change over time can be photographed from the same location at several time periods.
Situation in which not applicable	If the landscape is likely to change so fast that photos at different time periods will not be able to cover a similar field of view, this method is unlikely to be useful. If it is impossible to find a viewpoint that allows photographing a feature without distortion, comparisons will be difficult. In dense forest the field of view will be limited, but photos can still be used to show changes in the structure of the understory.
Technical considerations	Although photographic equipment may vary over time, it is important to use the same focal length lens (taking account of correction factors for digital cameras) to ensure comparability. 50mm lenses (in 35mm frame equivalent) tend to show the least distortion and are frequently preferred. Ensure photos are saved at highest quality, preferably in “raw” format. Use a tripod and timer release to ensure sharp photos. An aperture of F8 or F11 will maximize detail while keeping most of the field of view in focus. Where possible avoid taking photos in hazy or foggy conditions. Avoid the temptation to take too many photos. One well-taken, well-exposed and correctly labeled photo in each direction at each point is sufficient. Check each image in the field to ensure that it is in focus and that the frame is what was expected. Photos should be saved in a standard (non-proprietary) format (such as the open raw format .dnf or as .tiff), not just jpeg Correctly labeling and archiving photos is essential. Multiple copies should be saved, on several different media (hard drive, dvd) with copies stored in separate locations. Cloud-based storage (dropbox, google drive etc) is by far the most reliable (but local copies should also be kept). If cloud storage is used, multiple people should have access to avoid the risk of loss of accounts and passwords.
Equipment requirements	• Digital camera, about 12 megapixel resolution is a good tradeoff between resolution and file size • Tripod • GPS • Laptop and download cable • Harddrives and DVDs for archiving
Staff requirements	Monitoring can be carried out by a single trained individual. Field assistants may be necessary for safety and logistics depending on the individual site. Expect at least a 1:1 ratio of days in the field to days in the office processing the photos.
Training and expertise required	The technician must understand the objectives of the survey, and be able to operate the camera and GPS, and use spreadsheet and photo-cataloguing software. Categorization of photos requires the capacity to define and apply qualitative categories rigorously.
Other considerations	Part of the value of this method is that it can permit evaluation of changes over generational timescales. In the majority of cases, it will be a different person taking photos at each time period. Detailed metadata, systematic cataloguing of photos and secure (but accessible) archiving is critical.
Further reading	The US Department of Agriculture manual provides a detailed introduction to the topic[4].
Other cited references	1 Maisels, F. and Forboseh, P. (1997) *Fixed-Point Photographic monitoring, Kilum/Ijim Forest, 1997 Baseline System*, Birdlife International and Ministry of Environment and Forestry.

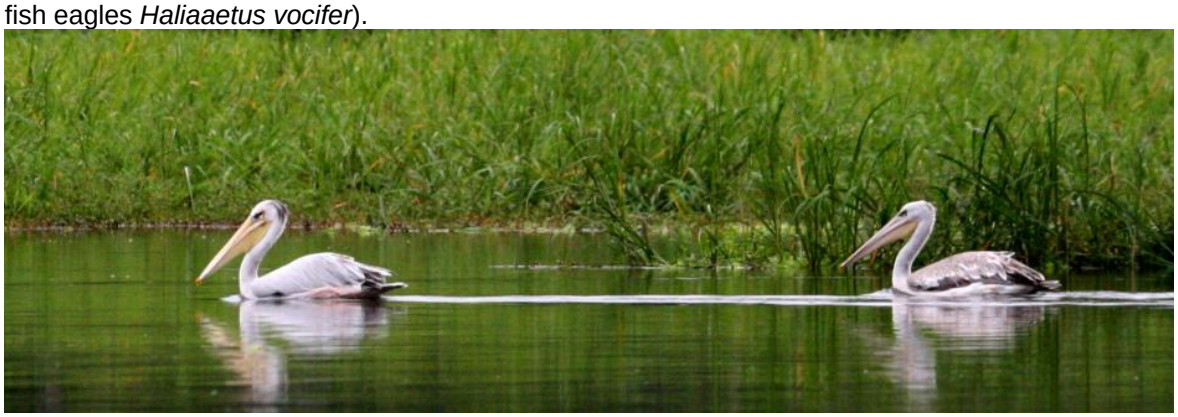
	2	Jeffery, K.J. *et al.* (2011) , Fire management in a changing landscape: a case study from Lopé National Park, Gabon. , in *Proceedings of the 5th International Wildland Fire Conference 9-13 May 2011*
	3	Walters, G.M. (2010) , The Land Chief's Embers: ethnobotany of Bateke fire regimes, savanna vegetation and resource use in Gabon. , University College London
	4	Hall, F.C. (2001) *Ground-based photographic monitoring*, Department of Agriculture, Forest Service, Pacific Northwest Research Station.

	Mammals using Camera traps
Relevant Values	Medium to large mammal species, particularly those that are elusive, nocturnal, or rare, and less arboreal e.g. gorillas, felids and other carnivores, and even elephants and other species of conservation concern
Monitoring method(s)	Camera traps collect direct photographic evidence of the species of interest
Description	A **camera trap** is a remotely activated camera that is equipped with a motion sensor and/or an infrared sensor, and that is triggered by an animal (or human) walking past (typically up to 20m in front of the camera). Upon triggering, the camera takes a photo or series of photos of the animal. Camera traps have been used for artistic purposes by wildlife photographers for many years, but recently they have become significantly more affordable (some less than $200 each), opening up their use for systematic wildlife monitoring. Camera traps can be placed to preferentially target particular species, or to capture as many different species as possible. Camera traps can also be set up in pairs to take photographs of both sides of an animal; for species that can be individually recognized by markings such as spots or stripes this allows individuals to be identified. Once installed, camera traps can remain active for many weeks (depending on batteries and configuration), allowing them to detect otherwise rare and elusive species. In such cases they can be the only practical and affordable monitoring technique[1]. Camera trapping involves a prior understanding of the zone of interest and some knowledge of the species to be studied, but carefully collected photographic data can be used to: • record presence/absence of species and estimate species richness[2,3]; • estimate absolute abundance where it is possible to identify individuals[4]; • estimate spatial distribution (occupancy) of a particular species; • estimate relative abundance of a particular species over time using a relative abundance index (RAI) e.g. number of photographs of specific species/100 trap days[5,6]. Camera trapping therefore has considerable potential as a technique for monitoring changes in species richness and occupancy patterns over time.
Examples of use for management	Use of camera traps for monitoring is a new and relatively under-exploited approach in Central Africa; there are as yet few, if any, cases where data from camera traps (as opposed to images of charismatic species) has clearly influenced management on the ground. Given the potential of the technique we expect there will be many more examples of its use for management in central Africa in the near future. The on-going Chinko Project in eastern Central African Republic has used camera trapping to draw attention to the extraordinary diversity of this little known, but so far unprotected region[11].
Basic protocol	Estimating population abundance using camera traps traditionally relies on photographic mark-recapture. For this, individuals of the species need to be identified ('marked'), typically through natural markings such as spots or stripes or other characteristic features. This is useful for species such as leopards or golden cats, although it is also currently being tested for apes in Loango National Park, with the aid of facial recognition software. Recent assessments of this type of tool suggests that great care in the sampling design needs to be taken, although spatially explicit capture recapture (SECR) models may be the best way of using this method for individually marked animals[12,13]. As with any sampling method, a number of sampling and design criteria need to be met for mark-recapture approaches: 1. The spacing of the camera traps ("grain") and how large it will be ("area") is dependent upon the biology of the species of interest. Trap spacing and total trapped area will be greater for species with larger home ranges and that move greater distances during a day or night. 2. No "holes" should exist between consecutive traps, that is, areas an animal may pass through with zero probability of being photographed by the camera trap. This will depend on the biology of the species and how far they typically travel in a 'trap day'. 3. Within this broad spacing, individual traps (or pairs of traps) should be placed in those areas most likely to photograph the species of interest, e.g. animal paths, and in such a way as to facilitate individual identification (for example at the appropriate height and orientation to the path). This will require knowledge of the area, knowledge of the biology of the species and

	experience. 4. The target number of trapping days, simply the function of the number of survey days x number of camera traps, will depend on the local abundance of the species, the sample size required and the level of experience in finding good camera trap locations. For mark-recapture analysis, a sample size of >10 (even for very rare species) is desirable. Where individual animals are not recognizable – often the case with ungulates such as forest duikers – an occupancy modeling approach can be applied to presence-absence data[14]. Occupancy refers to the proportion of an area occupied by a particular species, but is frequently used as a surrogate for abundance. Basic field protocols for estimating occupancy of terrestrial vertebrate communities from camera trapping presence/absence data in tropical forests have been developed by the TEAM network (http://www.teamnetwork.org/protocols/bio/terrestrial-vertebrate) as follows: 1. A minimum of 60 camera trap sampling points is deployed at each site. 2. Sampling points are at a density of 1 camera every 2 km². 3. Sampling points are distributed along an elevational gradient if one exists. 4. Camera trapping is done in the dry season (months with less than 100 mm of rain or less than 200 mm for sites with less seasonality). 5. Cameras are deployed for a minimum of 30 days. 6. No bait is used. 7. Camera traps are set 30-40 cm from the ground and close to animal trails. The precise methods to be used should be adapted to the specific circumstances of the study site.
Data outputs	Presence/absence and hence species richness Density estimates for a particular species for a predefined area Occupancy (from presence/absence data) Index of relative abundance of a particular species
Situations in which applicable	Density estimates of species that have easily identifiable markings for identification of individuals Detection of terrestrial species that are elusive or rare Species inventories and distribution patterns over relatively small areas Relative abundance of species that cannot be individually identified
Situations in which not applicable	Large-scale species inventories Species that are not known for certain within the study area Density estimation of species that cannot be individually identified
Technical considerations	Make sure casing for camera is sealed tight and is water proof. It might also be useful to use silica on the inside to absorb some of the moisture and therefore prolong the use of the camera trap Ensure there is enough battery life and a large enough memory card for the duration of the time the camera will be left before the batteries and or the SD card is replaced or the camera removed Ensure photographs are saved at the highest quality possible to increase the ability to identify the photographed species Deciding between infra-red and white flash depends on species and being able to identify markings under these flash conditions. Correct labeling and archiving photographs is essential. Multiple copies should be saved, on several different mediums (hard drive, dvd) with copies stored in separate locations. Cloud-based storage (dropbox, google drive etc) should strongly be considered as it is by far the most reliable. If cloud storage is used, multiple people should have access to avoid the risk of loss of accounts and passwords.
Equipment requirements	• Purpose built camera traps. The latest models are most robust, with better quality cameras and are smaller and lighter. They need to be waterproof and robust. • Large capacity memory card and long lasting batteries • GPS (Garmin 60 CSx or similar) • Maps of study site with grid overlaid • Laptop with capacity to download memory card • Hard drives and DVD's for archiving
Staff requirements	Field monitoring can be carried out by a single trained individual. Field assistants may be necessary for safety and logistics depending on the individual site. It might be necessary to have a second monitoring expert who can download, clean and analyze the data back in the office. Expect at least a 1:1 ratio of days in the field to days in the office processing the photos, although software for species and even individual detection is in development.
Training and expertise required	Field staff setting up the camera traps need to have been trained in how to use that particular camera trap and the correct placement and settings. An expert must be available who knows how to download the images, archive them and analyze the data contained within the images to produce a density estimate for the particular species

	For efficient camera trap placement (particularly for single-species surveys) staff need to have a good knowledge of species biology and how they use the study area. As for all fieldwork, safety precautions are essential and measures should be taken to prevent impacts on wildlife.
Other considerations	Camera traps can be easily stolen by hunters or other forest users, and therefore cameras should be well attached to trees in areas that are used by people. Explaining the study and traps to forest users prior to the survey starting can reduce fears or suspicion and prevent theft. In areas of high wildlife density, elephant and chimpanzee damage can be considerable; a stock of spare camera traps is recommended.
Further reading	A recent book on the subject describes the theory of all kinds of camera trapping[15], and a very useful field handbook is now available online[16].
Other cited references	1 Rovero, F. and Marshall, A.R. (2009) Camera trapping photographic rate as an index of density in forest ungulates. *Journal of Applied Ecology* 46, 1011–1017 2 Gessner, J. *et al.* (2013) Assessing species occurrence and species-specific use patterns of bais (forest clearings) in Central Africa with camera traps. *African Journal of Ecology* DOI: 10.1111/aje.12084 3 O'Brien, T.G. *et al.* (2010) The Wildlife Picture Index: monitoring top trophic levels. *Animal Conservation* 13, 335–343 4 Henschel, P. (2008) , The conservation biology of the leopard Panthera pardus in Gabon: Status, threats and strategies for conservation. , University of Gottingen, Mathematisch-Naturwissenschaftlichen Fakultäten 5 Henschel, P. *et al.* (2011) Leopard prey choice in the Congo Basin rainforest suggests exploitative competition with human bushmeat hunters. *Journal of Zoology* 5, 6 Henschel, P. and Ray, J. (2003) *Leopards in African Rainforests: Survey and Monitoring Techniques*, Wildlife Conservation Society. 7 Tumenta, P.N. *et al.* (2009) Threat of rapid extermination of the lion (Panthera leo leo) in Waza National Park , Northern Cameroon. *African Journal of Ecology* 48, 888–894 8 Croes, B.M. *et al.* (2010) *Status of Painted dog Lycaon pictus in the Bénoué Ecosystem, North Cameroon: Final report of the WWF-NL funded project July 2007 – June 2010*, 9 Head, J.S. *et al.* (2012) Remote video-camera traps measure habitat use and competitive exclusion among sympatric chimpanzee, gorilla and elephant in Loango National Park, Gabon. *Journal of Tropical Ecology* 28, 571–583 10 Buij, R. *et al.* (2007) Patch-Occupancy models indicate human activity as major determinant of forest elephant loxodonta cyclotis seasonal distribution in an industrial corridor in gabon. *Biological Conservation* 135, 189–201 11 Aebischer, T. and Hickisch, R. (2011) *Survey of large and medium sized mammals in the Chinko river basin, Central African Republic*, Chinko Project. 12 Foster, R.J. and Harmsen, B.J. (2012) A critique of density estimation from camera-trap data. *The Journal of Wildlife Management* 76, 224–236 13 Noss, A.J. *et al.* (2012) Comparison of density estimation methods for mammal populations with camera traps in the Kaa-Iya del Gran Chaco landscape. *Animal Conservation* 15, 527–535 14 MacKenzie, D.I. (2005) What are the issues with presence-absence data for wildlife managers? *Journal of Wildlife Management* 69, 849–860 15 O'Connell, A.F. *et al.* (2011) *Camera Traps in Animal Ecology*, 18Springer Japan. 16 Ancrenaz, M. *et al.* (2012) *Handbook for wildlife monitoring using camera-traps*, BBEC II Secretariat. http://www.bbec.sabah.gov.my/japanese/downloads/2012/april/camera_trap_manual_for_printing_final.pdf.

	Waterbird direct observation counts
Relevant Values	Freshwater bird communities, endangered freshwater and migratory bird species
Monitoring method	Direct observations along defined routes and/or at fixed points.
Description	Waterbird monitoring uses observation methods that: are easily repeatable, can identify different species of waterbirds present, and allow estimation of bird numbers within the area of interest. Surveys are used to determine species diversity, species presence and to estimate minimum population size. Standardized surveys are used so that each site can be part of the regional bird population assessments[1], and to determine whether the site is an Important Bird Area (IBA). Repeated annual monitoring allows for comparisons of bird numbers and species, to assess potential changes occurring to the bird population.
Examples of use for management	Systematic monitoring in Lac Télé Community Reserve began in 1997 and has continued, largely uninterrupted since then[2]. It has been used to assess the impact of local community activities such as savannah burning, artisanal fishing and hunting, on important bird species in this community reserve. As a result of the long-term conservation project, the Pink-backed Pelican, previously locally extinct due to hunting, recolonized the reserve.
Basic protocol	Two standard methods are used for counting freshwater birds[3]: **Counting birds along rivers from a boat with an outboard engine** All target bird species detected in flight, on the water and in the vegetation should be recorded as the boat moves along the river. Care is required avoid double-counting birds. A team should be composed of two principal observers who identify and count the target bird species, and an assistant who recorded all the data. Target species will vary by site, but should include all birds that use water (e.g. rails Rallidae, snipe *Gallinago* spp.), may use colonies or roosts (e.g. pied

	kingfishers *Ceryle rudis*, martins *Riparia* spp.) or are otherwise of conservation interest (e.g. African fish eagles *Haliaaetus vocifer*).  *Grey pelicans, one species targeted by waterbird counts (M. Starkey)* **Fixed-point counts** **Counting birds at roost sites** When a roost site is identified in trees, the survey team should stop and approach the site, minimizing disturbance to the birds. Birds should be counted in the evening as they arrived, and in the morning as they left the roost. A minimum count of bird numbers is thus made for each tree. Each observer should make a count individually, with the highest number from among the observers retained as the final record. Counts should be repeated, unless the tree(s) has a very simple structure, making observations easy. This technique is appropriate for species that roost regularly at sites at night. Coastal species are likely to change roost times with the tide. **Counting birds at nesting colonies** Colonies in trees should be counted twice: before dusk as the birds arrive, and in the morning before they leave to forage. The objective is to count when the number of birds at the nest site is at maximum. The number of nests is also counted, and if possible the number of chicks in each nest. Counts should be repeated twice (twice at dusk and twice at dawn) to ensure that the minimum count is obtained. Small or remote colonies or roosts which are impossible to visit twice can be counted from boats, as above.
Data outputs	The two main information outputs are a waterbird species list, and an estimation (minimum number) of birds per species. These measures are used for: 1. measuring species diversity and abundance across the landscape, 2. estimating the international (and national) importance of the site, i.e. proportion of the international, regional or national species population at the site, 3. comparison with other important waterbird sites in Africa.
Situations in which applicable	These methods are suitable for open habitats, and particularly where species congregate.
Situation in which not applicable	These monitoring techniques are inappropriate for cryptic waterbird species such as birds not visible in tall vegetation, including some waders (e.g. snipe), herons (e.g. bitterns) or rails and crakes in reed beds and in grassland. However, such species were recorded if observed to improve knowledge of the species present at the site.
Technical considerations	Adequately trained staff or appropriate training must be given to ensure effective identification of the different species to be targeted. Effective mentoring by experts ensures high quality surveys.
Equipment requirements	• Motorized dugout canoe (or boat), fuel, maintenance equipment and lifejackets • Binoculars, telescope (if birds are observed from land), digital camera and batteries if needed for the camera • GPS and batteries • Camping equipment, if it is necessary to stay in a remote area • Radios, mobile phones or other communication equipment • Bird identification books • Note books & pens or propelling pencils
Staff requirements	The field surveying should be carried out by at least one well trained technician, or even better, two. Field assistants and an experienced canoe driver may be necessary for safety and logistics depending on the individual site. At least one day in the laboratory for each two days in the field is necessary for data analysis and

	reporting. Collating and analysing waterbird data can be relatively straightforward compared to other forms of survey as little statistical analysis is needed.
Training and expertise required	Field technicians and assistants need to be trained in standardized field observation and data recording methods. High quality species identification requires a skilled bird observer, The relevant regional bird identification book(s). As with all fieldwork appropriate safety precautions must be taken.
Other considerations	Sampling should be carried out during the appropriate season to maximize the size of bird populations at the site. This might be when migratory birds are present or passing through or when birds are breeding. In much of Africa this is in January (recommended by Wetlands International), but other surveys in July may also be necessary.
Further reading	The Ramsar Convention on Wetlands http://www.ramsar.org The List of Wetlands of International Importance: http://www.ramsar.org/pdf/sitelist.pdf African Important Bird Areas http://www.birdlife.org/action/science/sites/african_ibas/
Other cited references	1. Wetlands International (2013). "Waterbird Population Estimates". Retrieved from wpe.wetlands.org on Wednesday 15 May 2013 http://wpe.wetlands.org/ 2. Ikongo & Rainey (2006). Dix ans des denombrements d'oiseaux d'eau au Congo dans le site Ramsar de la Reserve Communautaires du Lac Tele, 1997-2006. Wetlands International / AEWA / WCS. 3. Wetlands International (2010) 'Guidance on waterbird monitoring methodology: Field Protocol for waterbird counting' http://www.wetlands.org/LinkClick.aspx?fileticket=SzPEwscxuXs%3d&tabid=2791&mid=11794 4. Macfie, E. & Williamson, E. A. *Best Practice Guidelines for Ape Tourism*. (IUCN/SSC Primate Specialist Group: Gland, Switzerland, 2010).

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JOB OFFER

SENIOR PROJECT DIRECTOR
Mozambique

This position will lead the WCS program in Niassa National Reserve (NNR) in northern Mozambique, in close cooperation with our co-management partner, the Government of Mozambique (GoM), through the Reserve Warden. The Project Director also takes on the responsibilities of the Niassa Reserve Manager, effectively the COO of NNR. Together, the Warden and the Project Director/Reserve Manager must lead a dynamic team to implement strategies and plans to secure NNR for the long term, and ensure the sustainable use of the Reserve's natural resources. The position is permanently based at the head-quarters in a remote location in NNR (NNR is the size of Denmark, twice the size of Wales, New Jersey state or Kruger National Park).

WCS has been operating in Mozambique since late 2012, and has an agreement with the GoM for the co-management of NNR. Niassa Reserve currently faces significant challenges, including an ivory poaching crisis, and expanding agriculture and unmanaged natural resource use by a burgeoning human population that currently numbers ~40,000 residents. However, the opportunities to address these threats exist – the partnership with the GoM is strong, there is a solid Reserve management team, NNR has East Africa's third largest elephant population, there are tourism operators throughout the Reserve to help implement management actions, and finally the vast size of the Reserve works in its favour.

The Project Director/Reserve Manager will be responsible for operational and strategic leadership, together with the Reserve Warden, for all aspects of reserve management including: developing a cohesive and motivated multi-cultural team, building and implementing management and operations systems, managing >100 staff the majority of whom only speak Portuguese and Swahili, and facilitating the development, implementation and monitoring of strategic planning in the Reserve. In addition, the Project Director has individual responsibility to WCS for executive management duties: working with the WCS Country Director to develop strong government relations, contributing to fundraising efforts, and contributing to setting the strategic direction and protected area management priorities of WCS Mozambique.

Competences and Experience:
• Ten year experience leading, developing, and managing programs/large projects, including work experience in more than one African country
• Strong team leadership experience, including a proven ability to motivate, set objectives and manage the performance of a multidisciplinary team
• Strong interpersonal skills and sensitivity to local culture
• Advanced university degree in an appropriate field
• Ability to foster an environment of productivity and professional growth, with a commitment to working professionally and collegially with staff and all partner organisations
• Skilled at building consensus with all partners, including government, the private sector, community organisations, and WCS senior management
• Knowledge of and experience with monitoring and evaluation of programs/projects
• Flexibility, optimism, good humor, passion for excellence, self-motivated to achieve a collective purpose

And if possible:
• Proficiency in Portuguese, Spanish and/or Swahili
• Knowledge of current trends in conservation and natural

resource management, and a proven ability of applying this knowledge to set and achieve conservation targets
• Knowledge of the institutional and legal framework of the environment and conservation in Mozambique, as well as relevant policy issues
• Excellent public speaking, presentation and written/oral communication skills
• Proven experience living and working in a remote field camp

Please apply on line using the following link: Https://sjobs.brassring.com/TGWebHost/searchopenings.aspx?partnerid=25965&siteid=5168.

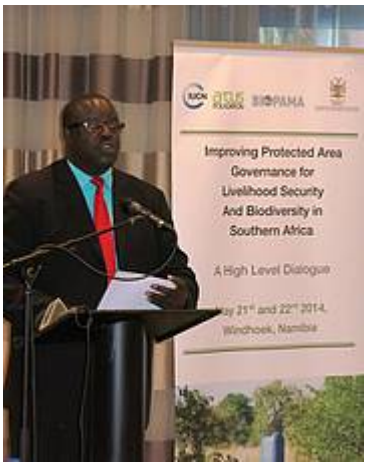
Please select "Global Conservation Full-Time" once you are on the site. In addition to applying on-line, please send a copy of your CV and a cover letter (addressing the points below) to: Alastair Nelson, Country Director, WCS Mozambique, anelson@wcs.org, and cc.jsalbo@wcs.org by **end of June 2014**. Please start the email title with 'NNR Project Director'.

Convening stakeholders: an inspiring solution for protected areas in southern Africa

Direction 1 of the road map on PA in Africa

"Protected areas can contribute to both improved livelihoods and improved conservation, but biodiversity continues to decline across most the Southern African region. A new strategy for protected areas for this region is therefore urgently needed". This is one of the most important messages highlighted by the participants at the High Level Dialogue on Improving Protected Area Governance for Livelihood Security and Biodiversity in Southern Africa (May 2014, in Windhoek, Namibia).

The Dialogue, financially supported by the Arcus Foundation and the BIOPAMA programme (an initiative of the Africa, Caribbean and Pacific - ACP Secretariat and funded by European Union) was a culmination of work undertaken by the IUCN ESARO Conservation Areas and Species Diversity programme in close liaison with the SADC Secretariat, IUCN Global Programme on Protected Areas and various IUCN Commissions and Member organizations in the region. The event was co-convened by IUCN and the Ministry of Environment and Tourism of the Republic of Namibia, with the participation of Honorable Uahekua Herunga, the Namibian Minister of Environment and Tourism.



M. Uahekua Herunga, Minister of Environment and Tourism of the Republic of Namibia (Photo: Nigel Crawhal)

The objectives of the Dialogue were to take stock of protected area governance in the SADC region in order to critically assess how protected areas are delivering benefits for local communities and for biodiversity. Delegates also discussed priorities for enhancing the resilience of protected areas to future pressures and challenges. The expected outcome is a statement from the region, taken to the global forum at the IUCN World Parks Congress 2014 that outlines the strategic priorities and recommendations for improved protected area governance over the coming decade.

Attended by delegates from across the SADC region, including representatives from governments, NGOs, development partners, the private sector and inter-governmental organizations, the two-day event provided examples from across the region, both successes and failures, of how protected areas are performing with regard to delivering benefits to local communities and for biodiversity, and offered the opportunity for a dialogue on the challenges protected areas are facing in the region.

A special session on "protected area- land/resource use conflicts" drew attention to a number of specific challenges, including: human-wildlife conflict; competition for water; wildlife-livestock disease transmission; and contested rights to land and wildlife. Potential strategies to mitigate the impacts of these conflicts on protected areas, communities, and biodiversity were explored, while recognizing that pressures such as climate change and the accelerating conversion of land into uses that are biodiversity-incompatible are likely to further exacerbate these conflicts in the future.

There was a clear consensus that while there are many success stories demonstrating how protected areas can and do contribute to both improved livelihoods and improved conservation, biodiversity continues to decline across most the region, and current protected area governance systems are

unlikely to be resilient enough to be able withstand the growing pressures placed on them over the coming decade. A new strategy for protected areas for southern Africa is therefore urgently needed. This needs to emerge from a broader dialogue with more diverse sectors in society and needs to incorporate and enable the full range of protected area categories and governance types and be fully integrated into development planning, taking into account the realities of rapidly transforming land and seascapes.

More on www.biopama.org

JOB OFFERS

All positions are located in Bomassa, Republic of Congo

Position 1: Park Director, Nouabalé-Ndoki National Park, Republic of Congo

The Wildlife Conservation Society is seeking an experienced protected area manager to fill the position of Park Director of Nouabalé-Ndoki National Park (NNNP) in the Republic of Congo. Nouabalé-Ndoki is the most intact, best-managed protected area in the Congo Basin, with thousands of forest elephants, gorillas, and chimpanzees, critical rainforest habitat, good park facilities, and extraordinary tourism potential. The management of NNNP is securely funded for the next five years by USAID, USFWS, the Sangha Trinational Foundation, and other private and public donors. The Park Director will provide strategic and operational leadership and be responsible for all aspects of park management including ranger deployment and wildlife protection, community liaision, research, tourism development, fundraising and reporting, communications, and capacity building of national staff.

The job includes managing senior staff, developing strong relationships with government partners, partner agencies and organizations, as well as managing a significant budget and ensuring program runs smoothly day-to-day. The Park Director is based in the field, living permanently on-site at the park headquarters, Bomassa. NNNP is more than 4,000 km2, with an expected staff of between 100 - 200 people and an annual budget of more than $2 million.

Qualifications and experience:

- 10-15 years park management experience, ideally in at least two African countries (preferred)
- For candidates with a conservation background, at least 5 years senior management experience (required)
- For candidates with a financial or management background, at least 5 years senior conservation experience (required)
- Proven track record in personnel management (required)
- Proven track record in wildlife management (required)
- Hands-on management of a remote and large protected area in Africa including developing, improving and overseeing protected area management systems, HR, finance, infrastructure and workshop maintenance, and law enforcement (required)
- Experience working with government agencies, boards, and other stakeholders on park management support (preferred)
- Hands-on management of law enforcement operations, ideally with military training and experience (preferred)
- Implementing a community or natural resource management project (preferred)
- Experience working with tourism operators (preferred)
- Developing infrastructure within a remote protected area (preferred)
- Excellent spoken and written English (required), French language fluency (preferred)
- If not fluent in French, demonstrated ability to master a foreign language (required)

Position 2: Conservation and Biodiversity Unit Director, Nouabale Ndoki National Park

The Wildlife Conservation Society is seeking an experienced conservationist and team manager to fill the position of Conservation and Biodiversity Unit Director for Nouabalé-Ndoki National Park (NNNP) in the Republic of Congo. The primary responsibility of this position will be ensuring effective protection of the wildlife of NNNP. WCS and the Government of Congo have established a Congolese public entity to manage Nouabalé-Ndoki National Park, the 'Nouabalé-Ndoki Foundation,' comprised of a multi-stakeholder board of directors and a Park Management Unit (PMU). The Conservation and Biodiversity Unit is one of 5 operational units in NNNP (the others include Community Development, Research and Monitoring, Logistics, and Finance and Administration) and reports directly to the Park Director in charge of the PMU.

The Conservation and Biodiversity Unit Director will provide operational leadership and be responsible for all aspects of the Conservation and Biodiversity Unit as defined in the Park Management Plan and the parks annual work plan. Duties include recruitment, training, mentoring and management of wildlife law enforcement teams, working closely with the Ministry of Forests staff assigned to the PMU. In addition to coordinating all of the anti-poaching activities, the Unit Director will work closely with other PMU services and insure the collection and transmission of Law Enforcement Monitoring (LEM) data. The job includes managing conservation and protection staff, developing strong relationships with government partners and ensuring the program runs smoothly day-to-day.

Qualifications and experience:

- A degree in the field of environmental or biological conservation from a recognized university. Candidates with a Master's degree will have an added advantage.
- At least five (5) years of conservation fieldwork experience with the last 2 years at a senior position.
- Experience in patrolling and enforcement related work and advanced training in this area of conservation would be an advantage.
- Excellent knowledge and commitment on the issues of wildlife conservation in Central Africa
- Excellent writing and speaking skills in French. Ability to converse in English.
- Must be computer literate and have the ability to use appropriate technology.
- Excellent leadership, diplomatic and interpersonal skills.
- Meticulous approach to work and ability to produce effective outcomes.
- Must be able to work with minimal supervision, both in the field and in the office.
- Organization and management skills (required)
- Proven track record in personnel management (required)
- Proven track record in wildlife management (required)
- Hands-on management of a remote and large protected area in Africa including staff supervision, infrastructure and maintenance, and law enforcement (required)
- Hands-on management of law enforcement operations, ideally with military training and experience (preferred)
- Experience working with tourism operators (preferred)
- Experience developing infrastructure within a remote protected area (preferred)

Position 3: Logistics Unit Director, Nouabale Ndoki National Park

The Logistics Unit Director, Nouable Ndoki National Park, will report to the Nouabale Ndoki National Park Director. The primary objective is to establish and oversee efficient systems for for the Nouabale Ndoki National Park (NNNP). S/he will maintain appropriate communication with NNNP Sector Managers, WCS Congo staff and associates.

S/he will be responsible for all matters related to logistics and the basic operations of the National Park in relation to: procurement, transport and vehicle maintenance, asset management, compound maintenance, warehousing / stock control, and the distribution of goods. He/she will monitor and oversee the operations of the Park to ensure that systems are being correctly implemented and comply with WCS and donor standards.

Qualification requirements:

- Extensive professional experience with logistical systems, procurement, contracting construction in Africa and/or other remote regions
- Proven ability to work with national and local organizations. .
- Experience working in a developing country setting.
- Good communication skills, both written and verbal. English & French required.
- Effective "roll up the sleeves" work ethic, with attention to detail.
- Proven managerial skill and ability to work in a team setting within an organization.

Position 4: Finance and Administration Unit Director, Nouabale Ndoki National Park

The Finance and Administration Unit Director, Nouable Ndoki National Park, will report to the Nouabale Ndoki National Park Director. The primary objective is to establish and oversee efficient systems for financial and personnel management for the Nouabale Ndoki National Park (NNNP).

S/he will maintain appropriate communication with NNNP Sector Managers, WCS Congo staff, key donors and funding agencies and local governmental institutions (e.g. Ministries of Finance, Labor etc.). S/he will be responsible for all the finance and administration matters (purchase, distribution of material, financial control, reporting, etc) for the park.

Qualification requirements:

- Bachelor degree in Business Administration, accounting major preferred. MBA or CPA a plus.
- Demonstrated ability in the development and implementation of financial policies and procedures.
- Significant experience with the financial management of government and agency grants and contracts.
- At least three years of experience managing a financial area for a corporation or not profit organization.
- Experience working in a developing country setting.
- Good communication skills, both written and verbal, as well as strong analytical skills. English & French required.
- Effective "roll up the sleeves" work ethic, with attention to detail.
- Proven managerial skill and ability to work in a team setting within an organization.

To apply to these adverts:

Please send a copy of your CV and a cover letter to: the WCS Africa Program at **wcsafrica@wcs.org**, and cc **ksiex@wcs.org**. Include contact information for three references and specify whether we may contact each of these or whether this should await your approval.

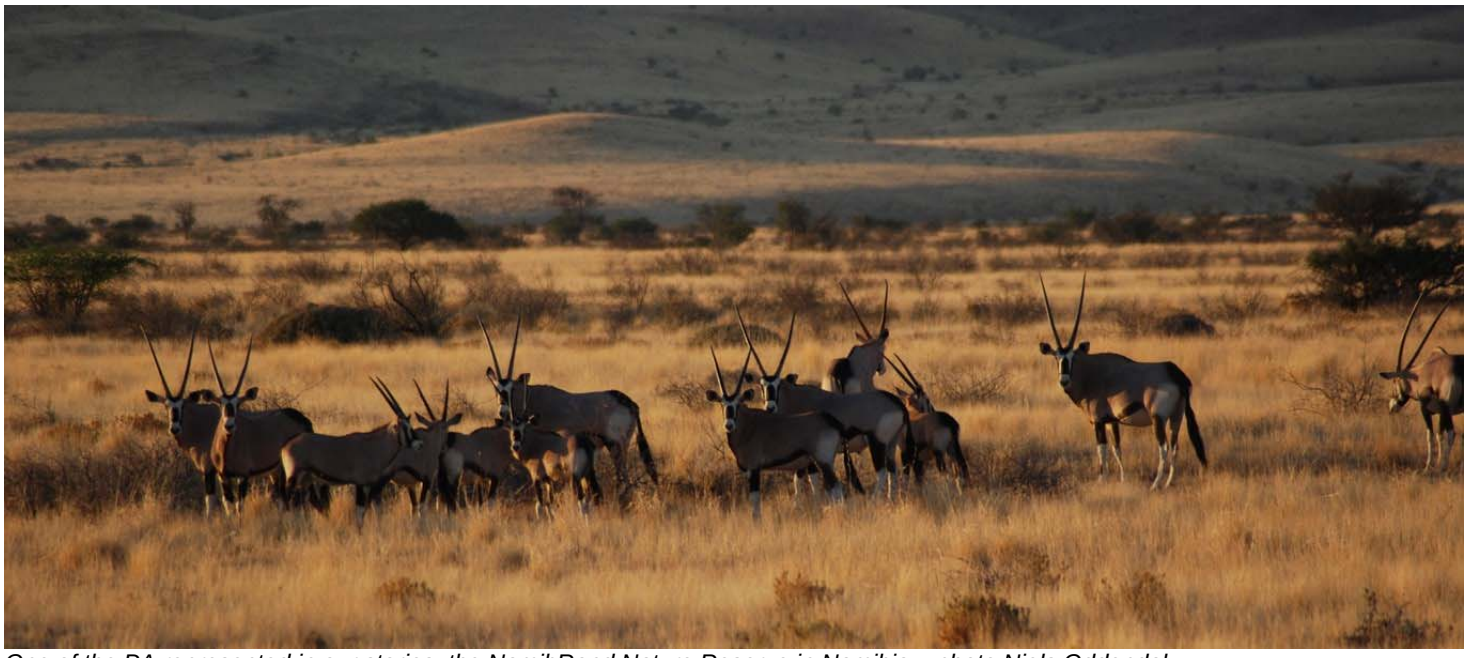
IUCN WORLD PARKS CONGRESS SYDNEY 2014

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 posters are under preparation on streams 1 (conservation efficiency), 5 (conservation and development) and 6 (conservation and governance). More information is also now available on www.papaco.org (summary of the stories and PwP presentations of each case). Don't forget to register before the **30th June**!



One of the PA represented in our stories: the NamibRand Nature Reserve in Namibia – photo Niels Oddendal

This program is supported by the French Agency for Development (AfD), The Fondation internationale pour le Banc d'Arguin and by the BIOPAMA project (EU)

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