



# **SUSTAINING BIODIVERSITY CONSERVATION IN AND AROUND NYUNGWE NATIONAL PARK (NNP)**

**Associate Cooperative Agreement N° Aid-696-La-10-00001 under Leader  
Cooperative Agreement N° Eem-A-00-09-00007-00**

***Annual Report: 1st March 2012 – 28th  
February 2013***

## **Disclaimer**

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*“This report is made possible by the generous support of the American people through the United States Agency for International Development (USAID). Its content is the responsibility of the Wildlife Conservation Society, and does not necessarily reflect the views of USAID or the United States Government.”*

## LIST OF ABBREVIATIONS

ADENYA: Association pour le Development de Nyabimata (local NGO in Nyaruguru area)

ANICO: Animateur de Conservation

CBOs: Community Based Organisations

CI: Conservation International

CSC: Conflict Sensitive Conservation

DAI: Development Alternatives Incorporation

DEO: District Environment Officer

ECOTRUST: Environment Conservation Trust of Uganda

EES: Energy Efficient Stove

EWASA: Energy, Water and Sanitation Authority

FAO: United Nations Food and Agriculture Organization

FONERWA: National Environmental Fund for Rwanda (in pipeline, yet to be officially established)

GEF/PAB: Protected Area Biodiversity Project, supported by Global Environmental Facility (GEF)

GIS: Geographical Information System

GoR: Government of Rwanda

IISD: International Institute of Sustainable Development

INECN: Institut National pour l'Environnement et la Conservation de la Nature

ISAR: Institute for Agronomic Research in Rwanda

JAF: Joint Action Forum (for NNP)

KCCEM: Kitabi College for Conservation & Environmental Management

LEM: Law Enforcement Monitoring

MEMS: Monitoring & Evaluation Management Services

MI: Media Impact

MINAGRI: Ministry of Agriculture

MINALOC: Ministry of Local Governance

MINECOFIN: Ministry of Finance and Economic Planning

MINICOM: Ministry of Trade and Tourism

MININFRA: Ministry of Infrastructure

MINITERE: Ministry of Lands, Water, Forests and Environment (now MINIRENA: Ministry of Environment and Natural Resources)

MIST: Management Information System

NGOs: Non Government Organisations

NNP: Nyungwe National Park

NUR: National University of Rwanda

PA: Protected Area

PES: Payment for Ecosystem Services

PIC: Partners In Conservation  
PMP: Performance Management Plan  
PNPT: Le Pilier de la Nature et de la Promotion du Tourisme (Local Cooperative in Banda area)  
PSF: Private Sector Federation  
R&M Warden: Research & Monitoring Warden  
RAB: Rwanda Agricultural Board  
RBM: Ranger Based Monitoring  
RBS: Rwanda Bamboo Society  
RDB: Rwanda Development Board  
RECO – RWASCO: Rwanda Electricity Company – Rwanda Water & Sanitation Company (now EWSA: Energy Water and Sanitation Authority)  
REDO: Rural Environment and Development Organization  
REMA: Rwanda Environmental Management Authority  
RNRA: Rwanda Natural Resources Authority  
RS: Revenue Sharing Program  
SACCO: Saving Cooperative (at sector level)  
ToRs: Terms of Reference  
TTF: Technical Task Force  
USAID: United States Agency for International Development  
USFS: United States Forest Services  
VSO: Volunteers Service Overseas  
WCS: Wildlife Conservation Society  
Y1, 2, 3, 4: Year one, two, three, four of project implementation

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## A) EXECUTIVE SUMMARY

This report concerns the activities undertaken in Year 3 (period covered 1 March 2012 – 28 February 2013) of the project “*Sustaining Biodiversity Conservation in and around Nyungwe National Park (NNP)*” implemented by the Wildlife Conservation Society (WCS) as per the approved Year 3 Workplan. The project, funded by USAID, aims at building the capacity of the Rwanda Development Board (RDB), the government agency in charge of the management of National Parks in Rwanda, to sustainably manage Nyungwe National Park (NNP) and conserve its rich biodiversity.

The overriding goal of the project is that Rwanda benefits from the conservation of wildlife and sustainable use of ecosystem services in Nyungwe National Park. The principal objective is to improve the capacity of RDB to sustainably manage the park’s resources and address specific threats (fire, poaching, illegal extraction, etc.) to the park and specific species of concern.

During the third year of implementation, we have been able to build on the work completed in the previous years in relation to the 6 major strategies being implemented through this cooperative agreement in a number of important ways:

### *Strategy 1- RDB’s Biodiversity and Threats Monitoring Capacity is Strengthened*

The process of handing over ranger-based monitoring (RBM) to RDB has progressed in Y3 following the 24-month handover calendar of activities developed in Y2. The handover is expected to be finalized by June 2013, as initially planned. RBM data has been effectively guiding law enforcement activities (reflected by the very high coverage of the park’s surface by patrols) and RDB’s capacity to secure the park has been improved by the construction and use of the Gahurizo Ranger Post. The analysis of biodiversity monitoring during the past 15 years has showed overall low densities for small and medium mammals (the large ones having already vanished) and relatively stable primate and birds populations. Finally, a practical training on climate monitoring at the automatic weather station on Mount Bigugu was carried out for park wardens from Nyungwe and Akagera National Parks.

### *Strategy 2: RDB and Districts’ capacity to manage conflict, mitigate threats and manage tourism is strengthened*

Building up from the participatory approach to conflict management initiated in collaboration with the International Institute of Sustainable Development (IISD), additional training on conflict resolution capacity building was carried out for the volunteer community network of *Animateurs de Conservation* (ANICO), RDB wardens and District authorities in Y3. The ANICOs, working closely with RDB, WCS and the Districts, have directly contributed towards greater awareness of the threats to NNP, the laws regulating resource use, and played a key role in reducing threats and increasing population support to the conservation of Nyungwe. Coordinated patrols between the park staff from Nyungwe and Kibira (in Burundi) National Parks were planned with USAID support and carried out with the support of MacArthur Foundation. They contributed to address the threats and to increase the security of the border area between the two parks and the two countries. New methods to upscale fern clearing were tested but did not prove effective. However, increase in the regenerated area through fern clearing was sought by supporting a local cooperative in designing a fern clearing project which received funding from the GEF-Small Grant Programme. WCS has been building the capacity of this local cooperative in Y3 and will be involved in following up on the implementation of this project which will lead to 30 ha of new area under regeneration. In collaboration with Development Alternatives Incorporation (DAI), park rangers were trained in tourism impact mitigation, through the LAC method (Limits of Acceptable Changes), whose implementation by RDB will effectively start in Y4.

*Strategy 3: Strengthening the knowledge and interest of the Government of Rwanda to develop and Support PES policies*

WCS, the Rwanda Environmental Management Authority (REMA), RDB and other stakeholders involved in the Payment for Ecosystem Services (PES) task force worked together to create awareness, particularly in relation to the added value that PES brings to the policy and developmental agenda in Rwanda. Through the presentation of the analysis of the current legal, institutional and policy frameworks for developing Payments for Ecosystem Services in Rwanda, carried out in Y2, stakeholders identified the need for a PES policy and the role of the Task Force in PES awareness raising and coordination of the initiatives aiming at developing a PES policy. The merit of developing a PES policy in its own right is to bring clarity of provisions from very many laws, regulations, orders and practices into a single platform of reference necessary in attracting and guiding investments into PES schemes. In order to raise awareness of decision makers on the value of ecosystem services and PES, WCS developed a progress report on establishing payments for watershed services scheme in Nyungwe National Park, and creating market instruments to safeguard water availability and support conservation of critical catchments of Rwanda.

*Strategy 4: Develop Payments for Ecosystem Services (PES) schemes*

Significant progress has been made towards developing a rural carbon management scheme near NNP with support from ECOTRUST Uganda. By the end of Y3, the feasibility assessment of a carbon management scheme in the rural area of Nyaruguru District was revised to include land cover change, project financial analysis, proposals of benefits sharing and project institutional arrangement with roles of different players. The project documents (Project Idea Note and technical specifications) were submitted to Plan Vivo for review and acceptance, and will be the basis for the full project design documents (PPD), developed in Y4. In order to build the capacity of the local NGO ADENYA, identified for the implementation phase, ECOTRUST developed a facilitators' manual, designed to empower ADENYA to be able to induct, recruit and support farmers interested in joining the scheme. The manual was adapted to the Rwanda/Nyaruguru context and a field training is planned in Y4.

*Strategy 5: Develop Sustainable Alternatives for Resource Use*

Following up on the distribution of the energy efficient stoves (EES) to 200 pilot households in the two selected sectors adjacent to NNP, a survey was carried out by the local NGO REDO to assess the level of adoption of the stoves and their impact with regards to firewood consumption. The survey confirmed a high rate of EES adoption (97%) and their efficiency in reducing both the amount of used fuel wood and the cooking time (by 40% and by 50% respectively), when compared to the use of the traditional 'three stones stoves'. The survey report also suggests a potential market for the EES around NNP. Based on these survey results, WCS and REDO are planning in Y4 to carry out a feasibility study for the construction of a kiln to produce EES locally. With regards to bamboo development, the results from a baseline survey carried in Y2, were presented during this year at a workshop bringing together various partners involved in bamboo development around NNP. Following this workshop, it was agreed that all stakeholders in bamboo development should work in collaboration with Rwanda Agricultural Board (RAB) to coordinate the selection of the species, areas to plant and the use of appropriate techniques. Additionally, WCS will invest the limited funds for bamboo development to leverage the support from the Revenue Sharing funds to a project from a local cooperative in the Nyaruguru District to establish a bamboo nursery (expected to start in Y4, as it was approved in Y3). WCS and RDB will provide financial and technical support to the District and the local cooperative and support in monitoring and evaluation of the project, which is expected to result in creating local availability of seedlings for farmers in the Nyaruguru District, where illegal bamboo cutting is a serious threat to the Park.

### *Strategy 6: Implement Education and Outreach Program*

In the third year WCS partnered with RDB in the implementation of the completed Education and Outreach Strategy. Conservation education materials have been developed, piloted, approved and produced to be used by the targeted audiences during Y3, as a component of the implementation of the strategy. Training workshops were held for the teachers and the ANICOs, to secure adequate knowledge on the threats and issues raised by the materials, as well as to identify different ways to use the materials. At the end of each training the materials for the targeted schools and sectors were distributed to the participants (their use will be monitored throughout Y4). Large, ‘social marketing’ events were organized in two selected sites (Bweyeye and Butare), in order to increase the awareness of local community on the major threats found in accordance with the recent RBM results, to identify the roles of the neighbouring community in protecting NNP, the values and benefits of the park to the community and how to sustain them.

## B) PROJECT RESULTS

### Strategy 1: RDB's Biodiversity and Threats Monitoring Capacity is Strengthened

The largest focus of the activities in Y3 for this strategy was geared around following the RBM handover calendar of activities in order to secure the smooth transition from being led by WCS to RDB. This entailed both strengthening the essential capacity building initiated in Y1 and Y2, as well as finalizing the training manual which will be key in refreshing the trainers' knowledge. The handover is planned to be finalized early in Y4 (June 2013).

Monitoring trends in animal populations is also an important priority, as it allows park managers to assess the impact of conservation strategies towards protecting the animal population. Led by senior WCS scientist, Dr. Tim O'Brien, the results of over 15 years of biomonitoring data were presented to RDB and WCS staff, with the objective to understand trends, as well as identify strengths and weaknesses of the methodologies used in the past. This has set the basis for the planned review of Nyungwe's biomonitoring program, planned for early in Y4, and the associated training of RDB and WCS staff in research/survey design, database management and analysis.

During Y3, the Gahurizo ranger post, located by the south-eastern border of the park, was finalized and operational, facilitating improved patrol coverage of that area of the park.

Finally, a training on climate monitoring, including a practical session at the automatic weather station on Mount Bigugu, was carried out for park wardens from Nyungwe and Akagera.

*Summary of targets and progress for Strategy 1 in year 3:*

<b>Work-plan targets</b>	<b>Progress</b>
*By end of Y3, at least 62 rangers trained in research/survey design, data management and analysis	<i>Not achieved: delays in the long term biomonitoring data analysis have affected our ability to review the survey design for Nyungwe and concurrently train rangers. By the end of Y3, Nyungwe long term data on birds and mammals was presented and the review of the survey design, together with the training of the rangers, is planned for Y4.</i>
By end of Y3, training manual on research protocol and data management produced	<i>Not achieved: see above comments</i>
*Percent patrols guided by MIST analysis increases incrementally to 30% by the end of Y3	<i>Target surpassed: by end of Y3, 56% of RDB organised patrols were guided by MIST / RBM reports</i>
*At least 8 trainers trained to implement Kinyarwanda version of manual for RBM	<i>Partially achieved: the RBM manual was approved by RDB in the last quarter of Y3, the Kinyarwanda version is under finalization (will be completed in Y4)</i>
At least 25 rangers trained as trainers in RBM by end of Y3	<i>Progress as expected: RBM refresher training implemented as part of RBM hand over process</i>
Field equipment supplied	<i>Achieved: 12 GPS units, 5 sets of field solar charging units, with battery chargers and rechargeable batteries were provided as support to protection and monitoring activities in Nyungwe National Park.</i>

Gahurizo patrol post construction completed	<i>Achieved: the main construction of the strategically located new ranger post of Gahurizo was carried out in the first quarter and it has been used effectively since. The official inauguration occurred in the third quarter of Y3.</i>
Transfer of lead technical responsibilities for RBM to RDB	<i>Progress as expected: handover is expected to be finalized by June 2013 (second quarter of Y4)</i>
25 RDB staff trained in climate change & its monitoring	<i>Achieved: Training on climate change monitoring was led by Dr Anton Seimon, involving Nyungwe and Akagera national parks' staff from RDB.</i>

\* Refers to indicators captured in the PMP.

### **Output 1: Biological Surveying capacity of RDB staff is strengthened**

#### **Train WCS and RDB senior staff in research/survey design, data management and analysis.**

The achievement of this objective has been delayed by the lengthy process of analysing the long term biomonitoring data collected by WCS in NNP since 1996. Late in Y3, Dr. O'Brien, senior WCS scientist, presented the first results of over 15 years of biomonitoring data on targeted birds and mammal species to RDB, WCS and KCCEM staff, during a one day workshop held in Kigali. The main objective was to understand populations' trends, as well as to identify strengths and weaknesses of the methodologies used in the past in order to help jointly define research areas and future directions for biomonitoring in NNP.

A full report of the data analysis is expected by June 2013. Meanwhile, this process has set the basis for the review of Nyungwe's biomonitoring program, planned for Y4, and the associated training of RDB and WCS staff in research/survey design, database management and analysis (which is the main focus of this output).

#### **Produce/secure training manuals to provide guidance on research protocols and data management.**

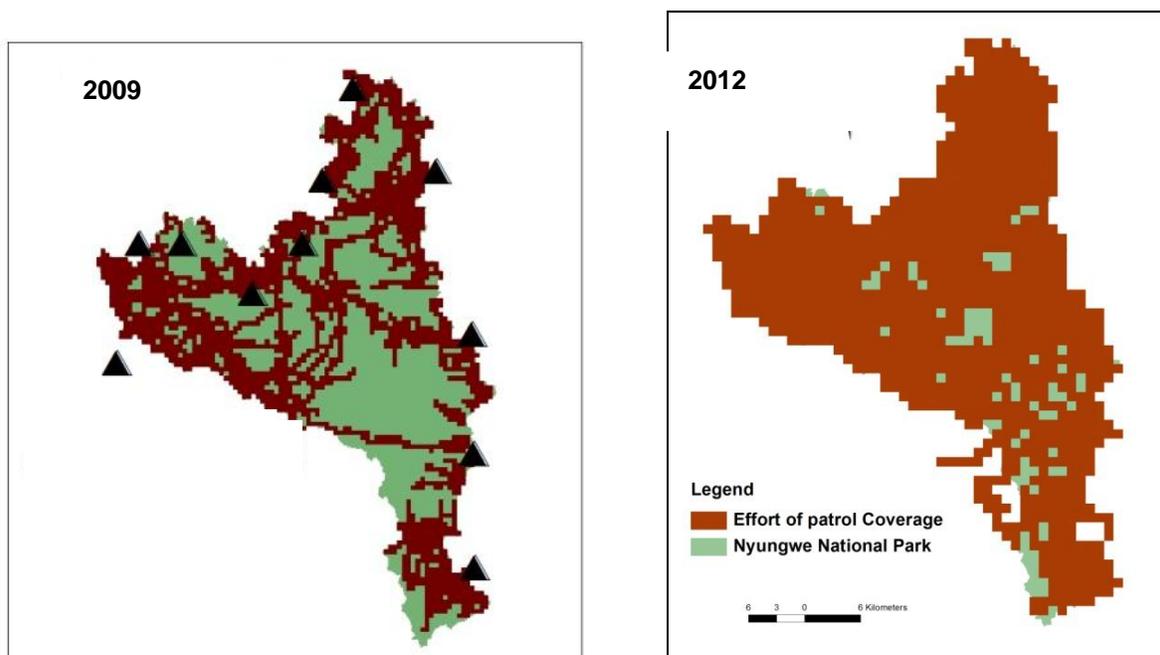
The guidelines are expected to be produced following the review of Nyungwe's biomonitoring program, planned for Y4.

### **Output 2: The capacity in law enforcement and threat monitoring and assessment for RDB staff is strengthened**

#### **Continue to build the capacity of Zone Heads and other senior Rangers in the use of RBM/MIST (patrol planning, data entry, data analysis, data transfer).**

The process of handing over Ranger-Based Monitoring (RBM) management to RDB staff has been the main focus of Y3 activities for this strategy. RBM database management issues have been addressed in each zone, including: harmonization of database replication between park head quarters (HQ) and Zone level databases; consolidation of field data (from zones level) at the park HQ resulting in comprehensive monthly report; aspects of data cleaning before analysis; downloading GPS data into MIST/RBM database (to avoid the errors occurring when entering data manually) and exporting data from a spatial Management Information System (MIST) into text/Excel for analysis and graph reports. As a result, the ability of zone heads to report effectively showed improvement. Review meetings have been held with RDB Wardens as part of the hand-over process, including a midterm assessment which found the overall progress and achievements in the transfer of knowledge, skills and responsibilities of RBM activities from WCS to RDB to be on track in regards to the developed workplan.

Monitoring and protection efforts were further strengthened through the finalization of the Gahurizo Ranger Post, located in the south-east of the park. The patrol post has been regularly used by RDB rangers in 2012, greatly facilitating improved coverage of that area of the park. Additionally, essential equipment, including 12 GPS units, 5 sets of solar chargers with battery charging units and rechargeable batteries were also officially handed over to RDB, contributing to the efficient execution of the RBM activities.



**Fig. 1 Area covered by RDB's patrols in NNP (2009 and 2012):** patrol coverage reached over 90% of the park's surface, as compared to 53% in 2009.

### **Train trainers for implementing the Kinyarwanda version of the training manual for Ranger Based Monitoring**

The RBM manual, designed to be used as a key support tool to train the trainers and thus facilitate future RBM training, was officially approved by RDB (in its English version) during the last quarter of Y3. Finalization of the translation is almost completed and will be finalized during the first quarter of Y4.

### **Output 3: Capacity to monitor and model climate is strengthened, and baseline assessment completed**

The lack of adequate information has prevented park authorities in the Albertine Rift region in general and in Nyungwe National Park in particular from understanding the impact that climate change is having and will have on the park and how this will affect its management. As a part of the MacArthur Foundation supported initiative to improve the monitoring of climate change in the Albertine Rift, an automatic weather station was installed on the summit of Bigugu in November 2011. With support from USAID, a training workshop on climate change monitoring was organized and held at Kitabi in May 2012, for RDB park wardens from two national parks (Nyungwe and Akagera national parks) and WCS staff, led by WCS scientist Dr. Anton Seimon. The workshop also included a practical training at the automatic weather station on Mount Bigugu.

The purpose of the workshop was to provide research and monitoring personnel with an understanding of climate change and its potential ecological impacts in Nyungwe and demonstrate tools and methods to successfully monitor and manage these changes and how protected areas managers should incorporate climate change into protected area management and planning. A report on climate change and its potential impacts in NNP was prepared (Seimon, 2012<sup>1</sup>) and data download from automatic weather station at Bigugu was continued by RDB/WCS staff following the protocols developed during the said training session.

## **Strategy 2: RDB and Districts’ capacity to manage conflict, mitigate threats and manage tourism is strengthened**

Building up from the participatory approach to conflict management initiated in collaboration with the International Institute of Sustainable Development (IISD), additional training on conflict resolution capacity building was carried out for ANICOs, RDB wardens and District authorities. The ANICO volunteer community network, working closely with RDB and the Districts, has directly contributed towards greater awareness of the threats to NNP, the laws regulating resource use, and played a key role in reducing threats and increasing population support to the conservation of Nyungwe.

Nyungwe-Kibira coordinated patrols between the Burundian Institut National pour l’Environnement et la Conservation de la Nature (INECN) and RDB park staff, were planned with USAID support and carried out with the support of MacArthur Foundation. They contributed to address the threats and to increase the security of the border area between the two parks (and the two countries, Rwanda and Burundi).

New methods to upscale fern clearing were tested but did not prove effective. However, increase in the regenerated area through fern clearing was sought by supporting a local cooperative in designing a fern clearing project which received funding of the GEF-Small Grant Programme. WCS has been building the capacity of this local cooperative in Y3 and will be involved in following up on the implementation of this project which will lead to 30 ha of new area under regeneration.

Park rangers were trained in tourism impact mitigation, through the LAC method (Limits of Acceptable Changes), whose implementation by RDB will effectively start in Y4.

### *Summary of targets and progress for Strategy 2 in year 3:*

<b><i>Work-plan targets</i></b>	<b><i>Progress</i></b>
*41 rangers trained in conflict resolution by the end of Y3	<i>Achieved: 49 rangers trained</i>
*31 DEOs and ANICOs trained in conflict resolution by the end of Y3	<i>Achieved: 49 ANICOs and 3 DEOs trained</i>
1 <sup>st</sup> annual performance evaluation for ANICOs by the end of Y3	<i>Achieved: annual evaluation carried out with RDB, recommendations under implementation and shared with the ANICOs</i>
*4 quarterly trans-boundary coordination meetings and exchanges with Burundi take place by the end of Y3	<i>Achieved: the 4 coordination meeting with RDB and INECN resulted in 4 coordinated patrols</i>

<sup>1</sup> Seimon, A.,2012: Climatology and Potential Climate Change Impacts of the Nyungwe Forest National Park, Rwanda. WCS Technical Report, Wildlife Conservation Society, New York, USA, 45 pp.  
<http://www.albertinerift.org/Challenges/ClimateChange/tabid/7525/Default.aspx>

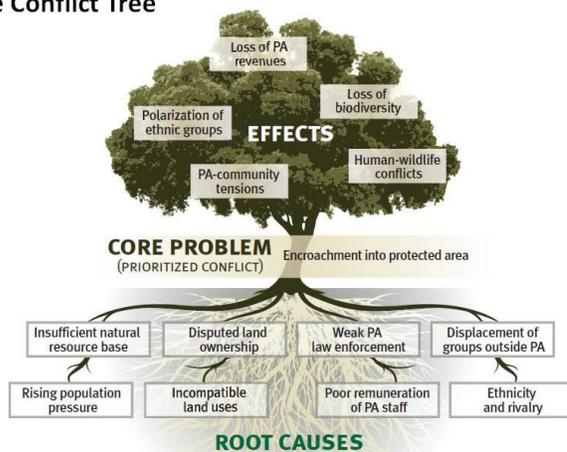
*9 ha of assisted regeneration maintained by the end of Y3	<i>Achieved: 6 ha of previously cleared plots maintained, and 3 ha of new plots cleared and maintained</i>
At least 2 new fern clearance methods piloted to upscale assisted regeneration by the end of Y3	<i>Achieved: 1 new method tested (use of streamer). Unfortunately it did not prove satisfactory for up-scaling the assisted regeneration process</i>
Fire management plan in implementation	<i>Partially implemented: fire prevention &amp; forest regeneration, 2 of the 3 objectives of the fire management plan, are being implemented. The third objective, fire fighting, is still not funded.</i>
Guidelines produced for code of conduct for primate tourism	<i>Partially done: guidelines drafted.</i>
Tourism impact training provided for RDB staff with DAI guidance	<i>Achieved: training occurred in August 2012.</i>

**Output 1: Capacity to understand, manage and resolve conflicts is in place**

**Training for park rangers in conflict resolution**

As part of the implementation of NNP conflict resolution strategy, a total of 4 trainings were planned and executed for the five districts surrounding NNP (Nyamasheke, Rusizi, Nyaruguru, Nyamagabe and Karongi). The trainings were conducted in collaboration with the International Institute for Sustainable Development (IISD) represented by Alec Crawford, and were done by combining RDB park rangers and wardens, ANICOs and DEOs, and WCS staff at the same venue. The training attendants were trained on how to use two tools in analysing conflicts (Conflict tree and Conflict Map). At each of the training venues, the specific conflicts affecting each area were discussed and listed together with the proposed solutions to address them (see Appendix I).

**The Conflict Tree**



**Fig. 2 The Conflict Tree:** one of the tools used in analyzing conflicts around Nyungwe National Park. The conflict tree is used to identify conflict issues and organize them into the core problem and its causes and effects.

## **Training for ANICOs and DEOs in conflict resolution in support of developing a conflict resolution plans and a ‘task-force’ at sector level**

Throughout the 3<sup>rd</sup> year of USAID support, ANICOs’ voluntary work in conflict resolution around Nyungwe contributed to some major achievements, including:

- *Sensitisation:* ANICOs have conducted sensitization meetings in collaboration with local authorities, park wardens and WCS staff, reaching over 15000 people during Y3, including an estimated 5890 men, 5700 women and 3250 youth. Additionally 562 local authorities (from village to sector level) contributed to the preparation, implementation and/or attendance to those meetings which were widespread around NNP.
- *Threat reduction:* ANICOs reported information on illegal users to local authorities of the sector and park staff (over 500 reports during the first year of activities of ANICOs), including illegal miners, hunters, bamboo cutters and farmers planting cannabis in the park. The increased role of ANICOs as informants to park authorities (coupled with their sensitization activities) is believed to be at the base of the reduction of mining in Nyabinjanga sector, where ex-miners grouped together, participated in several sensitization events organized by the ANICOs, RDB and District authorities and have subsequently assisted in protection’s efforts. In Bweyeye, the ANICOs organized in each cell weekly visit to two households known to be involved in illegal activities, in order to sensitize them against the illegal exploitation of the park and discuss alternative income generating activities.
- *Fire fighting:* ANICOs have played a strong role in fire prevention, sensitizing the local population against starting fires in or near the forest (and specifically identifying those activities which most often may lead to wildfires). Additionally, ANICOs have played an increasing role in generating support among the community in the fire fighting campaigns, called by the local and park authorities in case of fire. While traditionally there was high resistance in mobilising the needed manpower to fight the spread of fire, with the active involvement of ANICOs, working in close collaboration with local authorities, the community in Bweyeye area responded to the call and stopped a fire resulting from charcoal burning in the buffer zone. ANICOs also followed through with the charcoal makers, advising them on ways to prevent fires in future.
- *Human-wildlife conflict reduction:* The human-wildlife conflict which was most reported was crop raiding. ANICOs’ focused on liaising with the affected people and the park authorities and, with the approval of the new compensation law, they are playing a crucial role in supporting the farmers in following the implementation of the required procedures for compensation. This has also had an effect of reassuring people that, despite the process is still lengthy and cumbersome, their problems are being considered, thus reducing the conflict with the park authorities. However, given that the law is very recent, there is a real need for understanding its many nuances and how it should be used in order to effectively reduce human-wildlife conflicts around Nyungwe rather than raising wrong expectations.
- *Support to alternative livelihood:* ANICOs were instrumental in encouraging ex-illegal users in being grouped together for group savings (IKIMINA) and associations for small livestock projects to discourage them from carrying out illegal activities, involving around 500 people (in Bushekeri 165 members; in Bweyeye 32 members and in Rangiro 237 members). This support is believed to be at the base of the reduction in illegal tree cutting, in Bushekeri sector/Buvungira cell.
- *Security:* The role of ANICOs can be instrumental in contributing to the security of the cell where they operate, as it has been demonstrated by two separate events, in which ANICOs collaboration with the local authorities (and park rangers) contributed towards the capture of two criminals involved in the savage attack of a park ranger (occurred in August 2012).

Through the present project, ANICOs have been supported with training and basic equipment, including boots, raincoats and material to take notes (sheets, pens and notebooks).

ANICOs' performance was evaluated after their first year of activities (September 2011 to August 2012), through reviewing their quarterly reports, as well as their emergency reports (logged on a separate form for phone calls, SMS and personal communications). The recommendations emerging from the performance report were discussed with the ANICOs during their last training in Y3, and a number of ANICOs judged not to be performing received notification and several of those were replaced.

Sustainability of the ANICOs model is under assessment. One possibility is about promoting the ANICOs to form cooperatives, following the ANICO system of the Volcanoes NP. Following that example, the ANICOs from RUSIZI District have already formed a cooperative and have been awarded 2,600,000Rwf (approximately 4,000\$) from the RDB's revenue sharing program to support a livestock raising project. While this is a way of sustaining the ANICOs structure, given the many cells around NNP, and the remoteness of the area, different options should also be explored for the ANICOs around Nyungwe.

## **Output 2: Capacity to manage fire, and monitor mining and resource use impacts are in place**

### **Organize and facilitate trans-boundary quarterly coordinated planning and patrols with Burundian counterparts**

Four planning meetings were organized in order to coordinate the patrols of the two neighbouring parks (Nyungwe and Kibira National Parks); the meetings were also important forum for exchanges between the park authorities of the two countries in order to harmonise, as much as possible, law enforcement efforts. As a follow up to these meetings, four coordinated patrols were carried out along the border of Nyungwe and Kibira, where mining is the main threats. During these different joint patrols, several illegal miners and bamboo cutters from both countries were arrested. These joint patrols were done with the support of the military from both Burundi and Rwanda.

In a bid to discuss security matters and to curb down an upsurge in illegal activities including poaching, mining, park infrastructure destruction through seemingly organized crime, a high level meeting was held, bringing together members of security organs (army and police), representatives of the judiciary as well as local authorities operating around NNP. Key recommendations issued by the meeting participants included: organize quarterly joint operations (army, police and RDB park rangers) in the major hotspots of illegal activities in Nyungwe National Park; establish mechanisms of sharing information on illegal activities between army, police, RDB and judiciary organs; train park rangers on how to develop a "dossier" for prosecution cases; train park rangers on self defense; RDB to organize sensitization campaigns in different sectors around Nyungwe, in partnership with the Army, police, and local authorities. Following up from this law enforcement and security meeting, a field visit to mining sites was organized with the local authorities, the press and the law enforcement authorities, in order to sensitize them towards the negative impact resulting from the illegal mining activities occurring in the park.

While no funds were secured to implement the fire management plan (developed with funds from the USFS), many efforts were conveyed to reduce the impact of this serious threat. Notably, fire prevention was one of the key messages conveyed through the education and outreach program (see Strategy 6), through community sensitization events, targeted fire prevention campaigns and materials explaining the impact of fire on the park, its most frequent origin and ways to prevent it.

Forest regeneration following fire degradation is also a component of the fire management plan, and is discussed in the below section.

### **Pilot methods to remove ferns at a larger scale / reduced cost as part of forest assisted regeneration in the areas affected by fire**

The process of forest regeneration, by clearing and maintaining forest plots (for a total duration of 3 years each) has continued as planned in Y3, adding three additional hectares to the 6 under regeneration since 2010-2011. Additionally, we tested the use of trimmers (or motorized bush cutters) to speed up fern clearing. The results

however have not been promising compared to the method currently used (use of machetes, which is indeed labour intensive).



**Fig. 3 Testing of trimmers:** WCS Biodiversity Monitoring Manager and regeneration team testing the new equipment in the fern clearing plots within NNP.

In order to increase the area regenerated after fire, WCS assisted (training and mentorship) a community cooperative from Banda (PNPT - Le Pilier de la Nature et de la Promotion du Tourisme) to expand assisted forest regeneration on 30 additional hectares. PNPT received the financial support of the GEF-Small Grant Programme. WCS has been building the capacity of this local cooperative in Y3 and will be involved in following up on the implementation of this project.

### **Output 3: Tourism impact monitoring program supports adaptive management of tourism program**

#### **Assist with the development and dissemination of a code of conduct for primate tourism**

Following up from previous trainings organized by DAI on Limits of Acceptable Changes (LAC), WCS organized the training of park guides, trackers and some community cooperative members working on trail maintenance in tourism impact mitigation, through the LAC method, as a prelude to the implementation of the monitoring framework of the tourism impacts on the biodiversity and other resources of the Nyungwe National Park. Effective implementation by RDB is planned for early in Y4: WCS will assist in planning and monitoring, working with the Tourism Warden and DAI.

Chimpanzee tracking guidelines have been drafted to ensure that low-impact habituation techniques and tourism visits are both improved and maintained: their finalization (and implementation) will be secured in Y4.

### **Strategy 3: Strengthening the knowledge and interest of the Government of Rwanda to develop and support PES policies**

In order to raise the awareness of government officials on ecosystems services and PES, stakeholders' workshops, PES task force meetings and a progress report on the importance of the watershed services on Rwanda economic development and conservation of critical catchments have been the instruments used in this reporting period. This had led to the recognition of the PES Task Force role in PES awareness raising and coordination of PES initiatives and the need for a PES policy that will bring clarity of provisions from very many laws, regulations, orders and practices into a single platform of reference necessary in attracting and guiding investments into PES schemes.

To initiate a Payment for Ecosystem Services (PES) approach to natural resources management in Rwanda, WCS supported REMA to carry out a situation analysis of the current legal, institutional and policy frameworks for developing Payments for Ecosystem Services in Rwanda. In March 2012, a stakeholder workshop was organized to present the findings and to validate the report. Participants appreciated and validated the work done and in proposing the way forward, the PES Task Force was identified as instrumental in leading the process of developing a national PES strategy. WCS, REMA, RDB and other stakeholders involved in the PES task force worked together to create awareness, particularly in relation to the added value that PES brings to the policy and developmental agenda in Rwanda.

*Summary of targets and progress for Strategy 3 in year 3:*

<b>Work-plan targets</b>	<b>Progress</b>
*Policy brief completed on importance of ecosystem services, informing revision of Post- 2012 EDPRS	<i>Achieved with delays: brief available, will be presented to RDB early Y4 (but could not inform EDPRS)</i>
*Meetings of PES Technical Task Force held quarterly (REMA lead)	<i>Achieved: 2 meetings held</i>
New criteria for revenue sharing developed	<i>Achieved: report</i>
*New revenue sharing policy put into effect by end of 2013	<i>Not done (but road map for implementation of RS review recommendations elaborated)</i>

**Output 1: The Government of Rwanda has the knowledge and interest in establishing effective PES policies**

**Preparation of a policy brief on the importance of ecosystems to Rwanda to inform the revision of Post 2012 EDPRS**

A concise report on the importance of watershed services was developed by WCS to raise awareness of decision makers on the value of Ecosystem services and PES to safeguard water availability and support conservation of critical catchments of Rwanda, in the context of the policy and economic development of the country. PES Watershed protection (in order to regulate the supply of water) was strategically chosen because water consumption is clearly measurable, easy to understand and most importantly, it is used by all people and sectors.

The report highlights the role of water in Rwanda’s economic goals and the challenges that the water sub-sector faces currently. Creating market instruments is identified as a means to safeguard water availability (thus contributing to the country’s development goals) by securing the sustainable financing of the conservation of Nyungwe National Park and supporting local livelihoods by developing best practices for sustainable development.

The report highlights also several steps involved in designing payments for watershed services scheme including technical feasibility analysis, the development of concept agreements between providers and users and identifying the necessary negotiations for a PES implementation (where users and providers negotiate, sign agreements and fulfil the terms of the contract). The report also describes the steps involved in creating markets for watershed services, highlighting progress made and key accomplishments in designing a PES scheme in Nyungwe and proposing future actions.

**Present the results of watershed modeling to decision makers** (and other activities related to measuring ES, understanding the effects of land degradation on water quality and quantity)

In 2011, WCS has engaged with the US Forest Service to conduct a regional watershed assessment across conservation projects in east and southern Africa including Nyungwe National Park, Rwanda using the Water Supply Stress Index- Carbon and Biodiversity model (WASSI-CB) and the Integrated Valuation of Ecosystem Services and Tradeoffs model (INVEST). The overall goal of that project was to provide quantitative information for land conservation agencies and partners in Africa to make sound decisions. The presentation and discussion of

the first results was informative and insightful, but the need for local data to validate the model was highlighted. Throughout 2012 WCS efforts focused on collecting local site specific data for models validation, which is expected to be complete by the end of April 2013.

These tools will enable stakeholders to understand the impact to critical ecosystem services under a variety of management/land use change scenarios. As a follow up to the above, once the validation is completed, the results of this work will be presented to decision makers so they have the opportunity to explore with WCS and USFS researchers the limitations and potential applications of the results for policy and management. In addition, WCS will use this opportunity to continue building watershed management capacity and leadership within the country.

To understand the effects of land degradation on water quality and quantity and how it affects different water users around NNP, WCS started carrying out land degradation assessment in one micro catchment located in Nyaruguru district. The land degradation assessment is an analytical approach that helps to understand impacts of current land uses and management practices on land degradation and water resources (in terms of whether land and water resources and ecosystems are actively degrading, stable, or improving, and the nature, extent and magnitude) and impacts on the functioning of the ecosystems and on human wellbeing. It also helps to analyze both the drivers and pressures leading to land degradation or sustainable land management and the impacts of land degradation or sustainable land management on water resources and people.

This assessment will provide a scientifically rigorous framework for evidence-based management of land resources, a biophysical baseline at the catchment level and could be used in monitoring and evaluation framework for assessing processes of land degradation and the effectiveness of rehabilitation measures (recovery) over time. This helps to improve understanding of causes, impacts, degree and acquaintances with soil, water, land cover and socio-economic factors and will help in developing a business case, focused specifically on the identified risks of each water beneficiary in watershed, associated with their utilization of watershed services, for investing in sustainable land management upstream. Once the study is complete, the results will be presented to stakeholders.

### **Meeting with high level policy makers to explore how policy frameworks and available science lead to PES pilot implementation**

The World Resources Institute (WRI), in collaboration with WCS, conducted a survey that aimed at assessing the importance of ecosystem services provided by Nyungwe National Park to different stakeholders. The findings were presented to a stakeholders' meeting in November 2012 (see below, Output IV, activities: 'Workshops with major water users (private sector essentially), and Mapping and needs assessment of beneficiaries).

Building on the momentum of this workshop, WCS, RDB, WRI and USAID outlined the different steps to further explore the applicability, challenges and details associated with the development of a NNP sustainable financing mechanism. These steps are generally chronological and take time, though some stages may run in parallel and may change organically as data and resources become available and lessons are learned. The first four steps will help build the foundation for a sustainable financing mechanism. Biophysically, these efforts will identify baseline conditions, threats, trends, priority areas and associated interventions. Economic analysis will highlight potential lost value and business risk under a variety of land-use change scenarios. Finally, infrastructure-related steps will focus on engaging the necessary stakeholders and setting up the appropriate policies through new and existing institutional arrangements. This is a multi-year process: interim benchmarks will be identified with the concerned stakeholders to ensure progress is being made and adapt as necessary.

## **Output 2: Assisting RDB in developing a comprehensive revenue sharing policy**

### **Development of new criteria for revenue sharing**

A review of the revenue sharing system in Nyungwe was conducted in year 2 to assess the performance of the RS implementation from 2005-2010. This assessment was carried out by visiting a number of past Revenue Sharing

Projects, and conducting interviews with several stakeholders to determine the expected impacts of these RS projects on the park’s conservation, local livelihoods as well as on the park-population relationship. Consideration was also given to the actual implementation (governance) of RS program, including the RS organs, criteria for project selection, participation of beneficiaries and local authorities, monitoring & evaluation of RS projects, accountability, collaboration and partnership for the implementation of RS projects etc.

#### **Facilitate the establishment of mechanism for monitoring and implementation of revenue sharing projects**

The review report was discussed with RDB Tourism & Conservation Department, Akagera Management Company, International Gorilla Conservation Programme and Great Virunga Transboundary Collaboration during a Technical Workshop organized in September 2012. This workshop helped to identify and agree upon the recommendations to increase RS effectiveness and efficiency in compliance with RS policy guidelines.

While specific recommendations were provided by the report, and general recommendations were agreed upon during the workshop (covering governance, targeting of recipients, monitoring and marketing/visibility), the setting up of a steering committee (to be appointed by RDB) was identified as key in monitoring the implementation of RS projects.

#### **Strategy 4: Develop Payments for Ecosystem Services (PES) schemes**

This year witnessed significant progress being made towards rural carbon management scheme implementation with support from ECOTRUST Uganda and formalization of private sector engagement in ecosystem services preservation.

*Summary of targets and progress for Strategy 4 in year 3:*

<b><i>Work-plan targets</i></b>	<b><i>Progress</i></b>
1 Project Design Document for small-holder tree planting as land use strategy and carbon stock completed by the end of Y3	<i>PIN and PDD finalized and submitted to Plan Vivo</i>
ADENYA and farmers’ cooperatives fully involved in development of small scale woodlot by the end of Y3	<i>Partially achieved: facilitators manual developed and reviewed, to guide ADENYA and site visit planned early Y4</i>
Workshop held with major water users by the end of the Y3	<i>Achieved: 1<sup>st</sup> attempt to formalize private sector engagement in ecosystem services management</i>
Mapping and needs assessment of beneficiaries completed	<i>Beneficiaries’ survey completed</i>
Results of watershed modeling presented to decision-makers by the end of Y3	<i>Delayed: data collection almost completed, finalization expected by early Y4</i>
Validation of NNP hydrological models	<i>Delayed: will follow above target (finalization of data collection)</i>
Land degradation water resources assessment conducted for Nyaruguru sub-catchment by end of Y3	<i>In progress (with delay): data being collected</i>
Estimate of economic impacts of land use changes on NNP hydrological services & cost-benefit analysis of sustain. Management. interventions completed	<i>Delayed: will follow above target (finalization of data collection)</i>

## **Output 2: Payment mechanisms for ecosystem services established, with an emphasis on watershed services and carbon.**

### **Develop Project Design Documents (PDD) for small-holder tree planting as a land use strategy and carbon stock**

After feasibility assessment of a carbon management scheme in rural area, in Nyaruguru district carried out by ECOTRUST Uganda in Year 2, the findings were presented to stakeholders in October 2012. Following the workshop, the feasibility study was revised to include land cover change, project financial analysis, proposals of benefits sharing and project institutional arrangement with roles of different players.

Before a full PDD is developed, ECOTRUST developed the documents that are required by Plan Vivo: the technical specifications for two farming systems (boundary planting with *Grevillea* spp and mixed spp -*Grevillea*, *Tonnaserrata* & *Polyscias fulva* and woodlots of strip planting), as recommended from the feasibility study, and the Project Idea Note (PIN) that defines the eligibility of a project against carbon certification criteria, sustainability, ecological and economical elements.

These project documents were presented in the third quarter of Y3 to stakeholders together with the feasibility study findings: an intensive review process followed to ensure the documents reflected entirely the Rwanda context and were later submitted to Plan Vivo at the end of Y3 for review and acceptance. Feedback from Plan Vivo is expected in the first quarter of Y4.

### **Identify and build capacity of ADENYA and farmers' cooperatives**

In the feasibility assessment of a carbon management scheme in the rural area of Nyaruguru district, the local NGO ADENYA was identified to participate in the implementation of the project, with a management role. However, during the feasibility assessment it was realised that while ADENYA has been involved in awareness raising efforts among communities about the importance of tree planting, it had no experience in a carbon scheme. To address this capacity gap, ECOTRUST has been drawing from its vast experience in managing carbon off-set schemes to fully prepare ADENYA for this new role. First, ECOTRUST Uganda developed a facilitators' manual, designed to empower ADENYA to be able to induct, recruit and support farmers interested in joining the scheme. The manual presents guidelines on how to handle the various stages of the Plan Vivo Cycle and it includes information related to the stepwise recruitment process, the purpose and expected results of each stage and the internal controls and facilitator's notes. The manual also has visuals for the facilitators to explain the carbon scheme concepts to farmers in a very simplified language. The guidelines in the facilitators' manual are based on the Plan Vivo Standards and have been reviewed and adapted in order to be specific for the Rwanda/Nyaruguru context.

A hands-on field based training (for ADENYA, RDB and WCS) is planned for March 2013 in Bushenyi, one of the ECOTRUST field sites: this will lead into putting in place structures, procedures and processes for the management of a carbon project in communities adjacent to NNP.

### **Workshops with major water users (private sector essentially) - Mapping and needs assessment of beneficiaries**

The PES Task Force and others partners have spent considerable time raising awareness of the need for a sustainable financing mechanism for NNP to private sector, governments and communities. Though WCS and RDB have led workshops and informal communications with the private sector for years, the November 2012 workshop, led by WRI and WCS, was the first attempt to formalize this engagement (see also Output 1, Strategy 3).

The workshop had particular focus on presenting the beneficiaries' survey results on the hydrological services provided by NNP, as well as defining the next steps for PES development in Rwanda. However due to high attendance from government officials, it is likely that private sectors beneficiaries were less likely to engage openly. More focused engagement with the private sector will be critical if contributions towards NNP management are expected. It was suggested that the private sector working group established in 2010 and composed primarily of

business operators located around Nyungwe, be reconstituted and potentially expanded to include Kigali based tour operators and other Nyungwe relevant business. Establishing a private sector working group would facilitate action, help address gaps in awareness and understanding and catalyze progress towards a large-scale sustainable financing mechanism. This group could operate independently from, but synergize work with, the national task force. Given their own platform, business representatives will be able to talk more freely about issues surrounding ecosystem services used by their operations and the challenges to developing a sustainable financing mechanism that meet the needs of the business community.

### **Strategy 5: Develop Sustainable Alternatives for Resource Use**

Although the development of markets for ecosystem services is key to ensuring the long-term protection of natural resources and biodiversity and is expected to make important contributions to the local livelihoods of communities in the near future, addressing the growing threats that Nyungwe is facing is a present priority. In order to introduce sustainable alternatives to natural resource use and contribute to the conservation of this landscape, two activities are the focus of this strategy: energy efficient stoves and increasing local availability of bamboo. These are to be considered in the context of the other initiatives carried out around NNP (by WCS as well as by other actors) aiming to reduce the pressures on the park.

*Summary of targets and progress for Strategy 5 in year 3:*

<i>Work-plan targets</i>	<i>Progress</i>
*50% of 200 households are using energy efficient stoves	<i>Achieved. Stoves' adoption survey revealed 97% of adoption and preference versus previous 3 stones method.</i>
Assessment & development of scheme for bamboo promotion in Nyaruguru Distric	<i>Partially achieved: assessment done, bamboo development scheme still in progress</i>

### **Output 1: Improved energy efficiency in villages around Nyungwe from introduction of fuel efficient stoves and alternative fuel sources**

#### **Actively promote the adoption of energy efficient stoves in target communities**

After completing the establishment of the baseline and the distribution of the energy efficient stoves (EES) to 200 pilot households in the two selected sectors adjacent to Nyungwe National Park (Nkungu and Bweyeye, in the district of Rusizi), sub-grantee REDO carried out a survey aiming at assessing the EES adoption and efficiency among the pilot households. This survey confirmed a high rate of EES adoption (97%) and its efficiency in reducing both the amount of used fuel wood and the cooking time (by 40% and by 50% respectively), when compared to the use of the traditional 'three stones stoves'. The survey report also suggests a potential market for the EES around NNP.

Based on these survey results, WCS and REDO are planning in Y4 to carry out a feasibility study (including and economic analysis and an environmental feasibility study) for the construction of a kiln to produce EES locally. This would help to easily avail the EES to greater number of households living in areas close to the park at reduced cost (pilot 200 EES were purchased from Nyamasheke and transported to the two sectors).

#### **Rapid evaluation of the existing bamboo projects in Nyaruguru district, identify and source suitable seedlings and develop a scheme of seedling distribution under agreement with local farmers in the Nshili area**

Early in Y3, WCS worked with sub-grantee ARECO to define and carry out a study aimed at providing baseline information on the bamboo development potential around Nyungwe National Park (NNP). The study focused in the

areas bordering the park where the bamboo habitat (home to a rare species of primate, the owl faced monkey) is threatened by illegal harvesting of wild bamboo. A total of 256 respondents from Ruheru, Busanze and Nyabimata Sectors of Nyaruguru District, including members of the local community, local leaders, bamboo processor's cooperatives, tea growers' cooperatives, bamboo products traders and bamboo growers participated to the study. The results showed that bamboo has a high development potential around NNP. People living in the area surrounding NNP especially in Nshili region use bamboo for different purposes including handcrafts making, construction, bean poles, and cash income. However, given the low local availability of this resource, bamboo products are often produced with NNP's illegally harvested bamboo.

The study on bamboo potentials around Nyungwe served as a basis to identify needs, key stakeholders, past lessons learnt and a way forward. A stakeholders' workshop was later organized bringing together various partners involved in bamboo development around NNP (including representatives of Rwanda Natural Resources Authority, Rwanda Bamboo Society, HELPAGE, RDB and local cooperatives involved or interested in developing bamboo lots). The meeting presented the results of the study, highlighted the plight of illegal bamboo harvesting inside NNP and the high potential for bamboo development in the Nyaruguru area, considering various support opportunities (Rwanda Natural Resources Authority, RDB Revenue Sharing Program, Rwanda Agricultural Board, Nyaruguru district, as well as the USAID/WCS support). Coordination of the initiatives supporting bamboo development was considered a priority. For instance it was agreed that all stakeholders in bamboo development should work in collaboration with RAB to coordinate the selection of the species, areas to plant and the use of appropriate techniques. Participants agreed that the suitable bamboo species around NNP is the native bamboo.

Following from this workshop, the DEO of Nyaruguru started compiling the list of the potentially available land (by the riverbank) within the 4 sectors of the district. The area will be mapped in Y4.

Under this USAID project, it had originally been planned to develop a scheme of seedlings distribution under agreement with local farmers as a component of the carbon project. Unfortunately this activity will not be implemented under the carbon project by ECOTRUST, as initially foreseen, for two main reasons. Firstly farmers in Nyaruguru area have small landholdings and therefore cannot mix bamboo with their crops. Secondly the carbon market potential of bamboo is not well established to provide enough incentives to enter into a carbon scheme. WCS is therefore proposing to join efforts with the project funded by Revenue Sharing funds (expected to start in Y4, as it was approved in Y3) to support a local cooperative in the Nyaruguru District to establish a bamboo nursery. This will result in creating local availability of seedlings which could then be easily acquired by local farmers. WCS and RDB will provide financial and technical support to the District and the local cooperative and support in monitoring and evaluation of the project.

## **Strategy 6: Implement Education and Outreach Program**

To address the immediate threats of unsustainable resource use, poaching fire and mining as well as the long-term risk of degazettement, WCS worked with RDB and local education partners to develop an Education and Outreach Strategy for NNP and to establish a baseline on local knowledge and attitudes towards the park, its threats and the conservation efforts in place to protect it. In the third year WCS has partnered with RDB in the implementation of the completed Education and Outreach Strategy. The education strategy aims at reaching three key audiences – students in formal education (environmental clubs in schools), out-of school youth and other vulnerable groups through social marketing (Outreach) and to a lesser extent, local, national and international visitors to the park (Interpretation). Additionally, Conservation Education (CE) materials have been developed, piloted, approved, produced and disseminated to be used by the targeted audiences during Y3, as a component of the implementation of the strategy.

*Summary of targets and progress for Strategy 6 this year:*

<i>Work-plan targets</i>	<i>Progress</i>
Conservation education materials and activities produced for schools by end of Y3	<i>Completed</i>
*20 teachers trained during workshop, materials distributed for school use	<i>Completed</i>
*2,000 students exposed to NNP conservation education	<i>Partially achieved: 1600 students reached</i>
Conservation education materials and activities produced for use in outreach program	<i>Completed</i>
*58 trainers trained for dissemination of outreach materials	<i>Partially achieved : 48 trainers trained</i>
*Conservation education and outreach (social marketing) programs conducted in communities (e.g., dramas, competitions), reaching 1,000 people	<i>Achieved: 3000 people reached</i>

**Output 1: Students in formal education (primary and secondary) will adopt a positive/supportive attitude to park conservation efforts based on a clear understanding of the multiple values of NNP, reduce the adoption of unsustainable behaviors as they grow into adults, and act as advocates for the value of the Park and its conservation.**

**Hold teacher training workshop to train teachers in use of materials and activities and distribute materials to schools**

With USAID support, education materials have been developed and printed in Y3. The produced materials are three thematic posters (fire poster, poaching poster and bamboo poster) and a chimpanzee game including conservation messages on the main threats (fig. 4). The posters are meant to address the three main threats identified during the preparation of the Education & Outreach strategy while the messages in the chimp game are cross-cutting and aim at promoting good behaviour that can promote the conservation of Nyungwe National Park and discourage negative (illegal) behaviour. The games are meant to be used mainly in schools with environmental clubs.

Teachers training workshop was held in Kamembe, Rusizi District, on the use of developed materials (posters and Chimp game). The training was attended by a total of 19 teachers coming from 14 schools distributed in the five districts bordering Nyungwe. The main focus of the training was to secure adequate knowledge on the threats and issues raised by the materials, as well as to identify different ways to use the materials. At the end of the training the materials for the targeted schools were distributed to the participants. The WCS Global Education Manager offered technical support to the local trainers during the workshop.

**Monitor and support use of education materials in schools**

The teachers showed genuine interest in the use of the materials in their schools; a regular follow up/support is planned in Y4.



**Fig. 4 Education and awareness materials:** Three posters presenting the three main threats to NNP (poaching, fire and bamboo cutting) and a ‘chimpanzee game’, which leads the players through the main threats affecting chimpanzees, highlighting ‘negative’ and ‘positive’ behaviours



**Output 2: Vulnerable groups (community members responsible for threat behaviours in NNP) adopt a supportive attitude to the park and change their behavior based on understanding of the multiple values of NNP**

**Hold training of trainers in support of dissemination of outreach materials**

In all districts surrounding Nyungwe National Park, ANICO trainings took place where a total of 48 ANICOs were trained in the use of the produced education materials, refresh topics from the conflict resolution strategy as well as

to initiate and train new ANICOs (recruited to replace those who either abandoned the activities or were asked to leave due to poor performance). During these trainings, the causes, consequences and possible alternatives for each of the main threats were discussed (fire, poaching, bamboo cutting), as well as the role/contribution in eradicating those threats. These trainings sessions provided also the opportunity to present to the ANICOs the feedback on their performance for the assessed period of September 2011-August 2012. At the end of training, each ANICO received copies of each material (fire poster, poaching poster, bamboo poster and chimp game board), for use during community meetings, and also to be posted at the Cell office.

**Implement and monitor conservation education and outreach (social marketing) programs for communities near NNP (these may include dramas, competitions etc).**

The objective of these events was to convey key messages for the conservation of NNP in order to increase the awareness of local communities and help them to change their behaviours with a focus on addressing the major threats found in the selected sites (Bweyeye and Butare), in accordance with the recent RBM results. The key messages presented included: the threats that the NNP ecosystem is facing, focusing on Bweyeye and Butare sites, roles of the neighbouring community in protecting NNP and values and benefits of the park to the community and how to sustain them.

A popular comedian and film actor in Rwanda (known as KANYOMBYA) attended both events and entertained the community while at the same time giving conservation related messages on the identified illegal activities. Dramas, songs, dances, poetry, competitions, comedy and talks (by community leaders, church leaders, security members, ANICOs) were developed around the main threats. The attendance was high and was estimated at 3000-4000 people in Bweyeye and 1500 in Butare.

Different leaders from village to sector level participated in the events (both in their preparation and implementation) including members of the security forces (police and army). Worth mentioning is that in Bweyeye, Burundi security forces (around 10 soldiers and 1 police officer), and the Mayor representative of Mabayi district in Burundi also participated in the event and encouraged the community throughout their speeches, to jointly protect Nyungwe-Kibira forest, and to report any detection of illegal activity to park management and local leaders.



**Fig. 5 Social marketing event in Bweyeye:** the presence of the famous comedian Kanyombya secured awareness raising through entertainment.

## C) DISCUSSION OF PROJECT RESULTS

A number of unexpected challenges had to be faced during the third year of project implementation, these included the following:

- **WCS staff turn-over:** A change in the project staff occurred in the course of this quarter: Mr. Aaron Nicholas, who had been the Director of the Nyungwe Conservation Program since early 2011, and Chief of Party overseeing all the USAID supported activities at field level, left the project due to personal reasons in July 2012. The new project director and Chief of Party, Chloé Cipolletta, took office in early October 2012.
- **Training of park rangers and wardens on survey techniques and data management:** The lengthy process of analysing of the long term biomonitoring data, collected by WCS in NNP since 1996 has caused delays in the planned training. Over the years, monitoring methodologies and especially differences in sampling size have greatly varied, making the comprehensive data analysis a much longer process than previously expected. As the results from this analysis are fundamental in providing guidance as to the most appropriate long-term monitoring strategies, training can only occur at a second phase. We are confident that this process will be achieved in Y4, as the main findings have been presented late in Y3 by Dr. O'Brien, senior WCS scientist, and plans have been made to review Nyungwe's biomonitoring program in Y4 and train the identified RDB staff.
- **Fire Management Plan implementation:** Funding support for the implementation of the Fire Management Plan from the US Forest Service has not been secured. Discussions with the New Forests Company (NFC), in charge of the buffer zone management, and RDB are in progress in order to coordinate efforts and matching funds to secure the implementation of the plan, especially in relation to training and equipping RDB staff and fire brigade units in fire fighting techniques.
- **High pressure of illegal activities, particularly of poaching and mining:** An upsurge of illegal activities was recorded throughout the year, notably poaching and mining, but also bamboo cutting, cannabis plantation and other (including some attempts of park infrastructure destruction). Two serious accidents between RDB park rangers and illegal users caught in the park occurred in Y3: in the first incident (August 2012) a RDB guard got seriously injured to the point that he lost his arm, while in the second incident (December 2012) a poacher was shot dead by a guard. Throughout the year WCS was highly involved with RDB in analysing the current situation, bringing together the security as well as judiciary organs operating in the area. Two major limitations seem to affect the current high pressure on the park and the related conflicts with the local population: the first is the lack of a wildlife law (it is in the process of being approved but may still take some time) providing a clear framework for carrying out prosecutions against wildlife related crimes; the second is the lack of sufficient alternatives for the local population, which is at particularly high densities around Nyungwe and widely poor.
- **Higher political support for trans-boundary collaboration:** While progress was underway for the ministerial ratification of the 10-year trans-boundary strategic plan (2009-2018), drafted by RDB and INECN (Institut National pour l'Environnement et la Conservation de la Nature), a sudden reshuffling in the Burundi government brought significant delays the process. Discussions have been restarted with the new Minister by WCS.

## D) SUCCESS STORIES

Three success stories were submitted in the course of this year's reporting, focusing on climate change, energy efficient stoves and forest regeneration.

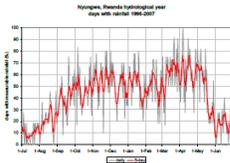


### Nyungwe National Park – a key site for monitoring climate change



There is global recognition that climate change has the potential to significantly affect the lives of people on every continent, but it is often a challenge to predict how these changes will affect society and the environment at a regional or local scale.

The lack of adequate information has prevented park authorities in Nyungwe National Park from understanding the impact climate change is having and will have on the park and how this will affect its management. Now, with support from USAID, Park Wardens from two of Rwanda's National Parks have been trained in climate change monitoring. Trained Park Wardens can take advantage of long-term monitoring data that has been collected over recent decades, including data related to rainfall and changes in the flowering and fruiting patterns of trees over time.



Practical training on climate monitoring at the automatic weather station on Mount Bigugu (top) and rainfall data from Nyungwe National Park- showing trends in precipitation per month between 1988 and 2007.

The climatic forecast for Nyungwe in the 21<sup>st</sup> Century predicts interesting trends of warming and moistening, resulting in the potential rise of isotherms by as much as 600m. This would result in the uphill shift of certain plant and animal species, especially those that are restricted in their occurrence by temperature (good examples are amphibians and reptiles). Impacts on people in areas surrounding the park would be equally strong, with major reorganizations of agriculture and livelihoods likely to result.

When compared to areas of lower elevation, which will become intolerably hot for many species, the overall picture for Nyungwe is relatively good from a biodiversity conservation perspective. This is due to the high mean elevation of the landscape, the predicted rainfall increases countering warming-intensified evaporative loss, and significant preserved forest cover.



### SUCCESS STORY

#### New cooking technology "canarumwe": a solution to reduce firewood use and protect the Nyungwe National Park



Fig 1: Cesaire NYIRANTIBAGIRIKUHE in front of her kitchen

"Taking a rest a little bit or taking care of other household's chores seemed to be impossible by cooking with the traditional stove," said Cesaire Nyirantibagirikuhe, a resident of Nkungu sector, with a family of 8 people and who received a canarumwe improved cooking stove. "Since I began using the canarumwe stove, the household chores have turned out to be easier and the time allocated for firewood collection and the amount of wood used for cooking have reduced substantially. While I used to collect firewood every day I now collect firewood two times a week." Cesaire added that the amount of firewood used for a week is now reduced by half.



Fig 2: Energy saving stove owned by Cesaire NYIRANTIBAGIRIKUHE

One of the key threats to the Nyungwe landscape is deforestation due to the high demand for fuel wood. While tree planting and woodlots address the supply side, WCS recognizes the importance of addressing demand. Several opportunities have been explored including the introduction of fuel efficient stoves that respond to cultural practices but achieve greater levels of efficiency.

It is in this regard that WCS in collaboration with the Rural Environment and Development Organization (REDO, a local NGO) is piloting a project that aims at distributing efficient cooking stoves to households in two villages around Nyungwe (Nkungu and Cyamutungo). 200 Energy Saving Stoves known as "canarumwe" were distributed and a follow up survey was carried out to assess the level of adoption of this technology in these two villages.

Some of the beneficiaries of "canarumwe" have highlighted the benefits of energy saving stoves:

According to Cesaire, this new stove has many advantages: "canarumwe cook faster. For example on a traditional stove beans are cooked for three hours while with the canarumwe beans are cooked in an hour and half". In addition, Cesaire testifies that "this new technology can use small pieces of firewood which were useless before".



### SUCCESS STORY

#### A Regenerated Future for Nyungwe Forest



Fig. 1: Ferns dominate the landscape in previously burnt areas, Nyungwe National Park



Fig. 2: Fern-clearing plots inside the Park



Fig. 3: Bosco Murentesi, WCS field botanist caring for the new forest seedlings in the regenerated plots

New, wild seedlings are seeing the light again, finally taking over the thick fern layer covering previously burnt areas in Nyungwe National Park (NPN) in Rwanda.

Forest fires are a major threat to NPN. In 2004, approximately 12% of the total forest surface had been affected by wildfires. The majority of fires originate from human activities. After wildfires, the forest soil is quickly colonized by a thick, persistent layer of ferns (*Pteridium aquilinum*). The ferns thrive in disturbed areas, impeding the ability of other wild species to germinate. Fern colonization is long lasting; most of the forest affected by the 1997 fires is still completely covered by ferns. The areas colonized by ferns have very little value as wildlife habitat, thus reducing the already limited resources available.

To counter these effects, with the 'Sustaining Biodiversity Conservation in and around Nyungwe' project, USAID supports the Wildlife Conservation Society (WCS) in regeneration efforts, including fern cutting in targeted plots and maintaining them fern-free until forest seedlings succeed in emerging from the ground. This is no easy work: the ferns establish themselves as a thick blanket covering the ground, and eradicating them is a hard, painstaking job.

Despite the challenges, to date, 33 plots of 9 hectares in total have been cleared. "Just one year after the first fern cutting, I am finding new, wild forest seedlings emerging for the first time in over 15 years", reports Bosco Murentesi, a WCS field botanist who takes care of new forest seedlings in the regenerated plots.

Now for the first time in years, bush pigs and small forest antelope are returning to roam and forage in the areas that have been cleared from the fern. While they will continue playing their key ecological role of dispersing seeds and facilitating regeneration, the forest around them will grow in value and keep attracting tourism and generating important income for the surrounding populations. All good signs for a new, regenerated future for Nyungwe!

## E) COMPLEMENTARITY WITH OTHER DEVELOPMENT PROGRAMS

In the course of the last year, activities funded through the implementation of this cooperative agreement have complemented other approaches being implemented by WCS and other partners in Nyungwe in the following ways:

- With the end of PAB, a GEF funded project of which WCS was a partner, the process of validation of the Project Design Document (PDD) for the assisted regeneration carbon financing project for Nyungwe has been on a stand still. WCS has been lobbying for the Government to take ownership (as it will certainly benefit from it) and support the costs of the validation process in order to secure the recovering of the extensive fire damaged areas. However, so far little progress has been achieved. In order to secure the increase of the fire-affected area under regeneration, WCS assisted (training and mentorship) a community cooperative from Banda (PNPT - Le Pilier de la Nature et de la Promotion du Tourisme) to expand the assisted forest regeneration process on 30 additional hectares. PNPT received the financial support of the **GEF-Small Grant Program**. WCS has been building the capacity of this local cooperative in Y3 and will be involved in following up on the implementation of this project in Y4.
- The transboundary collaboration between Kibira and Nyungwe National Park was started in 2006 and has been growing year by year. With funds from the **MacArthur Foundation**, **US Fish and Wildlife Service** and the **Margot Marsh Biodiversity Foundation**, different activities have been completed this year (with others ongoing), including: purchase of three motorbikes and different field equipment to support park protection, training of rangers in Ranger Based Monitoring techniques, INECN staff are being trained in wildlife management at KCCM, support to the habituation of a group of chimpanzee for tourism development at Kibira, owl-faced monkey survey and a number of sensitization and outreach activities. In order to mitigate threats (mostly mining, poaching and bamboo cutting) along the border of Nyungwe and Kibira NPs, each quarter support to coordinated patrols was also provided with these funds (while the joint planning between INECN, WCS and RDB was secured with USAID support).
- The collaboration between WCS and **Partners in Conservation (PIC)** has been strengthened by the support to the program from a **VSO** business development advisor who has worked closely with the Beekeepers Union. By the end of Y3, the processing, storage and sales' center is up and running, buying honey from the members of the 13 coops which form the Union, processing and selling it to tourists as well as to shops and hotels. WCS beekeeping officer represented Nyamagabe District at the 2012 Youth Exhibition, and was among the winners of a competition in the contest of 'self-reliance through innovation', showcasing innovative approaches to beekeeping.
- WCS is also collaborating with the **US Forest Service (USFS)** on a regional watershed assessment, its validation for the Rwanda context and on the assessment of land degradation on water quality and quantity and how it affects different water users around NNP, specifically in the Nyaruguru district (see strategy 3).
- Additionally, WCS is a member of **Tropical Ecology Assessment and Monitoring (TEAM) Network**. The objectives of the TEAM Network are to quantify and forecast changes in biodiversity in tropical forests at local, regional and global scales, and to understand the intrinsic dynamics of biodiversity and its responses to anthropogenic drivers of change (e.g., climate change, habitat conversion, habitat degradation, overexploitation of species). With support from **MacArthur Foundation** and in collaboration with **Conservation International (CI)** and **REMA**, WCS aims to quantify the impacts of agricultural development on ecosystem services and the subsequent effects on human well-being. Data is being collected using the most current versions of the TEAM Protocols and all the data is planned to be freely available through the TEAM data portal. The project is also intended to serve as a pilot for assessing the potential of Rwanda for future participation in an Africa-wide network of sites committed to monitoring of ecosystem services.

- WCS education and outreach programme has included the collaboration with **USFW** and **Media Impact (MI)** in the development of outreach and education materials, training, awareness activities including community events and chimpanzee tracking for students, teachers and ANICOs. Additionally a radio program is under development for broadcasting in July 2013, aiming to entertain the audience while presenting the main threats to Nyungwe and ways to address them. The program will include both comedy entertainment and a time set for discussions and information.
- Finally, WCS worked closely with the USAID supported “Nyungwe Nziza” project, implemented by **Development Alternatives Incorporation (DAI)** and aiming at strengthening the sustainable ecotourism in and around Nyungwe National Park, in providing training to park guides and trackers in tourism impact mitigation, through the LAC method (Limits of Acceptable Changes) in August 2012.

## **F) TRAINING**

In the course of the Y3 of the project, a number of training activities were organised for both government institutions (especially RDB) as well as local communities. The following is the table providing details of these trainings as well as the numbers of trainees who participated to these training events:

Date	Title	Objectives	Participants	Tot part.	F	M	Y
13-17 Feb 2012	Training on RBM data collection	Introduce the newly recruited RDB staff to the use of RBM and its importance in park management and their role in data collection	Freshly recruited RDB staff	24	2	22	0
23 March 2013	Training in use of RBM MIST (for patrol planning, data entry, data analysis, data transfer)	Use of RBM finding in park protection planning: (1) Use of MIST GIS and Excel for RBM data entry, analysis and report and (2) use the results for planning park protection patrols	RDB NNP Heads of Zones and other seniors NNP staff	5	0	5	0
29,30,31 may / 11 Sept 2012	Conflict resolution training	1. Introduce RDB rangers and Nyungwe stakeholders to CSC methodology and basic conflict resolution. 2. Identify existing and potential conflicts impacting the park at specific location and priotize those conflicts that require action. 3. Analyse prioritized conflicts 4. Identify potential solutions through which RDB and the communities can address the conflicts	NNP stakeholders, including: ANICOs, RDB staff, DEOs...	101	8	93	2
6-8 May 2012	Climate Change Training	To provide RDB and WCS staff skills for maintaining the climate station and handling climate data	RDB and WCS staff	10	1	9	0
24th August 2012	Training on Tourism Impact Monitoring	To provide RDB staff with knowledge, skills and attitude with capacity to mitigate, evaluate and monitor negative impact of tourism on biodiversity in Nyungwe National Park.	RDB NNP staff	24	0	24	0
21-22 Jan 2013	Training in use of education material & activities and distribute material to schools	1. Train teachers from identified pilot schools in use of various education / outreach materials and activities developed for schools around Nyungwe National park; 2. Distribute education / outreach materials for use in targeted schools	Teachers selected from 15 pilot schools around NNP	19	4	15	0

14,15, 27, 28 Jan 2013	Training in use of education material & activities and distribute material for community outreach	1. Train ANICOs from the cells surrounding NNP in use of various education / outreach materials and activities developed for community outreach around Nyungwe National park; 2. Distribute education / outreach materials for use in community	ANICOs	48	9	39	0
18-22 Feb 2013	Training in basic computer literacy and GIS	(1)To enhance RDB MIST users' (staff) basic theoretical and practical knowledge/skills in computer literacy and GIS necessary to implement a Geographic Information System (GIS) project; (2) To enhance RDB MIST user' (staff) understanding of the concepts, tools and methods to capture, store, query, analyze, and display spatial data necessary for park management.	RDB park staff (rangers)	17	1	16	0

## G) CROSS-CUTTING ISSUES

- **Environmental Compliance**

In overall, most of the project activities implemented during the Y3 of the project did not have any direct impact on the environment per se, but on the contrary, have strengthened the capacity to reduce the threats / negative impacts on park biodiversity and to design actions for counteracting those threats and help to reverse the trends.

As far as trainings and workshops were concerned, considerations of environmental sustainability and environmental stewardship were incorporated in the discussions where appropriate and to the extent possible. Trainees have been introduced to these notions and appreciated it.

With regard to the construction of the Gahurizo ranger post, an ERF had been previously completed and the construction activities have been conducted in a manner consistent with the good design and implementation practices as per RDB and USAID guidelines and approval.

- **Gender**

As it has previously been outlined, the lack of a gender analysis at the onset of the program has limited the capacity to specifically address the integration of gender in the project activities. While there is certainly high sensitivity to securing that men and women benefit equitably from the sustainable conservation of Nyungwe National Park, many project activities remain dominated by men, as it is evidenced by meetings attendance.

It is in this regard, that for example the baseline survey for the Outreach strategy was conducted to ensure that the views of an equal number of men and women were captured. Also, the Revenue sharing review process is aimed at addressing possible inequities in benefit sharing and had also considered gender aspect as an important factor.

In order to secure higher equitability across genders in their involvement on (and benefitting from) the project, WCS shall engage with USAID/Rwanda in identifying ways to achieve higher participation from women in the next two years of the project's life.

- **Sustainability aspects**

The three main tenets of sustainability are ecological, social and financial sustainability. All three are core to the Project goal; long-term sustainability is, therefore, central to this project which aims to strengthen NNP management capacity and develop the potential of NNP to directly benefit Rwandans, with a focus on communities adjacent to the park.

Ecological sustainability has been assured with the focus on actions aiming at threats mitigation and monitoring of NNP wildlife and natural systems. Social sustainability has been addressed through engagement of local communities, both through alternative livelihoods, innovations in natural resource use, and the education activities proposed. The project also seeks to make local communities more aware of how they benefit from the forest and in this way they can become protectors of the forest and advocates to government for its protection.

Financial sustainability has been addressed through a suite of PES and market-based mechanisms; by considering a basket of sustainably extracted ecosystem goods and services, the risk associated with reliance on a single funding source subject to the vagaries of market demand, and the fact that revenue streams for different goods and services fluctuate seasonally and inter-annually, is diminished. Alternatively, improved revenue sharing mechanism, boosted by additional income from tourism will also play significant role in ensuring financial as well as social sustainability for NNP conservation.

## H) SUMMARY OF YEAR 4 ACTIVITIES

### Strategy I: Strengthening RDB's Biodiversity and Threats Monitoring Capacity

Outputs	Activities	Completed by Date	Staff	Partners	Indicator	Targets and Milestones
<b>I.1: Biological Surveying capacity of RDB Staff is strengthened</b>	Train WCS and RDB staff in research/survey design, database management and analysis	May 2013	Felix/ Nicolas/Tim	RDB/ KCCEM	# of people receiving USG supported training in natural resources management and/or biodiversity conservation	10 RDB & WCS staff trained
	Prepare & design detailed biodiversity survey for NNP with RDB	Sept 2013	Felix/ Nicolas/Tim	RDB		Biodiversity survey designed and budget detailed
	Produce/secure training manuals to provide guidance on research protocols and data management	Sept 2013	Tim/Felix/ Nicolas	RDB		1 training manual produced (10 copies distributed)
<b>I.2: The Capacity in Park Protection and threat monitoring and assessment for RDB staff is strengthened</b>	Finalise RBM/MIST handover and monitor its use for effective park management	March 2013 to June 2013 for handover; Through February 2014 for monitoring	Felix	RDB/KCCE M	% RDB patrols guided by analysis of MIST data	60%
	Organise refresher course in GIS and MIST for HZ and RM wardens	May 2013	Felix	RDB/KCCE M	# of people receiving USG supported training in natural resources management and/or biodiversity conservation	10 RDB staff trained in GIS MIST
	Facilitate the sharing of RBM results on a quarterly basis among RDB/NNP departments and key partners	Each quarter	Felix	RDB		4 translated quarterly reports disseminated
<b>I.3: Capacity to monitor and model climate is strengthened, and baseline assessment completed</b>	Secure regular data collection, extraction, quality control and analysis of climate data at Uwinka & Bigugu stations	March to December 2013 (report by February 2014)	Felix	RDB		Climate data analyzed, report available

## Strategy II: RDB and Districts' capacity to manage conflict, mitigate threats and manage tourism is strengthened

Outputs	Activities	Completed by Date	Staff	Partners	Indicator	Targets and Milestones
<b>II.1: Capacity to understand, manage and resolve conflicts is in place</b>	Organise refresher training for ANICOs (including new recruits) and DEOs / including compensation and environmental laws / RS proposal development	May 2013	Claudine and Eugene	RDB	# of people receiving USG supported training in natural resources management and/or biodiversity conservation	40 ANICOs and 5 DEOs trained
	Provide equipment to ANICOs	June 2013	Claudine and Eugene	RDB		100% of ANICOs receive basic equipment to carry out their volunteers' role (raincoats, boots, notebooks, pens)
	Organise exchange visits for ANICOs within NNP and between parks	October 2013	Claudine and Eugene	RDB	# of people receiving USG supported training in natural resources management and/or biodiversity conservation	15 ANICOs (identified through the first year evaluation process) participating in exchange visits
	Evaluate RBD/DEOs'/ANICOs' effectiveness in mitigating conflicts	October 2013	Eugene and Claudine	RDB		Evaluation report on effectiveness in mitigating conflicts
<b>II.2: Communities participate in conflict mitigation processes</b>	Support ANICOs to organise local forums for addressing conflicts and improving park - community relationships	June to September 2013	Eugene and Claudine	RDB	# of people receiving USG supported training in natural resources management and/or biodiversity conservation	58 people (ANICOs and DEOs) organizing 6 forums in high threat zones (mining, bamboo cutting, poaching, fires, crop raiding)
	Support ANICOs and local authorities in the use of RBM results to sensitize community on NNP conservation	Quarterly	Eugene and Claudine	RDB		50% of ANICOs and DEOs use the information from the quarterly reports (assessed from the ANICO performance monitoring form)
	Support ANICOs in conflict mapping (in the cells with high threats bordering NNP)	May 2013	Eugene and Claudine	RDB		Conflict maps available for 25-29 cells with high level of threats

Outputs	Activities	Completed by Date	Staff	Partners	Indicator	Targets and Milestones
<b>II.3: Capacity to manage fire, and monitor mining and resource use impacts are in place</b>	Facilitate outreach meetings between park managers, local authorities and law enforcement agencies on fire fighting and prevention	June 2013	Eugene, Claudine and Felix	RDB	# of people receiving USG supported training in natural resources management and/or biodiversity conservation	58 people (ANICOs and DEOs) involved in organizing 4 meetings before dry seasons, on fire prevention
	Organize and facilitate trans-boundary quarterly coordinated patrol planning with Burundian counterparts	Quarterly	Nicolas	RDB, INECN	# of coordinated Nyungwe-Kibira patrols	4 coordinated Nyungwe-Kibira patrols carried out
	Provide support to user groups (bee-keepers, potters, bamboo harvesters, ex-poachers/livestock groups) around Nyungwe to facilitate linkages with relevant partners and government programmes / help organise the groups and register them as legal entities such as coops & associations	April 2013 (Nkungu) July 2013 (Nyamasheke)	Fidele for Nkungu; Eugene and Claudine for Nyamasheke	REDO, RDB	Number of individuals from all targeted user groups participating in the program with USG assistance	100 individuals reached
	Improve ecological conditions in areas that have been affected by wild fires in the past through forest assisted regeneration	March 2013-February 2014	Felix	RDB	# of hectares in areas of biological significance showing improved biophysical conditions as a result of USG assistance	12 ha recovered by end year 4
<b>II.4: Tourism impact monitoring program supports adaptive management of tourism program</b>	Support and monitor implementation of LAC methodology	March 2013-February 2014	Felix	RDB	# of people receiving USG supported training in natural resources management and/or biodiversity	16 RDB staff trained
	Reinforce chimpanzee tourism impact monitoring data collection and analysis	March 2013-February 2014	Felix	RDB		16 RDB staff trained

### Strategy III: Strengthening the knowledge and interest of the Government of Rwanda to develop and support PES policies

Outputs	Activities	Completed by Date	Staff	Partners	Indicator	Targets and Milestones
<b>1: The Government of Rwanda has the knowledge and interest in establishing effective PES policies that fully support</b>	Organize bi-annual PES taskforce/working group meetings	June 13 and December 13	Michel, Mediatrice	REMA, RDB, USFS		Report of Task Force / Working Group

<b>implementation of PES schemes and ensure that values equitably accrue to both government and communities.</b>						available
	Work with government to draft and lobby to secure the approval of PES policy and law for Rwanda	Ongoing until February 2014	Mediatrice and Michel	REMA, RDB		Strategic objectives for PES development defined

#### Strategy IV: Develop (design and implement) a system of payments for ecosystem services (PES)

Outputs	Activities	Completed by Date	Staff	Partners	Indicator	Targets and Milestones
<b>IV.1: Payment mechanisms for ecosystem services designed, with an emphasis on watershed services and forest-carbon</b>	Complete Project Design Document for small-holder tree planting as a land use strategy and carbon stock	April-June 2013	Mediatrice	ECOTRUST REMA, RDB, districts		1 PDD report and 1 validation report
	3rd party validation and project registration	July 2013	Mediatrice	ECOTRUST REMA, RDB and ADENYA		Project registered in carbon registry
	Finalise the facilitator's manual (adapted to the Rwandan context)	September 2013	Mediatrice	ECOTRUST		Facilitator's manual available
	Build capacity of local stakeholders (RDB, ADENYA, district) to manage the carbon scheme for farmers around Nyungwe	March and May 2013, January 2014	Mediatrice	ECOTRUST	# of people receiving USG supported training in natural resources management and/or biodiversity conservation	6 people (government staff & civil society) trained in PES design
	Farmer recruitment	June 2013	Mediatrice	ECOTRUST		50 farmers recruited to join the carbon project
	Carry out physical mapping of location & scale (identification, measurement operations, including plantations, factories, infrastructures, etc.) for private sector stakeholders around NNP	April-July 2013	Mediatrice			Locations mapped for five major private sector stakeholders
	Carry out cost / benefit analysis of land use change for major beneficiaries	October-November 2013	Michel			Cost benefit analysis for 3 major businesses completed
	Facilitate and support private sector forum meetings on PES around NNP	December 2013	Michel			1 meeting held with at least 10 different business institutions

## Strategy V: Develop Sustainable Alternatives for Resource Use

Outputs	Activities	Completed by	Intervention areas	Staff	Partners	Indicator	Targets and milestones
<b>V.1: Improved energy efficiency in villages around Nyungwe from introduction of fuel efficient stoves and alternative fuel sources</b>	Assess feasibility and environmental impact of EES kiln construction	June 2013	Bweyeye, Ruheru, Kivu sectors and Cyamudongo	REDO/Fidele	RDB		Feasibility study and environmental assessment available and circulated
<b>V.2 Creating incentives for reducing illegal bamboo harvesting</b>	Support coordination of bamboo initiatives in Nyaruguru district (initiate the collaboration, sharing of information and the identification of opportunities) to increase support to the area most sensitive to bamboo development (due to the illegal exploitation of bamboo in the park)	March 2013 through February 2014	TBD	Fidele	Nyaruguru district, Rwandan Natural Resource Authority, RDB		Areas suitable for bamboo development are mapped and roles and responsibilities of different stakeholders clarified
	Support to local community to develop bamboo nurseries	October 2013	Nshili area	Fidele, Vincent	Nyaruguru district, Rwandan Natural Resource Authority, RDB	Number of individuals from all targeted user groups participating in the program with USG assistance	200 individuals reached (community members receiving seedlings and cooperative members)

## Strategy VI: Implement Education and Outreach Programs

Outputs	Activities	Completed by Date	Intervention Areas	Staff	Partners	Indicator	Targets and Milestones
<b>VI.1: Students in formal education (primary and secondary) will adopt a positive/supportive attitude to park conservation efforts based on a clear understanding of the multiple values of NNP, reduce the adoption of unsustainable behaviors as they grow into adults, and act as advocates for the value of the Park and its conservation</b>	Monitor use of developed CE materials	March to November 2013	Sectors around NNP	Claudine, Eugene	RDB		200 students (20 students x 10 schools) participating in the program with USG assistance (using the CE materials)
	Prioritise and develop additional CE materials identified in the Outreach Strategy for using in schools	July-November 2013	Sectors around NNP	Claudine, Eugene	RDB, ARECO		500 copies of book; 500 thematic school materials
<b>VI. 2 : Education Output 2: Vulnerable groups (community members responsible for threat behaviours in NNP) adopt a supportive attitude to the park and change their behavior based on understanding of the multiple values of NNP</b>	Design, create, pilot and adapt conservation materials and activities for use in outreach programme	June-July 2013	Sectors around NNP	Claudine, Eugene	RDB, ARECO		3 new outreach materials designed and produced
	Implement and monitor conservation education and outreach programs for communities near NNP and carry out social marketing events (as defined in the strategy)	July, September 2013	Sectors around NNP	Claudine, Eugene	RDB, ARECO	# of individuals participating in the program with USG assistance	5,000

**I) Appendix I:** Results from the conflict/solutions identification process carried out by ANICOs, DEOs, RDB and WCS for each district around Nyungwe National Park.

Type of CSC solution	District and conflicts								
	Nyamasheke&Karongi		Nyaruguru		Nyamagabe			Rusizi	
	Poaching	Forced firefighting	Bamboo-cutting	Transboundary conflicts	Timber-cutting	Poaching	Crop-raiding	Poaching	Mining
	<b>Awareness-raising</b>	-Increase community awareness of conservation laws - Increase community understanding of the economic and environmental value of the park - Support family planning	- Increase fire safety knowledge among community members	- Joint RDB-army-police campaigns to raise community awareness of conservation laws and values - Consider awareness-raising campaigns targeting Burundian communities	- Launch awareness-raising campaigns on conservation laws and values on both sides of the border	- Launch awareness-raising campaigns on conservation laws and values, with a particular focus on local authorities - Establish environmental clubs in schools - Launch study tours of the park for local communities	- Launch awareness-raising campaigns on conservation laws and values, supported by regular meetings among conservation partners and stakeholders. Known or suspected poachers should be targeted for the campaigns	-Raise community and RDB awareness of the new compensation law -Increase community awareness of conservation laws and values	Increase community awareness of Nyungwe economical and ecological values
<b>Benefit sharing and project support</b>	- Develop income generating employment schemes in the communities of Nyamasheke	- Allocate benefits from the benefit-sharing mechanism towards communities and community members participating in firefighting operations	- Support income-generating projects in the district that target legal resource exploitation - Habituate a group of owl-faced monkeys for tourism	- Support the development of income-generating activities in park-adjacent communities to reduce pressures on park resources	- Support agro-forestry programmes and seedling distribution outside of the park - Explore options for the promotion of energy-efficient stoves and use of biogas to change local energy needs - Support the development of	- Promote and distribute small livestock as an alternate source of food and livelihood	- Work with partners to expand non-farm income opportunities to reduce community dependence on agriculture - Clearly communicate benefit-sharing at the community level	- Develop income generating employment schemes in the vulnerable communities for making them busy	-Develop income generating activities for miners in Rusizi - Orientation of revenue sharing targeting miners group

					income- and employment-generating projects that reduce natural resource dependence - Equitably allocate a portion of the benefit-sharing revenues to household-level projects		to increase the value of the park and its fauna for the communities		
<b>Enforcement</b>	- Update conservation laws and policies - Strengthen collaboration between the park and the police and judiciary to improve law enforcement			- Scale up transboundary patrols between INCN and RDB - Launch an awareness-raising campaign targeting the Rwandan police force to increase their understanding of conservation laws	- Launch an awareness-raising campaign targeting the Rwandan police force to increase their understanding of conservation laws	- Launch an awareness-raising campaign targeting the Rwandan police force to increase their understanding of conservation laws			Strengthen partnership with law enforcement organs like POLICE, in breaking mining chain
<b>Coordination and collaboration</b>	- Work with ANICOs on awareness-raising campaigns - Strengthen collaboration between the park and the police and judiciary to improve law enforcement	- Work with NFC and the tea estates to develop a mechanism for compensating community members for firefighting and fire prevention activities in the buffer zone - Launch a joint community awareness program on	- Work with the Rainforest Alliance to establish plantations outside of the park, focusing on indigenous species of wood - Formalize collaboration between RDB and INCN to address illegal transboundary activities	- Work with INCN to improve the compatibility of conservation laws and policies across the two countries	- Consider partnering with NAFA, WCS and Rainforest Alliance on awareness-raising campaigns	- Use trusted NGOs as third party mediators to address the conflict between RDB and the communities	- Work with cooperatives and religious leaders on awareness-raising campaigns	Strengthen the partnership with different stakeholders in poaching alleviation: RDB, WCS, REDO, Districts, REMA	

		fire safety with other stakeholders (army, police, NAFA)							
<b>Capacity building</b>		<ul style="list-style-type: none"> <li>- Increase firefighting capacity at the community level</li> <li>- Support community first aid training for common fire-related injuries</li> <li>- Establish fire-wise groups responsible for firefighting at the local level</li> </ul>		<ul style="list-style-type: none"> <li>- Work with partners to increase the capacity of INCN and the Burundi police force to better protect Kibira NP</li> </ul>			<ul style="list-style-type: none"> <li>- Increase the capacity of communities to protect against crop-raiding</li> </ul>		
<b>Research</b>							<ul style="list-style-type: none"> <li>-Work with partners to improve understanding of where crop-raiding is occurring and why, and what crops would discourage it</li> </ul>		