



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

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## **Looking Forward Through the Past**

**Progress, Challenges, and Lessons  
Learned by WCS  
in Nyungwe National Park, Rwanda  
1988 – 2013**

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## **Introduction**

The roots of the Wildlife Conservation Society in Rwanda spread both deep and wide across the landscape. From the Virungas in the north to Nyungwe in the south, with extensions into Gishwati, Mukura, Akagera, and across the borders into Congo, Uganda, and Burundi, WCS has worked with an array of local, national, and international partners to advance the cause of conservation. It has championed both charismatic species and the full range of biodiversity through pioneering interdisciplinary research and creative new approaches to addressing the needs of local communities and national development interests.

If WCS actions in Rwanda are widespread, they are most deeply and firmly rooted in the Nyungwe Forest. Among many WCS partners in Nyungwe over the years, two stand out above all others: the Rwanda Development Board and its predecessor ORTPN, for understanding the importance of conservation in national development and for steadily raising its standard of professionalism; and the US Agency for International Development for its early recognition of the importance of biodiversity and its timely intervention as a primary source of financial and technical support at two critical junctures.

This report is commissioned to help prepare for the celebration later this year of the 25<sup>th</sup> anniversary of the WCS/RDB/USAID collaboration in Nyungwe that officially began in 1988. That history – and the lessons learned from it – form the bulk of this document. However, this history would be incomplete without attention to activities that led up to the 1988 engagement and subsequent WCS activities outside of Nyungwe, both in the field and in ever-changing advisory roles. In addition to this text, an accompanying PowerPoint presentation has been provided to RDB, USAID, and WCS in electronic format.

## **Early History: 1959 - 1987**

In 1959, George Schaller came to the Virunga volcanoes to conduct the first ever study of mountain gorillas in the wild. Supported by WCS (then known as the New York Zoological Society), Schaller stayed for 18 months, working primarily from a cabin at the base of Mt Mikeno in the Congo sector of what was then called the Albert National Park. Belgian colonial authorities did not permit him to cross legally into the Rwandan sector of the volcanoes because of “insecurity” concerns. However, Schaller made several unofficial forays into Rwanda to complete his census of the Virunga population.

Schaller’s work resulted in major contributions to the understanding and conservation of mountain gorillas. He provided the first science-based census/estimate of the population at 400 to 500 individuals. He described basic gorilla social structure and ecology in ways that still have value today. And he published two books – *The Year of the Gorilla* and *The Mountain Gorilla* – that

brought accurate information and strong arguments for improved conservation to both scientific and popular audiences around the world.

In 1967, Dian Fossey came to the Virungas to build on Schaller's work: in her own words, "to out-Schaller Schaller." WCS gave her one of her first grants, in 1967. Fossey's efforts focused on long-term studies of gorilla social organization and behavior and National Geographic magazine articles and films made her and her "gentle giants" global stars. However, just as the world came to know them as individuals, the survival of the gorilla population was increasingly in jeopardy. More than half of their forest habitat in Rwanda's Volcanoes National Park was cleared for settlement and agriculture following independence and a 1973 census showed their numbers to have crashed from Schaller's 450 to only 275.

In 1978, WCS funded a hybrid effort by Amy Vedder and Bill Weber to study the causes of the gorilla population decline and to recommend solutions to the problem. Their work included a new census, an 18-month study of the gorillas' habitat and food resource needs, and a first-ever study of Rwandan attitudes toward conservation and other socio-economic factors – a novel package of multi-disciplinary research that ultimately contributed to the emerging field of applied conservation science. At the time, its importance lay in its resulting recommendations. In addition to strengthening park security, these included education and outreach to local communities and development of a new kind of tourism focused on a few groups of gorillas. WCS presented these to ORTPN and external NGOs as an alternative to a proposal to take another 5000 ha, or one-third of the remaining park, for a cattle-raising project.

In the summer of 1979, the Mountain Gorilla Project was launched based on the core ideas of gorilla tourism, education, and improved park security. The initiative was funded by a consortium of NGOs: African Wildlife Foundation (AWF), Fauna and Flora international (FFI), and World Wildlife Fund (WWF). WCS did not participate, citing the organization's emphasis on conservation science – an error they would later acknowledge. Weber and Vedder stayed on to initiate the tourism and education programs with primary support from FFI and WWF. The MGP functioned for nearly 10 years, in collaboration with a relatively weak ORTPN. In 1990, the MGP was replaced by the International Gorilla Conservation Programme (IGCP), an NGO consortium that continues to provide technical assistance and funding for mountain gorilla efforts in Rwanda, Uganda, and DR Congo. Under RDB management, gorilla tourism now generates more than \$100 million dollars per year in direct and indirect revenue and is the flagship for Rwanda's booming tourism industry. Of even greater conservation importance, the Virunga mountain gorilla population stands at nearly 500 individuals: more than at any time in recorded history.

WCS remained involved in the Virunga region through the Ruhengeri Research and Analysis (RRAM) project, funded by USAID and directed by WCS Associate Weber from 1985 through 1988. RRAM's mandate was to bring together information – in Rwanda's first computerized GIS analysis – on the biological, physical, social and

economic resources of the Virunga watershed. This included mapping of the VNP vegetation zones and funding a new gorilla census. Based on the project's land use threats analyses, its second phase targeted erosion control through agroforestry. This novel effort was cut short by hostilities in northern Rwanda in the early 1990s, but for many within USAID, the project was a precursor to later Integrated Conservation and Development Projects (ICDPs).

### **Nyungwe Prelude: 1983 - 1987**

In 1983, Weber and Vedder completed the USAID-funded management plan for the Bururi Forest Reserve in southern Burundi and came to Rwanda to discuss a new project in the Nyungwe Forest. Nyungwe was then a national forest under the Directorate General of Forests. Advised and supported by Swiss technical assistance, the DGF plan was to plant a buffer zone around the entire Nyungwe perimeter, then proceed to develop a multiple use master plan for the forest. As part of that plan, the DGF asked WCS to conduct surveys of Nyungwe's wildlife to identify a potential "nature reserve" within the 1,000 km<sup>2</sup> forest.

Following further reconnaissance and discussions, WCS provided funding for a three-year initiative led by Vedder: "Conservation of the Afromontane Forests of Rwanda, With Focus on the Nyungwe Forest Reserve." As indicated by the title, this project targeted activities in all of Rwanda's remaining mountain forests. A 1986 census of the Virungas that brought together teams from Rwanda, Congo and Uganda documented the first increase in mountain gorilla numbers since the creation of the MGP. A survey of golden monkeys (*Cercopithecus mitis kandti*), found this rare subspecies to be endemic to the Virungas, Gishwati, and Nyungwe. An assessment of the World Bank's "Agro-Sylvo-Pastoral Project" in Gishwati found systemic mismanagement and severe ecological degradation and reported this finding to the DGF, as well as to World Bank offices in Kigali and Washington.

The primary focus of the 1985-88 effort was on Nyungwe. Major vegetation zones and their principal tree species were identified and faunal surveys showed a diverse primate community with 10 diurnal and 3 nocturnal species. Among these was the discovery of the owl-faced Monkey (*C. hamlyni*) in Nyungwe's southern bamboo zone - the only known population of this species east of the Great Lakes rift.



Black-and-white Colobus  
Credit: Vedder/Weber



Owl-faced Monkey  
Credit: WCS

In a further, more focused study, Vedder also documented the presence of *Colobus angolensis ruwenzorii* in permanent groups of 300 to 400 individuals – associations nearly 10 times the size of other known black-and-white colobus populations. At the same time, the forest's terrestrial mammal populations were found to be severely depleted, with Cape buffalo extinct and leopards, elephants and several others on the brink. This finding was closely linked with a preliminary threats analysis that revealed extensive highly destructive gold mining, with related heavy poaching, as well as widespread woodcutting and intensive bamboo exploitation in the Nshili region. The nature of these threats was brought to the attention of Rwandan authorities.



Gold mining in Bururi Valley, Nyungwe (1986)  
Credit: Vedder/Weber

In late 1987, the combination of serious threats to wildlife with potential benefits from primate and other tourism attractions convinced ORTPN to intervene in Nyungwe. At the same time, a WCS proposal to the Biological Diversity Program of USAID was working its way through Washington offices, with the endorsement of the USAID Rwanda mission. A powerful new partnership was about to be born.

## 1988 – 1993: PCFN

The Projet Conservation de la Foret de Nyungwe (PCFN) was launched in 1988. With renewed funding from WCS, a new grant from USAID, and the arrival of the first ORTPN staff (a warden and small team of guards), a period of more intensive conservation began. Nyungwe was still a Forest Reserve with four major international donors (Swiss, World Bank, European Development Fund, and the French) supporting exotic tree plantations around its border and advising the DGF on forest management. However, WCS and its partners were playing an increasingly visible role. It was also a time of more significant Rwandan involvement, with Eugene Rutagarama serving as the official counterpart to WCS's Rob Clausen from 1988 to 1990.

Research was less important for WCS during this phase, with the notable exception of a series of studies examining the socio-economic status of neighboring human communities and their relationship with the forest. Two of these studies surveyed the economics of gold mining (Kristenson & Turikunkiko) and bamboo exploitation (Bahigiki & Vedder). Results of these and other surveys that showed a high dependency on natural forest products (wood, bamboo, honey, medicinal plants) informed a new Five-Year Management Plan of the Congo-Nile Divide, developed by the DGF and its foreign advisors. Other in-forest studies were conducted on an ad hoc basis. These included two studies of the Nyungwe bird fauna: one by a team from the University of Wisconsin, led by Tim Moermond; the other led by Samuel Kanyamibwa from the National University of Rwanda. Both projects provided learning opportunities for NUR students, including Fidel Ruzigandekwe, who would later become Executive Director of ORTPN's Rwanda Wildlife Agency and then WCS Monitoring and Evaluation Manager.



Illegal bamboo harvesting in NNP near Nshili  
Credit: Vedder/Weber



PCFN placed a primary emphasis on tourism development. With support from USAID and Peace Corps, the project laid out the network of trails leading from Uwinka that still serves as the tourism core today. WCS hired and trained guides to take visitors to see colobus, other monkeys, and birds, as well as to hike the trails. Most of these early guides and trackers were from the Banda region, from where they “commuted” on foot to the main tourist center at Uwinka. By 1990, Nyungwe hosted nearly 3,000 visitors per year, most of whom were international tourists. It should be noted that this number was bolstered by visitors traveling to Kahuzi-Biega NP, in DRC, who preferred the roads – and security – of Rwanda. As perceptions of the security situation in Rwanda worsened in the early 1990s, international tourism declined.

One of ORTPN’s major acts during this time was the closure of the Pindura and Karamba settlements within the Forest Reserve. Pindura, located in the heart of the forest at the juncture of the road south to Bweyeye and Burundi, was both an eyesore for tourists and the hub of numerous illegal activities linked with gold mining. Both settlements were illegal, under Rwanda’s Forest Reserve statutes. But where the DGF had been reluctant to act, ORTPN ordered them vacated and demolished. This didn't end mining, but it made most supply operations more difficult and costly.



Pindura Settlement and Trading Center (1988)  
Credit: Vedder/Weber

An extension and expansion of USAID support in the early 1990s permitted the construction of the current housing, offices, and visitor support infrastructure at Gisakura, on the western edge of Nyungwe. These were intended to provide living

and work facilities for ORTPN and WCS staff, as well as for visiting scientists. The dormitory and canteen complex was designed for students and other training events. In a parallel, but unrelated action, the World Bank supported construction of the Kitabi building complex that now houses RDB offices and the Kitabi College of Conservation and Environmental Management. Today, the buildings used by RDB rangers at Gisovu are those which were constructed in the 80s by the Swiss Forestry Project.

A final activity of the initial PCFN period received little attention at the time, but proved to be an important catalyst for conservation activity across the Great Lakes region. Under the initial USAID Biodiversity grant, WCS organized and hosted three Afromontane Forest Conservation workshops. These brought together people from Rwanda, Burundi, Tanzania, DRC, and Uganda to discuss common challenges and successes in mountain forest conservation. In addition to shared experiences in gorilla, chimpanzee, and general forest tourism, these meetings generated recommendations to conduct more biodiversity surveys and applied research across multiple sites. They also generated recognition of the need to move beyond the situation where projects were working in isolation, to a regional perspective that saw a network of forested “islands” with a shared set of attributes, opportunities, and challenges. This was the beginning of what would become the Albertine Rift regional conservation initiative. According to Eugene Rutagarama, these meetings also contributed ideas of transboundary collaboration that would inform the creation of the International Gorilla Conservation Programme and, much later, the Nyungwe-Kibira transboundary initiative.

## **1994**

The Genocide of 1994 affected Nyungwe in many ways. Tens of thousands of Tutsi were slaughtered at Murambi to the east of the forest. The French declaration of their “Zone Turquoise” made the forest a temporary haven and primary escape route for hundreds of thousands – including hardened *interahamwe*, defeated military units, and countless others swept up in the mass exodus – fleeing to Congo. The day after hostilities formally ended, the ORTPN warden Shaban Turikunkiko was murdered while driving across the main forest road. All buildings at Uwinka were destroyed and those at Kitabi and Gisakura were looted and heavily damaged. RPF units patrolled the forest for national security, not anti-poaching, purposes. Tourism would take years to recover.

## **1995-2002**

The initial years following the Genocide constituted a grim period for Nyungwe and the nation. The new government needed to provide security for its people, resettle waves of returnees, rebuild its infrastructure, and replenish a depleted treasury. Conservation was not a priority and tourists would not return any time soon. Under

terms of the 1993 Arusha Accord, returnees were to be settled on “unoccupied” land, with the result that more than 60% of the Akagera NP was degazetted for returnees and their cattle. What was left of the Gishwati Forest Reserve after the World Bank Agro-Sylo-Pastoral project was cleared of all but a dozen square kilometers of relic natural forest – and some eyes looked covetously at Nyungwe for still more land. Donors, too, recognized that Rwanda had other priorities and applied their funding to political stabilization, justice, economic recovery, and ethnic reconciliation.

Under these conditions, WCS was left to cover virtually all costs associated with Nyungwe Forest conservation for many years. While such institutional support was essential at that time, success would not have been possible without a strong leadership team composed entirely of Rwandan nationals:

- Eugene Rutagarama, PCFN Director 1995-97
- Michel Masozera, PCFN Deputy Director 1996; Director 1997-2000; WCS Country Director 2003-2005, 2010-present
- Nsengiumva Barakabuye: PCFN Community Outreach Coordinator 1999-2004; PCFN Director 2005; WCS Country Director 2006-2009
- Ian Munanura: PCFN Director 2001-2004
- Felix Mulindahabi: PCFN Research & Monitoring Officer/Coordinator 1993-present

In addition, several dozen guards, trackers, and forest monitors were on the WCS payroll. With only limited oversight from WCS-NY staff and no functional park service, this group of Rwandans organized themselves to first secure the boundary, then slowly improve conservation in and around, the forest. When Amy Vedder arrived from WCS-NY to assess the situation in early 1995, patrols were already active in the park and primate groups were again being monitored.

Beyond re-establishing a presence, a top priority was to raise the awareness of central and local government leaders of Nyungwe’s conservation importance. Local leaders were especially important, as none of the international funders returned to support work in the buffer zone, or anywhere else in the forest. Poaching was rampant and many local farmers had cleared land within the protected area to plant fields. Once discovered, these farmers were allowed to harvest their current season and then required to leave. Poachers, too, were put on notice through their community leaders, that patrols were again being carried out and that anti-hunting laws would be enforced. Coordination with the Rwandan military patrols in and around the forest was essential. Ultimately, it was the military that forced major mining operations for gold and coltan to cease operations in 1999-2000.

In 1999, WCS hired Nsengiumva Barakabuye as Community Conservation Specialist. For the next five years, he and his teams reached out to district, school, and church leaders to raise their conservation awareness and provide information about the forest and its values. Beekeeping activities were initiated that included training to

reduce the potential for fires resulting from traditional honey harvesting techniques – fires that burned nearly 10% of the forest in the late 1990s and early 2000s. Improved wood-burning stoves were introduced in the Bweyeye region and the PNPT tourism cooperative was launched in Banda. The concept of *Animateurs de la Conservation* – ANICOs – was conceived and first tested in Nyungwe. It was a time of creative thinking and innovation in community conservation, but there were insufficient resources to do more than develop pilot initiatives at a scale much smaller than required by the large population beyond Nyungwe's boundaries. Still, another innovative activity took local leaders to visit the devastated landscape that was once the 280 km<sup>2</sup> Gishwati Forest. The message was clear: it is far better to live with the natural forest than to live with the consequences of tearing it down.

In 1999, the first donor support from other than WCS began to flow into Nyungwe. Dutch technical assistance paid for the construction of ranger posts and equipment for mobile patrols. UNDP and the US Department of State paid, respectively, to rehabilitate the Gisakura and Kitabi building complexes. Partners in Conservation (Columbus Zoo, US) gave direct support to the women's handicraft cooperative in Banda. And the MacArthur Foundation (US) gave a major grant to the newly created Albertine Rift program to support biodiversity and socio-economic surveys in and around the region's mountain forests, including Nyungwe. The results of the biodiversity surveys confirmed Nyungwe as one of the most important forests for conservation in Africa.

## **2003 – Present**

Throughout the preceding period, ORTPN gradually added capacity. Then in 2003, with a significant tourism recovery underway in the Volcanoes, ORTPN returned to Nyungwe in a major way, bolstered by reorganization and the inclusion of conservation objectives in Rwanda's new Constitution and Vision 2020. New deputy warden positions were added for community outreach, tourism, and research and monitoring, in addition to law enforcement. Higher education standards were established for guides and guards. Most significantly, the park service took on the responsibility of paying the salaries for all of these positions – for the first time in 10 years – leaving only tourism trackers as ORTPN staff on the WCS payroll.

2005 was a watershed year for Nyungwe. Years of preparatory work led by Michel Masozera and his team resulted in the official designation of Nyungwe as Rwanda's third national park. Boundaries were marked by teams using GPS as they walked the perimeter of the forest – leaving the buffer zone still in Forest Department hands. That same year, WCS contributed significantly to ORTPN's first Five-Year Management Plan (2006 – 2010) for Nyungwe National Park – a landmark document that set ambitious goals for the new protected area, especially for the tourism sector.

Recent years have seen the return of major donors to Nyungwe. Without ignoring the primary importance of health, education, and agriculture that continued to receive the major share of funding, a few international agencies took renewed leadership roles in biodiversity conservation and its link with rural development in communities around protected areas. The largest single grant, \$5.5 million, came from UNDP's Global Environment Facility, in response to a proposal developed by WCS in close collaboration with ORTPN and many other government (REMA, MINITERE, NUR), NGO (IGCP, MGVP, DFGF, HELPAGE, and others), and civil society partners. This Protected Areas Biodiversity (PAB) project targeted the Nyungwe and Volcanoes parks, as well as central ORTPN capacity building. For internal government reasons, it was managed by the Rwanda Environmental Management Authority. For direct support to WCS, its community and tourism partners DAI and IRG, and the Nyungwe NP, however, USAID has provided the primary support, totaling more than \$11 million over the past seven years.

WCS's lead government partner throughout the past quarter century has also undergone significant change in recent years. In 2008, the functions and staff of the former ORTPN were incorporated into the Rwanda Development Board. RDB's mission is *Fast tracking economic development in Rwanda by enabling private sector growth*. This is an essential mission for development in Rwanda and one that easily encompasses many aspects of ecotourism. Unlike most other private businesses under the RDB umbrella, however, national parks have significant management costs related to security (anti-poaching, encroachment, transboundary locations) and challenging relationships with local communities due to real and potential conflicts between wildlife and domesticated crops and livestock. These management concerns have thus far been addressed by maintaining a Tourism and Conservation unit within the larger RDB. Discussions continue, however, as to the right-placing of conservation and the degree to which private sector interests will predominate in the overall management of Rwanda's national parks.

With increased support and greater staff capacity within WCS, RDB, and most partners, dozens of discrete activities have been initiated, many of which continue to evolve and adapt to changing needs and conditions. Assigning responsibility or credit for these activities is complicated by multiple and often overlapping donor and partner relationships. A GEF activity such as assisted regeneration of burned areas may receive PAB funds for local cooperatives, while WCS and USAID support the staff positions that oversee this project. RDB staff have increasingly taken on former WCS responsibilities in areas such as chimpanzee tracking and, most recently, ranger-based monitoring (RBM). USAID activities implemented by private sector partners IRG and DAI have drawn on WCS and RDB staff experience and knowledge to inform their enterprise and tourism activities funded by USAID. While this creates a complicated set of relationships, much has been accomplished in recent years.

With history merging into current events, and with current activities well documented in recent reports and evaluations, this narrative will now change form.

In keeping with document guidelines, the concluding sections will focus on 8 core areas of WCS activity, noting key activities with an emphasis on lessons learned over the past 25 years through present times.

## **1. Park Management and Institutional Support**

WCS has a strong record of support, guidance, and transfer of core functions in its relationship with RDB (including ORTPN) and management of Nyungwe National Park. From 1988 on, this partnership has grown from one heavily dependent on WCS expertise, through an extended period of post-genocide financial and technical dependency, to a decade of steadily increasing RDB assertion of its proper primary role. From its very capable Chief Warden, through its deputy wardens, guides, guards, and trackers, RDB has consistently and competently taken over activities initiated by WCS. In the case of guides and guards, RDB has also raised educational standards and provided further training for its employees. In some instances where official RDB procurement is deemed too slow or uncertain with regard to quality, WCS continues to procure certain products for NNP use; however, this service is deemed by all to be less necessary than in years past.

The most current example of Ranger-Based Monitoring is illustrative. Begun more than a decade ago, RBM was initially run entirely by WCS staff and results were computerized and analyzed using the MIST program developed largely by WCS Albertine regional staff. In recent years, RDB rangers have taken on all data collection and entry responsibilities, with hands-on training by WCS. RBM patrols are on course to reach the 90% coverage milestone this year. As of mid-2013, USAID funding will support the transfer of all data analysis and mapping functions to the deputy warden for research and monitoring, with WCS providing continued mentoring as long as needed.

WCS staff played central roles in promoting the idea of making Nyungwe a national park and assisted in all stages, from boundary demarcation to enabling legislation. WCS national and international staff have also participated directly in the development of the 2006-2010 and 2010-2020 NNP Management plans. RDB has now taken the lead in driving this planning process and, in 2010, the two groups coordinated their planning so that priority activities could be matched, where possible.

Beyond Nyungwe, WCS has provided support to the Akagera NP on a per need basis for an elephant population survey and for an assessment of disease transmission concerns between domestic and wild animals. WCS also conducted the biodiversity surveys of Gishwati and Mukura Forests, including recommendations for their improved conservation. In the policy arena, WCS has generated recommendations to RDB for wildlife damage compensation systems, co-management of the Nyungwe buffer zone, and improvements to the draft national forestry law. These forays into policy formulation seem to have had less evident impacts than more direct park

management recommendations, likely due to the fact that national policies are subject to more diverse influences as they move through the political process.

Lessons Learned:

- WCS could secure a certain level of park and wildlife protection and fulfill certain tourism management functions during the post-genocide period of government preoccupation with bigger problems. However, only with RDB's national standing, expanded capacity – and reliable infusions of internal and external funding – could park management and protection operations be taken to a higher, essential level.
- WCS been a reliable partner, valued by RDB, when asked to provide conservation science and management guidance for protected areas beyond Nyungwe. Policy advice has also been solicited, though its impact is less certain.

## **2. Capacity Building**

Capacity building has been an area of considerable and continued WCS success in Nyungwe. Rwandan staff at all levels have received hands-on training and been given leadership responsibility since PCFN's creation. This local leadership capacity was of absolutely critical importance in the post-genocide period, when Nyungwe's future – and even its continued existence – was in question. More recently, the project's senior national staff have earned or nearly completed Rwanda's only doctorate in conservation science, as well as three Masters degrees from the US and UK, and a Wildlife Management degree from Tanzania – all with primary WCS support. Almost all of these individuals continue to work with WCS, providing a unique combination of professional training, work experience, and continuity.

Other Rwandans have gained valuable experience in projects that have collaborated with PCFN, then moved on to other important conservation positions, including Dr. Sam Kanyamibwa (Executive Director, ARCOS) and Eugene Rutagarama (IGCP) and Fidel Ruzigandekwe (ORTPN, WCS), as mentioned above. As undergraduate and Masters students from NUR and other institutions continue to conduct research and receive guidance from WCS personnel in Nyungwe, this list will only grow. All of these individuals with Nyungwe experience are exposed to a great diversity of research, management, and community issues, providing Rwanda with a pool of adaptable conservationists.

Guides, guards, rangers, and trackers have also received considerable hands-on training from WCS staff, most critically during the post-genocide period. As RDB has taken responsibility for these positions since 2003, WCS has continued to mentor park staff. With increased donor support in recent years, site visits to Ugandan gorilla and chimp projects have been organized and guided by WCS. These have included central office RDB staff.

No advanced degree university training has been provided through WCS to RDB senior staff over the years. However, a high-level delegation from ORTPN, REMA, PAB, HELPAGE and WCS was funded by GEF to visit Costa Rica to study that country's national parks and tourism operations. This experience directly contributed to Rwanda's development of its Biodiversity and Wildlife policy, as well as a request for USAID support for the Nyungwe Canopy Walk.

Lessons Learned:

- The development of Rwandan professional conservation capacity at multiple levels was of central importance in managing Nyungwe during the post-genocide period.
- WCS support for continued advanced training and higher education for senior staff has resulted in strong institutional bonds and identity, with resultant continuity.
- Hands-on training and field experience cannot compensate for education standards required for RDB hiring. This has held back many local WCS field staff who would like to work as RDB guides or guards; it has also motivated some to return to school to obtain the required degree.

### **3. Research**

Applied conservation science has been a regular, if inconsistent, aspect of WCS work in Nyungwe. Primate surveys and more focused research on colobus monkeys provided key information for the designation of the initial "Nature Reserve" and early tourism efforts. Biodiversity surveys in the late 1990s and early 2000s earned recognition of Nyungwe as a site of global conservation importance. The chimpanzee censuses of 2004 and 2007, led by Beth Kaplin and WCS staff, found a total of 400 chimps – with perhaps another 200 in Burundi's contiguous Kibira NP – adding Nyungwe to the list of key sites for conservation of that charismatic species. Long-term phenological monitoring and annual bird and mammal surveys may be less glamorous, but the results of the latter are essential to RDB's ability to assess conservation success. And Nyungwe's long-term phenology records may provide a much-needed baseline to detect and assess the effects of climate change.

Social science has never received as much attention as biological research in conservation. As the field has come to recognize the importance of social and economic factors, however, Nyungwe has been recognized for early attention to these subjects. Published articles from the 1980s described local attitudes toward the forest and its resources – mostly negative – while a recent WCS education survey found high awareness of park values and rules, as well as continued perceived need for forest resources. On-going masters research (Barakabuye) should provide more nuanced information on some of these issues. The most detailed and potentially important research to-date is that of Michel Masozera on



the value of Nyungwe's ecosystem services – water, tourism, erosion control, and carbon sequestration. Translating his findings and recommendations re payments for these ecosystem services into action – and real money – is a critical next step.

Lessons Learned:

- Research, both punctual (e.g. chimp census) and long-term (phenology, annual mammal and bird surveys), has provided sound information on which WCS and RDB can base management and resource allocation decisions. Timely analysis and distribution are necessary if this information is to serve its full potential.
- Social science research in Nyungwe is not new, but will become more important as the focus for conservation action moves to communities outside the park. Understanding the socio-economics of hunting and mining is especially important. So, too, is regular monitoring of tourist interests and satisfaction, if quality standards are to be steadily improved.
- There is an apparent decline in interest on the part of wildlife scientists to establish research projects in Nyungwe. Whether this is due to a lack of donor support, or the perceived high cost of working in Nyungwe, the result is the same: there is less information being generated and there are fewer sources of expertise to help inform and mentor park guides and other staff on key wildlife issues such as chimp and primate tourism, species recovery, and species-habitat relationships.

#### **4. Tourism**

With the arrival of RDB staff and support from the first USAID grant, ecotourism activities were initiated in Nyungwe in 1988. Monkey groups were habituated, trails blazed, local guides trained, and primitive infrastructure established. It is over the past decade, however, that tourism has begun to take off in both visitor numbers and quality of their experience. WCS has been a strong advocate for and supporter of this development. However, with RDB's increased engagement in this sector, the return of significant donors such as USAID and UNDP/GEF, and the resultant involvement of consultant groups and more private sector actors, determining responsibility – and credit – for specific activities is more complicated than before.

Chimpanzee visits have emerged as the flagship tourism activity in Nyungwe, with visitor numbers more than doubling from 859 in 2009 to 1,954 in 2012. The quality of visits has also increased significantly over this time, based on personal experience and reports of others, though the required effort and uncertainty of success remain higher for chimps than for gorillas. Guide knowledge of the chimps and their ability to keep visitors engaged during sometimes extended tracking lags well behind their gorilla guide counterparts. Responsibility for improving this situation has been divided in recent years, with the transfer of guides and most trackers to RDB and the allocation of donor funds for chimpanzee tourism to other organizations. The

engagement of an experienced chimp researcher as WCS Nyungwe Director, the part-time contribution of expertise from the Jane Goodall Institute through DAI, and improved communication among partners should help to clarify responsibilities. The presence of a long-term chimpanzee research program in Nyungwe would greatly enhance prospects for guide and tracker training.

WCS's original conception of ecotourism development in Nyungwe focused less on chimps and placed greater emphasis on hiking, watching monkeys and birds, and experiencing the rainforest. Such general tourism has also increased in recent years, rising to a high of roughly 8,200 total visitors<sup>1</sup> in 2011, before falling slightly to 7,700 in 2012. The potential for steady increases in such non-chimp-focused visitation has grown with USAID investments in new and improved trails, the canopy walk, and the WCS-designed Uwinka information and reception center. A revised pricing policy, now under final RDB review, should further facilitate this growth.



Uwinka information center, Nyungwe NP  
Credit: Vedder/Weber

The Nyungwe Forest Lodge (for which WCS hired the original design team and helped to select the stunning Gisakura site) is a welcome and increasingly successful addition to lodging options in and around Nyungwe. It blends extremely well with its environment while responding to RDB policy emphasizing high-end ecotourism. WCS has divested itself of the Gisakura Guesthouse, which now operates as a private concession that continues to serve more modest budgets. New developments based

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<sup>1</sup> RDB continues to collect tourism information in a manner that appears both difficult to access (as highlighted in a recent USAID evaluation) and to interpret. When figures are available, the number of “visitors” is used interchangeably with the number of “visits” to Nyungwe attractions (chimps, birds, trails, etc.). Both numbers are important (visits for allocation of guides, identification of desirable new attractions; visitors to generate essential data on lodging and rental vehicle needs, as well as reliable multiplier factors for spending per ecotourist outside of parks) and this unnecessary confusion should be cleared up by RDB.

on the recently approved national concessions policy, developed by RDB with DAI and USAID support, should further diversify the range of Nyungwe lodging offerings.

Lessons Learned:

- WCS is not a tourism development NGO. However, WCS has provided and should continue to provide sound advice and timely technical assistance to ecologically and socially sustainable tourism development efforts.
- Nyungwe is not the Volcanoes NP and chimps are not gorillas. Nyungwe offers many more potential attractions than the VNP, and many more challenges. WCS, RDB, and their major donors and partners have learned much about tourism in Nyungwe over the past decade. Putting that experience to work through the development of quality attractions, products, and services, along with adaptive policies on concessions, pricing, and marketing, should make the coming decade one of steady, sustainable growth.
- Investment in improved monitoring and sharing of visitor numbers, international or national origins, interests, spending, and satisfaction would be extremely helpful in planning and marketing for tourism in Nyungwe.

## **5. Outreach and Education**

The recent USAID evaluation highlighted outreach and education as areas of mostly successful WCS intervention with considerable potential for growth. Working with RDB counterparts, the three-person WCS team focuses on education in schools, outreach to communities, and conflict resolution. There are currently twenty focal schools: 10 selected as pilot schools, another 10 identified from RBM “high threat” areas. Core approaches include teaching modules, student plays with conservation themes, and educational card games for animal identification and habitat relationships. Teacher training is part of this approach. The knowledge and awareness study conducted by the WCS International Education program showed relatively high awareness of the park and its values, as well as many knowledge gaps to be filled. The USAID evaluation saw this as an opportunity to add more positive messages, especially to younger school audiences, to what it saw as more negative threat-reduction themes. All of this indicates much valuable work to be done over coming years if future generations are to receive an education with relevant conservation content. However, with more than 200 schools – 10 times the current focal number – spread around the Nyungwe periphery, the question needs to be asked where added staff, mobile units, projectors, etc. will come from. Does RDB – already under increasing pressure to privatize its operations – see this as a priority? Do donors?



Student performance of conservation-themed play in Cyamudongo  
Credit: Yufang Gao

Community outreach activities have thus far concentrated primarily on fire reduction and strengthening the ANICO (Animateur de Conservation) program. Fires are always a dry season threat in Nyungwe, though in recent years their incidence and extent have declined. RDB NNP staff have invested considerable time and effort in working with local communities to reduce fire incidence and to promote rapid responses in reporting and fighting fires once started. WCS has brought in US Forest Service experts to help advise on a Fire Management plan. The role of the Education and Outreach program is to reinforce these efforts with their messaging to schools and communities. ANICOs are key agents in this process.

ANICOs are individuals identified from communities around the park, one per sector, with sufficient education and standing to serve as voices – as well as eyes and ears – for conservation. The ANICO program was first initiated in Nyungwe in the late 1990s. It failed, but not before being transplanted to the VNP. There, ANICOs have been organized as a cooperative, with direct support from both RDB and conservation NGOs. Today, ANICOs are again active around Nyungwe, with one in each of 54 sectors. How they are organized and supported remains in question. What they do, however, may be more important to their long-term success. One idea is to expand their role beyond encouraging respect for park rules and reporting violations, to make them multi-faceted extension agents. This could be done by exposing ANICOs to activities like the improved agriculture and nutrition programs at the Kageno project in Banda, or other agricultural programs, as discussed in the USAID evaluation, or improved wood stove initiatives, or improved honey

production methods. They could also help to multiply the messages of the school education program. The end result would be a more positive role, supportive of community development interests, with better prospects for long-term success. It will also require greater commitment and support from RDB, WCS and donors.

Lessons Learned:

- Community outreach and development activities intended to reinforce conservation efforts require careful and consistent messaging that links these initiatives. This was not done in the 2006 to 2009 USAID project that combined support for conservation with funding for health programs in communities around Nyungwe. Staff from the two project components rarely met and, as a result, excellent opportunities to link forest health with human health were missed – an experience shared with many other conservation initiatives around the world.
- Education and outreach are much discussed – and usually under-funded. RDB, WCS and interested donors need to engage in careful discussions and secure commitments before planning any significant expansion of E & O activities and geographic coverage.

## **6. Enterprise Development**

With a few minor and two notable exceptions, the promotion of enterprise development among local communities and cooperatives has not been an area of major WCS engagement. In part this reflects the skill set of WCS staff, in part the tendency of donors to direct their support to more development-oriented NGOs. It does not reflect the true importance of this sector.

Improved honey production and marketing has been a long-term WCS focus. The Ubwiza bwa Nyungwe Beekeepers Union has built on earlier efforts to form cooperatives to improve harvesting and processing techniques. Now, with more than 700 members (23% women) organized in 13 cooperatives, production from roughly 3500 hives should approach 7 tons of pure honey in 2013. Marketing outlets have been expanded to the NNP reception at Uwinka, stores in Huye and Kigali, as well as the primary outlet in a new roadside store in Kitabi. The mayor of Nyamasheke also stated a strong interest in seeing a comparable processing and sales outlet in his community on the newly paved road along Lake Kivu. Expansion to the East African market is a major next step. However, it must be noted that almost all of the Union's current production comes from hives located in the Nyungwe Buffer Zone, from where the bees can access varied nectars from the diverse tree species of the rainforest. In that regard, the recent decision by the New Forest Company – holder of a long-term buffer zone concession – to order 1500 cooperative members' hives removed from the first buffer zone section it intends to harvest is troubling.



Ubwiza bwa Nyungwe honey products and outlet store in Kitabi  
Credit: Rebecca Ashwood (WCS Business Advisor/VSO volunteer in Kitabi)

Energy efficient wood-burning stoves represent a second area of WCS enterprise promotion. While the ultimate goal is that of decreased demand for wood and related illegal forest entry, the stoves first introduced in the Bweyeye region also represent an opportunity for a business or cooperative to build and distribute them to a larger area. This is now under investigation, with attention to whether this can be done without further continued WCS and/or donor support.

A final intervention may not qualify as enterprise development, but is worth mentioning nonetheless. Assisted regeneration is a technique developed by WCS in which the dense fern cover that emerges post-fire is cut by hand to permit regrowth by native tree species hidden beneath the ferns. Now in its 9<sup>th</sup> year, assisted recovery has proven to be very successful, but also very labor-intensive and time-consuming. Teams of 30-40 people from the Kitabi and Banda areas have been trained to cut, clear and weed burned areas, two weeks per month. This is a relatively significant level of employment for these communities and, while not an enterprise, it is potentially sustainable for many years if carbon-sequestration funding becomes available, as envisaged in a proposal now pending approval and action.

One action not yet undertaken, but in the USAID work plan, is to assist in development of a value chain for bamboo products in the Nshili community bordering southeastern Nyungwe. This is the only part of the forest with bamboo habitat, which supports rare owl-faced monkeys, perhaps golden monkeys, and other species dependent on bamboo. Many people in Nshili also depend on bamboo to make mats, baskets, and other market products. The problem is that the bamboo for these products comes almost entirely from illegal harvesting within the park.

WCS's perspective on this is that initial attention should be given to developing bamboo resources outside of the park before any promotion, or even identification, of markets for bamboo products.



Assisted regeneration in burned area, eastern side of Nyungwe National Park  
Credit: Vedder/Weber

#### Lessons Learned:

- While more development-oriented NGOs or private actors may be more experienced in enterprise development, WCS's long-term commitment to Nyungwe has enabled it to remain engaged with beekeeper cooperatives and the new Bwiza bwa Nyungwe Union for more than a decade. This extended nurturing period has permitted the group to learn, adapt, and ultimately make progress.
- A fundamental question arises with programs of enterprise development, or outreach, involving intervention with local communities around a large, complex, often inaccessible park like Nyungwe. Is it better to have project representation around the entire park? Or to concentrate activities so that enterprises, education, agriculture and health extension can all be integrated within a much more limited sphere? The answer remains elusive.

### **7. Nyungwe-Kibira Transboundary Collaboration**

Since providing technical support to Peace Corps volunteers in Burundi's Kibira NP in the late 1980s, WCS has always regarded the 400 km<sup>2</sup> Kibira park as part of a larger Nyungwe-Kibira conservation area. Over the next twenty years, however,

insecurity concerns on first one, then the other side of the invisible forest border delayed progress toward that goal. With determined shuttle negotiations by WCS's Barakabuye and Masozera and the full support of RDB, a preliminary agreement on transboundary collaboration was signed by RDB and Burundi's INECN in 2008. Elaboration of a framework for full collaboration is now in progress.

Current activities are focused on quarterly patrols and wildlife surveys in the immediate transboundary region, as well as WCS playing an advisory role with INECN as it seeks to gain conservation capacity. Future activities are likely to include greater INECN capacity building in RBM, research and monitoring, and tourism.

Lessons Learned:

- Transboundary parks are double-edged swords: adding conservation impact within contiguous areas when they work, adding conservation challenges when failed political or economic conditions increase threats and prevent effective action on one side.
- Patience and persistence pay dividends.

## **8. Post-Conflict Donor Support**

As noted earlier, international donor support for Nyungwe conservation in the post-genocide period was strictly limited to that from WCS. Some Dutch support came in 1999, with US State Department funds for infrastructure repair in the early 2000s. US Fish and Wildlife and the MacArthur Foundation (for the Albertine Region) also provided limited funding. In 2006, the UNDP/GEF began funding efforts to restore biodiversity management capacity in Nyungwe NP, Volcanoes NP, and the RDB central office. Also in 2006, USAID was the first and only bilateral donor to engage directly in a significant way with Nyungwe. Since that time, USAID has been the primary supporter of in-park conservation, ecotourism development, and outreach to local communities. It has also been the leading source of support for WCS field staff.

Lessons Learned:

- When conflict and/or economic collapse envelop a nation, international development agencies will quite rightly focus their assistance on the most urgent needs for national recovery. This means that secondary concerns like conservation will require NGO support – or no support at all, as in the case of Akagera – for possibly quite extended periods. Given the tight link between tourism and national development in Rwanda, however, it might be helpful to review whether waiting 13 years for renewed international support to Rwanda's parks and tourism was necessary or even optimal. Certainly donors in Burundi should not wait this long to support conservation in Kibira NP.



- It is unlikely that conservation in Nyungwe could have succeeded post-1994 without the presence of Rwandan personnel with leadership and management experience and a commitment to conservation. WCS could supply a modest flow of needed money, but Rwandans provided the commitment that made the transition possible through a long post-conflict period.

## **Further Reflections**

Some final observations, looking both back and forward, lie outside of the original scope of work for this report. Yet they seem worthy of brief mention here in the hope that they will spur further discussion.

1. Science is essential for good conservation and that science must include attention to local people and their needs – as well as to nations and their development aspirations. Failure to sustain basic research and monitoring functions within both the biological and socio-economic spheres risks uninformed management decisions that can undermine conservation and its attendant benefits.
2. Conservation is more than science. The results of research and experience must be communicated in a manner and language that resonate with target audiences – whether local, national, or international. And that communication should lead to informed action, if it is to have applied conservation value.
3. Conservation never ends. There are always new challenges to which successful organizations and initiatives must adapt – and adaptation is less difficult if changes and challenges are identified in advance.
4. Privatization is a powerful and growing force in Rwanda. Conservation may be its next frontier. This could open new opportunities to generate and distribute wealth through socially responsible ecotourism. It could also pose new – perhaps radically different – challenges to managing the wildlife and wild places that are the source of that wealth. The conservation community should proactively engage with government and agency partners to help inform discussions of this potential new frontier

## **WCS in Nyungwe**

### **Selected Bibliography: 1985 - 1995**

Many documents pertaining to the early history of WCS, USAID, and GOR involvement in Nyungwe were lost in the upheavals of 1994. Some key documents recovered from USAID and WCS archives in the course of researching this report are listed below. Copies of these documents can be obtained through the WCS Rwanda Program. Additional information on early WCS involvement with mountain gorillas and Nyungwe Forest conservation can be found in *In the Kingdom of Gorillas* (Weber & Vedder. 2010, 2001. Simon & Schuster).

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