



Conservation Through Public Health (CTPH): Protecting Uganda's mountain gorillas via people-centered conservation

Based in Uganda, the Conservation Through Public Health (CTPH) team works to protect the Mountain Gorillas of the Bwindi Impenetrable National Park through a ground-breaking integrated human, animal and ecosystem 'One Health' approach comprising:

- **Wildlife conservation with a focus on wildlife health**
- **Community and livestock health in the villages around the protected areas**
- **Development of alternative livelihoods from eco-tourism for previously impoverished rural local people living around the protected areas**

For an animal as genetically close to humans as the mountain gorilla (we share 98.4% of our genetic material), our interconnectedness is more than an ecological concept; it's a daily reality. Human communities and gorilla groups live in close proximity around the Bwindi Impenetrable National Park, sharing landscapes, water resources and unfortunately some diseases as well. A co-ordinated approach to the conservation and management of gorillas is therefore key to the success of the programme. CTPH has spent the last two decades redefining what it means to protect an endangered species and firmly believes that sustainable conservation efforts with any species in any country can only be properly organised and outcomes fully realised using this inclusive model.

HOW IT ALL STARTED

Founded in 2003, CTPH pioneered the groundbreaking 'One Health' approach long before the term became globally recognized. The organization was born out of a simple but powerful insight: protecting gorillas requires addressing the health and wellbeing of the people who live nearest to them. This idea came after a devastating outbreak of scabies among mountain gorillas in 1996. The intervening team was led by CTPH Founder and CEO Dr Gladys Kalema-Zikusoka who was working at the time as the first veterinary officer for the Uganda Wildlife Authority. The outbreak resulted in the loss of an infant gorilla but thankfully, the rest of the family recovered after treatment with Ivermectin. The source of infection was ultimately traced to local human communities living adjacent to Bwindi Impenetrable National Park. The need for a 'bigger picture' approach to gorilla conservation and considerations of the health and well-being of both gorillas and local people immediately became apparent.

Since Dr Kalema-Zikusoka's initial observations, CTPH has progressed to reducing disease threats, improving community livelihoods and strengthening the resilience of Bwindi's endangered gorilla population by integrating veterinary science, public health, and community-based conservation. Today Uganda's mountain gorillas are not only increasing in number – they are also an inspirational conservation success story among Africa's great apes. CTPH's work has played a significant role both in that trajectory and in the design of other conservation programmes around the world.



Dr. Gladys Kalema-Zikusoka observed that in fragile areas where the lives of wildlife, people and livestock intersect, a decline in health in any of one of them affects the survival of the others. Photo © Sarah Marshall (NB: photo taken before the COVID-19 pandemic; everyone is now required to wear masks near the gorillas).



CTPH Staff training Gorilla Guardians on emerging and re-emerging zoonotic diseases around BINP.

SAFEGUARDING MOUNTAIN GORILLAS



Photo © Peter Neville

1. Gorilla Health Monitoring Programme

Through CTPH's Gorilla Health Monitoring Program, routine faecal sample collections and general clinical observational checks are carried out on all 28 habituated gorilla groups within Bwindi and Mgahinga National Parks. Samples are analysed for key reverse zoonotic helminths of human origin such as *Ascaris sp*, *Trichuris sp*, *Strongyloides sp*, and human hookworms, and for any helminths of livestock origin such as *Trichostrongylus* and *Oesophagostomum*. The findings help CTPH to understand the disease risks surrounding the mountain gorillas and their potential origin and transmission with local communities. Gorilla health monitoring activities are accompanied by comparative studies in villages where gorilla groups with high worm burdens are known to forage. During these studies samples taken from livestock, humans and gorillas are tested for helminths, zoonotic bacterial infections such as salmonella and shigella, and zoonotic protozoan infections such as cryptosporidium and giardia.

These ongoing studies help CTPH to understand the risks within these communities and guide appropriate interventions, such as mass deworming campaigns or referrals for treatment for infected humans and also their livestock, especially those that feed close to the park boundaries. The work is all performed with the aim of minimising the risk of transmission to mountain gorillas when they come out of the forest. This proactive surveillance system has created an effective early warning system that prevents devastating disease outbreaks and ensures that vulnerable gorillas remain healthy.

Under this program CTPH also trains rangers, guides and trackers in the strategies and practical techniques of disease prevention in gorillas as recommended by IUCN and Uganda Wildlife Authority (UWA). This has ensured minimal transmission of zoonotic infections from humans to gorillas, a most notable feat given their daily close contact, similar genetic make-up and shared disease vulnerabilities. CTPH has trained over 350 UWA Rangers in Bwindi to manage the strategy and also 164 Gorilla Guardians who are crucial in mitigating human-wildlife conflict by ensuring that gorillas who enter human communities surrounding the park are safely and calmly directed back into their protected forest areas.

2. Community health and family planning

By improving human health in communities bordering the park, CTPH also vitally reduces the likelihood of pathogens spilling over into gorilla populations. This is achieved through the Model Household project which is implemented by Village Health and Conservation Teams (VHCTs) and Community Health and Conservation Field Officers (CHCFOs). These groups educate local communities about zoonotic diseases and their transmission pathways, prevention strategies, the importance of planting trees, how to practise good sanitation and improve personal hygiene, as well as how to tend vegetable gardens and develop alternative incomes to reduce their reliance on the park. Through this project alone CTPH has reached over 10,000 households and successfully transformed the majority from red homes into green homes.

CTPH has also made family planning services far more accessible to local communities through the VHCTs to help address the issues caused by human population pressure around the park and improve social welfare among local communities. The forest is not expanding but the gorilla population is growing inside it and so the human populations around the forest are being helped to stabilise through education about contraception. A reduction in birth rate also brings many related improvements in family welfare.

CTPH's VHCTs also run many broad-ranging educational workshops with local communities. Their community health initiatives, family planning programmes and sanitation improvements have all led to very measurable decreases in disease prevalence in mountain gorillas. The community health programme working with children and youth groups in Bwindi under the NGS-funded STEAM Project has also crucially raised awareness in younger generations about the importance of conservation. This has been enhanced by the provision of opportunities for practical involvement with programmes such as tree planting and plastic waste recycling.



In the comfort of her home, a VHCT is administering an injectable contraceptive to a woman from the Bwindi local community.
Photo © CTPH

3. Developing alternative livelihoods for local people

In this integrated process of protecting and monitoring mountain gorillas, entire villages have been transformed into flourishing trading centres with local people employed in hotels and wildlife lodges, and as professional guides and anti-poaching officers. Local people now also produce a range of eco-friendly products such 'Gorilla Conservation Coffee' for cafes, hotels and retail sales, and offer a range of activities for tourists. Many previously highly vulnerable people, including mothers and families abandoned by their husbands, now derive independent income by making souvenirs for eco-visitors.

Through initiatives such as the production of Gorilla Conservation Coffee, CTPH helps farmers to achieve better incomes while reducing dependence on forest resources. This has resulted in stronger household economies, improved conservation attitudes and provides a direct financial incentive for all local people to protect gorillas.

CTPH also recently launched the third and largest phase of its 'Ready to Grow' project, funded by National Geographic Society. This initiative supported 1,500 households by providing 'Ready to Grow' gardens, which includes a package of ten low-maintenance food crop seedlings that require minimal space and yield food in one to four months. Founded in 2020, the project aims to reduce hunger and support vulnerable households on the outskirts of the BINP and encourage participation in pioneering Model Households programs, with the ultimate aim of reducing poaching and illegal forest entry.



CTPH Co-founder and Chief Veterinary Technician, Stephen Rubanga examining a gorilla faecal sample at the Gorilla Health and Community Conservation Centre. Photo © CTPH



CTPH Wildlife Health Technician, Annaclet Ampeire collecting faecal samples from the night nest of a mountain gorilla. Photo © CTPH

ONE HEALTH RESEARCH AND ADVOCACY

CTPH has been able to conduct studies on cryptosporidium, zoonotic bacterial infections such as salmonella and brucellosis and viral infections such as Crimean Congo Haemorrhagic Fever (CCHF) and Rift Valley Fever (RVF) with the support of several partners around the world. Cornell University and William and Mary College in the USA, Massey University in New Zealand, the Royal Veterinary College in the UK, the Kasisi and Ngogo chimpanzee projects in Uganda, UWA, and the Uganda Virus Research Institute are all highly engaged.

Special projects with partners, such as Collaborative One Health Research Initiative on Epidemics (COHRIE), NESTLE and 'Healthy Children Healthy Apes', have also supported vital research into disease transmission dynamics at the human-wildlife-livestock interface at Bwindi and other protected areas like the Queen Elizabeth National Park. CTPH has also started to conduct research into the effect of stress hormones on gorillas in partnership with the Mammal Research Institute and the University of Pretoria in South Africa.

The end goal of CTPH's 'One Health' research is to address challenges that are of both public health and conservation importance by providing scientific evidence to guide interventions and define management policy. CTPH has also been able to produce a policy brief on Responsible Tourism to the Great Apes together with the International Gorilla Programme under the Africa CEO Biodiversity Alliance (ACBA), which is assisting the UWA.

WORTH WILD AFRICA SUPPORT FOR CTPH

Worth Wild Africa (www.worthwildafrica.org) was delighted to raise funds in 2023 for the purchase of equipment including a field oven to dry gorilla faecal samples to facilitate studies at the CTPH Gorilla Health and Community Conservation Centre field laboratory. Other laboratory materials also assisted research into zoonotic diseases such as tuberculosis, and respiratory viruses including HPMV, HRSV and COVID-19.

In 2024 Worth Wild Africa raised over US\$13,000 to fund the purchase in France and delivery to Uganda of a GeneXpert® Model 2 machine equipped with advanced 10-Color Technology and a compatible desktop computer. This machine enables CTPH to conduct important diagnostics that facilitate rapid and highly accurate detection of respiratory pathogens including tuberculosis (TB), human respiratory syncytial virus (HRSV), human metapneumovirus (HMPV) and SARS-CoV-2 (which causes COVID-19) and various other respiratory infections that affect both gorillas and people. This would not have been possible without the amazing and exceedingly generous support of our donors – THANK YOU!



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Disease threats to great apes are being increasingly identified at different sites such as Kibale National Park. CTPH is therefore constantly adapting its research focus to be able to safeguard Uganda's gorillas. One of the most promising steps in this direction is the integration of advanced molecular diagnostics into their surveillance work. Worth Wild Africa recently supported this effort by raising funds to purchase and donate a GeneXpert® Model 2 machine. This enables rapid and highly accurate detection of a range of respiratory pathogens that affect both gorillas and people.

CTPH team members and key partners who spend the most time near gorillas, including park rangers, trackers, porters, wildlife health technicians, veterinarians, Gorilla Guardians and researchers, play an essential role in gorilla protection, but also carry the highest risk of unintentionally transmitting human illnesses, especially viruses, to gorillas and other great apes, and especially so in asymptomatic cases.

With the GeneXpert® Model 2 machine, CTPH is now able to:

- Screen high-risk individuals quickly and inform park management protocols.
- Detect infections before they reach the gorillas
- Inform real-time decisions regarding gorilla tourism and monitoring
- Strengthen Uganda's national response capacity.

CTPH has recently started to test people who interact closely with the mountain gorillas for respiratory threats such as RSV, TB, SARS-CoV-2 and others. WWA raises funds to help purchase the kits that will enable these tests to be conducted routinely in future, and promptly in the face of a disease outbreak. This strengthens the enforcement of strict guidelines for disease prevention to great apes, a journey that CTPH strongly pursues through the Arcus-funded project of Disease Prevention to Great Apes within Uganda's Tourism Sites, but also as a focused strategic goal.

CTPH also plans to expand use of this technology to gorilla samples following successful pilot studies in other wildlife species in South Africa in the Kruger National Park. This advancement will help detect outbreaks earlier, support targeted interventions and generate high quality data that contributes to global conservation science.



Left: Worth Wild Africa's Dr Peter Neville and CTPH members of the CTPH team at the Gorilla Conservation Café in Entebbe. **Right:** CTPH Wildlife Health and Laboratory Technician, Laurence Muruhura analysing samples for diseases using the GeneXpert machine donated by Worth Wild Africa. *Photos © CTPH*

CTPH Achievements and Awards

CTPH's work has earned some of the most prestigious national and international awards in conservation and public health including:

- UNEP Champion of the Earth Award for Science and Innovation (2021)
- Whitley Gold Award (2009)
- San Diego Zoo Conservation-In-Action Medal Award (2008)
- Ministry of Tourism, Wildlife and Antiquities, Excellence Award for Outstanding Contribution to Wildlife Conservation in Uganda (2017)
- Uganda Wildlife Conservation Education Centre, Certificate of Dedicated Service as a Board Member (2017)
- Switch Africa Green (SAG) SEED Award for eco-inclusive enterprises to Gorilla Conservation Coffee (2017)
- Global Development Network Award (2015 – 17)
- Golden Jubilee Award for distinguished service, from the President of Uganda (2017)
- Jane Goodall Institute, Award for Conservation (2018)
- Finalist, Tusk Award for Conservation in Africa (2019)
- Winner, St Andrews Prize for the Environment (2020)
- World Veterinary Day 2020 Award
- American Society of Mammalogists, Aldo Leopold Award (2020)
- Winner, Tällberg-SNF-Eliasson Global Leadership Prize (2022)

CTPH founder and CEO Dr. Gladys Kalema-Zikusoka, has also been featured on the BBC, CNN and many international TV stations for her contribution to increasing support of the conservation efforts in Bwindi. These honours reflect not only scientific excellence, but a deep, sustained commitment to both the people and wildlife there.

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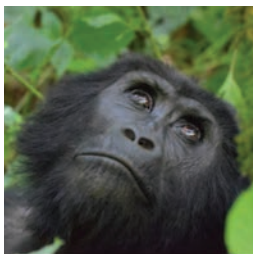


Photo © Simon Wray

GORILLA CENSUS

CTPH also participates in the ongoing Mountain Gorilla Census as one of the key stakeholders in mountain gorilla conservation in the Bwindi landscape, along with other key gorilla conservation partners. The census is a periodic survey to determine the number of habituated and non-habituated mountain gorillas in the Virunga-Bwindi region and provides critical data on population dynamics, group size and composition changes and the prevalence of solitary males. The census also helps assess levels of human disturbance and the status of other large mammals in the ecosystem. The results are essential for evaluating the success of conservation efforts and ensuring mountain gorillas and their habitats continue to receive attention from the global conservation community.

CTPH'S CALL TO ACTION AND MODEL FOR THE FUTURE OF CONSERVATION IN AFRICA

People who live around protected areas are more than just stakeholders; their participation, knowledge, and well-being are vital to the success of conservation activities and programmes. CTPH seeks to empower communities to make decisions, profit from conservation projects, and take control of natural resource management rather than simply being expected to follow rules from centralised authorities.

CTPH's One Health approaches, notably the deployment of advanced diagnostics in remote landscapes, continue to show that protecting wildlife is inseparable from protecting people. The work of CTPH in Bwindi has become a shining international example of how conservation can succeed best when it listens to communities, invests in science, and adapts to a changing world.

You can read more about the foundation and work of the CTPH in this inspirational book by founder Dr Gladys Kalema-Zikusoka, available on Amazon: <https://www.amazon.com/Walking-Gorillas-Dr-Gladys-Kalema-Zikusoka/dp/1950994260>

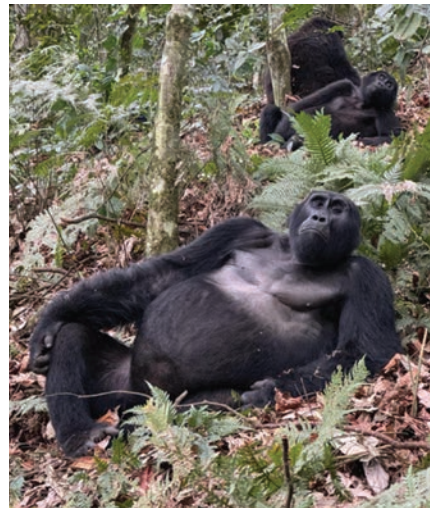
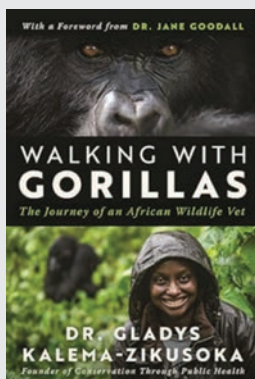


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Dr Gladys Kalema-Zikusoka completed her veterinary training at the Royal Veterinary College in London before founding and running CTPH. Her book, published in 2023, tells the gutsy story of the CTPH first hand from its determined beginnings to becoming the iconic, shining example of the conservation success story it is today.



Walking With Gorillas: The Journey of an African Wildlife Vet by Dr. Gladys Kalema-Zikusoka

Amazon review: In her enchanting memoir, Dr. Gladys Kalema-Zikusoka, Uganda's first wildlife veterinarian, tells the remarkable story from her animal-loving childhood to her career protecting endangered mountain gorillas and other wild animals. She is also the defender of people as a groundbreaking promoter of human public health and an advocate for revolutionary integrated approaches to saving our planet. In an increasingly interconnected world, animal and human health alike depend on sustainable solutions; Dr. Gladys has developed an innovative approach to conservation among the endangered Mountain Gorillas of Bwindi Impenetrable Forest and their human neighbours.

Walking With Gorillas takes the reader on an incredible personal journey with Dr. Gladys, from her early days as a student in Uganda, enduring the assassination of her father during a military coup, to her veterinary education in England to establishing the first veterinary department for the Ugandan government, to founding one of the first organizations in the world that enables people to coexist with wildlife through improving the health and wellbeing of both. Her award-winning approach reduced the impact of the COVID-19 pandemic on critically endangered mountain gorillas.

In the face of discrimination and a male-dominated world, one woman's passion and determination to build a brighter future for the local wildlife and human community offers inspiration and insights into what is truly possible for our planet when we come together.

"I recommend this book to everyone interested in conservation, alleviating poverty, and the role of women in society. But perhaps most importantly, it is a truly inspiring story of how one determined and dedicated woman overcame many setbacks and faced many dangers to follow and realize her dream."

—JANE GOODALL, PhD, DBE
and UN Messenger of Peace
(from the foreword)