**Forum:** The Special Conference

**Issue:** Measures to protect chimpanzees, gorillas, and other great apes from human respiratory diseases and other viruses.

**Student Officer:** Isabel He

**Position:** Deputy President of the Special Conference

Introduction

 Throughout history, various species of animals have been discovered to be closely related to humans, either due to common genetics or characteristics. Gorillas, chimpanzees, and other great apes are the species that are most similar to humans. According to OneKindPlanet, both gorillas and chimpanzees share 98.3% of their DNA with humans, thus making them the closest cousin to humans with relatively similar intelligence. Furthermore, when looking at the structure of these species, many of them share highly similar structures in bones or internal organs with humans. This similarity makes gorillas, chimpanzees, and other great apes well-known by people from different places, fulfilling their curiosity.

 However, in recent years, the population of these species has greatly decreased due to human conflicts, poaching, habitat loss, and diseases. One major disease that has taken various lives of these species is Ebola. The news around the disease gained much attention when the discussion was centered around Ebola’s effect on people. However, when the discussion turned to gorillas, chimpanzees, or other apes being infected, there hasn’t been the same publicity. Jane Goodall, a well-known primatologist who has been researching these animals, once said “The least I can do is speak out for those who cannot speak for themselves.” Although these species are very similar to humans, they cannot speak for themselves in such issues. Thus, measures to prevent such species from human respiratory diseases and other viruses fall into our hands: human hands.

 Yet, to prevent these species from catching a disease, multiple barriers have to be overcome. This includes the challenge of finding cures to these diseases and locating the homes of these species. We need to prevent these species from going extinct because if we fail to do so, we would lose one of our ancestors. Furthermore, the goal to achieve biodiversity will vanish too.

Definition of Key Terms

Human respiratory diseases

 Human respiratory diseases are referred to as diseases that affect different parts of the body, mainly the lungs and respiratory organs. When a certain person or animal is infected, they could face congestion, sore throats, or coughs. Common human respiratory diseases include Asthma, Lung Cancer, Pneumonia. Asthma causes the lungs of a person or animal to narrow and swell. It also could produce mucus, thus leading to a whistling sound when a breath is taken. While lung cancer has similar symptoms to Asthma it could also result in coughs of blood.

Chimpanzees

 Chimpanzees are species that also share high similarities with humans. While humans are capable of playing with objects or games, chimpanzees are also able to do so while also having emotions like humans. They are mainly located in central and West Africa. They are thought to share common ancestors as human about 13 million years ago. Over the past twenty years, the population of chimpanzees has decreased by 90%. There are currently only 170,000-300,000 chimpanzees left.

Gorillas

Gorillas, located in Sub-Saharan Africa, can be divided into two main species, the eastern gorillas and the western gorillas. They share roughly 95-99% of DNA to humans (depending on the aspects being included and examined).

Ebola

The Ebola Virus disease causes the person infected to experience fever, sore throat, and muscle pains after around three weeks of infection. The virus could be spread between humans through contact with bodily fluids such as blood. The virus mainly damages the immune system and the organ of humans. Currently, there is no direct cure to Ebola, and there is no antiviral drug licensed by the US used for cure.

History & Developments

 Since each region’s development and spread of diseases is unique, this section is divided by species to allow for an in-depth discussion on the effects of the diseases.

Gorillas in Africa

 Western gorillas are said to have a population of around 100,000-200,000. However, in recent years it has become less clear to whether these numbers are accurate. While comparing it to the research conducted by Cross River Gorillas, the population of this species is estimated to be no more than 300. The species of Gorillas are mainly located in Central Africa, where the population has been drastically reduced by Ebola. The history of Ebola in Gorillas began in the discovery of the disease in humans and was then spread to the gorillas.In 1976, two continuous outbreaks of fatal hemorrhagic fever were discovered in parts of Central Africa. Officials of public health first believed that the outbreak was due to an infected person who had traveled in the area, but later it was discovered that the two outbreaks were caused by the Zaire Ebola-virus and the Sudan Ebola-virus. In late 2001 and throughout 2002, ZEBOV, also known as Ebola caused by the Zaire Ebola-virus began to hit different areas in Africa. Between 2002 and 2003, in the Republic of Congo’s Northwest region, various reports have confirmed that Ebola has caused thousands of deaths to the gorilla populations. The virus killed about 5000 gorillas in the study area alone. Later in 2002, a study found that out of the 32 discovered cases, almost half of them tested positive for the Ebola virus. 7 new groups of gorillas were discovered towards the end of 2002, which were located in different areas. From late 2003 to early 2004, Ebola hit again in a new group of gorillas, killing almost 96% (91-95 individuals) of them within a couple of months. The number of deaths was predicted based on the number from data collection, which separated it from the first group to experience deaths, the estimated time difference between each death was roughly 12 days. These deaths were mainly caused by the “leftover” gorillas who were infected but the death cycle of 12 days was not its pattern, therefore when it goes to a new group it will then infect the others. Therefore, during the Ebola infection period, one key flaw was experts did not verify if there were any spillovers of gorillas who were infected undiscovered.

*Figure #1: this shows the population of gorillas pre and post the Ebola outbreak. It is examined based on the gender of the gorillas (Current Biology, Caillaud1, Damien.)*

 Most recently in 2020, COVID-19, also known as the coronavirus, has led to new developments. The virus began to show signs of an outbreak at the end of 2019. By 2020, the virus hit different areas around the world, becoming a pandemic. China, along with other countries, was severely hit by the outbreak. Cases were increasing every day, and almost every hour. However, in more recent months, China has been able to control the outbreak, successfully. Yet, the human respiratory virus has since spread around the war, creating a proven risk for a vulnerable species: Africa’s endangered mountain gorilla. In the National Park of Congo, known as Virunga National Park, one-third of the world’s mountain gorilla population resides. It is home to the gorillas that are struggling in their population rate. Due to the Virus outbreak, visitors were restrained until June 1st as scientific experts have found evidence that these gorillas are also at a high risk of being infected with the coronavirus. Located closely to Congo, Rwanda also contains areas that are home to these gorillas, and the nation has decided to temporarily shut down the tourism and research activities in three national parks. These parks are not just home to one species, but they are home to the various species of gorillas.

**Chimpanzees and other Great Apes**

 The infections of human respiratory diseases vary among chimpanzees, gorillas, and great apes where chimpanzees were infected more by human respiratory disease. From 1960 to 2006, a large group of chimpanzees in Gombe were diagnosed with signs of human respiratory diseases, which are often caused by a variety of pathogens. The pathogens include fungi, bacteria. These chimpanzees suffer from symptoms similar to those of a human, which includes: coughing, sneezing, and fatigue. This could be the result of the high similarity in DNA between the species and humans. Studies by the International Union for Convention of Nature(IUCN) have shown that human respiratory viruses have interacted with the chimpanzee population, causing outbreaks in the population of African apes. Multiple investigations on these outbreaks revealed that chimpanzees died from pneumonia caused by human respiratory pathogens. In one case, an infected adult female chimpanzee was later examined. Towards the end, she lost all her hair and had no energy due to the infection. However, the Great apes face a different level of difficulty. They face troubles in recovering from such diseases, which, in turn, leads to a higher chance of death compared to other species, such as gorillas. The outbreak of Ebola in nature in 1994 has also swept out almost 25% of 43 members of wild chimpanzees. The chimpanzees of that community either disappeared or were found dead in the Taï National Park, Côte d’Ivoire. Furthermore, a respiratory virus outbreak in 2013 swept through the community made up of 56 chimpanzees located in the Kanyawara community at Kibale National Park in Uganda. Due to the outbreak, over 40 members of the population were infected and five have died. Symptoms of coughing and sneezing were symptoms observed by researchers who have studied the chimpanzee group for years.

Geopolitics

 In this section, organizations and key members will be covered. The majority of the organizations are originally founded with the sole purpose of protecting the wildlife and their environment, but since more outbreaks of human viruses have challenged the environment and the life of these species, the organizations have begun to focus on such topics.Important and key actions done by these organizations will be closely looked at in the previous attempts section.

World Wide Fund for Nature (WWF)

The World Wide Fund for Nature (WWF) is an international non-governmental organization that seeks to reduce the harmful impact on wildlife and their environment. The organization was founded in 1961 in Switzerland, and the current president of the organization is Pavan Sukhdev — an Indian environmental economist. The mission of the WWF is to "stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature”. The organization focuses on different species of animals, ranging from gorillas, fishes, birds, tigers, etc. Since 1985, the organization has expanded its conservation programs in Asia and Africa to strengthen projects in the protection of mountain gorillas in either its poaching or diseases in Rwanda.

**The Dian Fossey Gorilla Fund**

The Dian Fossey Gorilla Fund International is an international charity that seeks to find and ensure the protection of endangered mountain gorillas, either from poaching or human diseases. The Dian Fossey Fund was created by Dr. Dian Fossey in 1978. The major mission of this charity is to finance different organizations or actions towards preventing poaching and the spread of diseases to mountain gorillas. The organization in the past has protected the populations of gorillas in various locations, such as from Congo to Rwanda. The Dian Fossey Gorilla Fund could play a large role in the issue, as supporting organizations towards carrying out movements or experiments.

The Rainforest Alliance

The Rainforest Alliance is an international non-governmental organization originally found in 1987, with headquarters located in New York of the United States and Amsterdam of the Netherlands. When researching this organization, the merge of the original Rainforest Alliance and UTZ Certified has allowed the current merged organization to have further access and focuses on different aspects of the topic. The organization seeks to advance the biodiversity of different locations, meaning to extend the various species there are. They wish to do so by promoting the products that this organization makes to make sure those products wouldn’t be harmful to the environment. This organization has also certified farmers' healthcare in 170 over countries.

**Jane Goodall**

Jane Goodall, a British born primatologist and anthropologist, is one of the world’s best experts on the topic of gorillas, chimpanzees, and other great apes. She has studied at the Darin College in Cambridge, UK, and after graduation, she has decided to succeed in the research of wildlife. Her study of chimpanzees’ social and family life is best well known by everyone. She began her research at the Kasekela Chimpanzees community in [Gombe Stream National Park](https://en.wikipedia.org/wiki/Gombe_Stream_National_Park), [Tanzania](https://en.wikipedia.org/wiki/Tanzania), in 1960.

**IUCN**

 International Union for Conservation of Nature, or the IUCN, is an international organization that works in the nature field, finding solutions to all sorts of environmental and development challenges. IUCN often works with scientific researchers, along with governments, non-governmental organizations, and the UN to develop best-fit laws and policies. The mission of IUCN’s work is to focus on the value of nature and to ensure that solutions would be nature-based to help the global challenges in climate. The IUCN also has two other key departments out of the six programs it has, and they are the IUCN Species Survival Commission, and the IUCN Species Program. The Species Survival Commission (SSC) contains a global membership of 8,000 experts, with the main job of SSC advising IUCN members towards the wide range of technical and scientific aspects of species conservation. The mission of this commission is to discover a secure future for biodiversity.

**Uganda**

 Uganda is another key member of this issue, as it holds the biggest population of the Chimpanzees. Around 5,000 Chimpanzees are now located in mainly Uganda, as it is the most suitable environment for the population. Jacob Negrey, who has a Ph.D. in biology at Boston University, has researched the influence of human diseases on Chimpanzees in Uganda as in 2019. Two chimpanzee groups were discovered to be infected by various diseases, showing symptoms of cough, fever, and lack of energy. The disease outbreak was examined on the population located in Uganda’s Kibale National Park, which holds a large population of the total 5000. 44% of the first group examined, which had 205 individuals of the Ngogo Population, and 69% of the second group with 55 individuals of the Kanyawara population were infected. One concern throughout the examination was that if both populations were infected by the same disease, thus this means there is a single virus that has been transmitted largely throughout the forest. In the Ngogo population, the disease discovered was the metapneumovirus, which was a disease discovered before in other chimpanzee species in Sub-Saharan Africa. In the Kanyawara group, three were discovered with parainfluenza, which is a disease that has not been discovered before in chimpanzees. The Chimpanzees that were infected by these diseases showed similar symptoms as humans and the high similarities in the DNA of chimpanzees and humans.

Previous Attempts to Solve the Issue

 Unfortunately, there have not been many previous attempts towards preventing gorillas, chimpanzees, and other great apes from human respiratory diseases directly. But rather it has been tackled here and there through several different initiatives. The Virunga National Park, located in the Democratic People’s Republic of Congo (DPRC), launched a project called the Gorilla project in 2009. The Virginia National Park has become a new home to the gorillas, hoping that by providing a new, safe environment, they could help prevent any harm to the gorilla population. The project was launched when two orphan mountain gorillas were forced to live in small environments. The environment was a tiny environment that was located in a city close to Goma, a city in the DPRC. The downside of the environment was the pollution, noisiness, and was built on a lava flow devoid of vegetation. Teams were working together on this issue and began to raise funds to build a new environment for the gorillas, hoping that it will provide safety for the gorillas.

 Eventually, in late 2009, a new center that has become the house to these gorillas was built. The new housing was named after the group of dominant silverbacks of the Rugendo group who were murdered in 2007, called the SenkweKwe Center. This previous attempt towards providing a new environment for these gorillas has resulted in more and more gorillas being moved to this center, thus protecting the gorillas from the original harmful environment they were in. One key factor to keep in mind is that since the center was built mainly for these gorillas, the only human interaction with these gorillas would be those who take care of them. This is an important factor since the human respiratory diseases could sometimes be transmitted between those who have close interactions with those infected. Since these creatures will have trouble recovering from these diseases, it is also important to remember that even if there was a cure to these diseases, it would still challenge and harm the bodies of these creatures. Since these centers are dedicated to these gorillas, chimpanzees, and great apes, the research done by the organizations would have solutions towards the diseases the species get.

 Another previous attempt to solve this situation addressed skin disease, which gorillas could catch when they have interactions with humans. In 1996 from August to December, an outbreak of skin disease called Sarcoptes Scabiei began to hit the population of mountain gorillas in the Uganda Bwindi Impenetrable National Park in Uganda. Members of the four gorilla groups that were located in this part of the park were infected from tourists who were clinically affected. According to Gladys Kalema-Zikusoka, the founder and CEO of Conservation Through Public Health, the infection of the disease could also have been caused by gorillas who are located in centers where they can visit citizens backyard for food. Male gorillas were mostly affected, eventually leading to death. Out of the male gorillas who were seriously infected, two adults showed milder signs while the three older ones recovered after the use of a single intramuscular dose of ivermectin. The National Geographic has also put in attempts towards preventing more diseases being exposed to the species, and that they wish to make sure there are no spillovers of those infected. Multiple health monitoring procedures were executed, with the group collecting samples of the gorilla population per week. The samples collected were then compared to humans and livestock in that area. The comparison was necessary for the group to know or to predict if there was anything wrong, making sure if they are exposed to any infections. Rangers of the centers and zoos were also trained to look after gorillas and to make sure that the people’s garden gorillas have access to are in good environmental condition.

Possible Solutions

 As mentioned in the introduction of the report, multiple methods are important to keep in mind regarding possible solutions that could keep species from respiratory diseases. When devising solutions to protect the gorillas, chimpanzees, and other apes from human respiratory diseases, delegates must keep certain issues in mind. First, common solutions such as “raising awareness” are not the most effective, as they could be applied in several different topics. Delegates are advised to concentrate on specific solutions about the issue at hand and address key clashes one at a time. Second, solutions such as finding cures for the diseases could be feasible to an extent, however, it would not be simple nor easy for a cure to be discovered immediately. Every solution will take time, especially when it comes to a cure, and people behind the process of these cures. Therefore, the last part of this report will suggest a few avenues in which delegates could approach devising solutions to this issue.

 **First, delegates should find ways to keep gorillas safe by minimizing the chances of them getting these viruses.** When the original environment of the species has been exposed to the outbreak of the disease, it is important to make sure that the gorillas have not been exposed to it or infected. To do so, checkups and sample collections are essential to maintain the health of the species. These checkups should occur periodically when there is not an outbreak of worldwide disease. During the period when there is not a serious outbreak, organizations could focus on cures or protection methods in case an outbreak occurs. Therefore, a collaboration between organizations who attempt to carry out the aforementioned is necessary, since different organizations could focus on the different aspects of what is required to maintain checkups for the species. Collaboration between states could strengthen the actions since organizations will have support from one another. Funds such as the Dian Fossey Gorilla Fund would also be helpful in terms of carrying out experiments for existing human respiratory diseases, or the checkups.

As mentioned in earlier sections, infection of the disease could have also been caused by gorillas who are located in centers where they can visit humans’ backyard for food. Therefore, **the sanitation of gorilla environments** is important. It is essential to make sure that if there is any human interaction between the species, the human must have a check-up before they have the interaction. The purpose of this solution is to strengthen any protection that there already is for these species. Encouraging others to stay away from gorillas, chimpanzees, and other great apes through education could also be effective. People need to understand the importance of protecting these species and preserving biodiversity.

Bibliography

Arend de Haas Conservation Director. “Transmission of Diseases from Humans to Apes: Why Extra Vigilance Is Now Needed.” *The Conversation*, 28 May 2020, [theconversation.com/transmission-of-diseases-from-humans-to-apes-why-extra-vigilance-is-now-needed-134083](http://theconversation.com/transmission-of-diseases-from-humans-to-apes-why-extra-vigilance-is-now-needed-134083).

Bermejo M;Rodríguez-Teijeiro JD;Illera G;Barroso A;Vilà C;Walsh PD;. (n.d.). Ebola outbreak killed 5000 gorillas. Retrieved July 18, 2020, from <https://pubmed.ncbi.nlm.nih.gov/17158318/>

**Caillaud1, Damien. “Gorilla Susceptibility to Ebola Virus: The Cost of Sociality.” *Current Biology* ,** [**www.cell.com/current-biology/pdf/S0960-9822**](http://www.cell.com/current-biology/pdf/S0960-9822)**(06)01698-8.pdf. (Citation of the graph)**

Choi, Charles Q. “Human Viruses Kill Great Apes.” *LiveScience*, Purch, 30 Jan. 2008, [www.livescience.com/9565-human-viruses-kill-great-apes.html](http://www.livescience.com/9565-human-viruses-kill-great-apes.html).

Common chimpanzee. (n.d.). Retrieved July 18, 2020, from https://www.fauna-flora.org/species/common-chimpanzee?gclid=EAIaIQobChMI\_5CQm4y66gIVsh-tBh26MwHXEAAYASAAEgK\_6vD\_BwE\

**“Endangered Animals: Gorilla.” *Rainforest Alliance*,** [**www.rainforest-alliance.org/signups/wildlife-gorilla?utm\_campaign=cy19emailaq&utm\_source=19vvmemailaqsem&utm\_medium=cpc&s\_src=MDK19VX&s\_subsrc=19vvmemailaqsem&gclid=EAIaIQobChMIhtLE3Y-66gIVVD6tBh03gAIIEAAYASAAEgIAofD\_BwE**](http://www.rainforest-alliance.org/signups/wildlife-gorilla?utm_campaign=cy19emailaq&utm_source=19vvmemailaqsem&utm_medium=cpc&s_src=MDK19VX&s_subsrc=19vvmemailaqsem&gclid=EAIaIQobChMIhtLE3Y-66gIVVD6tBh03gAIIEAAYASAAEgIAofD_BwE)**.**

EJ;, K. (n.d.). Scabies in free-ranging mountain gorillas (Gorilla beringei beringei) in Bwindi Impenetrable National Park, Uganda. Retrieved July 18, 2020, from https://pubmed.ncbi.nlm.nih.gov/11817857/

Formenty P;Boesch C;Wyers M;Steiner C;Donati F;Dind F;Walker F;Le Guenno B; “Ebola Virus Outbreak among Wild Chimpanzees Living in a Rain Forest of Côte D'Ivoire.” *The Journal of Infectious Diseases*, U.S. National Library of Medicine, [pubmed.ncbi.nlm.nih.gov/9988175/](http://pubmed.ncbi.nlm.nih.gov/9988175/).

Gorilla Orphans. (n.d.). Retrieved July 18, 2020, from https://virunga.org/alliance/gorilla-orphans?gclid=EAIaIQobChMI8571yefV6gIVUxh9Ch3Ptgq1EAAYASAAEgK9xfD\_BwE

Gorman, J. (2020, March 24). Chimp Sanctuaries Restrict Visits Over Concerns About the Coronavirus. Retrieved July 16, 2020, from <https://www.nytimes.com/2020/03/24/science/chimpanzee-sanctuaries-coronavirus.html>

**Human diseases are threatening chimpanzees: Understanding Animal Research. (n.d.). Retrieved July 16, 2020, from** [**https://www.understandinganimalresearch.org.uk/news/animal-welfare-alternatives/human-diseases-are-threatening-chimpanzees/**](https://www.understandinganimalresearch.org.uk/news/animal-welfare-alternatives/human-diseases-are-threatening-chimpanzees/)

Human respiratory viruses continue to spread in wild chimpanzees. (2019, January 22). Retrieved July 16, 2020, from https://www.sciencedaily.com/releases/2019/01/190122104547.htm

Institute, J., Treat, J., Lawick, H., & Images, G. (2017, November 10). How Jane Goodall Changed What We Know About Chimps. Retrieved July 18, 2020, from <https://www.nationalgeographic.com/magazine/2017/10/becoming-jane-goodall/>

Jacob Negrey PhD Candidate. (2020, February 25). Human viruses threaten the future of Uganda's chimpanzees. Retrieved July 18, 2020, from https://theconversation.com/human-viruses-threaten-the-future-of-ugandas-chimpanzees-115069

“Keeping Gorillas Safe amid COVID-19 Concerns.” *Mongabay Environmental News*, 30 Mar. 2020, news.mongabay.com/2020/03/keeping-gorillas-safe-amid-covid-19-concerns/.

Lesley Elizabeth Craig PhD Researcher. “How Zoos Must Change to Keep Great Apes Safe from Coronavirus.” *The Conversation*, 30 Apr. 2020, [theconversation.com/how-zoos-must-change-to-keep-great-apes-safe-from-coronavirus-134692](http://theconversation.com/how-zoos-must-change-to-keep-great-apes-safe-from-coronavirus-134692).

Negrey, J., Reddy, R., Scully, E., Phillips-Garcia, S., Owens, L., Langergraber, K., . . . Goldberg, T. (2019). Simultaneous outbreaks of respiratory disease in wild chimpanzees caused by distinct viruses of human origin. Retrieved July 16, 2020, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6455141/>

Non-Human Primate. (n.d.). Retrieved July 18, 2020, from https://www.creative-biolabs.com/nhp-biologicals/non-human-primate.htm?gclid=EAIaIQobChMIjfO8zNHR6gIVEp\_CCh0hTgm9EAAYASAAEgLSePD\_BwE

Sky. “Coronavirus: Gorillas and Chimpanzees 'at Risk of Catching COVID-19 from Humans'.” *Sky News*, Sky, 15 Apr. 2020, [news.sky.com/story/coronavirus-gorillas-and-chimpanzees-at-risk-of-catching-covid-19-from-humans-11973687](http://news.sky.com/story/coronavirus-gorillas-and-chimpanzees-at-risk-of-catching-covid-19-from-humans-11973687).

Top 10 - The World's Most Endangered Animals - OneKind Planet. (n.d.). Retrieved July 18, 2020, from https://onekindplanet.org/top-10/top-10-worlds-most-endangered-animals/

**UN Environment. “Virus Which Causes COVID-19 Threatens Great Ape Conservation.” *UN Environment*, www.unenvironment.org/news-and-stories/story/virus-which-causes-covid-19-threatens-great-ape-conservation.**

“UN-Backed Meeting Concludes with Call for Stronger Measures to Protect Gorillas | | UN News.” *United Nations*, United Nations, news.un.org/en/story/2011/03/370912-un-backed-meeting-concludes-call-stronger-measures-protect-gorillas.