



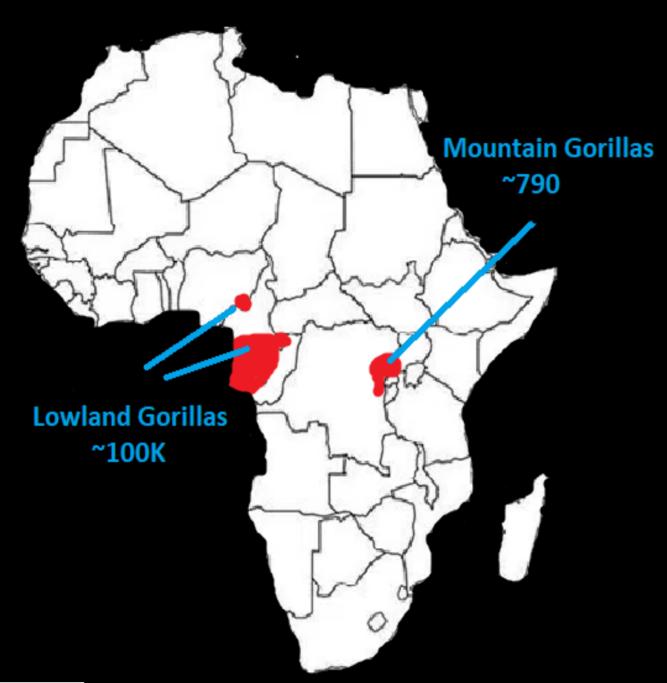
Ebola in Gorillas – How Vaccinations may Reduce Mortality Rates

What is Ebola?

- The Ebola virus is a highly infectious and often fatal disease
- Symptoms include fever, internal bleeding, headache, muscle pain, weakness, fatigue, vomiting, diarrhoea, abdominal pain, & seizures
- First discovered in 1976 at the Ebola River in the Democratic Republic of Congo

About Gorillas:

- Native to Sub-Saharan Africa
- Critically Endangered
- Shares 98% of their DNA with humans
- Herbivores eat fruit, shoots, roots, and tree bark
- Sleep in nests they build on the ground or in trees
- 40% of gorilla infants die within the first 3 years of life
- It is estimated that female gorillas give birth once every 5 years
- They are a keystone species transport large seeds and pollen throughout the forest, enhancing overall biodiversity



Human Deaths from 2014 West Africa Ebola Epidemic									
									11,310
2014-2015 West Africa Outbreak									
BOOK AND CARLO	1000000								
		1,590							
Combined Mortality Figures for Previous Outbreaks Across Africa									
			8						
280	254	224	187	151	128	53	45	44	37
1076	1005	2000	2007	1076	2002	2001	1000	2001	2007
1976 DRC	1995 DRC	2000 Uganda	2007 DRC	1976 Sudan	2003 Congo	2001 Gabon	1996 Gabon	2001 Congo	2007 Uganda
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10 Pre	lous O	utbreaks	with th	e Higne	st iviort	ality Rat	es		
World Health Organization									

Other Affected Animals
Chimpanzees
Monkeys
Fruit Bats
Forest Antelope
Duikers
Porcupines

Rabies Vaccine:

Rabies was **eradicated** throughout western and central Europe through vaccinated bait traps for foxes

Previous Ebola Vaccination Trials

negative health complications

• Immunization was given to 10 chimpanzee

test subjects with 100% effectiveness and no

Trial was stopped early when a ban on use of

chimpanzees in biomedical research began

As chimpanzees and gorillas are so closely

related, it is assumed that if the vaccine

works on chimpanzees, then it would also

How the vaccine works:

- Insert a protein from the Ebola virus into an already existing rabies vaccine
- Put the vaccine into gorilla's food source

Ebola Protein Rabies Sweet Bait Trap Gorillas Ingest Vaccine

Ebola in Gorillas

- 1/3 of gorilla populations have been killed by the virus since the 1990's
- Can have as many as 5,000 casualties in a single outbreak
- 95% mortality rate whereas humans have a 50% mortality rate
- Quick transmission via bodily fluids as gorillas are highly social animals – can also be transferred through shared food sources, or from other animals
- Corpses remain infected for days
- Gorilla carcasses have been found to have multiple strains of Ebola within their system
- At risk of human transfer through poaching, bush meat, tourism, illegal wildlife trade, & deforestation
- If gorillas are protected, then humans will be too

Strain of Ebola	Who it affects	Endemic Locations	Within Wild Gorilla Range
Zaire	All primates & wild ungulates	Democratic Republic of Congo, Republic of Congo, & Gabon	Yes
Sudan	All primates & wild ungulates	Sudan & Uganda	Yes
Taï	All primates	Côte d'Ivoire	Yes
Bundibugyo	All primates	Uganda	Yes
Reston	Nonhuman primates and pigs	United States of America	No

Potential Problems:

- Keeping the vaccination cool in the tropical heat will deteriorate
- The need for booster shots the vaccine only lasts for 3 months
- Gorillas are notoriously picky eaters may not take the bait
- Ensuring all gorillas within a group get the vaccination

Why do it?

Vaccinating gorillas against Ebola won't only protect them, but may also protect humans from another epidemic

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work on gorillas