Non-Human Primates on the Brink – A MAHB Dialogue with Behavioral Ecologist, Annette Lanjouw

Geoffrey Holland

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Annette Langouw, Executive Director at the Arcus Foundation, is a highly regarded expert in great ape conservation. In this MAHB Dialogue she shares with us the impact humans are having on our ancient ancestors' habitats and how we can support conservation efforts in many different ways.

Geoffrey Holland - A recent report from the U.N. Intergovernmental Science-Policy Platform on Biodiversity and Eco-system Services says that Nature is in free fall. Humans dominate the planet; the current human population (7.6 billion) amounts to 36% of all mammalian biomass on Earth. Moreover, 60% of the total mammalian biomass is just the commodified animal species humans breed to eat. All the other mammal species on Earth add up to only 4%. What does this mean for our planet?

Annette Lanjouw : The health of our planet depends on functioning ecosystems and processes that result in there being clean air, fresh water, rich and fertile soils, forests, grasslands, aquatic freshwater and marine ecosystems, seasonal patterns that animals and plants can predictably respond to, and a climate that stays within norms that life on earth depends on, etc. That all requires countless different functions to be met by all sorts of organisms…from soil and aquatic

micro-organisms to the fish, birds, insects and large herbivores and predators, and all the plants and fungi. Diversity is key, because of all the varied functions and ecological niches that need to be filled. When we speak of biodiversity....it is exactly about all those very different organisms that we speak, performing the specific and essential functions that plants, animals and other organisms fill. So the fact that so much of biological diversity is being lost also means that many critical functions are being lost.... from pollinators (insects, bats, birds) to the microorganisms that break down organic matter in soils to create the soil fertility that we all depend on. If the proportion of biomass on this planet is increasingly being taken up by a small number of mammals....irrespective of who those mammals are...it is clear that we are losing others, and their ecological function is therefore not being met. So humans....and the species we breed to consume....are ultimately going to suffer.

GH- All four of our closest primate relatives - Gorillas, Chimpanzees, Bonobos and Orangutans – as well as all other simian species are threatened with extinction. What are the common factors that have put all of the world's ape and monkey species, except for humans, in great peril?

AL - Humans are the only ape that is not threatened with extinction. All the other apes are vulnerable and many are critically endangered. The greatest threat to apes is the loss of their habitat, resulting in their death due to killing, capture or starvation. Although some of the loss of habitat is due to unsustainable land use....from slash-and-burn agriculture or illegal logging, the vast majority of tropical forest loss is not due to local consumption or need, but due the lucrative and significant demand from international markets and growing wealth and consumption levels worldwide. Most forest loss across the planet is due to three drivers....all of which are satisfying consumers living very far away: industrial agriculture, extractive industry and infrastructure development. Industrial agriculture is the cultivation of crops at a large scale, generally for international markets and consumption by countries in the North (USA, Europe, etc) and East (China, India and others). Products such as palm oil, cocoa, soya, rubber, coffee, etc all come from the tropics and their cultivation has been the driver of extensive forest clearing. It has also led to the burning of tropical forests and draining of peat swamps, with all additional harms that this causes to the climate. Extraction of timber, minerals, oil and gas also leads to the clearing of forests in many regions, with most of those commodities exported to feed high levels of consumption in rich countries. The infrastructure that much of this exploitation requires, from roads, railway lines, bridges, electricity lines, etc....as well as the generation of energy from hydro-electric dams and channels, all further exacerbate the forest destruction and the fragmentation of forest, leaving apes and other wildlife isolated in small stands of forest with inhospitable and sterile landscapes surrounding them. As people enter forests using roads and the other infrastructure that provides them access, hunting and the capture of apes for live trade, increases. Together, these activities account for the serious

declines in populations of apes across Africa and Southeast Asia. In every country in which apes are found, they are protected by law, and it is illegal to hunt, kill or capture them. Despite this, the destruction of their habitat, and the resulting direct and indirect threats to apes continues to increase.

GH - Gorillas, the largest of the primate species, are indigenous to the Congo basin in East Central Africa. Can you talk about why Gorillas are threatened with extinction in the wild?

AL - There are two species of Gorilla...the Eastern Gorilla (*Gorilla beringei)* and the Western Gorilla (*Gorilla gorilla)*. The threats are not the same across the entire Congo Basin, and not all gorillas are experiencing the same catastrophic rates of decline. The worst decline in population size over the past 20 years has been seen in the Eastern lowland gorilla (*Gorilla beringei graueri)*, which has lost approximately 77% of its population over its entire range. This is largely due to hunting, as well as habitat disturbance and destruction. The region experienced war and sustained civil unrest, and much of the forest has been under control of different armed groups. Many artisanal mines are established in the region, controlled by armed groups, and they are illegally mining for cassiterite, gold, columbium/tantalum (coltan), wolframite and other minerals. The miners establish camps deep in the forest and occupy them for long periods of time, accompanied by armed groups, hunting for food to sustain themselves. Such mining camps have decimated wildlife populations in their proximity, including elephants, gorillas, chimpanzees and other animals. Agricultural expansion has also led to the clearing of forest and led to significant population declines. As many of the apes are outside established protected areas, or living in areas that have not been effectively protected due to the political crisis and institutional weakness, they are extremely vulnerable. A third threat to apes that is both real but also often underestimated and under-studied is the risk of disease. Gorillas, like all apes, are vulnerable to many of the same diseases as humans. For example, gorillas and chimpanzees are vulnerable to the Ebola virus as humans are, and it is estimated that between 1983 and 2000, approximately 90% of gorillas and chimpanzees died from Ebola across the Republic of Congo, Gabon and southern Central African Republic.

GH - The Chimpanzees of Tanzania's Gombe Reserve, studied fifty years ago by Jane Goodall, are now severely threatened. Can you talk about why chimps are in grave danger?

AL - Chimpanzees (*Pan roglodytes)* have the largest range of all the African apes, although they do not all belong to the same subspecies, with some differences between the Western, Central and Eastern subspecies. Yet they are all threatened, like all of the other African apes, by habitat loss, hunting and disease. Around the Gombe Reserve in Tanzania, the forest has been almost completely cleared, leaving heavily denuded hillsides with only fragments of remaining forest in the steep valleys and ridges, where it is too difficult to cultivate. Much of that deforestation has been for subsistence farming, due to high human population growth in the region. The

protected areas, including Mahale and Gombe Stream, are small islands of forests remaining in these increasingly dry and barren landscapes. As a consequence, chimpanzees are surviving either in crowed forested protected areas, or outside protected areas in small riparian forests, and crossing open areas where they are vulnerable to hunting. As chimpanzees are able to survive in these mosaic landscapes as long as there is enough food year- round, they also have learnt to exploit the foods cultivated by people, and eat some of the crops in the fields. For local farmers struggling to survive with small areas of land under cultivation, it is understandable that crop-raiding chimpanzees are perceived as problem-animals, and that conflict arises when chimpanzees enter their fields. Human-animal conflict is a significant problem for farmers, and can result from elephants to baboons and to chimpanzees. The killing of problem animals is often the result, despite legislation prohibiting it. Chimpanzees are under threat from habitat loss, killing, the illegal wildlife trade (for pets, private collections and unaccredited zoos), and disease. These threats all come together in areas of high human population density and where the potential for transfer of disease from humans to animals is intensified.

GH - Bonobos are also indigenous to the Congo basin. They look like Chimps but are lesser known and smaller in size. Bonobos also have a distinct culture that is much different than their other primate relatives. What makes the Bonobo unique? What are the factors , threatening their survival?

AL - Bonobos (*Pan paniscus)* are only found on the left bank of the Congo River, in the Democratic Republic of the Congo. They are probably the least known of all the African apes, largely due to their existence in extremely remote areas of the country and the fact that they were only recognized by western scientists as a distinct species from the chimpanzee in 1929, with few long-term behavioural and ecological studies conducted. Bonobos have generally been found to be less aggressive than chimpanzees (particularly eastern chimpanzees), with many forms of cooperative and conflict mitigating behavior. Like chimpanzees, bonobos live in stable communities with subgroups (parties) that change frequently throughout the day, called fission-fusion societies. They are promiscuous and the female carries the responsibility for all the care of the infant. Where bonobos differ from chimpanzees is in their socio-sexual behaviour. Bonobo females are sexually active throughout their sexual cycle, and not only when they are ovulating and reproductively fertile. In addition, sexual behaviour serves as a means for developing social bonds, resolving conflict, or diffusing tension and excitement. Bonobos are frequently observed to engage in sexual behaviour when arriving at a food source, or when groups come together, and sexual behaviour can occur between any individuals, regardless of age or sex. These qualities have, of course, attracted much interest from the scientific community and general public, and have led to speculation about the role of sex in conflict resolution and the peacefulness of bonobo societies. Although likely that this plays a role, it is also likely that the quality of their habitat, with abundant food sources, has led to less extreme

levels of competition, similar to the Western Chimpanzee, that this has led to the relatively lower levels of aggression amongst both of these apes. Habitat loss and hunting are the greatest threats to Bonobos, and as the forest is increasingly being opened up for industrial agriculture, logging and mining, the threats to bonobos are likely to increase. In parts of the DRC, bonobos are not hunted for food as they are considered by the local communities to be too close to human ancestors. In those areas, the human population has learnt to live in proximity with these generally more shy and retiring apes.

GH - The Orangutan is the only Great Ape species that is indigenous to Asia; to Sumatra and Borneo specifically. What are some of the pressures humans are imposing, which threaten the extinction of Orangutans?

AL - By far the largest threats to Orangutans from humans has been habitat loss. Vast areas of Indonesian Borneo and Sumatra, and similarly large proportion of Malaysian Borneo, have been deforested for the cultivation of oil palm, agroforestry for pulp and paper production, and the timber industry. In addition, mining has opened up areas of forest with roads, railways and other infrastructure developed for the extraction of resources from the forest. Hydroelectric and geothermal plants are also leading to significant habitat loss. Together, these have led to decreases in the coverage of orangutan habitat and orangutan populations on both islands have decreased by about 80% over the past 75 years. Hunting was always considered to be a less acute threat to apes in Asia than in Africa, although it is now recognized that both killing of orangutans and capture for the illegal trade are greater threats than were previously recognized. Although not widely eaten for food (they are eaten in some areas), orangutans are often killed because they are seen as problem animals destroying crops in plantations or small farms, or because the presence of orangutans means forests will be protected, and thus harder to exploit for industrial agriculture. Orangutans are killed to avoid conservation efforts to hamper exploitation of the land.

GH - You mentioned habitat encroachment by humans as a primary threat to the Great Apes. The world human population has doubled in the just past fifty years, and is approaching 8 billion, and is projected to reach 10 or even 12 billion. Can our Earth's natural systems withstand a relentless human tsunami of that magnitude? What will be some of the consequences for the great ape species as a result of the growing human population?

AL - The critical question facing humanity is not how many humans can the planet sustain, but how can humans live in a manner that enables the planet's ecosystems and ecosystem functions to continue to sustain life for all creatures. The difficulty isn't only how many people are occupying space, utilizing resources and leaving their footprint on the land, water and air…but it is the unrealistic and illogical paradigm of constant growth in consumption (and

economies). It isn't difficult to understand that constant growth is not possible on a planet of finite resources, and we are already starting to see and feel the limits of those resources. It is difficult, however, to change our behaviour and the way in which we value, consume or conserve resources, and impact the ecosystems we depend upon. Earth's natural ecosystems cannot sustain the human growth, consumption and footprint that is currently the *business-as-usual* model, and we have more or less arrived at that limit and even exceeded it in some areas. The crash in insect populations and pollinators is already dramatic evidence of the harm humans have done, not to mention the changes to our climate. We have lost 80-90% of the non-human apes in much of Africa and Southeast Asia, and with the G20 committing US$ 70 trillion increased investment in infrastructure worldwide, with 25 million km more of paved roads, it is likely that much more forest will be lost, fragmented and emptied of its wildlife. It is unavoidable that with that level of threat, apes will struggle to continue to survive, as will countless other species.

GH - What are the threats to the continued survival of the Great Apes that are directly attributable to human induced climate change?

AL - A number of studies have recently been done to predict the impact of human-induced climate change on ape species, and it is not surprising that most have focused on the impact on ape habitats, and the likelihood that much of the tropical rainforest will become drier, with increased temperatures and shrinking forest cover as the most likely impacts. It is important to note, however, that as these forests have already suffered enormously from fragmentation, the resilience of apes and other species confined to forests habitats will already be impacted, with less ability to retreat deeper into remaining areas of forest and adapt to changes in food availability and seasonality. It is predicted that much of Borneo will become drier and warmer, and this will change the forest composition. Changing temperatures and conditions will also influence the spread of diseases that affect apes (including humans) and as we have already seen, increase the likelihood of disease outbreaks in new areas, and thus the health and morbidity of apes. Apes have evolved to adapt over millennia, and develop strategies and cultures that have enabled them to survive in habitats that could be considered marginal. Chimpanzees in Senegal, for example, and other dry, hot woodlands have learned to cope with heat and develop tools for finding water in areas where water is a limited resource. With the losses in ape populations that have been observed, there have also been losses of unique cultural knowledge and adaptations that would potentially have been valuable tools enabling populations to deal with a changing climate. It is not clear if and how other populations will discover and share such adaptive learnings in time to deal with rapidly accelerating climate change.

GH - Some activists have called for half of our planet's land area to be set aside and left wild and untrammeled by humans - E.O. Wilson's Half-Earth Project may be the most prominent

of these initiatives. Is this kind of bold effort the only way to protect the biosphere from human overreach?

AL - This is, indeed a bold and ambitious aim, and I understand both the sentiment, but also the logic and analysis behind it. Many people have reacted that it is unrealistic and therefore self-defeating to have such an enormous...and potentially unrealizable...ambition. I actually feel that it is articulated slightly incorrectly, and not ambitious enough. I feel that far more than half (especially if you include the oceans) of the world should be set aside for nature. All the world should be set aside for nature. Humans are part of nature...we are one piece of the biological diversity and can play an enormous force for good, as is evidenced by many (though not all) of the indigenous, forest-dependent communities around the world, as well as other communities. The problem isn't that humans are present, but that they are "trammeling" (to use a non-technical term included in the question) nature, upsetting and disrupting ecosystems and devastation populations of animals, plants and other organisms.

Humans have lost touch, and certainly understanding, with the vital processes in nature and what both our role and our limits should be. We think everything there is for us, for our consumption or utilization, otherwise it is useless and may be destroyed. That hubris is our undoing and we now face an existential crisis with calls for half the planet being left wild and untrammeled by humans. If we cannot learn to live in and value nature, protect and conserve all the diverse organisms that live in nature (whether useful to us or not), and ensure that ecosystems continue to function normally, then we should be removed from it. However, there are people who can live like that, who have done so for millennia, and who play an important role in the ecosystem. It is the rest of us, mainly in urban environments or severely degraded landscapes, who need to learn.

So I believe humans are part of nature, and that we need to live accordingly. And that is far more ambitious a goal. And perhaps a bit more realistic, given our creativity, ability to innovate, and capacity for reasoned thought.

GH - Considering millions of humans live in urban, industrialized areas far from the habitats of the apes we've talked about, what can individuals or citizen groups do to protect our ape cousins that remain?

AL - The most important thing for people living far from the habitats of apes and other endangered wildlife to understand, is that our daily life has a very significant impact on the lives of these animals, and their future existence. The reason they are threatened with extinction is not because indigenous people in the countries are not capable of protecting them, or don't care about their survival. The reason they are threatened with extinction is because people

living in relatively rich countries like ours are using resources that can only be found in the countries where apes live, and that we exploit, extract and utilize those resources for our benefit with little consideration (or compensation) for the extreme harm that is done to ecosystems, biodiversity and local, indigenous communities over the long-term. The companies that we buy our products from, usually based at home or in other "rich" countries, are directly responsible for the damage to tropical ecosystems. In that way, we are also directly responsible. But we are also incredibly powerful. We are shareholders, consumers and activists able to change the narrative, and thus the behaviours and policies of those companies. We can drive changes to how raw materials are sourced, exploitation is being done, forests are being protected and indigenous communities supported, and we can ensure that the short-term, greedy and exploitative nature of business changes to prioritize sustainability, valuing ecosystems services and putting a price on clean air, clean water, biodiversity and local community participation and empowerment. Information and knowledge is key, but being willing to change your behaviour is essential.

It is not enough to just care, it is essential to also change how we consume resources so that we do live within the planetary boundaries. Not eating more than is needed, not buying new products just because you can (and using precious minerals and resources unnecessarily), and recycling minerals, metals, plastics and other materials to reduce dependence on new resources is critical. And making your values known so that companies are forced to change their behaviour is critical. Holding politicians and leaders accountable is possibly the most powerful thing that each and every individual can do...and the growing movement of environmental activists expressing their demands loudly is testament to the urgency of action.

Annette Lanjouw is a highly regarded expert in great ape conservation. She has worked with chimpanzees, bonobos and gorillas in the wild, and has worked extensively in conservation strategy, program implementation, and research. For 15 years she was director of the International Gorilla Conservation Programme, which works to conserve mountain gorillas inhabiting the forests on the border of Rwanda, Uganda, and Democratic Republic of Congo. Ms. Lanjouw served as scientific advisor to world-renowned wildlife filmmaker Alan Root, as Central Africa program officer for the Wildlife Conservation Society, and as project manager and field director for the Frankfurt Zoological Society's Chimpanzee Conservation Project in eastern DRC. Before joining Arcus, she was international program officer for the Howard G. Buffett Foundation. A native of the Netherlands, Ms. Lanjouw holds a BSc in zoology and psychology from Victoria University in New Zealand, and a doctorandus degree in behavioral ecology from the Rijks Universiteit in the Netherlands. She is scientific advisor to the Trust for African Rock

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The MAHB Dialogues are a monthly Q&A blog series focused on the need to embrace our common planetary citizenship. Each of these Q&As will feature a distinguished author, scientist, or leader offering perspective on how to take care of the only planetary home we have.

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