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Towards an interspecies health policy : great apes and the right to health

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7. Great ape health policy

What are the implications of a right to health of great apes? This chapter will deal with this question by singling out three areas of concern, to wit, (a) the health of great apes in captivity, (b) the issue of vaccine development in relation to great apes and (c) in situ health measures in the wild.

As to (a), what do we owe great apes in captivity with regard to their health needs? When discussing this topic, the following and more general issue that requires attention emerges: does meeting the health needs of great apes in captivity involve a matter of justice or charity instead? As will become apparent, the latter not also comes with several pitfalls but also accentuates a supposed distinction between health needs across species: only human health triggers considerations of justice. Does such a distinction hold its ground?

As to (b), it is time to take a closer look at the recent debate on vaccinating great apes in the wild, which has centered on immunization against Ebola virus disease. The following issues must be addressed. First, should one vaccinate great apes in the wild? In answering this question, scientific uncertainties as well as principled perspectives need to be carefully assessed separately, including the underlying motivations to consider such measure. The second question is more general and pertains to costs imposed on others in the course of developing such vaccines. To what extent can others be harmed for the sake of protecting great apes in the wild against Ebola virus disease? Two arguments set the stage for engaging with this subject. It is argued that either (1) the inflicted harm is not significant enough to prohibit such research (Walsh et al. 2017) or that (2) great apes in captivity would want to be enrolled in research to benefit their wild counterparts (Capps & Lederman 2015).

As to (c), to what extent should we promote the health of great apes living relatively independent lives? This question prompts a discussion on the ethical permissibility of habituation.

7.1 Great apes in captivity

Even before considering the demands of the right to health in the context of captivity, one could object that confinement of great apes cannot be justified in the first place. Should we not release each and every ape from the shackles of human custody? Though there lies truth in

this objection regarding great apes who lack a sufficient range of opportunities, there are other reasons why their being released (back) into the wild is not an option for many individuals living in captivity. Captivity obstructs freedom directly, as well as indirectly by affecting skills and abilities making reintroduction into the wild problematic for individuals who are insufficiently adapted to a natural context.

Another reason why releasing captive apes into the wild abounds in problems is: the lack of a suitable habitat (Cooke 2017). However, even if habitats are plentiful, and the individual is qualified in every relevant way to live independently in the wild, one must also consider the possible effects on other animals already living within the ecosystem. When introducing formerly confined animals into the wild human-derived pathogens may put the health of wild conspecifics at risk. Confinement not only affects animals in socio-behavioral and psychological terms but also alters primate microbiome (Clayton et al. 2016). Moreover, close contact with humans can facilitate pathogen transfer across species, as was the case, for instance, with a two-year old female gorilla in captivity diagnosed with Human herpes simplex virus type 1 (Gilardi et al. 2014). Introducing this gorilla into the wild could negatively affect the health of other free-living gorillas.

Therefore, sound reasons exist to regularly keep great apes confined. In such cases, we need to determine a reasonable range of opportunities (see 3.5), which not necessarily overlaps completely with living a fully wild life. What kind of captive life would be compatible with the interests in freedom?

Whether such a range can be provided within the context of zoos remains to be seen. Needless to say, there are a wide variety of zoos and ways to keep great apes, a number of which are significantly better attuned to the desired needs and interests than others. However, the demands pertaining to the right to freedom of opportunity are substantial and may very well clash with the objectives of zoos.

Sanctuaries where the interests of great apes themselves are guiding offer an alternative. What does the right to health involve for great apes that live confined within the context of sanctuary life? In contrast to their wild counterparts, the great apes housed in such sanctuaries are generally immunized against for example measles and tetanus by means of active

vaccination.⁸² However, their susceptibility to human pathogens remains a problem, highlighting the need to take precautionary measures such as restricting human-great ape interaction and improving hygiene as well as biosecurity by utilizing designated clothing (e.g., face masks, gloves). A health program should be installed in order to monitor the health of staff members and vaccinate them against certain reverse zoonotic diseases if necessary. These measures are key in the protection of great apes against significant standard threats to their health, to wit, infectious diseases originating from humans.

With these precautionary measures in place, which other threats deserve our attention? An obvious determinant of health involves the availability of health care. Veterinarians specialized in the health of great apes are invaluable, as they can provide curative care and monitoring health in view of possible preventive measures (e.g., blood tests, echocardiography, other imaging diagnostics, lab work). The care for great apes in captivity can to a certain degree mirror the standardized monitoring of human health which includes scheduled check-ups carried out by general practitioners. Data retrieved in the course of health monitoring can also contribute to obtaining a better understanding of the health of great apes and its vulnerabilities. Bio banks can not only manage but also make such data available. Collaborative efforts, such as the Great Ape Heart Health Project, provide us with a platform through which to disperse knowledge and bring together relevant experts.⁸³

Protecting and promoting great ape health generally requires attention for social dynamics. Isolation, on the one hand, may have a detrimental effect on health. Overcrowding, on the other hand, as demonstrated in other social animals may lead to stress, decreased mental health and long-term effects on bodily health (Akhtar 2012). The environment must be rich in opportunities in order to prevent a sedentary life and the subsequent threats to health. Great apes in the wild often spend many hours a day foraging (Schwitzer & Kaumanns 2003). The fact the wild great apes do so does not directly imply that the confined great apes will have to do the same, but only to the extent it benefits their interests. The foraging practices in the wild should inform great ape care in captivity. Their food must be healthy in terms of its nutritional value and valuable in the way it is presented to them.

⁸² For these measures and others mentioned in this paragraph, see the *Primate Veterinary Health Manual* of the Pan African Sanctuary Alliance, https://pasa.org/wp-content/uploads/2016/05/PASA_Vet_Manual_2009_2nd_ed_677pp.pdf [accessed 19 March 2019].

⁸³ For more information, see <https://greatapeheartproject.org/> [accessed 3 October 2017].

As discussed above, protecting the individual health of a great ape against standard threats should be central in creating socio-ecological conditions as well as health care facilities. Based on the interests of all great apes held in captivity such measures should ideally be available to each and every one of them.

7.2 The health of great apes: more than charity

Apes kept in sanctuaries have frequently endured a great deal of suffering due to medical experiments, detrimental circumstances, and/or pet trade. It has been argued that these animals deserve sanctuary care because of the way they have contributed to human interests. In 2000, President Bill Clinton signed the CHIMP (Chimpanzee Health Improvement, Maintenance, and Protection) Act into law. It allocates public resources for the care of chimpanzees retired from being subjected to medical experimentation.⁸⁴ It is erroneous, however, if it takes sanctuary life as a matter one deserves through ordeal. Rather, as advocated in the present thesis, great apes kept in confinement merit high standards of care because of their sufficiently important interests, which are relevantly similar to the interest of humans. Having been exploited for the benefit of human interests is not a necessary condition to receive a specific portion of public resources. This outcome is particularly relevant to great ape sanctuaries that mainly depend on public donations rather than public resources. Why is this a problem? If they receive sufficient funding from public donors – let us assume for the sake of the argument that they do – why create that much ado about the source of these funds?

We need to follow the money for a number of reasons. Needless to say, donations are of vital importance to conservation efforts and sustaining sanctuaries. Many organizations depend entirely on donations, which necessitates marketing strategies in order to safeguard sufficient financial means. The related costs could have flowed directly towards caring for great apes. Moreover, such expenditures could create inequalities between various organizations for the reason of marketing rather than for their capacity to provide care for great apes. Organizations also have to rely for their financial support on a fraction of all citizens. This situation is unfair to those who donate if they indeed bear the costs of matters of a more general responsibility.

Governments, who are also the designated duty holders for instance regarding children without parents or guardians could apportion part of their public resources for protecting as

⁸⁴ <https://www.govinfo.gov/content/pkg/PLAW-106publ551/html/PLAW-106publ551.htm> [accessed 19 March 2019].

well as promoting the health of great apes. The following relevant question now arises: how much funding should be apportioned? To what extent should any further research into the health of great apes in captivity (pertaining health care options, socio-ecological determinants of health, bio banks and institutional cooperation) be promoted as a matter of justice? We are now taken back again to the specification of rights, the translation from *prima facie* rights to concrete rights.

We could take human entitlements as a reference point for duties corresponding to a great ape's right to health. In very general terms, the right to health requires access to health care but the threshold level for treatment is very much a contextual consideration. The condition for which one has access to health care requires further specification, not merely access in itself. In an abundance of resources, the threshold would differ significantly from any situation characterized by scarcity.⁸⁵

Health policy requires reflecting upon the health interests of great apes held in captivity. Now and again obligations towards these apes are understood primarily in terms of reparation pertaining to any harm suffered either during medical experimentation or human ownership. I do not discount the normative relevance of both but argue we should recognize obligations beyond mere reparation or charity. The health interests of great apes are relevantly similar to those of humans. If we justify health policy and meeting health needs of humans in terms of justice, we should do so too for great apes residing in our midst.

7.3 Vaccinating great apes

Let us now deal with vaccinating great apes in the wild. This issue touches on a recent and controversial debate, which has centered on the immunization against the Ebola virus disease.⁸⁶ The past and potential impact of the Ebola virus disease on great ape populations is believed to be significant, with estimated mortality rates in certain gorilla and chimpanzee populations in some cases reaching above 90 per cent (Leendertz et al. 2017). Retrieving

⁸⁵ It has been argued that the right to health, if intelligible at all, will only demand access to health care. Human entitlements may thus obfuscate relevant vulnerabilities of health. The Wolffian definition of the right to health as protection against standard threats, as advocated in chapter 5, pushes against such a narrow scope. If threats are sufficiently serious (which involves a judgment not immune to scrutiny) and standard in the relevant sense, then this right imposes corresponding duties. The above-mentioned definition provides us with a minimal understanding of the demands of health justice in the way it pairs the seriousness of threats with the feasibility of averting them.

⁸⁶ In West Africa the devastating 2014 outbreak involved the Zaire strain of the Ebola virus, which can infect both humans as well as great apes.

robust data on these outbreaks proves very difficult. In general, great apes shy away from any form of interaction with humans. Moreover, whenever individuals infected by Ebola virus then succumb to the infection, their bodies decompose rapidly because of the tropic environment (Leendertz et al. 2017). Albeit troubled by these factors, monitoring of great ape populations in the case of Ebola virus disease outbreaks can function as an early warning system (Karesh et al. 2012). In that sense, great apes are sentinels for proximate Ebola virus threats to human communities. Great apes can also play a role in the transmission of the Ebola virus into human populations, especially when they are hunted and slaughtered for bush meat, as this involves close contact with blood (Peterson 2013).

Vaccinating great apes in the wild is considered controversial for both scientific and ethical reasons. First and foremost, can the effects of introduction of such vaccines into wild populations be adequately predicted? What level of risk is acceptable? Difficult questions!

Related to the above-mentioned issues are practical concerns regarding the method of introduction and the type of vaccine, against the backdrop of ongoing pharmaceutical development. Vaccines against Ebola differ in significant ways. For instance, cAd3-EBO-Z (De Santis et al. 2016) and rVSV-EBOV (Henao-Restrepo et al. 2015) are vector-based vaccines. They contain a genetically modified benign version of the Ebola virus, allowing for a targeted immune response in individuals (Leendertz et al. 2017). The cytomegalovirus-based vaccine (Marzi et al. 2016) allows a form of self-dispersal, hereby broadening the effective range of vaccinating an individual. This outcome is not without concern: “the ethics and risks of introducing any genetically modified virus, even if the original vector virus is naturally found in the population, require careful and thorough discussion. Once released, the vaccine virus cannot be removed from the population” (Leendertz et al. 2017: 104). To address this concern, one could opt for a virus-like particles (VLPs)-based vaccine, which does not subsequently spread itself to a single injection but requires multiple injections per individual. Though safer, it is also significantly more difficult to immunize individual great apes in the wild (Warfield et al. 2014).

Therefore, vaccinating great apes in the wild against Ebola virus disease is very much a question of medical technology, as “with the rapid progress in Ebola vaccine development, vaccination of wild great apes might become a tool for conservation and protection of human health in the future. Research must focus on developing safe vaccines that can be delivered

efficiently to large populations of elusive wild apes in their natural remote habitats” (Leendertz et al. 2017: 108). Advancements in medical technology broaden the range of human action, sometimes radically so, and we need to reflect whether the contingent limits placed by technology on what is possible suffice in terms of our values.⁸⁷ My discussion shall focus on ethical questions linked to vaccination rather than on scientific questions. What if it turns out to be technologically possible and safe to vaccinate great apes in the wild against Ebola virus disease?

7.4 Should great apes be vaccinated?

What are the underlying incentives for considering the vaccination of great apes in the wild against diseases such as Ebola virus? First, vaccinating great apes could safeguard public health by means of reducing the threat of spillover from great ape populations into human populations. Instead of utilizing great apes as sentinels for outbreaks of infectious diseases, immunizing would perhaps largely remove the need for sentinels to begin with (Capps & Lederman 2015).

The elimination of rabies in foxes across Europe is a well-known case and an often-referenced success of vaccinating wildlife (Cliquet & Aubert 2004). The main reason for implementing this immunization strategy was the protection of public health. Foxes have certainly benefitted from this effort, too. However, if foxes would be the sole beneficiaries of this action, it is highly doubtful whether the vaccination would have been implemented at all. Public health appears to be the primary motivation of eliminating rabies.

An emphasis on public health need not result in vaccinating wildlife. Other measures might suffice. Habitat encroachment and contact can be prohibited, buttressed not only by means of enforcement but also by education and incentives. Changes in human behavior and habitat encroachment can significantly decrease the chances of infectious disease spillover (Patz et al. 2004). These efforts may prove to be more efficient as well as cost-effective. Are there other reasons for developing vaccines as well as methods in order to then distribute them amidst great apes in the wild? What is their respective normative weight?

⁸⁷ For a discussion of the possibilities of the innovative gene-editing technique CRISPR/Cas9 aimed at the reduction of the suffering of animals in the wild, see Johansen 2016.

A second reason emphasizes how vaccination can contribute to species conservation. Infectious diseases such as Ebola virus impose significant threats to the survival of many populations of animals living in the wild which is all the more relevant to great ape species as they are all endangered, some even critically.⁸⁸ Vaccination may provide us with a means to prevent their extinction (Ryan & Walsh 2011). Instead of merely removing the threat to humans, this perspective also accords weight to the conservation of species. If species conservation were key, vaccination would perhaps be considered impermissible when survival of the species is not in danger. In other words, if great apes were not endangered, or looming Ebola virus disease outbreaks would not impose such a threat of extinction, it remains unclear why we should consider vaccination.⁸⁹

Finally, the health of individual great apes themselves could be the main reason for vaccination. Rather than public health or species conservation, we could be motivated to protect great apes against Ebola virus disease primarily for the way it affects them as individuals.

The above three perspectives need not exclude each other. A concern for public health could very well be combined with the motivation to conserve species. In addition, efforts aimed at protecting the health of individual great apes will often contribute to health at a population and species level. Let us now look closer at the way in which these perspectives play out, beginning with a so-called “shared benefit” approach.

The “‘shared benefit’ approach seeks to actively maximize health in one species while in turn benefiting another species as well” (Capps & Lederman 2015: 1023). This understanding pushes against an overly anthropocentric rendering of the One Health framework as it advocates a health policy that benefits multiple species instead of humans only. In relation to vaccinating great apes in the wild against Ebola virus disease, it is argued tentatively for doing so, because any compelling reason for non-intervention in principle is lacking (Capps & Lederman 2015).

⁸⁸ http://www.primate-sg.org/great_apes_in_the_world/ [accessed 11 January 2018].

⁸⁹ Notably various reasons support species conservation, which need not reflect the value of the species in and of itself. Indeed, one could consider the conservation of species primarily important because of the value for humans in the future, see Norton 2003.

Whereas this approach takes the concept of One Health policy beyond its often human-centered perspective, it does not do so in a fully satisfactory manner. Health policy should benefit multiple species, but it remains unclear to what extent we should benefit other species. What do we owe to great apes and for what reason? Controversial claims concerning the moral status of animals in comparison to humans are avoided as much as possible. Instead, in order to include non-human interests into health policy, the notion of universal goods is proposed thus: “these are the kinds of goods that reach beyond the needs of human communities, describing benefits as inclusive across species, and feature broadly in ecosystems and the environment” (Capps & Lederman 2015: 1016). Instead of engaging with the question of moral status and demands of justice framed in terms of rights, Capps and Lederman reside to the notion of universal goods. They recognize that more can be said about the interests of animals and how these enter our moral deliberations, indicating that “a debate about animal or environmental interests or rights is to be had. In our paper, however, we develop this idea of universal goods to give weight to the broadly inclusive and shared determinants that are affecting both humans and animals as victims of Ebola” (Capps & Lederman 2015: 1017).

The above-mentioned cautionary approach contains much to agree with while at the same time, paradoxically, immediately prompts debate. Should we only benefit other species if this benefits humans too? The focus on Ebola virus is understandably a result of its huge impact on human and great ape populations. However, as it represents a zoonotic threat, it slightly obfuscates other concerns. For example, in promoting “shared immunity”, Capps and Lederman do not discuss whether we should vaccinate great apes in order to protect them from infectious diseases that impose no harm to humans. Needless to say, this could very well be part of the concept of shared immunity.⁹⁰ We could, for example, protect great apes from (highly) contagious diseases e.g., human Metapneumovirus (hMPV) and measles. Efforts to monitor human health and vaccinate humans against such viruses could be an example of shared immunity (Cranfield & Minnis 2007). As with protecting great apes in order to protect humans, we could protect humans in order to protect great apes even if humans would not suffer (substantially) from certain agents, as is the case with numerous common human viral upper respiratory tract infections. We can take matters one step further by stating that promoting interspecies immunity in non-human species should also be added to the concept

⁹⁰ Anthroponotic infectious diseases are briefly indicated as a possible reason to prevent interaction between humans and great apes, see Capps & Lederman 2015.

of shared immunity. Thus, whereas humans might be involved in promoting immunity, they do not need to be part of the disease ecology as subjects themselves. The concept of shared immunity is sound, but nevertheless deserves further unpacking in relation to other species.

The shared benefit approach allows for a certain ambiguity between individual and collective interests. Whenever the objectives are primarily located at the level of species, individuals move to the background. If we take human rights as a normative reference point for the entitlements of great apes, a line of argument followed in this thesis, we should add the basic interests of great apes to the way we configure our health institutions. This inclusion differs from improving the health of great apes primarily because of its benefits to public health. Instead of public health or conservation, the primary objective could very well be the health of individual great apes. As Capps and Lederman do not engage with the animal rights debate, their approach remains somewhat unspecified at this level too.⁹¹

What if we start from the entitlements of individual great apes instead? As discussed in previous chapters, each and every great ape holds a *prima facie* right to health based on his or her interests in health, with considerations pertaining to fallibility and feasibility which restricts the extent to which great apes in the wild have a concrete right to health. Focusing on Ebola virus, its seriousness is beyond doubt. The virus is responsible for high levels of mortality (Leendertz et al. 2017). Therefore, as with humans, the virus has devastating effects on the lives of great apes.

Is Ebola virus disease also a standard threat to the health of great apes in the wild in the full Wolffian sense? If the seriousness of this danger is indeed beyond any doubt, it depends upon a solution, most probably in terms of a specific kind of vaccination, being in reach within a reasonable amount of time, effort and resources. This solution involves a judgment informed by knowledge of medical technology as well as a normative one. How far are we willing to stretch the demands of reasonableness? It is simply infeasible to provide health care and/or any other health-related duties to great apes living at some distance from human affairs. Vaccination, however, may form an exception (as well as duties to safeguard ecological space), especially for those residing on the border of human society.

⁹¹ It has been tentatively suggested that the Great Ape Project (1993) is a philosophical ground to consider apes as equals, see Capps & Ledermann 2016.

Imagine that vaccination against Ebola virus disease could be implemented without any significant risks, costs or restrictions of great ape agency. Should we carry out this procedure? Ebola virus disease implies a serious threat to health for humans and great apes alike. If this virus strain can be averted with reasonable demands in terms of time, effort and resources, it should take place primarily in order to protect individuals against this threat. As with the virus itself, interests in being protected against it transcend species lines.

As yet, such a measure is not a realistic depiction of possibilities available in the near future. Many difficult considerations come with the topic of vaccinating great apes in the wild against Ebola virus disease. As stated in a best practice guidelines report, “immunisation campaigns are complicated, costly and may require multiple booster immunizations (requiring long-term commitment to the effort) the practicality of administering an Ebolavirus vaccine to even habituated great apes is debatable” (Gilardi et al. 2015: 31).

Although vaccination of great apes in their natural environment has not been carried out frequently, in described cases it has involved individuals more or less accustomed to human presence as a result from a procedure referred to as habituation, which involves the gradual exposure of great apes in the wild to human presence and which is aimed at desensitizing these apes over time to the effect they regard humans as neutral elements of their habitat. This procedure and its ethical aspects will be further discussed in the final section of the present chapter.

In 1966, the world-renowned primatologist Jane Goodall vaccinated habituated chimpanzees against polio by means of bananas containing vaccine (Goodall 2000). Between 1989 and 1990, several habituated Mountain gorillas (*Gorilla beringei beringei*), home to the Virunga Mountains (East Africa), displayed symptoms of a respiratory disease. Here the Gorilla Doctors (a non-governmental organization formerly known as the Mountain Gorilla Veterinary Project), having presumed an outbreak of measles, then prompted a careful vaccination of 60 gorillas. This intervention could inform future vaccination programs. Although “the cause for the respiratory disease outbreak was never definitively diagnosed, the outbreak subsided after the vaccination programme. This indicated that, if necessary, a sizeable portion of the Mountain gorilla population could be vaccinated in the face of a disease outbreak” (Cranfield & Minnis 2007: 114). Despite of the various risks, vaccinating habituated great apes in the event of an outbreak proved to be successful in these instances.

In sum, vaccinating great apes in the wild has only been carried out amidst apes more or less accustomed to human presence and in response to an immediate threat to their health and therefore not so much as a preventive measure. If we presume that concerns of practicality would indeed limit the scope of vaccination strategies, leaving only those great apes in the vicinity of humans as plausible subjects for immunization,⁹² we are then left with the question: should habituated great apes in the wild be vaccinated against a standard threat to health as a preventive measure, or only in response to an immediate, concrete threat? This issue involves empirical and normative considerations. Is it possible to avert a threat of Ebola virus disease in response to an immediate danger without being too late? How do population and individual health weigh up against each other? A reactive stance may indeed suffice to prevent diseases such as Ebola virus disease from endangering the survival of the species and/or population. Fatalities in the event of an outbreak will occur but not to the extent that a population becomes unsustainable i.e., not being able to reproduce at a required rate. If one attributes much weight to the species, a reactive vaccination strategy could be acceptable when addressing the threat posed by the Ebola virus.

Instead of merely ensuring the sustainability of populations, more may perhaps be required. Although the benefits of vaccination are often collective, for example, by ensuring the survival of populations, they do involve a concrete benefit to the individual who is protected by means of immunization. If we only look at the potential of vaccination to avert a population collapsing, a certain number of individuals risk being infected and then affected by devastating consequences. We must assess the risk of an Ebola virus infection run by individual great apes in order to determine either if this level is acceptable or if vaccination is required to minimize any further dangers. We could perhaps be ushered towards a preventive attitude instead.

Precautionary considerations may ultimately favor a reactive stance (Gruen et al. 2013). A range of scientific concerns pertaining to the safety of introducing vaccinations into wild populations soft-pedal any prospects of expeditious implementation. Predominantly an empirical issue, however, I cannot determine the implications of these precautionary considerations. Nonetheless, if precautionary considerations do restrict applying vaccinations

⁹² This is in line with the discussion (see 6.4) where I indicate that considerations of feasibility and fallibility drastically curtail the scope of the right to health. These restrictions are of less concern to great apes living in the vicinity of human dwellings.

within a reactive rather than a preventive approach, what does this entail? Outbreaks of for instance Ebola virus disease occur randomly, rendering it practically impossible to predict whether or not a population is at risk. A reactive approach largely relies on a swift response in order to effectively address the immediate threat. This procedure involves considerations regarding the background conditions required when ensuring an effective response. Are veterinarians authorized, equipped, or even capable of administering vaccine adequately and in time? Which regulations concern vaccinating great apes in the wild? Are vaccines available? Which necessary logistical steps must be taken in order to ascertain their presence? Who provides the resources for implementing this vaccination strategy? Such issues must be addressed if one opts for a reactive approach.⁹³

In conclusion, considering the seriousness of Ebola virus disease and its threat to the health of individual great apes, we should evaluate if it is possible within reasonable means to take protective measures against this threat. Although this assessment involves a normative judgment, it is very much an empirical matter. I have argued that there are no principled arguments to oppose the vaccination of great apes in the wild. In fact, vaccination (if no unreasonably high costs, risks or restrictions of freedom are imposed) should be carried out as a matter of corresponding duty to the right to health of great apes.

I have not only distinguished between a preventive and reactive attitude to vaccinating against Ebola virus disease but have also indicated how various normative assumptions could be at work in deciding between the two. A concern for the vulnerability of the individual requires a careful appraisal of a preventive approach to vaccination. Significant precautionary considerations could shift the balance towards a reactive rather than a preventive attitude. When a reactive attitude is appropriate for precautionary reasons, this involves the duty to consider if an adequate infrastructure is in place to respond in the face of a suspected outbreak. Note that these arguments are not limited to Ebola virus or zoonotic pathogens.

7.5 Should we enroll great apes in medical research?

Until now, I have addressed the question if there are compelling moral reasons to vaccinate great apes against Ebola virus disease, which I have answered affirmatively. The issue of

⁹³ “The possibility and limitations of vaccination in an outbreak situation ... should ideally have been discussed well beforehand and a network of assistance for such emergency situations should be established.”, see Leendertz et al. 2017: 108.

vaccines is however not limited to its implementation in the field. Especially from a One Health perspective, a more integrated approach is required, as becomes apparent when the question is asked: what does it take to develop vaccination within a reasonable amount of time, effort and resources?

Considering whether a threat to health is standard requires not only a discussion but also an estimation of the capacity of medical technology as well as an explication of the presupposed harm imposed upon others during the process of finding a solution, and if this distribution of resources can be justified in the light of other demands. The human right to health involves assumptions that pertain to the utilization of animals and that need to be made explicit. Likewise, the right to health of great apes also requires a careful exploration of the interests at play. A shared immunity reflects a level of protection against standard threats to health reaching across more than one species. However, it also presupposes research involving animals. The actual protection of great apes and humans against Ebola virus disease by means of vaccination is preceded by research into animal and human subjects.

Hence, the discussion on vaccinating great apes in the wild in order to protect them, and indirectly humans, against Ebola virus disease cannot be separated from the animal research involved in developing such vaccines. The integrated stance on health policy as reflected in the One Health framework requires an upstream evaluation of the research chain, both in terms of science and ethics. This point of view is all the more relevant as research on captive great apes is one of the options suggested by authors involved in the debate on developing safe vaccines to implement in the field (Walsh et al. 2017; Capps & Lederman 2015). An issue here concerns the extent to which research on captive great apes is justified if this is a necessary step to provide their wild conspecifics with protection against a threat to their health such as the Ebola virus. A slightly different question is: should we vaccinate great apes in the wild? Even if the answer to the latter is affirmative in principle, the way of developing vaccines may conflict with the rights of great apes. Let us now look into a number of recent proposals linked to this topic.

Invasive research involving great apes is currently prohibited by law in certain countries, including, among others, New Zealand, Germany, and the Netherlands. Even where an explicit legal ban is lacking, for example in the U.S., Peter Walsh and his colleagues explains that while,

in principle, research that benefits wild chimpanzee conservation is exempt under the new ESA regulations banning medical research on chimpanzees. In practice, all of the biomedical facilities that held chimpanzees have or are in the process of ‘retiring’ their populations to sanctuaries which are philosophically opposed to invasive biomedical research (Walsh et al. 2017: 6).

The ban or reluctance to subject great apes to invasive research has been challenged. In a plea for developing vaccines for great apes in the wild, for example, Walsh c.s. has argued against the ban on utilizing great apes in medical research. He substantiates this urgent request by means of:

(a) an argument driven by the weight attributed to species conservation. Though it is not clear why species conservation matters specifically in this case (both anthropocentric and non-anthropocentric reasons could do the work), protecting great ape populations from extinction is the main reason for performing such research.

(b) a more explicit argument whereby through the measuring of biological parameters, animal welfare concerns possibly involved with testing vaccines on captive great apes are downplayed.

In order to make their case, Walsh c.s. have recently performed vaccine trials on captive chimpanzees, with a twofold aim, to wit, “to objectively quantify the level of stress experienced by study chimpanzees and to differentiate between chronic stress induced by social isolation or confinement in small experimental cages and acute stress induced by the vaccine or experimental procedures” (Walsh et al. 2017: 2). This procedure includes measuring stress response by means of biological parameters such as white blood cell count and serum glucose. If the outcome hereof lies within an acceptable range during the duration of the vaccine trials, as Walsh c.s. state, animal welfare advocates have no substantial reason to resist such research on captive chimpanzees in order to benefit their wild counterparts, and conclude:

Much opposition to the use of chimpanzees in biomedical research has rested on the assertion that confinement of chimpanzees in small experimental cages during trials subjects chimpanzees to psychological stress of a severity comparable to that induced

by persistent torture. However, the relatively rapid attenuation of stress responses in our study suggests that chimpanzees did not suffer severely from severe, chronic stress due to either confinement in small cages or social isolation. (Walsh et al. 2017: 7)

In other words, based on the biological indicators of stress experienced during the research, Walsh c.s. conclude that the chimpanzees appeared to cope with the experimental conditions. Should this assessment convince all those feeling concerned about the welfare implications of testing vaccines on great apes in captivity?

Measuring biological indicators of acute and chronic stress makes sense. Needless to say, severe acute or chronic stress can indeed have detrimental effects on well-being. However, it is by no means clear that the argumentation presented by Walsh c.s. will sway those towards whom the argument is leveled. In their aim to objectively quantify welfare costs, all relevant ethical concerns are mistakenly reduced to biological measurable parameters. There is more to animal welfare than biological parameters alone. This observation renders their conclusion largely irrelevant to the issue if medical research on captive great apes is justified.

Walsh c.s. fail to pay sufficient attention to (a) the former lives of the chimpanzees involved in this research and (b) how this research may have affected them. Perhaps living in a research facility has led chimpanzees to develop adaptive preferences, allowing them to cope better under suboptimal situations. Frequently experiencing forms of social isolation could affect one's psychological as well as one's physiological response to such a situation. Walsh c.s. could respond by arguing that such adaptive preferences does not pose any problems at all. To the contrary, this result renders these great apes very suitable for research, as they do not suffer from any excessive stress. Such a response, however, would diminish their original argument, because then, it would be only applicable to chimpanzees previously subjected to research procedures as were the subjects participating in this vaccine trial. Whether such trials cause significant stress in chimpanzees who have not been subjected to invasive research remains a question.

Still, they would take any adaption of present preferences too quickly for granted. Is it ethically justified to alter the preferences of chimpanzees to the effect they are able cope with medical research? Not surprisingly, my answer to this question is "no". Chimpanzees have, as I have argued, a right to freedom of opportunity, which entails a sufficient range of

opportunities to shape their own lives. Aiming for a sufficient range of opportunities liberates individuals from adaptive preferences they have developed for the sake of others.

What are the consequences if we suppose that the stress response of chimpanzees in question is unaffected by their earlier experiences? Objecting to the wrongfulness of adaptive preferences due to suboptimal context does not fully take the wind out of the sails of Walsh and his colleagues. Nonetheless, the fact that the biological parameters of stress remain within certain limits does not tell us a great deal about the ethical acceptability of such procedures. Keeping chimpanzees confined in small cages, isolated from their social group, or subjecting them to anesthesia may not significantly affect biological parameters. However, these measures are all highly morally relevant. Looking into biological parameters alone does not suffice. The efforts made by Walsh c.s. do not contribute to the discussion on the ethical justifiability of carrying out medical research on great apes in captivity for the benefit of their wild counterparts in the way they apparently deem this exchange of thoughts does, especially as they fail to consider the moral relevance of a restricting agency.

If we were to, for the sake of argument, accept that the harm caused by testing is not comparable to persistent torture, it is not clear what such a conclusion would bring us. Walsh c.s. only address one argument against the use of great apes when researching, under the assumption that (also see the above quote), “much opposition to the use of chimpanzees in biomedical research has rested on the assertion that confinement of chimpanzees in small experimental cages during trials subjects chimpanzees to psychological stress of a severity comparable to that induced by persistent torture” (Walsh 2017: 7). This is an empirical claim. A large part of the opposition is perhaps based upon the comparison with persistent torture, and understandably so, as this would be a most flagrant form of harm. However, as argued above, research could be ethically unacceptable based on other reasons than involving persistent torture. Walsh c.s. make no effort in uncovering such reasons and therefore tend to jump to conclusions too hastily. Their focus on the comparison with persistent torture obfuscates other ethically relevant considerations and thus significantly reduces the value of their conclusions.

A more nuanced approach, in recognition of various ethical considerations, advocates that great apes are vulnerable subjects who lack the cognitive capacities in order to fully grasp the risks and benefits of their enrolment in medical research; much like human children.

Principles developed for research involving vulnerable human subjects can perhaps also be applied to great apes (e.g., Fenton 2014; Wendler 2014).

One of the principles applied in order to guide ethical decision making in the context of research involving particularly vulnerable human subjects is to benefit others of one's kind. Just as children could benefit other children, it has been suggested that "trials might benefit wild populations and therefore it might be possible to justify within human research ethics paradigms" (Capps & Lederman 2015: 1024). Based on what has been referred to as a "shared vision" the willingness of humans to volunteer for phase one trials for vaccine development is indicated as a reason to consider that "possibly retired chimpanzees could be coopted as well" (Capps & Lederman 2015: 1028).

In doing so, we must be fully aware of both the similarities and the differences between great apes and human children. Whereas children cannot fully comprehend all the aspects of their involvement, certain children do have a notion as to benefitting other children. Great apes, however, do not have the slightest knowledge of possible benefits. To what extent are such differences of any significance in determining the permissibility of involving great apes in research?

Age matters. The older the child, the more reason we have to take their personal perspectives seriously. If children lack the ability to have any clue as to the benefits of their involvement in research and do not benefit from the research themselves, then various current ethical frameworks prohibit their enrollment (Wendler 2014). Determining threshold levels of such competency precisely and correlating them with a specific age is difficult for many reasons, as is the case when positioning the threshold level of autonomous agency at 18 years of age. Nevertheless, ethical principles applied in bioethics do take into account the age of children, or to be more specific, their partial competency to comprehend their enrollment in research as well as the presumed benefits and risks it involves.

If we take a step back, one could doubt the argument for *per se* benefiting one's own species. Before examining implications following from such a principle, let us take a closer look at the principle and its underlying assumptions first, especially as it is not clear for which reasons research is justified based on the estimated benefits to others belonging to one's own species. It has been argued that "the primary problem with this argument is that it is not clear that it

makes sense when applied to individuals who have never been competent. For example, it is not clear that there is any morally relevant sense in which chimpanzees are more willing to help future unrelated chimpanzees than future human beings” (Wendler 2014: 169).

Indeed, if species membership is morally irrelevant in determining moral status and the moral significance of interests (see chapter 2), then the principle of benefitting other members of one’s species does not gain any traction. Although moral reasons may lack, other reasons could give rise to the principle of benefitting other members of one’s own species. One important reason is biological similarity. A huge overlap within species in terms of biological functioning has been observed. For example, while paracetamol (aka acetaminophen) in general imposes no danger to humans, it is highly toxic to cats because of their species-specific metabolism. Abandoning research on the analgesic effects of acetaminophen pertaining to its negative effects on cats would thus amount to a false-negative inference. Extrapolating knowledge of health across species boundaries is certainly not without any challenges.

The principle of benefitting other members of one’s species could thus be explained largely in terms of biological similarity. Species membership is an important proviso for utilizing medical knowledge across individuals. Nevertheless, it is not a necessary condition. Why should the principle be restricted to other members of one’s own species? Suppose non-beneficial research could benefit other individuals of other species. In principle, I do not observe a distinction between benefiting others whether they are conspecifics or not. Group-delineated solidarity can be widened in scope. For example, medical research performed on humans (if entirely voluntary and in accordance with ethical regulations) could pursue the health interest of non-human animals e.g., great apes (Capps & Lederman 2016). However, such possibilities may perhaps not arise that often.

By and large, animal research is and has been performed with the aim of benefitting humans (Akhtar 2015). Just as the focus on zoonotic diseases deflects from other relevant transmission routes (human to non-human animal or between non-human animals), research goals may also be too much concerned with human interests. What is the underlying justification for this one-way street of knowledge transfer across species? The interests of great apes not only generate protection against harm but also impose certain duties in order to improve their health. We should not only consider if great apes should be involved, but also if

and to what extent medical research should benefit great apes (Capps & Lederman 2016). This reflection culminates in the question: to what extent can we enroll great apes in medical experiments in order to benefit their conspecifics in the wild?

The principle of benefitting other members of one's own species to justify trials on captive apes has been suggested, as "apes may permissibly be exposed to increased risk in research as long as it may benefit other humans and apes. This is not a utilitarian calculation, but an argument from parity: just as humans are commonly exposed to increased risk in research with the goal of benefiting other humans, so can apes be exposed to risk with the goal of benefiting other apes and humans" (Capps & Lederman 2016: 891). Does the argument of parity indeed apply? Based on the principle of equal consideration, we should consider interests involved in equal terms, but this does not involve equal treatment. Cognitive differences, for example, may affect one's interests. In general, children have at least a certain notion as to the benefits of their involvement, which chimpanzees do not. This difference, as we have seen, is indeed crucial. The principle of benefitting other members of one's own species is problematic if we were to deem species-membership morally irrelevant. We can now add to this that, the incompetence to consider benefits for others (even if belonging to one's own species or not) undercuts the argument to carry out research on such individuals in the first place.

How could the willingness of human volunteers to participate in Phase I trials provide us with a ground to enroll chimpanzees in vaccine trials? This inference is not based on actual endorsement expressed by chimpanzees. Capps and Lederman imply that if chimpanzees were able to consider the possible risks and benefits, they would indeed enroll. However, we can only make such inferences in cases where we aim to benefit the individual e.g., either when protecting him or her against threats they are either unaware of or by means of enrolment in research that would benefit the individual. In these cases, the aim of the research contributes to the interests of the individual in question. Having to respect the agency of individuals, we may decide for them on a number of matters, as is discussed throughout this thesis. We may overrule agency in order to benefit the individual, not to harm it.

Capps and Lederman have not provided any arguments as to why the principle of benefitting members of one's own species can be extrapolated from the human ethical framework to great apes. Great apes lack the required cognitive capacities to consent to such research because

consenting presupposes knowledge not only of the risks and benefits but also of voluntary enrollment. As advocated above, benefitting other great apes in the wild is not relevant to a particular individual in captivity if one rejects species membership as morally relevant. Biology may restrict the benefits of one's enrollment in research to conspecifics. Whether or not one should enroll in research to benefit others is however an ethical question. Species membership may be empirically relevant but fails to provide moral traction.

A further problem regarding the approach introduced by Capps and Lederman concerns their reluctance to engage more thoroughly with the moral status of animals, great apes in particular. This stance is reflected in their comments on the research required to develop vaccines against Ebola virus disease, including the use of animals, all the way down the research chain: "invasive research on great apes—using chimpanzees in particular—is likely to be prohibited; but we suspect that monkey research will continue for some time. This might provide the necessary level to proceed to trials in human and Great Ape populations" (Capps & Lederman 2015: 1028).

Interestingly, Capps and Lederman take the prospect as a given rather than subject it to further scrutiny. Indeed, a surprising viewpoint, considering their tacit recognition of the Great Ape project as a philosophical source of equality across species. It remains unclear if Capps and Lederman support monkey research or not, which again reflects ambiguity. The present study focuses on great apes, too, within a theoretical framework applicable to other animals. The interest-based theory of rights rejects utilizing animals in research if this involves suffering or death (Cochrane 2007). Moreover, as I have suggested, animals have the right of freedom of opportunity corresponding to their competency in terms of agency, which challenges restrictions of freedom. It is therefore by no means obvious that invasive research on monkeys is ethically permissible. Similar reasoning could be applied to other sentient beings. If one takes an interest-based approach to human rights, this puts the exploitation of animals to benefit humans under immense pressure, as many interests are not exclusive to one species only.

All in all, I agree with Capps and Lederman's suggestion to look into ethical principles employed within the context of medical research involving human subjects. I assume these principles are sound if pertaining to that specific context and thus provide us with an important reference point to guide the ethical research practices involving great apes.

Nonetheless, I disagree with Capps and Lederman's on the following issues: (a) species-membership is morally irrelevant for the principle of benefiting other members of one's species, (b) enrolling great apes in research is unjustified as they lack the ability to consent and assess the risks and benefits involved and (c) Capps and Lederman's suggestion of utilizing non-hominid primates for invasive research conflicts with their endorsement of equality as claimed in the Great Ape Project. Especially when based on an interest-based understanding of moral rights, most if not all invasive research on primates (or even sentient beings in general) is ethically prohibited.

In principle the health interests of great apes living in the wild require a careful assessment of the feasibility of protecting them against such standard threats. However, this procedure presupposes that vaccines are developed, which involves clinical research. This presents us with a problem because the ban on involving great apes in research is backed up by sound argumentation. The interest-based understanding of moral rights provides a plausible grounding of equality between hominids, which plausibly extends beyond these species as well. Hence the ban on utilizing great apes for invasive research should be widened in scope in order to include other primates too. The interests at play, suffering and death, are of significant importance to both great apes and lesser apes (and possibly all sentient beings). The incoherence between not exploiting great apes for research while other primates are utilized should not only be explained in detail but also be justified by means of ethical reasoning with regard to both conservation and public health, in particular in the face of emerging infectious threats such as Ebola virus.

Emerging infectious threats are to a certain degree associated with disadvantages to marginal groups. The human immunodeficiency viruses (HIV), for example, spurred the growth of chimpanzees populations in US laboratory facilities, involving "a breeding programme in 1986 to meet the demands of researchers seeking to study the newly emergent AIDS epidemic" (Knight 2011: 202).⁹⁴ Similarly, infectious diseases with pandemic potential (e.g., Marburg virus disease, Ebola virus disease) can prompt either challenging the ban on utilizing great apes or loosening restraints on applying other primates for invasive research in exceptional cases:

⁹⁴ In addition to the harm intrinsic to their involvement, several systematic reviews on research involving chimpanzees have found no substantial evidence for their utility, see Bailey 2008 and Knight 2011.

Emerging human infectious diseases with high lethality demand swift action by the scientific community. In these extraordinary circumstances, conducting infection challenge experiments with primates to study the efficacy of vaccines and treatments before human testing may be ethically justified. But the suffering and death inherent in this research for sophisticated animals that cannot consent constitutes a serious moral price. NHPs [non-human primates] should be subjected to infection challenge experiments only under exceptional circumstances, with a compelling rationale and strict procedural safeguards in place. Such research is justifiable only when it has potential for great human benefit that cannot be achieved without the sacrifice of NHPs. Recent infection challenge studies on NHPs to test treatments and vaccines for the Ebola and Marburg viruses exemplify the kinds of studies to which the exception we advocate applies. (Barnhill et al. 2016: 25)

Barnhill c.s. acknowledge the *prima facie* moral rights of non-human primates not to be harmed by other primates, just like humans have such rights. However, while the rights of the former can be overridden in certain exceptional circumstances, this is not accepted in case of the latter. This conclusion begs the question: “how, in turn, is their standard—which, although stringent, does permit causing NHPs to suffer and die for human benefit—to be justified?” (DeGrazia 2016b: 27). DeGrazia searches but does not find a compelling reason when looking into the argumentation presented by Barnhill c.s. who allow for this exception. Realizing he himself is on the fence whether such an exception should be made facing these devastating infectious threats, DeGrazia does plead for exempting great apes from such an exception because these species are “extremely person-like”: “Great apes, I submit, are so person-like—and so similar in relevant ways to young human children—that we should extend research protections to them that approximate those that apply to human children who are too young to understand the purpose, risks, and possible benefits of participating in research” (DeGrazia 2016b: 28).

Whereas not immediately obvious (or substantial), the differences between, on the one hand humans and other great apes, and other primates on the other hand, could be relevant for the harm of death, as well as the harm of freedom restriction, I do not deem this to bear any significance to forms of harm inflicted through suffering. The principle of equal consideration of interests has been meticulously defended and the relevance of species-membership with regard to suffering has been questioned. If we consider it unethical to impose a certain amount

of suffering upon humans, it is argued, we should not impose it on non-human animals either (DeGrazia 1996).

Therefore, following from that claim, the harm of death or the harm of restriction of freedom should be the distinguishing difference. It is not clear that this dissimilarity obviously translates into the permissibility of using primates in such research. Even if, for example, gibbons and macaques are harmed less by death, their interests in continued life may suffice to generate robust rights protection not very dissimilar to great apes. The same applies to the harm of restricting freedom. Rather than a careful consideration of the *prima facie* rights involved in order to specify concrete rights, the argumentation does appear consequentialist after all if apes (both great and “lesser”) would be enrolled in research.

A consequentialist framework could do the justificatory work, but Barnhill c.s. explicitly refer to a theory of moral rights. The stakes are too high not to allow for an exception, as the argument states. This stance does not at all follow from a strict and consistent deliberation within an interest-based account of moral rights. Distinguishing between species for certain earth-shattering threats to human health remains arbitrary, especially if this exception applies to certain species only. Why species-membership is morally relevant remains unclear. DeGrazia’s plea to exempt great apes from enrollment in invasive research should be acknowledged. Hence, taking these claims together, a case for prohibiting the exploitation of “lesser primates” is strong.

In sum, great apes should not be enrolled in non-beneficial research either for the benefit of other great apes or for that of humans for the reason that they cannot consent. Significant threats such as Ebola virus to the health of humans and great apes as well as well-nigh impending extinction of great ape species place huge pressure on this claim. Just as rights of humans do not give way in the face of such threats, the same would have to apply to animals if similar interests are at play, affecting not only the development of vaccines for humans but also conservation efforts.

A great deal of the recent discussion on vaccinating great apes against Ebola virus disease apparently presupposes a shared ground concerning the importance of conservation. With regard to conservation, the underlying motivations to develop vaccines for great apes must be explicated. These incentives could be very anthropocentric e.g., by valuing the survival of

species in terms of opportunities for future generations. Not to entirely discount the opportunities of future humans, this is not the only nor the most pertinent argument for engaging in conservation efforts. If we include non-anthropocentric reasons for protecting species, a tension between the individual and the collective emerges. It has been advocated that we must conserve species at all costs, even if harm to certain individuals is involved. Other scholars, whom I referred to throughout this thesis, argue that generally speaking species or collectives in themselves lack the moral significance of individuals. Species and populations matter morally in a derivative sense, primarily for the individuals that together make up these collectives (MacClellan 2012). Pressure on species and populations often accompanies harm to individuals, which is the primary moral concern. This is the reason why extinction in itself is not a reason to enroll individual great apes in medical research. It is the harm inflicted upon individuals that demands consideration. Although one's vulnerability to infectious disease could impose duties to protect upon others, for example through pharmaceutical development, such threats to health should not cause harm to those unable to consent to involvement in such research.

The range of possibilities to vaccinate great apes will be limited due to practical and ethical concerns. Non-beneficial research involving great apes is ethically problematic as it presupposes a certain form of voluntary endorsement. Beneficial research instead is aimed at developing solutions for health threats faced by individuals enrolled in the research, which defines the scope of permissible research on great apes as well as the prospects of developing vaccines. Ethical restrictions limit the scope of vaccination to a reactive approach. Considering the current state of medical technology and its reliance on trials in conspecifics it is not ethically permissible to develop vaccines in order to immunize great apes living in the wild. If an alternative to such research did exist, and this would be altogether feasible, a preventive approach to vaccinating these apes should ultimately be pursued.

For now, vaccine trials and vaccination strategies on great apes in the wild are only permissible and required if (a) the risks are reasonably low and (b) immunization is the last resort in order to protect against imminent threats to the health of the apes involved. These conditions concur to a considerable extent with the procedures according to which both dr. Jane Goodall and the Gorilla Doctors have vaccinated great apes in the wild.

Decades of medical research involving great apes have provided in a range of vaccines against a number of infectious diseases (Ryan & Walsh 2011; Leendertz et al. 2017). While the development of new vaccines against diseases is perturbed by the above-mentioned ethical concerns, these vaccines may provide a valuable resource to protect great apes against imminent threats to their health, prompting efforts to evaluate and make these vaccines available to wildlife veterinarians when reacting upon standard threats faced by great apes living in the wild.

7.6 The ethics of habituating great apes

Though vaccination of great apes in the wild is a relatively much-discussed topic, other forms of medical intervention involve close interaction between humans and great apes. Health monitoring by means of frequent field visits provide a wealth of information on the health status of individuals as well as on a population level. Veterinarians can intervene if deemed necessary, for example, in the case of upper respiratory tract disorders, wound treatment, life-threatening conditions, as well as in the case of severe suffering and possibly the need for euthanasia. Such level of health monitoring and intervention is only possible if the great apes in the wild involved are habituated, whereby their gradual exposure to human presence desensitizes them over time to the effect that they appear to regard humans as a neutral element of their habitat. The primatologists Fossey and Goodall both applied this method (respectively on gorillas and chimpanzees) in their fieldwork.

Reasons for habituating great apes in the wild vary. Primatologists were and are foremost interested in the opportunities provided to study great apes at close range. It has hugely facilitated ethological research, resulting in a wealth of knowledge concerning the lives of great apes in the wild. Another reason for habituating these apes is cashed out in terms of opportunities it provides for tourism: habituated apes can be observed as part of a trekking, hereby bringing tourists relatively up close with great apes in the wild. Tourism has become a vital source of income for many livelihoods established in the vicinity of great ape populations as for instance in the Republic of Rwanda, home to the endangered Mountain Gorilla.

Habituation is not without its problems. The process itself is harmful to begin with because subjecting unhabituated great apes to human presence inflicts fear and stress, which in turn could not only lower immunity but also disrupt social structures. Though these effects

diminish over time, the process of habituation often takes years (Woodford et al. 2002). Habituation also poses new risks to the health of great apes. Increased interaction at the human-ape interface renders them ever more vulnerable to infectious disease originating from humans (Woodford et al. 2002; Lonsdorf et al. 2016). Allowing great apes to grow accustomed to human presence furthermore results in vulnerability to poachers and in an increase in human-ape conflicts, as apes venture outside their habitat in search of food (Williamson & Feistner 2011). This is the reason why habituation is discouraged in densely human-populated areas, or where the risk of poaching is high (Gruen et al. 2013). In that sense, habituation creates responsibilities by making apes vulnerable, which is why habituation should only be pursued when those present in the area undertake long-term commitments (Gruen et al. 2013).

More information is required when considering the impact of human presence on already habituated apes. Habituation is generally believed to render apes largely indifferent to human presence, facilitating research as well as tourism. However, in one specific case frequent human presence caused increased levels of aggression, stress and the changing of feeding behavior (Klailova et al. 2010). So, rather than assuming the effects of human presence on already habituated apes as negligible, it remains an important empirical issue in order to establish the ethical permissibility of habituation.

Such concerns prompt the question: is habituation ethically justified, and if so, under which conditions? Despite the substantial impact on welfare, habituation

has not only contributed to our understanding and appreciation of other great apes, but has also contributed to the well-being of apes and the humans who live in immediate proximity to them. But these benefits incur costs as well. Given the role field researchers play in protecting great apes—by bringing information about great apes to a broader public; by protecting them from immediate threats in the form of poaching and habitat destruction; by educating local human communities about the value of the apes; and by working to protect their habitat and the other wildlife that live in the habitat—the benefits of establishing long term field sites generally appear to outweigh the costs, at least for now. (Gruen et al. 2013: 26)

As is clear from the above account, rather than unconditional support, habituation as a means to facilitate research and accrue other benefits is supported by an intricate cost-benefit analysis. The forms of harm involved are weighed against other relevant considerations in order to then promote conservation among other goods. If not for research and eco-tourism, we would already have lost many more great apes, even entire species. This is the reason why Jane Goodall, for example, has implemented and promoted community-based strategies to conservation, involving local communities and allowing for eco-tourism to buttress the economic sustainability of conservation efforts (cf. Gruen 2011: 176).

Tension exists between the various objectives at play. Tourism can involve financial incentives that work against the goals set by conservation. For instance, limits set on the numbers of visitors allowed per day as well as on the human-ape distance can be put under pressure: more tourists imply more revenue and permitting less than a 7 m distance between humans and apes may be more attractive as a wildlife experience. Moreover, tourism itself involves unmistakable risks as large numbers of people from across the globe enter into the habitat of great apes (Hanes et al. 2018). These dangers are difficult to quantify, but in general terms it is apparently safe to state that less, or even no tourism at all, significantly reduces the threat of human-borne infectious disease. The human-ape interface represents a key interspecies determinant of great ape health and complements concern for the ecological determinants in terms of ecological space.

Is there any reason to take issue with the account of Gruen and her colleagues? Although it presents an admirably nuanced approach, we must remain aware of the concessions or trade-offs made in order to achieve certain conservation goals as becomes particularly relevant in the light of Cavalieri and Singer's Great Ape Project, which pushes forward a rights-based view in order to protect apes as individuals. If individuals bear moral value in terms of rights, the careful cost-benefit analysis Gruen c.s. describes gains less traction. Whereas at present tourism, for example, appears unmistakably necessary and important in economic terms (supporting local livelihoods, safeguarding conservation), such necessity could deflect attention from the way in which habituation as well as other aspects of tourism affects individual great apes and puts them at risk.

Maybe little can be done at present, especially in the face of the crippling poverty and health vulnerabilities experienced by local communities. Contemplating on these issues from a rights perspective can nonetheless serve to shape any future human-ape interactions.

Can habituation be justified? To answer this question, we must first look into the interests of the apes themselves. If habituation does indeed serve their interests, a possible justification of subjecting them to the process of habituation is established.

Research may positively contribute to the well-being of great apes by unraveling knowledge pertaining to their lives, and subsequently put this knowledge into practice. The question now arises: what if such research is not necessary when viewed from the perspective of the interests of the apes? Certain research may be vital, while other research is more fundamental in nature, not generating (immediate) benefits. It therefore depends on the type of research, and it is not immediately obvious that field research is in the interests of great apes themselves. Researchers must explicate their objectives and the moral significance these bear.

Tourism may indirectly contribute to the interests of great apes by (a) supporting protective measures and conservation efforts and (b) fostering support and involvement of local livelihoods. At the same time however significant threats to the health of great apes in terms of risks of transmission of human-borne infectious disease are imposed. How the risks compare between field research and tourism remains an empirical question. At any rate, the benefits of tourism appear derivative while the costs are evident. It would be out of the ordinary to say that tourism is in the interests of the great apes directly. If there was to be no financial benefit from the practice of tourism, then it is unclear which benefits accrue from subjecting great apes to tourists. One could attempt to claim that tourism fosters awareness in the visitors to great apes in their own habitat. It remains nevertheless unclear if tourism is the only means to foster such awareness, nor if such a wildlife experience has a tremendous and unexchangeable impact. To conclude, tourism does not directly benefit great apes and also imposes significant threats to their health.

Perhaps habituation lies in the interests of great apes in the ways it creates the opportunity to monitor, protect and promote their health. Habituation is generally put in terms of research and tourism. From the perspective of the great apes themselves however health measures perhaps benefits the most. Does the harm of habituation weigh up against the benefits in terms

of the ability to monitor and promote health? This question is by far the most relevant when considering if habituation in itself is ethically justified from the perspective of great apes themselves.

7.7 Considering isolated peoples

The tension between the individual entitlement to health care and freedom to a certain degree mirrors the discussion on whether or not one should initiate contact with those very rare, non-modern, pre-state type human communities with few contacts with modern industrialized states or the global economy etc. Exploring the similarities and differences between dealings of modern societies with isolated peoples and great apes living in the wild serves to further specify obligations to both parties.⁹⁵

What are isolated peoples in terms of health policy owed? On the one hand, they lack access to modern medicine and health care. Considering their interest in health, they also hold a *prima facie* right to health, challenging health policy to include their health needs, for example by providing vaccines against standard threats to health as well as securing their ecological space. On the other hand, the numerous afflictions that trouble humans residing in the “developed” and “developing” world are alien to isolated peoples. Threats to the health of the inhabitants of “modern societies” often evolve from a specific human-made socio-ecological context. In comparison, perhaps the majority of threats to the health of isolated peoples consist of elementary infections and forms of injury rather than communicable diseases.⁹⁶ This assessment should not be read to discount the threats to health they face e.g., the (relative) high rates of child mortality and death due to bacterial infections (Walker et al. 2015). These afflictions which deserve careful consideration and should be treated by all feasible means underline the difficulty of comparing health across context. Depending on the context, different health threats are faced.

⁹⁵ Comparing isolated peoples with great apes in the wild could be objected against as being derogatory. Upon further inspection, this comparison has no undesired consequences. Judging our ethical intuitions and theories across contexts and species is helpful in itself. In addition to bringing out similarities I have also provided discrepancies relevant to our obligations in terms of health policy. The same objection would apply to comparing our obligations to great apes living in modern societies with our obligations towards humans in society, which I do not consider as problematic in and of itself either.

⁹⁶ Needless to say, no or limited communication with isolated peoples explains the dearth of knowledge pertaining to their lives and well-being.

Initiating interaction with isolated peoples very likely entails two distinct threats to their health. Firstly, they lack any previous exposure (either by social contact or by means of immunization) to infectious agents common and relatively benign to humans in modern societies. The same applies to great apes with respect to reverse zoonotic diseases. Contact can have devastating consequences, even if all reasonably possible, medical precautionary measures are taken (Ferreira & Castro 2015). Secondly, isolated peoples are particularly vulnerable to communicable diseases once interaction with the outer world has been established. Recent integration into modern societies puts indigenous communities at risk in several ways. Present-day societies impose specific and significant health threats by means of their distinctive environments; such threats often disproportionately endanger the health of the socio-economically disadvantaged (Valeggia & Snodgrass 2015).

Although seclusion characterizes isolated peoples and great apes living in the wild, a notable difference can be observed too. For, it is not evident that great apes are autonomous. Autonomy is central to the human right to be left alone, to determine their own course. Isolated peoples have every right to refuse the interference of humans living in modern societies, however benign their intentions may be. As humans they have the ability not only to devise their own life plans but also to bar interference from others if they wish to do so. Shared humanity, dealt out in terms of autonomous agency, affects interactions between isolated peoples and modern societies, which in turn curbs benevolent actions, as these deeds require consent or request. People living in modern societies should not implement vaccination strategies in order to benefit the health of isolated peoples without consulting them first. Just because it lies in their interests from one point of view does not make it permissible or required to do so. Rather, a specific form of communication channel is necessary in order to discuss the risks and the supposed benefits.⁹⁷

This assessment reveals a significant difference with great apes living in the wild whereby they are not sovereigns in the relevant sense, nor do they have the right to be left alone. At the same time, the lack of autonomy does not immediately entail any unbridled paternalism. As argued, agency comes in various degrees, and great apes display high levels of agency. This

⁹⁷ Within another context, consider humans living in modern societies who hold the liberty to reject immunization. If we accept autonomy as the ground for such liberty, we should do the same with regard to people living outside of society.

phenomenon translates in duties imposed upon us with respect to the capability of these apes to make meaningful choices about their own lives.

Measures aimed at protecting the health of these apes, however, can permissibly limit the scope of their freedom. Whereas isolated peoples need to be contacted before implementing vaccination strategies, matters notably differ with regard to great apes living in the wild. Although this is troubled by practical considerations, in principle we should protect them against standard threats by means of vaccination. If it is possible to significantly improve their health, the fact we cannot ask for their permission to do so should not prevent us from taking action if the risks are acceptable. The agency of great apes provides them with ample capacity to devise their own lives. Nevertheless, considering their restricted health agency, we should not hesitate to protect them against standard health threats. In other words, their health interests and a lack of health agency overrides the right to be left alone.

If we reflect upon habituated great apes, however, the comparison with isolated peoples falters. Contact has been thoroughly established by means of gradual exposure to human presence, resulting in what is sometimes considered indifference with regard to humans at close proximity (cf. Klailova et al. 2010). Rather than asking the question if interaction is permissible or required, the question becomes: to what extent should habituation be maintained?

7.8 What about already habituated great apes?

If habituation is harmful as a procedure itself, the damage has already been done. Newly born apes would not experience the absence of humans, nor find their presence alarming or threatening. These apes are born into a specific social context that includes frequent interaction with humans. Thus, while the harm of habituation appears substantial for those setting off from an unhabituated state, the damage would be much less for those born into it, as they do not have to go through the stress associated with the process.

Does the state of being habituated, irrespective of the process of habituation, involve harm? Considering the described effects of habituation, I deem it not controversial to understand habituation as being a form of damage. Habituation sets back the interests of those involved by causing stress, fear and behavioral changes. To what extent, then, are individuals born into a habituated community harmed?

Imagine two perspectives on the above question. Person A argues that such individuals are not harmed, because they do not suffer from the presence of humans. Person B advocates that we should stop tourism immediately in order to return them to the wildest state possible. Person A is primarily concerned about the direct harm of habituation in terms of fear and stress. The extent to which ape agency is affected is much less of a concern to Person A. Person B, however, is primarily interested in a specific form of ape agency, whereby a completely wild state is warranted. Even if apes born into a habituated community would not experience stress and fear from human presence, the human-ape interaction is erroneous as it removes the opportunity from these young apes to live in the wild. Being born into a habituated collective restricts one's range of opportunities, especially if diminishing human presence would be feasible in and of itself.

The following can be said about both accounts. In agreement with Person A, the direct harm caused by habituation is plausibly much more serious than the way it affects the agency of apes. However, this outcome does not release us from carefully assessing the state of habituation and/or the way it affects the lives of great apes in terms of their agency. There may very well be more to the harm which habituation causes than the physiological response of the apes subjected to it. As Person B advocates, humans significantly shape the lives of habituated apes, a restriction of opportunities that could damage as well as violate their rights. However, Person B understands this restriction of opportunities in terms of the natural behavioral repertoire that apes should display. It is not so much the absence of a natural state, or the presence of humans, but the restriction of agency that is ethically problematic. In other words, the unnaturalness should not concern us but the restriction of opportunities that may accompany habituation. Therefore, even apes born into a habituated community without having to experience the direct negative impact of the process of habituation could very well be harmed in the way their lives are restricted.

The following issue is: can we ethically justify retaining the state of habituation, and if so, for which purpose?⁹⁸ Perhaps, rather than limiting the opportunities of great apes, a state of habituation could also be understood as a broadening of the range of opportunities, especially

⁹⁸ One could argue that, assuming that habituation is harmful, habituated apes deserve reparations. Their rights have been violated and we must redress the harm they suffered. However, I do not immediately see how the interest-based theory of rights as developed in the present thesis would require such redressing.

if interaction with humans is not deemed to be avoided. In particular young apes may enjoy human presence, hereby triggering their curiosity. The process of habituation does however force apes to grow accustomed to humans, which makes the state of habituation more of an adaptive preference rather than a preference arising more from the apes themselves. We should enable individuals to develop, explore and pursue their preferences as much as possible. Imposing a certain form of human-ape interaction upon great apes will distort this endeavor, which is the reason why we should regard the state of being habituated as possibly involving adaptive preferences. Based on the right of freedom of opportunity, habituated apes should be permitted to express their macro-agency, determining themselves the extent to which humans may affect their lives. To answer the question whether it is ethically justified to maintain a state of habituation: to what extent any habituation should be sustained mainly depends on the apes themselves.

Should we then entirely liberate apes from human interference? Contrary to Person B, I do not argue for a particular set of behavioral patterns; in other words, a natural life. We should rather take care not to restrict the range of opportunities in an unreasonable manner. Furthermore, to some extent, restriction of agency is allowed in the light of efforts to safeguard health. Individual great apes have an interest in health as well as in developing and exploring their agency. They should thus be liberated from human interference to the extent their range of opportunities suffices whereby the protection against standard threats to their health is enjoyed.

What do these ethical considerations on habituation entail for the permissibility of tourism? Already habituated great apes should be allowed the opportunity to, over time, avoid the presence of tourists, as tourism cannot be understood to be in their interests. Rather than only assessing the risks of tourism in terms of disease transmission, which is reflected by discussions on the minimum distance, on vaccinating tourists, and on the number of visitors (Hanes et al. 2018), we should also look into tourism as a possible harmful restriction of great ape agency, as goes for research. Non-beneficial research is difficult to justify in the light of the interests of great apes. Beneficial research should be aligned with the aim of facilitating ape agency. The low-impact presence of a minimal number of health professionals is in their interests, assuming they do not impose more risks than they avert or restrict agency unnecessarily.

In sum, habituation is not in the interests of great apes. The harm and risks involved cannot be justified in themselves, as these apes have rights not to be made to suffer and to freedom of opportunity. The intentions of habituation do not reflect the interest of individual great apes *per se*. Field research can benefit these apes but need not do so. For instance, fundamental research need not generate any concrete benefits to the apes themselves. Tourism is relevant in how it creates revenues as well as a willingness to support conservation but in itself does not arise out of the interests of these apes. In addition, it is not only associated with significant risks to great ape health but also subjects them to human presence without seriously offering them any chance to avoid such interspecific interaction. While non-habituated apes could benefit from habituation in terms of health measures (e.g. vaccination, *in situ* health care), we have to balance their interests in health and agency, translating *prima facie* rights into concrete ones. In that sense, the possible health benefits of being habituated appear to become compelling as a reason to habituate only when the health of unhabituated great apes is significantly threatened (cf. Robbins et al. 2011). Given the tremendous impact of habituation, and the risks involved of increased interaction at the great ape / human interface (interspecies determinants of health), few opportunities for concrete rights to health (with the exception of, at the level of ecological determinants of health, safeguarding ecological space and perhaps the implementation of novel innovations in medical technology) are expected to arise for non-habituated great apes.

Things are different for great apes who are member of already habituated populations. Further research into the impact of human presence on already habituated apes is necessary in order to avoid any on-going harm from staying unnoticed, especially when habituation is assumed to instill indifference regarding human presence (cf. Klailova et al. 2010). Whether frequent visits of humans actually harm great apes remains in part an empirical question, but nonetheless should not be limited to the measurement of biological parameters. Human presence impacts the lives of these apes and determines their behavior to a certain degree, possibly restricting their agency. A need exists to evaluate the impact of human presence on these other aspects of their lives, including but not limited to for example biological parameters pertaining to stress. Great apes should be able to negotiate their interactions with humans, which involves a change of perspective regarding human-ape interaction, whereby humans are challenged to facilitate ape agency as much as reasonably feasible alongside considering possibilities to promote their health.

7.9 Concluding remarks

Chapter 7 has added more details to the concept of a right to health of great apes in various contexts. To begin, those great apes living within human societies should have their health needs met as a matter of justice. Securing the health needs of individual great apes should not rely merely on undoing injustice, for instance, having been subjected to invasive research. Instead, the health interests of great apes themselves would require us to shape our relevant institutions in order to reflect the health entitlements of humans and great apes alike. Citizenship is not a necessary condition for the right to health and its corresponding duties. We should take the health interests of great apes living in the wild into account, for example by safeguarding their ecological space and considering whether vaccination against the Ebola virus disease is feasible and realistic in terms of human fallibility. Three distinct motivations could underlie the endeavor to vaccinate, to wit, the protection of human health, conservation, and individual health needs of great apes. Recent discussions of vaccinating against Ebola virus disease largely neglect the latter motivation.

In principle, if feasible and with acceptable risks, the interests in health of great apes in the wild entails we should vaccinate them to protect them against standard health threats. On an interest-based rights approach, we should favor a preventive attitude towards vaccination, if possible. For, a reactive one could be based either on non-anthropocentric values or the value of collectives. Nevertheless, even on the proposed interest-based approach, other concerns may very well require a reactive attitude instead.

What precedes the actual immunization? Which level of harm to others is justified when pertaining to the aim to protect others against threats posed by infectious diseases? I have argued that the moral status of great apes imposes prohibitions with regard to subjecting them to medical research. Similar to the interdiction of subjecting humans to research the risks, costs and possible benefits of which they cannot understand, great apes should not be enrolled in medical research for the same reason. Criticizing the principle of benefitting other members of one's own species for mistakenly deeming either species- or group membership as morally relevant, I subsequently reject the principle as a possible justification for enrolling captive great apes for the sake of conservation or even to the benefit of other individuals belonging to the same species. As to utilizing great apes in research aimed at the benefit of humankind, a ban on this practice should be sustained, even in the face of devastating spread of infectious

diseases. Instead of creating exceptions, an interest-based theory of rights arguably requires a widening of scope to include non-hominid species as well.

The health of great apes in the wild can be promoted beyond vaccination, for example, by including health monitoring and a range of health measures. These procedures are almost only feasible if the great apes in question have been habituated, implying a (supposed) state of indifference concerning human presence resulting from a gradual exposure over time (cf. Klailova et al. 2010). In order to determine the demands of the right to health in terms of in situ health measures, we must first consider whether habituation is justified. This assessment involves the following ethical questions: (a) if and/or when is habituation justified and (b) under which conditions should the state of habituation be sustained?

Habituation clearly impairs those subjected to it. For, the stress and fear it causes continue for a long time, as do the associated risks (e.g., diseases, vulnerability to poaching, conflict), or interspecies determinants of health, generally involve increased human-ape interaction. That is why few opportunities for promoting health are expected to arise, and even the health interests of great apes themselves does not prompt habituation.

In the case of habituated apes, the harm caused by habituation has already been inflicted. The extent to which this habituation involves apes expressing indifference towards human presence should not be taken at face value but carefully determined through research. In addition to such investigations, we should also present the apes themselves with the opportunity to determine the extent of human-ape interaction. Tolerance to tourism, for example, may very well prove to be an adaptive preference, obfuscating the interests of great apes themselves. This outcome does not necessarily entail severing all ties, as interests in health may suffice to maintain the low-level presence of medical professionals.

By way of a conclusion, with regard to vaccination, in principle we should vaccinate great apes in the wild for the sake of their own individual health interests. In practice, however, fallibility, feasibility, as well as concerns regarding subjecting captive conspecifics to medical research restrict the likelihood of actually immunizing great apes in the wild against standard health threats. Technological advancements may ultimately play an important role in facilitating such interventions in the future.

