



An Evolutionary Point of View of Animal Ethics

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Abstract

Animal ethics raises the question of the nature of the relationship human civilization should tend to with animals. Because humanity has tremendously changed the Earth environment, this encompasses domestic species as well as wild species. To date, we defined ethical rules based on cruelty crime or application of human-centred thinking about animal consciousness and sentience. While this has numerous positive impacts in changing human behaviour about animal use, this is likely to be a dead-end reasoning because when trying to define what is fair for animals, we cannot restrict it from a human point of view. Because all life on Earth originates from natural selection processes, a more neutral way of thinking about animal ethics, which may be defined as ethics of human-animal relationships, is to define humans and animals considerations from an evolutionary perspective. This new evolutionary ethics proposes to stop the differentiation between animal ethics and environmental ethics and to replace human activities in the core of ecosystems. This may help humanity to escape the selection for its optimized fitness which co-evolved with animal exploitation.

Introduction

The observation that animals may respond to emotional states of conspecific or even hetero-specific individuals is not new. Darwin broached the question by underlying the ability of animals to express sympathy, *i.e.* the response to non-self-emotional status, and this across species barriers. More importantly, he tried to find the evolutionary origin of this animal trait, suggesting that it evolved from the selective advantages of kinship behaviour in the struggle for life (Darwin, 1872), meaning in animals presenting parental cares as mammals and birds (but see in fishes and insects). After more than one century, the need of defining what exactly non-human animals are able to feel, and from this starting point, rethink the legal status and place of animals in human societies, suddenly arises, mainly as an indirect consequence of people awareness of human-driven dramatic impacts on global climate, biodiversity, but also on a more daily basis on animal life and welfare. However, because assessable currencies are required to establish laws, animals were classified into categories based on ecological (e.g. invasive species, pest, wild, domestic) , biological (e.g. vertebrates and invertebrates) or cognitive (e.g. primates, cephalopods) traits, which should help lawyers to define ethical rules of animal use by humans animal and the resulting animals' rights (Donaldson & Kymlicka, 2011; Rollin, 2006). However, a major issue of such a thinking of animal ethics is that it remains human-centred (*i.e.* anthropocentrism) and human-thought (anthropomorphism). Indeed, the human empathy tree is far to look like the phylogenetic tree, meaning that the human empathy toward other organisms is not equally distributed among the tree of life (Miralles, Raymond, & Lecointre, 2019). Why for instance regarding cognitive capacities should be that important in defining which animals can be used for human benefits? Why considering individual lifespan or animal culling as the most important parameters in the ethical equation? All because they are what define us, citizens of modern human societies, the best. We actually transfer our wishes and expectations about longevity, euthanasia problems and death penalty to animals.

Based on differences in human cultures which produced a large panel of moral intuitions, social activism for animal rights indeed raised for multiple reasons (Herzog & Golden, 2009), but which keep all the same currencies of human morality in common. While in Biology, an animal is defined as heterotrophic multicellular organism, its legislative definition is more restricted to vertebrates or domestic animals. However, if we want to legislate in an unbiased way about animal rights, a non-anthropocentric definition of animal beings – and more largely of all living beings - should be established, and in biology nothing has sense out of evolution (Dobzhansky, 1973). In this *short Ideas* article, we aim at underlying the incongruity of defining animals from a human side, which while being understandable because anthropomorphism does not take into account what evolution has to tell us about ethics. We propose an alternative non-anthropocentric view of how thinking of animal beings from an evolutionary perspective may help us to redefine animal ethics. Evolutionary ethics defines how we should behave with human's hetero-specific living beings by freeing us from human-based cultural or emotional considerations. Because we propose that animal ethics (principally based on individuals) cannot be distinguished from environmental ethics, evolutionary ethics may also help us to solve the schizophrenic position of humankind concerning biodiversity: we know that we are doing wrong, but by doing so we promoted, so far, our own species spreading and survival. Exactly what evolution actually teaches... Evolutionary ethics is thus also concerned by human evolution and promotes the exit of humanity from the evolution paradigm.

Animal ethics from a human perspective

Ethical considerations: Usually animal ethics (animalism) is differed from environmental ethics (environmentalism). The first one supposes to defend animals as individuals, their use and their welfare. The second one proposes to defend animals as species and their related environments. For instance, environmentalists would be fine to eradicate cats as invasive species killing endemic ones in Australia but not animalists. However, the two ethics are more and more connected given

the complex consequences of human activities. Recent Australian mega-fires raised both environmental and animal ethical issues. Indeed, it is likely that two main reasons led to the increased demand of citizens, at least, in more economically developed countries, to change the policy defining our relation with the animal world. The first one is related to the fact that animals and their ecosystems are living in actually form a whole functional entity, human species included. The accelerated sixth mass extinction of the Earth history (Ceballos, Ehrlich, & Dirzo, 2017) related to the domination humans of most ecosystems, directly threatens human civilization *via* its impact on ecosystems' viability. For scientists, the fact that biodiversity is the corner-stone actor of the stability and productivity of ecosystems is recognized since a long time and became an important discipline of the ecology research field (Tilman, 2000). This is not a scientific claim based on theoretical considerations or modelling, but results from accumulated experimental and observational evidences. Decision making about protection laws needed the demonstration that the decreased biodiversity endangered numerous ecosystem services, like food production, fresh water filtering or wastes' recycling, which are all of tremendous importance for human survival. However, because human activities harmful towards biodiversity may also be largely beneficial in the short term for the human society (*e.g.* politics supporting rapid economic growth), economics and ecology had to be trade-offed (*e.g.* (Varijakshapanicker et al., 2019)). Animals belong to ecosystems and ethics issues cannot be considered separately. Thereby, wild animals' rights, but also those of farmed animals, have been mainly taken into account so far in a human biased point of view, based on the valuable societal benefits they provide. Animals stand at the collision point between our own survival considerations (what are the most profitable and productive ways to exploit animals?) and purely ethical considerations (what are the limits of our exploitation of animal resources?), leading to a split between animalists, the abolitionism and the welfarism.

Morality fundamentals: The latter point concerns the second reason for changing our behaviour towards animals is based on the special position of humans granted themselves in the tree of life (which is rather an assemblage of bushes of life, and a non-directional evolutionary process,

(Rokas & Carroll, 2006) see thereafter), as being the only species having enough cognitive capacities to think for others. The rules so far established to decide what can and cannot be done with animals inevitably followed human subjective feelings. But, of course, to a certain extent only. The assumption “can they suffer” by Bentham is not human-related but “suffering-related” (Nussbaum, 2004), even if humans also experience pain and suffering. If it is indeed “a non-sense situation if we want to establish (all) rules of animal ethics based on human morality concepts”, the assumption “can they suffer” is NOT a human morality rule, but a broad biological one. This should be recognized but as should be recognised that it is human-centred to give less importance to some arthropods as manta, spiders, ants or bees because they are sacrificing their own life, eaten alive, for the group and species sake. Such (mainly moral) concerns, for instance about cruelty towards animals, have been first presented in ancestral religious texts, but the underlying reasons remained that cruel behaviours with animals may be extended if not punished toward human conspecifics (Rollin, 2006). Again, this human-centred questioning about animals (and thereby the definition of what is an animal, e.g. not only vertebrates but insects and more, see (House, 2018)) prevailed even when animal rights started to be recognized as an important issue by the society. For instance, the codification of animal use in the mid-20th century was first restricted to nonhuman primates, excluding mice and rats (despite representing >90% of the animal models for scientific research) and farmed animals (for obvious economic reasons which could also be interpreted as evolution-derived decisions maximizing human fitness). More recently, legislation was extended to vertebrates in general (birds, anurans, fishes...) and cephalopods (Hartung, 2010). Still, what are the bases of this discrimination between animals with rights and others? Because being needs thinking more than just feeling, animals that retains some cognitive abilities can be classified as “human-like”, and then benefit of rules protecting them. Such animal awareness or consciousness (*i.e.* sentience, the ability of animals to be conscious of suffering) was established by cognitive ethologists from comparative studies of behavioural and neuroanatomy homologies between animals and, again, humans (Allen & Bekoff, 2007). An additional drawback with applying human morality to animals is that animals are amoral beings. For

instance, predation, infanticides, forced copulation have all coevolved with numerous animal life-history strategies because they may promote individual fitness, which is the driver of species evolution. We are then facing a non-sense situation if we want to establish rules of animal ethics based on human morality concepts. One may ask “what is the meaning of morality out of a human frame of reference”, what is sure is that humans are in an unbalanced system conducting to issues for all living beings, humans included. Even without morality, species live in stable ecosystems through evolutionary stable strategies (ESS). This principle of ESS is now applied to human activities without referring to morality but more to balanced system.

Extending ethics to non-animal beings: One clear dichotomy humans draw is the one between animals and non-animals as plants or mushrooms. This distinction is of course not based on role of each species or individual in its environments but on the capacity of suffering or of sentience. At our knowledge, no study showed that plants are able of sentience. Plants or mushrooms have no organs to centralize information and get mental states of what they feel (but see). However, here again this conceptualisation of sentience needing centralisation of information is quite human-centered. Even if plants or mushrooms are not able of sentience, they are at least able of different information receptions (chemical, visual, tactile, etc.) and integration. Some recent studies show that they are able to learn, to react to mechanical stress and to communicate even about this stress. Of course, we do not say that a plant is alike a vertebrate or even an insect, but the ethical dichotomy we make between animals and plants is far to be so simple. Here again, evolution of perception of humans (anthropocentrism ad anthropomorphism) may favour this ethical dichotomy.

Human interests in ethics: This is certainly a very rough picture of the present debate about animal ethics, but it appeared to be aligned with an issue strictly related to human and to its fitness (*i.e.* growth rate of human population). In fact, by following this way of thinking, we are trapped in an equation which has been simply resolved so far by natural selection: make human fitness great always! And this worked very well since the human population has never been so large, while the quality of living conditions improved exponentially over the last century. Humans care about animal

ethics at the time they can care. Evolution of civilisations shows different steps in human morality with first abolition of slavery, then, gender equality, children rights and then animal ethics. This means that when human populations feel their life quality good enough, they care about other. This process might be thought in terms of fitness too and we may wonder whether human interests in animal ethics is not fitness-oriented. For instance, wildlife trade could be more regulated in China and animal protection increases in view of the recent SARS or Covid-19 spread. The only limit of human fitness is imposed by those of its environment, and the forthcoming consequences of global warming will largely be deleterious for human populations (Burke et al., 2017). Because of that, we need to get out of the evolutionary trap of animal ethics as imposed by the current anthropocentric definition.

Animal ethics from an evolutionary perspective

Interconnected species: We are leaving in a world hosting an incredible diversity of life forms, from invisible unicellular organisms, plants to huge marine vertebrates. Earth biodiversity even transports us to old ages *via* the continuous discovery of incredible fossils of all forms. Life on Earth then first refers to the past, and the current ecosystem functioning originates from a history of co-evolution of species interactions that is 3 billion years-old. This is the very first and most important fact to recognize when trying to escape the human perspective of animal ethics. One first consequence is that ethics of animals is not different from ethics of ecosystems as all species are quite interconnected, and if one is granted of rights, the second automatically obtains the same rights. This might be directly with animals and plants being parts of the ecosystems or indirectly with protecting a flag or umbrella species as panda conducts to the protection of the all ecosystems. Recently, according legal identity to rivers protects more than only the rivers, biodiversity but also cultures and ethnises. Respect is universal, not limited to our needs or feelings. Distinguishing

animals from their environments is just driving us on the road of domestication or will transform animals into non-evolutionary objects.

Domestication and ethics: In our point of view, pets are the most common representation of non-evolutionary animal objects, being entirely integrated in human ecosystem and morality rules, and it is not surprising that they are the first granted with animal rights. Domestication is not totally aberrant in the context of evolution because it benefited both to humans (*i.e.* mainly production of food) and to animal species which succeeded in terms of diversification (in certain limits, see (Destoumieux-Garzon et al., 2019), survival, reproduction and dynamics of population. One can see farming as a human-animals symbiosis: good for all at the species level. Application of evolutionary questioning to production science actually open interesting avenue of applied research to improve farmed animal living conditions and better define their ability to adapt to the current environmental changes (Destoumieux-Garzon et al., 2019). The latter is exactly what the current laws of animal ethics want to rule out. Reducing animals to objects (“good” like pets or “bad” like human potential predators or competitors) has at least two drawbacks: it favours anthropomorphism and annihilates the reality of non-human living beings, thereby justifying human overexploitation of the ecosystems. In addition, it intuitively places humans as driver of animal species future evolution and strengthens the idea that humans do not actually belong to the animal reign, for very bad reasons like a specific evolutionary history (*i.e.* granting us with an exceptional cognitive capacity).

Replacing human activities with ecosystems: In fact, trying to define and categorise animals using the consciousness or the animal sentience argument (even through the precautionary principle, (Birch, 2017)) could largely be attributed to the self-consideration of humans to be a superior organism. However, by accepting this we forget that evolution is a random process with no directionality or final objective (and certainly not the apparition of *Homo sapiens*). Moreover, humans often try to get out from what they call *Nature*, opposing Nature to Culture, urban environments to natural ones. They do not feel belonging anymore to where they come from.

However, Nature is a concept, an abstraction invented by humans allowing humans to establish a distance between them and non-humans and to better dominate them. Replacing the human-animals/ecosystems relationship in a context of symbiosis (*i.e.* equality of species in relation to benefits) and applying it to wild species, will naturally help us to redefine but also accept animals and all livings rights (the main being to live freely), just by recognizing their role in the global functioning of the environment we are living in. For instance, humans have always accelerated the extinction of large animals because they represented a threat for humans and for livestock (Haynes, 2018), thereby favouring human and livestock population rise. The current issue represented by the population dynamics of large predators in modern countries is mainly treated in the context of economics of livestock management. However, we could also consider livestock as potential preys interacting with predators and try to select for appropriate anti-predator behaviours (Frid, 1997) that may restrain the economic costs (but maybe more importantly farmers' bitterness) within acceptable limits. These limits actually should not only apply to social categories of the society that are the more exposed to animal interactions (farmers), and the effort, to be ethic, should concern public research, food-processing industry and all citizens.

Extracting from other species for good reasons: Nevertheless, humans may consider themselves as a superior organism for good reasons. One of them is that it may help us to reassess human fitness through the regulation of human population dynamics. This remains the only way to reallocate environmental space to animals and to reduce global warming, *i.e.* to define the evolutionary animal ethics. Adopting rules that will lead to a decrease in human population is a painful renunciation of our selected inclination towards increased individual fitness. While being a crucial step for the planet, this Malthusian theory (Chu & Tai, 2001) remains the most difficult concept to explain to the population because it contraries the optimal (and so far very successful) fitness trade-off of the human species, selected over thousands of generations. As such, it is written in our genes and hold a central place in our unconscious as an animal. More political but not less important, it also challenges the individual liberty of life-history decisions of citizens. Still, such an

evolutionary puzzle, like the reproduction/longevity trade-off (*i.e.* which prevents simultaneous maximization of both traits), has previously been resolved by our species, human being the only long-lived primate with a high fertility (Walker, Gurven, Burger, & Hamilton, 2007). Leaving a successful life-history strategy is a natural non-sense as well as a radical change of paradigm for the entire society, and for those reasons is likely to be a long-term objective incompatible with the 21st century environmental urgency. Nevertheless, it is our public authorities to launch the beginnings of such a political message, and to find short-term alternatives. For instance, to help the countries to define animal ethics to wildlife, linking it with immediate economic benefits could be a solution. This will need to create a national index of animal biodiversity corresponding to an internationally recognized economic value, each species being granted with a specific value based on rareness, ecosystemic role (including for attractiveness of ecosystems for tourism), importance for scientific research and education. This would help driving international policies for environmental protection and animal rights, in relation to their economic payoffs.

Conclusion

Animal ethics is a fundamental question for human beings, not because it promptly refer to animals, but because it sends humans back to what they are. Because all life on Earth is the product of natural selection, humans are first defined by evolutionary trade-offs related to fitness. To maximize it, the environment was anthropized, including animal species selection and control of population dynamics. To do this, we also defined so far what animals should be. Rather, and using evolutionary theory, we suggest that we should make the ultimate human step to get out of the natural selection process and escape evolutionary trade-offs optimization, in human minds, to help defining what animals really are. This new evolutionary ethics proposes to stop the differentiation between animal ethics and environmental ethics and to replace human activities in the core of ecosystems. It is also a true ethical issue that belongs to economical developed countries, in which

human welfare has reached a sufficient level to care about animals and environment at a global scale. These are the bases of the evolutionary animal ethics.

Author's Note

The idea for this opinion paper pop-up during an animal ethics training for scientists given by Dr. Cédric Sueur, at the University of Strasbourg.

Author contributions

All authors listed have made an intellectual contribution to the work, and approved it for publication

Conflict of Interest Statement

None declared

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