Kimberly Spanjol and Paolo Zucca

7 Biophilia, one health, and humane education: Mitigating global risk through embracing humanity's interconnection with the natural world

7.1 Introduction: Biophilia

The most erroneous stories are those we think we know best – and therefore never scrutinize or question. Stephen Jay Gould

Humans are an interconnected part of the natural world, and in order to acquire and maintain the health of our species we must not forget our evolutionary origins. Since ancient times, poets, philosophers and scientists have celebrated the inextricable bond between humans, non-human animals and the environment.

The psychoanalyst Carl Jung stated that "*every person needs to have a piece of garden, although small, to remain in contact with the earth and therefore with something deeper in himself*". Karl Popper, one of the 20th century's most influential philosophers of science, considered "*the science of nature, together with music, poetry and painting, as the greatest realization of the human spirit*". According to Konrad Lorenz, Nobel laureate in medicine and physiology and founder of modern ethology, *"the missing link between animals and the real human being is most likely ourselves*". The acquisition of greater awareness and sensitivity toward nature and our interconnection with other species is an integral element of a disease prevention process that mitigates otherwise insurmountable risks to public health and wellness. This also facilitates an evolution toward becoming a more humane species that can ensure the survival of life on our planet. We must move from an "*anthropocentric alienation*" to an "*ecosystem integration*" approach, where humanity is in balance and interconnected with all other living beings, rather than perched in a self-appointed superior position atop a fabricated social hierarchy.

The term biophilia (*bio* – life, living and *filia* – friendship, passion, tendency) was used for the first time by the psychoanalyst Erich Fromm in his 1973 book *The Anatomy of Human Destructiveness* to indicate a psychological orientation and attraction towards all that it is alive and vital. In 1984, E.O. Wilson, a Harvard biologist and the father of sociobiology, assigned a more evolutionary and ecological meaning to the term biophilia. According to his Theory of Biophilia, the human species possesses "*an innate attraction on a biological basis for nature and for all its forms of life*" (Wilson, 1984). This interest is the product of the co-evolution between humans, non-human animals, and the environment. It is a process in which non-humans and nature were key actors that enabled the human species to evolve (Kellert, 1997).

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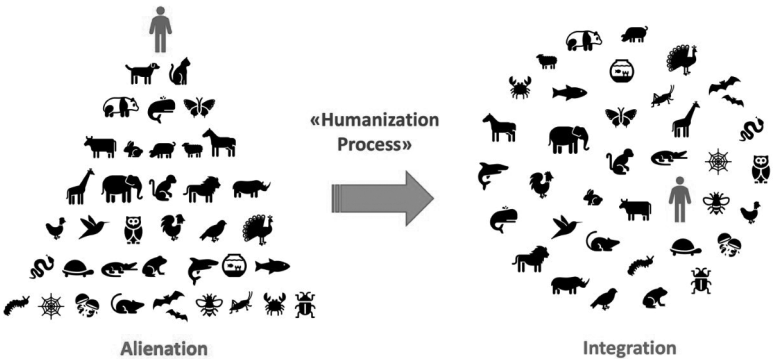

Figure 7.1: The Humanization Process.
Source: One Health (2022). World Health Organization. URL Retrieved: https://www.who.int/news-room/fact-sheets/detail/one-health.

The beginning of the evolutionary history of our ancestors took place in Africa, the continent from which the colonization of the entire planet began. It is impossible in the context of this chapter to exhaustively deal with the complex phenomenon of the evolution of the human species. However, in the context of an evolutionary approach to health promotion and education, it is important to remember what an anomaly the current epoch actually is. Our solitude as a species is a relatively recent event in the five-million-year history of human lineage. Scientists have discovered at least 15–20 different species from which ancestral humans descended, and many of these species have lived and inhabited Planet Earth at the same time, developing and adapting to different ecological niches. Until 30,000 years ago there has likely not been a time period when there have been less than at least two – and sometimes as many as five – species of hominid sharing our planet simultaneously (Dunbar, 2004). Certainly "humanity" has developed more than once, and many branches of this evolutionary tree have been lost to extinction, leaving no traces or descendants. If 30,000 years ago, *Homo sapiens* shared the earth with *H. neanderthaliensis* and *H. floresiensis*, why has our species alone remained? The explanations could be multiple: a greater adaptive plasticity to environmental changes, the development of linguistic and technological skills more sophisticated than other species, and perhaps the natural evolution of consciousness may constitute the pillars that led to the overwhelm of other species of *Homo* and to our present isolation. Many use this isolation as a pretext to justify a detachment from the natural world and from our ancestral proclivity and need to interact with nature and acknowledge our interconnection with the natural world. Humanity is at great risk to think that cultural and technological progress makes our species immune to evolutionary influence (Pievani, 2006). Our species needs exposure and growth in environments rich with natural stimuli throughout its ontogenesis in order to optimally develop physically, psychologically and cognitively. The rapid loss of awareness of this need that has happened over the

last few decades consequently generates our behavior as an "*invasive and lethal species*" for all other living beings on this planet. We are extremely efficient at destroying habitats and assaulting nature without awareness, care, or acknowledgement of harm, rather than protecting the planet we coexist with. This has led to the Zoonosecene, the new geological epoch of intensive breeding, wildlife exploitation, antibiotic resistance and pandemic disease, following the Anthropocene (Zucca 2020).

Why, despite the evidence and consequences of our predatory relationship with nature in a world we have failed to coexist in, do we continue to behave in a self-destructive way? Biophilia is not a single instinct, but rather a pack of learning rules that can be analyzed separately (Wilson 1984). When humans are removed from the natural environment, these biophilic learning rules are not replaced by new rules adapted to artificial environments. These rules remain atrophic and persist throughout generations, but do not manifest themselves in the artificial environment into which human society has projected itself. Our species' lack of exposure to the natural world during delicate phases of development is the cause of many chronic pathologies that plague us, and for this reason the mitigation of global risk through transformation of humanity's relationship with the natural world must start from the inclusion of the One Health concept in every school's curricula as well as government, industry, corporate, and nonprofit entities (Wilson 1984; Kellert 1997; Zucca et al. 2021).

7.2 One health

> *Between animal and human medicine, there is no dividing line – nor should there be.* Rudolf Virchow

The COVID-19 pandemic dramatically illustrates humanity's need to expand care and compassion toward non-human animals in our relationships and interactions with them. The likely zoonotic origins of the virus and factors leading to the pandemic implicate underlying causes related to a lack of environmental and animal protection, as well as connected human rights abuses. Human consumption of wild animals, the legal and illegal wildlife trade, live animal markets, human and non-human animal exploitation in industrialized animal agriculture, and disproportionate prevalence of the virus in minority populations all highlight the intersections of harm that are relevant to the root causes of the virus (Shapiro, 2020). While widespread concerns have focused on human-centered harm, it is the harm that our species perpetrates toward other animals that led to the COVID-19 pandemic. The One Health model acknowledges that most diseases have roots in the interactions of humans and non-human animals, and encourages alliances across human, animal, and environmental health sectors (Deem, Lane-deGraaf, & Rayhel, 2019).

The origins of the *One Health* model lie in the unitary vision of modern medicine introduced by the German scientist Rudolf Virchow, who argued since the

latter part of the 19th century that "*between human and animal medicine there is no dividing line – nor should there be*". Virchow, unanimously considered the father of modern pathology, was also the first to understand the importance of the human/animal interface as a source of infectious disease. He coined the term "zoonoses" to describe the phenomena of disease transmission from animals to humans. Starting from these scientific foundations, over decades, many scientists have contributed to the development of a unified vision of health. This unified vision includes not only humans, but other animals and the environment as well – that lead to the theoretical framework known as "One Health".

One Health is defined as a cooperative, multisectoral and interdisciplinary approach that operates at a global, national, regional and local level. The aim of the One Health model is to improve human health by monitoring the human-animal- environmental interface (CDC, 2021; Khan et al., 2021). This approach views the health of humans, non-human animals and ecosystems as an interconnected network, rather than as unrelated entities to be addressed individually. Key concepts of One Health include viewing the health of all species as needing to be balanced, focusing on assessment and disease prevention rather than exclusively on treatment and promoting a strong collaborative endeavor between human and veterinary medicine (McMahon et al., 2018; CDC 2021; Khan et al., 2021; Zucca et al., 2021). An accurate application of a One Health approach must include all of these key concepts. In order to accomplish this, physicians and veterinarians must emerge from the isolation of healthcare units and practices and collaborate to best understand and protect the health of humans, domesticated and free- living animals, and the environment. "*Medicus"* must abandon pathways of increased specialization to instead embrace a generalist approach that includes other disciplines such as ecology. In fact, the One Health approach demands that the treatment of human and animal diseases not be solely based on symptomatic therapy. Instead, one must delve deeper into the diagnostic process, searching for the causal factor that originates the "*morbus*" through a broader vision of disease – one that encompasses an understanding of the complex ecosystem represented by the human-animal-environment interconnection. This etiological diagnosis can only be obtained through study of the "*ecology of the pathogens*", defined as a declination from the classic discipline of pathology toward a One Health perspective. Evidence supports Virchow's assertions that employing a pragmatic and preventative One Health approach to endemic zoonoses is more equitable and effective than exclusively treating human cases of disease (Cleaveland, et al., 2017).

On a cautionary note, the One Health model should not be somehow misused to further cause harm to non-human animals through culling, hunting, or otherwise attempting to reduce their numbers or eliminate them in a short-sighted and erroneous attempt to "protect human health". The One Health framework requires that human behaviors which increase risks to both human *and* non-human animal health be addressed and corrected. To be clear, the model advocates for a

"collaborative, multisectoral, and transdisciplinary approach – working at the local, regional, national, and global levels – with the goal of achieving optimal health outcomes recognizing the interconnection between people, animals, plants, and their shared environment" (Centers for Disease Control website, retrieved May 2, 2021). The growing application of the One Health model can play a role in rebalancing human relationships with other animals and nature, thereby promoting true health for all.

7.3 Biological risks and zoonoses

> *The real voyage of discovery consists not in seeking new landscapes, but in having new eyes.*
> Marcel Proust

A zoonosis (from the Greek word: ζῷον zoon "animal" and νόσος nosos "disease") is any disease or infection that can be transmitted from vertebrate animals to humans. The war between humans and disease is as old as the evolutionary history of the species itself. The consequent antagonistic co-evolutionary dynamic can be explained by the Red Queen Hypothesis: a model in evolutionary biology that explains the role of sexual reproduction in response to parasites (including virus and bacteria). The model name comes from a statement that the Red Queen made to Alice in Lewis Carroll's *Through the Looking-Glass*, a sequel to *Alice's Adventures in Wonderland* in her explanation of the nature of Looking-Glass Land: "*Now, here, you see, it takes all the running you can do, to keep in the same place*". Hosts (humans) must constantly evolve, adapt and proliferate in order to survive while facing parasites that want to kill them. In fact, sexual reproduction, although biologically costly, has spread among species because those that use this reproductive strategy are able to improve their genotype in changing conditions and offer greater genetic variability in offspring that reduces the risk of infection. More than 70% of the 1,700 infectious diseases that affect humans come from animals. COVID-19, Ebola, HIV, SARS, MERS, Swine and Avian flu, Zika, and other pandemics started from sporadic phenomena limited to rural areas and went on to become global emergencies. Emerging zoonoses are a growing threat to global health and have caused astronomical economic damage in the past 20 years because they have tremendous impacts on public health, 'livestock' economies, and wildlife conservation (Cleaveland et al. 2001, Lo Iacono et al. 2016, Beirne 2020, Zucca et al. 2021, Zucca 2021a).

Why has this co-evolutionary equilibrium between human and parasites that has – while experiencing variable epidemics and mortality – predominantly allowed our species to survive, now more frequently favoring parasites and putting our survival at risk? As quoted by Marcel Proust: "*The real voyage of discovery consists not in seeking new landscapes, but in having new eyes*". COVID-19 is not the root problem, but rather a symptom of a much wider human-nature imbalance of which we ourselves are the cause.

In fact, the lack of exposure to the natural world of humans during the delicate phase of development increases our propensity as a species for ecological destruction, generates a lack of knowledge about biological risks and amplifies the negative effects of cognitive-ecological biases. The spread of these systematic errors is practically ubiquitous and most, if not all, Governments and Public Health stakeholders are at risk of error due to these biases since it is a generalized phenomenon neither correlated with intelligence nor with other specific cognitive ability (Zucca 2022).

Human survival depends on an etiological diagnosis of the causal factors favoring the rapid onset and emergence of potentially lethal zoonoses for our species. The current repeated and frequent onset of pandemics can be directly attributed to the irresponsible behavior of humans. The creation of widespread domestic animal farming that indiscriminately uses antibiotics on intensive breeding farms, the destruction of forests, the legal and illegal animal trade, and the consumption of wild animals are all factors that cause the insurgence of lethal human diseases (Zucca 2020). If the human species wants to increase its chances for survival, we must act on the root causes of the human-nature imbalance. The symptomatic therapeutic approach for any specific zoonosis only serves to alleviate suffering in the short term. If symptomatic therapy is not followed by a drastic reduction in the exploitation of nature, our species will continue to race toward extinction.

Any effort to effectively mitigate this global risk must have a starting point. Urgent measures must be put in place to reduce our assault on nature and consequently reduce the risk of new pandemics. The One Health framework can be used as a guide – however, it can be quite challenging to apply this approach to zoonotic spillover control because One Health is based on a very broad and interdisciplinary theoretical framework (Zucca et al. 2021). If spillover management activities are considered through the lens of the One Health Cycle, we can understand how this approach integrates and optimizes the spillover management process (Zucca et al. 2021) as reported in Figure 7.2.

A pathogen control process is a series or set of activities that interact to produce benefits to people and animals. The classic models of zoonotic disease prevention include three steps: monitoring, detection and control. We can increase our disease prediction capacity by inserting a fourth step named “early prediction” thanks to the development of big data and artificial intelligence. Unfortunately, all these steps are still not enough in light of the current situation. A recent school-based survey on zoonotic risk that was conducted in six countries (Italy, Austria, Slovenia, Germany, Mauritius and Japan) with 656 adolescents revealed that 28.96% of the students did not know that many diseases affecting humans come from animals, while a further 32.16% of the students did not know what zoonosis is. The circularity of the One Health concept related to the transmission of diseases from animals to humans and vice-versa was not well understood by a large percentage of the adolescents surveyed, with 31.40% and 59.91% of wrong responses, respectively (Zucca et al., 2021). Results indicated that future generations are not prepared for a pandemic, nor are

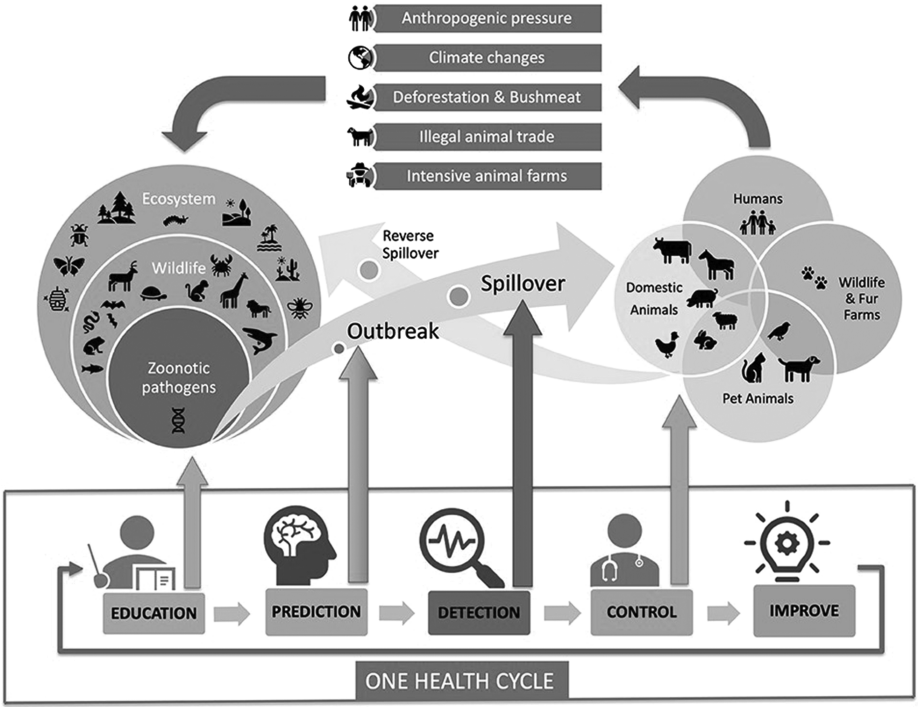

Figure 7.2: One Health Cycle.

they aware of the biological and zoonotic risks to which they are and will be exposed to. On a positive note, the research also revealed that they seem to learn quickly. In order to reduce our negative impact on nature and consequently reduce the risk of new pandemics, a first important step is to be sure that the One Health model is presented to all learners through education (the "early education" step of the One Health Cycle).

7.4 Human interaction with nature: Speciesism and entangled victimization of humans, non-human animals and the environment

It does not do to leave a live dragon out of your calculations if you live near one- J.R.R. Tolkien

Nature and non-human animals are victimized directly and indirectly on a mass scale in multiple ways through dangerous and short-sighted systemic harms that intersect with human exploitation. The scope and size of these interconnected

harms centered on the commodification of non-human animals and the degradation of the natural world is enormous. Industries and individuals that profit from using other animals for food, experimentation, human companionship, entertainment, sport, and testing harm non-humans directly and indirectly as collateral damage – and drive the victimization of humans and nature. The legal and illegal trade of animals and their parts, mass deforestation and habitat destruction, privatization of natural resources and land grabs, intensive animal agriculture, and the bushmeat trade are just some examples of devastatingly damaging and risky routine practices.

Non-human animals and nature are predominantly valued in terms of human perspectives and experiences, and humans are typically illogical in their relationships with other animals. This is reflected in ethical double standards that are the social norm and allow humans to care for some animals while participating in standard practices and consumer patterns that drive exploitation of other animals. Willful blindness rooted in human exceptionalism allows our species to see without witnessing as interconnected systems of mass media, corporate interest, education, public policy, and law collaborate to shape predominant attitudes, language, and behavior toward some humans, other animals and nature. Historical and current human moral attitudes perpetuate successful indoctrination of perceiving some humans, animals and nature as commodities for use and exploitation (Kasperbauer, 2018). This widespread phenomenon is reflected in all human social institutions and can be attributed to speciesism, the view that members of one species are morally more important than members of other species in the context of their needs and interests (Ryder, 2004, Singer, 2009).

A speciesist worldview promotes the objectification of other animals and nature as mere resources that can in certain cases be regulated for human trade and use. Other animals may be somewhat protected primarily depending on their varying relationships with humans. Gruen (2015) instead advocates for an "entangled empathy" which focuses on responsible and responsive care that acknowledges the complex relationships humans engage in with other animals. These complex relationships also result in our shared victimization. Therefore, our species must also acknowledge this entangled victimization with other animals that is largely ignored and socially condoned, reflected in the legality of many harmful practices that are generally perceived as normal, natural, and necessary for human survival and well-being (Joy, 2011). Reality is quite the opposite, and these belief systems pose continued global risk to all humanity as well as other species. Even when acts perpetrated against non-human animals and nature are criminalized, laws are often inadequate and insufficiently enforced due to widespread corruption as well as denial of the victim and minimization of the victimization, rendering them effectively meaningless.

The emotional inner life of non-human animals, while scientifically well-documented and part of a rapidly growing knowledge base, is not adequately reflected in laws that are stated to protect them (Beckoff, 2008). Laws and policy regulating

the treatment of other animals vary on a spectrum from a negative state of "*illfare*" (a term coined by Sztybel 2006) to a defined optimal state of "*welfare*". Currently, existing legislation typically attempts to address animal welfare, but few laws enable true protection and even fewer recognize any rights of other animals (Wise, 2000; Zucca, 2009). Laws addressing animal "*illfare*" would help to reduce harms and risks facing humans as well as non-human animals (Sztybel, 2007).

Anthropocentrism can be used interchangeably with humanocentrism, the concept of human supremacy or exceptionalism, that drives speciesism and the tendency to consider humans as being separate from nature and other animals. This allows our entangled victimization to remain largely hidden as the treatment of other animals and the environment as nothing more than inexhaustible commodities for human use without repercussions persists. This is evident, for just one example, in the number of animals slaughtered and consumed globally for food, which is estimated to be approximately 70 billion (Faunalytics, 2018). According to UNFAO, low estimates of the numbers of aquatic animals killed for human consumption, while they remain unrecorded, were anywhere from 790–2,300 billion in just the decade between 2007 and 2016 (UNFAO, 2020). These harms are not limited to physical injury or death, and also include mental and emotional distress. Animal agriculture and commercial fishing are also associated with significant environmental harms that impact wildlife through pollution, intensive land and water use that drives deforestation and greenhouse gas emissions that fuel the climate crisis, and routine practices that kill non-target animals – for example, the killing of wild "livestock" predators, "bycatch" and "bykill" (Almiron et,al., 2016; Chai et.al. 2019; Hunt, 2015; Inoue, 2017; Kemmerer & Doop 2015; Reynolds et. al., 2014). Noske's (1989) concept of the Animal Industrial Complex highlights how efficient, legal, and state-sanctioned systematic harms perpetrated by humans against non-human animals and nature, as well as oppressed humans, are enabled through inter-related transnational corporations, government policy, science, and individual acts. Economic, cultural, social and affective dimensions of this system support the commodification of animals and nature on a global scale.

Almiron (2016) exemplified the Animal Industrial Complex by highlighting interconnections of the animal agriculture industry with other global industries. Consider that producers of GMO seeds grow crops that are treated with fertilizers and herbicides from the chemical industry to feed to animals used for food. This feed is treated with medicines produced by the pharmaceutical industry after being tested on other non-human animals in an effort to control disease rampant in commercial animal feeding operations (CAFOs) so that animals can be packed as tightly together as possible. The bodies, parts, and products of non-human animal female reproductive processes in the form of milk and eggs are farmed and transported through state-maintained infrastructure – from slaughter to market – through fuel provided by the oil industry. These products are then marketed through mass media to drive consumer demand (Nibert, 2016). Other aspects of these systems are less obvious

and sustain the system through state-involved legislation such as 'animal welfare' and food safety laws, infrastructure that facilitates the transport of 'animal products', and the purchasing of them to feed hospital patients, students, prison inmates and others in public care, while also providing financial subsidies for 'livestock' farming (Almiron, 2016). Publicly funded media promotion and direct advertising by corporations have been very successful in normalizing and stimulating increased, daily 'animal product' consumption (Nibert, 2016).

The perpetuation of these systems through imagery and rhetoric has become so ingrained in individual and cultural identity and reinforced via emotional attachments – that *preferences* are no longer seen as *choices*, even when other less harmful options exist. Instead, despite extreme risks, these visible and invisible systems are interpreted as an integral part of being human. Any scrutiny of them is often attacked, despite the scale of harm and entangled victimization of humans, non-human animals, and the environment perpetrated (Fiddes, 1991; Adams, 2004; Stewart and Cole, 2020). This ensures the smooth operation and continued profitability of transnational corporations that depend on state-maintained infrastructures, subsidies, and legal frameworks as well as media and marketing representations that minimizes their tremendous risk and harm. This entangled victimization creates unsustainable global risk.

Humanity must move forward with a new way of seeing and interacting with other animals and the natural world to which our species is inextricably linked. Despite exposure of these harms that are widely available and easily researched, scant media attention and cognitive dissonance perpetuates their invisibility (Freeman, 2016). Therefore, deeply exploring, highlighting, and effectively communicating the affective dimension of the Animal Industrial Complex and the interconnecting social structures that construct demand for "animal products" through education and presentation of alternative choices and replacement behaviors is crucial toward interrupting this largely unscrutinized and extraordinarily dangerous behavior that continues to threaten all life.

7.5 A biophilic humane education: Steps toward connecting the disconnect and increasing prosocial attitudes, behavior, and policy

> *Human beings, who are almost unique in having the ability to learn from the experience of others, are also remarkable for their apparent disinclination to do so.* Douglas Adams

A comprehensive understanding of intersectional harms, expanded notions of empathy, and entangled victimization that includes non-human animals and the environment is essential toward protecting humanity as well as other animals and nature. Our species' interdependence on other animals and the natural world requires this.

While individual and systemic biases toward other species and nature persist, evidence supports that shifts in attitude and behavior can be learned (Ascione 2001; Itle-Clark & Comaskey, 2020; Weil, 2006; Zucca et. al., 2020). While all human groups have different patterns of thought, emotion, and behavior driven by specific antecedents and consequences unique to their individual social, geographic, and political contingencies, practices can be applied to shape prosocial attitudes and behavior in meaningful ways. Regardless of differences in culture and place, it is imperative for all of humanity to follow indigenous knowledge practices that raise awareness of the interconnection of all life that cultivate increased empathy and compassion for other humans, animals, and the earth (Bruchac, 2014). Human moral attitudes and cognitions impact emotions and behaviors that are required to reduce global risks to social, political, and economic security. Transforming and delivering educational and training discourse widely and across disciplines and sectors is crucial. This education should not be limited to young learners, and should be applied broadly in higher education, the public sector, and industry across disciplines and fields (Spanjol, 2020). Humane Education and humane pedagogical best practices provide practical tools toward developing the perspective taking, critical thinking, and problem-solving skills needed to accomplish this overwhelming endeavor and manage the risks that humanity faces in the 21st century (Itle-Clark & Comaskey, 2020; Weil 2006). Human moral attitudes shaped by past histories and current practices of dominion and oppression, selfishness and greed, short-term thinking and consumerism, and a disregard of empathy and compassion have led to an anthropocentric blindness and victimization of less powerful humans and the natural world (Kasperbauer, 2018). While present circumstances appear bleak, evidence supports that common human attitudes and beliefs which inherently entitle our species to these moral priorities over others seems to appear late in development, and are therefore very likely socially acquired – implying that they can be unacquired as well (Wilks et.al., 2021). Default systems of indoctrination that have long been in place to teach humans that marginalized people, other animals, and planetary health have diminished importance are social constructions. In order to move toward alternative ways of thinking and being, a clear alternative model must be presented in order for learners to recognize options in commonly taught human-centered thought and behavior patterns. Humane Education can be examined as an alternative approach that provides eco and biocentric values and aligned behavior to emphasize respect for the interdependence of all life. Relevant to humanocentric concerns, expanding empathy toward non-human animals also appears to increase the capacity for greater empathy toward other humans as well (Ascione, 2001).

Humane education is defined as learning which is inclusive of compassion and empathy toward people, animals, and the planet and the interconnection among the three (Academy of Prosocial Learning, n.d.; Association of Professional Humane Educators, n.d.; Humane Education Advocates Reaching Teachers, 2019; Weil 2006).

Furthermore, Humane Education and Pedagogy uses education to nurture respect for all living beings and examines the intersection of social justice issues with a focus on identifying *systemic* problems and solutions. An examination of the "true price" of humanity's relationship with other species and how it impacts all stakeholders in terms of human rights, animal protection, and environmental stewardship is key. The focus is on systemic solutions, asking learners to explore any alternative behaviors that will cause less harm and promote prosocial outcomes (Weil, 2006).

While ethics, character education, and moral growth and development have long been a focus of educators, and even mandated by law in many places, clear teaching approaches including the examination of implicit and explicit biases and related behavior have been addressed only relatively recently in educational settings due to successful social justice work and movements (Itle-Clark & Comaskey, 2020). Successful social justice activism shapes educational interventions and procedures, and in turn education further shapes and evolves social justice movements. Harmful human-animal interactions and relationships, within and outside of educational settings, have been largely ignored and not interpreted as a social justice issue. Addressing and recognizing the plight of non-human animals as an intrinsic element of social justice discourse that should be included in educational settings has been proposed by humane education models alone. As explained by Itle-Clark & Comaskey:

> Within a humane approach to education (a humane pedagogy), species is an intersecting identity in the same way that other forms of stratification such as race, class, age, and gender are. The privileges or disadvantages inherent of each intersecting component become equally valid. . . The providence of human-kind is linked to humane work and the development of the prosocial traits that create a world in which all living beings are afforded the ability to live as they were meant to, in a fair and comfortable way. In order for this to occur, society must continue to provide humane education and most importantly, to expand the framework of how this education is delivered so the lessons are fair and equitable, without bias toward human or animal-kind, and designed to support each learner (p.10).

Itle-Clark & Comaskey go on to provide a comprehensive account of the evolution of moral education models and the predominant exclusion of animals. A humane pedagogy empowers learners to identify their values and align their behavior in accordance with them through critical thinking, perspective taking and reflection. Implementing a humane pedagogy can help learners identify the processes of their thinking to reveal implicit and explicit biases behind the creation of their values, attitudes, morality, and ethics. Humane education principles and methods must be applied broadly and beyond the classroom to forge an alternative way of thinking, being, and solving social problems and formidable risks to humanity moving forward.

Our education and other socially constructed systems are products of our inequitable shared histories, increased privatization and corporate incursions (Urban, Wagoner, Gaither, 2019). All of these systems intentionally and unintentionally perpetuate moral blind spots that minimize the inherent worth of certain humans,

non-human animals and the environment and lead to the maintenance and cultivation of further implicit and explicit bias against them. These systems are varied, violent, and oppressive, and nearly every human, if not all humans, participate in them as there are few apparent or easy alternatives. This is the case regardless of human status and victimization within these systems that are birthed from fabricated social hierarchies. Examining biases toward non-human animals and the natural world provides a unique opportunity to practice awareness, deep examination, and possible transformation of attitudes and systems that are the products of cultural and structural violence – and the root cause of all social harms perpetrated against other animals, including other humans, and the environment (Galtung, 1969).

Education and training play a central role in developing leadership and moral behavior in our complex, rapidly changing, knowledge-based society. Moral growth does not always fit neatly into established disciplines, and educators in all settings need essential theory and formative research to support them in creating curriculum and applying methods to effectively expand ethical development, social responsibility, civic engagement, and other prosocial behaviors. Without these compassionate guidelines, ethical people largely turn a blind eye to the everyday commodification and exploitation of other animals and the natural world. Widely held implicit biases prevent educators and learners *in all settings* from including animal and planetary concerns in the vast majority of teaching environments. Our individual and collective empathy is dampened regularly as we ignore the exploitation of nature that maintains, reinforces, and expands oppressive power structures and occurs with most of our consent and collaboration (Joy, 2011; 2019). It is not only morally imperative that institutions of formal and informal learning and teaching recognize and illuminate these ethical blind spots; it is imperative for the survival of our species. These blind spots are at the root of widespread and systematic human caused suffering inflicted on animals, the environment, and ultimately, ourselves. Our anthropocentric worldview can possibly spur compassion for other creatures when we reject the single focus and willful blindness that has thus far kept us on a steady path toward destruction and cruelty. A true anthropocentric worldview would accept the reality that human well-being and survival is interconnected and entangled with consideration and care of other species.

Ideological shifts in discourse and thought required for this type of trans-discipline cultural, societal, economic and political transformational change has a starting point that has been developing over decades through the interdisciplinary field of Human-Animal Studies (HAS). A steadily increasing group of scholars across fields provide frameworks to include new ways of thinking, learning and training. Shapiro's (2020) comprehensive work examining the past, present and possible future of this field notes a wide variety of involved disciplines that include the following:

> animal law – anthropology – biosemiotics – communications – conservation – criminology – cultural studies – development studies – education – environmental studies – geography – history – literary studies – performance studies – philosophy – political theory and science – psychology – religion – semiotics – social zooarchaeology – sociology – urban studies – women's and gender studies (p. 814).

As Shapiro (2020) notes, "given the sixth great extinction, global warming, and ocean pollution, our obligation to animals has never been timelier and more compelling". The resources we need to consider other species and a collaborative and compassionate existence exist and are growing. Applying research and findings from the rapidly growing field of Human Animal Studies that are delivered through a Humane Education framework and pedagogical best practices to teach, train, and develop public policy and practice can ensure that they are implemented ethically and with consideration and care toward the health of all humans, other animals, and our environment.

7.6 Interconnected harm impacts humans, non-human animals and the environment: A discourse of entangled victimization in the zoonosecene

> You can often change your circumstances by changing your attitude. – Eleanor Roosevelt

Reducing risk of human extinction calls for a transformation of humanity's perception of our relationship with nature and other animals. Relearning our patterns and interactions with other animals and nature is extraordinarily challenging. Dominant language and imagery across cultures shapes human perception regarding whether or not other animals and nature are even worthy of our attention. Michel Foucault's (1926–84) theories of power-knowledge and discourse are helpful to understand how power and knowledge are interrelated. This is represented in the majority of language and imagery regarding most non-human animals and nature that is intrinsically harmful. Language and imagery shapes knowledge of who is labeled and perceived as victim and makes them more vulnerable to further harm by making the harm itself nearly impossible to recognize because the victim is considered unworthy of concern. Humans also dehumanize and justify harm perpetrated toward other humans through these processes. For example, throughout history humanity's views of non-human animals as subordinate to humans has made comparing people to 'dogs', 'rats' or 'pigs' a tool to reduce their moral worth through the process of dehumanization, making it acceptable to victimize and harm them (Almiron et.al., 2016; Kasperbauer, 2018; Plous, 2003). At its most extreme, animal-based name-

calling has been used to render the victims of genocide as deserving of violence such as Nazi propaganda comparing Jews with lice or rats, or describing Tutsis as 'cockroaches' prior to their victimization in the 1994 Rwandan genocide Almiron et. al., 2016; Kasperbauer, 2018). Human moral attitudes are shaped by language and imagery that promote the victimization of non-human animals and nature by powerful, economically motivated social systems.

Foucault argued that power is productive rather than repressive – that it instigates action rather than stops action. Foucault applies this argument to the experiences of criminals in nineteenth-century prisons in *Discipline and Punish*, arguing that the goal of prisons at that time was not to stop criminals from perpetrating crime – rather their purpose was to produce 'docile bodies' (1991, p. 138). Docility equaled utility, and a corrective penal regime could remake someone into a productive working citizen that was an asset rather than a burden to society. As knowledge of each prisoner was produced, responses of the regime could be altered to secure and gain more power. The interconnection of power and knowledge could then be applied to networks of state social systems and institutions such as military, legal and justice systems, schools, hospitals, and more to create "useful citizens" (Foucault, 1991). Almiron et. al. (2016) applies this extension to nonhuman animals in order to understand how their "usefulness" to humanity has been systematically created. This can also be applied to all human exploitation of nature. The disciplining of nature and non-human animals to serve human needs has gone to such extremes that humanity's alienation from which it is in reality an inextricable part of, has created a blindness to the harm it is itself experiencing. Power structures create and reinforce hierarchies through language, imagery, and behavior to ensure its persistence through isolation and disconnection from nature and all non-human life. This language, imagery, and behavior that objectifies other animals and nature as objects to enable their victimization has ultimately caused our own. We must create a new discourse to understand the entangled victimization of humans, non-humans, and nature that this power structure creates and maintains.

Discourse can be defined as an authoritative system of communication, encompassing language, images and symbols. It is a central concept in the analysis of harm. Zemiology, the study of social harm, is used to analyze relationships between crime, harm and the state, and to explore relationships between power and resistance. Discourse, and arguably all forms of human communication, shape cognition, emotion, and actions that develop habitual patterns of thought and behavior – it is never neutral. A new discourse to transform harms perpetrated against nature and non-human animals requires a number of humanocentric views to transform. Namely, a true humanocentric approach must represent the reality of humanity's entangled victimization with other animals and the environment we share. This includes using intentional language, images, and practices that connects humanity to other animals and nature rather than separating us to transform mutual well-being and interconnection as normal, natural, and necessary – and to replace the current

harmful predominant structures that disconnect us through ordinary social processes that create incalculable risk for humanity. Humans must move away from viewing harms against other animals and nature as inevitable, and understand that these harms impact our species directly.

Current humanocentric discourse makes it difficult to recognize nonhuman distress as resistance to the power relations we are all indoctrinated into accepting. The reduction of nonhuman animals and nature to objects for human use is perpetuated by their exploitation through capture, confinement, slaughter, dismemberment and packaging as commodities to market. An alternative discourse is needed to construct a moral view of non-human animals and nature that entangles their victimization with our own. The pervasive reach of the dominant discourse that promotes this entangled victimization is difficult to counter. However, discourse is an important analytical tool that can be used to identify how humanocentric harms are perpetuated, as well as develop alternative views to counter dominant discourses that cause harm to humans, non-human animals, and the environment (Almiron et. al. 2016; Foucault, 1991; Joy, 2019).

The Anthropocene has been a geological epoch characterized by a significant increase of the impact of human activity on our shared ecosystem. It has been a short evolutionary period, as we have now entered a new period that can be called the Zoonosecene, characterized by the increasingly frequent appearance of pandemic infectious diseases transmitted to humans by animals (zoonoses) (Zucca, 2020). Can this counter-discourse shift our relationship with nature and other animals and enable humanity to acknowledge entangled victimization and avoid extinction? As in any audit process, we cannot limit ourselves to identifying only the critical points of the system (see Table 7.1). We must also provide corrective actions to restore the functionality of the system, keeping in mind that the time available to reduce risk and restore balance is extremely limited.

Table 7.1: One Health Audit with Critical element and Corrective measures lists.

One Health Audit: Critical Elements
– Species isolation and alienation has generated a false perception that our species is disconnected from other animals and ecosystems.
– Humans consider themselves to be the most intelligent living species, but do not consider that some forms of intelligence are a secondary effect of evolution and does not necessarily constitute an evolutionary advantage – in fact, as argued here, it can prove to be extremely risky.
– Current, dominant humanocentric discourse perpetuates many cognitive biases. For example, humanity has an innate tendency to underestimate biological risks.

Table 7.1 (continued)

One Health Audit: Critical Elements
– The development of technology does not make us immune to humanity's victimization of other animals and the natural world.
– Our species in general, including policy makers and others who hold power, lack the capacity and motivation for global vision.
– It took only one of many Coronaviruses to remind humanity of its evolutionary weakness and to highlight how we must quickly stop exploiting other animals and the planet in order to prevent the extinction of our species.
– The repeated and frequent onset of pandemics can also be attributed to the irresponsible and harmful behavior of humanity. In particular, the creation of enormous and intensive animal domestication for consumption, the indiscriminate use of antibiotics on concentrated animal feeding operations, the destruction of forests for agriculture and illegal logging, the legal and illegal pet and wildlife trade, and the trafficking, warehousing, slaughtering and consumption of wild animals are all causal factors leading to the insurgence of lethal human diseases.
– The COVID-19 pandemic is only a symptom of more widespread issues that are the root causes related to the assault of human activities on other animals and our ecosystem.
– The more we increase the human-animal interface, the more the health risks to which we are exposed increase.
– It is a false notion that other zoonotic diseases are waiting their turn and will not emerge as we confront SARS-CoV-2.
One Health Audit: Corrective Measures
– From a medical viewpoint, it is useless treating the symptoms of a patient without eliminating the causes of the illness simultaneously, because true healing cannot occur. Similarly, it is useless developing ever more powerful antibiotics or increasingly sophisticated vaccines unless we reduce the assault by our species on other living beings. We must restore the balance and recognize the interconnection between our species, other animals, and ecosystems.
– We must recreate and implement a truly humanocentric discourse toward health prevention and treatment. We have to shift from reacting to symptomatic rather causal solutions and recognize and act on the knowledge that humanity's victimization is entangled with the harm we perpetrate against other animals and the environment we share.
– There are currently more than 1,000 outbreaks of High Pathogenicity Avian Influenza in Europe alone. Several people have died due to avian influenza virus spillovers during the recent past months and some countries such as Russia are already developing a test system and vaccine for Avian flu. Recombination between human and avian flu viruses could easily generate a new pandemic with a 60% mortality rate, making coronaviruses seem mild in their devastation. Policy makers must act NOW to shift discourse and focus on transforming root causes that facilitate the resurgence of new pandemics. Our species will not be able to survive another and possibly concomitant pandemic.

Table 7.1 (continued)

One Health Audit: Critical Elements
– The mitigation of global risk through a transformed relationship between humanity and the natural world can start with the widespread inclusion of the One Health model on micro and macro levels that is rooted in scholarship from the robust and developing field of Human -Animal Studies and applied through Humane Education and Pedagogical best practices in education, government, corporate, health care, media and other entwined systems.
Available resources and training institutes such as The Academy of Prosocial Learning, Humane Education Coalition, Institute for Humane Education, academic think tanks such as Animals and Society Institute, and data repositories such as Faunalytics offer a wealth of information to assist in developing ethical educational opportunities and public policy that can reduce and hopefully eliminate the entangled victimization of humans, non-human animals, and the environment that is causing unprecedented global risk and harm of the Zoonosescene (see Appendix 1 for a list of suggested resources).

Source: One health (2022). URL Retrieved: https://www.who.int/health-topics/one-health#tab=tab_3.

7.7 Conclusion

Less powerful humans, non-human animals and the environment are victims of commodification and biases that lead to rampant abuse, exploitation, and oppression that is systematically perpetuated without adequate protection. There is relatively little awareness or acknowledgement of these harms that impact all life due to a number of reasons that include economic greed and a humanocentric, speciesist worldview – and even less understanding of how these harms directly impact human health. Education, policy, and practice rooted in Biophilia, One Health, and Humane Pedagogical frameworks as well as Human-Animal Studies scholarship promotes individual and systemic transformative relationships with the natural world that acknowledges and emphasizes humanity's deep interconnection with the well-being of other species and the environment we share. Embracing and utilizing these approaches are crucial steps toward solution-based interventions that address root causes of human, animal, and environmental harm to mitigate global biological risks and zoonoses that impact all social and political spheres. All humans, non-humans, and our environment share interconnected needs. We also share our greatest threats. To experience true global health and security, human systems across sectors must take action to place extreme value on nature in order to create a healthy and stable world.

The COVID-19 pandemic presents humanity with a significant opportunity for prosocial change and growth. This requires changing our relationships to nature, other animals, each other, and ourselves. An awareness of our interconnected finitude may propel humanity to respond to risks to its own survival that our current practices have created, and allow us to co-exist in more meaningful ways. COVID-19

has opened the door to this alternative pathway. While nature is a profound teacher, humanity must choose to respond to her lessons. This formidable endeavor demands a re-education and the immediate cooperation of us all.

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