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**The ethics of conservation: a critical analysis of
Compassionate Conservation approach**

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Abstract

It was estimated that up to 30% of all species will be extinct by 2050 and species extinction is the main threat to biodiversity. Conservation biology is a multidisciplinary science that was developed to address this loss of biodiversity. However, animal welfare is a rising concern in wildlife conservation biology and critics are increasingly questioning the ethics and motivations that underpin conventional conservation practices such as killing animals for conservation purposes.

Compassionate Conservation is a recently emerged approach that, founding on virtue ethic, combines the fields of conservation and animal welfare. It's guiding principles are: Do no harm, Individuals matter, Inclusivity, Peaceful coexistence.

Compassionate Conservation has been harshly criticised by traditional conservationists who often use consequentialist decision making processes in which the focus is on species, populations, and ecosystems. However, traditional conservation has to deal with many failures and with growing public concern for animal welfare.

The aim of this thesis is to critically explore and challenge traditional paradigms in wildlife conservation by examining the literature, emphasising the need for a shift toward more compassionate and inclusive frameworks that consider both individual animal welfare and ecosystem health.

Introduction

In the last 30 years, 420 million hectares of land have been deforested, much of it in tropical areas. Every year, about 10 million hectares are lost due to the conversion of forests into agricultural land (FAO 2020). 80% of global deforestation is due to the need to make room for meat production pastures, soya and palm oil plantations required by western countries (WWF 2021). The impact of human activities is so extensive that a group of researchers quantified the ‘anthropogenic mass’, defined as the mass embedded in inanimate solid objects made by humans, and calculated that in the year 2020 it surpassed all global living biomass. The global mass of produced plastic is greater than the overall mass of all terrestrial and marine animals combined (Elhacham et al. 2020). The Ellen MacArthur foundation (EMF 2024) estimates that if we don’t change how we design, use and reuse plastics, by 2050 there could be more plastic than fish in the oceans.

The biomass of humans and the biomass of livestock, dominated by cattle and pigs, far surpass that of wild mammals. The biomass of poultry, mainly chickens, is about threefold higher than that of wild birds (Bar-On et al. 2018).

As the exploitation of natural resources was taking place, governments and international organisations, through laws, treaties, and policies, tried to protect habitats and regulated resource, working to address and mend the environmental damage of the past. Despite these attempts, the extinction of animals and habitats continues inexorably.

Globalisation has lead to a significant degree of homogenisation in every aspect of our life. We are losing human diversity, cultural diversity, environmental diversity and biological diversity.

In the last years, the scientific community has become aware that we are on the threshold of the sixth mass extinction. International Union for Conservation of Nature (IUCN 2024) suggests that we are currently losing species at a rate that is 1,000 to 10,000 times the natural background rate. This means that, on average, dozens of species are estimated to go extinct every day, with thousands potentially lost each year. In the last decade alone, IUCN has confirmed the extinction of at least 160 species.

Currently, there are more than 163,000 species on The IUCN Red List, with more than 45,300 species threatened with extinction, including 41% of amphibians, 37% of sharks and rays, 36% of reef building corals, 34% of conifers, 26% of mammals and 12% of birds (IUCN 2024).

Extinctions play a major role in the decline of biodiversity. Whenever a species disappears, a distinctive part of the ecosystem is lost and since species are interconnected, the loss of one, can impact the survival of others, disrupting key natural processes such as pollination, seed dispersal, and food webs.

The ongoing reduction in biodiversity is largely the result of human activity. Human population growth and increasing per capita consumption are indeed the primary drivers of species extinction. These factors contribute to habitat destruction, pollution, overexploitation of resources, and climate change, all of which have significant negative impacts on biodiversity (Pimm et al. 2014). Conservation scientists summarise the greatest threats to biodiversity with the acronym H.I.P.P.O.: Habitat Loss, Invasive Species, Pollution, Human Population growth, and Over-harvesting (Wilson 2017). These activities are accelerating the extinction rate of many species and this acceleration severely compromises global biodiversity, with many species unable to adapt or migrate quickly enough to survive human-induced changes.

In this context of global ecological crisis, wildlife conservation is more crucial than ever. Preserving biodiversity is essential to avoid additional extinctions. By conserving habitats, safeguarding endangered species, and managing natural resources sustainably, it is possible to lower the extinction risk for many species. However, as these measures become more urgent, awareness about animal welfare is growing among the public and experts. The debate between those who promote a strictly ecocentric approach, centred on environment and ecological community and those who advocate for a vision that includes individual animal welfare, is becoming increasingly intense. This tension between ethics and traditional conservation raises crucial questions about the future of biodiversity management. Since its beginnings, indeed, conservation has focused on ecosystems, species, and populations, overlooking the needs of individual organisms (Soulé 1985). Darwin's theory of evolution, which affirms natural selection and survival of the fittest, has been used by conservationists to justify neglecting individual animal welfare and limiting their ethical obligations to

simply letting nature run its course. While this rationale might be appropriate for wild animals that remain untouched by human influence, it falls short when considering animals that are directly involved in conservation initiatives. Alongside the development of knowledge in animal physiology and ethology, laws have been enacted (at least in Western countries) to protect animals under human care. However, regarding wild animals, a gap has emerged. Some animals began to be regarded as more valuable, while others were deemed to have no rights whatsoever. This classification of certain animals as more deserving of consideration than others remains prevalent, and it can be argued that conservation biology is fundamentally based on this distinction. In light of research about animal consciousness and emotions, however, many practices that are currently implemented begin to seem cruel and outdated. Global communication and the sharing of information, combined with increasing sensitivity towards animals, are challenging the old conservation system.

In this context, Compassionate Conservation places as the point of intersection between conservation and the welfare of individual animals.

This thesis aims to analyse the concept of Compassionate Conservation in depth, exploring the context in which it developed, its motivations, its principles, and its practical applications. To achieve these objectives, the research was conducted through a theoretical analysis and literature review.

The first chapter provides an historical and theoretical overview of traditional conservation and animal welfare science with focus on the concept of animal welfare and the ethical theories involved in conservation. The second chapter examines the origins and development of Compassionate Conservation, detailing its foundational principles, comparing it with current conservation methods, and reviewing specific examples of both conservation approaches.

The third chapter analyses the criticisms that have been raised by traditional conservationists to Compassionate Conservation.

Finally, the fourth chapter discusses the practical and ethical implications of Compassionate Conservation, analysing and contextualising the criticisms that have been raised.

CHAPTER ONE

Historical and ethical roots of wildlife conservation

Conservation Biology and Animal Welfare Science are two distinct yet interconnected fields within environmental sciences. Despite the close relationship conservation biologists have strongly distanced themselves from animal welfare and animal welfare scientists have generally overlooked conservation biology (Fraser 2010).

“Conservation and animal welfare, however, are conceptually distinct, and they should remain politically separate” wrote in his influential essay titled *What is Conservation Biology?* Michael Soulé in 1985.

Indeed, even though the two disciplines shown the same concern over animals, especially over the adverse effects of humans on them, there has been limited interactions between animal welfare scientists and conservation biologists and they approach these goals with different priority and methods (Martínez-Abraín 2019). Soulé furthermore stated:

Although disease and suffering in animals are unpleasant and, perhaps, regrettable, biologists recognise that conservation is engaged in the protection of the integrity and continuity of natural processes, not the welfare of individuals.

These different perspectives developed along two fairly distinct lines until they diverged, both in theory and in practice, leading to the emergence of two distinct fields of science, both stemming from societal concern for animals but approaching them from different solutions and addressing separate issues. Conservation biology focuses on wild animals, dealing with concerns at the level of populations, ecological systems, and species, with key topics including biodiversity, extinction, and ecological integrity. On the other hand, animal welfare science centres on captive animals, primarily domesticated ones, focusing on concerns at the level of individuals, with an emphasis on animal health, quality of life, and affective states, particularly negative experiences such as pain and distress.

This divergent view bring tension between the goals of the two fields. For example, conservation efforts may involve culling invasive species to protect native wildlife, which

raises ethical concerns from an animal welfare perspective. Similarly, while conservationists may prioritise species survival, welfare scientists may be more concerned with the quality of life of individual animals, even if they are members of non-native or overabundant species.

1.1 Brief history of conservation biology

The roots of conservation biology can be traced back to the 19th century, when naturalists and scientists began to recognise the impacts of human activity on wildlife and ecosystems. It was in this period, with industrial and urban development, along with scientific and technological advances, that the emancipation of humans from dependence on nature and the important alteration of the environment and natural cycles began to take place. New industrial landscapes were created and wilderness areas disappeared. Pristine nature took on symbolic significance and nostalgic references (Guazzaloca 2021). Romanticism's celebration of nature's beauty and intrinsic value helped lay the cultural and philosophical groundwork for modern conservation. Romantics were fascinated by the wild and unspoiled beauty of nature, often contrasting with the harmful effects of the industrial revolution. Some romantic notions of nature continue to influence our culture and education today. For instance, nature is often idealised as an inherently good and positive force, contrasting with the negative aspects of industrialised and urban societies. Additionally, there is a tendency to romanticise a simpler, untainted nature, reminiscent of a pre-industrial past. This romantic perspective led to the establishment of many organisations dedicated to protecting natural heritage in the latter half of the century. Many Governments began to pass laws to protect endangered landscapes and species and established national parks.

In 1913, prompted by a suggestion from Swiss naturalist Paul Sarasin, representatives from 19 countries gathered in Bern to address global environmental issues. Sarasin emphasised that because "nature knows no political boundaries," (Cit. in Guazzaloca 2021) its preservation is a responsibility that extends both nationally and internationally.

The prevailing approach to this early form of environmentalism was rooted in a narrow, human-centred version of utilitarianism. While environmental protection was viewed as beneficial to a nation, nature itself was perceived as being entirely subject to human control,

lacking inherent worth and regarded solely in terms of its usefulness to human existence on earth (Guazzaloca 2021).

John Muir (1838-1914) was an early advocate for the preservation of wilderness in the United States. He co-founded the Sierra Club, an environmental organisation dedicated to the conservation of natural resources and wilderness areas for their intrinsic value and for future generations. His efforts led to the establishment of some of the first national parks in the United States, including Yosemite and Sequoia National Parks.

At odds with preservationists like John Muir, who favoured protecting wilderness areas from any human use, Gifford Pinchot (1865-1946), promoted an utilitarian approach to conservation, emphasising the sustainable use of natural resources for the greatest good of the greatest number over the longest term. He promoted the conservation of natural resources through sustainable management, a strategy termed 'conservationism'.

In 1935 was founded The Wilderness Society by Aldo Leopold (1887-1948) and others, with the aim to protect wild lands in the United States from industrial development. Leopold introduced the idea of a 'land ethic' in his work *A sand county almanac* (1970), arguing for a respectful and ethical relationship between humans and the land. The approach included the perspective that the well-being of individuals was important. However, the application of this ethic was hindered by the more prevalent anthropocentric utilitarian ethic, which supported decisions aimed at promoting overall well-being focused on human benefits.

Following the Second World War, global initiatives were launched to protect cultural and environmental heritage. In 1945, UNESCO was established, and new theories emerged regarding the relationship between humans and nature. The mid-20th century marked notable progress in ecological science, with increased insights into ecosystems, food webs, and species interdependence. In 1961 was established World Wide Fund for Nature (WWF), by a group of individuals who sought to find the funding necessary to protect places and species that were threatened by human development.

Rachel Carson's *Silent Spring*, in 1962, exposed the dangers of pesticides like DDT, raising public awareness about the impact of human activities on the environment. Her work, questioning the paradigm of economic growth, is considered the trigger of the modern environmental movement and highlighted the need for conservation efforts.

In 1973 was adopted, by 80 countries, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) with the aim to regulate and monitor international trade in specimens of wild animals and plants to ensure their survival.

In 1985, the Society for Conservation Biology was established in Michigan, followed by the launch of the American journal *Conservation Biology*. This initiative was:

a response by professionals, mostly biological and social scientists, managers, and administrators, to the biological diversity crisis that will reach a crescendo in the first half of the twenty-first century. (Soulé 1987)

Soulé, one of the founders, optimistically stated (Ibid.):

We assume implicitly that we are in time, and that by joining together with each other and with other well-intentioned persons and groups, the worst biological disaster in the last 65 million years can be averted.

The discipline began to identify the primary threats to biodiversity highlighting the critical issues of habitat loss and fragmentation, overexploitation, pollution, and biological invasion and bringing these concerns to the attention of the public and policymakers.

What is Conservation Biology? by Soulé' (1985) is considered the key publication and the theoretical foundations of modern conservation biology. It helped define the goals and scope of the discipline, emphasising the importance of biological diversity and the ethical imperative to prevent extinction, starting from the definition of conservation biology:

a new stage in the application of science to conservation problems, addresses the biology of species, communities, and ecosystems that are perturbed, either directly or indirectly, by human activities or other agents.

Another important concept was the dominance of utilitarian and economic objectives (Ibid.):

Even though individual wildlife biologists honour, Aldo Leopold's land ethic and the intrinsic value of nature, most of the financial resources for management must go to enhancing commercial and recreational values for humans.

Soulé systematised a set of normative, or ethical, postulates that provide standards by which conservation actions can be measure. These concepts are still guiding principles in conservation biology and are: diversity is good and anthropogenic extinction of population and species is bad; ecological complexity is good; evolution is good; biotic diversity has intrinsic value irrespective of its instrumental or utilitarian value.

Conservation biology has grown and evolved to encompass a wide range of research areas and practical applications like: protected area design and management; species recovery programs; invasive species control; community-based conservation; restoration and rehabilitation of ecosystems; biodiversity monitoring and assessment; conservation genetics.

To achieve these goals conservation has split into two related but distinct fields. Ecologists concentrate on scientific research to understand the biosphere and improve knowledge about ecosystems. Public administrations, NGOs, and private foundations are, on the other hand, dedicated to conservation efforts with particular goals (Martínez-Abraín 2019). These organisations work within a social and political framework where decisions are shaped by human needs and interests rather than only by scientific insights. Social and political factors often play a crucial role, as environmental management is carried out by and for people rather than for wildlife.

As a result, social and economic issues often become intertwined with biological concerns, such as the management of invasive species. This divide has led to some tension, with practitioners from both sides sometimes blaming each other for the lack of collaboration and the two disciplines have diverged so much that they now function nearly independently of one another (Ibid.).

1.2 Brief history of animal welfare science

The history of animal welfare reflects the history of the evolution in society's views of the consideration of non-human beings. Despite occasional attention to animal welfare from a few progressive individuals, like for example Pythagoras and Epicurus, the overall focus has always been on the role of the animals in human society with the aim to maintain their productivity rather than their welfare. Animals were integral to agriculture and transport and were used for plowing fields, hauling goods, and other works. There was a hierarchical view based on the clear separation between human and non-human. During the 18th-century Enlightenment, alongside the emergence of early movements advocating for women's rights and the abolition of slavery, voices like Voltaire's began to speak out in defence of animals, expressing concern about animal cruelty and criticising the Cartesian views that depicted animals as mere machines or *automata*, lacking consciousness, thought, or feelings. This period was marked by increased philosophical reflection, early animal welfare legislation, and the beginnings of organised efforts to address animal cruelty. Bentham's work is particularly notable for its influence on animal welfare. In his *Introduction to the Principles of Morals and Legislation*, in 1789, Bentham argued for the consideration of animals' capacity to suffer, famously questioning: "The question is not, Can they reason? Nor, Can they talk? But, Can they suffer?" (Bentham 1998). This utilitarian approach highlighted the moral imperative to consider the suffering of animals in ethical decision-making. In the work, *Discourse on the origin and basis of inequality among men* (1755), Rousseau argued that animals are sentient beings capable of suffering, and thus, humans have a duty to treat them with compassion and avoid unnecessary harm. He believed that animals, like humans, possess a natural right to be free from cruelty, even though they did not have the same rational capacities as humans.

As scientific research increasingly involved the dissection and experimentation on animals, ethical discussions began to emerge. Though formal ethical guidelines were not established, the growing awareness of animal suffering started influencing some researchers and policymakers.

The 19th century was a pivotal period in the development of animal welfare and in England attention to the treatment of animals, driven by emerging social movements, materialised

with the first anti-cruelty laws and the rise of companion animals. In 1824 was founded the Royal Society for the Prevention of Cruelty to Animals (RSPCA), one of the first organisations dedicated specifically to animal welfare. The RSPCA aimed to prevent cruelty to animals and to promote humane treatment through legal reform, public education, and direct intervention.

The *Cruel Treatment of Cattle Act* of 1822, was the first legal step taken to protect animals in Britain, followed in 1876 by the *Cruelty to Animals Act*. It extended legal protection beyond cattle to include other animals such as dogs, cats horses and more and introduced penalties for individuals found guilty of cruelty to animals, including fines and imprisonment. Similar legislation was enacted in other countries.

In 1866, in New York, was founded the American Society for the Prevention of Cruelty to Animals (ASPCA), the first organisation in the United States focused on preventing cruelty to animals.

A decisive element that changed the history of the human-animal relationship was the publication of Darwin's *On the Origin of Species* in 1859 and *The Descent of Man* in 1871, in which he scientifically demonstrated the biological continuum between animals and humans.

The 20th century experienced some of the harshest forms of animal abuse, including mass farming, vivisection, and wartime tortures and this brought to a significant shift in how animals were perceived and treated. The period saw the rise of animal welfare and rights movements, the establishment of key organisations and legislation, and increased public awareness of animal welfare issues.

Since its beginnings, with the work of Konrad Lorenz (1903- 1090) and Nikolaas Tinbergen (1907-1988), and through the research conducted by primatologists, ethology increasingly demonstrated the undeniable similarities between animal and human life (De Mori 2007).

In 1964 Ruth Harrison's book *Animal Machines* brought public attention to the harsh realities of industrial farming. The book's impact, helped catalyse the formation of animal welfare science as a field, highlighting the need for scientific investigation, into the welfare of farm animals.

In 1965 the scientific study of animal welfare gained significant momentum with the publication of Thorpe's essay, *The assessment of pain and distress in animals*. The work, considered a foundational text in the field of animal welfare science, discussed the challenges of interpreting signs of pain and distress in animals, given the differences in communication and behaviour between humans and animals.

By the 1970s and 1980s, animal welfare developed into a formal scientific field. Researchers began to study animal behaviour, physiology, and psychology to understand better what animals need to thrive and avoid suffering.

In 1975 philosopher Peter Singer published *Animal Liberation*, a book that argued for the ethical consideration of animals, based on their capacity to suffer, laying the foundation for the modern animal rights movement.

In 1980 Marian Dawkins wrote *Animal Suffering: The Science of Animal Welfare* and in the same year was founded People for the Ethical Treatment of Animals (PETA), one of the most prominent animal rights organisations globally, known for its direct action campaigns against animal testing, fur, and factory farming.

In 1983, philosopher Tom Regan published *The Case for Animal Rights*, advocating that animals have inherent value and deserve moral rights, influencing the discourse on animal rights and welfare.

In 1986, Donald Broom became the first Professor of Animal Welfare at the University of Cambridge, a role that underscored the academic and scientific recognition of the field. His work, along with that of others, helped establish animal welfare science as a critical area of study.

In the early 2000s animal welfare organisations proposed the *Universal Declaration on Animal Welfare*, an international initiative aimed at recognising and promoting the welfare of animals worldwide. The declaration is not legally binding but serves as a global framework and a set of guiding principles to encourage countries to adopt and enforce animal welfare laws and standards.

In recent decades, animal welfare science has continued to expand and evolve and also become more global, with increased attention to animal welfare in developing countries and a broader range of species, including wildlife. Moreover, animal welfare science has

increasingly influenced public policy and industry practices. For instance, in many agricultural sectors, welfare assessments are now considered standard practice, and in many regions of the world, legislation and regulations concerning animal care have been established. The European Union, for example, implemented several directives and regulations aimed at improving animal welfare, particularly concerning the treatment of farm animals, zoo animals and the use of animals in research.

Historically much of the research and resources in animal welfare science have been allocated to animals in human-controlled environments because these contexts are more accessible and the impact of welfare practices can be more easily studied and applied. Wild animals live in diverse and dynamic ecosystems where their well-being is influenced by factors beyond human control, making welfare assessment and intervention more challenging.

1.3 The evolution of the concept of animal welfare

The concept of animal welfare has evolved significantly over time, influenced by changing cultural, scientific, and ethical perspectives and definitions encompass a variety of views. The term is optimistically biased because *well* implies a positive state, even though welfare can be positive or negative. Actually it can be considered a continuum, with an individual standing between good and bad welfare in different times (Gray 2017).

The first definition of welfare dates back to 1965 by *Brambell Report*, published in the United Kingdom. It was prompted by public concern over the conditions in which farm animals were kept in intensive farming systems. The report introduced the concept of the *Five Freedoms*: Freedom to stand up, Freedom to lie down, Freedom to turn around, Freedom to groom themselves, Freedom to stretch their limbs. Despite the report emphasised the importance of allowing animals to express natural behaviours and recognised that animals have both physical and psychological needs, for all the '70 and half of the '80 the definition of welfare focused on the biological functioning of the animal, suggesting that an animal has good welfare if it is healthy, grows and reproduces normally. Gradually, from an

assessment in quantitative terms, the focus shifted towards a definition that also included qualitative parameters, in which reference to needs were included. This needs based definition stated that animal welfare is good when the physiological and psychological needs of the animal are met, including access to food, water, health, freedom to express natural behaviours, and absence of suffering (Carenzi and Verga 2009).

Ethological and neurophysiological research showed that animals have preferences highlighting that animal welfare is good when the desires and preferences of the animal are satisfied. By expressing its needs and preferences, the animal establishes a range of interests that are now included in *The Five Freedoms* definition, established in 1979 and updated in 1992, as a reworking of the *Brambell Report*. *The Five Freedoms* states that animal welfare is ensured when animals are: Free from hunger and thirst; Free from discomfort; Free from pain, injury, and disease; Free to express normal behaviour; Free from fear and distress (Carenzi and Verga 2009).

Despite the Five Freedom model can be used for large scale consideration of animal welfare, it indicates the needs that must be fulfilled to increase the probability to ensure a good welfare but it doesn't guarantee the happiness of all the animals (Gray 2017).

Current conception of animal welfare refers to the physical and mental health of animals that means how well an animal is coping with the environment within which it lives, and how the environment, is meeting the physical and emotional needs of the animal (Fraser 2008). Behaviours and physical responses can indicate the internal state of the animal but clearly this reactions are different among species.

A new approach for improving the assessment of the internal state of animals is the *Five Domain model* (Mellor 2015). Components of the Five Domain model are: nutrition, environment, health, behaviour and mental state. For many species, there is a strong understanding of natural behaviours and the factors necessary for their success; however, for others, a lack of knowledge dominates. To meet the Five Domain model across species, requires research and understanding of both the species and the individual.

So far, animal welfare scientists have largely overlooked the welfare of free-living wildlife. According to some authors “welfare claims are against moral agents and only consider the action of humans” (Gray 2017). Nonetheless in the past fifteen years, advancements in

animal behaviour and welfare science, have provided deeper insights into the complex lives of wild animals, highlighting the various sources of suffering they endure in nature and disclosing concern about their welfare. Various common practices in agriculture, forestry, aquaculture, and pest control significantly impact the well-being of wild animals. For instance, small mammals can reach densities exceeding 100 individuals per hectare on agricultural land, and most of these animals are killed by agricultural activities (Fraser 2010). With 1.5 billion hectares of arable land globally (FAO 2022), routine agricultural practices affect the welfare of countless animals.

Whether dealing with wild animals or those under human care, the concepts of animal sentience and consciousness are crucial in defining welfare. Sentience is the ability to perceive and be aware of changes in an organism's internal state due to external stimuli. This ability can be evaluated through neurophysiological research that detects nerve endings responding to these stimuli. An animal is considered sentient if it can experience sensations such as pain, pleasure, fear, and joy (De Mori 2007). Sentience is a key factor in determining the welfare of animals. Recognising that animals can experience pain and pleasure affects how they are treated and the ethical considerations surrounding their care and use. Laws and ethical guidelines often consider sentience to ensure that animals are protected from unnecessary suffering. Consciousness refers to the state of being aware of and able to think about one's own existence, thoughts, and surroundings. It encompasses a higher level of cognitive processing that includes self-awareness, complex thoughts, and the ability to reflect on one's experiences. Consciousness can vary in levels, from basic awareness of sensory inputs to advanced self-reflective thought. Higher levels of consciousness may be associated with more complex emotional and cognitive experiences, which can further impact ethical considerations.

In 2012, neuroscientists gathered to draft and sign the *Cambridge Declaration on Consciousness*, which stated that:

the weight of evidence indicates that humans are not unique in possessing the neurological substrates that generate consciousness. Non-human animals, including all mammals and birds, and many other creatures, including octopuses[†], also possess these neurological substrates.

The publication of the European Food Safety Authority (EFSA) titled *Animal Consciousness*, in 2017 provided other scientific insights into the understanding of animal consciousness and its implications for animal welfare. The publication showed a great deal of evidence that very different types of animals are conscious. In fact, even though invertebrates do not have all the same brain regions that mammals have, they often have functionally similar regions, which should also be able to support consciousness. Research has shown that many arthropods exhibit complex behaviours that suggest a level of awareness. For example, insects like bees and ants display problem-solving skills, social behaviours, and learning abilities that imply a degree of cognitive processing and some arthropods can experience pain-like states. Studies have found that certain insects and crustaceans respond to noxious stimuli in ways that suggest they might experience something akin to pain. While arthropods have simpler nervous systems compared to mammals, they have sophisticated neural architectures capable of supporting complex behaviours. For instance, the nervous system of octopuses, which are cephalopods is highly complex.

Notably, they release adrenal hormones in response to situations that would elicit pain and distress in humans, they can experience and learn to avoid pain and distress such as avoiding electric shocks, they have nociceptors in their skin, they have significant cognitive ability including good learning ability and memory retention, and they display individual temperaments since some individuals can be consistently inclined towards avoidance rather than active involvement” (EFSA 2017).

Current conceptions of animal welfare, unlike human welfare conception, underestimate the individual dimension. Characteristics such as temperament and personality, in fact, are not considered. However they would be central to understanding what the welfare of a single individual really consists of. Research has shown that many animals exhibit personality: some are notably braver, more curious, sociable, or better at solving practical problems than others. These traits consistently appear in the same individual across various situations. Studies have shown that even spiders (Hunt et al. 2018) crickets (Santostefano et al. 2016) and bees (Walton et Toth 2016) possess personalities. Similarly, frogs, toads, salamanders, and newts differ in boldness, exploratory behaviour, and activity levels among individuals

(Kelleher et al. 2018). Animals recognise these individual differences, which is partly why they form friendships with certain others.

Animal welfare concerns have begun to influence conservation practices, with growing recognition that the well-being of individual animals matters. However, this remains a contentious issue, as some conservation actions, such as culling, relocation, research, can cause harm or distress to individual animals, even if they are intended to benefit species or ecosystems.

There is also little awareness among people regarding the welfare of wild animals. Most people are concerned with the welfare of domestic or captive animals, as these situations are more visible and involve direct human interaction. The emphasis of institutions and media is often on safeguarding biodiversity and habitat stability, with less consideration for the direct impact on the animals' lives. Often conservation needs or economic interests, such as agriculture or tourism, conflict with the welfare of wild animals. As noted by Broglio (2009):

Science serves as but one player within a larger public sphere that has competing players exerting influence on the discourse regarding animal welfare. The multiple voices show the interest in animal welfare yet unresolved nature of the topic. In part debates played out in the public sphere are indicative of social values but are also a result of competing social discourses, including interests of: food industry, agricultural industry, government, environmental science, animal advocacy groups, 'foodies' concerned citizens all alongside animal welfare science.

The decision to provide either minimal or optimal levels of animal welfare often goes beyond scientific evidence, involving external factors such as cultural values, economic interests, and societal norms. Animal welfare is not purely an empirical concept that can be easily measured; it encompasses subjective judgments about what constitutes a good life for animals. As Fraser (2009) notes, when implementing animal welfare practices or developing standards, efforts must be grounded in science while also considering the diverse perspectives on what defines an animal's well-being.

The unequal treatment of animals across different welfare standards highlights how value-driven decisions shape the approach to animal care. Even within the same species, the level of welfare provided can vary significantly depending on the context. For example, rabbits kept

by a pharmaceutical company, as companion animals, in the open countryside or kept by a food company face different welfare standards. Despite being the same species, their treatment is shaped by the values, priorities, and purposes assigned to them by humans. From these considerations the need for a new ethical principle emerges: "At a minimum, each animal should have a life that is worth living to the animal itself, and not just to its human keeper" (FAWC 2009).

Animal welfare ethics bridges the gap between animal welfare science and philosophy by integrating scientific understanding of animal needs and well-being with moral considerations about how animals should be treated by humans.

1.4 The ethics of conservation

Despite conservation raising several fundamental ethical questions, its ethical foundations are weak and uncertain (Vucetich and Nelson 2013).

At the heart of conservation ethics there is the question about what has value and moral considerability, that means what should be taken into account in the decision making (Palmer 2014). According to Vucetich and Nelson (2007), conservation crisis derives from the failure of Western ethics to confront the question: 'What deserves direct moral consideration?'

Conservation efforts often involve complex ecological, social, legal and economic considerations that may conflict with one another and which require a compromise. One of the most frequent conservation compromise, involves finding a balance between human development and the protection of natural habitats. For instance, current expansion of agriculture and infrastructures, necessary for economic growth and food production, led to habitat destruction and biodiversity loss.

In some cases, efforts to protect a particular species may conflict with broader ecosystem health. For example, conserving a single endangered species might require actions that disrupt the balance of the ecosystem, such as removing predators or managing habitats in ways that benefit one species but harm others.

Managing invasive species often involves controversial decisions, such as killing non-native animals that are threatening native species or ecosystems.

On the one hand environmental legislation and policy focus on the welfare of species and ecosystems, with minimal consideration given to the welfare of individual animals. On the other hand animal welfare laws typically impose regulations on the treatment of domestic animals and livestock, while wild animals are excluded from these protections or even labeled as pests, nuisances, imbalanced, invasive, or exotic. Transgressions of humane treatment are frequently justified by the application of these labels.

Central to conservation is the task of determining what things in the non-human environment are valuable, because it determines the goals, the strategies, and the priorities of conservation efforts. It requires a careful consideration of different values, intrinsic, instrumental, ecological, cultural, and aesthetic and involves difficult ethical and practical decisions about how to balance these competing interests.

Conservationists have to take multiple perspectives into account, though these viewpoints frequently clash with each other.

Human-centred perspective prioritises humans in ethical considerations, emphasising the impact of decisions on human lives and societies. It advocates for economic development and industrial progress, arguing that these are crucial for enhancing living standards and alleviating poverty. While it recognises the importance of environmental protection, anthropocentrism claims that only human beings have intrinsic value, highlighting the advantages that the natural environment offers humanity, including resources, ecosystem services, and overall well-being (Palmer 2014).

Biocentrism extends inherent value and moral consideration to all living things, not just humans. It asserts that all forms of life, including plants, animals, and even microorganisms, have intrinsic value and should be treated with respect (Animal ethics 2020). This philosophy promotes non-harmful practices and encouraging coexistence with nature. It often calls for limiting human activities that could harm other living beings or disrupt ecosystems. Re-wilding projects, which involve restoring ecosystems to their natural states and reintroducing species that have been lost, demonstrate biocentrism. These projects are motivated by the belief that all species have inherent value and that ecosystems should be restored to support the full range of life forms.

Ecocentrism, or Holistic Ethics, places intrinsic value on all living organisms and their natural environment, regardless importance to human beings. It is a perspective that views humans as an integral part of the ecosystem rather than as separate or superior to other forms of life and emphasises the interconnectedness of all living beings. Ecocentrism asserts that all components of the ecosystem (plants, animals, microorganisms, rivers, mountains, and even the atmosphere) have intrinsic value, what matters is not being sentient, but simply being alive (Palmer 2014). This means that these elements are valuable in themselves, not merely for their utility to humans. Ecosystems are view as complex, interdependent wholes rather than as mere collections of individual parts. Ecocentrism can sometimes result in positive outcomes for animals, but in other instances, it can have detrimental effects. This is because, from an ecocentric perspective, it is considered acceptable to overlook the interests of individual animals if it serves the goal of preserving an ecosystem. For example, animals in overpopulated groups may be culled to maintain the balance of a particular ecosystem.

Rights-Based perspective focuses on the entitlement of individuals to certain rights, such as the right to life, freedom, and protection from harm. Philosophers like Peter Singer and Tom Regan advocate for animal rights, emphasising that all individuals who are subjects-of-a-life have inherent value. This means that they are not just valuable because of their utility to others but because they possess a life that matters to them, independent of their usefulness to others. This theory supports the idea that animals have inherent rights similar to human rights. Particularly they have the right to be treated with respect and not to be harmed and these rights cannot be overridden simply because it might lead to greater overall good. For example, the rights of animals might include the right to not be subjected to unnecessary suffering or exploitation. This perspective can lead to conflicts with other environmental viewpoints, especially when it is claimed that sentient animals are harming ecosystems or contributing to species extinction. In these situations, ecocentric theorists advocate for culling the animals to protect the ecosystem, while animal rights theorists oppose culling, arguing that it infringes upon the rights of the animals.

Besides the valuable subject to consider, there are also different ethical positions that highlight different aspects of moral consideration and provide frameworks for evaluating the actions to be taken.

Most ethical theories can be classified into one of three main categories: consequentialism, deontological theories, and virtue ethics.

Consequentialism is the ethical framework that has largely guided conservation thinking until recently. It judges the rightness or wrongness of actions by considering the results. The central idea is that the morality of an action depends on the consequences it produces and the goal is to maximise overall good or minimise overall harm (Gray 2017). It asserts that the morality of an action is primarily judged based on the value of its outcomes. That is often summarised by the principle: "do the ends justify the means?"

Bentham introduced the principle of utility, which suggests that the value of an action is determined by its ability to increase overall happiness. His thoughts led to Utilitarianism, the most well-known form of consequentialism, that asserts that actions are morally right if they promote the greatest happiness for the greatest number of people.

From a utilitarian perspective, it is moral right, kill some members of a species for the good of their species or for members of one species to be killed for the good of another species.

Deontological ethics or duty-based ethics, emphasises the importance of following moral rules or duties. Unlike consequentialism, which judges actions based on their outcomes, deontological ethics asserts that certain actions are inherently right or wrong, regardless of their consequences. It focuses on the inherent morality of actions rather than their outcomes (Palmer 2014). Deontological theories might argue that animals have intrinsic rights or moral status that must be respected. According to philosopher I. Kant (1724-1804), an action is morally right if it can be universally applied as a rule for everyone to follow without contradiction. Deontological approach suggests that we have duties towards animals, such as not treating them as mere means to an end. Even if the consequences seem to justify certain actions, violating these duties is considered morally wrong. For instance, killing or harming an animal, might be considered morally wrong in all circumstances, regardless of the potential benefits to save another species.

Virtue Ethics emphasises the development of moral character and virtues, such as compassion and kindness. It focuses on the moral character of individuals and their intentions as opposed to deontology or consequentialism (Bobier et Allen 2022a). From a virtue ethics perspective, treating animals well is a reflection of virtues like compassion,

empathy, and respect. The ethical treatment of animals is seen as part of developing moral character and living a virtuous life. Virtue ethics does not provide specific guidelines for action and can be subjective, depending on the interpretation of what constitutes virtuous behaviour in different contexts. Character traits that would be justified as virtues on a biocentric or holistic value system would be very different from those that would be justified on a strong anthropocentric value system.

Conservation practices have given rise to a lively debate concerning the conflicts that emerge when different ethical principles and cultural values produce conflicting conclusions.

CHAPTER TWO

Compassionate Conservation: origin, concept and context.

Compassionate Conservation is an emergent approach within the field of conservation biology. The term compassion is rooted in the Latin ‘com’, meaning with, and ‘pati’ meaning to suffer. Compassion is the awareness of the suffering of others, accompanied by a desire to alleviate that suffering. It involves empathy, understanding, and a willingness to help those in distress or pain (Wallach 2018). Central to Compassionate Conservation is the virtue of compassion, which involves an empathetic concern for the suffering of animals. Compassion motivates conservationists to seek non-lethal, non-harmful methods of managing wildlife and to prioritise the welfare of individual animals in conservation decisions.

Virtue ethics, plays a significant role in Compassionate Conservation by focusing on the moral character and virtues of conservationists, that leads to actions that are kind, respectful, ethically sound and drives the moral impulse to alleviate animal suffering.

The origins of Compassionate Conservation lie in growing ethical concerns about the treatment of individual animals in traditional conservation practices that often involve harm or killing of animals for the utilitarian perceived greater good of species and ecosystems. A small group of researchers has begun to challenge the belief that conservation and animal welfare are mutually exclusive. The concept began to take shape in academic circles, with researchers and philosophers questioning the ethical underpinnings of conventional conservation methods. Important texts, such as Marc Bekoff’s (2000, 2002) works, a biologist and ethologist known for his work on animal emotions and welfare, laid the groundwork for the movement. As early as 2002, he noted with concern that a journal focused on carnivore conservation did not include any essays addressing ethical considerations and he commented:

Some people seem (perhaps unintentionally) to ignore ethical issues and hope they will disappear if they play ‘ostrich’. [He continued] I am concerned solely with projects that centre on animals, beings who also are stakeholders in conservation efforts.... we often overlook the basic ethical principles by which most of us operate daily. These ideals

include principles such as: do no intentional harm, respect all life, treat all individuals with compassion, and step lightly into the lives of other beings, bodies of water, air and landscapes.

Conferences and symposia, like the first Compassionate Conservation conference held in 2010 at the University of Oxford, played a crucial role in formalising the ideas.

In 2013 *Ignoring Nature no more* was published, the first book devoted to Compassionate Conservation and in the same year was established the first Centre for Compassionate Conservation at the University of Technology, Sydney. The centre advocates for the consideration of sentient beings and the harm they may undergo in achieving conservation goals and focuses on national and international challenges involving human-wildlife conflict, wildlife trade, conservation of endangered species and their habitats, and the wellbeing of wild animals.

The philosophy of Compassionate Conservation emphasises four tenets: *do no harm*, *individuals matter*, *inclusivity of individual animals* and *peaceful coexistence* between humans and animals.

The fact that the reference centre is based in Australia and that a significant portion of the relevant literature originates from research in Australia and New Zealand is not accidental. Because of long isolation of these islands, the majority of species are endemic and particularly vulnerable. Australia and New Zealand share similar colonial histories and during the last 150 years, they have suffered the world's highest rate of mammal decline and extinction. A variety of threatening processes have begun undermining their biological richness. One of these threats involves species introduced by European settlers, including pets, livestock, game animals, synanthropic species, ectoparasites, and plants. From a conservation standpoint, the issues encompass: the introduction of predators for practical purposes or to manage other species, which impacts native wildlife (e.g. cats, dogs); the abandonment of utilitarian species (e.g., camels); ineffective containment of species introduced for recreational purposes (e.g., foxes, rabbits, deer); ecosystem changes to support food and fibre industries linked to colonial practices; government programs aimed at eradicating native species (e.g., marsupial herbivores); and technological advancements that shift subsistence use to commercial slaughter (e.g. kangaroos) (Ramp 2013a).

For this reason thousands of animals are killed every year in the name of conservation. It was estimated that 211,560 cats (*Felis catus*) were culled in Australia in 12 months in 2015–2016, with the target to cull 2 million feral cats, by 2020 (Aguirre 2019). Like happens to cats, every year in Australia, donkeys, foxes, horses and camels are killed en masse. In 2017 more than 6,000 wild horses, buffalo, pigs and donkeys have been killed in Kakadu national park as part of a feral animal management plan. The cull, conducted by helicopter shooters over 24 days, killed 3,654 horses, 1,965 buffalo, 294 pigs and a small number of donkeys (Remeikis 2017). While legislation in the United Kingdom bans the hunting with dogs of wild mammals (such as foxes, deer, hares, and minks), due to welfare concerns, in Australia similar and possibly more severe hunting practices are legitimised because they are not native.

Still in Australia the public, including children, are frequently encouraged to participate in killing. For example, toad-busting campaigns, engage volunteers, including children, in killing non-native cane toads (*Rhinella marina*) (Wallach 2015).

For various reasons, often economic, even native animals are killed. Dingoes (*Canis lupus dingo*), Australia's largest native predators, were persecuted and culled from the beginning of European settlement and become rare or extinct across much of the continent. However, the presence of dingoes is a key indicator of low fox densities and high native mammal survival. A study has shown a strong positive relationship between the survival of marsupials and the geographical overlap with high-density dingo populations. This is because top predators, in land ecosystems, can control the populations of smaller predators, which might otherwise become overly abundant and lead to declines or extinctions of certain prey species. The scarcity of dingoes allows smaller predators to dominate and decimate marsupial prey, leading to widespread extinction. The loss of apex predators has led to increased densities of some native prey, resulting in other conservation-related culling (Johnson et al. 2007).

Australia's 5500 km Dingo Fence was constructed to protect livestock, especially sheep, by preventing dingoes from entering the fertile southeastern region of the country. This fence has resulted in two distinct ecological zones: inside the fence, kangaroos and other herbivores are plentiful, while outside, vegetation is more productive. The persecution of dingoes within the fenced area has led to a thriving kangaroo population, with over 3 million kangaroos killed annually due to their perceived grazing competition with livestock, damage

to crops, their use in the commercial meat, skin, and fur industries, or simply for sport. (Lunney 2010). The dog fence is not just a physical barrier, it is the target for pilots who drop sodium fluoroacetate, commonly known as 1080, poisoned baiting, from planes to control foxes and dingoes (Marris 2021).

“Australia has a long history of poorly thought out biological solutions to ecological problems” wrote Daniel Ramp (2013) commenting this killing of kangaroos. From the kangaroo bounties of the early 1900s to the rise of the commercial killing industry in the 1960s, kangaroos have been killed for various purposes, both legal and illegal, and continue to be targeted for both commercial and non-commercial reasons (Ramp et al. 2013).

Pelorus Island, located off the coast of Queensland, in the Great Barrier Reef, became notable in recent years due to a controversial conservation project involving dingoes. In 2017, conservationists introduced dingoes as a natural method to control the population of feral goats, which were damaging the island's vegetation. The goal was to use natural predation as an ecological management tool. As part of the Pelorus Island project, 1080 poison was used to manage potential risks posed by the dingoes if they strayed from their intended role. Two male dingoes were trapped in the wild, surgically sterilised, and implanted with poison capsules, timed to kill them within 2 years, in case they could not be shot. Despite initial reports of success in reducing goat numbers, the ethical concerns and public outcry led to the decision to halt the project. The dingoes were removed from the island, and alternative pest control measures were considered.

New Zealand is no less in terms of savageries. *The Predator Free 2050 programme* aims to eradicate key introduced mammals of New Zealand by 2050 in order to conserve endangered species. This is mainly done by the aerial spreading of 1080 and other poisons. Besides target animals are possums, rats and stoats, poison victims also include native endangered birds, farm animals and companion animals, in particular cats and dogs.

During lectures in New Zealand, Jane Goodall has been asked about her thoughts on the killing of introduced predator and she commented (Koen 2022):

For many years I have been devastated by the cruel methods used to kill predators because of their supposed danger to livestock or human life, such as leg hold traps or poison baits. Only too often the targeted animals die slow deaths in extreme pain.

Moreover other non-target animals are often killed in the same way. The campaign in New Zealand to exterminate all non-native animals in order to save the country's unique indigenous species from invasive species who were introduced, intentionally or unintentionally, relies on the use of poisons which are known to cause intense suffering and agonising deaths. [And she continues:] As I read more and more about this plan I became increasingly concerned. And I was deeply shocked when I learned that school children were told that possums were evil and taught to kill them in any number of cruel ways.

New Zealand, considered an international leader in animal protection because of its progressive welfare laws, which recognise animal sentience and prohibit unnecessary animal suffering, shows inconsistency and hypocrisy with the treatment of animals considered pests (Souther 2016), in particular the possum. Indeed the common brush tail possum (*Trichosurus vulpecula*) is “publicly decried, officially poisoned, frequently shot at, and intentionally steered towards by drivers” (Holm 2015). It has been defined an ‘anti-animal’, a creature opposed to the natural world that have lost the right to live and thrive normally guaranteed by the logics of environmentalism and conservationism and can therefore be curtailed, persecuted and even killed without repercussion or guilt.

Possum is a cute, small nocturnal, tree-dwelling marsupial with bushy tails, pronounced snouts and large pointed ears. It was intentionally introduced from Australia in 1837 with the goal of establishing a fur trade. The possum adapted well to its new environment and flourished due to a lack of any real predators, ample food supplies and only limited competition from the native bird life and spread, from a limited number of initial release sites, to establish habitats throughout almost every one of the country's diverse ecosystems. Due to competition and direct predation, possums have been identified as a major obstacle to the successful reintroduction of rare native bird species, such as the kiwi and kōkako and, under the euphemistic banner of ‘possum management,’ the large-scale extermination of possums has been official government policy since the 1960s (Holm 2015). Beyond the environmental impacts, there is also a significant economic justification for the prevalent anti-possum sentiment, particularly within the agricultural sector, where animals are often viewed primarily as tools for profit. From this viewpoint, possums are seen as carriers of bovine tuberculosis, which can cause illness and death in livestock, as well as reduced dairy

and meat production. There are therefore ecological and economic reasons for hostility toward these small arboreal marsupials that underpin the development anti-possum sentiment. Possums can be killed with impunity and their deaths are celebrated without apology (Holm 2015). Annie Potts advises that “to live in New Zealand is to experience a sustained and vigorous campaign against the brush-tail possum; it is unpatriotic to question, let alone resist, the demonisation of possums in this country” (Potts 2009).

According to Holm (2015) the hatred of the possum is motivated by more than ecological and economic concerns.

The possum, which is as much a consequence of settler colonisation as an agent in its own right, comes to replace the human as the number one perpetrator of environmental destruction in the context of this postcolonial environmentalism. By imagining the possum as an anti-animal, pākehā* ¹discourse works to both obscure the direct role of the settler state in the fall from pre-colonial ecological paradise and serve as a means by which the pākehā environmentalist can feign to work to resolve their own culpability.

Unfortunately, cases like that of the possum occur all over the world. From the very beginning, conservation biology has declared that its concern is with species and not with individuals and for decades biologists have been killing animals for scientific research or in wildlife management.

Management techniques include killing individuals of common species to promote the recovery of rare species; harming wild animals in captive breeding and reintroduction programs; subjecting wild animals to invasive monitoring methods; exposing individual megafauna to sport hunting to promote the species’ economic value; killing individuals of introduced species to recreate historic ecological assemblages.

The emphasis on species and human-centred views of nature has hindered efforts to scientifically justify the inclusion of individual animal welfare in conservation practices.

The widespread killing in the name of biodiversity was bound to eventually stir public opinion and animal rights advocates, leading to heightened ethical debates in conservation. As awareness of animal sentience and suffering grows, the divide between conservation and

* “Pākehā” is a Māori term used in New Zealand to refer to people of European descent, particularly those of British or other European ancestry who have settled in New Zealand

animal welfare science has deepened. Wildlife control practices show minimal regard for animal welfare, often resorting to inhumane methods as an initial option rather than a last resort.

Wild animals are also affected by how people manage the remaining natural habitats and human-dominated areas like urban remnants where they continue to live. Wildlife management often originates from the need to control species that disrupt human activities, commonly referred to as pests, or to address perceived ecological imbalances by intervening, which can include measures such as culling overabundant species. This problem is increasing as the human population expands and demand more land and resources.

Globally, for instance, rodents are targeted with non-selective poisons like brodifacoum, an anticoagulant that causes widespread harm to various species (Mason 2003). This practice underscores a significant paradox in conservation efforts: while conservation initiatives often emphasise the protection of certain animals and ecosystems, they can simultaneously endorse or ignore harmful practices that impact other species. The use of non-selective poisons, does not only affect the targeted rodent populations but also poses severe risks to non-target wildlife, including predators, scavengers, and even domesticated animals.

Traditional approaches highlight a contradiction in conservation strategies and reveals a need for more nuanced and humane methods in wildlife management that align with the principles of ethical conservation and consider the welfare of all species involved. According to Ramp et al. (2013) environmental laws are deeply shaped by anthrarchy, a framework of norms and values that systematically downplays or disregards the significance and influence of other species, assuming that humans are separate from nature and biodiversity. Essentially, anthrarchy institutionalises speciesism, the belief that humans are superior to other animals, and it is rooted in the notion that the universe exists solely to serve human interests. Anthrarchy is reflected in laws and policies in two key ways. First, many laws and policies either assume or have assumed that the well-being of other species is not a primary concern. This is evident in regulations aimed at controlling, eradicating, or introducing species without fully considering the impact on individual animals or long-term conservation. Second, nonhuman species are often viewed as resources to be harvested, taken, or otherwise used by humans.

In this contest, Compassionate Conservation, aims to bridge the gap between conservation and animal welfare by advocating for methods that avoid harm to animals. Adopting a Compassionate Conservation approach to wild animals would require a fundamental shift in the perception of nonhuman animals (Ramp et al. 2013). To facilitate this paradigm shift, Compassionate Conservationists propose practical measures that could be taken through legal and policy reform. The first is the choice of the right words, replacing terms like harvest, management, import, export, as animals should no longer be viewed as commodities but as nonhuman persons. Further measures involve incorporating interspecies equity principles, acknowledging that animals' interests align closely with the ones of humans. Another important policy change would be applying the precautionary principle in cases where animal welfare may be threatened, integrating conservation and compassion.

Ultimately, embracing Compassionate Conservation should mean prioritising both conservation and animal welfare, rather than treating them as secondary concerns in land management and resource use. It doesn't necessarily mean adopting an animal welfare or animal rights stance, as there is ongoing debate about the ethical principles that should guide conservation policies.

However, according to Bekoff (2002) it is evident that ethical considerations must play a role.

2.1 First, do no intentional harm

First, do no intentional harm is the most fundamental tenet of the Compassionate Conservation approach. It aligns with the broader ethical principle of non-maleficence, often cited in medical ethics. Unlike animals under human control, that are protected (at least in Western countries) by welfare legislations, wildlife protection laws focus on species and their habitat and not on the welfare of individuals. This allowed and allows conservationists to carry out many questionable practices. Compassionate Conservationists argue that causing harm to individual animals, even for the sake of species preservation, is ethically problematic.

To explain the concept Bekoff (2010) provides the example of the black-footed ferret recovery program, which is considered a successful conservation effort.

In the mid-1980s, remained only 18 black footed ferrets (*Mustela nigripes*) left in the wild, because of habitat loss and indirect poisoning related to prairie dog control. The entire population was taken into captivity to establish a captive breeding programme. Captive-bred ferrets needed to be taught to hunt before they can be released into the wild. Up to 91% of the black-footed ferret's diet consists of prairie dogs (*Cynomys spp*). In 2008 and 2009, captive ferrets were fed 7300 golden hamsters, 5100 of them offered alive, plus 2466 black-tailed prairie dogs (*Cynomys ludovicianus*), 1480 offered alive, bred solely to be practice prey.

According to Compassionate Conservationists, since there are behavioural studies in which animals are made to interact with inanimate objects, something similar could have been tried to train the ferrets.

The use of prey species to hone the hunting skills of predators is just one of the ethical issue that conservation raises.

In addition to the killings in the name of protecting endangered species, there is the branch of the ecological research, that sometimes entails animal suffering and killing.

In a field experiment (Sillett et al. 2004) that measured behavioural and ecological differences between territorial pairs of black-throated blue warblers (*Dendroica caerulescens*), with and without neighbouring conspecifics, between 60 and 120 birds were killed with a shotgun. The authors of the study published an explicit disclosure indicating that their methods followed state and federal laws and university policies concerning animal handling but they do not offer an explicit rationale for the purpose of justifying the warbler killing. The case sparked discussion about the ethical nature of legal experiments in conservation research. Traditional conservationists was accused of 'environmental fascism', term coined by Regan, meaning that like fascism, they used individuals as instruments for its social ends and they presumed that the value of the collective was the only value (Vucetich et Nelson 2007).

Another ethical problem in conservation research is the study of free-ranging animals in their natural environment. Monitoring techniques are crucial for understanding and protecting

wildlife, but they can have negative impacts on animal welfare. Simply human presence in the environment of wild populations can lead to physiological or behavioural changes, unintended disease transmission and even death (Jewell 2013). Physical marking for identification, which can include ear notching or tagging, toe or fin clipping, hot-iron branding, bar-code implantation, collars and attachment of VHF (Very High Frequency) radio or satellite transmitters can cause stress during the initial capture and fitting process.

For example collars, frequently used, especially the one with a radio transmitter, can have a significant impact on the animal's welfare. If they are too loose they can move up and down the animal's neck when it lowers and raises its head, causing abrasions and wounds that can lead to infection and possibly death. If they are extremely loose, animals may get a foot caught in the collar as they extend their front feet to stand from a bedding position. If the collars are placed too tightly around the animal's neck, they may cause pain and sores and could cut off blood circulation (Silvy 2005).

In a study monitoring the ranges of black rhinoceroses (*Diceros bicornis*), radio-collared individuals were observed over a 7-year period (Alibhai 2001). As the animals' body condition improved during the wet season or as they matured, the collars became tighter. 15% of the collars had to be removed due to injuries, including deep ulcerated wounds, chronic inflammation, and active myiasis. The rhinoceroses' attempts to remove the collars were indicated by scarring around their ears and heads.

Transmitters can be attached to the animal as external collars or imbedded in subcutaneous and intraperitoneal implants. These invasive techniques require physical or chemical immobilisation, causing pain and fear. Capture myopathy, a metabolic muscle disease described in wild mammals associated with stress of capture, restraint, and transportation, has been documented in ungulates, carnivores, rodents, primates, marsupials, pinnipeds, and birds (Herráez 2007).

Chemical immobilisation is another questionable topic (Jewell 2010). It requires drug dosages that are estimated and can lead to neurological or myocardial problems, multiple organ failure and even death. Sadly known is the case of Daniza, an 18 years old mother bear transferred from Slovenia into the woodlands in Trentino (Italy) died to effects of

anaesthetic, after an attempt to capture her with the aim to take her into captivity with her two cubs (Milne 2014).

A typical capture-mark-recapture protocol might involve trapping, restraining, marking, sampling, and releasing the animal, with this process being repeated at each capture location and time interval. All these stressor factors may interact synergistically having profound effects on vertebrate immunity. Even if, when, how and why stressors affect immunity in wild animals remains practically unstudied (Martin 2009). Attaching a marker that either obstructs the animal's movement or increases its visibility to predators or prey can result in ongoing stress. Various authors reviewed the effects of marking in birds (Calvo 1992), vertebrates (Murray 2000), marine mammals (Gales 2003).

Besides causing general stress, invasive monitoring studies have documented physical harm, disruptions to social hierarchy, interference with natural movement, alterations in breeding behaviour, and increased susceptibility to predation. Markers are sometimes placed in positions that cause direct interference with mobility. The attachment of flipper transmitters in sea otters resulted in injuries, including broken digits and webbing and altered behaviour (Garshelis 1983).

The effects of capture, handling and marking questions the scientific validity of the resulting data of many studies and an ethical treatment of animals would improve the quality of research.

Implementing Compassionate Conservation involves rethinking strategies and developing new methodologies that balance species conservation with individual welfare. This can include the use of less invasive techniques that do not rely on marking and cause minimal disturbance to the study animal or population, like camera traps or passive acoustic monitoring. Other application of how the do-no-harm principle is applied are ensuring that conservation actions, such as creating reserves or restoring ecosystems, do not negatively impact existing wildlife or ecosystems and designing research protocols that minimise harm and stress to individual animals, such as using less invasive methods or ensuring proper care and enrichment for animals in captivity.

2.2 Individuals matter

This principle recognises that all animals have intrinsic value, irrespective of their utility to other animals, including humans. The emphasis on individual animals highlights that they should be seen as sentient beings who care about what happens to themselves, their families, their friends, and others, rather than being treated as mere objects or statistics to be sacrificed for the benefit of their own species, other nonhuman species, humans, populations, or biodiversity.

In recent years, conservation planning, policy, and communication have increasingly focused on the advantages, or 'ecosystem services', that nonhuman nature offers to humans. In reaction to this utilitarian and human-centred perspective, Compassionate Conservationists argued that all animals hold intrinsic value beyond its usefulness to people.

Many aspects of modern conservation practices demonstrate an instrumentalist approach. The concept that the value of an animal is defined primarily for its instrumentality is summarised in the case of Marius, a healthy two-year-old male giraffe born at the Copenhagen Zoo. The park was a participant in the European Association of Zoos and Aquaria breeding program, which aims to maintain genetically healthy populations of animals in captivity. However, Marius's genetic makeup was deemed too similar to other giraffes in the program, making him unsuitable for breeding in order to avoid inbreeding. Despite offers from other zoos and private individuals to re-home Marius, the Copenhagen Zoo decided to euthanise him. Marius was killed with a bolt gun and his body was then publicly dissected in front of an audience that included children, as part of an educational display (Cohen 2016). After the dissection, his remains were fed to the zoo's carnivores, including lions. A month later, the zoo killed 4 healthy lions to provide space for a new lion considered more suitable for breeding. For the Copenhagen Zoo these animals had neither instrumental value nor intrinsic value and it defended its actions as being in line with responsible animal conservation management practices.

The Soulé's dogma, that conservation need not recognise the value of individuals, has permeated the field so profoundly that conservationists have long viewed individuals as mere parts of a given ecological whole. This collectivism, that prioritises the group over its

individual constituents, in the light of the discoveries about cognitive and emotional capacities of animals, is ethically indefensible for Compassionate Conservation.

The approach also doesn't allow for people "to play the numbers game" (Bekoff 2010), claiming that if there are many members of a given species, it's lawful to kill other members of the same species.

For animal living in social groups, the loss of social group members and the trauma of witnessing them being injured and killed can be a major cause of suffering.

Until now, conservation efforts have largely ignored the individual animal and its role within the social group. A clear example of this is the management of wolves in US. Despite the predation by wolves represented < 15% of boreal caribou mortalities, between 2005 and 2014, over 1,000 wolves (*Canis lupus*) were killed as part of a conservation project on the threatened boreal woodland caribou (*Rangifer tarandus caribou*). The methods used to cull the wolves included strychnine poison baiting, aerial gunning, and the 'Judas method,' a controversial conservation practice in which radio-collared wolves are used to lead hunters to the rest of their pack. The suffering endured by the wolves, through painful deaths and the loss of their pack members, was considered insignificant by conservationist, compared to the perceived risk of losing the caribou population. The culling program persisted despite evidence suggesting it not successfully saved the caribou herds, which are primarily threatened by extractive industries (Proulx 2017).

The belief that individuals don't matter is so deeply rooted that also individual diversity is often overlooked. For instance, the International Union for the Conservation of Nature disregards individual diversity, advocating for the preservation of biodiversity at the genetic, species, and ecosystem levels (Ferraro 2023).

However there is an emerging consensus that phenotypic diversity and specific individuals hold intrinsic value. For instance, keystone individuals can significantly impact population or ecosystem dynamics, and their absence can lead to considerable, lasting conservation consequences. Such individuals include alpha members of social animal groups, highly connected individuals within a population, decision-makers, or pioneers (Ferraro 2023).

Lane and McDonald (2024) pointed out that temporary removal of individuals from a population can cause social disruption and lead to permanent hierarchical changes, particularly in social animals such as wolves.

Studies on animal personality showed that behavioural tendencies differs among individuals of the same species (Wolf 2012). Different personalities can be important in species persistence, ecosystem function and conservation practice (Collins 2023). Behavioural ecologists have started investigating how different personalities within a population affect fitness.

The success rate of translocations has historically been poor (Morris 2021) with many studies reporting a mortality rate higher than 50% (Teixeira 2007). These low success rates are likely due, in part, to insufficient focus on individual animals.

In wildlife introductions personality traits can facilitate the successful establishment of individuals and species. The dispersal tendency is associated with boldness, aggressiveness, exploratory behaviour and sociability (Rehage 2016). In the case of the round goby (*Neogobius melanostomus*), for instance, bolder individuals are more likely to establish successfully (Myles-Gonzalez 2015), while for foxes (*Vulpes velox*), shyer individuals tend to have better success rates. In a reintroduction program for captive-bred foxes, those that died within six months of being released had been identified as bolder prior to their release. These foxes had exited their dens more quickly, approached new stimuli more closely, and exhibited more behaviours linked to low fear while in captivity, compared to those that survived. Consequently, these bold individuals were less suitable for reintroduction (Bremner-Harrison 2004).

“When we ignore individuals and the variation among them, we run the risk of limiting our understanding of animals natural processes” (Baker 2013).

A conservation norm, that have become dogmatic in the field, is that compassion, sentimentality and anthropomorphism should be staunchly avoided. However, in light of studies on animal personality, critical anthropomorphism can improve understanding of how animals interact with their environments and each other, giving important knowledge for conservation (Ferraro 2023).

The biologist George Schaller, interviewed by New Scientist, summarised years of research on behavioural ecology and conservation thus (cit. in Bekoff 2010):

Without emotion you have a dead study. How can you possibly sit for months and look at something you don't particularly like, that you see simply as an object? You're dealing with individual beings who have their own feelings, desires and fears. To understand them is very difficult and you cannot do it unless you try to have some emotional contact and intuition. Some scientists will say they are wholly objective, but I think that's impossible.

Cats and dogs often receive significant anthropomorphism, attributing human-like traits to them. When researchers observed the sleep patterns of jumping spiders and noticed movements similar to those of cats and dogs, this led to further investigation. This anthropomorphic perspective ultimately contributed to the discovery of REM-like sleep states in spiders (Ferraro 2023).

Practical applications of the principle 'individuals matter' in Compassionate Conservation include carefully planning and carrying out the relocation of animals to new habitats while taking into account their stress levels and social structures. For example, moving an entire family group of elephants together instead of separating individuals. For species with intricate social systems, such as wolves or primates, conservation efforts should respect their social bonds by considering pack dynamics and avoiding disruptions to family groups.

2.3 Inclusivity

The third tenet of Compassionate Conservation is *inclusivity*, that means, considering the well-being of all wildlife, not just endangered species. Sentient animals intrinsically have moral value, no matter their human categorisations.

Inclusivity acknowledges the intrinsic value of all wildlife individuals and collectives, whether their populations are large or small, whether their ancestors were introduced or

native, whether they are considered sentient or not, and regardless of usefulness to humans (Wallach 2018).

This principle is probably the most debated and the most criticised by traditional conservationists because it opens the Pandora's box of invasive species issue.

The dichotomy native-alien is based on the conservation principle of biotic nativeness (Chew 2011). Compassionate Conservation challenges nativism, which views introduced species as unnatural and harmful, not necessarily due to their ecological impact but because they disrupt ingrained beliefs about how nature should be (Wallach et al., 2018).

The ecological concepts of native and alien or invasive species have an evolving history, shaped by changing attitudes towards nature and conservation. Until the end of the eighteenth century native simply meant wild, untamed, uncultivated or undomesticated (Thompson 2014). With the publication of *On the Origin of Species* in 1859, Charles Darwin introduced the idea that species evolve over time through natural selection. This led to a greater understanding of the relationships between species and their environments, setting the stage for the concepts of native and alien species. In the late 19th century, biogeographers like Alfred Russel Wallace began to map the distribution of species and recognise patterns in where species were found. This work laid the groundwork for distinguishing between species that evolved in a particular region or natives and those that were introduced from elsewhere or aliens. In the early 20th century, ecologists like Frederic Clements developed theories about ecosystems as stable, balanced communities of species that had co-evolved together. Native species were seen as integral parts of these stable ecosystems, while alien species were viewed as potential disruptors of this balance.

Despite, modern ecologists largely agree that ecological systems are more dynamic and adaptable than was previously believed, and native habitat refer just to an arbitrary time, the distinction between native and alien species continues to influence conservation policies and environmental legislation. Efforts to protect native species and control or eradicate invasive species are central to many national and international conservation strategies. Invasion biology, the sub-discipline of conservation based on nativism continues to promote negative attitudes toward introduced species and encourages violent responses toward these animals. It

attributes intrinsic value to perceived native elements of the ecosystem, identifying them as worthy targets of moral concern.

At present, conservation data are evaluated through a framework that prioritises native species as the only focus of conservation efforts (IUCN 2024). Some Compassionate Conservationists (Wallach et al 2020a) investigated how patterns in vertebrate species richness, distribution, and threats in Australia, shift when including non-native and feral populations in wildlife counts, by incorporating these into the IUCN Red List. They identified 87 immigrants species representing 1.2% of Australia's extant vertebrate species richness. 23 immigrant species are threatened in their native range. Most immigrants at risk in their native ranges, were declared pests in Australia and over half of them were targeted in killing programs with the motivation of conservation. They conclude hoping in a inclusive conservation lists, that provide space for dialogue on what constitutes the good conservation aims to protect coming to regard threatened migrants as refugees to be harboured, rather than invaders to be targeted.

Introduced species frequently become dominant when their natural predators are wiped out and the environment deteriorates. By the time the conservation problem is recognised, eradication is typically no longer feasible, except for some successful attempts on smaller islands. Also climate change is driving species to relocate across the globe. As continental plants and animals migrate toward the poles, the notion that species should remain in their native habitats is becoming anachronistic.

The ecologist Urban M. C. (2020) published an article aiming to distinguish species that naturally migrate in response to rising temperatures from those relocated by humans, arguing that species moving due to climate change, which may disrupt local ecosystems, could be at risk in their original habitats. He suggested that trying to prevent these natural shifts in favour of maintaining local or historical ecosystems is not only futile but could also lead to environmental collapse or species extinctions

Some even suggest that in certain cases, alien species can contribute positively to ecosystems, adding to biodiversity or providing ecosystem services. The concepts of *novel ecosystems* and *new Pangea* (Thomas 2019) have gained traction, recognising that human

activity has fundamentally altered many environments and that new combinations of species, including both natives and aliens, can form stable, functional ecosystems.

Trophic cascades associated with invasive species removal can also result in rapid and drastic changes to ecosystems. Management intervention to eradicate a meso-predator has inadvertently and rapidly precipitated landscape-wide change on sub-Antarctic Macquarie Island. Following eradication of cats in 2001, rabbit (*Oryctolagus cuniculus*) numbers increased substantially although a control action was in place (*Myxoma virus*), resulting in island-wide ecosystem effects (Bergstrom 2009).

Implementing the inclusivity principle in the context of Compassionate Conservation refers to ensuring that conservation practices consider and incorporate the needs and well-being of all individuals, including both humans and animals, irrespectively of their species, population size and conservation status, native or alien heritage, or usefulness. Fences, noise, or light deterrents are used to keep animals away from certain areas without harming them, particularly for keeping predators away from livestock.

Although some Compassionate Conservationists criticise fences for restricting species migration and potentially leading to harmful population control methods, like starvation or culling (Kopnina et al. 2019), most advocate for using exclusion barriers and fences as a humane alternative to lethal control.

A different option or complementary approach is to strengthen the ability of threatened species to withstand pests. O'Donnell et al. (2010) investigated whether conditioned taste aversion could alter the predatory behaviour of quolls (*Dasyurus hallucatus*) and reduce the impact of the highly toxic cane toads (*Bufo marinus*). They created an aversion to live cane toads in juvenile northern quolls by feeding them a dead toad laced with a nausea-inducing chemical. This approach has the potential for broader applications and could be used to reduce the impacts of invasive vertebrate predators on threatened species. When invasive predators cannot be eradicated, conditioned taste aversion may offer a viable solution for preserving populations of endangered species in the presence of these invaders.

The resilience of threatened species can also be fostered by teaching them to recognise the predators. McLean, et al. (1999) demonstrated that young New Zealand robins (*Petroica australis*) developed a fear of the predator when conditioning techniques were applied and

argued that training about predators is an important and achievable component of any management program designed to prepare endangered species for release into the wild.

Another example of compassionate approach in managing populations of invasive or overabundant species, is the fertility control. Fertility control techniques, such as immunocontraception, hormonal treatments, or sterilisation, are used to reduce reproduction rates without harming individual animals. It may be employed in areas where species overpopulation threatens ecosystems, or where human-wildlife conflicts arise. By controlling population sizes without lethal methods, fertility control reduces the need for culling, aligning with the ethical goal of minimising harm to animals. Fertility control offers a long-term, sustainable way to manage wildlife populations, especially when traditional methods like relocation are impractical or harmful. It allows for a gradual reduction in population numbers while preserving the natural behaviours and social structures of animals. Trap-Neuter-Return (TNR) is a specific type of fertility control used primarily to manage populations of feral cats. Despite there is no mention of TNR programs found in the compassionate conservation literature (Coghlan et Cardilini 2022), this method may be used to manage populations of many species of wild animals. It involves: trapping of animals; neutering or spaying them to prevent further reproduction and returning them to their original environment, where they continue to live without increasing the population size.

2.4 Coexistence

Last tenet of Compassionate Conservation is *coexistence*, that means promoting peaceful coexistence between humans and wildlife and the abandonment of violent and dominating actions against animals. Compassionate Conservation calls for the moral imperative of providing modern solutions for sharing space with nature and for fostering the possibility for diverse species to live in peaceful.

There are many cases where native animals are killed just because they are considered a nuisance for people. Some problems arise from a lack of understanding of animal biology

and behaviour or from wrong informations about the actual risks of coexisting with wildlife in urban areas.

The 20th and 21st centuries has seen unprecedented and rapid expansion of human settlements and the progressive abandonment of rural areas, leading to an increasing zone of human-animal interactions, that inevitably results in conflicts. The typical management of unwanted animals in urbanised environment often involves culling.

One example among many is the one of Canada goose (*Branta canadensis*). Goose population has significantly increased over the past few decades, particularly in urban and suburban areas. This growth is attributed to successful conservation efforts, which have helped the species rebound from past declines, as well as their adaptability to diverse environments.

The ability of Canada geese e to live near human developments has led to increased encounters with people creating problems in urban areas, such as parks and golf courses, where their droppings are considered a nuisance. Their aggressive behaviour and large numbers can also make public spaces less enjoyable. The quickest and most cost-effective method for managing the geese has been to conduct roundups during their annual moult, when the flightless birds are easily captured. These geese are then either sent to commercial poultry facilities for slaughter or killed on-site and discarded in landfills (Hadidian 2006).

Compassionate Conservationists argue that many current wildlife control practices, like drowning nuisance animals, lack ethical justification.

In addition to population control, re-wilding programs seek to bring back key species that had been eradicated by humans and that continue to be unwanted. Within humanised environments, wildlife comes to have management implications that raises many ethical questions. Conservation often rely on traditional methods for managing wildlife issues, such as regulated hunting, trapping, and poisoning.

In discussing wolf recovery and conservation, Fox and Bekoff (2011) raise several ethical questions that can be broadly applied to other re-wilding programs. When a predator population is moved on lands where abound domesticated prey, in example, unprotected livestock

Can we really blame them for taking advantage of an accessible meal? Should we be moving predators around if we cannot let them be the animals that they have evolved to be, when recovery means intensive management, or when the areas into which we place them are increasingly developed, fragmented, and hostile?

Compassionate Conservationists assert that carnivore recovery programs are crucial for restoring ecosystem integrity and diversity. However, they also believe it is essential to conduct these programs ethically.

Restoring native species through reintroduction programs demands significant human effort and substantial financial investment. The success or failure of these programs is heavily influenced by human factors, and local communities affected by these efforts can sometimes be in opposition about sharing their land and space with large predators that their ancestors intentionally eradicated.

Kellert et al. (1996) points out that although strong anti-wolf sentiments remain in some rural parts of the United States, these attitudes are quickly evolving as the population becomes more urbanised and educated.

Examples of coexistence practices within Compassionate Conservation include working with local communities to foster coexistence with wildlife. Educating people about the ecological roles of wildlife, such as predators, can reduce fear and hostility, encouraging more harmonious relationships. Awareness campaigns can help people understand how to avoid conflicts and the benefits of biodiversity.

Providing financial compensation to farmers or landowners who lose livestock or crops to wildlife, discouraging them from resorting to lethal methods improves acceptance.

Where wildlife and human activities overlap, coexistence strategies may involve creating shared spaces that are safe for both, such as wildlife corridors or buffer zones, using motion-activated lights, sounds, or sprinklers to discourage wildlife from entering urban spaces or residential areas and teaching people how to coexist peacefully with urban wildlife, such as properly securing trash and avoiding feeding wild animals (Ramp et Bekoff 2015).

In regions where large carnivores (like wolves or bears) live near human settlements, non-lethal deterrents such as electric fencing, fladry (lines of brightly coloured flags) and guard dogs have been used to prevent livestock losses while allowing these animals to coexist with

humans. People need to be taught how to prevent animals from searching for food in urban areas, by storing garbage in secure buildings or animal-proof bins; keeping outdoor barbecues clean; not leaving food unattended (Branco 2017).

When necessary, Compassionate Conservation suggests relocating problem animals to wildlife reserves instead of lethal control measures.

2.5 Case studies of wildlife compassionate management

Over the past decades, there has been a noticeable shift in public attitudes toward wildlife and nature, transitioning from a primarily dominionistic perspective to one that is more humanistic and compassionate. Around the world, there are various instances showing how conservation efforts can adopt a more compassionate approach.

In Ethiopia, for example, the Ethiopian Wolf Conservation Program (EWCP n.d.) engages local community members to safeguard the wolves, works with ranchers to enhance livestock and farming practices, provides vaccinations for domestic dogs to prevent the spread of canid diseases, and runs a comprehensive educational initiative to increase local awareness of the wolf's crucial role in the Bale mountain ecosystem. Ethiopian wolves (*Canis simensis*) are only found in the mountains of Ethiopia, where some 500 survive in small populations threatened by habitat loss and diseases.

Another project that concerns wolves is the Wood River Wolf Project. Gray wolves (*Canis lupus*), once prevalent across North America, were nearly eradicated from many US states due to concerns about livestock predation and human safety. To restore their populations, gray wolves were reintroduced to Idaho and Yellowstone National Park in the mid-1990s. As the reintroduced packs grew in number, they began preying on livestock, leading to conflicts between humans and wolves. The Wood River Wolf Project (WRWP n.d.) is a partnership involving community members, livestock producers, wildlife organisations, county, state, and federal agencies, in Idaho, USA. Together, they focus promoting coexistence between livestock and wolves through non-lethal methods, educating the public and ranching communities about wolf behaviour and the importance of maintaining the health of

ecosystems. The project uses a variety of non-lethal tools, such as turbo-fladry corrals, guard dogs, electric fencing, and noise-making devices to keep wolves away from livestock covering approximately 282,600 acres. Ongoing research and monitoring of wolf and livestock interactions are key components of the project that is now in its 15th year. Sheep losses to wolves were found to be 3.5 times lower in the study site than in the non protected area, proving that ranchers and wolves can successfully coexist and that non-lethal deterrents effectively safeguard livestock, wolves, and other native predators (Stone et al. 2017).

The shift in wildlife philosophies, moving from utilitarian conservation to a more compassionate approach, is evident in how south Africa's elephants (*Loxodonta africana*) are managed. Elephant populations are mostly confined within fenced reserves that impede natural processes such as migration. Particularly in national parks like the Greater Kruger National Park, elephants have faced overpopulation due to reduced natural predators, leading to habitat degradation and impacting biodiversity. In response to public concerns, conservationists managing elephant populations, rather than culling, have opted for immunocontraception, a fertility control method that temporarily prevents reproduction. Female elephants were given a vaccine that blocks fertilisation without affecting their social behaviour or health. Vaccinations have been successfully implemented and are now used in 43 elephant reserves throughout South Africa (Delsink et al. 2023). Under current legislation, culling is recommended as a last resort for population management.

Another innovative conservation initiative aimed at mitigating human-elephant conflicts is The Elephants and Bees Project in Kenya. The project involves installing beehives around agricultural fields and properties to create a barrier that deters elephants. Elephants are naturally afraid of African honeybees (*Apis mellifera scutellata*), and the sound of bees buzzing is used to keep them away from crops and human settlements (King et al. 2019). The project works closely with local communities, including farmers and beekeepers. By involving them in the management and maintenance of the beehive fences, the project supports local livelihoods and encourages community engagement in conservation efforts. The primary goal is to protect crops from being destroyed by elephants, which can cause significant economic losses for local farmers. The use of beehives as a deterrent provides a non-lethal, sustainable solution to reduce these conflicts. The project includes research to

assess the effectiveness of the beehive fences and the impact on both elephants and local communities. It also focuses on educating people about elephant behaviour, the importance of coexistence, and the benefits of beekeeping.

Another initiative in South Africa is the Cape Leopard Conflict Mitigation program, part of the Leopard and Predator Conservation efforts supported by the Landmark Foundation. Over recent decades, the leopard population (*Panthera pardus*) has decreased by 75% due to habitat loss and human activities. This program aims to boost the leopard population in the wild while encouraging their coexistence with local communities. The initiative supports farmers by offering guidance on non-lethal deterrents (like guardian dogs), branding their products as 'Fair Game,' and providing benefits such as economic and ecological monitoring, along with compensation for domestic animals killed by wild predators.

Similarly, in Sweden, a government-sponsored program offers financial assistance to ranchers for implementing electric fencing and other non-lethal methods to deter predators. Sweden has four species of large carnivores: the grey wolf (*Canis lupus*), wolverine (*Gulo gulo*), brown bear (*Ursus arctos*) and Eurasian lynx (*Lynx lynx*). Additionally, ranchers receive compensation at fixed rates for the presence of carnivores on their land, which supports improved animal husbandry practices and enhances carnivore conservation efforts. (Swenson 2005).

International research on Compassionate Conservation is exploring further frameworks for the unification of animal welfare and conservation sciences, but examples are still few on the ground. One of the most important success is the management of Little Penguins (*Eudyptula minor*) in Middle Island, Victoria, Australia. The Little Penguin colony on Middle Island, which breeds from September to March, faced severe threats from foxes, causing its numbers to plummet from 600 in 2000 to only 4 in 2005. Efforts to control the fox population through poison baits and traps proved ineffective. In 2006, a trial was initiated to use Maremma sheepdogs (*Canis familiaris*) to guard the colony. Since its implementation, fox predation on penguins has been eliminated, the penguin population has grown to an estimated peak of 187 adults (University of Technology Sydney 2024).

This success prompted Zoos Victoria to invest in the trial use of guardian dogs to facilitate the critically endangered eastern barred bandicoot (*Perameles gunnii*) reintroduction (Wallach et al. 2015). The maremma dogs have trained for four years to protect a flock of

sheep ignoring the bandicoots. The dogs are not bonded directly to the bandicoots as they are solitary and nocturnal and the three species share the same habitat. Foxes and feral cats are not killed but they smell the dogs and avoid the area (Cook 2020, NESP 2021). These projects focus on the potential for guard dogs to protect many other species of native wildlife threatened by invasive predators.

As Ramp and Bekoff (2015) stated, compassionate conservation as movement, with a clear framework of operation, is in its infancy and research that cleverly examines practical synergies and outcomes is needed.

CHAPTER THREE

Critics to Compassionate Conservation

Since its foundation, Compassionate Conservation has gained many supporters but it has also faced substantial criticism and many authors have sided against the approach.

In 2019, 36 ecologists and biologists from around the world, wrote an article harshly commenting the Compassionate Conservation (Callen et al. 2020), pointing out that this type of conservation is simply “animal liberation dressed up as conservation science” and that it is “the most significant new threat to biodiversity conservation”.

Others ironically defined it an attempt “to make the compassionate tail wag the conservation dog” (Hayward 2019) and “the product of blinkered thinking” (Oommen et al. 2019).

The criticisms of Compassionate Conservation can be divided into several categories, each reflecting distinct concerns from the scientific, ethical, and practical perspectives.

3.1 Philosophical and Ethical Criticisms

A recurring criticism concerns on compassion and conservation's focus on individuals. Opponents reject virtue theory, deontology, and compassion because they believe that compassionate conservation overlooks the consequences of its actions. They argue that this oversight could lead to potentially disastrous ecological outcomes. Griffin et al. (2020) contend that responses like empathy and compassion are inadequate guides. They argue that empathic responses are loaded of biases. The first bias of empathy, that can affect effective conservation decisions, is that empathy tends to favour those who are familiar or belong to one's own group. The second bias is its inability to scale. While people may feel deeply for individual animals, they often remain emotionally detached from larger-scale ecological issues or mass suffering, which can lead to disproportionate responses. They think that compassion should be largely eradicated from decision-making, including in social policy and legal systems.

Critics argue, furthermore, that an excessive focus on individual animal welfare can impede broader conservation efforts. By prioritising the well-being of individual animals, they say, it might become difficult to manage populations effectively, leading to overgrazing, habitat degradation, or even species extinction.

Callen et al. (2020) think that focusing on the rights of individual animals at the expense of populations may lead to the extinction of many species and populations and they state: 'Extinction is permanent, while the pain of a microchip or stress of translocation is only temporary'.

Conservation scientists and biologists contend that the established principles of animal welfare have already been integrated into conservation science (Allen et al., 2020; Hayward et al., 2019). and that compassion and empathy toward all animals has always been present in traditional conservation (Fleming, 2018). According to Bobier and Allen (2022b) Compassionate Conservationists do this from an explicit position of animal rights and/or compassion, whereas traditional conservationists respect animal rights and exhibit this same compassion implicitly. These observations lead the authors to conclude that "Compassionate Conservation is indistinguishable from traditional forms of conservation in practice".

Some Authors disapprove the ethical foundations of compassionate conservation, stating that it is ethically confused (Coghlan and Cardilini 2024). Others argue that, by disregarding potential consequences, it could lead to harmful ecological outcomes. (Coghlan and Cardilini 2022). Authors argue that the Compassionate conservation shows either a lack of compassion or inconsistent compassion compared to consequentialist approaches.

Bobier and Allen (2022) contest that as virtue ethicists, Compassionate Conservationists typically emphasise human motivations rather than focusing primarily on animal suffering. They think that conservation policies and practices that do not harm animals, would result in more animal suffering. They contend that a more consequentialist approach is essential, one that acknowledges the necessity of causing harm in certain situations to achieve broader conservation objectives. Furthermore, they assert that actions motivated by compassion may inadvertently endorse harmful or lethal policies and practices more frequently than proponents of compassionate conservation are willing to admit.

Neumann (2004) cautions against the potential dangers of moral extensionism and anthropomorphising wild animals. He argues that Compassionate Conservation may lead to the artificial assignment of moral standing to non-human agents, which can complicate conservation efforts and lead to unrealistic expectations.

3.2 Critiques concerning application of principles

One of the central principles of compassionate conservation is *First, do no harm*, which focuses on minimising harm to individual animals. According to Hayward et al. (2019) harm is an inevitable aspect of life on Earth and has always been integral to the natural world. In ecosystems, species are interconnected through food webs, where harm is a fundamental part of survival, whether through predation, competition, or resource depletion. Natural cycle underscores the fact that harm cannot be completely eliminated, even in conservation efforts, as attempting to avoid it entirely could disrupt the delicate balance of ecosystems. Rather than striving for a harm-free world, the authors assert, conservation must aim to manage harm in a way that sustains biodiversity and ecosystem health.

Furthermore, the do-no-harm maxim the Compassionate Conservationists advocate, does not always promote the welfare of individual animals (Johnson et al 2019). Allowing invasive predators to remain in an ecosystem could result in the suffering and extinction of prey species, which contradicts the principle of reducing harm. Choosing not to harm invasive species like feral cats and European red foxes in Australia results in significant suffering and death among native wildlife. In essence, critics believe that the policy of avoiding harm to invasive predators indirectly leads to greater harm at both the individual and ecological levels.

According to Hayward et al. (2019) the do-no-harm principle can foster apathy rather than empathy, potentially resulting in a passive, do-nothing approach to conservation. As a result, no action might cause more significant harm to a larger number of individuals than actively intervening, even if intervention causes harm to a smaller number of animals.

Driscoll and Watson (2019) also associate the rejection of killing with a passive approach. They argue that conservationists have a positive duty to address the suffering of animals caused by human actions, such as invasive species introductions. Critics often highlight that policies without any form of animal harm, whether intentional or not, are rare and that substantial evidence suggests that implementing a policy with some level of direct animal harm can actually reduce overall harm to animals in the long run (Hayward et al 2019; Callen et al. 2020; Hampton et al. 2019).

Compassionate Conservation has also faced criticism for concentrating on intentional harms while neglecting predictable, albeit indirect or unseen, harms. According to Allen et al. (2019) predation and/or fear of predation produces more harm to target animals than most other alternative human tools. Using dingoes to control red foxes, for example, rates as the most harmful tool of all those that are currently in use or proposed for use against red foxes. Furthermore, intraspecific conflict plays a key role in shaping carnivore populations and can result in fatalities, even among dingoes (Behrendorff 2017).

Unlike Compassionate Conservationists, numerous animal welfare advocates argue that death itself is not necessarily a harm and that in certain cases, a humane death may be more desirable than enduring a life of persistent suffering or facing an imminent inhumane death. Beausoleil (2020), for example, uses the case of stranded whales that are euthanised instead of being re-floated when their chances of short-term survival are minimal and their natural death would be highly distressing. In these instances, the act of killing can be seen as an expression of compassion.

As critics argue the *individuals matter* principle may harm ecosystems by neglecting the larger-scale interactions between species. By concentrating on protecting individual animals, critics suggest that Compassionate Conservation approach overlooks the importance of species and ecosystems (Hayward et al. 2019). Compassionate Conservation principles may oppose culling or removing predator population or invasive species, leading to ecological imbalances (Callen et al. 2020).

A common criticism is that a focus on individual animal welfare complicates the management of invasive species. Non-lethal methods of control are seen as ineffective in many cases. For example, allowing invasive species to thrive due to concerns for their welfare can result in the destruction of native species and ecosystems.

Some critics believe that placing too much emphasis on individual animals introduces ethical inconsistencies. They argue that while it may seem compassionate to protect individual animals from harm, doing so may result in far greater suffering for other animals.

Critics assert that the *individuals matter* approach can be shortsighted, focusing on immediate welfare without considering long-term conservation goals. By neglecting these broader ecological dynamics, conservationists may fail to protect entire species or ecosystems, ultimately leading to more suffering and loss of biodiversity in the future. They stated that a biological species represents a historical lineage evolving through natural selection and the value of communities and ecosystems extends beyond just the sum of their individual components.

Critics have challenged the tenet of *inclusivity* within Compassionate Conservation, arguing that its proponents disproportionately focus on charismatic megafauna (Hayward et al. 2019). They contend that this emphasis on well-known and visually appealing species often comes at the expense of less charismatic, smaller, or less recognisable animals.

Critics believe that the notion of *peaceful coexistence* sets unrealistic expectations about the relationships between humans and wildlife. Critics argue that expecting all species to coexist peacefully with human populations ignores the complexities of ecosystems and the inherent competition for resources. Critics also contend that promoting peaceful coexistence can overlook the legitimate needs and rights of local human populations, particularly in regions where wildlife poses a direct threat to livelihoods, safety, or food security (Oommen et al. 2019). For example, large predators may prey on livestock, leading to economic losses for farmers. If conservation strategies prioritise animal welfare without adequately addressing human concerns, it may create resentment among communities, ultimately undermining conservation goals.

3.3 Criticisms based on effectiveness and applicability in real world

Compassionate Conservation was accused to be idealist and disconnected from the practical realities of conservation. Non-lethal methods like translocation, contraception, and habitat

modifications to manage wildlife populations are often criticised as impractical or ineffective on a large scale. In many situations, critics say, tough decisions need to be made to preserve biodiversity, which may involve actions like culling, habitat destruction, or other interventions that are not aligned with compassionate principles.

Johnson et al. (2019) think that Compassionate Conservation offers limited solutions in situations where non-lethal methods are impractical. The feasibility of non-lethal alternatives is questioned particularly in terms of cost-effectiveness.

Opponents are concerned that the growing popularity of Compassionate Conservation, with its emotionally appealing message, particularly among the public, could shift funding and policy away from more effective, science-based conservation strategies. Callen et al. (2020) express concern that Compassionate Conservation's influence on public opinion may result in the reallocation of funds from traditional conservation practices, which may involve difficult but necessary decisions, such as culling or habitat modification, to more publicly appealing but less effective alternatives. This could undermine the progress needed to meet international biodiversity targets.

Oommen et al. (2019) contend that Compassionate Conservation is unjust to humans and accuse the movement to be a simplistic approach that prioritises the welfare of individual wild animals without considering the well-being of people depending on wild resources or live in proximity to wildlife. In areas where human-wildlife conflict is prevalent, Compassionate Conservation can complicate management strategies. For instance, non-lethal methods of managing predators that threaten livestock or human safety might not be effective, leading to increased tensions and potentially greater harm to both humans and wildlife. Authors argue that, in contrast to more consequentialist approaches, it might overlook the broader impacts on human communities or fail to balance human needs with animal welfare, permitting harm to disadvantaged and marginalised communities caused by wild animals and for overlooking the human reliance on the wildlife trade (Madzwamuse 2020).

Rohwer and Marris (2018) believe that the movement has significant potential for conservation, but it needs to clarify how a virtuous conservationist should act in various challenging situations where no nonlethal alternatives are available, or where nonlethal

methods require altering nature in ways that could be considered arrogant or disrespectful. The key issue is how to proceed when the primary aim of preserving biodiversity conflicts with the principle of compassion. They suggest that using hypothetical scenarios could be helpful in this regard.

3.4 Scientific and ecological criticisms

There is criticism regarding the scientific basis of Compassionate Conservation. A central argument from Callen et al. (2019) and others is that Compassionate Conservation is rooted more in ethical and philosophical ideals than in empirical science. Critics argue that traditional conservation is grounded in ecological research, while Compassionate Conservation sometimes dismisses science-based interventions, like culling or translocation, that are necessary for species survival. This can undermine conservation efforts that are grounded in scientific research, potentially leading to less effective conservation strategies. Critics claim that Compassionate Conservation is neither scientific nor effective for conservation, as it dismisses essential, though harmful, conservation methods. Some even accuse the approach of promoting science denialism (Driscoll and Watson, 2019). Bobier and Allen (2022) argue that conservation policies that avoid direct harm to animals might, paradoxically, result in greater suffering overall. They contend that by focusing solely on minimising direct harm, avoiding lethal control measures, Compassionate Conservation proponents might ignore the broader, systemic harm that can occur as a result of inaction. In the case of invasive species, allowing invasive predators or herbivores to thrive unchecked can lead to the destruction of habitats, the collapse of native species, and widespread suffering due to starvation or ecosystem collapse.

In summary, the criticisms of Compassionate Conservation reveal the complex and often contentious interplay between ethical principles and practical conservation objectives. While Compassionate Conservation aims to reduce harm to individual animals, critics argue that it may inadvertently undermine broader conservation efforts, such as ecosystem protection and species preservation.

CHAPTER FOUR

Discussion

Like all new ideas, especially those that go against the established customs, compassionate conservation has also been met with criticism and rejection. On one side traditional practices are so deeply entrenched and institutionalised that they are seen as normal, inevitable, and necessary. On the other side this new approach could disrupt established balances, especially in areas where there are strong economic or political interests.

History is full of examples of new ideas or movements met with skepticism and resistance to change, especially when they challenged established beliefs. John Stuart Mill (1806-1873) defines the initial phase of social and cultural rejection as the 'stage of ridicule'.

The fight for women's right, for example, was met with derision. In *A Vindication of the Rights of Brutes*, philosopher Thomas Taylor employs the slippery slope argument to satirise the perceived dangers of extending rights to women by suggesting that such recognition could lead to granting rights to animals as well.

The English protectionist movement also faced a phase of ridicule and resistance, particularly among scientists, who dismissed it as a sentimental affliction of delicate young ladies. Initial perception trivialised the movement, framing it as an emotional response rather than a legitimate cause, suggesting that its advocates were overly sentimental and lacking in rationality.

However, history has shown also that the phase of ridicule and resistance can give way to acceptance and recognition of new ideas that ultimately contribute to social progress.

Many critics of compassionate conservation show a tendency to dismiss the concept without fully examining it and exhibiting a mindset that remains anchored in the past. However, traditional conservationists must acknowledge that the catastrophic decline in biodiversity shows that their efforts have not kept pace with the rapid population growth and the rising demands of economic development. Despite their desire to turn back the clock and restore ecosystems, it has become evident that not everything can be quick fixed and thoughtful decisions are necessary regarding which species to conserve and which ones to allow to fade

away. The widespread reluctance to incorporate animal welfare is anachronistic, and there is a need for a paradigm shift for the sake of the animals.

As Bekoff (2010) stated, conservation must move out of its comfort zone, acting out of the box, to address the current crisis in a way that aligns with the universal ethic of concern for the suffering of others.

4.1 Anthropocentrism, speciesism, and instrumental value of Nature

Some criticisms of Compassionate Conservation, as other authors have commented (Coghlan et Cardilini 2022), raise significant ethical questions, and fail to consider the moral complexities involved in harming animals. Certain approaches in conservation are not solely based on science but are partly driven by each person's value system.

We live in a society full of prejudice, where trends like anthropocentrism and speciesism are strongly embedded. Harming unwanted wild animals is justified by most, like the widespread use of animals for food, clothing, entertainment and experimentation. The emphasis on consumption and accumulation in our materialistic cultures leads to the overuse of resources, ultimately exemplifying the *tragedy of the commons* (Hardin 1968), where individual self-interest undermines the collective well-being and sustainability of shared resources.

As animals disappear, this *liquid society* (Bauman 2013) continue to prioritise money and immediate gratification over pressing issues such as habitat destruction, pollution, wild animal suffering and loss of biodiversity.

Governments and policymakers use economic value concepts to design policies that promote growth, stability, and development. Decisions are made from an instrumental perspective and Nature's worth is based on the benefits it provides to humans and for the tangible resources it supplies, such as raw materials and agricultural products. Conservation is also seen as a means for economic growth. The European Commission in the Biodiversity strategy for 2030 (European Commission 2020) state:

Biodiversity conservation has potential direct economic benefits for many sectors of the economy. For example, conserving marine stocks could increase annual profits of the seafood industry by more than €49 billion, while protecting coastal wetlands could save the insurance industry around €50 billion annually through reducing flood damage losses. The overall benefit/cost ratio of an effective global programme for the conservation of remaining wild nature worldwide is estimated to be at least 100 to 1.

This perspective could raise the following questions: given that biodiversity is valued for its instrumental benefits, such as the ecosystem services it offers, why invest in species that do not provide these benefits?

Recognising the intrinsic value of Nature, which means valuing it for its own sake, independently of its utility to humans is seen as a limitation to achieving economic and technological goals. Conservation practices furthermore often interfere with the interests of human communities, raising important issues of social justice.

4.2 Financial constraints in conservation

Governments have to allocate finite resources between various priorities, including environmental conservation, infrastructure development, and social services. Since environment has never been a priority, conservation efforts face the challenge of balancing limited government resources with the demands of development.

As a result, conservation strategies has to manage through these constraints and find ways to integrate environmental goals with development needs. This balancing act involves the determining how to allocate limited financial and human resource among competing priorities and negotiating compromises that allow for economic growth while minimising environmental impacts.

The reliance on private funds of traditional conservation due to the scarcity of resources allocated to the environment leads often to ethically questionable compromises and sometimes animals have been transformed into resources from which various parties can derive benefits.

For instance, “Zoos, offer a large funding budget for conservation research, which is important given stretched conservation dollars, and the neglect of applied conservation research” (Callen et al. 2020) and “Trophy hunting has been championed for its ability to generate funds that support both wildlife conservation and local community welfare” (Batavia 2020).

There are also often conflicts of interest in the management of conservation. In some states in the US, hunting and conservation are financially linked, with most conservation funding coming from hunting license fees and gun sales. These competing interests may lead to tensions or challenges in decision-making.

In Australia, the production of baits laced with 1080 is largely managed by the Western Australian government. Specifically, Eradicat®, palatable 1080 sausage bait to target feral cats, are developed and produced by the Department of Biodiversity, Conservation and Attractions (2024). This involvement implies that the government may have a personal stake in endorsing these product.

Most traditional conservation choices are dictated by economic constraints. For example, despite the existence of other methods to manage an animal population, culling and the use of poisoned bait are preferred, because they are much more cost-effective. For control of peri-urban kangaroos in Australia, it is reported a mean cost per animal removed of AUD \$36 for in situ harvesting, in contrast a mean cost per animal of AUD \$104–\$184/animal for fertility control and translocation (Hillier 2017).

Compassionate Conservation encourages the use of innovative and non-invasive methods for wildlife management, such as sterilisation, to control animal populations but these practices may be more expensive and require more resources that might be difficult to obtain.

For economic reasons, traditional conservation efforts, often focus on charismatic or flagship species, such as pandas, tigers, and elephants, because they attract public interest and funding. While this approach can be effective for raising awareness and resources, it may lead to the neglect of less charismatic species, even if they are ecologically important or critically endangered. Some authors and thinkers used the term vertebrocentric (Nash 2004) to describe a common attitude in which humans tend to place greater importance and value on vertebrate animals such as mammals, birds, and fish, compared to invertebrates or other

forms of life. The term highlights a type of speciesism that not only prioritises humans over other species but also, favours vertebrates over invertebrates, considering them more deserving of moral consideration and protection. This perspective also has implications in scientific research, where there is often a greater focus on protecting vertebrate species, while invertebrate species, despite their fundamental ecological importance, receive less attention and fewer resources. For instance, despite invertebrates constitute the vast majority, 95–97%, of known animal species, only 1.6% have been assessed by IUCN for global extinction rate. The logic behind this bias reflects a perceived hierarchy in which animals more similar to humans in terms of body structure and nervous system, are seen as more important or more worthy of protection than animals with different body organisation, like insects, mollusks, or other invertebrates.

4.3 Invasive species debate

Although Compassionate Conservation has been criticised for favouring mammals, its ethical principles do not involve discrimination against animals. Instead, it recognises the moral value of all animals, both native and non-native, and challenges any biases that might place certain species above others.

Speciesism, instead, is evident in the traditional management of invasive species, where certain non-native animals or plants are targeted for eradication, sometimes using methods that cause significant suffering or death, such as culling and poisoning. The contradiction becomes even more pronounced when conservation addresses species such as dogs and cats. These animals are highly protected when they are pets, but if they are feral, they lack protections and may be culled without any scruples.

Compassionate Conservation argues that once an invasive species has become established in an ecosystem, it shouldn't be removed just because it's not native. Instead of concentrating solely on the removal of non-native species, this strategy advocates for a more comprehensive view of ecosystem management. It encourages a holistic approach that takes into account the interactions between all species and their environment. Rather than

eradication being the primary solution, this perspective seeks to address the underlying causes of ecological imbalance. By doing so, it promotes the sustainability of the entire system. Non-native species are viewed within the broader context of ecosystem dynamics. This allows for more nuanced management decisions that aim to preserve biodiversity. Reducing overall harm, rather than targeting specific species, becomes the focal point.

There are cases where eradicating invasive species has led to the recovery of native species and ecosystems. However, success is not guaranteed. If eradication efforts are not part of a comprehensive plan to restore and maintain the ecosystem, they offer only a temporary solution.

According to Compassionate Conservationist, conservation managers should focus their efforts on preserving natural areas by preventing habitat loss and enhancing nature within human-dominated landscapes, rather than attempting to restore previous ecological balances. They promote re-wilding, which allows natural processes to shape the environment through the reintroducing of key species, such as wolves or lions, that restore predator-prey dynamics, and reconciliation ecology, which encourages biodiversity in human dominated landscapes (Ben-Ami 2017).

Preventive measures to stop the introduction of invasive species could be more effective than attempting to eradicate them once they are already established. Despite this, the international trade in pets, plants, and animals, often driven by economic interests, continues globally. Non-native species are sold across borders for various purposes, including as exotic pets, ornamental plants, or for agricultural use. The illegal wildlife trade, further complicates efforts to control the spread of invasive species.

According to some authors, the real impact of invasive species is overestimated (Chew 2015, Thompson 2014).

A recent study assessed the relative impact of the major threats to species identified as threatened with extinction by the International Union for Conservation of Nature (Hogue 2022). Out of 20,784 species, with available data, in 2019, 88.3% were affected by habitat destruction, 26.6% by overexploitation, 25% by invasive species, 18.2% by pollution, and 16.8% by climate change and weather. The authors argue that because habitat destruction threatens more species than all other threats combined, global environmental priorities must

significantly shift. They recommend that habitat destruction should receive increased attention and resources proportional to its significant impact.

In another analysis of IUCN Red List data, Sean Maxwell and colleagues (2016) evaluated threat information for 8,688 near-threatened or threatened species across fully assessed species groups. They identified overexploitation and agriculture as the primary drivers of biodiversity loss. These threats encompass activities such as food, fodder, fibre, and fuel crop production, livestock farming, aquaculture, and tree cultivation, which they referred to as "big killers.". 72% (6,241 species) are being overexploited for commerce, recreation or subsistence. The expansion and intensification of agriculture are endangering 5,407 species, accounting for 62% of those listed as threatened or near-threatened. More than 2,300 species are impacted by livestock farming and aquaculture; 4,600 by logging; 3014 by urban development; 2084 species by invasive species.

The assertion that invasions by exotic species represent the "second greatest threat" to species extinction first appeared in Edward O. Wilson's 1992 book, *The Diversity of Life*. This claim, initially grounded in three related studies concerning the conservation status of North American freshwater fishes, was broadly generalised by Wilson to have global significance and its uncritical acceptance illustrates how confirmation bias can influence scientific advocacy (Chew 2015).

As stated by Gurevitch and Padilla (2004) so far, there has been inadequate critical assessment of the global patterns regarding the role of invasions in extinctions, or the specific conditions and situations in which invasions are most likely to cause extinctions. There are several well-known cases where invasive species have been strongly linked to the extinction of native species. The introduction of the brown tree snake (*Boiga irregularis*) to Guam, likely after World War II, led to the rapid decline and extinction of nearly all the island's native bird species. With no natural predators and an abundance of prey, the snake population exploded, causing widespread ecological damage. Introduced rats have been responsible for numerous extinctions, particularly on islands where native species evolved without mammalian predators. For example, the introduction of rats to New Zealand and Hawaii led to the extinction of many ground-nesting birds and other small vertebrates.

Chytrid Fungus (*Batrachochytrium dendrobatidis*) has caused declines or extinctions of amphibian species around the world. In particular, several species of frogs, including the Golden Toad of Costa Rica, have gone extinct due to chytridiomycosis, the disease caused by this fungus. Introduced goats (*Capra hircus*) have caused severe habitat degradation on several Galápagos Islands, leading to the decline or extinction of native species.

On islands, it is straightforward to observe that invasive species are disrupting many communities and ecosystems, making the removal of non-native species a reasonable approach. However, even if eradicating one species is necessary to protect another, does it make sense to continue killing animals in the name of conservation where only a few native individuals of a species remain, and even if they do not reach a minimum viable population size? Furthermore, does it make sense to invest in species that have lost their natural habitat and will only persist in captivity?

On continents, invasive species are less likely to cause extinctions because native species generally have more time and space to adapt to these new threats. Widespread extinction due to invasive species on continents has not yet been demonstrated (Marris 2021).

In the Northern hemisphere, many species have repeatedly shifted their habitats over millennia in response to the advance and retreat of glaciers. Every species currently found in Canada for instance, arrived less than 20,000 years ago, as the entire country was previously covered by ice, along with much of northern Europe. As the climate warmed, species migrated northward, though some moved east, west, or even south, and each at varying rates (Marris 2021). Emblematic is the case of the camel (*Camelus bactrianus*). Camelids evolved in North America about 40 million years ago. Titanotylopus, the largest camel that has ever lived, ranged through Texas, Kansas, Nebraska and Arizona for around 10 million years. Later camels spread to South America, and to Asia via the Bering Strait. Camels continued to inhabit North America until very recently, the last ones going extinct only about 8,000 years ago. Their modern Asian descendants are the dromedary of north Africa and south-west Asia and the Bactrian camel of central Asia that were domesticated around 2,000 years ago. Wild dromedaries gradually, went extinct, and today, the descendants of domesticated dromedaries, introduced to Australia by 19th-century settlers, as pack animals, roam freely in the Outback (Thompson 2014). Conservation policies defines them as pests and they are target in killing programs.

Although extinction may coincide with the arrival of invaders, distinguishing the specific impact of the invader from other stressors can be challenging. For example the introduction of the Nile perch (*Lates niloticus*) into Lake Victoria in the 1960s is often blamed for the eradication of native cichlids. with the development of railroads, erosion, and shoreline destruction. Urbanisation during the 1970s increased eutrophication and decreased lake transparency. With increased nutrient loading, anoxic events resulting in fish kills are now common. Increased nutrients appear to favour another invader, the water hyacinth (*Eichhornia crassipes*), which has also been implicated in fish declines by altering nursery areas for juvenile fishes (Witte 2000).

Another example is the Zebra mussels (*Dreissena polymorpha*), considered the major threat to North American freshwater unionid bivalves. The decline of unionid mussels started long before zebra mussels were introduced in the mid-1980s, and so far, no species have gone extinct due to the presence of zebra mussels. The pre-introduction declines were driven by habitat destruction and degradation, increased eutrophication, pesticides, the loss of host fish needed for parasitic unionid larvae, as well as historic harvesting for the button and pearl industries (Gurevitch et Padilla 2004). Recent studies indicate that even if zebra mussels and other stressors were eliminated, these long-lived species would still not recover due to the lasting impact of toxic sediments accumulated from decades of pollution (Strayer et al. 2004).

Multiple threats can act synergistically to cause declines and extinctions. If invasive species are not a primary cause of extinction or major contributors to declines of species but are instead merely correlated with other problems, the resources and efforts devoted to removing exotics might be better focused on more effective means to preserve threatened species

4.4 Colonial echoes in conservation

Some critics have drawn parallels between traditional invasive species management and colonial attitudes, arguing that the labelling of certain species as invasive reflects a human

desire to control and impose order on nature. This perspective challenges the idea of native versus non-native species as inherently good or bad.

In fact, an increasing number of critics have challenged efforts to manage invasive species, arguing that such attempts are covert expressions of nativism, racism, xenophobia, or even worse. Several authors connect the concern over introduced species to the development of immigration policies, particularly in the United States. (Simberloff 2003).

Historian Philip Pauly (2002) writes:

attitudes towards foreign pests merged with ethnic prejudices... it should be clear that attitudes about foreign and native organisms were intimately linked, through both everyday experience and analogies of policy, to views on alien and native humans.

Despite it being evident and demonstrated that the number one cause of biodiversity loss is human activity, through the excessive growth population, which has destroyed countless habitats, caused numerous extinctions worldwide, and has been relocating species across the globe for centuries, it is made to believe that the biggest problem in conservation are invasive species.

Subramanian (2001) writes:

The parallels in the rhetoric surrounding foreign plants and those of foreign peoples are striking. Like the earlier germ panic surrounding immigration and immigrants, questions of hygiene and disease haunt exotic plants and animals. Similar to the unhygienic immigrants, alien plants are accused of 'crowding out native plants and animals, spreading disease, damaging crops, and threatening drinking water supplies'....we are living in a cultural moment where the anxieties of globalisation are feeding nationalisms through xenophobia. The battle against exotic and alien plants is a symptom of a campaign that misplaces and displaces anxieties about economic, social, political, and cultural changes onto outsiders and foreigners.

Larson (2005) has pointed out that biologists, when communicating about invasive species, use a militaristic and combative language. Words like invasions, novel weapons, enemy, battle, kill, eradicate, war, are often used talking about these animals, presumably with the aim of to generating action against these species, which are invisible to most people.

However, he argue that these metaphors are problematic because they lead to an inaccurate perception of invasive species and they contribute to social misunderstanding, charges of xenophobia, and loss of scientific credibility. The use of inappropriate language can lead to a climate of hatred towards some animals.

4.5 Cognitive biases and the idea of Nature

A prejudice widely held in public opinion, and also in conservation, is the idea of nature. We have cognitive biases that distort how we imagine animal life in nature. It's widely believed that nature is good and consequentially that what is natural is better. In his book "Why scientists are not dangerous", the philosopher and historian of medicine Gilberto Corbellini (2009) writes:

It has been stated, demonstrated, and reiterated in almost every way possible that there is nothing more cultural than the idea of nature. Nonetheless, there is equally compelling evidence that there is nothing more difficult to uproot than the belief that certain situations are inherently more natural than others. This idea would not be problematic in itself if it did not always come accompanied, partly due to our own nature, by the prejudice that what is considered natural is automatically deemed more good, more right, more healthy, and more safe.

This prejudice is probably embedded in both type of conservation. On one hand, traditional conservation is bonded with the concept of nativism, arguing that introduced species are considered unnatural and harmful, not necessarily due to their ecological impacts, but because they disrupt entrenched beliefs about the way nature ought to be (Wallach et al., 2018). On the other hand, Compassionate Conservation reject the concept of nativism and focusing just on human intentionally induced harm, it ignores indirect and unseen harms , as if nature were inherently good and just. It underestimate the burden of suffering that animals experience in the wild with the belief that the most beneficial approach for wild animals is to leave them undisturbed, based on the assumption that nature will take care of them. While this suffering is an integral part of natural cycles and ecological processes, there is growing

recognition among philosophers and animal rights advocates that the welfare of wild animals deserves moral consideration (Faria 2016; Tomasik 2015; Johannsen 2020). Some propose developing strategies to mitigate animal suffering in nature, such as interventions to reduce disease or improve environmental conditions. This raises other ethical questions, such as: Do we have a duty to intervene to alleviate the suffering of wild animals? If so, how far should we go, and under what circumstances? How can we balance respect for nature and its processes with the desire to reduce animal suffering? Since we have altered all ecosystems, changed the climate, and introduced new species, to what extent is it our responsibility to address and manage the consequences of our actions on the environment and wildlife?

The native versus alien debate also raises ethical questions about the concept of genetic integrity.

The conservation and management of northern spotted owls (*Strix occidentalis caurina*) is one of the wildlife conservation issues in United States. The northern spotted owl, which relies exclusively on old-growth conifer forests, was listed as a federally threatened subspecies in 1990 due to the swift reduction of its old-forest habitats. The reduction of its range entailed rapid increase in the occurrence of the barred owls (*Strix varia*), a species native to eastern North America. As barred owls have moved westward, they have increasingly come into contact with the range of the spotted owl and the two species now overlap in many areas, particularly in the Pacific Northwest. Barred owls are more aggressive and can outcompete spotted owls for territory and resources. Where their ranges overlap, barred and spotted owls sometimes interbreed, producing hybrid offspring known as *sparred owls*. These hybrids display characteristics of both parent species, and their presence raises concerns about the genetic integrity of the spotted owl populations. This interaction is seen as an invasion that, by contaminating the spotted owl's genome, will determine its extinction. In a field experiment to investigate the effects of the barred owl on the population dynamics of the northern spotted owl 2,485 barred owls were removed using shotgun (Wiens 2021).

The possibility that hybridisation could enhance genetic diversity, potentially making the species more adaptable to an environment that is becoming progressively less suitable is never considered by conservationist (Marris 2021). The belief that genetic integrity is intrinsically valuable implies that any change in the genome or deviation from established

genetic traits is inherently negative. In this view, preserving the original genetic makeup of a species is crucial, and any alteration or departure from this baseline is seen as detrimental. However, many plant species and bird species are thought to have arisen through hybridisation.

According to Rohwer and Marris (2015) there is unlikely to be a *prima facie* duty to protect the purity of a species' genome. Furthermore the notion of genetic integrity can divert limited resources from more urgent conservation efforts and, in certain cases, result in adverse outcomes.

Traditional conservationists plan to restore ecosystems and criticises the concepts of novel ecosystems and New Pangea. However novel ecosystems have been present for many years. In Italy alone, there are 1 597 species of alien vascular flora; in Belgium, 2 818; and in Great Britain, 1 834 (Galasso 2018).

They also argue that the well-established science of animal welfare is already incorporated into conservation science (Allen et al. 2020; Hayward et al. 2019). However, it is not respectful of animal welfare to kill cats, dingoes, foxes, possums, and all non-target animals with 1080 poison bait. It is known for causing significant suffering in exposed animals like severe pain, disorientation, and a slow and painful death. Even controlling rodents with brodifacoum and glue traps cannot be defined respectful of their animal welfare.

Compassionate Conservation prioritises the welfare of animals by aiming to minimise their suffering, promoting a more holistic view of conservation that considers the intrinsic value of all individual animals. Nevertheless non-invasive methods can sometimes cause significant harms and, in some situations, deciding not to act can cause more harm than acting. Focusing on animal welfare, can conflict with broader ecological goals, such as managing invasive species that can negatively affect native individuals welfare.

Using guard dogs for example, can be beneficial from an ecological perspective, but it might actually degrade the welfare of some individuals that are killed or stressed.

Furthermore, some compassionate practices may be difficult to implement on a large scale or in complex contexts and may be less effective compared to traditional methods.

4.6 De-individualisation in conservation: the cost of viewing animals as populations

Some have claimed that compassion create distorted and biased decision-making. This is highly contestable. Compassion indeed is a fundamental value that positively impacts many aspects of life, enhancing relationships, supporting individual and collective well-being, and contributing to a more just and supportive society. Denying compassion to animals is a choice influenced by an anthropocentric and practical perspective, which allows people to ignore the ethical consequences of their actions, simplifying the justification of cruel practices. Promoting compassion and recognising the value of animals are essential steps toward creating a more ethical and respectful society for all forms of life.

In the context of how humans relate to animals, especially in the framework of carnism, Melanie Joy (2012) discussed the concepts of objectification, de-individualisation, and dichotomisation. There is a strong analogy between the mechanisms she've described and traditional approaches to conservation. These parallels highlight how similar psychological and sociological processes can influence both the treatment of animals in agriculture and in management of wildlife. Species are reduced to *populations* or *units* to be culled, relocated, or managed without considering the well-being of individual animals.

This objectification lead to decisions that prioritise human interests, such as economic benefits or ecosystem services, over the welfare of individual animals. In fact, in many conservation efforts, individual animals are de-individualised, viewed as interchangeable representatives of their species rather than unique beings with their own lives and experiences. This de-individualisation can make it easier to justify actions like culling or relocating animals because the focus is on the species as a whole rather than the suffering caused to individuals.

Conservation practices often involve dichotomisation, where animals are categorised into *native* versus *invasive*, *protected* versus *pest*, or *valuable* versus *expendable*. These binary distinctions can justify differential treatment based on whether a species is considered beneficial or demonised and targeted for eradication.

Removing any cuteness, particularly from animals like cats, dogs, and rabbits that are commonly seen as pets in Australia, is a crucial step in gaining public approval for lethal control measures (Hillier 2017).

4.7 Importance of scientific method and animal welfare regulations

Since environmental administration is conducted by and for people, social and political aspects often carry more weight than biology science. Some authors arose the issue that scientific evidence reveals flaws in favoured government policies. Governments can make science-based claims without adhering to the same standards of transparency and scrutiny expected of scientific researchers. The management of invasive species is a good example of this. Decisions about which species are considered invasive and how to manage them often involve subjective value judgments that reflect human preferences and biases rather than objective ecological considerations.

According to Gurevitch and Padilla (2004), there has been insufficient detailed analysis of global trends concerning the role of invasions in causing extinctions. Additionally, there is a lack of clarity about the specific conditions and situations in which invasions are most likely to lead to extinctions. Often, the data available on extinction causes and threats are speculative or based on limited field observations.

Reddix et al. (2016) review 1915 pest control actions conducted with the aim of protecting native biodiversity in Australia during 1990–2003. They found that most (67.5%) consisted of a single treatment area without monitoring of either the pest or biodiversity and conclude by emphasising that without adopting proper experimental design principles, the understanding of the effects of mammalian pest control in Australia will remain unreliable.

Although significant resources have been spent on controlling pest species, there are few reliable estimates of the impact of pest control on Australian native biodiversity.

In the case of Australia's threatened species strategy, with the target to cull 2 million feral cats, for instance, Doherty et al. (2018) pointed out that the scientific basis were weak. They contended that accurate estimates of Australia's cat population were unavailable when the

target was established and, more critically, the culling target wasn't clearly tied to specific conservation results, such as observable increases in populations of endangered species. Furthermore they argued that focus on cats was overwhelming compared to other threatening processes that endanger large numbers of plant and animal species, especially habitat loss. In fact, even though the strategy referenced feral cats over 70 times, habitat loss and fragmentation were notably absent. They expressed concern because Australia already has one of the highest rates of land clearing globally and they concluded that it is a politically sensitive issue because significant economic interests, such as agriculture, urban development, and mining, are the main drivers of habitat loss.

These criticisms underscore the necessity for a more evidence-based approach to wildlife management, where decisions are guided by thorough scientific research rather than being swayed by external pressures that prioritise the interests of lobby groups like hunting and agriculture, over the needs of wildlife.

Over the last decades public attitudes about the value of wildlife have been changed but governments and institutions struggle to effectively adapt to reflect modern societal values due to the over-influence of these politically powerful interest groups, in the decision-making process.

The legislative gap regarding animals classified as pests highlights a significant disparity in how different categories of animals are protected and treated under the law. However public pressure from advocacy groups and activists can draw attention to specific issues, mobilising citizens to campaign for legislative changes. This includes organising protests, petitions, and awareness campaigns.

Compassionate Conservation can improve public acceptance of conservation measures, especially in communities where animal welfare is a significant concern.

4.8 Ethical considerations in conservation practice

Compassionate Conservation, have been criticised for its lack of a well-defined and coherent ethical framework (Coghlan et Cardilini 2024).

Despite some authors have invoked virtue ethics to argue against killing (Batavia et al. 2021; Wallach et al. 2018), Compassionate Conservation allows pluralism about moral theory. Proponents of Compassionate Conservation may hold divergent and even conflicting beliefs about facts and values, yet they can still identify as Compassionate Conservationists because they share the essential and collectively sufficient beliefs that underpin this approach (Coghland et Cardilini 2022). For instance regarding fences, they might have differing views on the use of fencing in conservation efforts. Some might argue that fencing is necessary to protect certain species from predators or to manage populations effectively (Fox and Bekoff 2011). Others might be concerned that fencing can cause suffering to animals by restricting their movement or isolating them from their natural habitats (Kopnina et al. 2019). Despite these differing opinions, they can all support Compassionate Conservation if they agree on the core principle of prioritising animal welfare and consider fencing as a tool to be used thoughtfully within that framework.

The increasing awareness and concern for animal welfare and ethical treatment, conflict with traditional conservation methods that emphasise ecological balance over the well-being of individual animals, highlighting a clash with contemporary ethical perspectives. Various solutions have been suggested to enhance the welfare of wildlife animals involved in conservation projects.

Fraser (2010) presents a practical approach to addressing the ethical treatment of animals, focusing on how to balance scientific, ethical, and practical considerations in the care and management of animals. Emphasising the importance of understanding animal welfare through scientific research, he argues that a practical ethic for animals should be grounded in evidence-based science that informs how animals are treated. He stresses the importance of ethical decision-making processes that engage all relevant stakeholders, including scientists, ethicists, and the public and advocates for approaches to animal welfare that are both transparent and accountable.

Dubois et al. (2017) suggest several principles for ethical wildlife control, which encourage conservation scientists to explore nonlethal alternatives and, when no such alternatives exist, to ensure that animals are killed in a humane manner. They propose an ethical review process, supported by appropriate governance and resources, similar to the approach used by

animal ethics committees in evaluating the acceptability of scientific research involving animals and humans.

Following the principle of Compassionate Conservation, Gray (2018) developed a basic decision-making tool that maps the benefit or harm to a species on one axis and the benefit or harm to an individual on the other. With this simple diagram, it is possible to evaluate the proposed actions by determining which quadrant they fit into. Actions that benefit both individuals and species should be prioritised, while those that harm both must be avoided. The actions that fall into the other two categories, beneficial to species but harmful to individuals, or vice versa, require careful consideration to determine if there are more effective alternatives.

Biasetti and De Mori (2021) propose the use of the Ethical Matrix, a tool used to systematically and orderly analyse and compare moral issues and ethical decisions. It helps clarify the values and principles involved in a decision and assess the implications of ethical choices in various contexts. The ethical matrix provides a concise framework of all stakeholders' interests, allowing decision-makers to assess the impact of measures and arrive at a decision.

Whatever method is used, it is essential for conservation to be guided by a scientific method, ensuring that decisions are based on solid evidence and research. Equally important is the implementation of animal welfare regulations, similar to those enforced in other fields like agriculture, biomedical research, and industry. These regulations ensure that the well-being of animals is prioritised and that ethical standards are upheld throughout conservation efforts.

The importance of these needs is becoming imperative with the emergence of gene-editing technologies such as CRISPR. These advanced tools offer the potential to enhance genetic diversity in endangered species, eliminate harmful genes, and manage invasive species by altering their genetic profiles to mitigate their impact. However, their application must be approached with careful attention to ethical considerations, including potential ecological effects, unintended consequences, long-term impacts on ecosystems, and the risk of harmful practices under the guise of conservation.

Conservation should not only focus on scientific rigor and animal welfare; it must also adopt an inclusive approach that considers the perspectives and needs of all stakeholders involved. This includes animals and ecosystems, local communities, indigenous groups, environmental organisations, policymakers and other interest groups who are impacted by conservation initiatives.

An inclusive approach ensures that the solutions developed are socially acceptable and sustainable in the long term. It allows for the integration of traditional knowledge, local experiences, and cultural values, enriching the conservation process and making it more adaptable to the specific contexts in which it is applied.

This inclusive approach not only aligns with principles of social justice but also enhances the credibility and success of conservation efforts by fostering collaborative and participatory management.

Conclusions

The disparity in legal protection and moral consideration between companion animals, farm animals, and experimental animals compared to animals undesired or considered pests, raises ethical questions about how different animals are valued and treated. The pressure of public opinion, which are increasingly interested in the protection of sentient beings, and the growing scientific debate surrounding this issue, highlight a critical need for developing strategies that integrate animal welfare principles with conservation goals. At the same time we live in a society that remains strongly anthropocentric and speciesist, with a system based on beliefs inclined to consider the traditional way of behaving as a reflection of moral truths. Dismantling a value and cultural framework with a millennia-old root, requires the creation of new models. We need a fundamental change in how we understand and educate people about respect for animals and ecosystems, biodiversity loss, overpopulation, overconsumption and sustainability.

When there is significant public backing, ethical concerns for animals sometimes lead to legal action, as demonstrated by the *habeas corpus* case for chimpanzees. Public protest can directly influence government policies and conservation strategies. Examples include the ban on the use of animals in circuses in UK, the ban of fur farming in several countries, the end of seal hunting in European Union and Canada.

Some authors have raised concerns about the fact that many ecologists and conservationists lack formal training in ethics or philosophy, just as many ethicists and philosophers have limited formal knowledge in ecology or conservation (Ferraro et al. 2021).

The separation between scientific disciplines and fields like ethics or philosophy can result in missed opportunities for interdisciplinary dialogue. Medical practitioners and ethicists have collaborated for decades, addressing ethical dilemmas together and it's time to reject the idea that conservation and animal welfare are at odds (Ferraro et al. 2021).

While Compassionate Conservation may not always be the most practical approach, in the face of pressing environmental and biodiversity crises, its principles offer essential ethical guidance. By integrating these principles into conservation efforts, it is possible to develop

more balanced and humane strategies that address both individual animal welfare and broader ecological goals.

Such well-developed and substantial modes of thought [...] should be seen as an invitation to a new and serious, if passionate, dialogue about basic values and moral principles in conservation biology (Coghlan et Cardilini 2020).

Never before it has been so clear that the environmental issue is strictly related to the survival of humanity.

In December 2023, more than 200 health journals worldwide came together to publish a seminal editorial, marking a pivotal moment in the intersection of public health and environmental stewardship. This collective effort urgently calls on the United Nations, political leaders, and health professionals to recognise that climate change and biodiversity loss are not isolated issues but rather an indivisible crisis that must be addressed simultaneously. The editorial emphasises that in order to preserve human health and avert catastrophe, both challenges must be tackled collaboratively (Abbasi et al. 2023).

Embracing Compassionate Conservation in our response to this global crisis can pave the way for a more sustainable and equitable future, ensuring that both human and animal welfare are at the forefront of conservation efforts in an *expanding circle* that addresses the ethical treatment of all living beings.

People who care about animals and nature should not be considered ‘the radicals’ or ‘bad guys’ who are trying to impede ‘human progress’; in fact, they could be seen as heroes who are not only fighting for animals, but also for humanity. Biodiversity is what enables human life as well as enriches it. It is imperative that all of humanity reconnects with what sustains the ability of our species to persist and that we act as a unified collective while coexisting with other species and retaining the integrity of ecosystems. There are no quick fixes and we need to realise that when animals die, we die too (Bekoff 2010).

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