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Research

Reviewing the relationship between neoliberal societies and nature: implications of the industrialized dominant social paradigm for a sustainable future

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ABSTRACT. How a society relates to nature is shaped by the dominant social paradigm (DSP): a society's collective view on social, economic, political, and environmental issues. The characteristics of the DSP have important consequences for natural systems and their conservation. Based on a synthesis of academic literature, we provide a new gradient of 12 types of human-nature relationships synthesized from scientific literature, and an analysis of where the DSP of industrialized, and more specifically, neoliberal societies fit on that gradient. We aim to answer how the industrialized DSP relates to nature, i.e., what types of human-nature relationships this DSP incorporates, and what the consequences of these relationships are for nature conservation and a sustainable future. The gradient of human-nature relationships is based on three defining characteristics: (1) a nature-culture divide, (2) core values, and (3) being anthropocentric or ecocentric. We argue that the industrialized DSP includes elements of the anthropocentric relationships of mastery, utilization, detachment, and stewardship. It therefore regards nature and culture as separate, is mainly driven by instrumental values, and drives detachment from and commodification of nature. Consequently, most green initiatives and policies driven by an industrialized and neoliberal DSP are based on economic incentives and economic growth, without recognition of the needs and limits of natural systems. This leads to environmental degradation and social inequality, obstructing the path to a truly sustainable society. To reach a more ecocentric DSP, systemic changes, in addition to individual changes, in the political and economic structures of the industrialized DSP are needed, along with a change in values and approach toward nature, long-term sustainability, and conservation.

Key Words: *conservation; dominant social paradigm; environmental degradation; human-nature relationships; industrialized society; sustainability*

INTRODUCTION

Homo sapiens is by far the most dominant species on the planet. Human impact on nature was first manifested as hunter-gatherers over 10,000 years ago, and steeply grew with the advent of agriculture and attendant mass deforestation (Smith and Zeder 2013, Maslin and Lewis 2015). However, the most dramatic and damaging influence on natural ecosystems by humans began only 200 years ago with the advent of the industrial revolution (Braje and Erlandson 2013). The introduction of intensive manufacturing and the switch to cheap energy from fossil fuels subsequently transformed society in an almost exponential fashion, coinciding with a rapid increase in the human population across the biosphere and an inevitable collision course with the natural world (Campbell 2002). Ecosystems and natural communities are now increasingly being damaged or destroyed by an array of processes including deforestation, over-harvesting of plants and animals, mining, unsustainable agricultural practices, pollution, and climate change (Ehrlich and Ehrlich 2004, MEA 2005, Crutzen 2006, Salafsky et al. 2008).

Symptoms of the human fingerprint are evident across vast swathes of the planet. During the past century human appropriation of net primary production (HANPP), a measure of the percentage of the productive capacity of biomass extracted by humanity, almost doubled from 13% in 1910 to 25% in 2005 (Krausmann et al. 2013). Additionally, HANPP is expected to rise another 14–30% between 2010 and 2050 (Zhou et al. 2018). Human overexploitation of natural capital results in a disturbed balance between the supply and demand of natural resources,

leading to deterioration of many ecosystems (SERI 2009). As a result, this has led to an acceleration in the loss of biodiversity (Dirzo et al. 2014, Pievani 2014, Ceballos et al. 2017, Rosenberg et al. 2019). At the same time, because of the burning of fossil fuels, atmospheric CO₂ concentrations are rising, resulting in rapid warming across at least 98% of the biosphere over the past several decades (Neukom et al. 2019). If warming continues unabated, worldwide temperatures are predicted to rise by between 1.5 °C and 4.5 °C by 2100 (IPCC 2018, 2021).

These events show that humans are exceeding several critical planetary boundaries and that the relationship between modern society and nature may have become unbalanced (Rockström et al. 2009, Steffen et al. 2015). It defines “the Anthropocene” epoch in which we are now living (Maslin and Lewis 2015). One of the bases for scholars' examinations of human-nature relationships has been culture theory, which explains that events and the context of social communities help to shape what people believe, how they communicate, and subsequently how they behave (including interactions with non-humans and between humans). How a society relates to and treats nature is influenced by its dominant social paradigm (DSP), i.e., the collective set of economic, political, and social rules and norms that guide the goals and behaviors of that society (Dunlap and Van Liere 1984). The DSP has many dimensions that directly or indirectly influence social, political, and economic decisions on a societal level, and influences its inhabitants on an individual level via different types of implicit and explicit incentives and pressures (Kantartzis and Molineux 2011).

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This paper investigates how the DSP of industrialized, and more specifically, neoliberal societies relate to nature (from here on referred to as “the industrialized DSP”), aiming to answer the question “how do industrialized, neoliberal societies relate to nature and what are the consequences of that relationship for collective sustainable behavior and mitigation of ecological degradation?” This paper consists of two main parts: first, based on published literature, we describe a gradient of 12 human-nature relationships, from anthropocentric to ecocentric, based on the degree of incorporation of nature, the view of nature as its own entity, and the main core values of that relationship. Subsequently, we investigate where the industrialized DSP fits on this gradient, by describing the extent to which it includes nature, its core values, and its general practices and attitude toward nature. This paper is written from the viewpoint of those in industrialized, primarily white countries, and the gradient is based on literature that has resulted from primarily Eurocentric scholarly work. We recognize that, by working from this point of view, some more traditional or Indigenous understandings of nature that are likely underrepresented in academic literature, will therefore also be underrepresented in the relationship types we present here.

HUMAN-NATURE RELATIONSHIPS: AN OVERVIEW

The relationship between human society and the natural environment reflects how society treats and values nature (Shoreman-Ouimet and Kopnina 2015, Muradian and Pascual 2018). It has been argued that recognizing the strong interdependence between nature and society is imperative if we are to reach the goals of a sustainable global society (Ives et al. 2017). Understanding the relationship between the industrialized DSP and nature is important in understanding how industrialized societies view and implement nature conservation and sustainable practices. “Sustainable” is used here in an ecological, rather than in an economic sense. From an ecological point of view, sustainability means that things will be sustained: the ability of ecosystems and everything in it to persist, that is, to (re)produce indefinitely while remaining diverse (IUCN 1980). In other words, sustainability refers to the ability to maintain a constant level of resources and replace all the resources that are being used (Brown et al. 1987). The concept of what “nature” entails is inextricably linked to the different rationales and associations that people have in relation to nature. “Nature” can be interpreted in various ways and the debate of what is “natural,” whether nature in its most pristine interpretation truly exists, and the extent to which it is separate from human culture, has a long and rich history (Ingold 2000, Fletcher 2017a, Büscher and Fletcher 2019, see Braun 2004 for the evolution of this debate over the past decades). We argue that the concept of what “nature” entails is not set but is based on a variety of different rationales and understandings. Nonetheless, in the most basic sense, it refers to some form or interpretation of the physical and biotic environment. Here, “nature” and “natural” are applied as meaning the natural environment, as defined by the Cambridge dictionary: “all the animals, plants, rocks, etc. in the world and all the features, forces, and processes that happen or exist independently of people, such as the weather, the sea, mountains, the production of young animals or plants, and growth” (<https://dictionary.cambridge.org/dictionary/english/nature>). However, for this paper, “independently of people” does not refer to environments that are free of human

interference, but also includes semi-natural human-altered environments, as virtually no part of the natural world currently is unaffected by human activity.

Human-nature relationships can be classified into different types, each with their different views, characteristics, values, and consequences for nature conservation. We based the proposed gradient of human-nature relationships on a synthesis of academic literature, starting with a broad search using different keywords relating to human-nature relationships. From that search, we identified 22 papers that directly describe distinct relationships between humans and nature. Based on these papers and how they define human-nature relationships (Kellert 1996, Van den Born et al. 2001, Schultz 2002, Jelinski 2005, Van den Born 2006, Berghöfer et al. 2008, Fletcher 2009, Nisbet et al. 2009, Wardekker et al. 2009, Uggla 2010, de Groot et al. 2011, Zylstra et al. 2014, Fletcher 2017a, Ives et al. 2018, Muhar et al. 2018, Muradian and Pascual 2018, Walton and Jones 2018), we identified three main and interconnected elements, which we describe in more detail below, that characterize these relationships: (1) the degree of a nature-culture divide: is nature viewed as part of society, or separated from it?; (2) core values: what values lie at the base of the human-nature relationship?; (3) the degree of anthropocentrism or ecocentrism: is the relationship more focused on centralizing human needs or wants from nature, or are the needs and limits of nature considered as equal or maybe even more important? Subsequently, we identified similarities and differences between papers describing similar types of relationships, leading to a list of 12 distinct types of relationships and their characteristics, placed along a gradient ranging from anthropocentric to ecocentric. These relationships are (from anthropocentric to ecocentric): mastery, utilization, detachment, romanticism, stewardship, wardship, devotion, ritualized exchange, partnership, participation, connectedness, and holistic. For a more detailed description of the methodology and the definitions used throughout this paper, please refer to the appendices.

Defining characteristics of human-nature relationships

A first characteristic of human-nature relationships is whether they assume there is a division between nature and humanity, i.e., a nature-culture divide (Buijs et al. 2008, Muradian and Pascual 2018). For instance, whereas a holistic relationship assumes no divide or difference between human and nature, a romanticized view of nature views humanity and civilization as clearly separate from the natural “wild” (Jelinski 2005, Fletcher 2009). However, even for relationships that recognize a divide between the two, many variations are possible. For example, stewardship assumes that both nature and humans are equally created entities, yet separate from one another (de Groot et al. 2011). In contrast, a relationship of mastery places humanity above nature and feels no need to take care of it (de Groot et al. 2011, Muradian and Pascual 2018). A relationship that views nature as separate from humanity is more prone to placing human needs above those of nature, leading to an unbalanced relationship in which the needs of natural systems are subservient to those of humanity (Schultz 2002, Fletcher 2009, Uggla 2010, Casper et al. 2021).

A second characteristic used to classify the relationship between humans and nature is the extent to which nature is regarded as having instrumental or intrinsic value and accordingly, whether it is seen as its own entity with intrinsic rights. Human-nature

relationships are based on values that can be intrinsic, instrumental, or relational (Chan et al. 2016, Piccolo 2017). The more nature is recognized as having intrinsic value, the more nature is seen as being equal to humanity (Shoreman-Ouimet and Kopnina 2015, Piccolo 2017). Intrinsic values can be further differentiated between those that are derived and those that are inherent (Bonnet 2003). Derivative intrinsic value refers to non-material things nature can supply to humans, while inherent intrinsic values assign value to something independent of what humanity may think or get from it (Bonnet 2003). More recently, relational values have been proposed as an important addition to intrinsic and instrumental values, particularly for conservation, policy development, and including social relations (Chan et al. 2016). Relational values, or eudaimonic values, refer to the relations an individual or larger group has with or toward nature, what that relation means to them and how that relation aids in living a “good life,” e.g., from a stewardship perspective: caring for this land gives me a sense of fulfillment (Chan et al. 2016, Muradian and Pascual 2018). A relationship based entirely on instrumental values is often hierarchical in the sense that humanity is seen as more important and having more agency than nature and that nature can be subjected to society’s will and use (Shoreman-Ouimet and Kopnina 2015). Consequently, compared to relationships based on relational or intrinsic values, relationships based on instrumental values are more likely to prioritize human needs and wants over the needs and limits of nature (Bonnet 2003, Shoreman-Ouimet and Kopnina 2015, Chan et al. 2016).

Third, the degree of ecocentrism versus anthropocentrism reflects a contrast in viewing nature as its own entity with limits and needs for protection, versus a human interpretation of what nature can or should provide for humanity (either material or non-material). The ecocentric view of nature is based on a positivistic paradigm of observation, reason, and experimenting, in which nature is described systematically in interlinked food webs, ecosystems, and models (Moon et al. 2016). This perspective is also linked with (1) holistic thinking, in the sense that everything in the natural system is interlinked and influences each other, with humans as an integral part of that system (Jelinski 2005), and (2) ecological determinism, which states cultural practices are an ecological adaptation and that the physical environment drives human development (Shoreman-Ouimet and Kopnina 2015). Although ecocentrism allows room for nature to exist or “be” independent from human constructs or interpretations of it and does not place humans or society at the center of nature, anthropocentrism only sees nature through the “human lens” and places the human viewpoint central in its understanding of nature (Hailwood 2012, Kopnina 2012). Anthropocentrism is based on a constructivist view of nature and assumes that nature is not a set reality that can exist outside of the human view of it, but merely as a human construct. Anthropocentrism is related to the concept of cultural determinism, which, likewise, assumes that society is shaped by cultural perceptions, placing humans above nature, and not recognizing it as an entity in its own right (Shoreman-Ouimet and Kopnina 2015). What nature is or is not, depends on who is defining it. Consequently, environmental degradation can be seen as a human construct, and is thus multi-interpretable. An anthropogenic point of view makes it challenging to judge views or alter behaviors that are harmful to nature but benefit human society (Kidner 2000, Crist 2004).

Based on these three characteristics, we identified 12 different types of human-nature relationships from the existing literature (Fig. 1). Each relationship is identified by the three characteristics described above. The different relationships are placed along a scale of being more anthropocentric to ecocentric, with marked points that indicate clear shifts, e.g., relationships that see nature and humans as being equal and relationships that do not (Fig. 1).

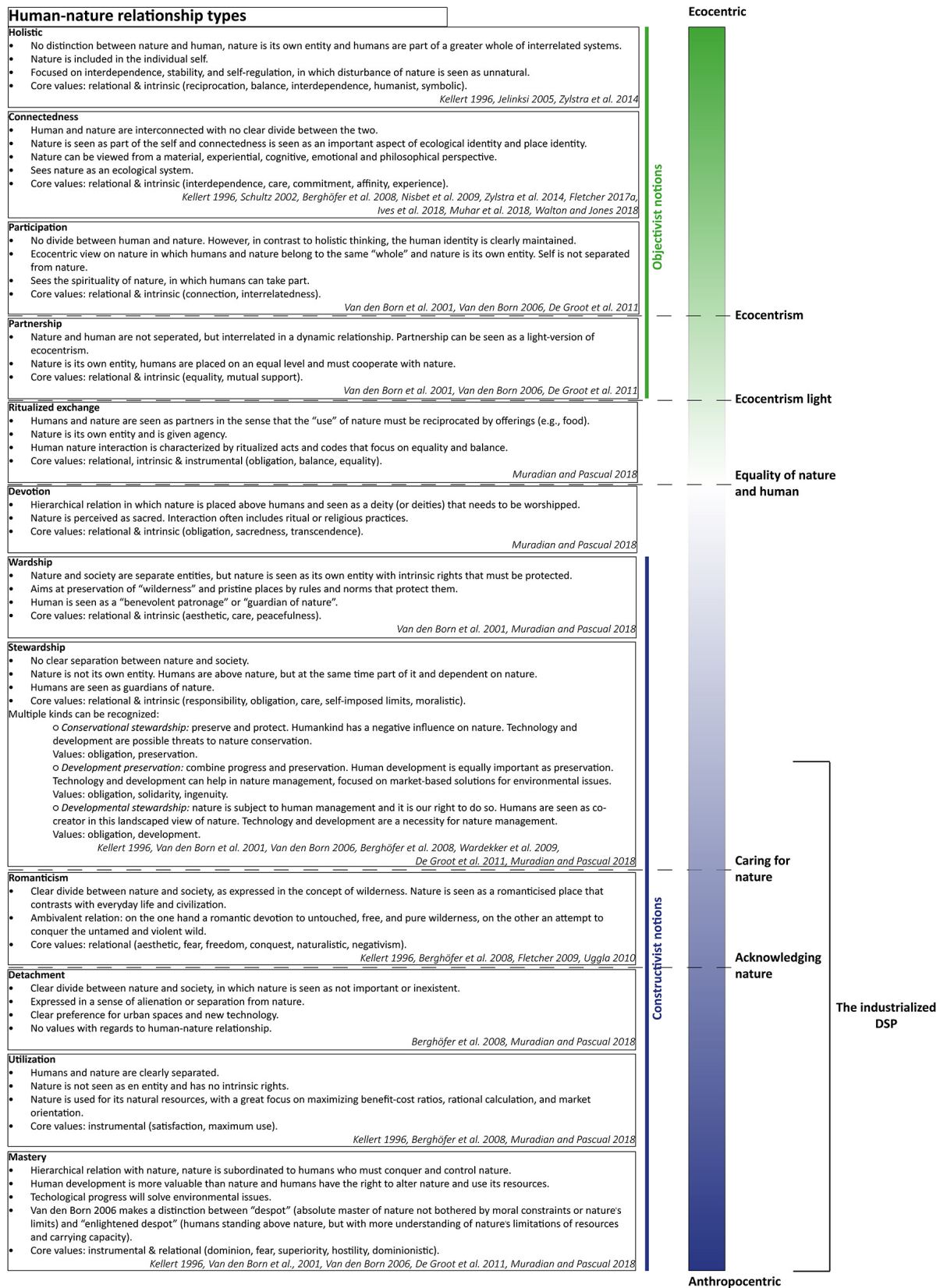
THE INDUSTRIALIZED DOMINANT SOCIAL PARADIGM

Having described the different types of human-nature relationships, we discuss which best describes neoliberal, industrialized societies. To investigate the attitude of human societies toward nature, we must look at the ways societies collectively behave. Even though most individuals can make their own choices and decisions, humans generally need some sort of social order to function effectively (Berger and Luckman 1966). In the case of modern societies, this framework of social rules, beliefs, values, and limits is called the dominant social paradigm (DSP; Pirages and Ehrlich 1974). In general, a DSP can be seen as the presiding, unwritten set of rules and ideas that together dictate how members of that society should live their lives. On a societal level, a DSP shapes a society’s collective view and behavior on social, economic, and political issues (Kantartzis and Molineux 2011). A DSP can change over time, but irrespective of what the DSP of a given society dictates at any given moment, the very concept of a DSP implies that this particular set of unwritten rules is the dominant framework in which that society operates at that given time (Pirages and Ehrlich 1974).

We aim here to describe the DSP of industrialized, often Western societies, i.e., the industrialized DSP. Even though we recognize that cultural and behavioral differences between countries do exist, a general pattern can be detected in the DSP of many neoliberal, industrialized countries with regard to social norms, economics, and political systems. In the past few centuries, the Western, or Eurocentric, worldview has been expanded to countries outside the continent (Zylstra et al. 2014). In this paper, when we mention “industrialized” or “developed” countries, we refer to countries that are commonly seen as relatively rich and powerful, as they have the means to make choices toward sustainable practices, in contrast to countries that have fewer means to do so, either because of financial, historical, power, or developmental reasons. Therefore, the terms “industrialized” or “developed” countries will encompass North America, Western Europe, Australia, and some highly technologically developed Middle Eastern and Asian countries (like Japan), based on the list of countries with a “very high human development,” as indicated by the United Nations (UNDP 2019).

The current DSP in most industrialized countries is based on a consumption-driven economic and social system with a strong focus on individualism (Jessop 2002, Peck and Tickell 2002). Within this DSP, great value is placed on working, being productive, and achieving individual goals (Darnell 2002, Barnhart and Mish 2017). In the last few decades, a shift can be noticed from a society in which production and production efficiency were the driving factor, toward a consumption society in which consumers, their preferences, and marketing have become the driving forces (Hamilton 2010). Consequently, belonging to a certain class or group has been replaced by

Fig. 1. Distinct relationships between humanity and nature as identified by their respective characteristics and core values, placed alongside a gradient of anthropocentrism to ecocentrism. DSP = dominant social paradigm.



individual choices in lifestyle and consumption patterns, driven by a competitive, capitalistic market focused on maximum individual gain (Hamilton 2010, Barnhart and Mish 2017).

The industrialized DSP encourages the belief that an increase in wealth is correlated with an increase in happiness and that wealth can be expressed via a certain consumption pattern (Jensen 2006). In most industrialized countries the individualized, consumption-driven system is supported by a government that promotes neoliberal policies. Neoliberalism is a political ideology characterized by privatization, deregulation of (inter)national markets, and capitalism (Jessop 2002, Peck and Tickell 2002). Neoliberal politics favor a free market, low interference from governments in business, and 'free trade', a semantic camouflage for promoting investor's rights (Jessop 2002, Peck and Tickell 2002). The aim is to push deregulation of the market, aiming for as little governmental interference as possible (Morales et al. 2014). The benefits and harms of the industrialized DSP vary between different groups in society, being beneficial to certain groups often at the cost of others. These differences can be observed in the growing wealth-gap between rich and poor and have been explored in research about racial capitalism (Harvey 2005, Melamed 2015, Killewald et al. 2017).

The propagation of a neoliberal and consumption-focused DSP has had several consequences with regard to the welfare of humans and nature. Deregulation combined with the focus on freedom and individualism has led to use of nature as a mere source of resources without sufficient legal protection against overexploitation, and the individualization of responsibility in which the consumer is often ultimately held responsible for environmental problems (Maniates 2001). The goal of the economic system is to increase markets and economic growth and, thus, an increase in overall consumption and profits (Morales et al. 2014, Barnhart and Mish 2017). Because of deregulation, governments often do not provide strict policy or taxes on unsustainable products. As long as consumers do not value sustainable products or practices (i.e., are willing to pay more for these products), producers will keep creating products that satisfy demand because factors like ethics and sustainability do not serve any economic interests in this case (OECD 2011a, Barnhart and Mish 2017).

Second, marketing and media actively promote and encourage consumerism, leaving little room for other behavior. Neoliberalism was first introduced in the United States and Britain by the Reagan and Thatcher administrations in the early 1980s (Plehwe et al. 2005, Jones 2014). It is now entrenched across most of the industrialized world, known as "The Washington Consensus," and has been promoted by the mainstream media through the "manufacturing of consent" (Herman and Chomsky 1988, Williamson 1996). This theory states that mass media, through corporate ownership or dependence on corporate advertising, generally serve the interests of the corporate and political elites and therefore, aim to maintain capitalism and promote the neoliberal doctrine. They do so by emphasizing the industrialized DSP: high levels of individualism, free choice, and public flexibility (Leonard 1997). Mainstream media output perpetually drives a message that people are in control of their own happiness, provided they work hard enough and make the correct purchasing decisions (Kantartzis and Molineux 2011).

This is achieved through copious product advertisements promoting the assumption that happiness is correlated with consumption (Sewpaul 2015). By being part of the industrialized DSP, people are inundated with messages that (over)consumption and individual gain are the socially acceptable way to live (Darnell 2002, Jensen 2006, Barnhart and Mish 2017).

Green practices from an industrialized DSP

On the surface, it seems that the industrialized DSP incorporates and values nature, illustrated by the numerous sustainability, conservation, and restoration programs that have been initiated across the world. At the same time, it could be argued that many of these projects are solely based on the two most important tenets of the industrialized DSP: monetary value and consumption (Foster 2012, Slaper and Hall 2012, Kopnina 2013). The neoliberal economic system is based on an ever-growing economy and adopts the "infinite planet" model, which assumes that economic growth can continue infinitely with disregard for the environmental consequences (Zencey 2012). However, for decades, research has emphasized that ecological systems have limits and that continued economic growth is not reconcilable with the long-term viability of many ecosystems (Meadows et al. 1972, 2004, Gómez-Baggethun 2020). Economic growth is a prerequisite to keep the industrialized DSP in place, and working toward a more sustainable society from this perspective relies on the idea that environmental issues can be solved by the capitalist market (Foster 2012). Hence, the industrialized DSP's dominant views on economics and profits are still recognizable in nature conservation and sustainability practices that are common in industrialized countries. Most sustainability efforts do not address the inherent issues that cause the industrialized DSP to be environmentally unsustainable.

Examples of sustainability efforts within the industrialized DSP are market based instruments (MBIs). Successful regulations and policies, for instance in the case of clean energy and taxing carbon emissions in Canada, have shown that with the right regulations, changes toward sustainability are possible within the industrialized DSP (Pedersen and Elgie 2015). Nevertheless, it has become clear that without proper regulation these types of instruments, e.g., local ecotourism, payment for ecosystem services, or REDD+, a UN initiative to give financial value to carbon storage in forests, can easily become subject to practices that undermine its very goals. When conservation is not regulated and serves no economic interest, MBIs, resulting from a DSP focused on deregulation, economic growth, and the instrumental value of nature, can result in practices that push conservation only for relatively short periods and in places with the lowest costs (Powell et al. 2000, Brockington and Duffy 2010, González-Maya et al. 2015, Hursh et al. 2015, Fletcher et al. 2016, Stuhlmacher et al. 2019).

Another of the industrialized DSP's proposed solutions to environmental degradation is "green growth," which has been put forward by the UN, Organisation for Economic Co-operation and Development (OECD), and World Bank as the main base for sustainable development (OECD 2011b, UN 2012, World Bank 2012). This ecological modernist view on sustainable consumption and sustainable development states that ultimately environmentalism can benefit the economy through the exploitation of new resources, and the development of new energy

systems and clean technologies that reduce human impact on the environment, while securing economic growth (Kopnina 2013, Hickel and Kallis 2020). Green growth is based on decoupling: the idea that at some level of GDP growth, a country will become more ecologically efficient and will use less resources for the same amount of GDP growth (Wiedmann et al. 2015, Hickel and Kallis 2020). This suggests that economic growth can continue sustainably without much alteration to the industrialized DSP and without additional pressure on the environment and its resources. However, decoupling is currently measured as the domestic material consumption (DMC) per 1% in GDP growth, but does not consider the raw materials that are used to make the imported products a country consumes (Hickel and Kallis 2020). Multiple studies have shown that when raw materials are included, most developed nations increased their material footprint in the past decades and therefore, in contrast to calculations of the DMC, show no sign of decoupling nor are they becoming more ecologically efficient (Wiedmann et al. 2015, Ward et al. 2016, Hickel and Kallis 2020). Consequently, this ostensibly sustainable solution, which safeguards economic growth, does not accurately represent the true amount of natural resource consumption and hence disguises the true impact of continued economic growth on natural systems. It illustrates how the industrialized DSP values economics over long-term sustainability and proposes solutions that fit within the system and do not really address the environmental degradation and overexploitation of resources, and rising inequality that result from the goals and practices of the industrialized DSP (Wanner 2015).

Many efforts for sustainable consumption and resource use pursued by the industrialized DSP can be described as “weak” sustainability, as those efforts are only sustainable for the economic and political structures of the DSP, but are currently not effective enough to counter the true causes of environmental degradation (Dickinson 2013, Hickel and Kallis 2020). As demonstrated above, the incentives and regulations that have been implemented in industrialized societies thus far seem to be insufficient to effectively tackle ecological degradation with a market-based approach. In addition, this mind-set often leads to commodification and marketization of nature with MBIs, which convert sustainability and environmental protection into a business model, often leading to the overexploitation of resources (Hursh et al. 2015). The choice for green growth makes sense with regard to the structures and values of the industrialized DSP, but is not the best option toward a long-term sustainable future, because it seems unable to halt overexploitation and ecological degradation. The industrialized DSP on its own does not actively promote sustainable and ethical behavior in the absence of monetary incentives or strict, government-imposed, and reinforced regulations (Schaefer and Crane 2005, Hatfield-Dodds et al. 2015). The economic and political structures that support the industrialized DSP lack the notion that nature and its healthy ecosystems are valuable to society.

THE INDUSTRIALIZED DSP AND HUMAN-NATURE RELATIONS

How does this relate to the human-nature relationship that is implicit in the industrialized DSP? Where do these societies and their DSP fit within the proposed gradient of human-nature relationships? To answer these questions, we first need to address (1) what the industrialized DSP’s core values with regards to

nature are, (2) whether nature is seen as a separate entity, and (3) whether the relationship between the industrialized DSP and nature is more anthropocentric or ecocentric. First, the industrialized DSP recognizes nature for its instrumental value and what it has to offer to people. For instance, nature provides medical and technical solutions, e.g., antibiotics, and raw resources, e.g., timber, oil, and clean water, which are often referred to as provisioning ecosystem services (Gómez-Baggethun et al. 2010, Kantartzis and Molineux 2011, Barnhart and Mish 2017). The industrialized DSP views nature from a perspective of commodification and utilization (Heynen et al. 2007, Shoreman-Ouimet and Kopnina 2015). Nature is seen as a space to develop, with resources that can be used not only for human survival, but to promote a flourishing material economy (Jensen 2006, Sullivan 2009, Büscher et al. 2014). By harvesting natural resources with a focus on the consumption of those goods, natural resources are viewed as an ingredient for profit. Furthermore, since the 20th century, nature is no longer seen as a primary source of production, because economic theory states that economic production is based on three substitutable factors: land, labor, and capital (Keynes 1936). This substitutability concept describes how each of these three factors can be replaced by one of the other two. Substitutability is still widely accepted in modern economics (Gómez-Baggethun et al. 2010). Consequently, nature is not seen as a unique source of resources, but as something that can be substituted by capital or labor and thus can be monetized, expressed by the development of MBIs like payment for environmental services (PES) or ecosystems services (Shoreman-Ouimet and Kopnina 2015).

The industrialized DSP clearly exhibits a detachment or alienation from nature. Industrialization, urbanization, and a DSP that values achievement and commitment to labor make it increasingly difficult for most individuals to physically experience nature in the sense of natural areas. This fosters separation from nature, and widens the divide between nature and society. People spend decreasing amounts of time in direct contact with natural environments, enhancing the sense of disconnect or alienation from physical nature (Fletcher 2009, Dickinson 2013). The field of ecopsychology is concerned with how this disconnection leads to a (psychological) backlash, arguing that a disconnect from nature, combined with advertisements and the economic incentives made possible by the industrialized DSP, fosters consumerism (Scull 1999 blog, <https://www.ecopsychology.org/the-separation-from-more-than-human-nature/>). In turn, consumerism leads to more environmental damage and an increase in disconnection from nature, strengthening further disconnection and the idea of the industrialized DSP as the best alternative (Zylstra et al. 2014; Scull 1999 blog). Additionally, the disconnection from nature can lead to a decrease in care for nature, which in turn leads to less regard for the environmentally harmful effects of the behaviors encouraged by the industrialized DSP (Schultz 2002).

The reduction of contact with nature has led to an increase in the need to (re)connect with natural ecosystems and to immerse oneself in environments that facilitate freedom from modern civilization, especially since the 1960s in Western European countries (Fletcher 2009). However, in industrialized societies, nature is often experienced through technology, e.g., documentaries or games, instead of via direct experience, possibly

to replace physical natural experiences (Kahn et al. 2009, Fletcher 2017b). This need to experience nature, even with substitutes, might be explained by the concept of biophilia (Ives et al. 2018). Biophilia is described as “a fundamental, genetically based human need and propensity to affiliate with life, and lifelike processes” (Kahn et al. 2009:37). This concept is based on studies that have shown that even minimal contact with nature can improve health, suggesting that biophilia may therefore be an adaptive trait (Kahn et al. 2009). As a result, biophilia assumes that the tendency to connect with nature is evolutionarily programmed into the human mind (Ives et al. 2018). Industrialized economies thrive by substituting nature for human-made products, leaving considerable space for marketing agencies and media to project an image of nature that is not an objective representation but a constructed one that relaxes our disconnection from it (Kidner 2000, Hursh et al. 2015, Fletcher 2017a). Nature is portrayed as an alternative to urban, “civilized” life. It is portrayed as an idealized, romantic place of wild nature where leisure activities can be pursued, but that is also unpredictable and rough, in contrast to the easy and sophisticated life depicted by the industrialized DSP (Fletcher 2009, Uggla 2010). These depictions of nature increase the distinction and sense of detachment between nature and society. Overall, nature is not recognized for what it is, but constructed through a lens of the economy, technological development, and media. Nature is not recognized as its own entity, but merely as a source for production and profit, and portrayed as a romanticized place separate from daily society (Kidner 2000, Gómez-Baggethun et al. 2010, Shoreman-Ouimet and Kopnina 2015). The industrialized DSP pays little attention to the dependence of the material economy on nature’s ecological life support systems and focuses on economic solutions and technological innovation to resolve ecological problems even when those solutions are not feasible or sufficient from an ecological perspective (Dickinson 2013, Hickel and Kallis 2020, Jänicke 2020). This shows that nature is approached from a constructivist and anthropocentric perspective, rather than an ecocentric one.

DISCUSSION

In this paper we described the DSP of industrialized societies with the aim of identifying how this DSP influences society’s attitude toward nature conservation and sustainability. We identified different types of relationships that exist between nature and industrialized, neoliberal countries and how these relationships negatively affect the long-term and sustainable protection of nature. This ultimately underpins the ecological degradation that results from unsustainable business practices. With regard to the gradient of human-nature relationships, the industrialized DSP incorporates elements of mastery, utilization, detachment, romanticism, and developmental and preservation stewardship (Fig. 1). This means that, although the importance of nature is acknowledged, this is primarily only to the extent that it serves the goals of the DSP. As Figure 1 shows, the types of relationships between society and nature included by the industrialized DSP entail almost the entire anthropocentric half of the gradient. None of the characteristics of more ecocentric human-nature relationships can be recognized, and long-term sustainability is not a prime item on the industrialized DSP’s agenda. This means that the industrialized DSP discourages its citizens to connect with nature and to recognize its worth beyond monetary value

and resources. By pushing overconsumption and environmental degradation this DSP threatens the survival of the very society it aims to support as its implications threaten the long-term health of the ecosystems upon which humanity depends (Dunlap 2008).

Resisting the industrialized DSP

In summary, the political and economic systems of the industrialized DSP discourage resistance against this DSP by encouraging individualism, promoting a focus on maximum (individual) gain, individualization of responsibility, stimulating overconsumption via media and marketing by emphasizing free choice, and fostering detachment and alienation from nature. Broad, ideological support for economic growth, and a continuous media-driven push toward consumption, promotes the industrialized DSP as the most effective system for improving our lives and increasing individual happiness, making it hard for individuals to resist it (Jensen 2006, Morales et al. 2014, Sewpaul 2015, Axon 2017, Barnhart and Mish 2017). Nevertheless, some groups and individuals within industrialized societies have recognized how the current DSP exacerbates environmental problems, such as the fragmentation or destruction of ecosystems, increasing pollution, and climate change. These groups are challenging the status quo, calling for a more sustainable way of life, and their voice is becoming increasingly and evidently seen in a rising number of (climate) protests. For instance, some of them have been galvanized by prominent activists like Greta Thunberg, along with international calls for Green New Deals and the production of more sustainable products (Scholl et al. 2010, Shao et al. 2017, Sabherwal et al. 2021; Wahlström, Kocyba, De Vydt, et al. 2019, *unpublished manuscript*, <https://eprints.keele.ac.uk/6571/>). However, despite actively voicing their disagreement with the current system, activists and other environmentalists still struggle to reach any significant policy changes, especially on national and international levels, because the political and economic systems work against changes in the current social, economic, and political status quo. These systems encourage individual and collective behavior that keeps that status quo in place, making it hard for activists to reach the critical mass needed to create a tipping point for effective policy changes.

Furthermore, the call for a larger focus on sustainability in society does not only apply to individual behavior, but also to ways of producing, consuming, and living that are more ethical, fair, and socially responsible. There is growing acknowledgement of the fact that the neoliberal capitalist focus of the industrialized DSP leads to increasing inequality in income, wealth, health, and power between different groups in society and between countries. This is especially evident in the contrasts between the richer Western Global North countries and those that were once colonized in what is commonly called the Global South. Under the neoliberal doctrine, deregulation, free trade, and globalization have led to extraction and exploitation of natural resources and labor in the Global South by generally richer and more powerful countries (Girdner and Siddiqui 2008, Walker 2008, Donnelly 2019). Both labor and the environmental consequences of production are externalized to other, deregulated countries, while the products and profits mostly flow back to countries with stronger economic and political positions (Athanasidou 1998, Walker 2008, Basse 2012, Donnelly 2019). These processes have led to globally unequal power relations and an unequal distribution of both the profits and harms that result from resource extraction and

production (Bond 2006, Walker 2008, Bassey 2012). Consequently, the less affluent and powerful societies and populations are forced to cope with increasing levels of pollution, climate change-associated phenomena such as floods and droughts, and many other hazardous results of environmental degradation (Bryant and Goodman 2004, Girdner and Siddiqui 2008). This inequality in quality of living, the unequal distribution of the benefits and harms, and the environmental consequences of the industrialized DSP call for systemic, international changes in production and resource use.

Toward a more ecocentric point of view of the industrialized DSP

There is increasing recognition of the inevitable link between environmental sustainability and (inter)national and local social, political, and economic issues. Moreover, environmental conservation and restoration cannot be separated from these issues if the goal is to reach effective, long-lasting solutions. Many studies have proposed new and more ecocentric ways of approaching nature and conservation to integrate human activities more effectively with nature with benefits for both (indigenous) communities and nature (Bryant and Goodman 2004, Büscher and Fletcher 2019, Kennedy et al. 2020). Ecocentric views emphasize the interconnectedness and interdependence between society and nature, not only with regard to spirituality, but also social, political, and economic aspects. Approaches that take the focus away from isolating nature from society and that give more credit to non-academic sources of information and knowledge can aid the industrialized DSP in becoming more ecocentric. Instead of using Eurocentric knowledge systems, non-Eurocentric-based and local knowledge can serve as examples and guidelines for (re)connecting with nature that leads to effective conservation practices (Bryant 2002, Brondizio and Le Tourneau 2016, Lam et al. 2020). By focusing on relational values and more holistic approaches in which society and nature are seen as both being part of the same reciprocal system, as reflected by the relationship types on the ecocentric side of the spectrum, protection and rehabilitation of natural areas can be more beneficial for both nature and the human communities around them (Brondizio and Le Tourneau 2016, Leiper et al. 2018, Büscher and Fletcher 2019, Hill et al. 2019, Kennedy et al. 2020, Lam et al. 2020). Instead of more classical forms of conservation, such as separating society from nature by creating protected areas with limited public access, or focusing on the instrumental value of nature as leverage in cost-benefit debates, new ways of conservation and environmental protection with a more ecocentric approach are put forward and into practice.

However, to effectively move the industrialized DSP toward a more ecocentric perspective, more ambitious changes in how the current DSP views nature are needed. Thus far, proposed political and economic growth-based green resolutions, as well as the resistance of individuals and groups to this DSP and the structures that keep it in place, have not proven to be enough to make significant changes happen. The aspects that are valued in the current DSP, e.g., economic growth, profits, individualism, and high consumption patterns, clash with the values and perspectives needed to realistically make the industrialized DSP more ecocentric and fail to recognize that the human economy is based on natural systems.

A need for systemic change

In this paper we have discussed the industrialized DSP from a societal perspective, while not addressing the individual efforts needed. We do acknowledge that the individual level and perspective on human-nature relationships also play an important role and that the effort and support of individuals is vital in reaching a more ecocentric DSP (Burstein 2003, Fischer and Young 2007, Zylstra et al. 2014, Kunchambo et al. 2021). Nevertheless, the aim of this paper is to illustrate how the systemic political and economic structures that are supporting and strengthening the industrialized DSP make effective individual resistance difficult, if not impossible. The focus on individual engagement and individual blaming obscures the responsibilities that lie with corporations and governments, and the true changes in their systemic practices and policies that are needed for a more ecocentric DSP (Mann 2021). These changes, however, threaten the political and economic status quo with all its vested interests. A certain group of people, generally the more affluent and powerful, benefits from the current system's focus on economic growth, free markets, and externalizing costs, both economic and environmental, at the expense of others, i.e., the environment, or less affluent or powerful groups in society (Benatar et al. 2018, Mann 2021). To make effective changes toward a more ecocentric DSP and effectively address environmental problems and the unfair distribution of their hazards, we need systemic and fundamental changes in how the industrialized DSP treats nature and its resources, supported by fundamental changes in economic structures and political support (Benatar et al. 2018, Mann 2021).

One of the more prominent academic propositions to make society more sustainable is ecomodernism: an argument that has been put forward by several academics to reframe our approach to the natural world to protect and conserve it (Asafu-Adjaye, Blomquist, Brand, et al. 2015, *unpublished manuscript*, <http://www.ecomodernism.org/manifesto-english>). The ecomodernist stance relies heavily on human ingenuity and new technologies to address social, economic, and environmental problems, and aims to reconcile competitive markets with worldwide social equity (Howson 2020; Asafu-Adjaye, Blomquist, Brand, et al. 2015, *unpublished manuscript*). Ecomodernism embraces the neoliberal-industrialized aspects of the industrialized DSP and does not provide a new approach to nature, resource use, or sustainability. The proposed solutions ignore the political basis that has led to the social and environmental issues we are dealing with now and do not challenge these economic and political structures of the industrialized DSP (Hamilton 2015, *unpublished manuscript*, <https://clivehamilton.com/the-technofix-is-in-a-critique-of-an-ecomodernist-manifesto/>). Consequently, an ecomodernist approach is not a sufficient solution to create a more ecocentric DSP.

Multiple solutions that go beyond relying on capitalist markets to solve environmental issues and make fundamental changes to the industrialized DSP, have been proposed in academic literature. These proposed changes switch focus from economic growth to degrowth, recognizing the limits of ecological systems, and the concept of sufficiency (Czech 2000, Schneider et al. 2010, Gorge et al. 2015), for instance, limiting consumption and resource use by regulations and taxes for producers and regulation for advertisements (Kallis 2011, Akenji et al. 2016). These measures

rely on not taking economic growth and maximum profits as a prerequisite of building a sustainable society at the expense of nature, and shift the responsibility of sustainable behavior and consumption from the individual to corporations and governments. Reshaping the relationship between industrialized societies and nature, adopting a different perspective on economic growth as a basis for society, and political support for long-term and effective sustainability initiatives are key ingredients in shifting the anthropocentric, industrialized DSP toward a more ecocentric agenda.

CONCLUSION

In this paper we have presented a gradient of 12 human-nature relationships based on three characterizations: the presence of a divide between human and nature, its core values, and the degree of anthropocentrism versus ecocentrism. We have shown how the industrialized DSP expresses a strong divide between nature and culture, i.e., industrialized society, and leaves little room for non-monetized connections to nature. This has led to commodification and politicization of nature and conservation, and the promotion of a dysfunctional relationship between society and nature (Dickinson 2013). As we have shown, even the sustainability and green efforts of the industrialized DSP often cannot reach beyond instrumental value and economic worth. Second, nature is mostly addressed based on its instrumental values, as the industrialized DSP views nature's provisions as exchangeable services that can be expressed in monetary terms (Brockington and Duffy 2010, Gómez-Baggethun et al. 2010). Intrinsic value is recognized in some cases, for instance, in romanticized portrayals in media, but only for the derived values it has to society (Bonnet 2003). The industrialized DSP makes experiencing and building non-instrumental connections with nature increasingly difficult with its focus on monetary value and consumption, with overconsumption and environmental degradation as a consequence (Czech 2000). Third, the industrialized DSP has an anthropocentric perspective on nature. It views nature as something distinct from human life, not as something that humanity depends on for survival or as something that has inherent intrinsic value. These relationships leave the industrialized DSP with an anthropocentric point of view, making true, long-lasting sustainability challenging. Truly effective sustainability could become more attainable by a systemic shift toward a more ecocentric point of view by connecting society and nature in environmental conservation by focusing on intrinsic and relational values, and systemic changes integrating social, economic, and environmental aspects and political support to reach long-term solutions.

Responses to this article can be read online at:
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APPENDIX 1 - METHODS

This paper presents a synthesis of literature concerning human-nature relationships. An extensive list of keywords (see below) relating to human-nature relationships and interactions was extracted from papers by Kidner (2000), Fletcher (2009, 2017), Shoreman-Ouimet & Kopnina (2015), Kahn et al. (2009), Kellert (1984), Pidgeon (2012), and Büscher et al. (2014). With further literature research into these keywords, using published literature and each keyword as a separate search word, a list of relationship types was identified based on existing literature. From there, each type of relationship was used as a keyword in an additional literature search to further expand on each relationship type. Search engines Scopus and Web of Science were used for the above literature searches.

Ultimately, 22 articles that directly described clear relationships between humans and nature and that were referenced by the other consulted papers were selected and put in a database. The database describes for each of the relationships mentioned in each paper how they fit in the 5 descriptors of human-nature relationships by Muradian & Pascual (2018), namely:

1. Ontology
2. Goal orientation
3. Emotional drivers
4. Practices
5. Main mode of interaction

Secondly, the similarities and distinctions between different authors describing similar types of relationships were identified. Based on a review of the choices each author made to describe a certain relationship, three main defining characteristics of a human-nature relationship were identified: 1) degree of anthropocentrism versus ecocentrism, 2) the degree to which nature and culture (the “human”) are divided or not, and 3) the relationship’s core values.

Thirdly, based on these descriptors and the framework given by Muradian & Pascual (2018), relationships with similar and overlapping characteristics were grouped together. The result was a list of 12 distinctly different types of human-nature relationships, with multiple types of stewardship placed in one group. Within the figure, the divide between human and nature and the core values were put in the description of each relationship. To give the relationships a useful order, they were placed on a scale from anthropocentric to ecocentric, with marked points that indicate clear shifts, for instance relationships that see nature and humans as equal and relationships that do not.

Keywords used in initial search:

Biophilia, pro-environmental behavior, ecological identity, political ecology, anthropocentrism, ecocentrism, participation in nature, mastery over nature, new environmental paradigm, connectedness to nature (scale), Human and Nature Scale (HaN), human ecology, stewardship, ecological consciousness, ecoteology, environmentalism, environmental activism, Ecological Identity Scale, nature relatedness, commitment to nature, affinity with nature, ecological worldview, environmental literacy, ecological literacy, ecoliteracy, interaction with nature, conservation, market-based conservationism, ecological justice, environmental justice, ecological determinism, cultural determinism, human constructs of nature, commodification of nature, humanistic altruism, biospheric altruism, awareness of nature, commitment to nature, direct nature experiences, romanticized image of nature, wilderness, ecopsychology, realist definition of nature, naive definition of nature, essentialism, separation of nature.

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APPENDIX 2 - DEFINITIONS

To give a clear overview of the subjects covered in this paper, some definitions and boundaries need to be set. The review is based on the following definitions and descriptions:

Anthropocene

“Relating or referring to the most recent period in the earth's history, when human activities have a very important effect on the earth's environment and climate. The Anthropocene Epoch is an unofficial unit of geologic time” (Cambridge Dictionary, 2021). For more elaboration on discussions around the start of this epoch, see Maslin & Lewis (2015).

Anthropocentrism

A human-centered ontology, leading to actions or attitudes that prioritize human interests over the interests of non-human entities like the environment or other species. (Kopnina et al. 2018).

Civilization/civilized

The terms “civilization” or “civilized” can be and have been defined and interpreted in many ways. For this paper we use the Cambridge Dictionary definition which describes civilization as *“a human society with its well-developed social organizations or the culture and way of life of a society or country at a particular period in time”* (Cambridge Dictionary 2020). Therefore, the terms “civilization” or “civilized” are used here in the context of the effects the DSP of a civilization has on a social, economic and ecological level, not in a cultural, geographical or historical context.

Commodification

As defined by Heynen, McCarthy, Prudham et al. 2007 (p.103) as *“the creation of an economic good, through the application of mechanisms to appropriate and standardize a class of goods or services, enabling them to be sold at a price determined through market exchange”*.

Ecocentrism

Non-human centered ontology that assigns moral value to non-human species and the environment. Ecocentrism *“recognize the welfare of all nonhuman forms”* (Kopnina et al. 2018 pp. 113).

Environmentalism

This term is defined as *“an interest in or the study of the environment, in order to protect it from damage by human activities”*, expressed as *“advocacy of the preservation, restoration, or improvement of the natural environment”* (Cambridge Dictionary 2020; Meriam-Webster 2020).

Ecological identity

Ecological identity, also called ecological self or environmental identity, describes *“the extent and ways by which an individual views himself or herself as being a part of an integrated social and biophysical (i.e., ecological) system characterized by mutually beneficial processes and nested webs of relationships.”* (Walton and Jones 2018:666; Hayes-Conroy and Vanderbeck 2005).

Industrialized countries

The terms “industrialized” or “developed” countries as used in this paper will encompass the countries of North-America, Western-Europe, Australia and some highly technologically developed Asian and Middle Eastern countries like Japan and Qatar, based on the list of countries with a “very high human development” as indicated by the UN (UNDP 2019). These countries are often referred to as “Western”, even though *“Western culture (and its discourse) has been exported through colonization and globalization, Western (and Westernized) worldviews are no longer geographically confined to Europe and its former colonies”* (Zylstra et al. 2014).

Nature

“Nature” can be interpreted in various ways and disciplines. In this paper “nature” and “natural” is applied as meaning the natural environment, as given by the Cambridge dictionary (2020): *“all the animals, plants, rocks, etc. in the world and all the features, forces, and processes that happen or exist independently of people, such as the weather, the sea, mountains, the production of young animals or plants, and growth”*. However, for this paper, ‘independently of people’ does not merely refer to surroundings that are made without human interference, but also includes environments created by human interventions, as virtually no part of our natural world has remained untouched. Also, this paper will show that the concept of what “nature” entails, is not set, but more of a gradient of different rationales and understandings. Nonetheless, it will refer to some form or interpretation of the physical environment.

Ontology

We use the definition from Meriam Webster (2020) “*a particular theory about the nature of being or the kinds of things that have existence*”.

Overconsumption

In this article we refer to consumption as the consumption of natural resources, both direct (e.g. water or oil), or indirect (e.g. using products based on natural resources). Overconsumption is then defined as the consumption of resources above the natural replacement rate, thereby exceeding the carrying capacity of that particular resource. Carrying capacity is an ecological term that describes how many individuals of a certain population can be supported in their environment on a long-term scale (MacArthur and Wilson 1967).

Place identity

A component of self-identity and an emotional attachment to a certain place or local natural resource. Based on a psychological investment over time. Place identity can be positively related to environmentally responsible behaviour (Vaske and Kobrin 2001).

Resources

For this paper we define resources in an ecological sense as “*anything provided by the environment to satisfy the requirements of a living organism e.g. food or living space.*” (Dictionary of Biology 2011). Resources are products that are the result of natural cycles, feedback loops and production processes on both short- and long-term scales, for instance water, vegetation, animals, oil or minerals.

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