Eco-Anxiety and the Responses of Ecological Citizenship and Mindfulness

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The health, economic, political, and environmental implications of climate change affect all of us. The tolls on our mental health are far reaching. They induce stress, depression, and anxiety; strain social and community relationships; and have been linked to increases in aggression, violence, and crime. Children and communities with few resources to deal with the impacts of climate change are those most impacted.

> Susan Clayton et al. (2017) *Mental Health and Our Changing Climate*

Concern about climate change coupled with worry about the future can lead to fear, anger, feelings of powerlessness, exhaustion, stress, and sadness, referred to as ecoanxiety and climate anxiety. Studies indicate this anxiety is more prevalent among young people.

> Susan Clayton et al. (2021) *Mental Health and Our Changing Climate – 2021 Edition*

INTRODUCTION

Anxiety has become a defining feature of our time. It is both one of the most fundamental human emotions and one of the most common forms of psychological disorder. About one-third of the adult population reports

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having anxiety problems, with almost one-fifth meeting the criteria for clinical disorder.[1] We live in an era of anxiety culture: climate change, pandemics, mental illnesses, rapid technological changes, migration flows and many other contemporary challenges feed into a growing feeling of uncertainty, insecurity and powerlessness.[2] Although some forms of anxiety can be non-clinical, many can lead to disorders, such as phobia, generalized anxiety disorder and post-traumatic stress disorder.[3]

A new but rapidly spreading form of anxiety is ecological anxiety or eco-anxiety. Climate change and other global environmental changes such as biodiversity loss, ocean acidification and deforestation affect people psychologically on an ever wider scale. So far, eco-anxiety and its close cousin, climate anxiety,[4] have been extensively discussed in the media through newspaper articles, documentaries and interviews. However, the amount of academic literature on the topic is still relatively slight: mental health is often overlooked in the discourse on climate change and other current ecological issues.[5] Even though there is a small but growing quantity of scientific literature on the topic in various disciplines, there is still a lack of research on the definition of "eco-anxiety."[6]

This chapter explores the key features of eco-anxiety and proposes a possible way to cope with its undesirable side effects and its pathological consequences. The first section highlights three major features of eco-anxiety, suggests three possible eco-anxiety disorders and identifies three categories of people that seem to be more vulnerable to experiencing eco-anxiety and its disorders. The

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[1] Daniel Freeman and Jason Freeman, *Anxiety: A Very Short Introduction* (Oxford: Oxford University Press, 2012), 111.

[2] Michael Schapira, Ulrich Hoinkes, and John Allegrante, "Anxiety Culture: The New Global State of Human Affairs?," *EuropeNow: A Journal of Research & Art* (2018); Nicole Shea and Emmanuel Kattan, "Anxiety Culture," Ibid. (2018).

[3] Freeman and Freeman, *Anxiety: A Very Short Introduction*, xiv.

[4] Climate anxiety is a form of eco-anxiety related to climate change. Because of the salience of climate change in political, economic, scientific, and media discourses, climate anxiety has become the dominant form of eco-anxiety, so that the two expressions can almost be used synonymously. It is, however, important to keep in mind that other forms of eco-anxiety are possible and do exist.

[5] Two recent books on climate anxiety contribute to closing this research gap: Sarah Jaquette Ray, *A Field Guide to Climate Anxiety. How to Keep Your Cool on a Warming Planet* (Oakland: University of California Press, 2020); Megan Kennedy-Woodard and Patrick Kennedy-Williams, *Turn the Tide on Climate Anxiety. Sustainable Action for Your Mental Health and the Planet* (London and Philadelphia: Jessica Kingsley Publishers, 2022). See also the two important reports on climate anxiety by the American Psychological Association: Susan Clayton et al., "Mental Health and Our Changing Climate: Impacts, Implications, and Guidance" (Washington: American Psychological Association and ecoAmerica, 2017); Susan Clayton et al., "Mental Health and Our Changing Climate: Impacts, Inequities, Responses" (Washington: American Psychological Association and ecoAmerica, 2021).

[6] Pihkala Panu, "Anxiety and the Ecological Crisis: An Analysis of Eco-Anxiety and Climate Anxiety," *Sustainability* 12, no. 19 (2020).

second section adopts the normative framework of ecological citizenship and a virtue ethics approach to explore a promising response to eco-anxiety. The goal of this essay is to better understand eco-anxiety and its possible disorders and to find possible ways to live with it.

Defining "Eco-Anxiety"

Just as with anxiety, there is no single definition of eco-anxiety. My objective is to identify key features of eco-anxiety without claiming to give a definitive definition and without trying to excessively restrict our understanding of anxiety.

Three Features of Eco-Anxiety

Let us start with the following working definition[7]:

> Eco-anxiety is a subjective trait, state or disposition turned toward a possible objective state of the planet in the near or distant future. Its object is severe ecological risks and dangers that are not yet here (in space) or present (in time), but which might happen at some point in a nearer or more distant future. It is a fear resulting from an acute awareness of the risks raised by global ecological issues. Eco-anxiety can lead to a generalized feeling of discouragement; taken to too high a degree, it can also become pathological, a fear of a fear or an exaggeration of the probabilities of environmental dangers.

Let us now highlight the building blocks of eco-anxiety. First, like any form of anxiety, eco-anxiety is *future-oriented*. The envisioned future can be more or less determinate and nearer or further away, but it is both (a) threatening and (b) uncertain. Regarding (a), the main object of eco-anxiety is *ecological risks*, such as sea-level rise, megafires and extreme climate events such as hurricanes, droughts, heatwaves and floods. Its object can also be the consequences of these phenomena on human and/or non-human beings, such as human and animal suffering, ecosystem degradation, species extinction, the disruption of agricultural systems and food supply chains, economic shocks, socio-political instability along with starvation, mass migration, conflict and even societal collapse.[8] Regarding (b), risks and uncertainty are intrinsically linked. Risks are the product of magnitude and probability: the magnitude is a

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[7] In this sub-section, I draw on Michel Bourban, "Eco-Anxiety: A Philosophical Approach," in *Anxiety Culture: The New Global State of Human Affairs*, ed. John Allegrante et al. (Baltimore: Johns Hopkins University Press, 2023). My definition of eco-anxiety is an adaptation of the definition of anxiety proposed by André Comte-Sponville in André Comte-Sponville, *Dictionnaire Philosophique* (Paris: PUF, 2013), 79.

[8] For a recent study of ecological threats to human societies, including the risk of collapse events, see C. E. Richards, R. C. Lupton, and J. M. Allwood, "Re-framing the Threat of Global Warming: An Empirical Causal Loop Diagram of Climate Change, Food Insecurity and Societal Collapse," *Climatic Change* 164, no. 3 (2021). Literature on the topic

measure of the seriousness of the loss and damage at stake; the probability is a measure of the likelihood of this loss and damage occurring.[9] That something is uncertain means that it currently has no measurable probability; it does not mean that its objective probability, if known, would be small.[10]

Questions of probability can, however, become less relevant if the magnitude of the possible loss and damage is massive. Take the two core planetary boundaries through which all the other boundaries operate: the climate system and biosphere integrity.[11] A cascade of tipping points in the climate system, such as rapid permafrost thawing, weakening of terrestrial and oceanic carbon sinks, and Amazon forest dieback could lead the entire Earth system into a "Hothouse Earth" trajectory, in which global warming may be substantially accelerated.[12] Likewise, the sixth mass species extinction leads to the degradation of ecosystem services and jeopardizes the integrity of ecosystems, posing an existential threat to life-support systems that are essential for both human and non-human beings.[13] Due to the magnitude of the loss and damage at hand, accelerated climate disruption and accelerated biodiversity loss are more

of societal collapse caused by ecological problems is growing. The emerging transdisciplinary field of "collapsology" addresses the possible causes of the collapse of civilization as we know it, along with the possible ways to live in a post-collapse world: see, e.g., Pablo Servigne and Raphaël Stevens, *Comment Tout Peut S'éffondrer. Petit Manuel De Collapsologie À L'usage Des Générations Présentes* (Paris: Seuil, 2015). Collapsologists are quite influential in the media and contribute to the spread of eco-anxiety. Some scholars have criticized this new field because of its survivalist tone and its apolitical discourse: see, e.g., Pierre Charbonnier, "Splendeurs Et Misères De La Collapsologie. Les Impensés Du Survivalisme De Gauche" [The Splendor and Squalor of Collapsology], *Revue du Crieur* 13, no. 2 (2019).

[9] Henry Shue, "Deadly Delays, Saving Opportunities: Creating a More Dangerous World?," in *Climate Ethics: Essential Readings*, ed. Stephen Gardiner et al. (Oxford: Oxford University Press, 2010), 147.

[10] Ibid., 148.

[11] Will Steffen et al., "Planetary Boundaries: Guiding Human Development on a Changing Planet," *Science* 347, no. 6223 (2015). The nine boundaries are the following: the big three—the climate system, the ozone layer, and the ocean; the four biosphere boundaries—biodiversity, land, fresh water, and nutrients; and the two aliens—novel entities and aerosols. Five planetary systems have already been pushed beyond their critical limits: climate, biosphere integrity (biodiversity), the nitrogen and phosphorus cycles (nutrients), land use, and novel entities (especially plastics): see Linn Persson et al., "Outside the Safe Operating Space of the Planetary Boundary for Novel Entities," *Environmental Science & Technology* (2022). If these transgressions persist, the entire planet may be pushed into a new state that would be much less hospitable for human societies, not to mention other species.

[12] Will Steffen et al., "Trajectories of the Earth System in the Anthropocene," *Proceedings of the National Academy of Sciences* 115, no. 33 (2018).

[13] Gerardo Ceballos, Paul R. Ehrlich, and Peter H. Raven, "Vertebrates on the Brink as Indicators of Biological Annihilation and the Sixth Mass Extinction," ibid. 117, no. 24 (2020).

than mere risks; they represent "transcendental damages,"[14] that is, dangers that threaten the very condition of human existence on the planet, or at least the conditions of a flourishing human life.[15]

Second, eco-anxiety is not only a state of uncertainty, but also of *fear* and *insecurity* in the face of ecological risks and transcendental dangers. Eco-anxiety is an emotion that reaches deep, a gut feeling that the future is insecure. It is a constant or structural fear that we are contributing, with our individual and collective lifestyles, to creating a more dangerous world for young people and future generations. Anxiety and fear are often used interchangeably. It is, however, possible to distinguish them according to the object of our emotion. While the object of fear is usually clear and close in space and time, the object of anxiety is vague and can be distant in space and time. This is why it is so difficult to get rid of anxiety: if we do not know precisely what is making us anxious, it is difficult to deal with the threat.[16] As Nicole Shea and Emmanuel Kattan put it, "Fear of immediate danger has been replaced by anxiety over an uncertain future and shapeless though imminent catastrophes."[17] Despite this distinction, it is still possible to consider anxiety and fear as two very close emotions. Our understanding of anxiety is composed of a tangle of concepts and experiences, such as uncertainty, risk, threats, dangers and fear.[18]

Since the objects of eco-anxiety are ecological risks and transcendental dangers, there is indeed an inescapable vagueness in our experience of it. However, eco-anxious people do not necessarily perceive the future as shapeless, vague or amorphous; the futures they have in mind can be all too clear, with specific extreme climate events (heatwaves, hurricanes, droughts and so on) and their consequences (human and animal suffering, economic shocks, pandemics and so on). The feeling of fear and insecurity that comes with eco-anxiety does not require the experience or direct observation of a dangerous anthropogenic ecological event to exist; imagining a risk or danger is sufficient to make us eco-anxious. There are enough details and information in scientific

[14] Dominique Bourg, "Dommages Transcendantaux," in *Du Risque À La Menace: Penser La Catastrophe*, ed. Dominique Bourg, Pierre-Benoît Joly, and Alain Kaufmann (Paris: PUF, 2013).

[15] Societal collapse and transcendental damage link eco-anxiety with existential anxiety, a form of anxiety focusing on the threats to the very existence of human beings and human societies. Global environmental changes can raise deep feelings of ontological insecurity: see Panu, "Anxiety and the Ecological Crisis: An Analysis of Eco-Anxiety and Climate Anxiety," 6–7.

[16] Freeman and Freeman, Anxiety: A Very Short Introduction, 11–12.

[17] Shea and Kattan, "Anxiety Culture," 1

[18] John Allegrante et al., "Anxiety as a New Global Narrative," in *Anxiety Culture: The New Global State of Human Affairs*, ed. John Allegrante et al. (Baltimore: Johns Hopkins University Press, 2023).

articles and reports to feed our imagination. There are also multiple documentaries, movies and novels portraying possible ecological disasters in the nearer or more distant future that can trigger eco-anxiety.[19]

One of the earliest meanings of "scenario," a word now ubiquitous in scientific reports and articles on climate change and other global environmental changes, is a reasoned effort of anticipation in a film or a novel. More and more Anthropocene fictions explore apocalyptic and/or post-apocalyptic scenarios in which anthropogenic ecological disasters completely change the world as we know it.[20] Even though these fictions draw more or less accurately on scientific knowledge, they influence popular perceptions of the near and distant future. Anthropocene fictions link numbers, graphs and figures with our daily lives. They bring the notion of the Anthropocene to life and make it tangible. They play a part in making eco-anxiety a pervasive feature of our time.

Although eco-anxiety is oriented toward an uncertain future, it is based on solid facts about the current state of the planet. For instance, it is an unequivocal fact that human economic activities have warmed the atmosphere, ocean and land, and that this has already led to widespread and severe impacts, such as heatwaves, heavy precipitation, droughts and cyclones.[21] Eco-anxiety is not an exaggerated anticipation of highly unlikely future ecological phenomena; it is first and foremost a lucid reaction to an accurate empirical description of global environmental changes, some of which are already occurring. It is not an irrational thinking circle that needs to be broken or something delusional; it is a "scientifically accepted danger to the way of life we know on earth."[22] The feeling of anxiety starts to emerge from the moment one realizes the existence

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[19] They include documentaries such as Jeff Orlowski's *Chasing Coral*, David Attenborough and Johan Rockström's *Breaking Boundaries*, and Fisher Stevens and Leonardo DiCaprio's *Before the Flood*, eco-fiction movies such as Kevin Reynolds' *Waterworld*, Roland Emmerich's *The Day After Tomorrow*, and Bong Joon-ho's *Snowpiercer*, and climate fiction novels such as Ian McEwan's *Solar*, Ronald Wright's *A Scientific Romance*, and Kim Stanley Robinson's *Science in the Capital* trilogy. For the first climate fiction anthology, see John J. Adams, *Loosed Upon the World: The Saga Anthology of Climate Fiction* (New York: Saga Press, 2015).

[20] Adam Trexler and Adeline Johns-Putra, "Climate Change in Literature and Literary Criticism," *WIREs Climate Change* 2, no. 2 (2011); Adam Trexler, *Anthropocene Fictions: The Novel in a Time of Climate Change* (Charlottesville and London: University of Virginia Press, 2015); Adeline Johns-Putra, "Climate Change in Literature and Literary Studies: From Cli-Fi, Climate Change Theater and Ecopoetry to Ecocriticism and Climate Change Criticism," *WIREs Climate Change* 7, no. 2 (2016); Michael Svoboda, "Cli-Fi on the Screen(s): Patterns in the Representations of Climate Change in Fictional Films," ibid., no. 1.

[21] IPCC, "Summary for Policymakers," in *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, ed. V. Masson-Delmotte et al. (Cambridge: Cambridge University Press, 2021).

[22] Kennedy-Woodard and Kennedy-Williams, *Turn the Tide on Climate Anxiety. Sustainable Action for Your Mental Health and the Planet*, 28.

of two discrepancies: the discrepancy between the magnitude and severity of ecological problems and one's capacity to deal with these problems; and the discrepancy between one's knowledge of the state of the planet and willingness to do something about it and other people's knowledge and (un)willingness to change.[23] Eco-anxiety is an almost unavoidable reaction to awareness of the state of the planet and of these two discrepancies.

Third, eco-anxiety can lead to a form of *paralysis* or suspension of action. Fear can sometimes be motivating, for instance when it pushes us to avoid its object or its source, but it can also be paralyzing.[24] Eco-fictions can incite us to avoid the disaster they depict by changing our behaviors and policies, but they can just as easily block our individual actions by showing the futility of our efforts. Likewise, the avalanche of data on the deteriorating state of the world in both scientific and newspaper articles can lead to "infowhelm," which prompts passivity and inaction. As Sarah Jaquette Ray stresses, "Doomsayers can be as much a problem for the climate movement as deniers, because they spark guilt, fear, apathy, nihilism and ultimately inertia. Who wants to join that movement?"[25] Eco-anxiety can lead to a generalized feeling of discouragement regarding the future and what we can do about it, both individually and collectively.

Global environmental changes can lead to two different forms of inaction. The first typically appears when self-regulatory mechanisms of moral disengagement are activated. These psychological mechanisms allow people to "rationalise their reprehensible behaviour, and thus [permit] weakness of will and/or self-interested desires to thwart their moral motivation to abide by their moral judgement."[26] They include discrediting evidence of harm, advantageous comparison, diffusion of responsibility, displacement of responsibility,

[23] Eco-anxiety is partly caused by what other people think and do, and especially by what they are not prepared to do. The feeling of the environmentally aware person who sees other people driving gas-guzzling SUVs is comparable to that of the vegetarian or the vegan who sees other people eating a barbecue: the discrepancy between what they know (about climate change and animal suffering) and are willing to do about it and what other people know and do is so stark that they cannot help but become anxious about the future.

[24] Sabine Roeser, "Risk Communication, Public Engagement, and Climate Change: A Role for Emotions," *Risk Analysis* 32, no. 6 (2012).

[25] Ray, *A Field Guide to Climate Anxiety. How to Keep Your Cool on a Warming Planet*, 35.

[26] Wouter Peeters, Lisa Diependaele, and Sigrid Sterckx, "Moral Disengagement and the Motivational Gap in Climate Change," *Ethical Theory and Moral Practice* 22, no. 2 (2019): 430.

unreasonable doubt, selective attention and delusion.[27] Let us call this *inaction as psychological defense*, inaction as a means to avoid the discomfort that comes with questioning our beliefs, convictions and lifestyles.

The second form of inaction usually emerges after one has become aware of the state of the planet because of a direct experience of ecological impact, or because of an indirect source such as a book, a report or a documentary. Here, the facts are not denied, misrepresented or underestimated: the gravity and the emergency of the situation are acknowledged. However, this knowledge can lead to helplessness, powerlessness and resignation. As the American Psychiatric Association (APA) stresses in a report on mental health and climate change:

> the psychological responses to climate change, such as conflict avoidance, fatalism, fear, helplessness and resignation are growing. These responses are keeping us, and our nation, from properly addressing the core causes of and solutions for our changing climate, and from building and supporting psychological resiliency.[28]

In this case, we move from inaction as defense to *inaction as paralysis*: it is no longer about self-protection, but about discouragement, about the feeling that the issues at hand are just too massive and out of control for us to be able to address them.

Three Eco-Anxiety Disorders

In addition to leading to paralysis, eco-anxiety can also become pathological and be connected to mental disorders. Given the scale and the gravity of the problems discussed in scientific articles on global environmental changes[29] and the content of the scenarios explored in Anthropocene fictions, feeling overwhelmed is understandable. "Doom and gloom" narratives can cause despair, which in turn can demotivate people in ways that could exacerbate ecological problems.[30] When eco-anxiety gives way to despair, it becomes a fear of a fear,

[27] Stephen M. Gardiner, "A Perfect Moral Storm: Climate Change, Intergenerational Ethics and the Problem of Moral Corruption," *Environmental Values* 15, no. 3 (2006); Peeters, Diependaele, and Sterckx, "Moral Disengagement and the Motivational Gap in Climate Change."

[28] Clayton et al., "Mental Health and Our Changing Climate: Impacts, Implications, and Guidance," 4.

[29] For instance, Earth system scientists warn us in a recent study that "the evidence from tipping points alone suggests that we are in a state of planetary emergency: both the risk and urgency of the situation are acute." Indeed, "the intervention time left to prevent tipping could already have shrunk towards zero, whereas the reaction time to achieve net zero emissions is 30 years at best": see Timothy M. Lenton et al., "Climate Tipping Points—Too Risky to Bet Against," *Nature* 575 (2019): 595.

[30] Catriona McKinnon, "Climate Change: Against Despair," *Ethics and the Environment* 19, no. 1 (2014): 33.

an exaggeration of the probabilities of transcendental dangers. At that point, there is little chance that eco-anxiety will leave space for possible solutions to avoid the realization of the darkest scenarios.

The limited research on the topic suggests that although most forms of eco-anxiety appear to be non-clinical, some pathological cases that come with anxiety disorders also exist.[31] A recent study on climate anxiety stresses that the most severe cases of the mental health effects of climate change are related to the direct experience of severe climate impacts and include post-traumatic stress disorder (PTSD), depression, the exacerbation of psychotic symptoms, suicidal ideation and suicide completion.[32] Although it remains unclear whether or not eco-anxiety should be categorized as a mental health condition, it is clear that the direct and indirect effects of ecological problems can have detrimental effects on our mental health.[33] Eco-anxiety can for instance lead to "climate depression,"[34] which can in turn lead in its extreme forms to suicidal thinking—Ray proposes the notion of "eco-nihilism" to refer to this idea that we should simply erase ourselves because we are so bad for the planet.[35]

The fact that eco-anxiety can become pathological is not that surprising, as traditional forms of anxiety disorders can be related to ecological factors. Phobias, which are characterized by an excessive and unreasonable fear of a specific object or situation, include natural environment phobias.[36] Excessive and unreasonable fear of storms, water and fire can be exacerbated by climate impacts such as hurricanes, sea-level rise and megafires. People with phobias tend to overestimate the likelihood of being exposed to harm and underestimate their capacity to cope with the situation they fear. The same can be said about people suffering from generalized anxiety disorder (GAD). In this case, worry becomes uncontrollable in that people start to worry about worry. This makes them intolerant of uncertainty and pushes them to believe that they are poor at solving problems.[37] One can easily imagine how constant exposure to the flow of information about the deteriorating state of the world can lead people to become persistent worriers. A third possible eco-anxiety disorder is PTSD. The APA defines a traumatic event as one in which "the

[31] Panu, "Anxiety and the Ecological Crisis: An Analysis of Eco-Anxiety and Climate Anxiety."

[32] Ashlee Cunsolo et al., "Ecological Grief and Anxiety: The Start of a Healthy Response to Climate Change?," *The Lancet Planetary Health* 4, no. 7 (2020).

[33] Kennedy-Woodard and Kennedy-Williams, *Turn the Tide on Climate Anxiety. Sustainable Action for Your Mental Health and the Planet*, 42–45.

[34] Ibid., 71–72.

[35] Ray, *A Field Guide to Climate Anxiety. How to Keep Your Cool on a Warming Planet*, 40.

[36] Freeman and Freeman, *Anxiety: A Very Short Introduction*, 58–60.

[37] Ibid., 88–90. A closely related emotion here is stress, a feeling that we are not able to deal with the problems at hand, a belief that we cannot cope with the demands facing us (ibid., 11).

person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others."[38] Natural disasters are identified as a possible cause of PTSD. People with PTSD believe they are still seriously threatened by the trauma they have experienced. They feel like nowhere is safe. The APA sums up the impacts of a changing climate on mental health the following way: "Climate change-fueled disaster events impact individual mental health and include trauma and shock, PTSD, anxiety and depression that can lead to *suicidal ideation* and *risky behavior*, feelings of abandonment, and physical health impacts."[39]

Importantly, some categories of people are more vulnerable to anxiety disorders. Phobia is more common in children and young people; women are twice as likely to suffer from forms of phobia than men. Women are also twice as likely to be exposed to GAD and PTSD as men.[40] This leads to the question: who is more exposed to eco-anxiety?

Three Categories of Exposed Population

The limited available data indicate that three categories of people stand out as more vulnerable to experiencing eco-anxiety. The first category is *people directly exposed to ecological disasters*, especially those who rely closely on the land and land-based activities, such as Indigenous peoples and farmers.[41] Physical ecological losses and their catastrophic effects on traditional ways of life and cultures, disruption of environmental knowledge systems and the resulting feelings of identity loss, and anticipated future losses of place, land, species and culture can all lead to eco-anxiety.[42]

The second category is *environmental scientists* working in the field and collecting data, especially climate scientists. A recent survey found that many IPCC authors are suffering from climate anxiety, with more than 60% of the respondents saying that they experience anxiety, grief or other distress

[38] cited in Ibid., 103.

[39] Clayton et al., "Mental Health and Our Changing Climate: Impacts, Inequities, Responses," 6—emphasis original.

[40] Freeman and Freeman, *Anxiety: A Very Short Introduction*, 59–61, 87, 105; Kennedy-Woodard and Kennedy-Williams, *Turn the Tide on Climate Anxiety. Sustainable Action for Your Mental Health and the Planet*, 44.

[41] Cunsolo et al., "Ecological Grief and Anxiety: The Start of a Healthy Response to Climate Change?"

[42] Ashlee Cunsolo and Neville R. Ellis, "Ecological Grief as a Mental Health Response to Climate Change-Related Loss," *Nature Climate Change* 8, no. 4 (2018): 275. The authors of this study highlight an emotion closely related to that of eco-anxiety: ecological grief, the "grief felt in relation to experienced or anticipated ecological losses, including the loss of species, ecosystems and meaningful landscapes due to acute or chronic environmental change."

because of concerns over climate change. Eighty-two percent of the respondents report that they think they will see catastrophic impacts of climate change in their lifetime, and six in ten expect the world to warm by at least 3 °C above pre-industrial levels by 2100.[43] Environmental scientists suffer from both ecological grief and eco-anxiety. They directly witness not only the loss of biodiversity, but also the loss of their life's work: this includes biologists studying threatened and endangered species, earth scientists recording the destruction of coral reefs and glaciers, and all the other specialists who watch the shrinking or disappearance of complex ecosystems.[44] This second category also includes scholars from other fields who draw on the work of environmental scientists in their research and teaching activities, as well as students who carry out research and the millions who take courses in environmental studies across the world. This is important to note for college instructors of environmental studies courses like environmental politics and environmental political theory.[45]

The third and probably the most important category is *children and young people*. In their review of different surveys at the national level, Megan Kennedy-Woodard and Patrick Kennedy-Williams highlight that while 40% of young British people aged 16–24 described feeling overwhelmed because of the environmental emergency, 57% of American teenagers said that climate change made them feel scared.[46] They add that in Australia, 96% of young people aged 7–25 consider climate change to be a serious problem, with 89% saying they are worried about the effects of climate change, and 70% being concerned that adults do not or will not take their opinion on climate change seriously. The largest study to date highlights that a huge and growing number of children and young people from a diverse range of countries with a diverse range of income and exposure to climate impacts are suffering from

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[43] Jeff Tollefson, "Top Climate Scientists Are Sceptical That Nations Will Rein in Global Warming," *Nature* 599, no. 4 November (2021).

[44] Ray, *A Field Guide to Climate Anxiety. How to Keep Your Cool on a Warming Planet*, 32; Kennedy-Woodard and Kennedy-Williams, *Turn the Tide on Climate Anxiety. Sustainable Action for Your Mental Health and the Planet*, 46–47.

[45] Just as an example, Ray gives the following account of her students' reaction to her environmental study courses: "their despair about the state of the planet and their feelings of guilt (leading to powerlessness) could threaten their ability to show up to class, stay motivated to graduate, and then go into the world with the resolve required to tackle all these problems. Much to my chagrin, my office hours and classrooms became group therapy sessions, and I found myself totally ill-equipped to manage the demand… The course material was not just a rite of passage, challenging my students to mature into critically thinking adults. It, combined with myriad other stresses of college, was sending my students off the rails, and they were taking me with them" (Ray, *A Field Guide to Climate Anxiety. How to Keep Your Cool on a Warming Planet*, 12–13).

[46] Kennedy-Woodard and Kennedy-Williams, *Turn the Tide on Climate Anxiety. Sustainable Action for Your Mental Health and the Planet*, 40–41.

eco-anxiety.[47] While 59% say that they feel very or extremely worried about climate change, more than 45% say that their feelings about climate change negatively affect their daily lives. Eighty-three percent think that people have failed to take care of the planet, 75% find the future frightening, 56% believe that humanity is doomed, 55% think that the things they most value will be destroyed, 55% say that they will have fewer opportunities than their parents, 52% think that their family security will be threatened, and 39% are hesitant to have children. More than 50% say that they feel afraid, sad, anxious, angry, powerless, helpless and/or guilty. The psychological state of children and young people is affected not only by climate impacts, but also by their perception of governments' failure to respond to climate change, which leads to feelings of betrayal and abandonment by adults. The study highlights that all these stressors will have "considerable, long-lasting, and incremental negative implications for the mental health of children and young people." It also frames government failure as a "failure of ethical responsibility to care" and a source of "moral injury," understood as "the distressing psychological aftermath experienced when one perpetrates or witnesses actions that violate moral or core beliefs."[48]

Coping with Eco-Anxiety

Resilience

Since global ecological changes are here to stay, in one form or another, we need to develop ways to cope with eco-anxiety, to learn how to live with it by mitigating its undesirable side effects such as worry, stress and paralysis as well as its pathological consequences such as phobia, GAD and PTSD. Anxiety, in both its clinical and non-clinical forms, finds its primary articulation in psychology. Possible means to reduce levels of anxiety include psychological therapy (principally cognitive behavior therapy) and medication (through anxiolytics and antidepressants), but also lifestyle changes, especially increased physical exercise, healthy diets and yoga.[49]

There are different adaptive strategies to face eco-anxiety beyond professional assistance from mental health specialists, for instance by cultivating hope, confidence and resilience. I focus here on resilience.[50] Resilience is a notion widely used in environmental theory, especially in sustainability studies.

[47] Caroline Hickman et al., "Climate Anxiety in Children and Young People and Their Beliefs About Government Responses to Climate Change: A Global Survey," *The Lancet Planetary Health* 5, no. 12 (2021).

[48] Ibid., 864.

[49] G. M. Manzoni et al., "Relaxation Training for Anxiety: A Ten-Years Systematic Review with Meta-Analysis," *BMC Psychiatry* 8 (2008); Freeman and Freeman, *Anxiety: A Very Short Introduction*, 111–23.

[50] For an analysis of hope and confidence in the context of eco-anxiety, see Bourban, "Eco-Anxiety: A Philosophical Approach."

In a narrow sense, resilience is a measure of the ability of an ecosystem to recover from a very stressful event. As Paul Thompson and Patricia Norris explain, "Ecosystems are said to be resilient when they possess a nexus of stocks, flows and feedbacks that return to an equilibrium after perturbation."[51] In a broader sense, resilience can also be used for other types of recovery or rebound: a community or a whole country can express resilience when it recovers from an economic or social crisis; likewise, an individual can be resilient when they recover from major stressors such as traumas. I am interested here in psychological resilience as a response to eco-anxiety.

Ecological Citizenship

Ecological citizenship is a possible way to develop resilience in our time of rapid global environmental changes. The term "citizenship" confers a sense of action, of participation in the moral and/or political community to which one belongs. The expression "ecological citizenship" was coined in the mid-1990s as a renewed and expanded notion of citizenship that would help humanity deal with global environmental problems, such as anthropogenic mass extinction, climate change and ozone depletion.[52] In contrast to other forms of citizenship, ecological citizenship is primarily interested not in political participation in the decision-making process that determines the terms of social cooperation, but rather in changes in behaviors and underlying attitudes. The main reason for this is that the most sustainable changes in behavior do not come from social, economic and political measures put in place by local or national governments, but from voluntary changes in the attitudes that underlie our behaviors. Policies to promote sustainability such as fiscal incentives and disincentives can indeed change people's behaviors, but most of these changes usually do not last longer than the policies, because they often do not change people's underlying attitudes. Changing people's attitude

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[51] Paul B. Thompson and Patricia A. Norris, *Sustainability: What Everyone Needs to Know* (New York: Oxford University Press, 2021), 58.

[52] See, e.g., Bart van Steenbergen, "Towards a Global Ecological Citizen," in *The Condition of Citizenship*, ed. Bart van Steenbergen (London: Sage, 1994); Peter Christoff, "Ecological Citizens and Ecologically Guided Democracy," in *Democracy and Green Political Thought: Sustainability, Rights and Citizenship*, ed. Brian Doherty and Marius de Geus (London: Routledge, 1996); Mark J. Smith, *Ecologism: Towards Ecological Citizenship* (Buckingham: Open University Press, 1998); John Barry, *Rethinking Green Politics: Nature, Virtue and Progress* (London: Sage, 1999); Andrew Dobson, *Citizenship and the Environment* (Oxford: Oxford University Press, 2003); Andrew Dobson and Angel Valencia Sáiz, *Citizenship, Environment, Economy* (London and New York: Routledge, 2005); Tim Hayward, "Ecological Citizenship: Justice, Rights and the Virtue of Resourcefulness," *Environmental Politics* 15, no. 3 (2006); Andrew Dobson and Derek Bell, *Environmental Citizenship* (Cambridge: MIT Press, 2006). Other expressions such as "environmental citizenship," "green citizenship," "sustainability citizenship" and "Earth citizenship" are possible, but "ecological citizenship" seems to be the most generic one and has become the dominant one because of the influence of Andrew Dobson's writings in green political theory.

first, in contrast, can lead to more secure and long-lasting changes in behaviors. Truly sustainable behaviors and societies cannot be based exclusively on self-interested actions that are themselves based on economic incentives and disincentives, such as carbon taxes, rubbish taxes and road-pricing schemes. Sustainability requires voluntary shifts in attitudes at a deep level—deeper than those reached by fiscal measures.[53]

One key objective of ecological citizenship is to develop a broader picture of human motivation than the one provided by an approach focused on self-interested behaviors aligned with incentives and disincentives, as is typical of the economics worldview and approach to environmental studies. To the external or extrinsic motivation to protect the environment procured by legal and economic instruments, ecological citizenship adds internal or intrinsic motivations based on the duties, responsibilities and especially the *virtues* of environmentally aware citizens. Virtuous citizens internalize the purpose and value of good environmental practice, thus basing their obedience not only on mere external motivations of price, punishment or prohibition, but on self-imposed duties and autonomous virtuous activities.[54] Individual attitudes and behaviors are indeed influenced by regulation, education and incentives set by governments, but citizens can develop an individuality that is relatively or partially independent from the economic and political structures that inform their attitudes and behaviors.[55]

Ecological citizenship is a possible way to rebound from eco-anxiety and its psychological effects. Ecological citizens are more likely to develop eco-anxiety, since their civic commitment is based on an environmental awareness that is itself based on knowledge of the state of the planet and/or on experienced ecological impacts. At the same time, they are also more likely to cope with eco-anxiety, since they perceive citizenship as intrinsically linked with environmental action, both at the individual level of lifestyle choices and

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[53] Andrew Dobson and Ángel Valencia Sáiz, "Introduction," *Environmental Politics* 14, no. 2 (2005); Andrew Dobson and Derek Bell, "Introduction," in *Environmental Citizenship*, ed. Andrew Dobson and Derek Bell (Cambridge and London: The MIT Press, 2006); Andrew Dobson, "Environmental Citizenship: Towards Sustainable Development," *Sustainable Development* 15, no. 5 (2007). For an investigation into the requirements of environmental sustainability, see Michel Bourban, "Strong Sustainability Ethics," *Environmental Ethics* 43, no. 4 (2022).

[54] James Connelly, "The Virtues of Environmental Citizenship," in *Environmental Citizenship*, ed. Andrew Dobson and Derek Bell (Cambridge and London: The MIT Press, 2006), 49, 63.

[55] Dobson, "Environmental Citizenship: Towards Sustainable Development," 276–77. As one of the greatest advocates of individuality wrote, "Human nature is not a machine to be built after a model, and set to do exactly the work prescribed for it, but a tree, which requires to grow and develop itself on all sides, according to the tendency of the inward forces which make it a living thing" (John Stuart Mill, *'On Liberty' and Other Writings*, ed. Stefan Collini (Cambridge: Cambridge University Press, 2019), 60). This contrast between the "inward forces" and the external factors that push individuals to act is precisely what is stressed by ecological citizen theorists when they distinguish between intrinsic and extrinsic motivations.

at the collective level of policy-making. Not only do they develop a sound knowledge of environmental issues; they also act on it, both at the individual and at the collective level. Even though their knowledge and/or experiences can initially make them more vulnerable to eco-anxiety and its disorders, they do not let themselves be paralyzed by their psychological burden. They draw their motivation and energy from a very powerful ally: mindfulness.

Mindfulness

What are the virtues characteristic of the ecological citizen? Possible candidates include justice,[56] temperance,[57] simplicity,[58] and energy sobriety.[59] Mindfulness represents a major virtue that can aid in building resilience and reduce levels of eco-anxiety. In his list of green virtues that are useful in facing global environmental changes, Dale Jamieson explains that mindfulness can help us "improve our behavior" by helping us to "appreciate the consequences of our actions that are remote in time and space."[60] Sarah Jaquette Ray adds that mindfulness is a "practice of staying in the moment" that was originally used by Brahmans and Buddhist monks and that is now increasingly appreciated by neuroscientists and psychologists for its ability to "enhance self-regulation and foster a sense of agency."[61] Mindfulness is about paying attention, being present by taking a step back from the flow of information outside and the flow of emotions inside. According to David Treleaven, "By virtue of paying close, nonjudgmental attention to their inner world, people who practice mindfulness are more self-responsive to their own emotion and can even have less emotion exhaustion. [Mindfulness] also increases their capacity to be present with challenging emotions and thoughts without overreacting."[62] Daniel Freeman and Jason Freeman complete the picture by stressing that mindfulness is a possible treatment for anxiety and anxiety disorders: they conceive it as a "synthesis of modern Western psychological thinking and ancient Buddhist beliefs and practices, particularly meditation, that emphasizes

[56] Dobson, *Citizenship and the Environment*, 132–35.

[57] Dale Jamieson, "When Utilitarians Should Be Virtue Theorists," *Utilitas* 19, no. 2 (2007): 181.

[58] Joshua Colt Gambrel and Philip Cafaro, "The Virtue of Simplicity," *Journal of Agricultural and Environmental Ethics* 23, no. 1 (2009).

[59] Michel Bourban, "Ethics, Energy Transition, and Ecological Citizenship," in *Comprehensive Renewable Energy (Second Edition)*, ed. Trevor M. Letcher (Oxford: Elsevier, 2022).

[60] Dale Jamieson, *Reason in a Dark Time: Why the Struggle Against Climate Change Failed—And What It Means for Our Future* (Oxford: Oxford University Press, 2014), 187.

[61] Ray, *A Field Guide to Climate Anxiety. How to Keep Your Cool on a Warming Planet*, 42.

[62] David Treleaven, *Trauma-Sensitive Mindfulness: Practices of Safe and Transformative Healing* (New York: W. W. Norton, 2018), 36.

learning to live in the moment, and understanding that your thoughts and feelings are temporary, transient, and not necessarily a reflection of reality."[63]

Mindfulness cannot allow us to entirely escape negative emotions such as eco-anxiety; rather, it helps us to manage them, first by facing them, then by tolerating them, and finally by accepting them. The first step toward mindfulness is awareness, not of the external world, but this time of our inner world: we stop fighting our negative emotions and instead recognize them as such. Mindfulness starts with recognizing our feelings of vulnerability in the face of ecological risks and transcendental dangers: "We can open ourselves up and deal with feeling vulnerable."[64] Through mindfulness, "Our feelings become entities that we can talk about and look straight in the eye, rather than run away from."[65] Mindfulness also helps to reassure us by giving us the tools to trace the source of our eco-anxiety: this emotion is not absurd or exaggerated; originally, as we saw above, eco-anxiety is just a rational reaction to what we know about the state of the planet. Whatever other people say about this reaction, it is first and foremost a justified response to a real danger.

In what sense is mindfulness a *virtue*?[66] Jamieson defines virtues as "non-calculative generators of behaviors."[67] They are character traits that motivate us to act regardless of our calculative abilities and of the behavior of others. This is crucial in our current context, because "when it comes to large-scale collective action problems, calculation invites madness or cynicism":[68] madness, because the sums are too complicated and sometimes impossible to do; cynicism, because nothing seems to change if I fail to cooperate. Driving a SUV will not in itself change the climate, nor will my refraining from driving it stabilize the climate.[69] While utilitarian calculations seem to lead us to a downward spiral of non-cooperation, virtues sustain patterns of behavior whatever others do or do not do: they "give us the resiliency to live meaningful lives even when our actions are not reciprocated."[70] Mindfulness is about being present in the moment, paying attention to our direct and more distant natural environment, no matter how others behave.

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[63] Freeman and Freeman, *Anxiety: A Very Short Introduction*, 123.

[64] Kennedy-Woodard and Kennedy-Williams, *Turn the Tide on Climate Anxiety. Sustainable Action for Your Mental Health and the Planet*, 18.

[65] Ray, *A Field Guide to Climate Anxiety. How to Keep Your Cool on a Warming Planet*, 49.

[66] I do not rely here on a religious or theological conception of virtue, but on a secular approach to virtue ethics focused on the dispositions that make us "good" ecological citizens.

[67] Jamieson, "When Utilitarians Should Be Virtue Theorists," 167.

[68] Ibid.

[69] Walter Sinnott-Armstrong, "It's Not My Fault: Global Warming and Individual Moral Obligations," in *Perspectives on Climate Change*, ed. Walter Sinnott-Armstrong and Richard Howarth (Amsterdam: Elsevier, 2005).

[70] Jamieson, *Reason in a Dark Time: Why the Struggle Against Climate Change Failed—And What It Means for Our Future*, 186.

Now, in what sense can we conceive mindfulness as a *green* virtue? Being mindful is being more engaged here and now. Mindfulness contributes to promoting human and non-human flourishing, individually and collectively. It makes us recognize that we do not and cannot flourish in an ecological vacuum: our individual and collective well-being depends on ecological resources and services provided by a flourishing natural world. As Philip Cafaro highlights:

> our flourishing and nature's flourishing are intertwined. It is no accident that the same actions and the same personality traits typically help us to be good neighbors and citizens and good environmentalists. The same ecosystems, in many cases, facilitate the flourishing of human and non-human beings; pollution and declining ecosystem health harm both people and other organisms.[71]

Mindfulness is a green virtue because it contributes to both human and ecological flourishing. But becoming aware of the fact that individual, social and ecological flourishing is interrelated is only half of the story; the other half consists in living according to this awareness. Mindfulness is also an acquired and stable disposition to live a lifestyle that is more conducive to ecological flourishing. It leads to a change in the way we conceive of our relationship to ourselves, to others and to the natural world.

For this reason, mindfulness, as well as other green virtues such as carbon sobriety, is a solution to the problem of causal inefficacy: the belief that our individual actions, behaviors and lifestyles have no significant or observable effect on global environmental problems such as climate change.[72] Green virtues make us question the influential consequentialist belief that our actions need to be measurably impactful and yield immediate results. This assumption is a barrier to individual resilience.[73] Mindfulness motivates us to reduce our environmental impact, in particular our carbon footprint, *not because of the observable, measurable or calculable impact of our actions on global environmental changes, but because we feel that it is the right thing to do*. Mindful ecological citizens want to act virtuously, whether or not this allows them to maximize collective utility. Virtues have an intrinsic value; they matter in themselves, whatever their consequences on other's people actions. They can have an instrumental value when virtuous people encourage other people to act more virtuously (for instance by leading by example), but their primary value is to make us become better persons.[74]

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[71] Philip Cafaro, "Environmental Virtue Ethics," in *The Routledge Companion to Virtue Ethics*, ed. Lorraine Besser-Jones and Michael Slote (New York: Routledge, 2015), 432.

[72] Augustin Fragnière, "Climate Change and Individual Duties," *WIRE Climate Change* 7, no. 6 (2016): 800.

[73] Ray, *A Field Guide to Climate Anxiety. How to Keep Your Cool on a Warming Planet*, 53.

[74] Michel Bourban and Lisa Broussois, "The Most Good We Can Do or the Best Person We Can Be?," *Ethics, Policy & Environment* 23, no. 2 (2020).

Mindful ecological citizens are therefore not only more aware of the state of the planet (the *environmental awareness component*); they also act on that knowledge by contributing to individual and collective efforts to address global environmental changes (the *environmental action component*). Mindfulness implies both gathering sound knowledge and acting on it. This means that mindful ecological citizens help to reduce two persistent gaps between theory and practice that have been contributing to environmental degradation for a long time.

The first gap is that between the scientific knowledge of the state of the world and the individual and collective ecological awareness. The first Assessment Report by the Intergovernmental Panel on Climate Change (IPCC) was published more than three decades ago, in 1990. During the Earth Summit in Rio two years later, policy-makers from all over the world launched a call for multilateral action on the most urgent ecological issues by writing and signing the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD). Many scientists had actually called for urgent political action before that, especially Donella Meadows et al. in the landmark *Limits to Growth* report, published 50 years ago.[75] The same year, in 1972, the United Nations Conference on the Human Environment took place in Stockholm. In the Stockholm Declaration that resulted from this international summit, policy-makers had already recognized that the environment should be placed at the top of the political agenda of all countries. This gap between scientific knowledge and ecological awareness is now slowly closing, but it took almost half a century to do so, and some recent events, such as the election of Trump in the United States and of Bolsonaro in Brazil, show that it remains non-negligible.

The second gap is the one between ecological awareness and individual and collective action. Despite a growing body of conventions, declarations, protocols and agreements at the international level over the last few decades, policies that adequately address global environmental changes are still too slow to emerge. Climate change is a striking example. Half of cumulative anthropogenic CO_2 emissions between 1750 and 2010 have occurred since 1970, with larger increases toward the end of this period.[76] Greenhouse gas emissions grew on average by 1.3% per year from 1970 to 2000, and by 2.2%

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[75] H. Donella Meadows et al., *The Limits to Growth* (New York: Universe Books, 1972). Dobson stresses that this report played a central role in green political theory: "*The Limits to Growth* report of 1972 is hard to beat as a symbol for the birth of ecologism in its full contemporary guise" (Andrew Dobson, *Green Political Thought*, 4th ed. (London and New York: Routledge, 2007), 25).

[76] IPCC, "Summary for Policymakers," in *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, ed. O. Edenhofer, R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J. C. Minx (Cambridge: Cambridge University Press, 2014), 6.

per year from 2000 to 2010.[77] After a three-year period in which emissions remained largely steady, global fossil CO_2 emissions rose by approximately 1.6% in 2017 and 2.7% in 2018.[78] In 2020, global fossil CO_2 emissions fell by about 7% below 2019 levels because of the measures implemented to slow the spread of the COVID-19 pandemic.[79] Although these reductions in global CO_2 emissions are unprecedented, they are likely to be temporary, because they do not reflect structural changes in the economic, transport or energy systems. For instance, investments in response to the 2008–2009 global financial crisis led to a rebound of global emissions to their pre-crisis trajectory by 2010.[80] Preliminary data for 2021 already suggest a rebound in global fossil CO_2 emissions of 4.9% compared to 2020.[81]

Why is this second gap still persisting despite the progressive reduction of the first gap due to the spread of environmental awareness? Two psychological phenomena can help to explain this paradoxical situation: *cognitive dissonance* between what we know and what we do, between the results of scientific research and collective and individual actions; and *moral dissociation* between what we should do and what we actually do, between the duties of ecological citizenship and our individual and collective behavior.[82] Mindful ecological citizens contribute to reducing these two persisting gaps by fighting against cognitive dissonance and moral dissociation. They are not only more environmentally aware than other citizens; they are also adapting their everyday behaviors and political choices accordingly. They feel eco-anxiety on a daily basis, but they have learnt not to let it lead to inaction as psychological defense or as paralysis.

[77] Ibid.

[78] C. Le Quéré et al., "Global Carbon Budget 2018," *Earth System Science Data* 10, no. 4 (2018).

[79] Corinne Le Quéré et al., "Fossil CO_2 Emissions in the Post-Covid-19 Era," *Nature Climate Change* 11, no. 3 (2021).

[80] Ibid.

[81] P. Friedlingstein et al., "Global Carbon Budget 2021," *Earth System Science Data Discussions* 2021 (2021).

[82] In the field of animal ethics, Gary Francione points toward a similar psychological phenomenon: that of "moral schizophrenia," which arises from the gap between our moral belief that it is wrong to impose unnecessary suffering on animals and our behavior which contributes to inflicting an overwhelming amount of suffering on animals (Gary L. Francione, *Introduction to Animal Rights: Your Child or the Dog?* [Philadelphia: Temple University Press, 2007], Chap. 1). I first introduced the notion of "moral dissociation" in a paper on animal ethics and environmental ethics with Lisa Broussois: Michel Bourban and Lisa Broussois, "Nouvelles Convergences Entre Éthique Environnementale Et Éthique Animale: Vers Une Éthique Climatique Non Anthropocentriste," *VertigO - la revue électronique en sciences de l'environnement* 32 (2020).

Conclusion

Because of the continuous flow of information on the rapidly deteriorating state of the planet in scientific articles, reports, documentaries, and eco-fiction novels and movies, it has become difficult, if not impossible, not to feel eco-anxious. Global environmental changes such as climate change are omnipresent, both directly through their more and more numerous, severe, and frequent impacts, and indirectly through the stream of more and more accurate and available information on their current and future effects.

The building blocks of eco-anxiety are future orientation and uncertainty, fear and insecurity, and paralysis and inaction. Eco-anxiety is related to a range of other psychological states, such as ecological grief, climate depression, eco-nihilism and existential anxiety. Degrees of eco-anxiety vary according to factors such as age and location, but three categories of people seem to be more vulnerable to eco-anxiety: people directly exposed to ecological disasters, environmental scientists and the researchers and students who draw on their research, and children and young people. Possible eco-anxiety disorders include phobias, GAD and PTSD.

Different ways to deal with eco-anxiety are being explored in the emergent literature on the topic. This chapter proposed the normative framework of ecological citizenship as a way to cultivate mindfulness, a green virtue that allows us to become more resilient in the face of eco-anxiety. Mindfulness makes us aware of the fact that individual, social and ecological flourishing are interrelated, but by connecting environmental awareness with environmental action, it also pushes us to act on that awareness. It is also a solution to the problem of causal inefficacy: whether or not our actions have an observable, measurable or calculable impact, whether or not others reciprocate our actions, behaviors and lifestyle, we ought to reduce our environmental footprint, because this allows us to live more virtuously, to become better persons. Finally, mindfulness is a way to reduce cognitive dissonance (between what we know and what we do) and moral dissociation (between what we should do and what we actually do), two persistent psychological phenomena that have been contributing to environmental degradation for too long. The need for mindful ecological citizens is more important than ever.

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