CHAPTER 9

Eco-anxiety

Panu Pihkala

University of Helsinki and Helsinki Institute of Sustainability Science

Abstract

The difficult psychological impacts of environmental problems, which are often called eco-anxiety, can be so heavy that they paralyze people and hinder sustainability efforts. The most often-discussed phenomenon of this kind is climate anxiety, generated by the threat of the climate crisis and the various pressures included in it. In this chapter, I analyze variations of eco-anxiety and climate anxiety and discuss how they could—or should—be taken into account in sustainability studies. There is a need to differentiate the various emotions linked with eco-anxiety, such as grief and guilt, since constructive encounters of these emotions require different strategies. A novel kind of national survey about climate emotions, conducted in Finland in 2019, is introduced and discussed in relation to this theme. Interdisciplinary deliberation is needed because many factors shape the experiencing and

processing of these emotions and anxiety. At its best, eco-anxiety can function as 'practical anxiety', in which troubling uncertainty leads people to gather more information and re-evaluate their actions.

Introduction

> I've definitely disengaged with environmental issues a lot over the last few months just because it's so stressful and overwhelming as well to think about. … I don't see a future…
>
> Just being involved with the issue of climate has brought about periods of depression for me. And something else that's been hard to deal with is experiencing activist burnout and not being able to do anything. Which is really hard because that disassociates me from my identity because being an activist is where I feel like my place in the world is.
>
> <div align="right">Examples of people's comments about their
eco-anxiety (Kelly 2017: 20)</div>

The psychological weight of the ecological crisis can be so great that people lose their capability to act, and their well-being decreases. This brings several challenges to sustainability studies. First, efforts to increase and maintain sustainability are doomed to fail if people are paralyzed by anxiety and depression. Second, those working in sustainability studies or professions belong to groups of people who have been recognized as especially vulnerable to eco-anxiety and climate burnout (van Susteren and Coyle 2012; Pihkala 2020a). In other words, to use the key terminology of this volume, the ways in which the knowledge of sustainability advocates and scholars is situated include affective dimensions that can either hinder or enhance their resilience. Thus, a greater understanding about these phenomena, and more attention to skills that enable people to live with them, are important to anyone interested in sustainability issues.

In this chapter, I discuss the psychosocial impacts of the environmental crisis, especially those commonly called eco-anxiety and climate anxiety. I analyze eco-anxiety from a multidisciplinary perspective that combines psychological and social perspectives,

which places my discussion in the field of psychosocial studies. Efforts to combine psychological and social studies in relation to the ecological crisis and the climate crisis have been on the rise since the 2010s (see Adams 2016; Hoggett 2019). I claim that the humanities have much to contribute to such studies since they have a long tradition of exploring various facets of human behaviour.

Varieties and Dimensions of Eco-anxiety

In scholarly literature, eco-anxiety has been defined as 'a chronic fear of environmental doom' (Clayton et al. 2017: 68) and 'the generalized sense that the ecological foundations of existence are in the process of collapse' (Albrecht 2012: 250). These definitions link eco-anxiety with a general worry, fear, or anxiety. Scholars point out that eco-anxiety is fundamentally not an anxiety disorder: it is an understandable reaction to the severity of the ecological crisis. However, there may be cases where eco-anxiety is so strong that mental health support is needed (Doherty 2016; Manning and Clayton 2018; Pihkala 2019a).

Eco-anxiety is a contemporary form of the phenomenon where the state of the world, sometimes called macrosocial factors, affect a person's emotional well-being. Nuclear awareness, which was discussed in a previous chapter of this book, is an earlier example of a roughly similar phenomenon. These forms of awareness— ecological/ climate awareness and nuclear awareness—actually overlap in significant ways, as has been posited by the eminent psychologist Robert Jay Lifton (2017). Both are related to the possibility of extinguishing human life and many planetary life forms, and both require the support of 'witnessing professionals' (Lifton 2017)—scientists of related fields—to enable social changes.

The word anxiety is commonly used to refer to many kinds of phenomena, and awareness of these various manifestations helps us to understand eco-anxiety. Much discussion centres on anxiety as a mental health concern, often in the forms of anxiety disorders. Another strand of research focuses on existential anxiety, which means anxiety about fundamental concerns in life, such as mortality, guilt, and finding a sense of meaning. Yet another

discourse approaches anxiety as an emotion that is related to practical situations in which an individual or a group feels problematic uncertainty (Grupe and Nitschke 2013).

Eco-anxiety can manifest in any of these three forms, and it often manifests as a combination of them (Pihkala 2020b; Pihkala 2018). It can result either from direct or indirect exposure to the ecological crisis. If the results of ecological problems are experienced in the forms of intense and direct somatic and psychic impacts, such as in the case of natural disasters that have been intensified by climate change, the mental health impacts are usually more severe and sudden (see also Chapter 12 on *Disaster Recovery (After Catastrophes)* in this book). In these cases, there can be strong anxiety symptoms, as well as post-traumatic stress and other complications (Clayton, Manning and Hodge 2014; Clayton et al. 2017). The relations between cause and effect are also easier to study in these cases. However, it has become evident that mere news, knowledge, and fears about ecological problems can be enough to cause anxiety because the global environmental crisis is so threatening (Reser, Morrissey and Ellul 2011; Davenport 2017; Pihkala 2020a). For example, there can be anxiety or despair simply because the Sustainable Development Goals (SDGs) seem so difficult to reach in a world undergoing multiple crises (for a case example, see Heglar 2020; for discussion of the relation between mental health and SDGs, see Dybdahl and Lien 2017).

Many phenomena can cause eco-anxiety—for example, loss of biodiversity, climate change, and loss of certain species or places. Mental health impacts arising from damage to places that a person holds dear are sometimes called solastalgia: a combination of solace, nostalgia, and desolation. The concept was invented by Australian environmental philosopher Glenn Albrecht in order to describe the homesickness and nostalgia that a person may feel, even while still living at home if the environs of their home are damaged or destroyed (Albrecht 2019). Some scholars prefer to use the term distress to describe phenomena that others label anxiety (Randall 2019).

The most prevalent form of eco-anxiety seems to be climate anxiety: anxiety that is significantly linked to anthropogenic climate

change (Ray 2020; Pihkala 2019a; Ojala 2019). Climate anxiety is a peculiar combination of indirect and direct impacts. In many Western countries, the geophysical impacts of climate change are still mild compared to other parts of the world, although they are rapidly becoming more severe. In the Nordic countries, climate anxiety is mostly the result of indirect impacts of climate change: it is based on risk perception on the basis of scientific knowledge and media coverage (cf. Hyry 2019). However, the already-changing seasons in the North bring direct impacts and often seem to worsen anxiety (Pihkala 2020c).

There are certain factors that make a person, or a group, more vulnerable to eco-anxiety. These include young age, high exposure to physical environmental problems, and strong exposure to disturbing news about the ecological crisis. Women identify more difficult emotions than men (Hyry 2019; Berry et al. 2018; Pihkala 2019a.; cf. Clayton and Karazsia 2020). Sustainability professionals and environmental activists suffer from increased eco-anxiety, although they also have certain special resources that increase resilience, such as a sense of efficacy (Fraser et al. 2013; Pihkala 2020a).

Psychosocial factors influence people's experiences of eco-anxiety in profound ways: they may either encourage recognition of it or promote distance to it. Due to peer pressure, there may be denial or silencing of eco-anxiety (Stoknes 2015; Norgaard 2011; Norgaard and Brulle 2019). The article collection edited by Hoggett (2019) shows well the complexities and ambiguities that numerous people experience in relation to ecological emotions and climate change. For example, many sustainability professionals struggle with the threat of cynicism in the long run, and there are profound difficulties in encountering all the feelings of grief and loss that ecological literacy brings.

Emotions and Eco-Anxiety: Discussion and Case Examples from Finland

In order to understand the wider phenomena related to eco-anxiety, there is a need for a study of various emotions, affects, and moods. The study on 'ecological emotions' is a relatively new

but rapidly growing inter- and multidisciplinary field (Albrecht 2019; Bladow and Ladino 2018; Pihkala 2019b). Several emotions emerge as crucial for understanding eco-anxiety: these include fear, frustration, anger, guilt, and grief.

One of the first national surveys related to these phenomena was the Climate Emotions Survey in Finland in summer 2019 by Sitra, the Finnish Innovation Fund (Hyry 2019), and I will present case examples from it in my discussion. I personally participated in the preparation of this survey as an academic expert, together with climate psychologist Kirsti M. Jylhä. Kantar TNS carried out the survey, and over 2000 Finns were interviewed. The survey included many kinds of questions, which enables various analyses of the data, but academic research articles based on it are only forthcoming. A much longer list of various emotions was provided within the interviews than what is usually used: over 25 of them.

In this survey, 25 percent of Finns reported feelings of anxiety in relation to climate change; of the youngest segment, 15- to 30-year-olds, it was 33 percent. Climate fear was recognized by 31 percent of Finns (Hyry 2019). Indeed, the links between anxiety and fear are strong. Eco-anxiety can be seen as a manifestation of 'eco-fear' that is not encountered or is more vague than actual fear (cf. Pihkala 2019a, 2019b; Buzzell and Chalquist 2019). However, in the case of global threats, fear and anxiety are often intertwined since the threats are not always imminent (Greenspan 2004).

There are many feelings of frustration and anger related to eco-anxiety and its causes (Pihkala 2020b). In Finnish surveys about eco-anxiety and climate anxiety, frustration was one of the top emotions that people recognized (Hyry 2019; Marttinen 2019). Most respondents were frustrated about the lack of speed or power in governmental and corporate environmental action, but some respondents were frustrated about the entire discussion around eco-anxiety. These feelings are one important example of the many ways in which emotions are significant within sustainability efforts.

Three other emotions merit special mention here: guilt, shame, and grief. All three of these can manifest as anxiety if they are not

recognized and encountered in a constructive manner. There is much guilt and even shame as regards the ecological crisis. Environmental communication scholar Tim Jensen (2019) has written a major book about the dynamics of these, and he points out that environmental guilt too often remains on the level of individuals, preventing social action. On the other hand, much environmental communication results in promoting 'species shame' on the level of humanity as a whole, which is prone to causing paralysis.

A new interdisciplinary field of research about 'ecological grief' has developed (Cunsolo and Landman 2017). Guilt and grief often become intertwined in the context of the ecological crisis, making each other worse and more complicated (cf. Jensen 2019; Ray 2020). A process of ecological mourning may bring strong feelings of guilt to the fore, and on the other hand, ecological guilt may prevent a person from reaching her feelings of ecological grief. The processing of both these emotions requires support from trusted others, and an ability to live with ambivalence (Greenspan 2004; Lertzman 2015; Pihkala 2019a; Gillespie 2020). Cultural norms and power dynamics shape the ways in which people see and encounter emotions, which makes the study of such topics as the 'cultural politics of emotion' (Bladow and Ladino 2018; Ray 2020; Jensen 2019) and the sociology of emotions (Brulle and Norgaard 2019; Berglund 2019) very important for understanding ecological emotions and eco-anxiety.

In the Finnish survey, 34 percent of the respondents reported climate grief and 24 percent reported climate guilt. Age was a strong factor in recognizing climate guilt: of the youngest segment, 31 percent reported guilt, but of the oldest segment (over 65 years), only 18 percent acknowledge it (Hyry 2019). In the case of climate shame, this difference between age groups was even stronger: 26 percent among the youngest, 12 percent among the oldest. Discussion of the various dynamics that may influence these differences is too broad to be included here, but my hypothesis is that the emotional difficulties in recognizing guilt and shame—which are discussed by, for example, Jensen (2019) and Hoggett (2019)—are at play here.

Discussion: What to Do with Eco-Anxiety in Sustainability Studies and Efforts?

The discussion above shows that eco-anxiety and climate anxiety are significant phenomena and require more attention. I have argued that they also require careful analysis of various emotions and other phenomena that can be linked with them, such as guilt and grief, and emotional norms. Various tasks, challenges, and opportunities arise for sustainability students and professionals.

First and foremost, it is important to study the variations and dynamics of eco-anxiety and ecological emotions, and to educate students in these matters. There is a need for self-reflection about attitudes toward emotions and critical reflection about the social norms related to them. These factors shape the ways in which eco-anxiety and climate anxiety are framed and encountered. As Wallace, Greenberg and Clark (2020) argue, faculty members of especially environmental studies and sciences—including sustainability studies—should carefully examine their attitudes and methods related to ecological emotions so that they can support students better. I have personally explored the ways in which eco-anxiety could be encountered in education in a recent article (Pihkala 2020d; see also Chapter 5 on *Education* in this book). Corres et al. (2020) have argued that among the SDG competencies that educators need, more attention should be given also to emotional competencies.

Fundamentally, the challenging emotions that lie behind eco-anxiety are productive, if—and only if—they can be constructively encountered. Fear helps us to orient to possible dangers. Guilt helps us to realize that we have been part of wrong-doings and must engage in reparation. Shame tells us that we have not been the people that we should be, and that we need a new, more honourable lifestyle. Grief helps us to process the loss of things that we have cherished. Anger and indignation can give us energy to make changes, to practice civil action (Kleres and Wettergren 2017; Jensen 2019; Pihkala 2019a, 2019b; Ray 2020).

Eco-anxiety should be framed as both a problem—when it is paralyzing—and as a resource. Considering the latter, anxiety

researcher Charlie Kurth's thoughts provide some useful insights. Kurth draws from a wealth of research and delineates variations of anxiety as a biocognitive emotion. Even though Kurth does not discuss eco-anxiety per se, his model sheds light on its emotion-like forms. Kurth (2018) separates anxiety into three categories, which can overlap. There is a) 'environmental anxiety', albeit not in the ecological sense in his model. This is a feeling of troubling uncertainty in relation to a possible threat in the person's environment. The second category is b) 'punishment anxiety', a feeling of uncertainty as to whether the person's behaviour will cause a negative social evaluation in the eyes of others. And then there is c) 'practical anxiety', when an uncertain situation inspires such anxiety that causes a person to seek more information and to re-evaluate their course of action.

All three forms of anxiety occur in the context of eco-anxiety. There is a feeling of a threat that includes varying degrees of uncertainty (a); exact prediction of ecological problems, such as climate change, is difficult. There are many social forms of eco-anxiety (b), where a person feels uncertain about how to behave in a sustainable or socially acceptable manner. There are often conflicting norms—Kurth (2018) calls this 'norm uncertainty'—and genuine novelty. It is no wonder that the ecological crisis and climate crisis cause social anxiety.

Many people (Marttinen 2019; cf. Hyry 2019) testify that their eco-anxiety has resulted in information-gathering and changes in lifestyle (c), which points to the practical possibilities of eco-anxiety. Lifton (2017) writes of the transformation of paralyzing anxiety into 'anxiety of responsibility'. In this manner, eco-anxiety can be seen as a moral emotion (Pihkala 2020d).

Sustainability students, professionals, and educators face the tasks of building individual and community resilience in relation to the psychological toll of the ecological crisis. This maintains and strengthens well-being and capabilities (Doppelt 2016; Davenport 2017). Various emotions, including varieties of eco-anxiety, should be taken into account when designing environmental communication (Moser 2015; 2016). In such work, insights can be drawn from materials designed by psychologists and researchers.

There are guides for self-care and community-building in relation to eco-anxiety and climate anxiety (Coping with Climate Change Distress 2017; Doppelt 2016; Macy and Johnstone 2012). For example, psychologists recommend limiting media exposure to troubling information to certain times of the day, as well as organizing peer support groups. Public advocacy is an important task, and justice dimensions need special attention: often it is the already marginalized or vulnerable segments of people that also suffer the most from the mental health impacts (Berry et al. 2018; Ray 2020; see Chapter 10 on *Exclusion and Inequality* in this book).

I mention two examples of psychologically insightful approaches to sustainability efforts. The Carbon Conversations method (n.d.) is built on group discussions about both emotions and climate activities. A pioneering climate psychologist, Rosemary Randall, has had a strong role in the creation of these materials, and there is research available that has been conducted about the impacts of such work (Hoggett 2019). The Project Inside Out, developed mainly by Renée Lertzman, another forerunner in environmental psychology, offers a website full of materials designed to engage various audiences in a psychologically sensitive way (Project Inside Out n.d.). This kind of methodology emphasizes the need to first encounter the complex emotions and attitudes that people may have, including anxiety and aspiration, and only after that to move on to co-designing sustainability efforts.

Since the phenomena of eco-anxiety and climate anxiety are so multifaceted, multi- and interdisciplinary cooperation is essential. These efforts have also been started in the University of Helsinki and in the HELSUS Sustainability Science Institute, from which this book initiates. Various fields, such as natural sciences and humanities, must take the opportunity to learn from each other and to combine their strengths. The COVID-19 pandemic has made the need to maintain mental and physical health very clear, and amid combinations of 'coronavirus anxiety' and eco-anxiety, social support and compassion are needed to keep sustainability efforts alive. As I have argued in this chapter, there are many kinds

of eco-anxiety, and if we wish to draw from its practical potential, all hands and hearts are needed on the deck.

References

Adams, M. 2016. *Ecological Crisis, Sustainability and The Psychosocial Subject: Beyond Behaviour Change*. London: Palgrave Macmillan.

Albrecht, G. 2019. *Earth Emotions: New Words for a New World*. Ithaca, NY: Cornell University Press.

Albrecht, G. 2012. 'Psychoterratic Conditions in a Scientific and Technological World'. In *Ecopsychology: Science, Totems, and the Technological Species*, edited by P. H. Kahn and P. H. Hasbach, 241–64. Cambridge, MA: MIT Press.

Berglund, K. 2019. *'There is no alternative: A Symbolic Interactionist Account of Swedish Climate Activists'*. Master's Thesis, Lund University, Sweden.

Berry, H. T. D., Waite, K. B. G., Dear, A. G., Capon and V. Murray. 2018. 'The Case for Systems Thinking About Climate Change and Mental Health'. *Nature Climate Change*, 8 (4): 282–90.

Bladow, K. A. and J. Ladino. 2018. *Affective Ecocriticism: Emotion, Embodiment, Environment*. Lincoln, NE: University of Nebraska Press.

Brulle, R. J. and K. M. Norgaard. 2019. 'Avoiding Cultural Trauma: Climate Change and Social Inertia'. *Environmental Politics*, 28 (5): 886–908.

Buzzell, L. and C. Chalquist. 2019. 'It's Not Eco-Anxiety – It's Eco-Fear! A Survey of the Eco-Emotions', Chalquist.com, 19 September 2019. Accessed 10 April 2021. Available at: http://www.chalquist.com/its-not-eco-anxiety-its-eco-fear-a-survey-of-the-eco-emotions/.

Carbon Conversations. n.d. Carbon Conversations. Accessed 15 December 2020. http://www.carbonconversations.co.uk/.

Clayton, S. and B. Karazsia. 2020. 'Development and Validation of a Measure of Climate Change Anxiety'. *Journal of Environmental Psychology*, Preproof online 30 April 2020. https://doi.org/10.1016/j.jenvp.2020.101434.

Clayton, S. C. M. Manning, K. Krygsman and M. Speiser. 2017. *Mental Health and our Changing Climate: Impacts, Implications, and Guidance*. Washington, DC: APA & EcoAmerica.

Clayton, S. C. Manning and C. Hodge. 2014. *Beyond Storms & Droughts: The Psychological Impacts of Climate Change*. Washington, DC: APA and EcoAmerica.

Coping with Climate Change Distress. 2017. Australian Psychological Society. Accessed 10 April 2021. https://www.psychology.org.au/for -the-public/Psychology-topics/Climate-change-psychology/Coping -with-climate-change-distress.

Corres, A. M. Rieckmann, A. Espasa and I. Ruiz-Mallén. 2020. 'Educator Competences in Sustainability Education: A Systematic Review of Frameworks'. *Sustainability*, 12 (23): 9858. https://doi.org/10.3390 /su12239858.

Cunsolo Willox, A. and K. Landman, K., eds. 2017. *Mourning Nature: Hope at the Heart of Ecological Loss & Grief*. Montreal & Kingston: McGill-Queen's University Press.

Davenport, L. 2017. *Emotional Resiliency in the Era of Climate Change: A Clinician's Guide*. London: Jessica Kingsley Publishers.

Doherty, T. 2016. 'Theoretical and Empirical Foundations for Ecotherapy'. In *Ecotherapy: Theory, Research & Practice*, edited by M. Jordan and J. Hinds, 12–31. London: Palgrave.

Doppelt, B. 2016. *Transformational Resilience: How Building Human Resilience to Climate Disruption Can Safeguard Society and Increase Wellbeing*. Saltaire: Taylor & Francis.

Dybdahl, R. and L. Lien. 2018. 'Mental health is an Integral Part of the Sustainable Development Goals'. *Preventive Medicine and Community Health*, 1 (1): 1–3. https://doi.org/10.15761/PMCH.1000104.

Fraser, J., V. Pantesco, K. Plemons, R. Gupta and S. J. Rank. 2013. 'Sustaining the Conservationist'. *Ecopsychology*, 5 (2): 70–79.

Gillespie, S. 2020. *Climate Crisis and Consciousness: Re-imagining our World and Ourselves*. London & New York: Routledge.

Grupe, D. W. and J. B. Nitschke. 2013. 'Uncertainty and Anticipation in Anxiety: An Integrated Neurobiological and Psychological Perspective'. Nature Reviews. *Neuroscience*, 14 (7): 488–501.

Heglar, M. A. 2020. 'What Climate Grief Taught Me About The Coronavirus'. *The New Republic*, 25 March 2020. Accessed 10 April 2021. https://newrepublic.com/article/157059/climate-grief-taught -coronavirus.

Hoggett, P., ed. 2019. *Climate Psychology: On Indifference to Disaster*. Cham: Palgrave Macmillan.

Hyry, J. 2019. Kansalaiskysely ilmastonmuutoksesta ja tunteista [National survey on climate change and emotions], results compiled

by Jaakko Hyry, Kantar TNS, July 2019, Sitra, the Finnish Innovation Fund, Helsinki.

Jensen, T. 2019. *Ecologies of Guilt in Environmental Rhetorics*. Cham: Palgrave Macmillan.

Lertzman, R. A. 2015. *Environmental Melancholia: Psychoanalytic Dimensions of Engagement*. Hove and New York: Routledge.

Lifton, R. J. 2017. *Climate Swerve: Reflections on Mind, Hope, and Survival*. New York, NY: The New Press.

Kelly, A. 2017. 'Eco-Anxiety at University: Student Experiences and Academic Perspectives on Cultivating Healthy Emotional Responses to the Climate Crisis. Independent Study Project (ISP) Collection 2642'. Accessed 10 April 2021. The University of Colorado at Boulder & Melbourne. http://digitalcollections.sit.edu/isp_collection/2642.

Kleres, J. and Å. Wettergren. 2017. 'Fear, Hope, Anger, and Guilt in Climate Activism'. *Social Movement Studies*, 16 (5): 507–19. https://doi.org/10.1080/14742837.2017.1344546.

Kurth, C. 2018. *The Anxious Mind: An Investigation Into The Varieties and Virtues Of Anxiety*. Cambridge, MA: MIT Press.

Macy, J. and C. Johnstone. 2012. *Active Hope: How to Face the Mess We're in Without Going Crazy*. Novato, CA: New World Library.

Manning, C. and S. D. Clayton. 2018. 'Threats to Mental Health and Well-Being Associated With Climate Change'. In *Psychology and Climate Change: Human Perceptions, Impacts, and Responses*, edited by S. D. Clayton and C. Manning, 217–44. London: Academic Press (Elsevier).

Marttinen, E. 2019. 'Ympäristöahdistus tänään [Eco-anxiety in Finland today], Reflections on Results of an Open Internet Survey by Nyyti ry', MIELI Finnish Mental Health Society, Helsinki. Accessed 10 April 2021. Available at: https://mieli.fi/sites/default/files/inline/materiaalit/elina_marttinen_ymparistoahdistus_tanaan.pdf.

Moser, S. C. 2015. 'Whither the Heart (-to-heart)? Prospects for a Humanistic Turn in Environmental Communication as the World Changes Darkly'. In *Handbook on Environment and Communication*, edited by A. Hansen and R. Cox, 402–13. London: Routledge.

Moser, S. C. 2016. 'Reflections on Climate Change Communication Research and Practice in The Second Decade of the 21st Century: What More is There to Say?' *Wiley Interdisciplinary Reviews: Climate Change*, 7 (3): 345–69.

Norgaard, K. M. 2011. *Living in Denial: Climate Change, Emotions and Everyday Life*. Cambridge, MA: MIT Press.

Norgaard, K. M. and R. Brulle. 2019. 'Avoiding cultural trauma: Climate change and social inertia'. *Environmental Politics*, 28 (5): 886–908.

Ojala, M. 2019. 'Eco-anxiety'. *RSA Journal* (online), 4.

Pihkala, P. 2020a. 'The Cost of Bearing Witness to the Environmental Crisis: Vicarious Traumatization and Dealing with Secondary Traumatic Stress among Environmental Researchers'. *Social Epistemology*, 34 (1): 86–100.

Pihkala, P. 2020b. 'Anxiety and the Ecological Crisis: An Analysis of Eco-anxiety and Climate Anxiety'. *Sustainability*, 12 (19), 7836, https://doi.org/10.3390/su12197836.

Pihkala, P. 2020c. 'Climate Grief: How We Mourn a Changing Planet'. *BBC Climate Emotions series*, 3 April 2020, https://www.bbc.com/future/article/20200402-climate-grief-mourning-loss-due-to-climate-change. Accessed 10 April 2021.

Pihkala, P. 2020d. 'Eco-anxiety and Environmental Education'. *Sustainability*, 12 (23), 10149, https://doi.org/10.3390/su122310149.

Pihkala, P. 2019a. 'Climate anxiety, A report'. MIELI Finnish Mental Health Society, Helsinki. Accessed 10 April 2021. Available at: https://mieli.fi/en/raportit/climate-anxiety.

Pihkala, P. 2019b. *Mieli maassa? Ympäristötunteet* [Ecological Emotions], Kirjapaja: Helsinki.

Pihkala, P. 2018. 'Eco-Anxiety, Tragedy, and Hope: Psychological and Spiritual Dimensions of Climate Change'. *Zygon*, 53 (2): 545–69.

Project Inside Out. n.d. Project Inside Out. Accessed 15 December 2020. www.projectinsideout.net.

Randall, R. 2019. 'Climate Anxiety or Climate Distress? Coping with the Pain of the Climate Emergency. 19 October 2019'. Accessed 10 April 2021. Available at: https://rorandall.org/2019/10/19/climate-anxiety-or-climate-distress-coping-with-the-pain-of-the-climate-emergency/.

Ray, S. J. 2020. *A Field Guide to Climate Anxiety: How to Keep Your Cool on a Warming Planet*. Oakland, CA: University of California Press.

Reser, J. P., S. A. Morrissey and M. Ellul. 2011. 'The Threat of Climate Change: Psychological Response, Adaptation, and Impacts'. In *Climate Change and Human Well-Being: Global Challenges and Opportunities*, edited by I. Weissbecker, 19–42. New York, NY: Springer.

Stoknes, P. E. 2015. *What We Think About When We Try Not to Think About Global Warming: Toward a New Psychology of Climate Action*. Chelsea, VT: Chelsea Green Publishing.

Van Susteren, L. & K. Coyle. 2012. *The Psychological Effects of Global Warming on the United States: And Why the U.S. Mental Health Care System is Not Adequately Prepared.* Reston, VA: National Wildlife Federation.

Wallace, R. L., J. Greenburg and S. G. Clark. 2020. 'Confronting Anxiety and Despair in Environmental Studies and Sciences: An Analysis and Guide for Students and Faculty'. *Journal of Environmental Studies and Sciences*, 10: 148–55. https://doi.org/10.1007/s13412-020-00609-6.