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Article

The Process of Eco-Anxiety and Ecological Grief: A Narrative Review and a New Proposal

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Abstract: As the ecological crisis grows more intense, people experience many forms of eco-anxiety and ecological grief. This article explores the broad process of encountering eco-anxiety and ecological grief, and engages in the constructive task of building a new model of that process. Eco-anxiety and grief are here seen as fundamentally healthy reactions to threats and loss, and only the strongest forms of them are seen as problems. The aim is to help researchers, various professionals and the general public by providing a model which is (a) simple enough but (b) more nuanced than stage models which may give a false impression of linearity. The article uses an interdisciplinary method. The proposed new model includes both chronological and thematic aspects. The early phases of Unknowing and Semi-consciousness are followed potentially by some kind of Awakening and various kinds of Shock and possible trauma. A major feature of the model is the following complex phase of Coping and Changing, which is framed as consisting of three major dimensions: Action (pro-environmental behavior of many kinds), Grieving (including other emotional engagement), and Distancing (including both self-care and problematic disavowal). The model predicts that if there is trouble in any of these three dimensions, adjusting will be more difficult. The model thus helps in seeing, e.g., the importance of self-care for coping. The possibility of stronger eco-anxiety and/or eco-depression is always present, including the danger of burnout. The ethical and psychological aim is called Adjustment and Transformation, which includes elements of, e.g., meaning-finding and acceptance. The need for Coping and Changing continues, but there is more awareness and flexibility in a metaphase of Living with the Ecological Crisis, where the titles and subtitles of the three dimensions of coping are switched.

Keywords: eco-anxiety; ecological grief; climate anxiety; climate grief; solastalgia; eco-emotion; bereavement; process model; Dual Process Model

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1. Introduction

1.1. General Introduction

The global ecological crisis is growing more intense. Various planetary boundaries are either at risk of being transgressed or have already become so [1]. The climate crisis is intensifying rapidly and extreme weather events are taking place in various parts of the globe, with the intergovernmental panel on climate change (IPCC) issuing dire warnings [2]. In various ways, this socio-ecological crisis is affecting people and ecosystems all around the globe, both via direct and indirect impacts [3]. The ecological crisis is very real, but people are also shaped by various social constructions of it: people are impacted by how other people frame the ecological crisis (e.g., [4,5]).

How do people react to this reality and all the various social constructions of it? Encountering the socio-ecological state of the world has become a major psychological challenge and a developmental challenge for a growing number of people; it is becoming difficult to neglect it even for privileged people [6–10]. Trying to encounter this reality and to cope with it forms a process: there are various phases, dimensions, and possible

outcomes. In research, various frameworks have been used to study and describe aspects of this process, such as coping [11,12], adaptation [13,14], and transformation [15,16].

Action and pro-environmental behaviour (PEB) are major issues related to this process, as well as the many psychological impacts of these problems and crises. These impacts have received growing attention and many terms have been used of them, such as ecological stress [17], ecological distress [18], ecological grief [19], solastalgia [20], and various forms of anxiety, worry, and fear [21]. It should be noted that various writers may also use a same term but with different connotations and thus conceptual analysis is always needed. For example, some authors have been interested about these kind of issues as discrete emotional experiences, while others have focused on potential impairment. These kind of issues have often been called broadly "eco-anxiety": various kinds of anxiety and other difficult feelings shaped by the ecological crisis and perceptions of it (for discussions of how eco-anxiety may be defined, see [22,23]). It is evident that the process of encountering the state of the world and the phenomena related to eco-anxiety are closely connected [7], and many studies have tried to explore the dynamics around eco-anxiety and action [24–29].

However, as a whole, this *process* of encountering the ecological crisis has received rather limited attention as of yet. There are probably several reasons for this relative lack of attention. First, research interest towards eco-anxiety and ecological grief has only recently surged, although related issues have been researched by using other terms such as emotional impacts of environmental issues (for a review of early research on that, see [30]; for reviews of eco-anxiety scholarship, see [21,22,31]). Second, the phenomenon is so complex that it resists any easy efforts to conceptualize a process model of it. Many kinds of issues are at play simultaneously, and the relationships between such factors as stress, sadness, anxiety, and action are complex and manifold (see, e.g., [9,17,26,32]). Furthermore, many kinds of contextual factors shape people's processes, ranging from micro to macro levels, and there may be changes over time [7,33]. It is highly difficult to take all this complexity into account in model-building, even when acknowledging that models cannot be perfect.

There are some existing studies and popular-level conceptualizations of various aspects of the broader process, such as a process of climate grief [34], but these usually have two kinds of problems. First, in order to understand the process broadly, there is a need to integrate various key elements such as anxiety, sadness and action together in a nuanced way, which has not usually been done (see, e.g., [35], which is strong in analyzing action and discusses distress, but does not analyze the role of sadness). Second, some of these conceptualizations build on problematic assumptions, such as the influential idea that a grief process proceeds via stages. This assumption seems fundamentally based on Elizabeth Kübler-Ross' framework of stages of grief [36], the so-called DABDA model. This model, despite its influence and popularity, has been strongly criticized by grief scholars ever since its formation in 1969 [37]. Key elements of this critique are (1) the fact that many people interpret the stages in a rather rigid and linear manner, which (2) gives a problematic normative impression that everyone should experience the same stages and perhaps even in the same order. Furthermore, scholars and professionals have argued that (3) there are other aspects in grief processes which need major attention and which are not well captured by stage models (for climate grief and these arguments, see [38]; for critical evaluations of the model in general grief theory, see [39–41]).

Generally, grief studies, which are also called bereavement studies, offer much research about processes of encountering difficult knowledge, emotions, and events. This research field also includes various conceptualizations of processes, phases, and tasks. The research field is closely related to trauma research, anxiety research, coping research, and existential studies. Ecological grief has gained much attention in recent years, but integration of general grief research into it is still largely absent [19,42,43]. Scholars have noted the close connections between eco-anxiety and ecological grief [21,44]. Thus, research on ecological grief and general grief studies seems highly useful in further explorations of the general process of eco-anxiety and ecological grief.

As mentioned above, scholars have noted that eco-anxiety and action have close, although complex connections, which makes eco-anxiety closely related also to political action. However, ecological grief also has a political dimension. While strong emotions of sadness may indeed be related to withdrawal in the short time span, scholars point out that over a longer time period, grief can galvanize and sustain action [42]. Grief and sadness arise out of caring, and people often want to act on the behalf of things that they care for. Thus, there are interconnections between three dimensions: eco-anxiety, ecological grief, and ecological action (PEB).

More information about the process of eco-anxiety and ecological grief could help in many ways. A nuanced but simple enough model of the process could help lay people to reflect on their own reactions and provide understanding about other people's reactions. A process model could help researchers and various professionals to understand the phenomena and their complexity better, which could inform further studies and therapeutic means. Educators could use the model to inform them about the reactions of their students and as means to develop educational means. A visualization of the process could help, for example, communicators and journalists to quickly receive complex information. The construction of such a process model is evidently a difficult task and requires much work, which explains the length of this article.

1.2. Aims and Starting Points

This article studies the broad process of eco-anxiety and ecological grief from an interdisciplinary perspective. The aim is to clarify aspects, phases and dimensions of such a process, and to offer a new model of the process. A visualization will be provided of the model. Previous scholarship and aspects of popular literature will be evaluated through a narrative review, in order to gain information about the process and to inform the model-building. Below, several major starting points and premises are discussed: the use of the terms eco-anxiety and ecological grief in this study (Sections 1.2.1 and 1.2.2), the relationship between individuals and collectives (Section 1.2.3), the relationship between the general process and particular processes (Section 1.2.4), the role of fluctuation and oscillation (Section 1.2.5), and the use of visual models (Section 1.2.6)

1.2.1. Eco-Anxiety

This article builds on a broad understanding of eco-anxiety: as a concept, it can refer to various manifestations of anxiety which are significantly connected with the ecological crisis [9,21,22]. Building on earlier research, eco-anxiety is seen fundamentally as related to observing ecological problems which include some kind of problematic uncertainty and reacting to them. This kind of anxiety related to the ecological crisis can have many kinds of manifestations and they can change over time. They may be related to social situations and thus have elements of social anxiety. They may lead to anxiety states, but fundamentally eco-anxiety emerges as "practical anxiety", to use the term developed by anxiety researcher Kurth [45]: it is practical and adaptive, because it causes people to think about what would be the best course of action. Because of that, it emerges also as a moral emotion ([46]; see also the broader discussion of climate emotions and moral emotions in [47]). Because of the complexity and severity of ecological problems, eco-anxiety can transform into maladaptive and paralyzing forms [46,48,49]. Many concepts can be used of these maladaptive forms, and there can be various kinds of them, including trauma and depression [50,51].

In this article, the focus is on the process of eco-anxiety in the wide sense: the reactions of people to the ecological crisis, their efforts to manage the difficult emotions that arise, and their challenge to act constructively to alleviate ecological problems. The model-building aims to include both practical eco-anxiety, the potential of paralyzing eco-anxiety, and eco-anxiety as a moral emotion. Thus, the main focus is not on pathological forms.

1.2.2. Ecological Grief

The concept of ecological grief is used in this article as a general term for sadness, feelings of loss and processes of grief in relation to the ecological crisis. People may grieve both particular losses and the general, global ecological damage. Manifestations of ecological grief have great variation, and their intensity ranges from strong grief to milder sad moods (for these variations of sadness in relation to climate grief, see [52]). Ecological grief can be challenging for many reasons, both psychologically and psychosocially. It has often been a form of unrecognized, disenfranchised grief, and the enormity of ecological losses can intensify and complicate it [19,32,42,43].

Eco-anxiety and ecological grief are seen here as two distinct but closely interconnected phenomena, in line with earlier scholarship [21,44]. The changes in the world arouse both anxiety and grief. There may be multiple kinds of combinations of these two and many kinds of relations between them. To name a prominent example, ecological grief may engender anxiety [42] (see also [21]). Furthermore, the wider process of encountering the state of the world, which is closely connected with eco-anxiety, includes the need to engage with processes of loss, grief, and sadness [53,54]. There may even be a kind of practical anxiety about ecological grief: people may ask themselves what kind of grief(s), and how strongly, they should feel, according to various standards and in relation to various factors such as keeping oneself healthy and functional.

Because of these close interconnections, the process which is studied here is called the process of eco-anxiety and ecological grief. The process at hand is also a process of ecological action (PEB), and the dynamics between eco-anxiety, ecological grief, and action are an elementary part of the article. This is seen for example in the importance of coping and adaptation for the whole process. However, the focus of this article is more on anxiety and grief: the article will not study specifics of PEB (for that, see, e.g., [55]), which has to be left for other research.

1.2.3. Individual/Collective

People experience eco-anxiety and ecological grief both as individuals and as part of collectives. There is reciprocity: both are influenced by the other. The reactions of individuals are shaped by the general reactions of collectives and many psychosocial factors. Furthermore, individuals shape, for their part, the collectives. Recently, Kałwak and Weihgold [56] have argued that overly individualizing interpretations of eco-emotions should be avoided for ethical and practical reasons (see also [47,57]).

This article makes an effort to approach the process of eco-anxiety and grief in a holistic manner, taking into account both the individual and collectives. However, a certain main focus is on the individual. Many matters have individual variation in them. For example, in the case of accepting difficult ecological knowledge, collective norms and situations have a strong role, but there is still much individual variation or at least possibilities for it. For approaches which are more oriented towards collectives and social processes, see the studies in environmental sociology, such as the application of Pierre Bourdieu's theories into ecological matters by Brulle and Norgaard [58].

1.2.4. The General Process and More Particular Processes

It should be noted that there may be various levels and scales of processes of eco-anxiety and ecological grief. There is the general process, which is the focus of this article, but that general process is shaped by many smaller-scale processes which are more particular. Figure 1 clarifies this.

Some of the more particular processes are especially characterized by grief and some are more predominantly characterized by anxiety. More research is needed about how the various processes interact with each other, but it is evident that they shape each other (e.g., [18,59–61]). Particular processes may spark and influence the general process: for example, major changes in local ecosystems and/or social systems because of the ecological crisis will affect the general process. Furthermore, the person's or the group's situation

in relation to the general process will also evidently affect the dynamics of the particular processes. For example, if a person or a group is strongly shocked by ecological damage, this will affect their reactions to a particular process.

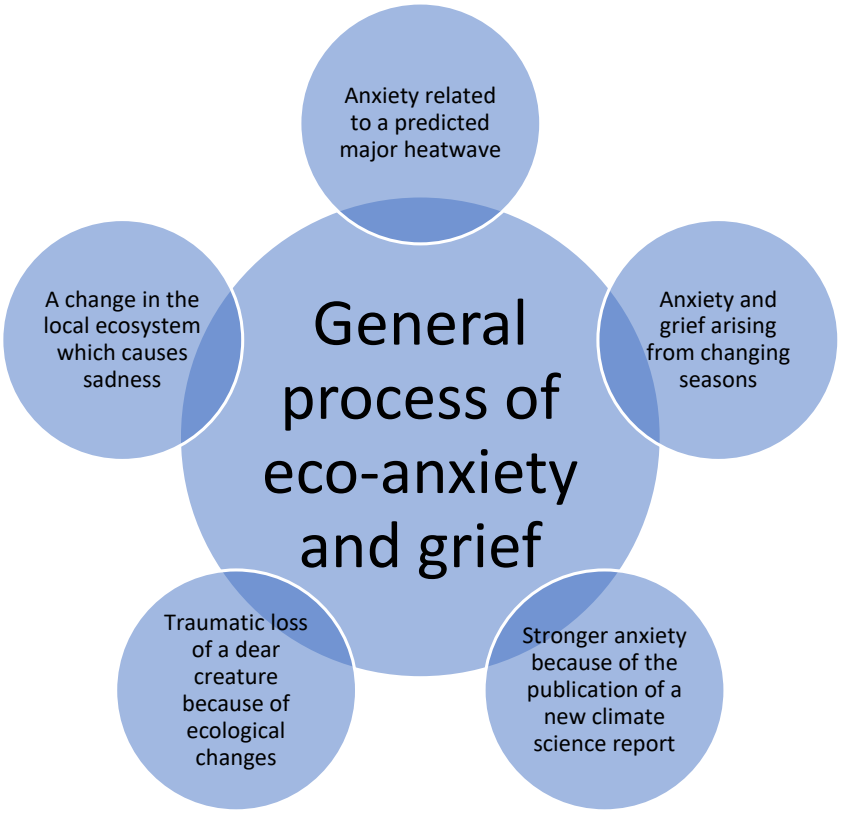


Figure 1. The general process and examples of more particular processes. Note: people naturally appraise both the particular processes and the general process differently.

There is naturally great variation in how people appraise the ecological crisis and various aspects of it. The general process, which is the main focus of this article, is shaped by many kinds of factors, ranging from physical events to social dynamics and personal interpretations (see, e.g., [7,10,62]).

This distinction between the general process and more particular processes may also contribute to the discussion about the objects or "aboutness" of eco-emotions and climate emotions (see [47,63]).

1.2.5. Fluctuation and Oscillation

The article makes an ardent effort to pay attention to the dynamic changes in people's reactions and moods. These changes, which can be called fluctuation and oscillation, clearly need more attention than what previous models have given to them. At the same time, it is evident that fluctuation is a challenge for visualization of process models, since it is complex. Fluctuations may be caused both by events in one's personal life and social or global events, and everything happens in complex interactions between various kinds of factors.

In various writings about eco-anxiety and grief, fluctuations have been growingly noticed. For example, many therapists and scholars have observed that people do not simply move through stages towards acceptance of ecological reality, but instead there is many kinds of fluctuation [38,64,65]. Narrative accounts of people's experiences of ecological grief and eco-anxiety also testify both to this fluctuation and to the possibility of some progress in the process (e.g., [66–68]). The emerging empirical research about eco-anxiety and ecological grief (for an overview, see [31]) has not focused on the processes

themselves, but this research has clearly revealed the complexity and fluctuation in people's processes of eco-anxiety and ecological grief (e.g., [69–73]).

This existence of fluctuation finds an interesting and important resonance in general grief theory, where an approach called The Dual Process Model (DPM) has been highly influential in recent years [37,74]. The DPM builds on the very idea of oscillation between various tasks and forms in grief processes. To the author's knowledge, the DPM has not been extensively applied yet to ecological grief and anxiety (see, however, [75]).

1.2.6. Visual Modelling and the Character of Process Models

The aim of visual models is to help various kinds of people to better understand phenomena. Visual models have been found especially useful in relation to complex phenomena. It is difficult to hold in mind many things and factors at once, and visualization, in addition to verbalization, helps understanding. At their best, visual models can benefit both experts and lay people. Models can provide quick overviews of processes and dimensions, including both nuance and simplification (e.g., [76]).

Because of this very nature of visual models, the construction of them involves a challenging task of balancing between simplicity and complexity. If a visual model is overly complex and includes too many kinds of visual elements, people have difficulties understanding it, even though that model would be a more accurate depiction of a complex phenomenon (cf. [77]). On the other hand, if a visual model is overly simplifying, it may give false impressions of the phenomenon. Whether this kind of over-simplification is actually dangerous depends on the topic and context. In some cases, it may indeed be dangerous, for example when (1) the subject matter deals with a possibly life-threatening situation and (2) the visualization suggests an overly easy process and people then approach the subject matter without necessary care. Many kinds of ethical problems may result from over-simplification, but also from over-complex visualizations, because then people do not gain necessary information because of the difficulty.

Process models are used in many fields and they are especially prominent in various business-related studies ([78]; for discussion of various kinds of process models especially in relation to design, see [79]). The subject matters can be very diverse and this affects the modelling. In some cases, process models can rather easily include various outcomes, depict paths to them and paths between them. In the case of such a dynamic process as eco-anxiety and grief, the construction of such outcomes is much more difficult: people may move between outcomes and phases.

Since the phenomena of eco-anxiety and ecological grief are so complex, the aforementioned points about visual modelling and process models are very relevant to this article. There is a strong need to gain information about these complex processes, but visual modelling is highly difficult because of the complexity and the need for certain simplicity due to cognitive and communicative reasons. The end result of this article, a new visual model of the process, should be considered as one attempt to balance between complexity and simplicity.

2. Materials and Methods

2.1. Research Questions

This article studies the intertwined process of eco-anxiety and ecological grief with the following research questions:

- What kind of models have been constructed to describe the processes of eco-anxiety and/or ecological grief?
- What insights and frameworks about such processes can be found in various studies and literature about related topics?
- When the existing models and frameworks are evaluated in the light of interdisciplinary research and the available empirical data about people's experiences, what major needs for model-building arise?
- What could a nuanced but still relatively simple model of the intertwined process look like?

The first two research questions are deliberated in Section 3 (Results) and the latter two questions in chapter 4 (Discussion). It is recognized that a single process model may not do justice to all the variety in people's experiences around the world, and that the constantly changing circumstances due to physical and social factors makes modelling difficult.

2.2. Method, Sources and Structure

The method of the article is interdisciplinary environmental research. The article has a certain philosophical character in the broad sense: results and ideas from various disciplines are evaluated and brought together. Conceptual analysis is performed to explore what various authors mean with related concepts.

Materials have been searched for and collected from many fields of inquiry. The author has built on his long experience of interdisciplinary research on related themes (see the section on positionality below), and extensive database searches have been made. Keywords such as "process", "stages" and "phases" have been combined with keywords such as "eco-anxiety", "ecological grief", "worry", "climate anxiety", "climate grief", "solastalgia", "environmental psychology" and "eco-psychology". The process has elements of a semi-structural review and a narrative review, but because the source materials are so diverse and the subject matter is relatively new, any structural review in the full sense has regrettably not been possible (see [80]).

The guiding principles in selection and prioritization of sources were the following:

- peer-reviewed research in academic journals
- sources which focus on the process as a whole, or then on important aspects of the process such as coping and/or adaptation
- sources which have been published during the last 10 years and include discussion of earlier research; however, also selected older studies were used because of their perceived usefulness
- books and interviews which focus heavily on eco-anxiety and ecological grief, even while they are not peer-reviewed; this group of sources was considered important especially because research on eco-anxiety and ecological grief is a rather new field

Many fields and frameworks were found which provide information about the process of eco-anxiety and grief. The selection of which fields, approaches and frameworks to include was difficult. Space limitations were also given consideration. The key criteria were the applicability of the approaches to an increased understanding of the process. The selected approaches and frameworks are displayed in Section 3.1. As a whole, Section 3 provides a narrative review of relevant frameworks, themes and approaches.

In Section 4, the observed needs for model-building are first discussed and then the new model is presented in Section 4.1. In Section 4.2, the phases and dimensions are discussed in more detail, although a full discussion of them requires an article of its own. In Section 4.3, the relation between various other frameworks and the new model is elaborated. The topic of how to use the model in practice is briefly discussed in Section 4.4, but a more extensive discussion of the practical applications must be left for a future article due to space limitations. It is emphasized that the model is not diagnostic, but it can help to provide reflections in therapeutic settings. In Section 4.5, strengths and limitations of the study are discussed in connection with important topics for further research. Key outcomes are briefly elaborated in the closing Section 5.

2.3. Positionality and Priviledge

The author is a white Finnish male, born 1979, working at a university with grants. He has a long experience of researching eco-anxiety and other eco-emotions, and he has written two popular books on the subject in Finnish. He has met many people who experience eco-anxiety and ecological grief in various workshops and facilitated discussion groups, which he has also been sometimes organizing. He collaborates with mental health professionals, but is not one himself. He has a long experience of observing eco-emotions as part of education. This long experience has in many ways made this research article possible. He

has published an earlier version of a process model, or more exactly a visual model of some aspects of the process of eco-anxiety and eco-emotions, in one of his Finnish books ([81]). The feedback from readers about this early visual model was positive: many said that it helped them to reflect on their reactions. This encouraged the development of a more nuanced model.

Finland is a wealthy country and the author lives in safe surroundings, which affects positionality in many ways. The author does not intend that the proposed model would be adequate for all circumstances around the world: the model is most suitable for situations where there are not multiple injustices happening simultaneously. The author has tried to take researcher bias into account as well as possible, but in the selection of sources and in the framings there is bound to be some bias due to background and contextual factors (cf. [82]).

3. Results

3.1. Various Relevant Approaches and Frameworks

This section focuses on the first two research questions of this article: What kind of models have been constructed to describe the processes of eco-anxiety and/or ecological grief? What insights and frameworks about such processes can be found in various studies and literature about related topics?

In a semi-systematic review of relevant sources, it was found that there are many frameworks and approaches through which scholars have charted elements related to the process of eco-anxiety and ecological grief. Only a very limited number of actual models were found. The relevant frameworks are collected into Table 1, and key insights of them are discussed below in a narrative review. In addition, insights are drawn from popular-style but at least partly research-based books on eco-anxiety and grief.

Table 1. Various relevant approaches and frameworks.

Name of Approach	Section	Examples of Sources	Key Takeaways for a Process Model
Systems approach models	Section 3.2	Crandon et al. (2022) [7]	Helps to see how many factors affect eco-anxiety and grief
Coping and adaptation research	Section 3.3	Ojala (2012) [12]; Bradley et al. (2014) [35]	There is much scholarship about these phenomena, but integration and more nuanced models would be needed
Models of ecological grief	Section 3.4	Randall (2009) [38]; Davenport (2017) [83]	The five stages of grief model is sometimes used and some scholars utilize contemporary grief research, but much more integration could be done
Comprehensive models of the process of eco-anxiety and grief	Section 3.5	Edwards and Buzzell (2009) [84]; Hoggett and Randall (2018) [85]	A few exist, such as the "Waking Up Syndrome" and "Activists' trajectory"
Crisis, stress, shock, and trauma scholarship	Section 3.6	Doppelt (2016) [16]; Helm et al. (2018) [17]	Shows that these factors can be present in people's processes in complex ways
Eco-anxiety as an existential crisis and a crisis of meaning	Section 3.7	Budziszewska and Jonsson (2021) [71]; Passmore et al. (2022) [86]	The process clearly includes also existential aspects, and dynamics of meaning seem to be especially central
Environmental education and developmental/lifespan psychology research	Section 3.8	Chawla (2020) [87]; Verlie (2022) [15]	Shows that age and happenings in life shape the process, and includes discussions of awakenings
Empirical research on eco-anxiety and grief	Section 3.9	Ágoston et al. (2022ab) [32,88]; Soutar and Wand (2022) [31]	The constantly growing empirical research reveals information about various aspects of the process
Popular but research-based books on eco-anxiety and grief	Section 3.9	Gillespie (2020) [66]; Wray (2022) [67]	Provides much-needed integrations of various frameworks, but is scarce in depictions of process models

These approaches have wide variety in them and they entail different kinds of empirical evidence. The background of the author is in the humanities, which brings a certain em-

phasis towards wide-ranging philosophical frameworks, but the results of empirical studies essentially inform any efforts to integrate knowledge from these various approaches.

3.2. Systems Approach Models

Because of the complexity of the dynamics of eco-anxiety and ecological grief, systems approaches emerge as very valuable contributions. Complexity is the very foundation of systems approaches: these theories analyze the interplay of a great variety of factors (for an introduction to systems approaches, see, e.g., [33], pp. 283–284). It seems that a systems approach for eco-anxiety and grief is growing in popularity, but so far there has not been published many research articles on the topic. Here, attention is focused on three wide-ranging articles.

In a recent research article, Crandon and colleagues [7] provide a socio-ecological model of climate anxiety in relation to children and adolescents. They apply a broad view of climate anxiety, in line with the approach taken in this article. Crandon and colleagues insightfully discuss the role of various factors for people's processes of climate anxiety and they provide an informative figure of them. They divide these factors into micro-, meso-, exo- and macro-level factors, which all take place over time in the physical world with its changes. Examples of meso-level factors include family, peers, school, local environment and community. In exo- and macro-levels, the influence of media and culture is significant, but also the actions of officials such as the governments of the region and the country. Crandon and colleagues also discuss actions which can be taken on various levels to help constructive coping.

Crandon and colleagues build upon the influential socio-ecological modelling by Bronfenbrenner (discussed in [89]), which is even more explicitly applied in education researcher Bryan's proposal [90] for seeing people's ecological subjectivity and citizenship as shaped by many factors. Bryan writes of "implicated subjects", pointing out that people are inevitably part of many kinds of dynamics. She advances a "social ecology of responsibility" framework, which integrates the four levels of factors mentioned above, and she briefly discusses the challenges of eco-anxiety and ecological grief. A helpful visualization is provided.

For the purposes of this research, the socio-ecological models of Crandon and colleagues and Bryan help to discern various factors which have a role in people's experiences, especially in relation to children and youth. Their discussion of the various factors and dynamics helps to understand the process of eco-anxiety more, but the model does not discuss such a process as a whole. The chronological dimension is integrated in the models as a factor, but possible or regular phases are not discussed.

In the third systems approach paper which is discussed here, Berry and colleagues [33] apply systems thinking into the potential mental health impacts of climate change. The figure that they offer shows how many things can influence each other in relation to health, mental health and climate chance impacts. The things that they mention resonate with the depiction of various levels of factors in studies by Bryan and Crandon and colleagues. Berry and colleagues use the example of climate change-shaped droughts and point out that in empirical studies, there has been observed an increased risk of both anxiety and depressive symptoms.

For the purposes of this research, the systems approach of Berry and colleagues further highlights the role of various kinds of factors, and reminds of the possibilities for stronger anxiety and depression. However, due to its focus, their article concentrates more on the direct than the indirect impacts of climate change, and does not discuss practical anxiety; thus, the focus is on more difficult forms of eco-anxiety and eco-depression.

3.3. Coping and Adaptation Research

Scholarship about coping and adaptation emerges as one key area of research in relation to the process eco-anxiety and ecological grief. These studies bring many kinds of information about how people try to deal with eco-anxiety, ecological grief, and ecological

action. The studies include both theoretical insights and various empirical data. Most often, the focus of this scholarship has been on the climate crisis: a typical article from this vein discusses coping with climate change. Some visualizations of the coping process are offered and many highly important observations are made, but this literature does not include full conceptualizations of the process. Coping as a general topic has been much discussed in general studies about grief and bereavement (e.g., [91]), but that scholarship has not yet been extensively applied to ecological grief (see Section 3.4 below).

Overall, ecological coping and adaptation studies either explicitly or implicitly explore how people react to eco-anxiety, at least in the form of practical anxiety. The author would argue that these studies also inevitably explore reactions to ecological grief, because the losses and changes are so manifold and immense. However, not all people report feeling eco-anxiety or ecological grief, even if they do experience them somewhere in their bodyminds (I use the concept of bodymind to refer to the intimate interconnections between the mind and the body; for a discussion of the concept, see [92]). This rationale makes coping and adaptation studies so important for eco-anxiety and grief research, even when explicit studies of coping with eco-anxiety and ecological grief are still relatively few in number (e.g., [32]; most often, other terms and foci have been used [17]).

In 2007, Homburg and colleagues provided a framework about "Coping with Global Environmental Problems" [6]. This has been used by some researchers also recently [93], but especially prominent in relation to eco-anxiety, worry and grief has been the work of Ojala. She has studied especially climate change worry and coping, and her work includes both theoretical texts (e.g., [94,95] and empirical studies (e.g., [12,96,97]). Albeit worry and anxiety are distinct phenomena, they also have many interconnections [21]. Ojala has applied the coping theory of Lazarus and Folkman [98,99] into ecological issues, dividing coping into three major categories of "problem-focused", "emotion-focused", and "meaning-focused" coping. Problem-focused coping refers to attempts to solve the problem which causes the stress and the need for coping, while emotion-focused coping refers to attempts to alleviate stress by engaging with emotions engendered by the stressor(s). Ojala has pointed out that meaning-focused coping, which includes elements from the other two, seems to be especially important in relation to complex threats such as the ecological crisis. When problems cannot easily be solved, experience of meaning in life becomes central, and elements from both problem-focused and emotion-focused coping help in that task. Ojala's empirical work has supported the interconnections between meaning-focused coping and constructive climate engagement.

Coping scholars point out clearly that there are both adaptive and maladaptive forms of coping with the ecological crisis. Many of them observe that there are also context-dependent factors related to the evaluation of coping methods: a certain coping method may be adaptive in certain situations and in a certain timeframe, but maladaptive in other situations or if used overly long (e.g., [32,100]. This seems to apply both to action and distancing, which will be discussed in more depth in Section 4.

In a much-cited article, Doherty and Clayton [101] analyze various coping responses, both adaptive and maladaptive, such as problem-solving or acting out (see esp. their figure on p. 273). They discuss mainly social and environmental psychology, but they also include reflections about psychodynamics defense theory in relation to coping. Overall, this theme of people's often complicated responses to ecological crises has been much discussed in psychodynamic, psychoanalytic and psychosocial environmental research [59,102–106]. Other scholars have pointed out that this complicated character of ecological coping causes the need for context-sensitive communication and practice in environmental affairs [11,107].

Among people's reactions are disavowal, distancing and denial. Scholars have argued that climate change denial can be a kind of coping method [108] or a psychosocial defence method [57]. For example, psychotherapist Weintrobe has argued that denial and disavowal may be directly linked to eco-anxiety: they may be efforts to protect the psyche from anxiety, but because they do not align with reality, at least some dissonance and anxiety remains ([109]; for other psychodynamic discussions on the topic, see, e.g., [104,105]). Operating

more with social and environmental psychology, Wullenkord and colleagues [26] studied correlations between climate anxiety and many different forms of climate denial/distancing in a German population, such as rationalization, avoidance, denial of personal or global outcome severity, denial of guilt and literal denial.

Overall, there are thus many different kinds of distancing reactions and the strength of distancing may alter over time and in different situations (for various connotations of distance in relation to climate change, see, e.g., [103,110]). For the purposes of this article, it should be noted that various distancing reactions seem to be a very common and quite complex part of the process of eco-anxiety.

Doherty [64] extends the discussion about individual responses and impacts related to climate change, pointing out that there is a need both for action and emotion work in coping. For methods of "personal renewal" as a counterforce to engaging with ecological despair and anxiety, Doherty emphasizes eco-psychological insights such as spending time outdoors, and the more general task of trying to uphold a "sense of hope, meaning and purpose" (pp. 255–259). These ideas, based both on research and Doherty's experiences as a therapist, lead towards seeing engagement with eco-anxiety as a process which includes fluctuation and the need for flexibility (see also [75]). He also provides a visualization of such a process related to mental health and flourishing (p. 259). In the same volume where Doherty's article was published, another article focuses on community responses, which need attention in addition to the individual ones ([111]; cf. [56]). Individuals are always shaped by their contexts, as climate coping scholars Mah and colleagues [11] also point out.

Overall, the insightful analysis of coping with climate change by Mah and colleagues stresses the need for care in evaluating coping. Stressors may be different and there may be multiple methods of coping that people are using. "Coping flexibility" emerges as an important skill: people fare better if they are able to use various coping methods for various parts of problems. Mah and colleagues point out that in relation to the climate crisis, where problem-solving is not completely possible, combinations of emotion-focused coping and problem-focused coping are elementary. People could use emotion-focused coping in relation to things they cannot control, and problem-focused coping for doable actions could provide feelings of efficacy and resilience [11].

Next, attention is given to the studies of coping and adaptation by researchers Reser, Bradley and Ellul. Their work includes a simple visualization of the coping and adaptation process, and they discuss distress in relation to climate change. A discussion of their work helps to show (1) why coping/adaptation studies and studies about the process of eco-anxiety are so closely connected, and (2) why further work is still needed to integrate them.

Reser's 2011 article, written together with Janet Swim, includes one of the early models of coping with and adapting to climate change [112]. This model was adapted from one in the pioneering APA task force report on climate psychology in 2009. It integrates appraisal of threats and various forms of coping, including both adaptive and maladaptive ones. Many kinds of moderating factors are discussed. Reser and Swim discuss the various stressors related to climate change and they explicitly discuss anxiety, fear, and worry, although the word eco-anxiety is not yet used (p. 283). They point out that these are fundamentally adaptive responses, but can also easily become distractive. They mention "intra-individual responses" such as "denial, environmental numbness, cognitive reappraisals, and emotion regulation" (p. 284) and discuss various behavioral responses.

Reser, Morrissey and Ellul [113] discuss the character of the process that people have to engage with in relation to climate change, and it would seem that this could be generalized to describe the whole process of engaging with the ecological crisis. They manifest a wide-ranging view of "adjustments and adaptations" in the process, and point towards the significance of "intra-individual" processes:

> Within the context of psychological understandings and approaches to the threat of climate change, and at the level of individual functioning, it is important to note that all psychological responses to perceived threat or changing environmental circumstances constitute adjustments and adaptations, and that these primarily

> reflect intra-individual appraisal, sense making, and coping processes, collectively referred to as 'psychological adaptation'. (p. 24)

Reser and colleagues also make clear that this process has a strong social dimension: various social factors affect people's adaptation and coping (see, e.g., [13,112]). The wording "adjustments and adaptations" is crucial in relation to the tasks of this article. While Reser and colleagues do not explicitly discuss ecological grief—to the author's knowledge—the language they use is also utilized in grief theory.

In later work, Reser and his colleagues, most significantly Bradley, have continued to study coping and adaptation both with theoretical methods and empirical survey analyses. As part of this work, they have also explored a simple model which has a chronological element. They write about their rationale:

> Implicit within our social and environmental psychological perspective is the expectation of an unfolding sequence of phenomena that begins with variations between individuals in direct and indirect exposure to climate change-related circumstances and events, and proceeds from there to differences in belief in/acceptance of the reality of climate change, to perceived risks and concerns associated with these beliefs, possibly to some distress occasioned by such threats, and then to differing levels of psychological adaptation and overt behavioral responses. [13] (p. 38)

In another article, they provide a simplified figure and conceptualization of such a model: "Experience of climate change –> Perceived Risks Posed by Climate Change –> Distress Produced by Climate Change –> Mitigation Behaviors" [35]. The authors indeed emphasize that this is a simplified model. They explore four broad coping strategies in relation to the four steps or themes in the model: avoidance/denial, cognitive reframing, social support-seeking, and psychological adaptation. Thus, they construct psychological adaptation as a desired goal. This they see as related to gaining an understanding that changes are needed; indeed, an item in their questionnaires included the wording "climate change had forced me to change the way I think about and view how we live in and use our natural environment" [35].

Bradley and colleagues delineate four tasks in the process of psychological adaptation to climate change: "becoming more attentive to the issue, accepting climate change as a threat, adopting a problem-solving attitude, and shifting values to a more 'pro-environmental' position" [35] (p. 35) (see also, e.g., [13], p. 30). They use the wording "climate distress", and substantially their discussions deal with many crucial elements of eco-anxiety and climate anxiety. They have noted that climate distress is linked with the general process of changing one's behavior and coping [13]. Thus, the desired psychological adaptation can be said to be related to practical eco-anxiety: noticing changes and potential threats in one's surroundings and engaging in a process of change, which includes both affective and behavioral aspects (cf. [46]). This shows the interconnectedness of processes of adaptation, coping, and eco-anxiety. Bradley and colleagues further discuss this process in another article:

> It is a process of sensitization, (re-)focusing, or (re-)orientation; it implies a willingness to take constructive action, or what van der Linden-calls 'a general orienting intention to help curb climate change'. Central to the concept of psychological adaptation is a process of re-thinking one's stance and one's responses in relation to climate change. [62] (p. 2)

This process seems to have certain major similarities not only with practical eco-anxiety, but also with processes of grief and the tasks in those processes as delineated by grief researchers. The work of Bradley and colleagues provides many insights for model-building, but they do not discuss fluctuation or variations of anxiety and grief, which clearly need more attention in relation to the tasks of this article. Their insightful work may also be argued to give too little attention to the potential severity of climate distress;

however, this may be a time-related issue, since after the publication of many of their works, knowledge about the severity has increased.

Overall, this research literature about adaptation and coping provides many insights related to the process of eco-anxiety and ecological grief. It points to various factors which shape the process, it includes usually at least brief discussions of distress and/or grief, and it discusses various kinds of coping methods, both adaptive and maladaptive. This literature tends to focus on climate-related coping and uses various coping frameworks. The role of fluctuation seems to require more attention than what is has yet received, as do the various possible manifestations of anxiety and grief.

3.4. Models of Ecological Grief

Of the various possible kinds of ecological grief, climate change-related grief has gained the most attention so far. Scholars have charted the many possible kinds of climate change-related loss, drawing from numerous empirical studies [114]. Some scholars and commentators have practically equated ecological grief and climate grief (cf. [19]), while others argue that ecological grief should be seen as the wider concept which can refer to all kinds of grief due to ecological issues ([52,115]; see also the usage of grief in [116]). Closely related is the concept of solastalgia, which can be roughly defined as sadness and longing because of changes in one's home environment. Developed originally by Albrecht [20], the concept has been used in many studies [117]. However, to the author's knowledge, there are yet no process models of solastalgia.

It should be thus noted that some forms of ecological grief, such as solastalgia, are heavily place-oriented. The relationship between these more particular ecological griefs and the general ecological grief and anxiety that people may feel (see Figure 1) is profound and complex. On one hand, place-related losses and changes are prone to cause more grief than anxiety, broadly speaking: damage to a particular place evokes sadness (e.g., [42]). On the other hand, place-related changes may also cause serious anxiety: for example, one may be shaken by uncertainty and uncontrollability when there is news that an open pit mine may be established in one's environs (Thanks for the anonymous reviewer 1 for raising attention to these issues here).

Various theories of grief have been touched upon in scholarship on ecological grief and climate grief. Philosopher Judith Butler's theories about what is deemed grievable and the political character of grief have been much discussed in interdisciplinary studies about ecological grief [42]. Some scholars have ventured into discussions of contemporary grief and bereavement theory in their discussions of climate grief [38,43,65]. However, in the popular imagination and media, the old five stages model of grief has been very prominent [18].

The five stages of grief model was originally developed by Elizabeth Kübler-Ross and it was further elaborated by her and David Kessler [36]. It can be called the DABDA model, following the first letters of the stages: Denial, Anger, Bargaining, Depression, and Acceptance. Kessler has suggested that meaning could be seen as a sixth stage [118]. In writings about ecological issues, the DABDA model has been used especially in relation to climate grief, but since people often use that term very widely, the model has been linked in people's minds also with ecological grief and anxiety more generally (see, e.g., [119]).

Climate scientist Steven Running used the DABDA model in 2007 in a short writing "The 5 stages of climate grief" ([34]; see also the discussion of it in [120]), and his text gained rather wide attention in the public sphere. Since there was a very limited amount of writings available about ecological grief and climate grief for a long time (for earlier treatments, see, for example, [115,121,122]), Running's text was a staple reference in the few texts about the subject matter (see, for example, [123], which was then quoted in [104], p. 89, and so on). The DABDA model and its climate-related applications were not only discussed by journalists and common people, but also by scholars and clinical professionals. In one of the first books for clinicians about climate anxiety, Leslie Davenport's Emotional Resiliency in the Era of Climate Change [83], the five stages are presented and discussed

drawing partly from Running's essay (see also [124]). For a recent example of the continuing appeal of the model, see the monograph about climate grief by experienced reporter Jonica Newby, Beyond Climate Grief, where the model serves as a rough frame for the book's narrative [119]. Newby sometimes asks people who she interviews to situate themselves along the stages of grief.

Overall, the DABDA model is a very famous framework related to grief. Despite the long-standing scholarly criticism about its application [39–41], the model keeps captivating people in relation to all kinds of grief, including now ecological grief and climate grief. However, because of the problems in linear and normative interpretations of stage models, some ecological grief scholars have explored other grief theories, as will be discussed next.

Another widely known theory of grief, although not as prominent in popular media as the DABDA model, is grief researcher William Worden's model of the tasks of grief. Worden discusses in his work the relations between his model, the DABDA model and other theories of grief. One influence for Worden has been Bowlby and Parkes' model of four phases of grief: Shock and Numbness, Yearning and Searching, Disorganization and Despair, and Reorganization and Recovery (for an overview, see [37]). Worden writes that he wanted to further avoid the impression that the stages of grief would follow a certain order; he mentions that Kübler-Ross herself had warned against overly rigid interpretations of the DABDA model, but often to no avail. Thus, Worden uses the concept of tasks in the process. He delineates four tasks: To accept the reality of the loss, To process the pain of the loss, To adjust to a new environment, and To reinvest life energy through emotionally relocating the loss. Worden has continued working on his model and some of the tasks have been reformulated over the years [37].

Psychoanalytical psychotherapist and climate discussion group leader Rosemary Randall drew on Worden's theories in an influential article about loss and climate change [38]. Randall discusses Worden's approach in comparison to a couple of other grief theories: the DABDA model and the work of Bowlby and Parkes. She makes a case for using Worden's model both because of her practical experience and for theoretical rationale. Randall notes that people go back and forth in relation to the psychological tasks related to climate grief and other psychological dynamics of climate change, and she appreciates this integration of fluctuation in Worden's model: "meaning may be restored and it may become possible to flourish once more. The work may falter or stall, the bereaved person may return to an earlier stage, sink into depression, abandon their attempt at recovery, take heart again, move forward, and so on"([38], p. 122). For the fourth task of grief, Randall uses the old formulation by Worden, "reinvesting emotional energy". Randall takes note of Worden's idea that people may engage in negative responses to the four tasks: people may deny the loss, try to shut off emotions related to the grief process, become bitter or withdrawing instead of adapting, and turn away instead of reinvesting life energy.

Two additional frameworks and concepts which have been applied from general grief research into ecological grief research are disenfranchised grief and ambiguous loss [19,43]. Disenfranchised grief refers to situations where other people and social norms do not support talking about a certain grief, because that grief is linked with too difficult or even forbidden issues in the social group [125]. Ecological grief and climate grief have often been these kinds of griefs, because of political disputes and psychological difficulty in facing them [19,57].

Ambiguous loss refers to the difficulty in such grief processes where something is partly lost, but there is no full knowledge at least of yet of the scale and totality of the loss [126]. A classic example is the grief related to a soldier missing in action; he/she is presumed to be lost, but one cannot be completely sure. This uncertainty causes many troubles for the grief process: people are uncertain of what to do with their bonds and attachments. Because of the complexity of ecological losses and griefs, there is much possibility for ambiguous loss in relation to them [44]. It seems that these kinds of ecological griefs are especially anxiety-provoking due to the uncertainty they manifest.

Scholarship on ecological grief and climate grief is gradually increasing. Comtesse and colleagues discuss many aspects of ecological grief and its relation with the concepts of eco-anxiety and solastalgia [43]. Eco-anxiety scholar Pihkala draws both from Worden and grief scholar Thomas Attig in a recent BBC essay about climate grief and tasks in its process [65]. In a blog, environmental psychologist Thomas Doherty briefly discusses the suitability of the DPM into ecological grief and points out that people also need periods of rest in the process [75]. Questionnaires for ecological grief are currently being developed [88].

Overall, there seems to be a strong need to further apply various theories of grief and bereavement into the territory of ecological grief and climate grief, and this task can be presumed to bring more light also on eco-anxiety and climate anxiety. Such application can help to clarify the role of oscillation and fluctuation in the process.

3.5. Comprehensive Models of the Process of Eco-Anxiety and Grief

In the literature review, two comprehensive models of the process of eco-anxiety were found. Both are relatively short texts, one an essay and one a research article. Both use terms other than eco-anxiety, but they deal in substance with eco-anxiety and ecological grief. The "Waking-Up Syndrome" model of Edwards and Buzzell [84] is written in an essay format, based on the long experience of the authors as ecotherapists. The "Activists' Trajectory" model of Hoggett and Randall [85] builds on empirical research among climate activists in the 2010s.

Therapists and scholars Randall and Hoggett have both worked with issues related to climate anxiety and climate grief for many years. They interviewed both climate activists and scientists, and sketched a model of how these climate activists had encountered the climate crisis. Their model includes the following phases: Epiphany -> Immersion -> Crisis -> Resolution ([85], pp. 243–246).

For the ten activists that Randall and Hoggett interviewed, the beginning of their engagement had been a rapid awakening, powerful enough that the authors chose to call this epiphany. The reaction of these people had been to engage powerfully with climate action, becoming immersed with it. One has to remember here that the people they interviewed were activists: those whose awakening took them to other paths were not interviewed. Variations of a crisis followed. Many activists grappled with how to maintain balance when there was so much distress. Some became overwhelmed and disillusioned. Many felt that the boundaries of how much one should do were difficult to define. In the resolution phase, Randall and Hoggett observed most of the activists to practice three forms of emotion work. Broadly, these three forms can be called as follows: gaining feelings of efficacy through agency, balancing activism with the need for recovery and with other areas of life, and a conscious limitation of engagement, including limiting one's exposure to distressing information. [85]

Randall and Hoggett's model provides information especially about activists' process with eco-anxiety and ecological grief. Many similarities have been found in other studies of climate activists (see esp. [127]; cf. with the emerging research about new climate movements, e.g., [128]). The dynamics will evidently be different for people who do not engage so intensively with action after their epiphany, as also Randall and Hoggett discuss in relation to the other group they studied, climate scientists. The model reveals that action, emotion work, and setting of limits have an important role in the process. This echoes the findings of the adaptation and coping scholars discussed above, but is more extensive in arguing that many kinds of emotions need attention (see also [14]).

In her other work, Randall has argued that climate distress would be a better general concept than climate anxiety, due to the dangers that people would regard climate anxiety as something pathological [129]; see also the discussion of terms in [18]). However, regardless of what concepts are used, the model of Randall and Hoggett discusses various dimensions of eco-anxiety, even though this is not explicitly conceptualized in their model. As Kurth and Pihkala have pointed out, practical eco-anxiety led these activists to find more information and to make strong changes in their lifestyle and work life [46]. At the

same time, there was the challenge of balancing one's life, so that one would not burn out or end up in overly strong eco-anxiety.

The wide-ranging and often countercultural field of ecopsychology has produced some of the earliest discussions of eco-anxiety and ecological grief [122,130–133]. Two ecotherapists coming from this trajectory, Sarah Edwards and Linda Buzzell, published a brief but influential essay about the process of eco-anxiety and ecological grief in 2008 (re-published as [84]; discussed recently for example in [134,135]). The authors call this "The Waking-Up Syndrome": it is related to the process where a person notices at least something of the gravity of the ecological crisis and feels pressure to engage with the topic. Edwards and Buzzell draw heavily on the DABDA model but modify it, and they argue that the stages are not always linear: "somewhat similarly to the five-stage grief cycle described by Elizabeth Kübler-Ross, it [the process] unfolds in six stages, though not necessarily in any particular order" (p. 124).

The six stages of their model are Denial, Semiconsciousness, Awakening, Shock, Despair, and Empowerment. Thus, they have added more nuance to the model when compared to the DABDA model, although some of the problems related to stage models remain. Anger and Bargaining are no longer names of stages, but instead dimensions of behavior in many stages. While Edwards and Buzzell retain denial as a name of a stage, they actually discuss elements of it also in relation to other stages. Depression has been replaced by Despair, and Acceptance by Empowerment. However, the possibility of depression is still discussed, and the authors argue that acceptance is part of the process of empowerment.

Despite the short length of this essay, it contains many observations and insights, based on both practical experiences that the authors have as therapists and engagement with literature. For example, naming Semiconsciousness as a stage helps to see the difficulties of many people in engaging with the ecological crisis, the "knowing and not knowing at the same time" that many scholars have pondered about [57,102,103,136]. Fascinatingly, Edwards and Buzzell note that Awakening can be short-timed and people's reactions to it may be widely different: some try to engage more deeply with environmental issues and emotions, while others try to shut off after the realization of the ecological crisis. This resonates with Randall's discussion of people's various reactions to a process of grief as delineated by Worden. Furthermore, the stage of Shock in Edwards' and Buzzell's model connects with the stage of crisis in Randall and Hoggett's activists' trajectory model. When compared to the tasks delineated by social and environmental psychologists Reser and Bradley, "becoming more attentive to the issue" links with Semiconsciouness, and "accepting climate change as a threat" links with Awakening and Shock.

Despite its brevity and essay-character, the "Waking Up Syndrome" seems to be currently one of the most nuanced models of eco-anxiety and ecological grief, and this model will be used as a major discussion partner in the constructive part of this article where a new heuristic model is proposed. However, it should be noted that the Waking Up Syndrome model has not been empirically tested up, to the knowledge of the author. While its authors draw on their own observations as psychologists, also other empirical source material needs now to be used in the construction of a new model, such as the insights from the Activists' Trajectory model of Randall and Hoggett. However, in the light of scholarship from various fields, the stages structure will be modified to include more dynamic fluctuation and to clarify the various dimensions of the process.

3.6. Crisis, Stress, Shock, and Trauma Scholarship

The results above have already touched upon the theme of crisis and shock in relation to the process. While no comprehensive models of the process were found, which would be based on theories of crisis and shock, plenty of literature was found, which discusses various forms of them as related to the process. Various adaptations of trauma theories into environmental psychology were also found. This literature implies that theoretical

knowledge about stressful processes, shock, and trauma should be applied to the process of eco-anxiety and ecological grief in order to understand it better.

Since encountering the ecological crisis is a process of change and at least some kind of process of crisis in itself, literature about processes of change and crises can rather easily be applied to it. Several examples of this were found in the literature review. Eco-anxiety researcher Caroline Hickman [49] has applied John Fisher's Change Curve in her work (see also [67] for an application of it). To mention another example, education philosophers Saari, Varpanen and Kallio [137] have applied Otto Scharmer's theory U into processes of encountering ecological crisis. Both of these models depict a journey of change with various phases, changing dynamics and several possible outcomes. Fisher's model names Denial, Disillusionment, Hostility and Depression as possible outcomes, and points towards Gradual Acceptance for a way forward. Scharmer's Theory U [138] depicts a journey deeper inwards, from factual observations to engagement with thoughts, feelings and values. The downward curve is then continued by an upward curve towards thoughts and behavior, thus forming a U shape. Thus, Scharmer's theory points towards the depth of the changes needed in reacting to the ecological crisis.

Another possibility is to view the process of eco-anxiety and grief through the lens of Stress Response Syndrome theory. Originally developed by Horowitz [139], this theory captures many difficulties that people may have after stressful or potentially traumatic events. While some scholars frame the process in terms of "ecological stress" [17], a more common approach has been to use trauma-related terminology. Here the connections with theory of grief and bereavement are intimate, because much of that research discusses losses which are at least somehow traumatic.

There can be discerned two alternative approaches in the application of trauma theory into the topic of eco-anxiety and grief. Most scholars discuss trauma reactions as one possible aspect of the process, while some scholars link the whole process strongly with trauma.

It is evident that realizing the severity of the ecological crisis at any depth can cause shocks and sometimes trauma. In trauma theories, a distinction is usually made between primary, first-person trauma, and secondary trauma, which is generated by witnessing the suffering of others vicariously. There is research about both of these kinds of trauma which have been generated significantly by the ecological crisis [50]. While extreme weather impacts and other negatively perceived environmental changes—such as the destruction of one's home environment due to open pit mining—can generate post-traumatic stress (e.g., [140]), scholars have searched for words to depict the kind of traumatic stress that long-term environmental changes cause. Psychiatrist Lise van Susteren and literature scholar Ann Kaplan have both proposed "pre-traumatic stress" [141,142], while psychologist and author Mary Pipher [143] has used the term "mid-traumatic stress". Such a state arises becomes something is happening already now, but more changes are expected in the future.

As mentioned, some scholars approach ecological trauma even more widely. This has been prominent especially in eco-psychology. Influential eco-psychologist Chennis Glendinning argued already in the 1990s that there would be an "original trauma" generated by the gradual separation of humans, earlier on hunter-gatherers, from the more-than human world ([122] esp. pp. 57–68). Since the 2010s, eco-psychologist Chiva Woodbury has argued that there is deep cultural-level trauma in relation to climate change (esp. [144]). Together with eco-psychologist Benjamin White [145], Woodbury links the traumatic character of climate change with dissociative reactions, a common trauma response, which would explain the prevalence of climate denial and disavowal (see also [146]). In this line of argumentation, what would be needed is the ability to collectively work with facing the trauma and its consequences, in other words to engage in a process of recovery ([144]; see also, e.g., [122]).

Some scholars have used the framework of post-traumatic growth to characterize the process of engaging with the climate crisis and other ecological crises (see, e.g., [16,147,148]). These approaches point out that it is possible to grow more realistic and resilient as a

result of the process. Doppelt conceptualizes "transformative resilience" as a form of post-traumatic growth, and he discusses many aspects of eco-anxiety and grief in his monograph, although with other concepts. In general, the scholarship on post-traumatic growth (PTG) seems one important framework which could provide increased understanding of the dynamics of eco-anxiety and grief [149]. For example, the visualization of PTG processes by Tedeschi and Calhoun [149] could well be applied to eco-anxiety and ecological trauma.

In general, an important takeaway from this research and literature is that the process of eco-anxiety and ecological grief can include various kinds of stress and trauma, which need attention. Engaging with eco-anxiety and ecological grief can mean engagement with ecological trauma at the same time. In addition, the various other kinds of trauma that people have in their history and their lives can naturally shape people's abilities and resources to engage with eco-anxiety and ecological grief [50]. Furthermore, this wide-ranging area of literature reminds that when people start to engage with change and crises, there can be many kinds of reactions, including varieties of "shock", which can refer to various degrees of being stunned and shaken and also to so-called moral shock. The latter concept, developed originally by James M. Jasper, describes an experience which is so morally outrageous and stunning that the person becomes inclined towards action to alleviate the injustice (for moral shock, see [150,151]).

3.7. Eco-Anxiety as an Existential Crisis and a Crisis of Meaning

Especially humanistic and existential psychologists and philosophers have pointed out that the process of eco-anxiety and ecological grief has many characteristics of a response to an existential crisis. In the midst of the ecological crisis, people have to engage with deep questions of life such as those related to meaning or meaninglessness, freedom and responsibility, guilt, and death anxiety [71,86,152,153]. This brings into fore the seemingly crucial role of meaning in the process, linking eco-anxiety research also with meaning research.

Scholars exploring such existential dimensions have produced many insights about the process, but not exactly models of the process. The thoughts of many existential thinkers, both philosophers and psychologists, have been started to be discussed in relation to eco-anxiety and ecological grief. Psychotherapist Clinebell discussed existential dimensions of the ecological crisis and mentioned eco-anxiety in his pioneering monograph about eco-therapy [154]. Scholar Pienaar [152] explored various existential aspects of the relationship between humans and the rest of nature in her research article, arguing that death anxiety produces complex problems in relation to ecological issues. Pihkala [153] applied existential philosopher and theologian Paul Tillich's frame of existential anxieties into eco-anxiety (see also [94]), while recently other scholars have extended the discussion into existential psychologists Irvin Yalom's and Ernesto Spinelli's thoughts [71,86].

Closely linked to these explorations has been the application of various theories of denial of death and mortality awareness. Terror Management Theory, which builds for example on Ernest Becker's work, has been applied to the ecological crisis. This research has observed that for example climate change seems to remind people of mortality and often causes people to try to look away from it, and fortifies efforts to maintain the status quo (for an overview, see [155]). In sociology, Anthony Giddens' frame of ontological security and insecurity has been applied in relation to similar themes (e.g., [57]); critical psychology researcher Matthew Adams discusses many of these theories in his monograph about ecological psychology [156].

The outcome of the aforementioned research in relation to the process is that there seems to be a major existential dimension in the process of eco-anxiety. Death anxiety or mortality awareness can be strongly evoked, leading sometimes to denial or distancing, or to distress. In the process, sometimes people have to grapple with feelings of responsibility and guilt also on an existential level: "existential guilt" refers to such guilt which is related to one's whole being in the universe, to the beliefs of what one should be. People can also wrestle with issues related to freedom and authenticity. Recent empirical

research which uses existential frameworks has provided observations about these kinds of dynamics [71,86] (see also [157]).

It would seem that more work is needed to integrate this research with grief research and trauma research. One possible integrating framework could be meaning studies. Existential approaches have raised up the key importance of meaning, and that is also much engaged with in contemporary grief theory (see [65] for some integrations between that and climate grief research). An integrative theory which has been started to be applied to eco-anxiety is the Power-Threat-Meaning Framework [134,158], which links a critical analysis of contextual power dynamics with meaning issues. Various aspects of trauma seem closely related, and for example trauma researcher Robert Stolorow has started to apply an existential trauma theory into "apocalyptic anxieties" such as nuclear anxiety and eco-anxiety [159].

Overall, frameworks related to existential crises and questions of meaning bring important information about the potential depth of people's processes of eco-anxiety and ecological grief. While these frameworks do not provide models of the process, they inform the construction of such models. Sometimes existentialism has also been integrated into research about environmental education and eco-emotions, which will be discussed next.

3.8. Environmental Education and Developmental/Lifespan Psychology Research

Many scholars whose work has been already mentioned in previous subsections have worked on the field of environmental education research, such as Ojala (see Section 3.3) and Bryan (see Section 3.1). Environmental educators have encountered eco-anxiety and ecological grief for a long time, and as environmental professionals they often experience these emotions strongly themselves (see, e.g., [50,160,161]). Scholarship in environmental education (EE) has produced many empirical results and theoretical considerations about eco-anxiety and ecological grief (for overviews, see [54,162]). One reason for this is the fact that many children and young people have openly manifested eco-anxiety and ecological grief [9,163].

EE usually targets children and youth, but it is fundamentally related to people of all ages (see already [164]). In relation to people of various ages, lifespan psychology and developmental psychology are naturally very relevant. There are some integrations of EE and lifespan/developmental psychology (see, e.g., [165,166]), but these fields have not yet been strongly applied together into the topic of eco-anxiety and grief (see, however, [167]). That integration and application would be very much needed in order to explore the possibly different dynamics of eco-anxiety and grief among people of various ages. For example, the things that people feel to have lost in the ecosystems and the things that they feel eco-guilt about may be different for people of various ages (see the discussion in [168]).

Scholarship about EE and developmental psychology implicate that the ways in which people are taught and told about the ecological crisis need attention. There is time when people do not yet know fully about the severity of the ecological crisis, and the dynamics of letting them know should be carefully considered (for various kinds of discussions about this, see, e.g., [53,169,170]). EE and developmental psychology scholarship also show the existence of Awakenings, Shocks and Empowerment, to use the terms of the Waking-Up syndrome model (see Section 3.5 above; for EE scholarship about these matters, see, e.g., [171–174]). EE scholars have also raised up the importance of self-care and social support in relation to difficult eco-emotions, both for the students and for the educators themselves (e.g., [160,175,176]).

Many empirical studies about eco-anxiety and other eco-emotions conducted in EE have informed the model-building in this article (e.g., [177–180]). However, there were not yet found many models of the process of eco-anxiety and grief in EE literature. Two approaches are here especially engaged with: a visualization of tasks of EE by Chawla and a textual framework of engaging with eco-anxiety in EE by Verlie.

Chawla has conducted influential research about EE for decades. Her research on the role of various "significant life experiences" for the development of environmental identities

and practices is closely related to eco-emotions, because many of these experiences include strong emotions. There would be opportunities for engaging her earlier work with the more recent concepts related to eco-emotions: for example, it is clear that there is various eco-anxiety and grief in the people's experiences that she has studied, but those terms were not yet in common use (cf. [165,172]).

Recently, Chawla produced a model of integrating various elements of EE together, with explicit emphasis on various emotions [87]. This is, to the author's knowledge, one of the first EE models to integrate such a wide array of emotions, including fear, worry, despair and anxiety. In the article, she also discusses sadness and mentions grief. However, from the point of view of the broad process, Chawla's insightful model discusses many elements of it, but does not study the process as a whole.

Education scholar Verlie has explored eco-emotions both empirically [173,180] and theoretically [15]. She is one of the first EE scholars to engage widely with eco-anxiety and grief. Her recent monograph explicitly names eco-anxiety as a subject matter. Verlie argues that people need not only adaptation, but also transformation through eco-anxiety and various activities. This transformation has a strong ethical character, and Verlie draws from postcolonial and feminist theories to flesh out the width of the required changes. She discusses several practical means to advance these goals: giving space to expressing feelings, witnessing various "climate realities", and "storying climate collectives" [15].

Thus, research on environmental education provides wide-ranging explorations of the tasks and challenges related to eco-anxiety. The links between EE research and lifespan/developmental psychology are intimate, even though more explicit integration of them and eco-anxiety research would seem beneficial for exploring various dynamics of eco-emotions. Overall, these fields of research inform the construction of process models of eco-anxiety and grief in many ways, including the dynamics of unknowing, semiconsciousness, awakening, shock, and coping.

3.9. Books and Empirical Studies about Eco-Anxiety and Ecological Grief

Books for a general audience about eco-anxiety and ecological grief are now being published regularly in the early 2020s. At the same time, empirical research about the topic by various methods is also increasing. These sources bring highly important information about the dynamics of eco-anxiety and ecological grief, but they usually do not frame the process with any explicit model. However, these sources often cite some elements from those various models and frameworks which have been discussed in previous subchapters.

It is not possible here to conduct any full review of empirical studies, and many of them have already been referenced in the previous subchapters (for a useful review of qualitative research on climate anxiety, see [31]). Broadly, it can be observed that empirical research shows (a) the complexity of the phenomena of eco-anxiety and ecological grief and (b) the complexity of coping methods and processes (e.g., [32,88,157,181]). Scholarship has lately extended to more nuanced analyses of various emotions and feelings that can be linked with these phenomena, including both positive and negative emotions ([52,168]; see also the highly interesting preprints [157,182]).

Scholars have also tried to explore the strong forms of eco-anxiety and grief. Various terms have been used in relation to these, such as complicated grief, clinically significant depression and eco-paralysis. While there are many observations of clinically significant forms of eco-anxiety and grief, practically all scholars argue that the phenomena as whole are wider and the strong forms are only one part of the spectrum (for recent reviews, see [183,184]; for examples of clinically significant cases, see [49,72]). Eco-anxiety is fundamentally not a disorder, but people may manifest anxiety disorders which orientate around ecological threats.

At least implicitly, this empirical research shows how the factors described in systems approach models (see Section 3.2) and models of coping and adaptation (see Section 3.3) shape people's reactions and processes. This empirical research informs in many ways the model-building in Discussion.

Books for a general audience usually include at least narrative depictions of the process. The authors are people who have themselves engaged with the process in various ways. So far, many of the authors are therapists, psychologists or educators. Many also have at least some researcher background, and usually some history with various kinds of environmental activism. Some authors are journalists who have experienced eco-anxiety and ecological grief, and some authors are spiritual leaders of various kinds. Many have artistic inclinations. It can be presumed that many of these background factors are linked with such resilience which has helped the authors to write their books. Psychological knowledge, coping skills, artistic expression and spirituality are all recognized factors which can help people to engage constructively with eco-anxiety and ecological grief (e.g., [64,185,186]).

Any full review of eco-anxiety and ecological grief literature falls out of the limits of this article, but Table 2 depicts selected monographs in English about the subject. The selection was informed by the following factors: books which explicitly discuss eco-anxiety and/or ecological grief; books for a general audience and not just for experts, but drawing also from at least some research; books which discuss the process in some way, at least in a narrative form.

Table 2. Selected monographs about eco-anxiety and grief. Notes: The books are listed in chronological order. This makes it also easy to see how the terms eco-anxiety and climate grief become more popular. Only one book by each author was included and for example Joanna Macy would have several relevant books.

Author and Date	Title	Main Focus	Author's Point of View	Content about the Process of Eco-Anxiety and Grief	Major Sources
Glendinning (1994) [167]	My Name is Chellis and I'm in Recovery from Western Civilization	Ecopsychological exploration of the interconnected ecological, social and psychological crisis	psychologist, eco-psychology workshop leader, expert by experience	narrative depiction; early discussion of eco-grief and trauma	people's experiences; interdisciplinary sources
Nicholsen (2002) [133]	The love of nature and the end of the world: The unspoken dimensions of environmental concern	Exploring the unspoken and partly unconscious obstacles for facing the crisis	psychoanalytic psychotherapist	narrative depictions; pioneering discussion on the role of trauma	people's experiences; wide interdisciplinary literature, including prose
Macy & Johnstone (2012) [187]	Active hope: How to face the mess we're in without going crazy	Presents a method for encountering the state of the world	systems thinker, environmentalist, eco-emotion workshop leader (Macy); psychologist, eco-emotion workshop leader (Johnstone)	narrative depictions; applying "The Work that Reconnects" to the process	people's experiences, especially in "The Work That Reconnects" workshops
Pipher (2013) [143]	The Green Boat: Reviving Ourselves in Our Capsized Culture	psychologist, author, activist, expert by experience	psychologist, author, activist, expert by experience	narrative depictions; much discussion on people's various reactions	people's experiences; psychology literature

Table 2. *Cont.*

Author and Date	Title	Main Focus	Author's Point of View	Content about the Process of Eco-Anxiety and Grief	Major Sources
Marshall (2015) [188]	Don't Even Think about it: Why Our Brains are Wired to Ignore Climate Change	Providing understanding about the difficulty of facing climate change and advancing climate action	experienced climate change communicator	implicitly discusses many aspects of the process, such as death anxiety and the difficulty of facing climate reality	interviews with numerous experts from various fields; people's experiences; written sources
Stoknes (2015) [189]	What We Think About When We Try Not To Think About Global Warming: Toward a New Psychology of Climate Action	Providing understanding about the difficulty of facing climate change and advancing climate action	Psychologist; climate communicator and activist; expert by experience	narrative depictions of aspects; a chapter on climate depression and anxiety	psychology; people's experiences; interdisciplinary sources
Doppelt (2016) [16]	Transformational Resilience: How Building Human Resilience to Climate Disruption Can Safeguard Society and Increase Wellbeing	Discusses the mental health and psychosocial impacts of climate change and provides tools for resilience-building	Psychologist; environmentalist; organizational consult	narrative depictions; a focus on dynamics of meaning	psychology; interdisciplinary sources; people's experiences
Kiehl (2016) [190]	Facing climate change: an integrated path to the future	Exploring the difficulty of facing climate change and the possibilities for action	climate scientist, Jungian psychotherapist	narrative depiction of aspects of the process	people's experiences; interdisciplinary sources
Lifton (2017) [191]	The Climate Swerve: Reflections on mind, hope, and survival	Exploring the difficulty of facing climate change and the possibilities for large-scale awakening	eminent psychology researcher; social thinker	narrative depiction of aspects of the process	Linking the author's long-standing psychology research explicitly with climate change
Johnson (2018) [192]	Radical Joy for Hard Times: Finding Meaning and Makin Beauty in Earth's Broken Places	Advocates for a method of engaging with "wounded places" and eco-emotions	eco-psychology workshop leader, community activist, expert by experience	narrative depiction of aspects of the process	people's experiences; interdisciplinary sources
Albrecht (2019) [193]	Earth emotions: new words for a new world	Explores various eco-emotions and advocates for positive change	Philosopher; environmental researcher; activist	narrative depictions; much emphasis on solastalgia	philosophy; interdisciplinary environmental research; people's experiences

Table 2. *Cont.*

Author and Date	Title	Main Focus	Author's Point of View	Content about the Process of Eco-Anxiety and Grief	Major Sources
Jamail (2019) [194]	End of Ice: Bearing Witness and Finding Meaning in the Path of Climate Disruption.	Narrative account of the impacts of climate crisis; encouraging people to face reality	experienced journalist; expert by experience	narrative depiction of especially his own grief journey	observations in various impacted places; interviews; written sources
Gillespie (2020) [66]	Climate Crisis and Consciousness: Re-imagining Our World and Ourselves	Discusses broadly the process of encountering the climate crisis	a Jungian therapist, an expert by experience, researcher, activist	narrative depiction with metaphors; discusses fluctuation and need for rest	observations from her group facilitation and research; Jungian psychology and other psychology; other studies
Grose (2020) [195]	A Guide to Eco-Anxiety: How to Protect the Planet and Your Mental Health	Discusses eco-anxiety from the point of view of an environmentally minded therapist	psychoanalytic psychotherapist, author	some narrative depiction; brief reference to DABDA model	experiences of clients as a therapist; psychoanalytic studies; environmental literature
Ray (2020) [196]	A field guide to climate anxiety: How to keep your cool on a warming planet	Trying to help "the climate generation" to encounter climate anxiety constructively	environmental humanities professor, interest on community building	some narrative depiction; discusses the need for self-care and community	experiences as an educator; environmental humanities literature; intersectional studies; literature on activism
Salamon (2020) [197]	Facing the Climate Emergency: How to Transform Yourself with Climate Truth	Discusses the difficulty of facing "climate truth", tries to help in this and strongly advocates for climate mobilization	climate activist; psychologist; expert by experience	some narrative depiction; own action-focused journey with many emotions	experiences as a climate activism leader and as a psychologist; interdisciplinary literature, esp. psychology and env. studies
Ward (2020) [198]	Like there's no tomorrow: Climate crisis, eco-anxiety and God	Narrative of a riverboat journey while exploring eco-anxiety and grief	Christian pastor (Anglican); expert by experience	narrative depiction of especially her own journey	people's experiences; some interdisciplinary literature
Weber (2020) [68]	Climate Cure: Heal Yourself to Heal the Planet	Discusses the process of encountering the climate crisis, much focus on emotions	poet, activist, Chinese medicine clinician, farmer, an expert by experiene	elements of narrative depiction; discusses fluctuation and need for rest	many secondary sources; experiences as facilitator; sources from various disciplines

Table 2. *Cont.*

Author and Date	Title	Main Focus	Author's Point of View	Content about the Process of Eco-Anxiety and Grief	Major Sources
Nicholas (2021) [199]	Under the sky we make: How to be human in a warming world	Discusses the importance of feelings for climate adaptation and action; provides ideas for activism	climate scientist; expert by experience; public advocacy experience	narrative depiction; a model of "five stages of radical climate acceptance"	experiences by them and people they know; strongest source base in climate science
Newby (2021) [119]	Beyond climate grief: A journey of love, snow, fire, and an enchanted beer can	Explores the emotional dimension of navigating with climate change	experienced journalist; expert by experience	narrative depiction; applying DABDA model	interviews with people and experts from various fields; people's experiences; written sources
Weintrobe (2021) [146]	Psychological Roots of the Climate Crisis: Neoliberal Exceptionalism and the Culture of Uncare	Criticizes "culture of uncare" and advocates for "culture of care"; social critique	psychodynamic psychotherapist	narrative depicion of various aspects; emphasis on the difficulty of facing climate reality	experiences of clients as a therapist; interdisciplinary sources
Kennedy-Woodard & Kennedy-Williams (2022) [200]	Turn the tide on climate anxiety: Sustainable action for your mental health and the planet	Providing help to climate anxiety by therapeutical means	Coaching psychology & clinical psychology	some narrative depictions	interdisciplinary studies on climate anxiety; coaching psychology; clinical psychology
Wray (2022) [67]	Generation Dread: Finding Purpose in an Age of Climate Crisis	Discusses the emotional journey of "eco-distress"	an expert by experience, a science communicator, recently eco-distress researcher	narrative depiction; discusses fluctuation and need for rest	interdisciplinary research; many interviews of experts; people's experiences

Key takeaways from these books about their depictions of the process include the following. For each theme, at least two examples from literature are provided; there would be many more.

1. The authors discuss various factors which shape people's processes, usually at least implicitly mentioning many factors depicted in systems approach studies (cf. Section 3.2) and models of coping and adaptation (cf. Section 3.3). These include personal abilities and histories, social dynamics, cultural factors, ecological factors, and many kinds of psychosocial phenomena. (See, e.g., [16,189]).
2. The authors depict a process where there is at first a difficulty to take in the difficult knowledge related to the ecological crisis. They discuss many forms of denial, avoidance, distancing and disavowal. (See, e.g., [66], esp. pp. 28–49; [133], pp. 129–159; [190]).
3. The authors point out that if and when a person or a group faces difficult knowledge about the ecological crisis, there can follow various kinds of shock and sometimes variations of trauma. Most of them point out that there may be difficult feelings of loneliness and/or isolation when people experience these shocks and sorrows. (See, e.g., [67], e.g., pp. 69, 107, 139; [194]).

4. The authors discuss various conditions that the shocks and traumas can lead people into. These include ardent activism and variations of stronger anxiety and depression. (See, e.g., [143,196]).
5. All of the authors include discussions of both anxiety and grief as part of the process, although with various terms and frameworks. They at least implicitly discuss the interconnections between eco-anxiety and eco-grief. Practically all of the authors emphasize (1) that eco-anxiety and ecological grief are fundamentally understandable and valuable reactions, but (2) they need constructive attention so that the unwanted outcomes can be avoided or minimized. (See, e.g., [66,68]).
6. The authors mention many forms of ecological grief. With various terminology, they point out that there can be both complicated grief and constructive results of grief processes. They see the wide process of ecological grief as related both to (1) encountering feelings of sorrow and to (2) transformation towards more caring and action. (See, e.g., [67,68]).
7. All authors discuss various forms of action (PEB) that people can take, and they point out that action helps also with the psychological distress (e.g., [197,199]).
8. However, practically all of the authors warn against using action as the only antidote to stronger anxiety. They unequivocally emphasize the importance of both social support and individual self-care in efforts to engage constructively with eco-anxiety and ecological grief. They mention a wide range of various methods for these. (See, e.g., [195,200]).
9. Many of the authors explicitly state that in addition to action, there is a need for healthy disavowal, denial and/or avoidance, using various terms such as these. These authors point out that people simply cannot stay fully in touch with all the difficult issues all the time. These authors advocate for a cultural shift towards socially supporting rest and healthy avoidance, while at the same time advocating for various kinds of action that people can or even should do on the behalf of Earth. (See, e.g., [195,196]).
10. The authors include at least implicit discussion of fluctuation and oscillation in the process. They state that there are alterations in moods during the process. They testify to both progress in the process and setbacks where stronger anxiety and depression return. They provide many examples of difficult forms of eco-anxiety, grief and depression. (See, e.g., [66–68]).
11. In addition to grief and anxiety, the authors discuss many other different emotions that people may experience during the process. Especially prominent are discussions of guilt, anger, and various other feelings related to states of motivation such as hope. The authors have various views on the desired dynamics of encountering these different emotions, and especially the dynamics of guilt emerge as a difficult topic. (See, e.g., [193,197]).
12. Most of the authors strongly emphasize the importance of meaning in the process. They point out that many people struggle with feelings of meaninglessness if they experience strong eco-anxiety and emphasize the need to be able to experience meaningfulness in life. Some stress the crucial role of action in providing meaning, and some include discussion of approaches where meaning is found simply from being present and alive. (See, e.g., [187,194]).
13. The authors discuss the desired, constructive aims of the process with various terms. Common terms for this are acceptance, transformation, and meaning. Some utilize existing frameworks; for example Doppelt [16] uses a Post-Traumatic Growth framework and Newby [119] uses the DABDA model of Kübler-Ross, supplemented by the addition of meaning into the stages. The authors thus argue that the process is not only characterized by trouble and difficulty, but may include positive changes and positive emotions such as meaningfulness, stronger sense of connection and the joy of doing important things together for planetary health.

These key points from eco-anxiety and grief literature supplement the knowledge provided by various scholars and inform the model-building in Discussion.

4. Discussion

4.1. Constructing a New Model Using Phases and Oscillation

In this section, research questions 3 and 4 are explored: When the existing models and frameworks are evaluated in the light of interdisciplinary research and the available empirical data about people's experiences, what major needs for model-building arise? and: What could a nuanced but still relatively simple model of the intertwined process look like?

As seen above, the process of eco-anxiety and ecological grief can be explored from many different frameworks. The process is related for example to risk perception, to thinking about right ways to react, to feeling disturbed, and to trying to cope. Encountering losses and changes evokes both anxiety and grief in various forms, and many kinds of stress, shock and potential trauma may be included. The process can be a developmental task and/or a life crisis, and it often has many characteristics of an existential crisis. As theories of grief depict, the process also involves dealing with changes and pressures to one's identity and social relations. Crucially, the process includes working through one's relations to other humans and the more-than-human world in the midst of changes and stress. Involved are numerous factors such as values, attitudes, beliefs, behaviours, economic issues, dreams and aspirations.

On one hand, this is a process of coping, adjustment and adaptation, but the challenges of the new situation are so vast that the aim of the process requires transformation both in an ethical and practical sense. This can be conceptualized in many ways, for example, as post-traumatic growth. Therefore, the process is not only a problem, even though it can be highly disturbing: it is an opportunity for growth and ethicality, and also positive emotions are felt amidst the process (cf. [201]).

Thus, much is already known about the process, but actual models and visualizations of the process are very few. It was observed that several scholars and authors have raised the issue of mood alterations and fluctuations in the process: these insights come for example from grief theorists, climate psychotherapists such as Randall and Gillespie, and many eco-anxiety authors. This confirms the starting point of this article and the need for new models which integrate fluctuation/oscillation.

It is quite challenging indeed to integrate all the knowledge from various fields which was discussed in the results, and it seems evident that not all of it can be included in a visual model, even if only headlines and key concepts are used. In other words, simplification and links to further information are needed. Below, a textual integration is offered and then a visualization is provided.

4.1.1. The Process Is Shaped by Many Dynamics

The process happens in the context of many kinds of factors, which have been charted in systems approach studies (Section 3.2 above) and in studies about coping and adaptation (Section 3.3). These factors can be divided into various levels, ranging from macro to micro. When a chronological and simplified model of the process is presented, these factors and levels surround the phases all the time. In relation to visualization, these factors will probably be best to include as references, and more exact information about them is found in the sources and the figures therein. It is to be emphasized that even while the process model is geared towards the reactions of the individual, the collective and social dimensions are present all the time, and there are reciprocal influences between individuals and collectives in relation to the phases and dimensions.

Engaging with both scholarship on ecological grief and on general grief theory (Section 3.4) helps to see that many dynamics need attention in the process: these include fluctuations of moods, various tasks of grief, and the need for occasional rest from heavy engagement with sorrow. The DABDA model seems to verbally capture many aspects of the process of ecological grief and anxiety, but rigid interpretations of linearity and stages need to be avoided in the light of grief studies. In addition, the broad picture emerging from various fields challenges the naming of many stages (see below).

Many elements of The Waking-Up Syndrome model ([84]) are supported by research from various fields, and the model is adapted as a starting point for the new model. However, it needs to be somewhat modified (1) to integrate fluctuation and other important aspects such as self-care in it, and (2) to be more exact about the character of certain "stages" in the model. Some parts of the Waking-Up Syndrome model seem more like dimensions in various phases than phases themselves: this applies especially to Denial, Despair and Empowerment. In the new model, these are not conceptualized as phases or stages, but instead as dimensions which can be related to many different phases.

4.1.2. Chronological Aspects

From environmental education research (Section 3.8) and certain other sources, it becomes evident that there is a first phase of unknowing before semiconsciousness. Thus, a phase of Unknowing is added in the new model, before Semiconsciousness. Denial is seen as a factor in Semiconsciousness, but denial seems to often manifest in various forms also later in the process; these dynamics are discussed in Section 4.2.2. The phase or gateway of Awakening is explored by scholarship in many fields, as well as Shock. The scholarship about crises, shock, stress and trauma (Section 3.6) is applied in the new model in relation to these phases. The phase after Awakening is called Shock and potential trauma, and the possible effects of shock and trauma are seen to continue to a complex phase of Coping. It is emphasized that there is variation in people's reactions: not all who awaken experience literal shock, but the knowledge is stressful. In addition, there may be moral shock.

In relation to the "metaphase" of Coping and Changing, the scholarship on coping and adaptation is naturally very relevant (Section 3.3), but also many other fields of research are essential for understanding the related dynamics. These relevant fields include research on denial and distancing (Section 3.3), studies about existential aspects of the process (Section 3.7), and various empirical observations about people's complex reactions (Sections 3.8 and 3.9).

The ethical aspects of the process, which are closely connected to the role of eco-anxiety and ecological grief as moral emotions, imply that the process is not simply just about coping and adapting, but also about changing and transforming one's values and practices. That is why the desired aim is called Adjustment and Transformation.

4.1.3. Three Dimensions of Coping

The myriad ways of coping either adaptively or maladaptively posit a challenge for the conceptualization of the Coping and Changing phase. In order to pursue the goal of this article, i.e., to build a new model which is both simple enough and nuanced enough, Coping and Changing is conceptualized to include three distinct but partially overlapping dimensions: these were named Action, Grieving, and Distancing. The name of the third dimension was difficult to decide, because it should comprise both healthy taking-of-distance—e.g., doing something else and practicing self-care—and ethically problematic distancing. The author oscillated between the terms avoidance, disavowal and distancing as the selection. Finally, distancing was deemed the best option, but all those terms have their strengths and weaknesses (The concept of "psychological distance of climate change" has been much discussed in research. It refers to the felt distance of climate change and scholars have argued that a greater felt distance is connected with lesser climate engagement. There is ongoing critical discussion of the various uses of this concept [110]. What is called in this article Distancing refers to various conscious and unconscious efforts to get some distance to the awareness of the ecological crisis and its psychological impacts. Thus, in contrast to general scholarship on psychological distance of climate change, distance is here seen as something potentially both constructive and maladaptive in relation to PEB and wellbeing: everyone needs at least some distancing sometimes in order to rejuvenate).

The idea is that (1) all these three are needed for constructive coping, adjustment and transformation, but (2) an overly intense focus on only one of these causes problems. People engage in these both consciously and intuitively or unconsciously. There seems to be many

practical instances where two or three of these overlap, and thus they can be visualized with a Venn diagram. For example, participating in such a public climate demonstration where also grief is manifested includes both Action and Grieving.

When compared to the coping framework of Lazarus and Folkman, which has been widely used in scholarship on climate emotions through its application by Ojala (see Section 3.3), Action correlates with Problem-Focused Coping and both Grieving and Distancing include Emotion-Focused Coping. Meaning-Focused Coping correlates with an ability to engage with all three dimensions and to maintain a sense of meaning in life (cf. Neimeyer's framework of meaning reconstruction, [202]).

The three dimensions will be here briefly presented and their dynamics will be further discussed in Section 4.2. The potential for Strong anxiety and/or Depression is always present in the background of the three dimensions, and thus both the adaptive and maladaptive manifestations of anxiety are present. Figure 2 shows the three dimensions.



Figure 2. The three dimensions of Coping and Changing. Figure notes: For healthy adjustment and necessary transformation, all three dimensions are needed. People engage with the dimensions both consciously and unconsciously.

Action refers to all kinds of efforts to react constructively to the ecological crisis, such as various instances of pro-environmental behaviour and community building. It could be named "ecological action", but a short version was preferred. Action is the only dimension without a subtitle, since it was deemed that various forms of action, ranging from consumer choices to political action, are evident enough without a subtitle. These various forms of Action are needed both for ethical, practical, and psychological reasons, but naturally the various forms of Action can be more or less helpful either in relation to alleviating the ecological crisis or advancing human well-being.

Broadly speaking, Action can alleviate problems, it is the morally right thing to do (see [203]), and it provides feelings of efficacy and empowerment which help psychologically. Problems arise if people only act and do not take into account the need to engage with emotions and to rest (e.g., [50,85]). In relation to the whole process, there can be instances of action also in Semiconsciousness, but without Awakening there is not awareness of the

required scale of action, and it is more probable that people only do what they think they must in relation to social and legal endorsement (cf. [204]).

The other two dimensions include subheadings. Grieving (including other emotional engagement) refers to the need to engage with changes and losses, in other words to engage with tasks of grief processes. As part of the general process, there is at first much need for engagement with grief, but many other emotions are bound with this process and also need attention, such as eco-guilt and anger. Emotions are present in many ways in all of the three dimensions, but in Grieving they are given special attention. There can be many kinds of practical forms of Grieving, such as sharing feelings of sadness with trusted others, encountering grief at a place of remembrance, or writing intuitively about one's sad feelings (for practices of ecological grief, see, e.g., [205,206]).

Grieving is needed practically, to maintain functioning, but it can also be argued to be an ethical task ([42,207]). Problems arise if grief becomes too intense or overwhelming, which usually means that the dimensions of Action and Distancing have become neglected. However, it may also be that the felt losses and changes are so immense that ecological grief becomes overly strong just because of that.

Distancing (including both self-care and avoidance) refers to the need to rest from the process and from engaging directly with difficult emotions such as grief. Distancing and avoidance are often seen as maladaptive in literature about environmental behaviour, but as was seen in Section 3, many scholars and therapists point out that people need a healthy dose of distancing, avoidance and denial. This will be further discussed below in Section 4.2.3 and a prominent grief theory, the Dual Process Model, will be engaged in relation to these needs. Self-care, which can also happen communally, is a prime form of healthy distancing. If distancing becomes too intense and if it is the only way of trying to cope, many problems arise both ethically and practically. Many people will then feel cognitive dissonance and other distress, and social efforts to alleviate ecological problems will suffer (see, e.g., [136,146,189]).

Outside the Venn diagram, there is depicted Strong anxiety and/or Depression: it is always present as a potential. There can be various combinations of the three dimensions and strong eco-anxiety and/or depression. For example, people may become depressed (1) if they feel that they have not succeeded in Action or that there is no point in even trying to act, (2) if they engage overly strongly with Distancing and feel for example isolation and distress, or (3) if they end up in very strong ecological grief. Other closely related phenomena are burnout (for burnout due to environmental activism, see [50,127]), resignation which lasts for a longer time (cf. the discussion in [208]), and what Albrecht has called "eco-paralysis" [209].

A key idea in the conceptualization of the new process is that there will be fluctuation and oscillation between the three dimensions and often also between them and strong eco-anxiety/depression. As will be discussed in more detail below in Section 4.2, this oscillation gains support from contemporary grief theory and especially the DPM. Many grief scholars argue that people will naturally oscillate between various reactions and that people also need periods of rest from engaging directly with grief. This seems especially poignant in relation to ecological grief, since it is so immense and its sources last for whole lifetimes.

4.1.4. Goals of the Process and Visualizations

Advancing towards the goal, Adjustment and Transformation, seems like a gradual process itself (cf. the description of goals by coping and adaptation scholars Bradley, Reser and colleagues, discussed in Section 3.3; and the work of eco-anxiety authors, discussed in Section 3.9). By engaging with various tasks in Coping and Changing, people are transformed and they adjust. There will naturally be various kinds of transformations and changes, and the high ethical ideals explored for example by Verlie [15] and Doppelt [16] will be a target of continuing growth in life.

In the new model, an advanced phase of Living with the ecological crisis is characterized by certain phenomenological changes in the three dimensions. The same basic

needs for Action, Grieving and Distancing will remain, but if and when a more balanced general situation is reached—at least momentarily—, their emphasis changes. In Action, there is more skills and consciousness in avoiding manic forms of action and the danger of burnout is lessened. In relation to Grieving, the focus shifts more to the subheading of that dimension, Engaging with emotions. Grief in all its shades will continue to be a major factor there, but other emotions gain more space. In relation to Distancing, the same dynamic of changing the subheading into the main heading happens: Self-care is now the major form, although various kinds of distancing and avoidance will still be needed. In general, awareness is here a key factor: reactions which are more instinctive or even unconscious in Coping and Changing become more controlled in the Living with phase, or if control is lacking, at least there is increased awareness of what is happening and about one's tendencies to react in certain ways.

Figure 3 shows a visualization of the new model. For reasons of clarity, the three dimensions of Coping and Changing are depicted in it next to each other, even when there can be overlap between them (see the Venn diagram above in Figure 2). The colours do not have any special message, they are included only for visual reasons. Figure 4 then shows the final part of the model, Living with the Ecological Crisis.

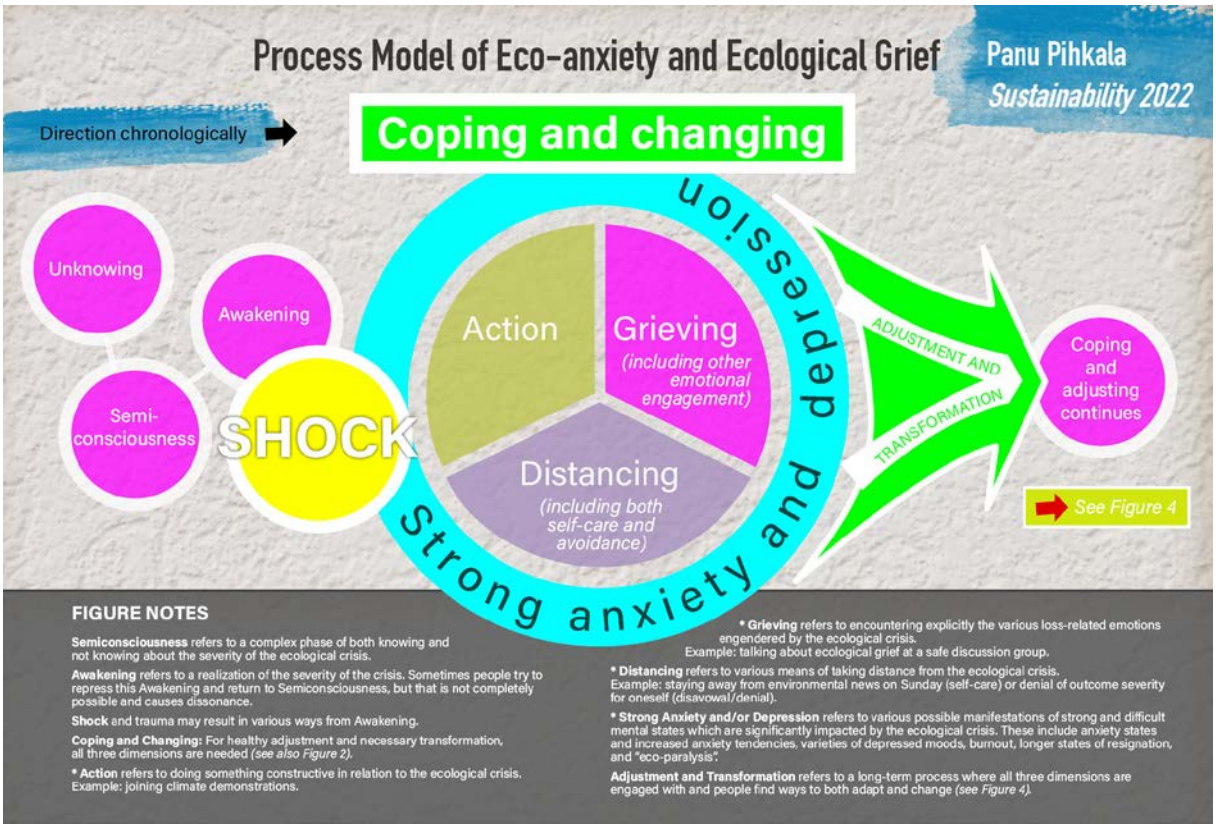


Figure 3. The new process model of eco-anxiety and grief.

Another major option for constructing a process model and visualizing it would have been to delineate various endpoints, at least in the sense of temporary endpoints. For example, from Awakening there could have been drawn various arrows towards various conditions, such as Strong Depression, Strongly Action-oriented Position, and Strongly Denial-shaped Position. However, the process seems to have much fluctuation in it, and there is movement between positions. Thus, this other option was not selected, but in future research one possible task would be to delineate various common trajectories and make visualizations of them. In addition, various trajectories could be marked with stronger or weaker lines (perhaps dotted lines), and circular trajectories could be mapped.

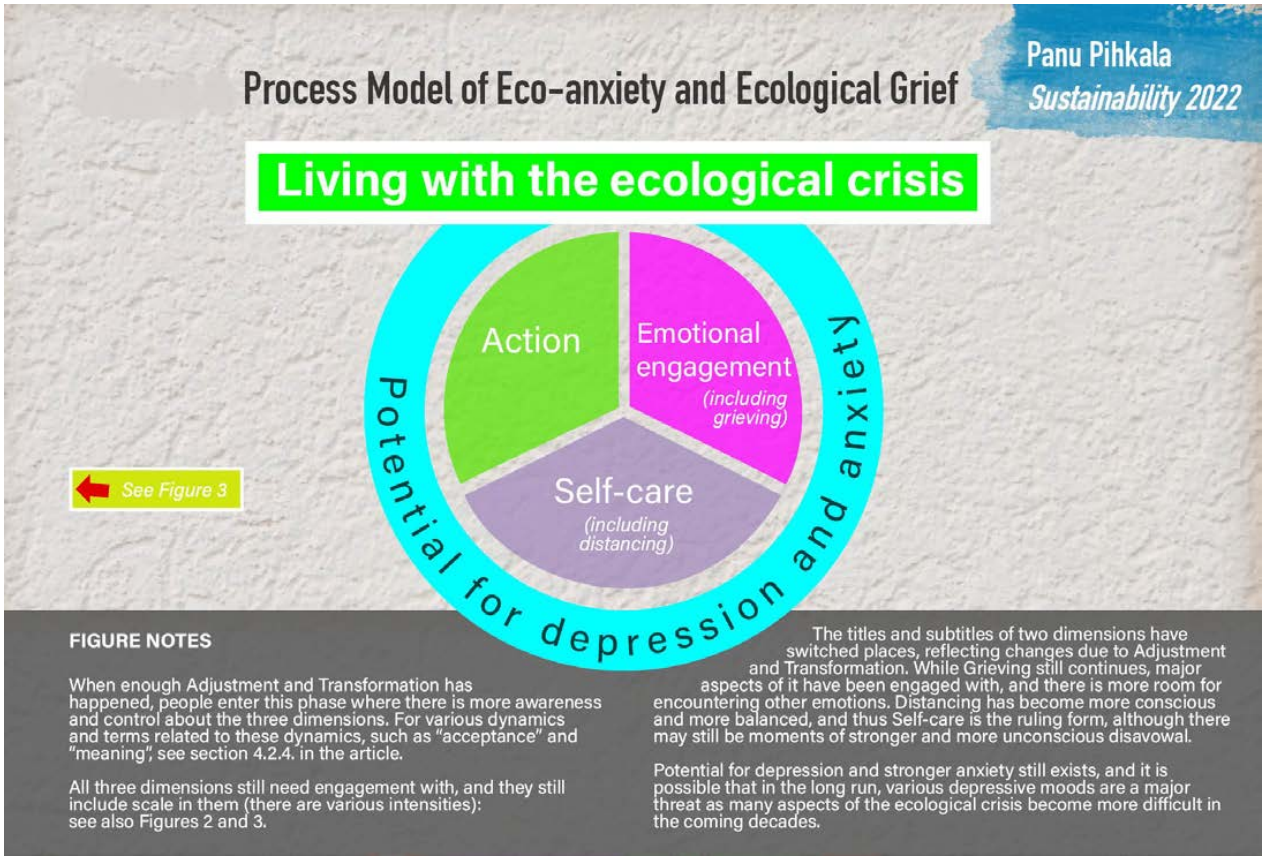


Figure 4. Living with the Ecological Crisis.

Next, the various phases and dimensions will be briefly discussed in more depth, even though a fuller exploration of them must be left for future research.

4.2. The Phases and Dimensions of the New Model

4.2.1. Unknowing and Semiconsciousness

Before any eco-anxiety, there is a period of true Unknowing. In the contemporary world, this phase is usually a very short one, because knowledge about the ecological crisis is so widespread. Already children hear about it at a very young age from various media and other people (e.g., [49,163]). During earlier decades, it was more common for a person to be actually unknowing, but ecological consciousness has been growing in waves since the 1960s (see, e.g., [210]).

Unknowing and Semiconsciousness are separated by knowledge: gaining various information about the ecological crisis. However, this knowledge does not always yet lead rapidly to any fuller knowing, a fact which has been the subject of numerous discussions in environmental studies (see already [211]). That is why a complex phase of Semiconsciousness is conceptualized before Awakening.

The term Semiconsciousness comes from Edwards and Buzzell [84]. However, in this new model, elements from both their stage 1, "Denial", and stage 2, "Semiconsciousness", are combined into this phase of Semiconsciousness. It depicts a complex process of negotiation, where many psychosocial factors have a role. Both the scholarship about coping and adaptation (Section 3.3), psychosocial and sociological research, and various studies about denial inform a scholarly understanding of these dynamics. People kind of know, but they also try to not know fully at the same time (see also [103,136,143,146,156,188,189,212]). As psychologist Salamon points out in relation to the climate crisis: it is very difficult to face "climate truth" [197]. Social dynamics seemingly have a strong role for most people's reactions (cf. Sections 3.2 and 3.3 above).

In the Semiconsciousness phase, eco-anxiety forms and often grows, but this can lead to many kinds of manifestations of eco-anxiety. Fundamentally, there is the adaptive role of anxiety: an emotional warning system about potential dangers which include some uncertainty ([46]). However, depending on whether people are able or willing to engage with this practical eco-anxiety, they either move onwards in the process or try to distance themselves. Edwards and Buzzell describe certain anxiety dynamics in Semiconsciousness: "In spite of the various ways we may try to discount what's happening to our environment (and consequently to our economy and whole way of life), as evidence mounts around us and the news coverage escalates, we may begin to feel a vague sense of anxiety." ([84], pp. 124–125).

Often this kind of vague eco-anxiety and/or practical eco-anxiety is not studied with eco-anxiety terminology: eco-anxiety studies and measures tend to emphasize stronger manifestations of anxiety (cf. [23–25]). This can be problematic in those cases when the relationship of PEB and eco-anxiety is studied at the same time. If the methods do not allow for the exploration of milder and practical forms of eco-anxiety, the correlations between eco-anxiety and PEB are not understood in their fullness ([26,29,213]). Using terms of the new model, eco-anxiety in Semiconsciousness and Awakening should also be studied, which requires new kinds of approaches. However, in the results of various interview studies and ethnographical studies, this kind of practical eco-anxiety can be discerned ([46]).

4.2.2. Awakening, Shock and potential trauma

> At some point, something may finally break through our defenses, forcing us to wake up to the inevitability and severity of our collective troubles.—But, like the character Neo in the 1999 movie The Matrix, even at this late stage we still have a choice. If we find the world we have awakened to too nightmarish to bear, we can metaphorically take the soothing blue pill and 'escape' from the realities that confront us . . . [84] (p. 125)

The term Awakening comes from Edwards and Buzzell [84]. When people cannot avoid the knowledge about the severity of the ecological crisis, even for a short period of time, they go through this gateway, as they describe in the quote above.

The dynamics of Awakening have variation. Some people awaken rapidly, for example due to a massive crisis, a strong rise in collective consciousness, or seeing a touching nature documentary film in school (cf. [165,171]). For some people, the Awakening is a result of a long process of engaging with the knowledge (cf. [62,169]). Awakening can also be called realization.

The results of the Awakening may also be very different, as also Edwards and Buzzell note. For some people, it can be highly traumatic (cf. [49]). For some, the awakening can lead rapidly to major life changes: see, e.g., the "Epiphany" of climate activists described by Randall and Hoggett [85], or the case story of a young activist by Halstead and colleagues [171]. Other people may try to repress the awakening by various forms of denial (see, e.g., [174]; what they call "Apathy" seems to be in fact a joint category of either not knowing or trying not to know). As Gillespie summarizes, there can be an "urge to back off from what frightens us" ([66], p. 31). Thus, some people may transition from Semiconsciousness through a repressed Awakening into strong denial, which in the new model would be situated at the extreme end of the Distancing dimension in the Coping and Changing phase. They do not return exactly to Semiconsciouness, although on the surface level, there can be many similarities between their earlier Semiconsciouness life; they experience more dissonance because they have now on some level encountered the severity of the ecological crisis more deeply (That being said, another option would be to insert a possible cyclical element into the model here, a return to Semiconsciouness after an Awakening which is too shocking. I leave this for further discussion with scholars). That kind of dynamic could also be analyzed as impacts of trauma (see below).

Awakening is linked with various forms of Shock, another term from Edwards and Buzzell. It is deeply troubling to learn and at least partly accept how serious the ecological crisis is. There is variation in people's responses and resilience, and not everyone is literally in shock, but at least major upheaval is present if reality is encountered. There are various kinds of risk perceptions and various evaluations of the nuances of the global crisis, but the hard facts of ecological damage are serious enough to cause people to be shaken (cf. Section 3.3 above, and van der Linden's research on risk perceptions, [214]). People's reactions are shaped by many factors (see Section 3.2 above), including degrees of Environmental Identity ([215,216]), meaning their values and emotional attachments with the more-than-human world. Some people are shocked simply because of the threats to human civilizations, which partly explains the prominence of climate anxiety; even people with low degrees of Environmental Identity may feel it. However, for people with strong Environmental Identity and lots of empathy, the Shock and moral shock may be even stronger (cf. the case examples in [71,157]).

Many concepts can be used of various possible consequences of Shock. People have reported feelings of disorientation and absurdity: it can be difficult to deal with the fact that in societies, life seems to go on mainly as normal, while the person or the group now knows how serious the damage is (e.g., [52,106,217]). Feelings of isolation and loneliness have often been reported in relation to this phase (e.g., [185,217,218]). Social support would help emotionally, but also in relation to evaluation of risks. If there is lack of social support and recognition of the ecological crisis, people are left to make judgments of the actual seriousness of the crisis on their own, which can lead them also to catastrophizing (many eco-anxiety scholars and authors describe this: see, e.g., [4,68]).

There can be various kinds of stress reactions after Shock. Scholarship on stress response syndromes (cf. the original exploration by Horowitz), PTSD [142] and "mid-traumatic stress" [143] provide insights in relation to these. For some people, there can be discerned a longer phase of Shock and mood changes before any Coping and Changing can actually begin.

Using terminology from existential research and sociology (see Section 3.7 above), ontological security may become threatened. Psychologist Gillespie describes the challenges vividly: "We cannot help but feel shock and disbelief when we hear news that what seemed unquestioningly secure is at deeply risk. It takes time, repeated tellings and embodied experience for us to maintain consciousness of the losses and threats of our destabilizing climate" ([66], p. 29).

A term from grief and trauma research, "shattered assumptions", seems highly relevant here. Developed by Ronnie Janoff-Bulman, the term refers to the difficulty which ensues when traumatic events shatter fundamental beliefs and assumptions about the world (see, e.g., [219]). This term and framework has been integrated in much contemporary research about grief and trauma [91], including post-traumatic growth, and it seems that research on ecological grief and anxiety could benefit from further engagement with it (cf. [16,65]).

As noted above in Section 3.7, scholars have observed that Awakening to the ecological crisis can intensify or re-surface death anxiety, among other existential anxieties (e.g., [86]). It would seem that a person's or group's ability to withstand existential pressures, their so-called existential resilience [22,212], is a moderating factor here.

Awakening and Shock may cause actual traumas of various kinds, and people may naturally have experienced various kinds of trauma already before that. As was seen in Section 3.6, ecopsychologists have argued that there can be a kind of original trauma in the separation of humans from the rest of the nature (e.g., [122]), and that there can be climate trauma on a cultural, meta-level (e.g., [144]). In addition to that, people's possible other traumas in their life histories naturally affect trauma dynamics in relation to ecological knowledge ([50]).

Thus, overall, Awakening and Shock apparently feature in many different ways. Some people move rapidly into Action, while others may become depressed or strongly anxious

for various periods of time. Some people practice much distancing and avoidance. It would be interesting to try to apply grief researcher Bonanno's framework of trajectories of grief ([220]) into "eco-shock" dynamics and study people's various reactions and their outcomes. However, those dynamics are bound to be quite complex, given the width and temporal length of eco-grief processes. Another important theme for further research would be the application of Acceptance and Commitment Therapy (ACT) frameworks into eco-anxiety dynamics. People's paths may be very different depending on whether they consciously try to accept reality and commit to adjustment, or whether they opt mainly for distancing reactions. Some thoughts about the application of ACT can be found in recent articles ([183,221]), and the general importance of committing has been noted in scholarship on coping with global issues (e.g., [6]).

4.2.3. Coping and Changing

The complex phase of Coping and Changing is at the heart of the new model. Here, only a brief discussion of certain key aspects can be included, and much will have to be left for future work. Below, the relationship between the previous phases and the new phase is first discussed. Then the three dimensions—Action, Grieving and Distancing—and the background potential of Strong eco-anxiety and depression are briefly discussed. The need for Distancing is given special attention, and the Dual Process Model of bereavement is applied both in relation to that and oscillation. Various practical strategies for coping are only briefly discussed, with special emphasis on emotional approach coping.

The phase changes fluently from Shock into various aspects of Coping and Changing when people start to grapple with the major tasks related to coping. There is much contextual difference: some people are more shocked than others, various people have to deal with various amounts of trauma, and people's resources and possibilities have many differences. An insightful approach which has recently been used to explore this is the Power-Threat-Meaning Framework, which emphasizes the need to pay attention to power dynamics. When the framework has been applied to climate anxiety in South Africa, it has been noticed that contextual factors and power dynamics strongly shape people's responses and views [134,158].

Thus, stress and trauma become factors which continue to shape people's responses in the Coping and Changing phase. It may be speculated that at least some maladaptive forms of the three dimensions in the phase are indeed trauma-shaped responses. Trauma can cause hyperactivity and manic action, which would be an extreme form of Action (cf. [85,127]). Very strong trauma can impact Grieving and shape it towards complicated grief (cf. [83]). Overly strong trauma may contribute to uncontrolled Distancing, causing denial and dissociation (cf. [144]). Around all the three dimensions, there is the potential of Strong eco-anxiety and Depression, into which trauma may also contribute.

People's paths have variation in them, but future research might discern certain patterns in relation to the three dimensions. Some people turn first to Action, some to Distancing, and some to Grieving; manifold contextual dynamics shape this (see Sections 3.2 and 3.3). Literature includes important depictions of troubled periods of trying to cope: see, e.g., Daniel Sherrell's autobiographical monograph Warmth [222] and Britt Wray's descriptions of case examples of people's trajectories [67]. In the background of the three dimensions, there is the always-present possibility of Stronger Anxiety and Depression. Some people spend much time there, while others only experience some instances of that territory more briefly. There is also much variance in temporality and sequence: some may enter that territory after Awakening and Shock, while others end up there because of overly strong engagement with only one of the three dimensions; this includes the possibility of burnout. Furthermore, some may end up there because of resignation, perhaps after a long-time engagement with ecological issues and an experience that not enough is done in societies in relation to them (cf. [223]). Another issue which seems to need further attention in future research is the possibility of becoming stuck and not being able to access any of the

dimensions of coping (I thank Miikka Häkkinen, a Finnish psychiatrist, for pointing out this possibility).

As was mentioned above in Section 4.1, another normative idea in the new model is that despite people's differences, all people need at least some engagement with all three dimensions. Everyone can be argued to need (a) at least some engagement with the emotions of grief related to the state of the world, and many other emotions are intertwined, such as anger, disappointment and guilt; (b) to practice at least some kind of action in the means possible for them; and (c) to take at least some respite from this emotional engagement and action, so that they will continue to have energy for them. The need for Action and the need for Grieving seem to have received more attention in previous literature than the need for Distancing, which is why the last topic is given more attention below.

What is here called Distancing helps people to manage the psychological pressures arising from the complex processes of eco-anxiety and ecological grief. As was seen in Section 3.9, many eco-anxiety authors have explored this, using terms such as "functional denial" [195] or "healthy denial" ([68], pp. 60–61). This need for distancing gains support from many influential theories of grief and it can be called by many names. The proposed new model could help various audiences to see the importance of taking respite and practicing self-care.

The need for respite has been explicitly integrated in the Dual Process Model of Bereavement. The DPM, developed originally by grief scholars Margaret Stroebe and Henk Schut, builds on many different grief theories. The authors point out that mourners have to deal with multiple stressors at a time and mourners have to rest awhile from engaging with grief directly. A major feature in DPM is the dividing of grief tasks into two categories: Loss-Oriented (LO) ones and Restoration-oriented ones (RO). LO tasks explicitly focus on engaging with loss-related feelings and issues, while RO tasks are ones related to what other things needs to be dealt with in life. The authors argue that mourners oscillate between these categories of tasks, and that should be seen as healthy. RO tasks include taking respite from the grief process [74,224,225].

The dynamics of the DPM seem in many ways very suitable for ecological grief and anxiety, even though there may be needs for context-specific changes in applying this theory. People who experience ecological grief have to take care of many mundane things at the same time, and there may be multiple different stressors (see, e.g., [157,181,226]). The central idea of oscillation supports the observations made in eco-anxiety literature. The application of DPM into ecological grief and anxiety is further analyzed in a forthcoming research project by the author.

In the context of eco-anxiety, some oscillation and fluctuation may be conscious and some unconscious. Many contextual factors evidently shape oscillation. It seems that one important practical task in the process is to become more aware of these dynamics and to build skills for more conscious oscillation. This can also be framed as psychological flexibility. The aim is that there is enough but not overly much oscillation, or otherwise there is the danger that people end up either sinking or spinning out of control into Stronger Anxiety and/or Depression, which is depicted as the background area of Coping and Changing in the visual model.

For different people in different contexts, the needs for oscillation will be somewhat different, and social dynamics will have a major role in influencing people's attitudes and capabilities. For example, in social groups where ardent climate action is the norm, there will usually be a bias towards action. This sometimes causes problems because people's resources wear thin and burnout becomes a danger (e.g., [196]). In social groups where strong Distancing is the norm, even to the point of denial, people will have limited incentives to Action and Grieving (cf. [227]). These dynamics are depicted in the new model in the idea that all three dimensions of Coping and Changing are needed, but none should be engaged with one-sidedly.

The topic of constructive means to engage with the three dimensions is very large. The various scholarship discussed in Section 3 provides much material for that: research

about various coping methods (Section 3.3), about engaging with existential questions (Section 3.7), and about dynamics of grief (Section 3.4). Furthermore, eco-anxiety literature (Section 3.9) includes much discussion about related dynamics, and studies about environmental education and developmental psychology (Section 3.8) discuss means for helping people of various ages to encounter these tasks. It should be noted that many practical coping methods, for example cognitive reframing, can be used in relation to several dimensions: for example, one can reframe grieving as something which is beneficial, develop one's attitude about the value of one's ecological actions, and reframe taking breaks as something valuable instead of seeing it as a failure to act.

In-depth discussions of this practical dimension must be left for future work, but one theme is here lifted up: the role of constructive emotion-focused coping (for basic concepts related to it, see Section 3.3 above).

In many current studies, there is a tendency to see emotion-focused coping mainly or even only as an avoidance-oriented coping strategy (for examples of this, see [228,229] (For example, Cianconi et al. (2021) write: "Strategies focusing on emotional regulation (rather than the problem) tend to illustrate passive coping, i.e., the feeling of helplessness to deal with the stressor, thus relying on others to solve the situation"). On the contrary, however, already the classic coping scholars Lazarus and Folkman [98] emphasized that emotion-focused coping is not only a negative means: "We must not be misled by the negative consequences of these and other emotions into understating their positive functions in human adaptation" (pp. 95–96; see more widely chapters 6 and 7 in the book). Lazarus later engaged in cultural critique, arguing that some elements in contemporary cultures seem to drive people to prefer problem-focused coping over emotion-focused coping, even though both are needed. He also warned that it is not always easy to separate problem-focused coping and emotion-focused coping from each other, and too-easy categorizations should be avoided ([230], pp. 1337–1338). Lazarus' words are worth quoting at length:

> "The way I have spoken about problem-focused and emotion-focused coping invites certain errors, or bad habits of thought, about the distinction between problem- and emotion-focused coping. This distinction, which has been widely endorsed in the field of coping measurement and research, leads to their treatment as discrete action types, which is an oversimple and too literal conception of the way coping works. There are two main errors. One is that when we allow ourselves to slip into the language of action types, we often end up speaking as if it is easy to decide which thought or action belongs in the problem- or emotion-focused category. A second error is that we wind up contrasting the two functions, problem and emotion focused, pitting one against the other and even trying to determine which is the more useful. In a culture centered on control over the environment, it is easy to come to the erroneous conclusion—which is common in the coping research literature—that problem-focused coping is always or usually a more useful strategy". [231] (pp. 123–124)

This seems to be a warning to be heeded especially in relation to coping with ecological crisis, which is a very complex subject for coping research (cf. [181], and on the other hand, the use of the category of "emotional expression" in [6,93]).

In scholarship about eco-emotions, especially in those forms informed by practical workshop activities, many authors have argued for the benefits of constructive engagement with emotions (e.g., [63,173,232]). Many young scholars have started to experiment with constructive emotional approach methods (e.g., [233,234]).

Thus, in the new model, emotion-focused coping is seen broadly, as potentially consisting of both adaptive and maladaptive emotional methods. The constructive engagement with emotions, which has been explored in research for example via the framework of Emotional Approach Coping ([230]), is depicted especially in the dimension of Grieving, which has the subheading "and other emotional engagement". In the proposed later form of Coping and Changing which happens after Adjustment and Transformation, Living with the Ecological Crisis, the subtitle becomes the main title and the need of all kinds of

emotion-focused methods gains prominence. While emotions are present in many ways in Action and Distancing, more focused engagement with emotions, such as writing about one's eco-emotions, is situated in the Grieving/Emotional engagement dimension. Many therapeutic methods could be used to enhance this dimension, such as Emotion-Focused Therapy [235] and Affect Regulation Training [236].

4.2.4. Adjustment and Transformation

In the new model, the major goal of the process is called Adjustment and Transformation. If it happens, it happens over time; people describe it as something they one day notice has happened, rather than any single moment (see below). Instead of being something totally different, this new condition includes more balance in life and more awareness of one's response dynamics. It is akin to the description of constructive outcomes of general grief and bereavement processes: the grief and loss is still there and may at times cause heavy sorrow, but still there has been progress. In relation to climate grief, psychotherapist Gillespie gives an insightful example of these dynamics:

> These days I am no longer stalked by apocalyptic imaginings or dreams in ways that I once was, although I am even more concerned about climate disruption and its consequences. I have learned to accept that I cannot be sure of any scenario ahead, although I do anticipate immense change. This acceptance enables me to hold a conscious resolve to stay open to the world as it is, beautiful and wounded, while doing what I can to contribute to ecological restoration, climate action and cultural change. While grief and anxiety ebbs and wanes in me, so too does hope and inspiration, grounded in the resilience and creativity of the natural world, including human nature. [66] (p. 37)

Gillespie's words show that through a long process, she has reached a new phase in relation to eco-anxiety and ecological grief. She tells of liberation from some of the stronger anxiety symptoms such as being haunted by apocalyptic dreams. She uses the word acceptance: accepting uncertainty amidst inevitable changes, and accepting both one's responsibility and the limits of one's possibilities.

Many key terms from grief theories can be used to describe the change that Gillespie describes. The reality of the loss has been accepted, as well as many emotions related to those losses and changes (Worden and the DPM, see [37,224]). She has engaged with "relearning the world" (Attig, see [237]); meanings have been reconstructed and bonds have been continued (Neimeyer, see [41]); and there is acceptance (Kübler-Ross and Kessler, see [36]). Advancement in the process of grief and anxiety has brought a renewed ability to feel all kinds of emotions. Gillespie tells of sources of empowerment and even hope, and an ability to see also beauty, even though grief and anxiety still fluctuate (cf. formulations in grief theory about "reinvestment of life energy"). Thus, her words also testify to the presence of oscillation in the process.

Overall, Gillespie's account is a telling example of the aims of the process of eco-anxiety and ecological grief. There is not only adjustment and adaptation, but also transformation. She tells of being even more concerned, and in her book she further tells of the many changes in her thinking, social commitments and emotional life caused by the process [66]. The transformation extends to values, practices, and to ways of living in general. It may also result in changes in worldview and/or religion.

In general, what is here called Adjustment and Transformation is connected with aspects of many different frameworks discussed in this article. It has elements of coping and adaptation outcomes, and clear aspects of post-traumatic growth, even though people's levels of trauma are different. Verlie's and Doppelt's models are very strongly integrated in the wording of Adjustment and Transformation, but also meaning-focused approaches are highly relevant in relation to it. Table 3 shows many different frameworks and wordings related to the aims of the process of eco-anxiety and ecological grief.

Table 3. Goals of the process in various theories.

Goal and Framework	Example of Ecological Application
Adjustment (grief theory)	Randall (2009) [38]
Transformation	Verlie (2022) [15]
Post-traumatic growth	Doppelt (2016) [16]
Adaptation	Bradley et al. (2020) [62]
Acceptance	Johnson (2018) [192]
Meaning-focused coping	Ojala (2016) [94]
Finding purpose	Wray (2022) [67]
Experiencing "realistic" hope (as separated from wishful thinking)	Kelsey (2020) [4]
Psychological flexibility and commitment	Feather and Williams (2022) [221]

Grief scholars have often written about the "positive outcomes" of grief processes (e.g., [220,238]). They do not mean to explain grief and pain away, but they point out that these processes can indeed lead to constructive developments. The same main argument applies to eco-anxiety and ecological grief. For example, the results of Adjustment and Transformation can, at least partly, increase a felt sense of meaning in life, amidst all the troubles (e.g., [16]). Ability for experiencing joy may rejuvenate through engaging first with grief (e.g., [119,192]).

Adjustment and Transformation is a process in itself, and forms a dynamic part of the whole process. Three key features which tell of Adjustment and Transformation are (1) functionality, (2) awareness (note also Gillespie's "conscious resolve" above), and (3) ethicality. Adjustment and Transformation is seen by its fruits, so to speak: it can be noticed to be present when people function better both in relation to ethical responsibility and psychological well-being (see [15,16]).

Awareness is a major feature in the achievement of Adjustment and Transformation. The concept is here used first and foremost in relation to psychological awareness of one's reactions, but the much-discussed concept of environmental awareness (for a classic discussion of it, see [211]) in the sense of being more aware of environmental issues is also connected. Psychological awareness manifests in increased consciousness and flexibility in relation to the three dimensions in the model. When people adjust and transform, they become better able to accept the need for oscillation and they become more skilled in consciously oscillating between various methods of coping and action. For example, it is a requirement of Transformation that Avoidance becomes more conscious and at least partly more controlled: instead of intuitive or compulsory forms of avoidance, the person or the group learns constructive forms of self-care and avoidance. Many psychological theories can be applied to describe these dynamics, including the frameworks of Psychological Flexibility and more broadly Acceptance-Commitment Therapy ([221]; see also [239]). In relation to environmental awareness, Adjusting and Transformation evidently means a growth in that, too, for many people, although the different amounts of earlier environmental awareness naturally affect these dynamics.

For different people, there are different needs and possibilities for exact forms of Adjustment and Transformation. It is argued in this article that ethically and psychologically, everybody needs some aspects of the three dimensions, but naturally people's contexts are very different. For example, some people do not have as many possibilities for Action, as was discussed above in relation to the Power-Threat-Meaning Framework (Section 4.2.3; see also [240]). Adjusting and Transforming is still possible for them, but more difficult, since a key dimension is obstructed; this may sometimes be at least partly balanced by the fact that for many people with less resources, their environmental footprint is at the same time smaller and this can provide some feelings of acting in an ecological manner. Thus, the new model predicts trouble related to Adjustment if any one (or two) of the dimensions are obstructed.

To name another example of different contexts and dynamics, some people already have altruistic and eco-centric values and thus do not need as much transformation in the ethical sense. Ethicists and many eco-anxiety authors argue that people need to develop both non-anthropocentric and post-colonial values in the midst of the ecological crisis, and developing these can be a long process (e.g., [15,196]). This leads to the fact that there can be various levels in Adjustment and Transformation: for example, a person may manage to adjust psychologically in relation to eco-anxiety and ecological grief, but may still need to work through developments in relation to post-colonial and eco-centric values.

The new phase after Adjustment and Transformation is called Living with the Ecological Crisis, echoing wordings by Verlie [15]. The need for coping and changing continues, and there may be various crises and fluctuations. Many factors can contribute to them, such as events in personal lives, various regional or international crises, and new information about the severity of the ecological crisis; socio-ecological modelling is useful in exploring these. Wray writes insightfully about these issues:

> . . . when we emerge transformed, we embody new kinds of existential resilience, acceptance, and courage to face our reality. Now that we are strengthened and more flexible, these attributes hold us back from falling apart in the disorienting ways we used to. That's not to say we won't fall apart again one day in the face of devastating loss; after all, in an ongoing crisis, the task is to master the art of toggling between distressing information or experiences and ways to bear them. [67] (p. 118)

More research is needed to explore these dynamics and to map various factors which may cause fluctuations in people's eco-anxiety and ecological grief. For example, there are accounts that even after adjusting to eco-anxiety, becoming pregnant may strongly activate intense forms of eco-anxiety [67]. It is evident that various stressors play a role in these fluctuations, and the overlapping of various crises has been recognized as a threat to functionality. For example, at the time of the preparation of this article, in many countries, there is climate anxiety, coronavirus anxiety and anxiety about wars all at the same time (e.g., [241]).

As has been mentioned above, the headings of two of the three dimensions are slightly altered in the model after Adjustment and Transformation, when people enter the metaphase of Living with the Ecological Crisis (see Figure 4): the subheadings become the main headings. Self-care and various kinds of constructive emotional engagement are now present more strongly. While Grieving continues, dynamics of for example guilt and anger need constant engagement with (cf. [32,88]). Emotional engagement may also be needed to strengthen emotions of gratitude, joy, and healthy contentment for ecological efforts (see [52,201]). However, any fuller exploration of those emotional dynamics must be left for future research.

4.3. The New Model and Other Approaches

4.3.1. Linking Various Frameworks Together

In this section, the various theories and frameworks analyzed in the Results (Section 3) are set in relation to the new model and each other. Emphasis is given on the psychological and psychosocial tasks depicted in various approaches. In Supplement Table S1, the tasks depicted in various frameworks are situated in connection to that phase in the new model which is deemed the closest to them. However, many tasks are so wide-ranging that they apply to many phases and dimensions in the new model, and so the connections should be regarded as heuristic and approximate.

4.3.2. The Relationship between Stage Models and the New Model

To clarify matters even more, the relationship between popular stage models and the new model is next described briefly. The categories of the DABDA model—Denial, Anger, Bargaining, Depression, and Acceptance—are first discussed, and then the category of

Empowerment in the Waking-Up Syndrome model. Finally, some observations of trauma and the new model are offered.

It seems that the DABDA model suits best those instances of traumatic grief where the traumatic news is very recent—such as the original context of that model, persons who gain knowledge of a life-threatening illness. Then denial is a common first reaction, although not universal. The DABDA model is not as suitable for any longer processes of grief [39,41], and this becomes pressing in the case of ecological grief, which is a very long and complex process. It might be possible to apply the DABDA model to particular ecological griefs, traumas and shocks, but for broader processes, more nuanced models are needed.

In the new model, "Denial" is not conceptualized as a phase, but forms a potentiality in all phases after Unknowing. Various aspects of denial and disavowal significantly constitute Semiconsciousness and Distancing.

"Anger" is seen in the new model as a multifaceted emotion which can manifest in many phases and dimensions in different ways. For example, there can be both rage against the reality of the loss and moral outrage against the unfairness of the ecological crisis. There can be anger for example in Semiconsciousness (e.g., "Don't burden me with these matters!"), in Shock and trauma reactions, and in many kinds of coping efforts. For example, anger can fuel Action; it can manifest in relation to feelings of Grieving; and it can arise in various efforts of Distancing (e.g., "Don't come telling me that I don't have a right to take a break from climate work!").

"Bargaining" can be manifested in various negotiations that people enter into, both in Semiconsciousness and especially after it. People can try to psychologically negotiate better conditions in relation to the loss, but bargaining in the sense of Kübler-Ross includes also dealing with internal questions of guilt and responsibility (see [36]). People may ask themselves: "Could I have done something to prevent this loss?" and they may try to negotiate the amount of guilt, asking: "How much was I really responsible myself for this loss? Should I have done something differently?"

"Depression", in various forms, is conceptualized as a constant potential since the Awakening and Shock phases. The wording Strong eco-anxiety and Depression is used in the Coping and Changing phase to remind of its commonality. Depressive moods are something which may manifest even after significant Adjustment and Transformation has happened.

"Acceptance" is not here conceptualized only as an end point, but instead as a major aspect in many phases: in Awakening, Coping and Changing, and Adjusting and transforming. In other words, various aspects and levels of acceptance are discussed. Acceptance is included in the vein of contemporary grief theories (Worden; DPM) as related to the process of accepting a changed reality and its implications, including many emotions. What Kübler-Ross and Kessler mean with Acceptance (see [36]) is here described more in terms of finding enough adjustment and transforming, and it is emphasized that there will naturally be fluctuations between low moods and "Acceptance". The concept of Meaning is a strong connecting point between Kessler's application of the DABDA—the "DABDAM"?—and the new model, even while Meaning is not a name for any phase in the new model.

What was written above about Denial and Depression applies also to the Waking-Up Syndrome model ([84]). The final stage of that model, Empowerment, is seen in the new model as a potential dimension in many reactions since Awakening, especially in Action. Empowerment seems to usually fluctuate.

In their 2021 article, scholars Jones et al. apply the DABDA model to both climate grief and grief arising from the COVID-19 pandemic ([120]; for eco-anxiety and "coronavirus anxiety", see [242,243]). They end up modifying the DABDA model into a more dynamic one: they depict a process where there is fluctuation, but also a possibility for progress. They use four key terms: "status quo" encounters "disruption", and then "exploration" and "rebuilding" fluctuate with new disruptions (see esp. their figure on "Wave of Change in a Sea of Emotion", p. 39). The author engaged with the article by Jones and colleagues only after this manuscript had already been submitted, but it is noteworthy that they thus

reach many similar conclusions regarding fluctuation with the new process model depicted in this article.

Finally, the important factor of trauma deserves summarizing observations. Trauma is not conceptualized as a phase in itself in the new model, even though a prominent place for various trauma situates itself after Awakening and Shock. However, trauma can be present also in Semiconsciousness and later in the process. Trauma could also be conceptualized as a possible penetrating dimension in the three dimensions of Action, Distancing, and Grieving. Even after significant levels of Adjustment and Transformation are possibly reached, there can emerge new traumas due to new events and cumulative impacts.

4.3.3. Disorders and the New Model

As was discussed in Section 3.9, many kinds of mental disorders may exist which have a reciprocal relationship with eco-anxiety and grief. In the new model, pre-existing disorders or tendencies towards them are seen as factors which shape, for their part, people's trajectories. For example, persons who suffer already from clinically significant depression will, on average, find it harder to withstand the psychological pressures generated by Awakening and potential Shock.

Eco-anxiety and grief by themselves can cause disorder-type mental phenomena in people. Evidently these dynamics are shaped by numerous factors. In the new model, these would be situated at the Strong anxiety and/or Depression part, which is visualized as an area around Coping and changing. Adjusting and transforming requires more support and effort if people experience disorder-type mental phenomena, and for example tools used in management of Generalized Anxiety Disorder will be beneficial for people who experience that kind of eco-anxiety (see [68] for examples and tips, and [183] for a broader review). In the Living with ecological crisis phase, there can still be disorders, but the key is an ability to live with them.

4.4. Using the Model in Practice (Research, Education, and Therapeutic Settings)

The practical adaptation of the new model must be mostly left for future work and only a few ideas are offered here.

It should be kept in mind that the proposed new model is not fundamentally a diagnostic one, but instead a heuristic one based on interdisciplinary research, practical observations and the author's interpretations. However, it is argued there that the model may still be utilized in therapeutic settings, in various kinds of research, and in education.

In general, the model could be used to explore people's situations in their own process. People could reflect on whether they feel that the model depicts their situation and make observations about dynamics that they recognize. For example, they could reflect back on how they experienced Awakening—if they have experienced it—and what kind of impacts did that have on their life and behavior. In relation to Coping and Changing, people could make heuristic estimations about their situation as regards the three dimensions: which dimensions are already engaged with and how, and which ones would require more attention? People could ask: How am I doing in relation to Action, in relation to Grieving and other emotional engagement, and in relation to Self-care and Distancing? Based on earlier research and the author's experiences, accepting oscillation and the need for healthy distancing are difficult for many active people. For others, commitment to action may be the difficult thing. Hopefully, the model could help to show that there is much research and practical knowledge which supports the existence and even importance of them.

Integrating the idea of nuanced phases and dimensions could serve both research and practical work. For example, in relation to eco-anxiety and grief research, it would be important to take into account whether the people who are studied (1) are still in Semiconsciousness, or (2) have just recently awakened to the severity of the ecological crisis and are in some kind of Shock or crisis phase, or (3) have already a longer process behind them. This is also very important if scholars want to study the relation between eco-anxiety and PEB (see also [29]). If people are in a shock or crisis phase, they may for example be

paralyzed or they may be in a kind of immersion phase [85] where they display strong PEB intentions. If and when people are somewhere in the complex Coping and Changing phase, it is important to know how much they are feeling efficacy and how much for example depression or cynicism, since these affect their views about PEB.

This kind of sensitivity about phases, dimensions and oscillation dynamics could inform therapeutic encounters and education in many ways. The challenges of a given person or group will differ in general according to the phase they are in, even though the phases are not linear, and according to their situation in relation to the three dimensions. For example, educators should be aware of the dynamics related to Awakening and possible Shock, and they could educate people to explore the contextual needs related to the three dimensions of Coping and Changing. For many active young people, more attention to healthy Distancing is needed, while others will benefit from more Action. Possibilities for encountering ecological grief could be discussed together. Therapists and educators could also reflect on their own trajectories and coping dynamics with the help of the model (the need for this is evident in research: see, e.g., [180,217]).

4.5. Strenghts, Limitations and Themes for Further Research

A major strength of the study is its wide approach. An unusual number of various disciplines was explored to gain further understanding of the process. At the same time, this strength produced a certain limitation: it is not possible to inquire very deeply into a large number of disciplines in a single academic article. Future research should clarify the relationship between various disciplines and the new model, on the basis of the beginnings charted out here (cf. Supplement Table S1). However, the mere existence of a new model, based on interpretations of numerous earlier studies, could be seen as the key strength of this article.

Interdisciplinarity and philosophical inquiry made possible many insights about the process and its dimensions. For example, this method helped to see more clearly the role of fluctuation/oscillation in the process. Insights from such fields as environmental psychology, coping theory and grief theory were used to bring more nuance into the dynamics of the process. Coping and transforming was explored from a wide variety of angles. Knowledge about empirical studies conducted in various disciplines informed the interdisciplinary and constructive work in this article. The integration of distancing into the model in a nuanced manner could be seen as a major strength.

Limitations include the enormous potential scope of sources. It is recognized that probably some relevant sources were not found, despite the various database searches and the extensive background research over the years. New research was also emerging all the time, which made it difficult to keep up. There is bound to be some researcher bias in the selection of emphases, although objectivity was strictly strived for.

Some important limitations were generated by the research aims themselves. Processes of eco-anxiety and grief are so complex and shaped by so many contextual factors that no single model can ever do full justice to all this complexity and all the changes which happen over time. It is argued here that the new model helps to understand these phenomena better, but the epistemological-philosophical limits of this whole endeavor are recognized (Thanks for the anonymous reviewer 3 for drawing attention to this point).

Furthermore, the selection of inquiry about a psychosocial process is naturally also just one part of the many possibilities of exploring the subject matter. It is recognized here that also other perspectives are needed, for example those utilizing sociology and operating on another scale (cf. [58]). Many factors would require more attention, such as political, commercial and ecological ones.

Many tasks and possibilities for further research emerge from this study, such as the following:

- Testing the model in practice with various audiences and observing how well it serves in understanding their processes. One very important task is to explore the model's

applicability among people who suffer from multiple injustices and encourage the creation of alternative models if needed.

- Exploring various common patterns in people's processes, especially in relation to the Coping and Changing phase. Examples of this could be an activism-oriented reaction set (cf. [85]) or a denial-oriented reaction set. For example, figures could be produced to depict common trajectories and junctions. Relative amounts of engagement with the three dimensions could be explored in relation to them. For example, in an activism-oriented reaction set, Awakening and Shock would be followed by a heavy emphasis on Action, and a path crossing would be related to how much Grieving and Distancing there is to support people. It would also be possible to map trajectories which include circularity, such as a tendency to move from Action to Depression (or burnout) and back to Action again.
- Investigating the process further from the viewpoint of collectives and group dynamics. Although the discussion aimed to include both individual and collective dimensions, the individual dimension gained more prominence here.
- Applying further the general scholarship on grief and bereavement into this subject matter. The author is currently preparing another academic study which applies the DPM in a more meticulous manner into ecological grief. Additionally, other grief theories, such as meaning-focused approaches ([202]; see also, e.g., [244,245]), should be further discussed in relation to the process. The relationship between eco-anxiety and ambiguous loss could be further analyzed.
- Investigating and discussing various ways to help people cope constructively in various parts and dimensions of the process. This task includes the creative integration of previous scholarship on practical coping with eco-anxiety and grief (see, e.g., [246]) with the new model.
- Investigating the ways in which various emotions, feelings, affects and moods are present in relation to the phases and dimensions.
- Further theoretical work on how the various concepts relate to each other, such as acceptance, meaning and transformation.
- Exploring the dynamics of the model from the viewpoints of various psychologies and therapies, such as ACT, Dialectical Behavioral Therapy (DBT) and meaning-focused therapies.
- Analyzing the process as a change process related to worldviews and possibly religion (see [153,191,198,247–251]).

5. Conclusions

This article has analyzed the process of eco-anxiety and ecological grief through a narrative review of research in various disciplines and via philosophical and interdisciplinary reflection. In the constructive part of the article, a new model and visualization of the process was developed. A key premise was the interconnection of eco-anxiety, ecological grief, and action (which can be called Pro-Environmental Behavior). The relationship between the general process of eco-anxiety and more particular processes was discussed (see Figure 1), and the focus of the article was on the former. Special attention was given to the integration of fluctuation/oscillation to the new model. Both individual and group dynamics were given attention, although the focus was more on individuals as parts of collectives. The aim was to make the new model both simple enough for communicative purposes and still nuanced.

Many fields of research and literature were found which helped the construction of the new model (Section 3; see Table 1). Especially the "Waking-Up Syndrome" model of Edwards and Buzzell was used in naming many of the phases in the new model, but new phases were added and dynamics were more strongly shaped around oscillation. One important inspiration was the Dual Process Model of grief and bereavement, which emphasizes oscillation. As regards goals, they were explored both from an ethical and a psychological viewpoint, and the lifelong character of the process was discussed.

The phases and dimensions of the new model are as follows. Drawing from environmental education and lifespan psychology research, a phase of Unknowing was added to the model. The following phase of Semiconsciousness was seen to be a complex one, shaped by many aspects of denial and disavowal. Various possible Awakenings can then lead to varieties of Shock, including moral shock, and potential trauma. Stress and potential trauma were seen as moderating factors in a complex following phase, a kind of metaphase of Coping and Changing. Three major dimensions were conceptualized, based on literature: Action, Grieving (including other emotional engagement, and Distancing (including both self-care and avoidance) (see Figure 2). The potential of Strong anxiety and/or Depression was posited to be always present, including burnout. The goal was named Adjusting and Transforming, which has many aspects, from psychological to ethical and practical (see Figure 3). Thus, the model helps to see the importance of various major aspects of coping, including taking healthy breaks (the healthy form of Distancing).

Two key interpretations were made in relation to the three dimensions: (1) An overly one-sided emphasis on any one of them seems to lead to problems and towards stronger anxiety or depression or burnout; and (2) All three dimensions seem to be needed at least to a certain extent in order to practice coping, adjustment and transformation. Thus, the model predicts trouble if any one (or two) of the dimensions is missing or seriously obstructed: people need more effort and time to adjust in those situations.

The goal of Adjusting and Transforming was discussed in relation to many other frameworks and terms related to outcomes, such as meaning, acceptance, and post-traumatic growth (see Table 3). In the following phase of Living with the Ecological Crisis, many similar dynamics continue, but there are also changes. Grieving gives relative space to encountering also other emotions and self-care is now the prevalent form of distancing (see Figure 4). Overall, awareness about reactions has grown, which gives more possibilities for control. The relationship between the new model and other frameworks is explored in Supplement Table S1.

The new model is hoped to benefit both research and practice. The article can potentially help researchers from various fields to see connections between their approaches. A few ideas about the application of the model into education and therapeutic settings were provided. Many themes for further research were explored. The model reflects its sources: thus, the applicability of the model for various populations should be studied.

Overall, the model testifies to the complexity of the process, to the fundamental adaptive character of eco-anxiety and ecological grief, and to the possibility of experiencing these issues so strongly that support is needed. Many kinds of emotions and mental states may be present. The model is built on the idea that there can be psychological and ethical progress, but there is bound to be fluctuation, too; hopefully, this would increase empathy and understanding among various audiences.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/su142416628/s1, Table S1: Various approaches and the new model.

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