

This is a pre-copy-editing version.

The definitive publisher-authenticated version is available online, doi:

<https://doi.org/10.3197/096327121X16328186623850>

## People's Conceptions and Valuations of *Nature* in the Context of Climate Change

GISLE ANDERSEN

*NORCE Norwegian Research Centre.*

*P.O.B 22 Nygårdstangen, NO-5838 Bergen, Norway*

*E-mail: [Gisle.Andersen@norceresearch.no](mailto:Gisle.Andersen@norceresearch.no)*

*ORCID: 0000-0002-1496-9643*

KJERSTI FLØTTUM

*Department of Foreign Languages*

*University of Bergen*

*P.O.B 7805, NO-5020 Bergen, Norway*

*E-mail: [kjersti.flottum@uib.no](mailto:kjersti.flottum@uib.no)*

*ORCID: 0000-0003-0834-824X*

GUILLAUME CARBOU

*University of Bordeaux, SPH (EA 4574)*

*821 Av. Michel Serres, IUT GACO, 47000 Agen, France*

*E-mail: [Guillaume.Carbou@u-bordeaux.fr](mailto:Guillaume.Carbou@u-bordeaux.fr)*

ANJE MÜLLER GJESDAL

*Østfold University College*

*P.O.B 700, NO-1757 Halden, Norway*

*E-mail: [anje.m.gjesdal@hiof.no](mailto:anje.m.gjesdal@hiof.no)*

*ORCID: 0000-0002-3120-268X*

### ABSTRACT

This paper investigates how people conceive and evaluate nature through language, in a climate change context. With material consisting of 1,200 answers to open-ended questions in nationally representative surveys in Norway, we explore what semantic roles and values the respondents attribute to nature as well as to how they interact with the public debate about climate change. We observe that different conceptions and valuations of nature are tied to different perspectives on the climate change issue: some address the responsibilities of causing climate change, others its consequences, and others yet its potential solutions. The study provides knowledge about the variety of conceptions of nature that can be mobilised by individuals and suggests that policy measures and public communication could benefit by taking this diversity into account.

*Environmental Values*

Submitted 21 May 2021; accepted 8 September 2021

© 2021 The White Horse Press. doi:

## KEYWORDS

Nature, climate change, open-ended questions, semantic roles, dialogism, valuation

## 1. INTRODUCTION

How people think, talk and write about nature is crucial for understanding the diversity of public perceptions of environmental issues. The value we assign to nature and the way we construe nature as an object of public deliberation is central for tackling environmental issues, and language is essential in shaping these processes. Previous research suggests that recent decades have seen a shift in our understanding of nature, of the relations between humans and nature, and of why nature is valuable. Put briefly, existing research indicates that environmental harm has increasingly been accepted in public debates as a global, potentially irreversible and existential problem (Andersen 2017; Hajer 1995; Lash, Wynne and Szerszynski 1996). These changes are closely related to the valuation of nature – i.e. the normative foundation for environmental policy, which is expressed by the fact that the reasons for protecting nature from destruction and controlling environmental harm have changed in fundamental ways over the last century (Andersen 2017; Warde and Sörlin 2015; Warde, Robin and Sörlin 2018). In sum, this process can be understood as a potential reconfiguration of the human understanding of the relation of humans to nature, and can be taken to be a cultural condition for societal development and for tackling environmental change.

In order to explore this issue, the present article addresses the interaction of human valuation of nature with public perception and responses to climate change. Through a linguistic and discursive analysis, the aim of this paper is to describe the semantic properties of different occurrences of the word ‘nature’ in the responses to open-ended survey questions about climate change. Our overarching research question can be formulated as follows: How is nature conceived by people when they are not asked about it directly, but through questions related to the phenomenon of climate change?

Our material consists of 1,200 answers containing the noun ‘nature’ or the adjective ‘natural’, stemming from open-ended questions in nationally representative surveys in Norway (2013–2019). Through this material, we explore what *semantic roles* (i.e. agent, patient, instrument etc.) and properties (i.e. fragile, sacred, useful etc.) the respondents attribute to nature as well as how they interact with the public dialogue about climate change. Specifically, we show that different conceptions of nature are related to different issues within the climate change debate and even more to different political ramifications of it. Based on our data, we develop a typology of the conceptions of nature that

CONCEPTIONS AND VALUATIONS OF *NATURE*

illustrate how the various ways nature is spoken about *also* present implicit or explicit arguments for different policies meant to tackle the climate change issue.

By examining the intersection of conceptions of nature and perceptions of and responses to climate change, this article connects with recent advances in the larger debate on nature's valuation (Neuteleers 2020). Our analysis indicates that the conception of nature as an autonomous agent is strong in the public discourse, suggesting a potential euphemisation of the anthropic role in climate change and in its mitigation. Furthermore, we find that people mobilise three main forms of nature's value: *instrumental*, *intrinsic* and *relational* (see section 4). Relational valuation is currently discussed in the field of environmental ethics, especially as a potential 'third way' beyond the more classical divide between instrumental and intrinsic modes of valuation (Hourdequin 2015), and is widely believed to be important for tackling environmental issues. This 'new ecological paradigm' (Klain et al. 2017) has been essentially discussed in theoretical literature, while a few empirical studies have found traces of its expression in the general public via questionnaires or interviews about pro-environmental motivations (Arias-Arévalo, Martín-López and Gómez-Baggethun 2017; van den Born et al. 2018). Our study contributes to this literature and shows that relational valuations can also be observed without asking directly about motivations for environmental protection, suggesting that this mode of valuation of nature is deeply rooted in public worldviews.

Moreover, the paper is situated in the field of language-oriented and discourse-based studies of the public perception of environmental issues and specifically climate change (see e.g. Fill and Penz 2017; Grundmann 2021; Koteyko and Atanasova 2016; Nerlich, Koteyko and Brown 2010; Stibbe 2014). We add to this body of research a semantic analysis, which allows for a fine-grained classification of different uses of the word 'nature' in short decontextualised texts. More broadly, our analysis illustrates the analytical potential for methodological approaches rooted in linguistics and how they can be combined with data from open-ended survey questions.

Finally, this analysis may provide valuable knowledge for different stakeholders and politicians that are involved in promoting measures to limit climate change. Our work could thus be used as a recommendation to authorities and politicians to help them take into consideration the debate embedded in the respondents' answers, and to acknowledge both agreement and disagreement about measures where nature is involved and perhaps better align people's conceptions to different policies.

In the following, we present our theoretical framework (Section 2) before laying out our material and methods (Section 3). In Section 4, we display quantitative results of the analysis accompanied by authentic examples. In the final Section (5), we undertake a discussion of our research, including limitations as well as suggestions for future research.

## 2. THEORETICAL FRAMEWORK – SEMANTIC ROLES AND VOICES IN DIALOGUE

In this paper we contribute linguistic and discursive analysis to the growing literature on the societal and cultural consequences of global environmental change. We do so by exploring what semantic roles are assigned to nature in open-ended survey questions. This is motivated by an interest in the changing relations between humans and nature and how nature is valued. Previous research also underlines the contribution of linguistic and rhetorical analyses of argumentation in debates on contested issues such as climate change (for a selection of such studies, see: Carbou 2015; Fløttum and Dahl 2012; Fløttum 2016, 2017; Fill and Penz 2017; Haunschild et al. 2019; Koteyko and Atanasova 2016; Nerlich, Koteyko and Brown 2010; Pearce et al. 2015; Stibbe 2014; Tvinnereim et al. 2017).

A mixed semantic and dialogic approach constitutes the main theoretical framework of the analysis. We perform our analysis in two steps: 1) an analysis of *semantic roles* and 2) an analysis focusing on *dialogic interaction* between survey answers and public debate.

Firstly, analysing the semantic roles given to ‘nature’ by the respondents allows us to describe its features (i.e. agent, patient, dangerous, fragile etc.) as well as the relations it has with other elements such as ‘humans’, ‘disasters’, ‘climate’ and so on. In order to classify the various occurrences of ‘nature’ in the material, we apply a simplified version of Fillmore’s ‘Case for Case’ theory (Fillmore 1968, 1977) inspired by Kós-Dienes (1985). This semantic approach allows us to concretely identify various roles of ‘nature’ and indicate their relation(s) to other roles. In short, different nouns or noun groups in a clause may take on different semantic roles corresponding to different participants being part of a given situation. According to Kós-Dienes (1985: 2), Fillmore situates the roles within ‘the semantics of the inner structure of the clause’. Fillmore proposes several semantic roles (not all being fully defined), such as agent, experiencer, instrument, object, source, goal, location and time. In our simplified version, we will use only two, AGENT and PATIENT. This simplification is due to our approach focusing on ‘nature’ as an entity that has an influence on its surroundings and on people’s lives (AGENT) or as an entity that is affected by humans’ activities (PATIENT). We define them in the following way:

AGENT: the semantic role of a noun phrase denoting a person, a group of persons or a force/thing that takes an active role or produces a specified effect.

PATIENT: the semantic role of a noun phrase denoting something that is affected or acted upon, typically by the action of a verb (in Fillmore 1968, this role is named ‘experiencer’).

Through our second analytical step, a dialogic perspective (i.e. based on the conception that we all speak in relation to previous or subsequent discourses)

## CONCEPTIONS AND VALUATIONS OF *NATURE*

further enriches the semantic role analysis, with regard to the way in which the answers relate or reply to environmental discourses circulating in society (Bres 2007; Bres, Nowakowska and Sarale 2016). This analysis will provide important knowledge about how people's conception of nature interacts with various discourses that are currently developing in the context of the climate change debate.

Since the main issue in the present paper concerns answers given to open-ended survey questions, there is at the outset a dialogue taking place between the survey and the respondent (Fløttum, Gjerstad and Oloko 2019; Langaas, Fløttum and Gjerstad 2019). In the present study, however, the focus will be on the 'dialogue', implicit or explicit, taking place between the respondents and the surrounding debate. Inspired by various approaches to multi-voicedness, or linguistic polyphony (Nølke, Fløttum and Norén 2004), the analysis undertaken here will mainly adopt the perspective developed by Gjerstad (2011) in what he calls 'discursive polyphony'. Following the Russian semiotician Mikhail Bakhtin, we adopt the crucial perspective that discourse is fundamentally dialogical. As expressed by Gjerstad (2011: 5), '[n]o one speaks in complete isolation from what has been said before or without considering how the message will be received. The voice of "the other" is therefore present in any utterance, whether or not this presence is signalled by specific linguistic markers' (see above; a similar perspective is formulated by Bres, Nowakowska and Sarale 2016: 80).

By taking into account the linguistic structures in which nature is integrated, this analytical step allows us to relate the semantic roles to surrounding debates, and to dialogue or interaction with the current public debates. We analyse how people's conceptions of nature interact with various discourses that are currently developing in the context of the climate change debate, and how the different conceptions of nature are often embedded as part of competing worldviews and opinions in public debates.

The main types of interaction that are relevant here are a) that which is oriented towards previous discourse on the same subject, called 'interdiscursive dialogism', by which the speaker reproduces or echoes what has already been expressed on a given topic; and b) the so-called 'interlocutive dialogism', where the speaker's response is oriented towards a possible anticipated response (Bres, Nowakowska and Sarale 2016). This analytical perspective requires the researcher to perform a constant back and forth comparison between the actual answers given in the survey and the surrounding socio-political context and public discourse.

In sum, this analysis allows us to link the different answers with the implicit issues they relate to, and the different political ramifications they could have. A fine-grained approach will be introduced to analyse some answers that contain specific words marking an explicit presence of other voices than the one of the respondent – i.e. linguistic polyphony (Nølke, Fløttum and Norén

2004). This approach portrays the discourse as a meeting point between different voices, even different narratives. We postulate that the dialogic and the polyphonic perspectives are particularly suitable for discourse that is part of a large and broad debate involving many different voices, such as the climate change debate. This double perspective of semantics and dialogism, of role and voices, will constitute the basis for our interpretation of the occurrences of 'nature' in the material under study here.

Although our analytical approach is anchored in linguistics, it is highly relevant for the broader scholarly debate on the valuation of nature. Blok (2013) shows that there exists a multitude of different ways of making 'nature' relevant in public debates, and he encourages researchers to pay more attention to understanding this diversity. This is a type of question that begs a qualitative approach to interpret the meanings and feelings that actors express. As a consequence, previous analyses have typically been case-based or ethnographic studies that provide in-depth understanding, but where it is uncertain if the results can be generalised (Andersen 2017; Anker 2018; Blok 2013; Jasanoff 2005). In our contribution, we add to this research by combining the theoretical approach outlined above with the analysis of a material of a unique set of representative surveys with answers to open-ended questions collected as part of survey panels (2013–2019). This provides a larger material which allows us to systematically map the many ways the respondents make nature relevant in their answers. The results display a systematic linguistic mapping of the valuation of nature expressed in our corpus and add an important dimension to the knowledge provided by previous studies mentioned above.

### 3. MATERIALS AND METHOD

#### *Materials*

The analysis is based on data consisting of a total of 13,507 answers to open-ended survey questions about climate change through the years 2013–2019, from the Norwegian Citizen Panel (NCP). The NCP is part of the Digital Social Science Core Facility (DIGSSCORE, <https://www.uib.no/en/citizen>), based at the University of Bergen. It is a unique representative Norwegian online panel where participants are recruited randomly from Norway's population register of people above the age of 18.

This paper focuses entirely on questions of the open-ended type, such as: 'What comes to mind when you hear or read the expression "climate change"?' (see table 1 for alternate question wordings that are also included). Answers to such questions provide insight into more fundamental attitudes and associations than closed-ended questions with pre-defined response options, selected and defined by the researchers undertaking the survey (Stoneman, Sturgis and

## CONCEPTIONS AND VALUATIONS OF *NATURE*

Allum 2013).<sup>1</sup> When respondents can express their views in their own words and framing, their answers provide richer and more nuanced data than with fixed-response questions, adding great value to knowledge about the diversity of people's ways of speaking about nature. The answers vary in length, from one single word up to more than 300. Table 1 offers an overview of the data sets including the open-ended questions.

Table 1: Overview of material of survey questions 2013–2019 from Norwegian Citizen Panel

Year in field	Panel wave variable*	Question wording	N answers	N occurrences studied	Proportion Nature occ. / Answers
2013	1 / km31	A**	2115	176	8.3 %
2014	3 / km1	A**	793	89	11.2 %
2015a	4 / km12	B***	1266	78	6.2 %
2015b	5 / km1	B***	3370	101	3.0 %
2016	6 / km61a	A**	1106	81	7.3 %
2017	8 / km1	A**	4394	411	9.3 %
2018	13 / km1	A**	2620	190	7.3 %
2019	15 / kmmot	C****	876	74	8.4 %
Total			13,507	1200	8.9 %

\*The first number refers to the wave of the Norwegian Citizen Panel in which the question is included. Abbreviations such as 'km1' and 'kmmot' refers to the identifier of the question in the codebook of the actual surveys.

\*\*Question A: What comes to mind when you hear or read the expression 'climate change'?

\*\*\*Question B: When it comes to climate change, what do you think should be done?

\*\*\*\* Question C: Those answering YES to this question: 'Have you changed your way of life to help limit harmful climate change?' were given an additional open invitation to respond to: 'We would like you to tell us what has motivated you to change your way of life.'

### *Method*

Our goal is to describe the way that respondents talk about nature, when they are *not* explicitly asked about conceptions of nature. The analysis will focus on the pivotal stem 'natur'. This choice obviously limits the scope of our analysis of the representations of nature, since people may express such conceptions without using the word *nature* itself. It enables a systematic approach, however, and more importantly does not allow our own conceptions of nature to interfere with the analysis. In a nutshell, we can express the question we ask our corpus in this way: What are the respondents talking about when they use the stem 'natur-'?

After anonymising the collected data, all the answers containing an occurrence of the noun 'nature' (Norsk: 'natur'), the adjective 'natural' ('naturlig') or compounds such as 'natural catastrophe' ('naturkatastrofe') and 'nature

1. For other studies using open-ended questions in environmental and climate-related studies, see Lorenzoni and Pidgeon 2006; Smith and Leiserowitz 2014; Shwom et al. 2010; Tvinnereim and Fløttum 2015.

conservation/protection' ('naturvern') were extracted, yielding a total of 1,200 answers.<sup>2</sup> This was followed by several systematic in-depth readings of these answers in order to classify the semantic roles attributed to nature. This work was guided by the theoretical framework and our interpretation of the meaning of the answers. For some answers, various interpretations were discussed among the authors before we concluded on five main categories, including an 'other' category for answers that are difficult to fit to a semantic role. In our first analysis of the answers we were also interested in changes across the data collection period (2013–2019). We know that, in addition to personal values and interests, media coverage and political debates influence people's opinions and attitudes. In some of the surveys we noted that topics mentioned by the respondents are to some degree shaped by national Norwegian events. We did not, however, find clear trends for changes across the study's time period, in regard to the semantic roles attributed to nature. As a consequence, we combine data from the different surveys, and only report variations between the three different question wordings (see Table 1)

#### 4. RESULTS OF THE QUALITATIVE ANALYSIS

##### *Semantic roles given to 'nature'*

As a first analytical step, we classified the semantic roles given to nature in the 1,200 responses. We suggest a rough set of four main categories and a fifth category of non-classified answers ('Other' category). In the presentation of the categories below, we suggest one or two examples to illustrate the most frequently represented categories in the data set, viz. agent and patient, and then provide a more detailed qualitative analysis.

##### **1) Nature as AGENT → Autonomous nature**

In the first category, covering answers taken from the data set with quasi-complete clauses or just a simple noun phrase, nature has a clear AGENT role. The agency can be realised in different ways, however. In some cases, it seems to represent a conception of nature as autonomous, in the sense of being out of human reach, taking an active role or producing a specific effect – climate change, in our case. Answers often refer to 'natural cycle' or 'natural variation':

##### (a) The course of nature/Nature's cycle

From a dialogic perspective, *the course of nature* (a) can be interpreted as an elliptic form of 'Climate change is the result of the course of nature' with an implicit contrast to or even express dissent from 'climate change is human

2. In practical terms, the complete dataset (n=13,507) was imported to the software 'R'. We used the Quanteda data package (Benoit et al. 2018) to identify all answers that contained the stem 'natur' (n=1,200). This dataset was then used in a systematic qualitative analysis.



## CONCEPTIONS AND VALUATIONS OF *NATURE*

induced'. In other cases, as in b), we see some kind of double agency, where both humans and nature are causes of climate change:

(b) *Both human and naturally induced*

As a third case, we have observed answers as in c), where *nature* still has a clear agent role – thus it has autonomy, but is nuanced by human activities:

(c) *Natural phenomenon, but which humans accelerate*

In c) we note a dialogue between two different points of view, linguistically marked by the contrastive and concessive connective *but*. This connective contains the instruction that what is coming before *but* is agreed to, and that what is coming after *but* is considered as the most important argument, here and now. These two points of view, also explicitly present in b), are discursive manifestations of the polyphony characterising the current deliberation on causes of climate change. Through the polyphonic lens we are able to identify such different points of view brought in by the respondent without making explicit the source of the point of view with which he/she is conversing. In a context where anthropogenic climate change is the wide scientific consensus, this kind of answer may be seen as an euphemisation of human responsibility towards climate change. It may also be read as a balanced way to advocate for human responsibility. All in all, the observed variation in this category shows that the anthropogenic cause of climate is under debate in the general public.

### 2) Nature as REACTIVE AGENT → Reactive Nature

In the second category too, nature takes on a clear AGENT role. It is different from Autonomous nature in the sense that it puts a distinct emphasis on nature's reactions to climate change, mostly through its dramatic consequences. We therefore name this category 'reactive nature'. The answers often consist of lists of different aspects of natural catastrophe as well as various natural and weather phenomena that can be harmful to people, as in the following example: *Natural catastrophe and extreme weather causing human suffering*. Concrete injury to people is sometimes explicitly mentioned. In general, this category highlights that the respondents consider climate change a direct threat.

### 3) Nature as PATIENT, humans as AGENTS → Fragile nature

In the first two categories, nature is interpreted as having the role of AGENT, in different ways. This changes in the third category where nature assumes the role of PATIENT, i.e. something fragile that is affected or acted upon. In this case, humans are clearly the AGENTS, often admitting that they are the cause of the harm, but most importantly, taking on the role of AGENT in protecting and/or respecting nature:

(a) All/we should take care of/protect nature

(b) We must stop violating nature

Here we see two typical linguistic devices used to express obligation, viz. the modal deontic verb forms *should* and *must*. The dimension of taking care of/protecting nature (as expressed in [a]) is an echo of what is often heard in the public debate, and in dialogic terms an example of ‘interdiscursive dialogism’. The respondent reproduces what has already been expressed (what he/she has heard or read) on a given topic. As it addresses what should be done to tackle climate change, this category is of special interest for an investigation of the various policies that can be associated with different conceptions of ‘fragile nature’. As we will see below, respondents preferred protection policies may vary strongly depending on the features they associate with nature (as home, resource or treasure).

#### **4) Nature mentioned as a single word or in a single compound expression → Mention**

This category has a special status since it covers the cases where the answer contains just the single word ‘nature’ or ‘natural’ or compounds such as ‘natural catastrophe’. We classify these examples as *Mention* because it is problematic to attribute a specific role to a single word when there is no verb included in the answer; the answer does not have the form of a clause in such cases.

In this category, we also include answers that contain only the single compound ‘natural catastrophe’. Although the ‘catastrophe’ part definitely expresses something more than just mentioning nature, we also find it difficult to give these answers any further interpretations.

#### **5) Other**

This category has been established to serve as a catch-all for cases that are difficult to classify within the categories we have proposed, such as the following example: ‘Norway should use its natural (given) advantages for large-scale storage of CO<sub>2</sub> on the (continental) shelf’(2015,4,27).<sup>3</sup> Other examples include a few answers where nature is given a semantic role as an object of love or desire (N=7) and where respondents emphasise the value of knowledge and information about nature (N=11), helping them to see the importance of tackling climate change. The latter examples are the reason for the high share of answers from question wording ‘C’ in the Other category.

#### **Distribution of main categories**

Table 2 describes the distribution of the five main categories in the material.

---

3. The numbers inserted after each example, e.g. (2017,8,72), refer to our notation system: 2017 corresponds to the year the actual survey was fielded; 8 to the actual round of the survey; 72 to the number of the actual example.

CONCEPTIONS AND VALUATIONS OF *NATURE*

Table 2: Distribution of categories in open-ended survey questions, depending of question wording (percentage share).

	Question wording A*	Question wording B**	Question wording C**
1. Autonomous nature	52 %	33 %	4 %
2. Reactive nature	31 %	1 %	1 %
3. Fragile nature	11 %	64 %	72 %
4. Mention	5 %	0 %	0 %
5. Other	1 %	2 %	23 %
	100 %	100 %	100 %
Total N	947	179	74

\*Question A: What comes to mind when you hear or read the expression ‘climate change’?

\*\*Question B: When it comes to climate change, what do you think should be done?

\*\*\* Question C: Those answering YES to this question: ‘Have you changed your way of life to help limit harmful climate change?’ were given an additional open invitation to respond to: ‘We would like you to tell us what has motivated you to change your way of life.’

First, we observe notable differences between the questions directly asking about associations with ‘climate change’ (question wording A) and the questions related to specific aspects of the climate change context (question wording B and C). The main difference is that *Fragile nature* is most frequent when question wording B and C are used, related to more specific aspects of the climate change context, viz. solutions to climate change and motivation for lifestyle change, respectively. In other words, *Fragile nature* becomes more salient when respondents engage with measures to combat anthropogenic climate change (Question B) as well as with their own motivations for changing their life style. This points to an interesting link between the valuation of nature and respondents’ life style choices that will be further addressed in the Discussion section. Second, we observe that *Autonomous nature* is most frequently represented in answers to the general question of associations with climate change (question wording A), but also quite frequent in answers to the question related to solutions (B). It is important to note that this category includes answers denoting a double agency, where both humans and nature are identified as causes of climate change. Finally, we note that *Reactive nature* is the most frequent category in answers to the general question of associations with climate change (question wording A). This could be a sign of the rising concern for the increasingly visible consequences of climate change.

### *Exploring the political ramification of various semantic roles*

We now aim to describe the internal heterogeneity of categories 1–3. We focus on these categories because they are the most frequent, and display large variety in both content and language, and show the most interesting relations to the public dialogue about climate change. In the work of exploring this variation within and across them, we found that the three main categories implicitly answer three different questions about climate change: What can we do

against climate change? What are its consequences? Who is responsible for it? Secondly, by reading the answers in each category as answers to the different questions, we teased out interesting variations within each category. Based on this analysis we develop a typology of the conceptions of nature that illustrates how the various ways nature is spoken about, also present implicit or explicit arguments for different policies meant to tackle the climate change issue.

### **Who's responsible for climate change?**

In category 1, *Autonomous nature*, we observe an internal variation in the answers that justify the distinction between two significant positions.<sup>4</sup> In the first subcategory, which we call 'Natural phenomenon', nature is clearly the unique agent of climate change. In the second subcategory, 'Double agency', respondents explicitly state that even if they consider climate change a natural phenomenon, human activity is also a more or less important factor. This distinction is important since while the first category can be considered 'climate denialism', the second is more balanced. Both subcategories are perfect examples of dialogism, explicitly reflecting the continuous debate – public, political and scientific – between denialism and scientific consensus on the causes of climate change.

The sub-category 'Natural phenomenon' includes answers ranging from single noun phrases (NPs) of the type 'Natural cycle' to elaborate and quite long answers bringing in different aspects more or less related to *nature*. Here are some examples:<sup>5</sup>

(i) That our planet (nature) has a particular ability to repair itself. (2017,8,72)

Answer (i) underlines the autonomy of nature, being independent of human activity. It is dialogic in the sense that it represents an implicit refusal to acknowledge human-induced climate change. We also find this attitude explicitly manifested in answers like the following:

(ii) A human being is not able to change the climate. After all, this is nature. It is very difficult to resist the natural catastrophe. (2013,1,38)

In the polyphonic answer (ii), we see the explicit disagreement, through the negation *not*, with the underlying voice saying that 'a human being is able to change the climate'. Even though we observe various ways of stating the answers, there is no doubt that the answers classified in this category express a firm belief in the strength of nature as an autonomous agent.

4. As a general remark, we emphasise that respondents may include different variations of their nature conception in one and the same answer, or different formulations susceptible to various interpretations, which could justify a classification of the example in more than one category. In spite of this, we have chosen to classify each answer in one category only, based on what we see as the most salient conception in that answer.

5. All examples have been translated to English (more or less literally) by the authors. See the appendix for the original language used in the examples.

## CONCEPTIONS AND VALUATIONS OF *NATURE*

The second sub-category of Autonomous nature is *Double agency* where answers generally present both nature and humans as agents. The respondents signal this double agency in different ways. Sometimes they just refer to both ‘human made and natural variations in the climate’ (2018,13, 10), signalling a coordination or juxtaposition between the two agents. Other answers give different weight to the two factors. We observe various formulations oriented towards prioritising one of the two at the expense of the other. In answer (iii), we see a modest emphasis on nature at the expense of humans:

(iii) That the climate changes over time. These are natural variations. Yet it cannot be excluded that changes are partly caused by humans. (2013, 1, 1)

Some respondents seem to be uncertain and to question the cause, for example by adding a ‘perhaps’ to suggest that both are agents, or by formulating their uncertainty as a question:

(iv) Weather and temperature variations ... the conflict between those who think it has to do with natural variation and those who say it is human made. The truth is probably somewhere in between ... perhaps. (2017,8,8)

(v) Changes in weather, temperature and the cleanness of air. What is human made? What is the natural cycle of the earth? (2013,1,32) In addition to these non-polemic answers, however, we find several that clearly argue for one or the other as the most important. In these answers, we see clear traces of the dialogue on the attribution of climate change in the public debate. A characteristic trait is the presence of the connective *but* (‘men’), which, as explained above, contains the instruction that the argument preceding *but* is accepted, while the following argument is considered the most important and prioritised argument, here and now:

(vi) It has to do with natural variation, but these are heavily intensified by human emissions. (2014,3,37)

(vii) That the largest part comes from humans, but much comes from nature, volcanic eruption, earthquakes and certainly other things. (2018,13,7)

The dialogic character of the answers in *Double agency* is obvious, expressing both hesitation about the causes of climate change and certainty about what is the most important agent. The respondents seem to be well aware of the presence of these different voices in the public debate. Many have sided with one of the two main points of view, but many still express some ambiguity (see Tvinnereim and Fløttum 2015 for a similar conclusion).

### **What are the consequences of climate change?**

In *Reactive nature*, the agency of nature is not oriented towards the causes of climate change but towards its consequences. Simply put, this category includes answers that talk about dangerous natural phenomena associated with

climate change. From a dialogic viewpoint, this category may be seen as an answer to the question ‘what are the consequences of climate change?’ and it implies an inhospitable nature. The answers focus on nature’s reactions through spectacular and often dangerous consequences of climate change. Despite the great variety of answers in this category, unity emerges from the notion of ‘natural catastrophe’, appearing in the large majority of cases. The typical answer lists different weather phenomena and natural catastrophes, such as ‘ice melting, drought, bad air, hurricanes, typhoons ... and other and more frequent natural catastrophes’ (2013,1,64). The answers sometimes also detail the potential consequences for humans, and an expectation that dramatic weather correlates with various human sufferings is frequent:

(viii) Wilder, wetter and warmer weather that leads to more natural catastrophes and more hunger, distress and poverty. (2018,13,37)

The listing of ‘wilder, wetter and warmer’ has become a kind of popularised slogan or discursive ‘formula’ (Krieg-Planque 2010) over the last 10–15 years. It originates in the scientific community, and describes how climate change may affect the weather, now and in the future. This formula also echoes the lived experiences of inhabitants of regions affected by the effects of climate change across the world, including Norway. Discursive formulae such as this are examples of interdiscursive dialogism, where the respondent echoes what has already been frequently expressed in a climate change context. For some respondents this could also echo what they have experienced. Some answers that are classified as *Reactive nature* also point out the loss of biodiversity (extinction of animals and plants) as a reaction in nature to climate change.

The category of *Reactive nature* highlights the fact that people tend to consider climate change as a dangerous process for humanity. We note, however, that the answers present extreme weather and other natural events as mere physical responses of the planet to GHG emissions. This observation is not in line with previous literature that shows a noteworthy presence of anthropomorphic conceptions of nature. In ‘Gaia’s revenge narratives’, for example, an animated nature, presented in the form of ‘Gaia’ or ‘Mother Earth’, is avenging itself or punishing humanity for its sins, greed, lack of humility etc. (Skrimshire 2014). We find it interesting to note that we did not find any occurrence of ‘nature’ being seen as a kind of vengeful entity. Further research is needed to determine the potential reasons for this absence, as it could be related to cultural factors, different framings of climate change, or linked to the specificities of our corpus.

### **What can we do about climate change?**

Although some responses in categories 1 and 2 mention climate change coping policies, this is the prime topic in the answers classified under category 3, *Fragile nature*. In this category, where nature appears as PATIENT and

## CONCEPTIONS AND VALUATIONS OF *NATURE*

humans appear as AGENTS, responses often suggest the ‘right’ actions that are considered necessary. Nature is presented as something fragile, acted upon by humans.

Generally, this category covers answers expressing that humans have brought or bring harm to nature while at the same time, and perhaps first and foremost, that they will take on the AGENT role of ‘protecting’ or ‘respecting’ nature. We also see concern about biodiversity, such as protection of rain forests, coral reefs and wild animals. Furthermore, there is a clear deontic tone (especially through the modal verb *must*) in the answers, pointing at the obligations that humans have in safeguarding nature, which is another manifestation of dialogism. Many of the answers seem to echo the imperatives often expressed by various environmental NGOs. This protecting role is manifested through the many different verbs used, such as *protect, take care of, respect, preserve, manage, let be, live in harmony with*. The important semantic differences between these verbal expressions lead us to distinguish between three different kinds of fragile nature: *Nature as resource, Nature as a treasure* and *Nature as a home*.

The *Nature as resource* subcategory refers to the cases where the harming of nature is mainly a problem because nature is considered a useful resource for humans. In this case, answers ask to preserve ecosystemic services, stocks of food, and other kinds of ‘natural capital’. These answers often call upon the ‘sustainable management’ vocabulary, characterising another public debate on the UN Sustainable Development Goals, and suggesting that the protection of nature is a technical/scientific management issue:

(ix) We must manage nature in a sustainable way. (2015,5, 48)

In this perspective, human control of nature and natural processes are seen as normal and necessary. In respect to dialogism, responses that see nature as a resource often enter into debate with other environmentalist positions and criticise the idea that ‘nature’ should remain untouched or be considered sacred. From the ‘nature as a resource’ perspective, nature is primarily an exploitable material for humans:

(x) exert pressure on, inform environmentalists and the general public that, unfortunately, nature has to be disturbed in order to produce power that is not detrimental (wind mills, power cables and dams) to climate. (2015,4, 55)

The *Nature as a treasure* subcategory is different, primarily because the responses show a different stand on the issue of protecting nature. The answers gathered in this category claim that we should aim to preserve an ‘untouched’ nature, using the vocabulary of wilderness, pristine state or patrimony. Nature is seen as a kind of treasure that has to be preserved from the influence of human activity. In terms of protection policy, this leads to an inclination

towards ‘conservationism’ rather than ‘preservationism’, reflecting a traditional debate in Norway (see Anker 2018):

- (xi) We must protect what is left of forests, rainforests and other intact nature. (2015,5, 46)
- (xii) The entire world must cooperate about the shift from coal and oil to renewable energy. We must let large nature areas remain approximately untouched by humans. (2015,4,56)

In addition to these constructive requests, we find many direct imperatives such as the following:

- (xiii) Don’t drop litter in nature. (2015,4,59)
- (xiv) Stop polluting nature. (2015,4,59)

We classify these answers as a ‘treasure’ subcategory because they suggest a mainly protective attitude towards nature.

The third and final subcategory under *Fragile nature* is *Nature as a home*. In this perspective, nature is seen neither as a simple material to be manipulated nor as a sacred entity to be protected, but primarily as people’s very living space. The answers in this category are often characterised by a less dualist stance than the previous ones, and typically refer to some sort of entanglement between humans and their surrounding nature. They often also advocate neither for technical management nor devoted guardianship, but for prudent stewardship:

- (xv) We human beings have managed and exploited nature in a way that is completely reprehensible. What we do against nature, we do against ourselves. (2017,8,15)

These three subcategories capture ways of speaking about nature that can be related to the three main modes of nature’s valuation that are widely discussed in the environmental ethics literature. As mentioned above, it is common to distinguish between three types of value: instrumental, intrinsic and relational (O’Neill, Holland and Light 2008).

Instrumental value refers to the case where the valued object is considered of direct interest for the subject. This position is captured in our classification scheme by the category ‘nature as resource’. Intrinsic value refers to the case where the object is valued for itself, as if it had a value regardless of the good or bad it does for the subject. In our classification, the category ‘nature as treasure’ represents this mode of valuation, where the respondent wishes to preserve nature in its ‘pristine state’. Finally, relational value refers to a very different mode of valuation that can be called ‘pragmatist’ (Larrère 2010). In this case, the valuation is deeply context-sensitive and depends on the qualitative relations that have been built between two entities. It encompasses a part



## CONCEPTIONS AND VALUATIONS OF *NATURE*

of both instrumental value and intrinsic value. The best example of this kind of valuation in everyday life is the love for children or friends. They are beloved because of their relation to you in particular (you don't love all people as you love *your* children or friends), but they are also loved for themselves, beyond your self-interest, because you could sacrifice your interest for them.

To designate this kind of active relation, philosophers talk about *care* and *meaningfulness* as opposed to *interest* or *morality* (Tronto 1993; Frankfurt 2009). Regarding the question of nature, environmental ethics generally use the relational value category to describe the valuation of a landscape because it is particularly meaningful for a community, or to a natural place which is part of people's identity because they spend important time in it (such as family walks, child play and so on) (Neuteleers 2020). All in all, we can consider that this type of valuation occurs when people feel a deep connection with something, and, regarding what we call 'nature' here, when they feel 'at home', or in their very milieu. This is precisely the kind of valuation that we can find in the category *Nature as home*.

### 5. DISCUSSION

The aim of this paper has been to give an overview of people's conception and evaluation of nature, in a climate change context. In a first step, through an analytical approach based on semantic roles and dialogism, we have identified variations in how the respondents conceive of nature: as an *Autonomous Nature*, as a *Reactive Nature* or as a *Fragile Nature*. We have also shown that there are noteworthy differences between the answers that respondents give to questions asking directly about associations with 'climate change', and the ones related to specific aspects of the climate change context. In the latter group of questions (question wording B and C), we observe a predominance of answers classified in the *Fragile nature* category, while in the first group (question wording A), the most frequent category varies between *Reactive nature* and *Autonomous nature*.

In a second step, we deepened these results through a qualitative analysis. We have shown that each category is in a dialogical relation with three implicit questions related to the climate change issue (who's responsible for climate change, what are its consequences, and what to do about it?). For each of these questions, we showed that we could distinguish between various representations of nature that have different political ramifications. Table 3 summarises this analysis.

Table 3: Summary of categories, sub-categories and their potential political ramification developed through the analysis

CATEGORY	FRAGILE NATURE			REACTIVE NATURE	AUTONOMOUS NATURE	
DIALOGIC SUBCATEGORY	Nature as a treasure	Nature as a resource	Nature as a home	Inhospitable Nature	Double agency	Natural phenomenon
IMPLICIT QUESTION GUIDING DIALOGUE	What can we do against climate change?			What are the consequences of climate change?	Who's responsible for climate change?	
POLITICAL RAMIFICATIONS	Nature is an invaluable treasure and we have to protect it	Nature offers us services and we have to manage it well	Nature is our habitat and we have to take care of it	Climate change makes our planet inhospitable or dangerous for us	Climate change is partly natural, partly induced by humans	Climate change is a natural process and not induced by humans

When interpreting these results we should bear in mind that this typology is based on respondents who used the stem ‘nature’ in their answer to a general open-ended-survey question about climate change. As a consequence, our results provide knowledge about what people say when they use the word ‘nature’, specifically, but not about their general perception of climate change. We think that the knowledge about this sub-sample may nonetheless provide interesting and relevant knowledge for different stakeholders who promote and strive to realise measures aiming to limit the dramatic consequences of climate change, measures that at the same time may involve substantial intervention in nature. Although further research would be needed to formulate thoughtful recommendations in this regard, our point here is that understanding the various conceptions of nature that can exist in the public sphere, as well as their political ramifications, can help to build appropriate environmental campaigns and/or anticipate the reactions to different communications. As a prudent illustration of this suggestion, three main conclusions can be drawn from table 3.

Firstly, we see that climate change is widely understood as a danger for people (*Reactive nature*), at least when they are asked to speak about it. This observation can be interpreted as a good leverage factor for pro-climate action stakeholders, who can campaign on the necessity to ensure a safe future. Indeed, while the literature on the subject highlights the shortcomings of catastrophic environmental communication – which could cause not just denialism, apathy, fatalism etc., but also some forms of environmental politicisation (Semal 2019) – and emphasises the need to build positive narratives and suggest concrete actions to tackle climate change (Corner, Shaw and Clarke 2018), we can nevertheless think that a baseline of ‘safety’ in environmental communication should address public expectations in this regard.

Secondly, despite this acknowledgement of the danger of climate change, we observe that debates about human responsibility for climate change are

CONCEPTIONS AND VALUATIONS OF *NATURE*

still a relevant concern in public opinion, regardless of the wide scientific consensus on the subject (*Autonomous nature*). If the reality and the harmfulness of climate change does not seem to be challenged, there is still a hesitation, at least, about the degree of humans' role in the process. Policy-wise, this observation is in line with a large part of the environmental communication literature which reflects on the limits of classical environmental communication (Nisbet et al. 2018): the efforts made by the scientific community and pro-environment media or politicians have failed to render the fact of anthropogenic climate change undeniable. Anti-environmental lobbying obviously has an important role in this (Oreskes and Conway 2010), as does the fact that climate change can't be directly experienced as such: people suffer some of its consequences, but the direct link with anthropic activity is hard to make. This may be further reinforced by the 'shifting baseline syndrome' (Pauly 1995) and 'environmental generational amnesia' (Khan 2002), which lead people to forget past environmental states and to consider new (degraded) states as the norm. These elements may partially explain why the feeling of urgency is not prominent in the public debate about climate change. They could be taken into account by pro-climate action stakeholders when campaigning about the urgent need for major human action.

Thirdly, we consider our most important result to be the observation of three modalities of that can make a *Fragile Nature* relevant. The first two are quite widespread: instrumental valuation, for example through the promotion of ecosystemic services, and intrinsic valuation, through the advocacy for the protection of a pristine nature. The third is the remarkable manifestation in the general public discourse of a relational mode of valuation of nature which is actively discussed in the academic literature. Seeing relational values about nature expressed in answers to questions which do not directly ask about it offers an important insight for policy makers and pro-climate stakeholders. Indeed, as shown in the field of conservation psychology, the feeling of personal connection with the environment is the basis for attitudes of care and pro-social and environmental behaviours, as distinct from instrumental management and devoted protection (Clayton and Myers 2009). Some ethicists consider that public policies and activist narratives could draw on the 'transformational power of care' to tackle environmental issues (Laugier 2015; Petit 2014). The presence of the 'nature as home' conception in our corpus suggests that such a strategy could find some success.

Finally, the study tells us how nature may be valued, and what political measures may or may not receive support in society.

There are also some limitations to our study. First, the questions asked are not focused on nature and therefore may miss out on aspects related to topics other than climate change. Second, it is reasonable to expect that some answers relate to 'nature' but without using the word itself, and our analysis did not capture such cases. This means that we have not captured indirect references

to natural entities, such as flora, fauna or biodiversity. Third, the formulation of the questions is particularly important in the sense that they may orient the respondents on particular paths. Even though the results related to the high frequency of the *Fragile Nature* category may partly be explained by ongoing public debates and engagements, we believe that the main reason is the form that these questions have (see table 1), orienting the respondents to think about solutions to climate change (wording question B) and about motivation for lifestyle changes (question wording C).

In spite of these limitations, our study illustrates that a systematic semantic analysis can produce a fine-grained categorisation of the discursive construction of general notions such as ‘nature’ in the public discourse. Regarding climate change in particular, our study highlights the noteworthy diffusion of a relational mode of valuation of nature in the public discourse. Observing the broad diffusion of this idea outside of the scientific community of environmental ethics is in our opinion an interesting sign of the general public’s permeability to discourses and policies based on the less widespread philosophies of care.

## FUNDING

This work was supported by the Research Council of Norway, grant number 283324.

## ACKNOWLEDGEMENTS

We would like to thank the Norwegian Citizen Panel (NCP)/DIGSSCORE, University of Bergen, for helpful collaboration in providing survey data, and the panel ELIPSS, SciencesPo, Paris, for collaboration concerning a French survey. We are also grateful to the research group Climate and Environment, affiliated to NCP, and the LINGCLIM group, University of Bergen, for valuable discussions on survey question formulations. Thank you to Laura Saetveit Miles for providing language help. We wish to thank the reviewers for valuable comments and suggestions to our paper.

## REFERENCES

- Andersen, Gisle. 2017. *Parlamentets natur. Utviklingen av en legitim miljø- og petroleumspolitikk (1945–2013)*. Oslo: Universitetsforlaget. <http://www.doi.org/10.18261/9788215028132-2017>
- Anker, Peder. 2018. ‘A pioneer country? A history of Norwegian climate politics’. *Climatic Change* **151**: 29–41. [Crossref](#)
- Arias-Arévalo, Paola, Berta Martín-López and Erik Gómez-Baggethun. 2017. ‘Exploring intrinsic, instrumental, and relational values for sustainable management of social-ecological systems’. *Ecology and Society* **22** (4): Article 43. [Crossref](#)

## CONCEPTIONS AND VALUATIONS OF NATURE

- Benoit, Kenneth, Kohei Watanabe, Haiyan Wang, Paul Nulty, Adam Obeng, Stefan Müller and Akitaka Matsuo. 2018. 'quanteda: An R package for the quantitative analysis of textual data'. *J. Open Source Software* 3: 774. [Crossref](#)
- Blok, Anders. 2013. 'Pragmatic sociology as political ecology: On the many worths of nature(s)'. *European Journal of Social Theory* 16: 492–510. [Crossref](#)
- Bres, J. 2007. 'Sous la surface textuelle, la profondeur énonciative. Les formes du dialogisme de l'énoncé'. In R. Therkelsen et al. (eds), *Sproglig Polyfoni*, pp.37–54. Aarhus: Aarhus Universitetsforlag.
- Bres, Jacques, Aleksandra Nowakowska and Jean-Marc Sarale. 2016. 'Anticipative interlocutive dialogism: Sequential patterns and linguistic markers in French'. *Journal of Pragmatics* 96: 80–95. [Crossref](#)
- Carbou, Guillaume. 2015. *Les médiations symboliques à l'œuvre dans les débats de société: l'exemple de l'accident nucléaire de Fukushima dans les commentaires d'actualité sur le web*. Phd thesis, Université Toulouse le Mirail - Toulouse II.
- Corner, Adam, Chris Shaw and Jamie Clarke. 2018. *Principles for Effective Communication and Public Engagement on Climate Change: A Handbook for IPCC authors*. Oxford: Climate Outreach.
- Clayton, Susan and Gene Myers. 2009. *Conservation psychology: Understanding and promoting human care for nature*. Oxford: John Wiley & Sons.
- Fill, Alwin F., and Hermine Penz. 2017. 'Ecolinguistics in the 21st century: New orientations and future directions'. In id. (eds), *The Routledge Handbook of Ecolinguistics*, pp.437–443. Routledge. [Crossref](#)
- Fillmore, Ch. J. 1968. 'The case for case'. In E. Bach and R.T. Harms (eds), *Universals in Linguistic Theory*, pp.1–88. New York: Holt, Rinehart, and Winston.
- Fillmore, Ch. J. 1977. 'The Case for Case Reopened'. In P. Cole and J. Sedock (eds), *Grammatical Relations. Syntax and Semantics*, pp.59–81. Leiden: Brill.
- Fløttum, Kjersti. 2016. 'Linguistic analysis in climate change communication'. In *Oxford Research Encyclopedia of Climate Science*. Oxford: Oxford University Press. [Crossref](#)
- Fløttum, Kjersti, ed. 2017. *The Role of Language in the Climate Change Debate*. New York: Routledge.
- Fløttum, Kjersti and Trine Dahl. 2012. 'Different contexts, different "stories"? A linguistic comparison of two development reports on climate change'. *Language & Communication* 32: 14–23. [Crossref](#)
- Fløttum, Kjersti, Øyvind Gjerstad and Francis Badiang Oloko. 2019. 'Les voix dans le discours climatique: essai d'une combinaison de la polyphonie avec l'analyse de contenu, l'analyse narrative et l'analyse rhétorique'. *Cahiers de praxématique [En ligne]* 73 (2019). [Crossref](#)
- Frankfurt, Harry G. 2009. *The Reasons of Love*: Princeton: Princeton University Press. [Crossref](#)
- Gjerstad, Øyvind. 2011. *La polyphonie discursive: pour un dialogisme ancré dans la langue et dans l'interaction*. Doctoral thesis, University of Bergen.
- Grundmann, Reiner. 2021. 'Using large text news archives for the analysis of climate change discourse: Some methodological observations'. *Journal of Risk Research* (March 2021): 1–12. [Crossref](#)

- Hajer, Maarten. 1995. *The Politics of Environmental Discourse : Ecological Modernization and the Policy Process*. Oxford: Clarendon Press.
- Haunschild, Robin, Loet Leydesdorff, Lutz Bornmann, Iina Hellsten and Werner Marx. 2019. 'Does the public discuss other topics on climate change than researchers? A comparison of explorative networks based on author keywords and hashtags'. *Journal of Informetrics* **13** (2): 695–707. [Crossref](#)
- Hourdequin, Marion. 2015. *Environmental Ethics: From Theory to Practice*. London: Bloomsbury Publishing.
- Jananoff, Sheila. 2005. *Designs on Nature. Science and Democracy in Europe and the United States*. Princeton: Princeton University Press. [Crossref](#)
- Kahn Jr., Peter H. 2002. 'Children's affiliations with nature: Structure, development, and the problem of environmental generational amnesia'. In Peter H. Kahn Jr. and Stephen R. Kellert (eds), *Children and Nature: Psychological, Sociocultural, and Evolutionary Investigations*, pp.93–116. Cambridge, MA: MIT Press.
- Klain, Sarah C., Paige Olmsted, Kai M.A. Chan and Terre Satterfield. 2017. 'Relational values resonate broadly and differently than intrinsic or instrumental values, or the New Ecological Paradigm'. *PLOS ONE* **12** (8): e0183962. [Crossref](#)
- Kós-Dienes, Dora. 1985. 'Fillmore's case theory and thematic roles in GB theory – a comparison and criticism'. *Gothenburg Papers in Theoretical Linguistics* **49**: 1–12.
- Koteyko, Nelya and Dimitrinka Atanasova. 2016. 'Discourse analysis in climate change communication'. In *Oxford Research Encyclopedia of Climate Science*. Oxford: Oxford University Press. [Crossref](#)
- Krieg-Planque, Alice. 2010. 'La formule "développement durable": un opérateur de neutralisation de la conflictualité'. *Langage et société* **134**: 5–29. [Crossref](#)
- Langaas, Runa Falck, Kjersti Fløttum and Øyvind Gjerstad. 2019. 'Expressing one's conceptions of lifestyle in a climate perspective'. *Cahiers de praxématique [En ligne]* **73** (2019). [Crossref](#)
- Larrère, Catherine. 2010. 'Les éthiques environnementales'. *Natures Sciences Sociétés* **18** (4): 405–413. [Crossref](#)
- Lash, Scott, Brian Wynne and Bronislaw Szerszynski (eds). 1996. *Risk, Environment and Modernity: Towards a New Ecology, Theory, Culture & Society*. London: Sage.
- Laugier, Sandra. 2015. 'Care, environnement et éthique globale'. *Cahiers du Genre* **59** (2015/2): 127–152. <http://doi.org/10.3917/cdge.059.0127>
- Lorenzoni, Irene and Nick F. Pidgeon. 2006. 'Public views on climate change: European and USA perspectives'. *Climatic Change* **77**: 73–95. [Crossref](#)
- Nerlich, Brigitte, Nelya Koteyko and Brian Brown. 2010. 'Theory and language of climate change communication'. *WIREs Climate Change* **1**: 97–110. [Crossref](#)
- Neuteleers, Stijn. 2020. 'A fresh look at 'relational' values in nature: Distinctions derived from the debate on meaningfulness in life'. *Environmental Values* **29** (4): 461–479. [Crossref](#)
- Nisbet, Matthew C. , Shirley S. Ho, Ezra Markowitz, Saffron O'Neill, Mike S. Schäfer and Jagadish Thaker. 2018. *Oxford Encyclopedia of Climate Change Communication*. Oxford: Oxford University Press. [Crossref](#)
- Nølke, Henning, Kjersti Fløttum and Coco Norén. 2004. *ScaPoLine: la théorie scandinave de la polyphonie linguistique*. Paris: Kimé.

## CONCEPTIONS AND VALUATIONS OF NATURE

- O'Neill, John, Alan Holland and Andrew Light. 2008. *Environmental Values*. New York: Routledge. **Crossref**
- Oreskes, Naomi and Erik M. Conway. 2010. *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Climate Change*. London: Bloomsbury Publishing.
- Pauly, Daniel. 1995. 'Anecdotes and the shifting baseline syndrome of fisheries'. *Trends in Ecology and Evolution* **10** (10): 430. **Crossref**
- Pearce, Warren, Brian Brown, Brigitte Nerlich and Nelya Koteyko. 2015. 'Communicating climate change: Conduits, content, and consensus'. *WIREs Climate Change* **6** (6): 613–626. **Crossref**
- Petit, Emmanuel. 2014. 'Ethique du care et comportement pro-environnemental'. *Revue d'économie politique* **124** (2014/2): 243–267. **Crossref**
- Semal, Luc. 2019. *Face à l'effondrement. Militer à l'ombre des catastrophes, L'écologie en questions*. Paris: PUF.
- Shwom, Rachael, David Bidwell, Amy Dan and Thomas Dietz. 2010. 'Understanding U.S. public support for domestic climate change policies'. *Global Environmental Change* **20** (3): 472–482. **Crossref**
- Skrimshire, Stefan. 2014. 'Climate change and apocalyptic faith'. *WIREs Climate Change* **5** (2): 233–246. **Crossref**
- Smith, Nicholas, and Anthony Leiserowitz. 2014. 'The role of emotion in global warming policy support and opposition'. *Risk Analysis* **34** (5): 937–948. **Crossref**
- Stibbe, Arran. 2014. 'An ecolinguistic approach to critical discourse studies'. *Critical Discourse Studies* **11** (1): 117–128. <https://www.doi.org/10.1080/17405904.2013.845789>
- Stoneman, Paul, Patrick Sturgis and Nick Allum. 2013. 'Exploring public discourses about emerging technologies through statistical clustering of open-ended survey questions'. *Public Understanding of Science* **22** (7): 850–868. **Crossref**
- Tronto, Joan C. 1993. *Moral Boundaries: A Political Argument for an Ethic of Care*. New York: Routledge.
- Tvinnereim, Endre, and Kjersti Fløttum. 2015. 'Explaining topic prevalence in answers to open-ended survey questions about climate change'. *Nature Climate Change* **5**: 744–747. <http://dx.doi.org/10.1038/nclimate2663>
- Tvinnereim, Endre, Kjersti Fløttum, Øyvind Gjerstad, Mikael Poul Johannesson and Åsta Dyrnes Nordø. 2017. 'Citizens' preferences for tackling climate change. Quantitative and qualitative analyses of their freely formulated solutions'. *Global Environmental Change* **46** (2017): 34–41. **Crossref**
- van den Born, Riyan J.G., B. Arts, J. Admiraal, A. Beringer, P. Knights, E. Molinario, K. Polajnar Horvat, C. Porras-Gomez, A. Smrekar, N. Soethe, J.L. Vivero-Pol, W. Ganzevoort, M. Bonaiuto, L. Knippenberg and W.T. De Groot. 2018. 'The missing pillar: Eudemonic values in the justification of nature conservation'. *Journal of Environmental Planning and Management* **61** (5–6): 841–856. **Crossref**
- Warde, Paul, Libby Robin and Sverker Sörlin. 2018. *The Environment: A History of the Idea*. Baltimore: John Hopkins University Press.
- Warde, Paul and Sverker Sörlin. 2015. 'Expertise for the future. The emergence of environmental prediction c. 1920–1970'. In Jenny Andersson and Eglë Rindzevičiūtė

(eds), *The Struggle for the Long-Term in Transnational Science and Politics. Forging the Future*, pp.38–62. New York: Routledge. **Crossref**

## APPENDIX: ORIGINAL LANGUAGE OF TRANSLATED EXAMPLES

Example quoted in the explanation of the ‘other’ category: Norge bør bruke sine naturgitte fortrinn til storskala lagring av CO<sub>2</sub> på sokkelen. (2015,4, 27)

At vår klode (naturen) har en egen evne til å reparere seg selv. (2017,8,72)

Et menneske er ikke til stand til å forandre klimaet. Dette er jo natur. Dette er veldig vanskelig motstå naturkatastrofen. (2013,1,38)

At klimaet endrer seg over tid. ... Det er naturlige svingninger. Det kan likevel ikke utelukkes at endringer kan være delvis menneskeskapt. (2013, 1, 1)

Vær- og temperatursvingninger, ... konflikten mellom de som mener at dette er naturlige svingninger og de som sier at dette er menneskeskapt. Sannheten ligger vel et sted i mellom.....kanskje. (2017,8,8)

Endring av vær, temperatur og luftrenhet. Hva er menneskeskapt? Hva er jordas naturlige syklus? (2013,1,32)

Det er naturlige svingninger, men disse blir svært forsterket av menneskeskapt utslipp. (2014,3,37)

At det meste av det kommer fra menneskene, men det er mye som kommer fra naturen, vulkanutbrudd, jordskjelv og sikkert andre ting. (2018,13,7)

Villere, våtere og varmere vær som fører til flere naturkatastrofer og mer sult, nød og fattigdom (2018,13,37)

Vi må forvalte naturen på en bærekraftig måte. (2015,5, 48)

Sette press på, og informere miljøvernkjempere og folk flest om at naturen må dessverre berøres for å utvinne kraft som ikke er ødeleggende (vindmøller, kraftledninger og demninger) for klimaet. (2015,4, 55)

Vi må bevare det som er igjen av skog, regnskog og annen urørt natur. (2015,5, 46)

Hele verden må samarbeide om et skifte fra kull og olje til fornybar energi. Vi må la større naturområder forbli tilnærmet uberørt av menneskene. (2015,5, 46)

Ikke kaste ting i naturen. (2015,4,59)

Slutte å forsøple naturen. (2015,4,59)

Vi mennesker har forvaltet og brukt naturen på en måte som er helt forkastelig. Det vi gjør mot naturen gjør vi mot oss selv. (2017,8,15)