Framing and visualising biodiversity in EU policy

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ABSTRACT
This study seeks insights into how biodiversity is framed and visualised in EU policy. The paper presents analysis of both the visual content and written text of two brochures summarising two central EU biodiversity policy documents. The study illustrates how the two modes of communication differ. First, the written text primarily presents an anthropocentric and economic framing of biodiversity values, whereas the visual material generally features the beauty and wonders of nature. Second, the written text strongly emphasises the threats to biodiversity and the detrimental side of human activity, whereas the visual material generally shows close relationships between humans and nature, with humans engaged in small-scale outdoor activities. The analysis illustrates how various representations of biodiversity intersect in the same context, and that the visual representation decontextualises the issue of biodiversity loss from the human exploitation of natural resources and the concrete actions and processes causing it.

1. Introduction

The concept of biodiversity has an inclusive character promoted by members of both the conservation and scientific communities, representing a range of interests (Farnham 2007, p. 241 ff.). The roots of ‘biodiversity’ and current debates reveal a concept that subsumes several values – aesthetic, recreational, scientific, economic and for life-support – that are related to various aspects of conservation, including wilderness protection, resourcism and the protection of habitats and endangered species. Although several values of biodiversity have been stressed, resourcism has been central to the biodiversity conservation discourse (Takacs 1996; Farnham 2007), and conservationists strongly emphasise the need for continued protection of the wild (Wuerthner et al. 2015; Kopnina et al. 2018; Washington et al. 2017).

The idea of conserving threatened animals and unique plants is seemingly easy to grasp, not least in its popular framing that gives prominence to the survival of certain well-known and featured species (Uggla 2010a; Lousley 2016). Biological diversity, however, encompasses all living organisms – including microscopic ones – and includes concepts that are more difficult to capture and elucidate, such as ‘viable population’ and ‘genetic diversity’.
Accordingly, raising awareness and engagement for biodiversity is a communication challenge. There is no such thing as the ‘ultimate representation’ of biodiversity (Krishnamurthy 2003; Sumares and Fidélis 2011; Gustafsson 2014). Instead, the individual parts and multiple values of biodiversity can be represented in various ways, by means of descriptions, metaphors and iconic images, and with different emphases.

Given the potential of images to concretise abstract issues and engage viewers as well as the recurrent use of nature photographs and other images in environmental communication, remarkably few studies specifically treat the visualisation of topical environmental issues (Hansen and Machin 2008, 2013; Hansen 2015).

Several studies consider the visualisation of climate change in the news media and environmental campaigns, some specifically considering visualisation, others considering both written text and images in analysing the construction of climate change. The results of these studies indicate: (i) an emphasis on the fragility of the earth and of nature as wilderness (Linder 2006; Doyle 2007); (ii) dramatisation of the negative consequences of climate change (e.g. floods, droughts and storms) in the news media and in the context of an awareness-raising campaign (Uggla 2008; Smith and Joffe 2009); (iii) that citizens spontaneously recall imagery of suffering polar bears and flooding from news media reporting, which then serves as evidence of ongoing climate change (Olausson 2011); and (iv) that the images and written text tend to present somewhat different framings of the issue, advancing unrelated and sometimes contradictory claims (Darryn and Young 2010).

In this research field, Seppänen and Väliverronen’s (2003) study is an exception with its focus on the definition, popularisation, and visualisation of biodiversity in the news media. That study concluded that the key functions of photographs in such coverage are to ‘concretize a complex scientific issue’, ‘construct social relationships between different actors’, ‘provide an opportunity for affective involvement’ and ‘produce a “reality effect”’ (Seppänen and Väliverronen 2003, pp. 80–81). At the same time, the study suggested that how journalists frame biodiversity in the news media oversimplifies the problem. Both textual metaphors and photographic images tend to simplify problems, turning complex issues into ‘easily digestible slogans’ (Seppänen and Väliverronen 2003, p. 81; cf. Keulartz 2007). Seppänen and Väliverronen’s (2003) study was inspired by Hall (1997), who emphasised the visual in culture while drawing out ‘the ideology realized in images’ (Hansen and Machin 2013, p. 152). This theoretical approach is based on the understanding that ‘images have social effects’ (Takach 2013, p. 214), drawing attention to the political and ideological context of imagery.

Increased research interest in the visual aspects of environmental communication has primarily turned towards newspapers, television and film (Meisner and Takahashi 2013). Less research has analysed visualisation in environmental policy communication, and even less specifically in biodiversity representations.

The present study seeks insights into how biodiversity is framed and visualised in the policy sphere, concentrating on EU policy. The analysis is based on two central EU documents as presented in two summary brochures: The European Union’s Biodiversity Action Plan (‘Biodiversity Action Plan’; European Commission 2008) and The EU Biodiversity Strategy to 2020 (‘Biodiversity Strategy’; European Commission 2011). These summary brochures outline the key elements of the EU biodiversity policy established in the main documents. Drawing on the insight of Darryn and Young (2010, p. 517) that visual and linguistic communications about climate change in the news media ‘tend to pull in different narrative directions’, the present study includes analysis of both written text and images.
The brochures were published on the EU website, but are also available on the websites of several major organisations or networks, such as the International Union for Conservation of Nature, Global Nature Fund (via the Business and Biodiversity Campaign), WWF and Alpine Network of Protected Areas. Although it is impossible to confirm the number of views or reads of the brochures, they clearly have had the potential to reach a broad audience.

This paper’s six sections start with this Introduction. The following section presents the theoretical framework. Next, ‘Empirical material and analysis’ gives an account of the empirical material and the analytical tools applied in the study. ‘Visualising biodiversity’ presents the results of the content analysis of the images, while ‘Thematic narrative analysis’ presents the analysis of the written text. The final section draws together and discusses the findings of the two parts of the study.

2. Theoretical framework

We can be ethical only in relation to something we can see, feel, understand, love or otherwise have faith in. (Leopold 1969, p. 214)

In advertising and various promotional campaigns, images are used to convince, move, and engage the viewer. The above quotation is from the book *A Sand County Almanac* by the ecologist, environmentalist and philosopher Aldo Leopold. In this book, first published in 1949, Leopold wanted to translate scientific knowledge about the state of nature into a form that could be experienced by a broader audience (Takacs 1996, p. 11). According to Leopold (1969, p. 214), an ethical relationship with nature – i.e. one that can guide and supplement humans’ economic relationship with their environment – depends on ‘some mental image of land as a biotic mechanism’. Leopold (1969, p. 214 ff.) then used the ecological notion of the biotic pyramid to illustrate the flows and interdependences within biota. Through the essays about and drawings of animals and landscapes collected in the book, Leopold invited readers/viewers to embrace the fullness of nature and its value by the ‘act of seeing’ (Ito 2008, p. 131).

Images and metaphors are clearly strong and useful means to communicate about and concretise abstract issues and to emotionally engage viewers (Mitchell 2002; Keulartz 2007; Joffe 2008; Mortimer 2008; Smith and Joffe 2009). A special feature of visual material is that it is often immediate in impact, memorable, and salient. Likewise, compared with written text, images have a certain ‘ability to arouse emotion’ (Joffe 2008, p. 84).

Nature scenery, charismatic fauna and individualised animal portraits have frequently been used to draw attention to threatened species and environmental deterioration, and the image of polar bears on melting ice has become emblematic of climate change. With an emphasis on what we are losing, charismatic animals and individualised animal portraits have been used to motivate people to act for the environment and the sake of biodiversity (Lousley 2016). In awareness raising campaigns the presumption seems to be that concern for specific animals – individually selected and portrayed – or for certain species will motivate people to act for the benefit of biological diversity conservation in general. However, compared with the giant panda and the Bengal tiger serving as drawing cards, for example, in WWF sponsorship programmes, bugs, grubs, moths and other invertebrates seem to evoke less sympathy (Uggla 2010a).

Images are not simply illustrations and cannot be reduced to the meanings carried by things in their surroundings (Rose 2007, p. 11). Images are not neutral but come imbued
with assumptions and values, so we must learn to interpret them and to discern what they do not capture (Hall 1997; Carolan 2009, p. 279). The meaning of a sign is not fixed but is a potential realisable under certain circumstances (Machin 2007, pp. 3–4). Seeing, then, is a result of culture, but this does not mean that we can expect complete consistency in visual communication in a certain context (cf. Hannerz 1996, p. 7 ff.). Nature imagery may contribute to an understanding of nature both as pristine and untrodden land and as a resource (Hansen and Machin 2013). However, the repetition of iconic images means that other possible representations are omitted, implying decontextualisation, i.e. the environment is disconnected from the concrete actions and processes causing its decline (Hansen and Machin 2008; Takach 2013). Such decontextualisation tends to aestheticise nature, implying that the visual material alludes to culturally embedded ideas of wilderness and the wonders of nature, contributing to a romantic gaze on nature (Linder 2006; Doyle 2007; Hansen and Machin 2013).

3. Empirical material and analysis

The present study seeks insights into how biodiversity is framed and visualised in the policy sphere, concentrating on EU policy. The study combines quantitative and qualitative content analysis of the images and thematic narrative analysis of the written text.

3.1. Framing analysis

Framing analysis is one way to scrutinise the main message of the policy documents chosen for this study. Framing concerns how certain information or aspects of an issue are made salient, which entails overlooking or downplaying other aspects (Entman 1993). The concepts of framing and discourse are interrelated. The framing of an issue, i.e. the selection and arranging of issue elements, takes place in context (Dewulf and Bouwen 2012). A phenomenon or object can be surrounded by various discourses, for example, the discourses of sustainability, ecological modernisation and green radicalism in environmental politics (cf. Dryzek 1997; Hajer 1997), all of which can be deployed to communicate ideas, values and beliefs that together construct a particular object or phenomenon (Burr 1995, p. 64 f.; Machin 2013). Discourses may function as interpretative repertoires – or flexible resources – in an actor’s framing of a certain issue. A specific framing can draw on several discourses; likewise, various discourses may intersect within a particular framing.

The two brochures The European Union’s Biodiversity Action Plan (European Commission 2008) and The EU Biodiversity Strategy to 2020 (European Commission 2011) together total 50 pages, include written text and 121 images (mostly photographs, but also some maps and charts). These reports were chosen to explore framing and visualisation of biodiversity in EU policy. This approach, with a study based on a limited sample of text and images facilitated an in-depth analysis. As for the generalisability of the results, the study does not claim to contribute knowledge in the general statistical sense. Instead, these summaries of central EU policy documents should be regarded as exemplars, i.e. they provide a case which illustrates more general tendencies in biodiversity policy (Flyvbjerg 2006).
3.2. Content analysis of the images

The content analysis of the images addressed what was depicted as well as how it was depicted (cf. Meisner and Takahashi 2013). In the first quantitative step, i.e. examining what was depicted, the images were coded inductively (see Banks and Zeitlyn 2015; on ethnographic content analysis). This categorisation was based on what is most salient in each image, i.e. what is focused on and foregrounded (cf. Machin 2007, p. 130). This means that images in which humans and animals appear together were categorised depending on the focus in each image. For example, a photo of a giant hogweed including the back of a man looking up at this giant plant was placed in the category of vegetation. Another example is a photo of fishermen including fishes in a fishnet, which was placed in the category of humans. In the second step of the analysis, the content was interpreted in relation to captions and headings, clarifying, for example, whether the animal was intended to portray endangered or invasive species, or whether the landscape was intended to illustrate rich biodiversity, protected habitats or economic values.

This initial content analysis considered what the images denoted, trying to answer the question ‘who and/or what is depicted here?’ (Machin 2007, p. 23). However, pictures chosen to denote someone or something involve choices about how to present the person, animal, scenery or object represented. The images connote certain concepts, ideas or discourses. In qualitatively analysing the images, I applied the following analytical tools primarily based on Machin (2007):

- **Iconographic symbolism** – how the person, animal, scenery or object was depicted and how these images can be associated with certain discourses and culturally familiar symbols (Entman 1993);
- **Relationship between the actor in the image and the viewer** – how the actor in the image invites engagement concerns three aspects: the gaze, angle of interaction and distance;
- **Type of representation** – how actors are represented, for example, individually or collectively and none representation, i.e. the supposed actor or agent is absent; and
- **Salience** – the use of images is itself a way to make information salient, and salience in images can be achieved in several ways, for example, through size, focus and foregrounding.

3.3. Thematic narrative analysis of the written text

In analysing the written text, I used thematic narrative analysis, which examines content but differs from thematic coding in its attempt to foster insight into the ‘story’ of the text (Kohler 2008). The written text of the two brochures was analysed as a narrative that organises diverse elements and normative assumptions, assigning meaning to a certain course of action (cf. Sandercock 2005).

Analysing a text as narrative implies that it has certain characteristics distinguishing it from description or argument. Although description and argument are often included in narrative, giving it direction and impetus, the specific feature of narrative is that it makes sense of experience, assigns meaning and imagines the future (Childs 2008). A compelling story is a vehicle for promoting engagement and action in a certain direction. Narrative gives a certain understanding of a phenomenon (here, biodiversity), conveying distinctions and ideas about a contemplated or desired order. In a narrative, we can identify a temporal
sequence and a plot. In policy-making, narrative may define the problem and its causes (something lost or facing destruction), clarify why the suggested policy course and measures are needed and allocate responsibility (Benford and Snow 2000; Tunström 2007).

To identify the temporal sequence and plot, the analysis of the written text was guided by the following questions:

- What is at stake?
- What caused the problem?
- Who is responsible for acting?

4. Visualising biodiversity

This section presents the results of the content analysis of the images: the first part discusses what the images denote and the second how the content of visual material was displayed.

4.1. What is depicted in the visual material?

The initial inductive coding of what was depicted resulted in the following descriptive codes: animals, people, landscape/scenery, maps, tables/figures, urban context, vegetation, infrastructure, traffic routes, baskets of red apples and other. The three largest categories – animals, people and landscape/scenery – were then coded into subcategories (Table 1).

After the initial content analysis, headings and captions were considered in order to understand the intended denotations of the images. Not all images had explanatory captions or headings referring to what was depicted. Of 121 images, the content of 66 was explained by headings and captions (Appendix 1). The explanatory headings and captions were summarised in 11 categories:

- endangered/protected species, protected habitats and important habitats and species (17)
- invasive alien species (9)
- biodiversity values, economic values and ecosystem services (8)
- monitoring, planning, research and education (8)
- global concerns and sustainable trade (6)
- environmental degradation, pollution and other threats (6)
- politicians and political initiatives (4)
- overfishing and damage to marine ecosystems (3)
- devastating floods related to climate change, and high costs for society (2)
- rich biodiversity and biodiversity ‘hotspots’ (2)
- care for next generation (1)

Animals are the most common motif in the images (43). The bird subcategory (14) is the most frequent, countering previous findings suggesting that charismatic fauna and amazing animals are often used to illustrate the wonders of nature (Lousley 2016). In the EU brochures, images of birds, insects and marine animals are dominant, while mammals appear in fewer images. On the other hand, wild mammals are more likely to be explicitly denoted endangered/protected species than are animals in the other subcategories (Appendix 1).
Table 1. Categories and subcategories from the inductive coding of images.

| IMAGES          |        |
|-----------------|--------|
| Animals         |        |
| • Birds, 14     | 43     |
| • Wild mammals, 7 |       |
| • Livestock, 3  |       |
| • Insects, 8    |       |
| • Marine animals, 8 |     |
| • Batrachians, 2 |       |
| • Slug, 1       |       |
| People          |        |
| Indoor, 6       | 33     |
| • Individual portraits, 2 |   |
| • Group portrait, 1 |    |
| • Other, 3      |       |
| Outdoor activities, 27 | |
| • Recreation/tourism, 9 |   |
| • Agriculture, 3 |       |
| • Fishing, 2    |       |
| • Forestry, 1   |       |
| • Bee-keeping, 1|       |
| • Other, 11     |       |
| Landscape/scenery | 17     |
| • Flowery meadows, 7 |   |
| • Wetland, 4    |       |
| • Seaside/lake, 3 |      |
| • Groups of trees, 2 |    |
| • Forest landscape, 1 |  |
| Maps, tables, and figures | 7 |
| Urban context   | 4      |
| • Flooded urban areas, 2 |   |
| • Car traffic, 1 |       |
| • Discharge of wastewater, 1 | |
| Vegetation      | 3      |
| Infrastructure, traffic routes | 2 |
| Baskets of apples | 2 |
| Other           | 10     |
| Total           | 121    |

According to the headings and captions, the insects and marine animals subcategories include photographs of both endangered/protected species (4) and invasive alien species (6). For several animals in these subcategories, the captions explicitly inform the reader what the depicted animals are supposed to represent. In other cases, the status of the species is not explicitly mentioned, but indirectly alluded to. One example of the latter is a row of three images at the bottom of a page – of humans constructing a boardwalk, two otters, and a butterfly – displayed under the heading ‘Target 1: Fully implement the Birds and Habitats Directive’ and the caption ‘The new Biodiversity Strategy aims for a significant and measurable improvement in the conservation status of protected species and habitats’. This indicates the status of the portrayed animals without explicitly stating it or identifying the species depicted (European Commission 2011, p. 13).

Similarly, other animals in these subcategories – a Spanish slug, zebra mussels, an American comb jelly, Colorado beetles and red swamp crayfish – are implied to be invasive alien species because of the heading ‘Action Plan Objective 5: Reducing the impact of invasive alien species’ (European Commission 2008, pp. 18–19).

Only a few photographs in the animal category are, as expressed in headings or captions, intended to represent biodiversity values and/or ecosystem services. One is a photograph
of a brown bear with cubs across the top of a page with the heading ‘Biodiversity loss: why does it matter?’ This photograph is accompanied by three smaller photographs of a cherry orchard, a buff-tailed bumble bee, and a basket of red apples (European Commission 2008, pp. 4–5). Elsewhere, a photograph of a bee represents the huge economic value, approximately EUR 15 billion a year, of insect pollination in the EU (European Commission 2011, p. 9).

Several images have no captions, or the captions mention only the species of the depicted animal. In some of these cases, the headings do not help the viewer/reader understand what the depicted animals are intended to represent.

The second largest category is humans (33), divided into indoors (6) and outdoors (27) images. The photographs of people indoors are mainly individual or group portraits and, as explained by the captions, show people involved in political or planning activities. The activities in the outdoors category are more diverse. Three images in the recreation/tourism subcategory have explanatory headings or captions, referring to the categories economic values (1), protected habitats (1) and environmental degradation (1), implying that similar photographs can be used with very different meanings. The other large subcategory here is the unspecified ‘other’ (9), indicating that the people’s activities are difficult to understand without some explanation. Taking headings and captions into consideration, about half the photographs in this subcategory (5) are explained to represent people involved in monitoring bird movements, planning or research, exemplifying care for the environment and biodiversity protection.

Four photographs depict children, of which three depict small children in nature scenes. Regarding one of these photographs, the caption explicitly mentions care for the next generation, whereas the composition of one of the photographs implies this focus combined with global concern, to be discussed in the next section. The caption of the photograph of older children explains that certain teaching methods are used to explain the importance of biodiversity.

The vegetation category is almost negligible in the inductive coding, because most images including vegetation were coded as landscape/scenery. This indicates a striking difference in the depiction of flora vs. fauna. Individual plants are not depicted in the same way as are individual animals. Instead, vegetation is depicted in views of the landscape, for example, in fields, flowery meadows and wetlands. In the vegetation subcategory, the headings and captions denote two of the depicted plants as invasive alien species. As in the case of the recreation/tourism subcategory, the photographs of landscape/scenery can be used to represent very different aspects of biodiversity: important and protected habitats (1), rich biodiversity (2), biodiversity values and ecosystem services (2), invasive alien species (1) and environmental degradation (1). In contrast, urban images (4) clearly denote environmental degradation (2) and devastating floods related to climate change (2).

Nature photographs constitute about half or more of the imagery in the two brochures. Taking the categories of animals, landscape/scenery and vegetation together, these photographs constitute 51% of the images. If the recreation/tourism subcategory, which also shows vast landscape scenes, is included, nature photographs constitute 58% of the images. Most images with humans depict various outdoor activities, mostly of people bodily engaged with nature. Very few of the images including humans explicitly refer to environmental degradation or threats to biodiversity. It is also clear from this content analysis that similar images can be used to represent different, sometimes even contradictory, aspects of a
phenomenon. Without explanatory headings or captions it can be difficult for an uninformed viewer/reader to know whether, for example, a depicted insect or marine species is important and protected or an invasive alien species that constitutes a threat to biodiversity.

4.2. How is the content of the visual material depicted?

In the empirical material as a whole the images, averaging two per page, are salient. In the animal category, most of the images are close-up photos of individual animals. Other photos in this category depict certain species en masse: flocks of birds, shoals of fish or pairs or groups of certain species, for example, cattle, sheep, a bear with cubs and pairs of otters and gorillas.

The covers of the two brochures each include brightly coloured images from the three largest categories: a flowery meadow, people walking in a vast landscape, and a close-up of a small bird. These covers are indicative of how animals and landscapes are generally presented in the empirical material. These motifs are often depicted in bright colours, in sunshine and against a blue sky (Figure 1).

A specific feature of the animal photos is that, irrespective of the subcategory and with few exceptions, they can be described as portraits of individual animals or small groups of animals. Images depicting more than one animal, for example, a flock of birds, a shoal of fish, or a brown bear with cubs, still represent single species. Some of the depicted animals – most of the wild mammals, but also birds, insects and batrachians – are portrayed in close-up photos, placing the individual animal at the centre. In many photos, the viewer meets the animal, irrespective of species, at the same level, implying equality (Machin 2007, p. 114). One obvious example is an image of an arctic fox. The composition of this photo is plain: the center of interest is the animal facing the camera, shown against sunny snow and a clear blue sky.

In this way, the individually portrayed animals, although often small and not particularly impressive, are used to represent biodiversity. However, close-ups of individual animals are also used to represent invasive alien species threatening biodiversity.

Figure 1. Results of the image coding, showing the animal and landscape/scenery categories. Photo: Ylva Uggla.
Landscape/scenery photos are not as common in the empirical material as are animal photos. Flora are apparently not used to represent biodiversity by means of individual portraits. Instead, the photos of landscape/scenery seem to be used primarily to exhibit the wonders of nature by aestheticisation. Most photos in this category are summer photos, showing flowery landscapes, mountainsides and seaside scenes in bright colours and mostly in sunshine.

As categorised here, the landscape/scenery photos lack direct human presence, although the sailboats shown by the seaside indicate human presence and the flowery meadows and agricultural landscape obviously result from human activity. The recreation/tourism subcategory is characterised by the same tendency to aestheticisation, depicting people walking in open, impressive, and often sunny landscapes (Figure 2). In these photos, people are usually depicted from above and/or at distance; in only one photo do the hikers, though still at distance, look into the camera. In these photos, the depicted individuals do not constitute the focal point. Instead, these photos are generic images of nature, connoting the solitude, calm, and recreational opportunities that nature is supposed to afford humans (cf. Hansen and Machin 2008, pp. 783 ff.; Machin 2007, p. 27; Palmer 2002).

The photos in the landscape/scenery and recreation/tourism subcategories present ‘nature’ in terms of attractive sites, recalling the decontextualisation and aestheticisation of landscapes noted in previous studies (Linder 2006; Doyle 2007). Although they show human presence, or traces thereof, these images allude to a romantic tradition of landscape images and to the meta-narrative of untrodden, pristine nature (Alkon and Traugot 2008; Hansen and Machin 2008, p. 779). The images in these subcategories do not represent biodiversity in the same way that the animal images do, that is, by means of closeness to individual animals; instead, these images show the beauty and splendour of nature in a generic way, conveying symbolic or iconic representations of places or landscapes.

As mentioned above, most of the photos of people depict them involved in outdoor activities, interacting with nature and with each other, for example, farming, fishing, bee-keeping, monitoring the environment and enjoying recreational activities. In general,
these photos do not portray particular individuals but illustrate how humans can directly access and in various ways use (e.g. for recreation, fishing and farming) or tend nature. The people are generally depicted at a distance and do not look into the camera, but concentrate on their activities and on their engagement with nature, placing the activity and not the individual actor at the centre (Figure 2).

The children subcategory diverges from this general pattern in the depiction of humans. Here, we find three close-up photos of small children. In a Western context, images of children have certain connotations: children are generally perceived as pure and close to nature, and can also symbolise human vulnerability (Machin 2007, p. 36). As mentioned above, the caption of one of these photos explicitly mentions care for the next generation. Another photo combines two familiar symbols: a toddler lying in the green grass holding a ball in the form of a terrestrial globe. Since the first image of the earth was captured from outer space in 1968, the image of the globe has become a metaphor for the earth’s ‘unlimited finitude’ and the common fate of humanity (Szerszynski and Urry 2006).

Another feature of the empirical material is that the images of people involved in farming, fishing and forestry show these activities as small in scale. One example is a photo of an agricultural landscape that has the same characteristics as do the other landscape/scenery images. It shows the landscape in sunshine and against a background of bright blue waters. Behind the reaper, a man is manually mowing hay and sheep are peacefully grazing. Like other images of human activity in the empirical material, this photo depicts farming as a small-scale activity, implying close engagement with nature. Although some captions mention harmful human activities (e.g. overfishing), the more detrimental aspects of humans’ relationships with nature are not clearly illustrated. In the empirical material, only very few photos show, for example, pollution (e.g. wastewater and car traffic) and traffic infrastructure intersecting the landscape. With few exceptions, humans do not appear in the photos intended to represent environmental degradation or threats to biodiversity. Instead, these photos show the results of human activity at a distance, the polluters not being present and only implied, for example, as invisible car drivers or the unseen cause of wastewater.

5. Thematic narrative analysis

This section presents the narrative features of the written text, under three thematic headings corresponding to the questions guiding the analysis: What is at stake? What caused the problem? Who is responsible for acting?

5.1. What is at stake?

In the empirical material, the sections that explicitly treat the biodiversity concept, trying to define it or give an idea of what it represents, are few and very brief. In the introduction to the Biodiversity Action Plan (European Commission 2008, p. 4), biodiversity is defined as follows:

Biodiversity is the sheer variety of life on earth. It includes all living organisms – plants, animals, even invisible micro-organisms, bacteria and genes – which, together, interact in complex ways with the inanimate environment to create living ecosystems. Biodiversity is all around us: not just in wild places and nature reserves but also in our cities, our farmland and our countryside. We are an integral part of this biodiversity and exert a major influence over it.
This definition is inclusive and alludes to the one established in the Convention on Biological Diversity (CBD), that is, it includes flora and fauna, micro-organisms, bacteria and genes. It acknowledges that biodiversity is not found only in the wilderness, but also in cities and cultural landscapes. It also includes humans as integral to biodiversity, though occupying an exceptional position because humans can negatively influence biodiversity in a special way compared with other species. In the *Biodiversity Strategy*, biodiversity is never clearly defined, but simply referred to as ‘the variety of life on the planet’ (European Commission 2011, p. 4).

Although information on and definitions of biodiversity as such are rare in the text, many other concepts are cited to indicate the aims of the *Biodiversity Action Plan* and the *Biodiversity Strategy*, that is, what is at stake and what the policy sets out to protect. Besides the obvious goal of the policy – to halt the loss of biodiversity – these documents describe several entities as worth protecting, such as ecosystems, ecosystem services, nature, wildlife, habitats, rare or threatened species and wetlands. However, these concepts are frequently used without any clear explanation of their relationship to biodiversity.

When the relationship between biodiversity and the various entities depicted as worth protecting is occasionally made explicit, it is done in two ways. The first concerns *biodiversity as provider*. In the introduction to the *Biodiversity Action Plan*, which discusses the values of biodiversity, the link between biodiversity and ecosystem services is clarified by stating that biodiversity provides ecosystem services. A similar explanation of the link between biodiversity and ecosystem services is found in the *Biodiversity Strategy*, which articulates the vision that ‘by 2050, European Union biodiversity and the ecosystem services it provides – its natural capital – are protected’ (European Commission 2011, p. 6). The second way to clarify the link between biodiversity and the entities worth protecting concerns how certain areas or types of landscapes are identified as *hosts of biodiversity*, for example, freshwater ecosystems (European Commission 2008, p. 13) or certain key habitats (European Commission 2011, p. 5).

In EU policy, the values of biodiversity are summed up in the European Commission’s concept of ‘the four Es’: i.e. biodiversity matters for ethical, emotional, environmental and economic reasons. This concept is elaborated on in the introduction to the *Biodiversity Action Plan* (European Commission 2008, p. 4) under the heading ‘Biodiversity loss: why does it matter?’ This is the section in the empirical material that explicitly addresses the importance of biodiversity, attaching many and varied values to it.

Obviously, the section treating the economic values of biodiversity emphasises its economic benefits. The first paragraph states that biodiversity ‘sustains our economy and our quality of life’ (European Commission 2008, p. 4). In the following paragraph, however, the focus shifts to ecosystems, which are compared to the body’s immune system, emphasising how damaged ecosystems expose us to ‘threats that we would normally be buffered from’ and to considerable financial costs (European Commission 2008, p. 4). By means of this simile, comparing unspoiled ecosystems to an immune system that protects us from external threats, ecosystems are bestowed with protective characteristics of great importance to society, evoking what is at stake when ecosystems are damaged.

Following this, the text addresses environmental, emotional and ethical reasons for biodiversity protection. This part of the text lists several reasons why biodiversity matters: for example, biodiversity has ‘intrinsic value,’ ‘sustains our economy and quality of life’ and is ‘the very foundation of society and the basis of our economic success and wellbeing’ (European Commission 2008, p. 4).
Likewise, this section lists several things that biodiversity, ecosystems and nature provide for humans: ‘biodiversity provides a stream of useful ecosystem services, ranging from the provision of food, fuel, fertile soils, clean air and water to raw materials for clothes and medicines’; ‘It [i.e. biodiversity] supports our cultural identity, offers spiritual inspiration and solace, and plays an important role in our mental and physical well-being’; and ‘ecosystems also help regulate the climate, control floods and fires, prevent the spread of diseases and pests, fertilize crops and purify water’ (European Commission 2008, p. 4).

Although mentioning the intrinsic value of biodiversity, the elaborated concept of the four Es is based on the notion of the goods biodiversity, ecosystems and nature provide for humans. The arguments made for protecting biodiversity and several related entities – such as ecosystem services, ecosystems, the regulating services of watersheds and natural floodplains, green areas in towns and cities, nature, pleasant green environments, and the riches of the planet (European Commission 2008, p. 4) – elucidate primarily an anthropocentric and economic framing of what is at stake.

5.2. What caused the problem?

In the empirical material, the main message concerning biodiversity loss is that Europe’s biodiversity is under immense pressure, mainly due to human activity. The list of detrimental human activities is long and refers to a broad range of activities and phenomena that are largely interrelated. Agriculture, by means of intensive farming and modern agricultural practices, is described as detrimental in terms of both land use (as the quotation below illustrates) and pollution because of ‘exaggerated use of fertilisers’ (European Commission 2008, p. 12). The Biodiversity Action Plan describes the problem with agriculture as follows:

Agriculture in Europe has changed dramatically in recent times. Driven by the Common Agricultural Policy (CAP) to increase productivity, many farms intensified their activities and became highly mechanised. Those who could not compete found themselves increasingly marginalised and many were forced to abandon their land, with equally devastating consequences for biodiversity. Today, only 15–25% of Europe’s once extensive high nature value farmland remains. (European Commission 2008, pp. 10–11)

Similarly, fishing, shipping and coastal tourism are described as harmful because of the ‘immense pressure [they put] on natural resources and on the fragile marine and coastal ecosystems’ (European Commission 2008, p. 14), for example, by overfishing and pollution.

Economic growth is another issue of concern in the Biodiversity Action Plan and the Biodiversity Strategy. Economic growth entails high per capita consumption and waste production, puts pressure on natural resources and contributes to urban development, intensified farming and new traffic infrastructure. Similarly, international trade and global travel facilitate the spread of invasive alien species.

Urban development, urban sprawl and traffic infrastructure are also emphasised as major problems in relation to land use, because built-up areas constitute barriers to species movement. This problem is understood as interrelated with climate change, because changes in climate zones may force species to migrate. In this case, such barriers, as well as intensively managed farmland or forestry, are assumed to prevent necessary species movement.

The empirical material presents biodiversity as crucial for strengthening ecosystem resilience and bolstering ecosystem adaptability to climate change. The text refers to ‘healthy
ecosystems’, an idea that is recurrent in the empirical material, in which concepts such as balance, natural function, natural state and natural predators have positive connotations, implying that the ‘natural’ is good in itself and worth protection (Ugglå 2010b). In line with this notion, human-induced disturbances of the ‘natural’ state or balance are understood as harmful, and human activities are defined as the main cause of biodiversity loss.

5.3. Who is responsible for acting?

In relation to the descriptions of what is causing biodiversity loss the two documents identify a number of important actions and measures to remedy the problem with human exploitation of nature resources or at least ‘halting the loss of biodiversity’. These measures include, for example, full implementation of the Birds and Habitats Directives, urging Member States to ensure conservation and restoration measures in planning processes. Other parts of the EU strategy include the development of green infrastructure to remedy fragmentation caused by urban sprawl, infrastructure developments and changing land use, sustainable use of fisheries resources and the increase in the contribution of agriculture and forestry to biodiversity (European Commission 2008).

At the same time, as human activity is identified as the cause of biodiversity loss, human activity is also presented as the remedy to the problem. Such positive human activity includes political action, research, education and civil society engagement. According to the Biodiversity Strategy, biodiversity policy needs ‘to be integrated to sectoral policies’ (European Commission 2011, p. 4), which is in line with the Biodiversity Action Plan (European Commission 2008, p. 6), which states:

The Action Plan represents an important new approach for EU biodiversity policy as it is the first time that all the relevant economic sectors and policy areas are addressed in a single strategy document and apportioned a share of the responsibility in its implementation. It recognizes that change will only happen if there is a concerted effort from all sectors of society and Member States to help deliver the overall objective of halting biodiversity loss by 2010.

This document also states that it is now urgent that ‘we’ – including all member states, all humankind, and all sectors of society – take responsibility for protecting biodiversity and valuable ecosystems, ecosystem services, habitats and species (European Commission 2008). This reasoning implies a transfer of responsibility to private actors by the construction of moral agency (Shamir 2008).

To sum up, as demonstrated in this part of the analysis, the written text defines biodiversity as the variety of life on earth of which humans are an integral part. This variety is valuable for humans for several reasons, as it provides various goods and plays a key role in humans’ physical and mental well-being. Biodiversity also plays a vital role in the endeavour to manage climate change. Biodiversity, however, is threatened by human activities, such as intensive farming, overfishing and urban expansion, as well as by human-induced climate change and the spread of invasive alien species. In endeavouring to protect biodiversity and ecosystem services, all of humankind is united in a shared faith and must unify in a shared purpose.

6. Conclusions

This analysis of the brochures The European Union’s Biodiversity Action Plan and The EU Biodiversity Strategy to 2020 illustrates how various representations of biodiversity and
understandings of nature can intersect in the same context. Likewise, the inclusion of both images and written text in the analysis elucidates how these two modes of communication differ in representing biodiversity.

One difference is that the content of the written text primarily presents an anthropocentric and economic framing of biodiversity, whereas the visual material is generally characterised by the aestheticisation of nature. Although the written text mentions the intrinsic value of biodiversity and alludes to untouched or pristine nature as a reference point, i.e. a nature in balance, the overall message is based on extractivism, emphasising the instrumental and economic values of biodiversity and ecosystem services for humans. In contrast, the visual material largely features the beauty and wonders of nature, both in the wilderness and in cultural landscapes. This approach to nature alludes to meta-narratives drawing on more universal and abstract ideas rather than specific conditions or sites (cf. Alkon and Traugot 2008). Even when ecosystem services and the economic values of biodiversity are explicitly mentioned in the captions of specific photos, the link between the written and visual messages is weak, implying that the visual material decontextualises the matter from the human exploitation of natural resources.

Another difference between the two modes of communication is that whereas the content of the written text strongly emphasises the threats to biodiversity and the detrimental side of human activity, the visual empirical material generally illustrates the close relationship between humans and nature, with humans engaged in a variety of small-scale outdoor activities. The harm to the environment caused by human activity is shown in only a few of the images, and in these cases, the polluter, the polluting or harmful activity, and the detrimental consequences are implied rather than directly depicted. This visualisation of biodiversity differs from the visualisation of climate change, which often depicts various damaging consequences such as droughts, floods and storms (Ugglä 2008; Smith and Joffe 2009; Olausson 2011). In this way – as also demonstrated in previous studies (Linder 2006; Doyle 2007; Hansen and Machin 2008, 2013) – the visual material in the EU brochures decontextualises the issue of environmental degradation (in this case biodiversity loss) from the concrete actions and processes causing it.

As this analysis of the brochures The European Union’s Biodiversity Action Plan and The EU Biodiversity Strategy demonstrates, biodiversity loss and biodiversity preservation are complex, truly multidimensional matters that can be framed and represented in many ways. Taken together, the framing of biodiversity in the empirical material as a whole conveys an ambiguous understanding of humans’ relationship with nature and the environment by including various partly conflicting themes: humans appreciate and are comforted by nature; humans are dependent on nature; humans both use and destroy nature; and humans care for and restore nature.

The overall regulatory framework for biodiversity conservation is found in the CBD, where the first paragraph of the Preamble states the contracting parties’ consciousness ‘of the intrinsic value of biological diversity and the ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values of biological diversity and its components’ (Glowka et al. 1994, p. 9). Both the European Community and its member states have ratified the CBD, and by its inclusion of both intrinsic and instrumental values in its elaboration on why biodiversity loss matters the European Commission holds on to the intention of the CBD. At the same, both the Convention and the EU policy embrace a variety of values and interests, implying that several environmental discourses may function as
interpretative repertoires and intersect in the same context. The EU policy, thus, is embedded in and reflects the ambiguous modern understanding of the relationship between humans and nature, encompassing a wide range of emotions and rationales for its exploitation, domination and preservation (Oelschlaeger 1991; Merchant 2003), of which all are subsumed in the sustainability discourse. Left out of this discourse, however, is a central element of the various guises of the ‘green critique’, namely criticism of the notion of industrial progress itself (Hajer and Fischer 1999).

The inclusive and partly ambiguous EU policy – as presented in the The European Union’s Biodiversity Action Plan and The EU Biodiversity Strategy to 2020 – is lopsided towards resourcism, not least by its emphasis on ecosystem services. Similarly, ‘the four Es’ concept proposed by European Commissioner Margot Wallström in 2004 and included in the Action Plan tends to transform the established intrinsic value of biodiversity into aesthetic or bequest values (Uggla 2010a), foiling the ambitions behind the inclusion of this value in the regulatory framework (cf. Wuerthner et al. 2015; Washington et al. 2017; Kopnina et al. 2018). Although disputed and the subject of penetrating philosophical discussions,¹ the inclusion of the concept of intrinsic value in environmental regulation could be seen as a tendency towards more holistic approach (Glowka et al. 1994). To serve its purpose it is important that the EU policy matches its own ambitions and refrains from changing its line of biodiversity policy to an entirely anthropocentric matter.

Note

1. An object that holds intrinsic value apparently is something that is valuable for its own sake, independent of its usefulness to someone or something else. The conclusion that something is valuable in itself may be interpreted in two ways. First, value in itself can be seen as ‘self-contained value’, i.e. it would be valuable even if there were nothing else in the world. Second, value in itself can be seen as ‘persistent value’, i.e. the value remains regardless of situation or context (Levinson 2004). Also, it has been disputed whether it is concrete objects (such as a person) or states of affairs, such as pleasures and desire satisfaction, that can hold intrinsic value. (e.g. Zimmerman 2001; Krishnamurthy 2003; Bradley 2006).

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## Appendix 1

Denotation according to headings and captions, total 66

| Categorisation of images, total 121 | Endangered/protected species | Protected habitats Important habitats and species | Rich biodiversity values ‘hotspots’ | Biodiversity Economic value Ecosystem services | Invasive alien species | Overfishing Damage to marine ecosystems | Environmental degradation, pollution, and other threats | Devastating floods related to climate change High costs to society | Politicians Political initiatives | Global concerns Sustainable trade | Care for next generation | Monitoring Planning Research Education |
|-----------------------------------|-----------------------------|----------------------------------------|---------------------------------|---------------------------------|----------------------|----------------------------|-----------------------------------------------|-----------------------------------------------|-----------------|-----------------------------|---------------------------|----------------------------------|
| Animals, 43                       | 17                          | 2                                      | 8                               | 9                               | 3                    | 6                         | 2                                             | 4                                             | 6               | 1                          | 8                         | 1                                 |
| Birds, 14                         | 3                           |                                        | 1                               |                                 |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |
| Insects, 8                        | 3                           |                                        | 2                               | 2                               |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |
| Marine animals, 8                 | 1                           |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 2                                 |
| Wild mammals, 7                   | 4                           |                                        | 1                               |                                 |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |
| Livestock, 3                      |                             |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 2                                 |
| Batrachians, 2                    |                             |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |
| Slug, 1                           |                             |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |
| People, indoor, 6                 |                             |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 2                                 |
| Individual portraits, 2           |                             |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |
| Group portrait, 1                 |                             |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |
| Other, 3                          |                             |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |
| People, outdoor, 27               |                             |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |
| Recreation/tourism, 7             | 1                           |                                        | 1                               |                                 |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |
| Children, 4                       |                             |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |
| Farming, 3                        |                             |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |
| Fishing, 2                        |                             |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |
| Forestry, 1                       |                             |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |
| Bee-keeping, 1                    |                             |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |
| Other, 9                          |                             |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 5                                 |
| Landscape/scenery, 17             |                             |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 5                                 |
| Flowery meadows, 7                | 1                           |                                        | 2                               | 1                               |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |
| Wetlands, 4                       |                             |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |
| Seaside/lake, 3                   |                             |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |
| Groups of trees, 2                |                             |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |
| Forest landscape, 1               |                             |                                        |                                 |                                 |                      |                           |                                                |                                                |                  |                            |                           | 1                                 |

(Continued)
## Appendix 1 (Continued)

| Categorisation of images, total 121 | Denotation according to headings and captions, total 66 |
|-------------------------------------|----------------------------------------------------------|
| Endangered/protected species        | Biodiversity values                                      |
| Protected habitats                  | Economic value                                           |
| Important habitats                  | Biodiversity 'hotspots'                                  |
| Biodiversity                        | Invasive alien species                                   |
| Rich biodiversity                   | Overfishing                                              |
| Biodiversity 'hotspots'             | Damage to marine ecosystems                              |
| Protected habitats                  | Environmental degradation                                |
| Important habitats                  | Pollution, and other threats                             |
| Biodiversity                        | Devastating floods related to climate change             |
| Rich biodiversity                   | High costs to society                                    |
| 'hotspots'                           | Politicians                                              |
| Biodiversity values                  | Sustainable trade                                        |
| Economic value                      | Care for next generation                                 |
| Biodiversity 'hotspots'             | Monitoring                                              |
| Rich biodiversity                   | Planning                                                |
| Biodiversity                        | Research                                                |
| Economic value                      | Education                                               |
| Biodiversity 'hotspots'             |                                                        |
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| Biodiversity                        |                                                        |