VISUALIZING BIODIVERSITY: The Role of Photographs in Environmental Discourse

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VISUALIZING BIODIVERSITY: The Role of Photographs in Environmental Discourse

JANNE SEPPÄNEN AND ESA VÄLIVERRONEN

Photographs have had an important role to play in the ‘environmental awakening’ since the 1960s. If people had not been alerted to the environmental crisis earlier, they certainly were shaken by the images they were shown in their living rooms of oiled seabirds, poisoned fish and forests destroyed by acid rain. At the same time wonders-of-nature documentaries and colourful nature books have continued to offer images of untouched, not-yet destroyed nature.

In juxtaposing ‘virgin’ nature with the nature man has shaped and contaminated, one aim is to get people to take action for conservation. This is most typical of photographs published in newspapers and magazines, television news footage as well as nature documentaries. Images serve to arouse emotions, to stimulate action or to open up windows on the nature that still seems to exist somewhere out there. Indeed photographs are often used to provide proof of dramatic environmental changes. Other types of scientific illustrations are also used for the same end of providing incontrovertible evidence: these may include maps describing the thinning of the ozone layer or graphs illustrating the advance of climate change.

In this article we discuss the role of the photograph in environmental communication. More concretely, we are concerned with the definition, popularization and visualization of biodiversity in newspaper articles. We argue that photographs are crucial elements in the production of meanings. Like linguistic metaphors they are selective means of popularization with their ability to highlight certain aspects of reality while hiding others. Besides that photographs are used to construct social relations between different actors and to evoke emotions that do not translate easily into linguistic form. This makes photographs and other visual images important elements in the...
definition and popularization of such abstract scientific concepts as biodiversity.

Our material consists of stories published in *The Times* in 1990–1997, and the analysis starts out from the photographs featured in these stories. We are interested in exploring the meanings produced by these photos, in the way in which biodiversity is perceived and concretized as well as in the dynamics between the photograph and the text.

We approach the photograph as a sign, or more precisely as a combination of different sign systems, whose meanings depend upon its cultural contexts, on the social practices in which the photograph is involved and that the photograph itself maintains. A photograph is never a neutral representation of reality, but always tied up in various ways with issues of power, politics and practices of representation (Lister, 1995; Tagg, 1988, 1992; Sekula, 1982; Burgin, 1982).

### METAPHORS AND IMAGES IN ENVIRONMENTAL DISCOURSE

A basic premise for the definition of environmental problems is that ‘nature is mute, she does not give us explicit advice; she only forbids, sometimes only post festum’ (Haila and Levins, 1992, p. 13). Although some environmental changes are visible to the naked eye, the causes, consequences and remedies always have to be deduced separately on a case-by-case basis. In addition, it seems that many recent environmental problems have become more removed from our everyday sphere of observation.

Ulrich Beck (1995) refers to the ‘expropriation of the senses’: we are unable to smell, taste, hear or see environmental risks. For this reason we are largely at the mercy of the information and interpretations produced by experts and the media. The examples that Beck mentions are chemicals and radioactive radiation, which certainly fit in with his description. On the other hand, his generalizations seem to be simplistic and straightforward. Some problems are in fact still accessible to the senses, such as air pollution in inner cities, blue algae and noise pollution. However, our interpretations of these sense perceptions are mediated in various ways, and visualization plays a key role in identifying and interpreting problems (Macnaghten and Urry, 1998).
Nature is customarily viewed through metaphors, political rhetorics and media images. We have metaphors—like the ‘ozone hole’ and the ‘greenhouse effect’ or images of burning Amazon forests, temperature graphs and satellite pictures of the ozone layer—to make these global environmental issues more concrete. This role makes metaphors and visual images important elements of environmental discourses and political struggles (e.g. Franklin et al., 2000; Hajer, 1995; Levidow, 2000; Myerson and Rydin, 1996; Väliverronen, 1998).

The use of metaphors as well as other tropes is based on identification, which points to the relation between the speaker and his/her audience (Burke, 1989). Identification means not only identifying things that have certain properties and that belong to a larger whole, but also identifying common interests and feelings proposed by the speaker (pp. 179–188). In political rhetoric metaphors are used to mobilize thinking and action in certain directions by evoking feelings and establishing links with existing norms. In theories of metaphor, this function has been ascribed to ‘generative metaphors’ (Schön, 1993), which act as perspectives or frames that serve to shape thinking and behaviour.

In order to be effective, metaphors must resonate in multiple contexts and at multiple levels of discourse. This also means that metaphors may have many and sometimes contradictory meanings. Not everyone who uses a metaphor necessarily uses it in the same way or accepts the normative connotations implied. Successful metaphors thus establish a ‘common ground’ for those different interpretations and feelings (Väliverronen and Hellsten, 2002).

Images have also had an important role as symbols, metaphors and metonyms in environmental discourse. Activists protesting against acidification and forest destruction have painted images of skulls on tree trunks. Environmental organizations have used highly emotive animal symbols to promote their campaigns. Hajer (1995) argues that the picture taken of the Earth from the Apollo spacecraft in the 1960s is one of the most powerful symbols of environmental policy. The colourful image of the globe, drifting in the cold darkness of space, partly shrouded in cloud, was adopted as a symbol of nature and its dependence on man’s actions (see also Franklin et al., 2000). At the same time it created a host of new metaphors—Spaceship Earth, Life Boat, etc.—that were used in arguments.
concerning the limits to growth and to reinforce contemporary views of nature as a closed system.

However, the relationship between the photograph and nature is a very special one. That is, photographs are used not only as a means of representing nature. The photograph itself is understood as nature’s paintbrush.

THE PHOTOGRAPH AND NATURE

Inventor of the daguerrotype, Louis Jacques Mandé Daguerre (1787–1851), described his discovery as follows: ‘The daguerrotype is not merely an instrument which serves to draw Nature; on the contrary it is a chemical and physical process which gives her the power to reproduce herself’ (Daguerre, 1980, p. 13). Henry Fox Talbot (1800–1877), who in turn invented the calotype, called his first book that was illustrated with photographs *The Pencil of Nature* (1843). Although both these pioneers of photography stressed the photograph’s likeness to nature, they recognized that the photograph is also a product of the photographer’s efforts and as such a cultural object. In other words, even at the time of its creation the photograph was interwoven with the understanding that its essence lies in nature on the one hand and in culture, on the other.¹ This binarity was to become a key aspect of the photograph, which is reflected in various ways in the texts of more recent analysts of the photograph, such as André Bazin, Roland Barthes and Susan Sontag.

This discursive distinction between nature and culture has influenced and continues to influence the way that questions about the truth of the photograph are asked. The dilemma is neatly captured by the famous American photographer Lewis W. Hine: ‘While photographs may not lie, liars may photograph’. For Hine, the photograph’s likeness to nature and its automaticity are antithetical to the unpredictability of human subjects. Nature is unbribable, the photographer is not.

From a semiotic point of view this likeness to nature is based on the photograph’s indexicality and metonymy. Its indexicality derives from the fact that the photograph is created in a causal process, drawn as it is by light rays. The light rays emitted by the object create a reaction on the light-sensitive film, which through
various chemical and optical stages become a photograph on photographic paper.

The metonymy of the photograph, then, can be understood in two, overlapping ways. When the shutter opens, light rays (which consist of waves and matter) bring together the object and the film surface for the duration of exposure. In other words, the film surface and the object constitute a material locus whose both ends are tied together by the bond of light rays. When the shutter closes, the locus is dissolved. The object continues on its way, light continues to flow and the exposed negative remains in the camera. Seen from this point of view, we might argue that the photograph is in fact a material part of the object it represents. The other side of the photograph’s metonymy is that it is always a representation of some larger entity. A photograph frames a small part of the visible area and in so doing metonymically represents the whole area.

Given its strong elements of metonymy and indexicality, the photograph is in effect a sign or a symbol (or more accurately, an entity composed of different kinds of signs) that is characterized by both a causal and a material relationship to whatever it represents. In this sense the photograph differs from many other sign systems, such as written verbal language. The common notion that a photograph provides strong evidence for the existence of an object is based precisely on the metonymy and indexicality of the photograph, i.e. its ‘likeness to nature’. A photograph is considered to have the same evidential force as any specimen from nature. A good example is provided by fossil impressions.

However, there is no natural connection between the photograph’s indexicality, metonymy and truth functions. Consider all the pictures that have been taken of UFOs or the Loch Ness monster, for instance (see Tagg, 1988). No matter how many pictures have been produced, there is still not solid enough evidence of the existence of either. The point is that certain uses draw on the indexicality and metonymy of the photograph to corroborate its truth, while others do not. In some discourses the naturalism of a photograph is crucial to corroborating the truth, in others it has no weight at all. A picture of the Loch Ness monster proves nothing unless it is published in Nature complete with a detailed scientific explanation as to how this creature could have survived to the present day. In other words, the naturalism of a photograph as a
strategy of establishing truth depends upon the practices in which the photograph is embedded.

We may also approach the relationship between the photograph and nature from another angle. A photograph is not just a part of nature, but it constantly translates and shapes nature into cultural representations. Nature photographs represent decisive moments in nature: breathtaking landscapes, rare animal species, and exotic places. On television, ‘wonders of nature’ series construct nature and often portray animal behaviour in human terms by inserting stories and characterizations familiar from human life. Authentic nature is also used as a source of visual material in advertising. The culturalization of nature, as Claude Lévi-Strauss points out in his famous metaphor, can be likened to cooking: raw meat is brought into the cultural sphere when it is cooked for human consumption. Judith Williamson compares this idea to advertising: ‘In cooking, nature, in the form of raw material (e.g. meat) enters a complex system whereby it is differentiated culturally (for example it may be roasted or grilled). In just the same way, images of nature are “cooked” in culture so that they may be used as part of a symbolic system’ (Williamson, 1985, p. 103).

It might not in fact be stretching the point too far to suggest that photographs, films and advertisements have begun to take over from the immediate, authentic experience of nature. With the tremendous colour scale, the narrative pleasure afforded and digital image enhancement techniques, it may even begin to seem more authentic than reality itself (cf. e.g. Baudrillard, 1994).

So the relationship of the photograph to nature is twofold. First, the photograph is seen discursively as a part of nature. This understanding is interwoven with the photograph’s truth functions in the way described above. Second, nature photographs are constructed into a public spectacle that in itself is (simulated) nature. This simulated nature can appeal to the viewer’s emotions in many different ways, i.e. it may become the target of ‘affective inputs’.

**BIODIVERSITY AS A NEW TOPIC IN ENVIRONMENTAL DISCOURSE**

During the 1990s biodiversity loss became one of the ‘big’ environmental issues, comparable to acid rain, ozone depletion and climate
change. It was first acknowledged as a global environmental problem during the UN conference on environment and development in Rio de Janeiro in June 1992: together with global warming, biodiversity was the main issue on the meeting’s agenda. During the conference the Convention on Biological Diversity was signed by 155 states.

As a scientific concept, biodiversity combines three different levels: genetic, species and ecosystem diversity. Variety and heterogeneity are key aspects of the dynamics of life at all these levels. This conceptual invention, depicted in terms of biotic diversity or biological diversity, is usually traced to the late 1970s and early 1980s and to the birth of a new discipline, i.e. conservation biology. However, it was only with the introduction of the abbreviation biodiversity in the National Forum on BioDiversity (see Wilson, 1988), organized in Washington, DC in September 1986, that the issue was adopted on the public agenda. The Forum gained considerable publicity in the US media through such prominent spokespersons as Paul Ehrlich and Edward O. Wilson, who together with some other well-known scientists called themselves the Club of Earth, announcing that ‘the species extinction crisis is a threat to civilization second only to the threat of thermonuclear war’ (Mazur and Lee, 1993, p. 704).

Despite the successful launch of the term in the US media during the National Forum in 1986, biodiversity did not attract very much public interest before 1992. However, two closely related issues, namely the mass extinction of species and the rapid destruction of rain forests, did emerge as popular topics, at least in the US media in the late 1980s (Mazur and Lee, 1993; Collins and Kephart, 1995). These issues were incorporated in the agenda of global environmental problems, most notably discussed in terms of ozone depletion and global warming.

In contrast to forest destruction and acidification that have been symbolized by images of skulls painted on tree trunks, ozone depletion that has been symbolized by aerosol canisters and satellite images, and climate change that has been symbolized by smokestacks and temperature charts, the destruction of biodiversity has had no special and distinctive symbol of its own. Indeed it has proved a very difficult task to popularize and visualize this particular problem.

Perhaps the most common way of popularizing and visualizing biodiversity is via endangered species (Mazur and Lee, 1993). This
links the problem with earlier environmental thinking and its imagery. Many conservation organizations, for instance, have used large endangered species such as pandas, tigers, whales and elephants in their symbols. These ‘charismatic’ and ‘photogenic’ species have become familiar to us not only in advertisements and news pictures, but also in picture books, magazines and above all in nature documentaries. Images of burning rain forests have also been used to symbolize biodiversity loss.

VISUALIZING BIODIVERSITY IN NEWSPAPER PHOTOGRAPHS

For the purposes of our analysis we ran a search on the electronic files of The Times, using the keywords ‘biodiversity’ and ‘biological diversity’. The search yielded 168 relevant stories published during 1990–1997. We reviewed all these stories and excluded those in which biodiversity was mentioned only in passing or as a minor sideline. This left us with 69 stories. We then conducted a quantitative and qualitative analysis of the illustrations of these stories. There were 42 illustrated stories: 31 of the main illustrations were photographs, seven drawings and four graphs.

The photographs were then grouped into three categories according to their theme: nature (16), nature and humans (six), and humans (seven); two pictures were hard to classify in any of these categories. We then identified the primary actor in the photograph. Researchers appeared far more often than any other group in photos showing people; politicians and representatives of environmental movements appeared less frequently.

It is immediately clear from this simple quantitative analysis that photographs are by far the most common way of illustrating newspaper stories. Furthermore, photographs—which digitalized or not—still have a central role in the larger visual culture, leisure activities and consumption (Lister, 1995). For these reasons we have decided to focus here exclusively on photographs—even though it has to be admitted that the inclusion of different kinds of graphic illustrations and drawings might have added interesting new dimensions to the analysis.

Another result of this quantitative examination is that the most common theme of the photographs is nature (without human
Almost without exception, the nature photographs appearing in *The Times* concentrate on introducing different species. For instance, there was not a single picture of destroyed nature. Representations of untouched nature were also very rare; there were no pictures at all of the kind of tranquil scenery that is typical of landscape photography. One picture that deserves separate mention is a satellite image of the Earth’s surface, which might perhaps also be classified as a nature picture.

It should come as no surprise that most pictures represent animal species, after all the number of species is one of the key measures of biodiversity and the extinction of species is a very real and significant related threat. In the imagery of endangered and often exotic species, nature is constructed as a gallery of rarities, providing the broader audience with an opportunity to marvel at species they may have never seen before. A typical example of this way of visualizing biodiversity is the story published in 1995 under the heading, ‘United effort to preserve Britain’s natural wonders’.

These kinds of photographs perform one of the camera’s most important functions: it serves as an extension to our senses in the same way as other equipment that is used in the observation of nature. The camera can capture on film exotic species that we otherwise would never get to see; it can capture ‘decisive moments’ in nature, such as eagles mating or a bumblebee in flight, or species that are on the verge of extinction. This role of the camera ties in closely with the photograph’s function of authentication: the photograph is considered to provide proof that whatever it represents really exists, or has at least existed at the time the picture was taken. In this way pictures of individual species are constructed as part of the broader cultural significance of the photograph as a record and as a piece of evidence. Another common function of the photograph in nature conservation discourse is to capture the spectator’s attention by showing exotic scenes from nature. They seem to play a ‘celebratory role’ (Law and Whittaker, 1988, p. 171): books on environmental problems are illustrated with stunning pictures of natural beauty.

From the material of 42 illustrated stories, we singled out three for more detailed analysis. We focus on the way that nature is represented, on the relationship between man and nature and on the politics of biodiversity. The photographs represent the main themes and actor categories identified above. The stories themselves are
New wildlife database will keep tabs on our rarest flora and fauna and halt the ravages of 20th-century pollution

The commitment to protect national assets such as Sana Cfin in Pembroke and the sand lashed grew out of the Rio Earth Summit in Brazil three years ago.

United effort to preserve Britain’s natural wonders

The sight of the violet-clad bumble, the Lonely caryophyll, and the Deepwater river mouse are set to form part of a vast national computer database of Britain’s rarest species.

The Department of Environment, in an unprecedented collaborative drive to protect and boost the population of 86 of the nation’s animals and plants.

The plans, that is to say, an unprecedented alliance of farmers, wildlife groups, farmer’s leaders, scientists and officers of conservation agencies.

The plans also include in types of habitat such as limestone, peat and acid woods. Experts believe the creation of the recovery plans, aimed at reversing the ravages of pollution, road building and intensification, could provide a golden opportunity to establish the Bio-diversity Database. It will not only encourage the location and numbers of the country’s rich wildlife but set in the central source point from which improvements or further declines in species can be monitored.

The success of the Government’s Joint Nature Conservancy Council, based in Pembroke, says Britain is blessed with a wider selection of natural areas – the green spaces where the rarest of plants and animals can thrive.

In turn, the database will provide a richer knowledge on a whole host of British organisms, especially in the environment agreed at the Rio Earth Summit in Brazil three years ago.

The brown hare: natural part of Britain’s rich wildlife

Under threat from the ravages of modern pollution: the High Brown Fritillary, the Yellow Marsh Saxifrage, the Heath Fritillary and the Lady’s Slipper Orchid

about key issues in the protection of biodiversity, such as the protection of individual species, the conflict between humans and nature and the threat of mass extinction (cf. Mazur and Lee, 1993; Hannigan, 1995; Väliverronen, 1998). Collins and Kephart (1995), for instance, observed in their study on the coverage of biodiversity in US media in 1986–1993 that the problem was typically represented either in terms of a ‘race against the clock’, ‘political wrangling’ or in terms of a conflict between ‘the economy and the environment’.

MASS EXTINCTION

Our first example is an encounter between man and nature in a newspaper photograph. In 1996 *The Times* published an interview of the famous anthropologist Richard Leakey by Sam Kiley. The heading is an excerpt from the interview: ‘Corruption and poverty are killing thousands of species’.

The text begins with a description of the circumstances under which Dr Leakey is currently working, which are very difficult indeed. The former head of Kenya Wildlife Services, Dr Leakey has now turned to opposition politics and has formed his own party the Safina (The Ark) to advocate the interests of nature conservation. Phone tappings, thrashings from police and violence by youth mobs are everyday occurrences.

After this introduction the story moves on to Dr Leakey’s latest book, which is due for publication the following month. The book is called *The Sixth Extinction: Biodiversity and Its Survival*. According to Dr Leakey our planet has seen five major extinctions in the last 4,000 million years, each of which has brought a whole new cast on the stage that is planet Earth. The ongoing, sixth mass extinction, is wiping species from the face of the Earth at an unprecedented rate: ‘The aim of the book is to make people aware that, because we are the asteroid or comet heading for Earth, we can at least try to control its size and trajectory’, Dr Leakey says.

The story is illustrated with a photo of Dr Leakey, holding a skull in his hand. He is looking straight into the camera, with a quiet lake scenery in the background. Dr Leakey’s facial features and profile are brought out by a light from the left of the picture; the same light also brings out the distinctive shape of the skull and its bone arrangement.
‘Corruption and poverty are killing thousands of species’

There have been five mass extinctions in the Earth’s history. Richard Leakey talks to Sam Kiley about his crusade to halt the sixth.

Published next month, the aim of the work is to give humanity a cold shower, and it has a link to his broader mandate as political activist. I want to end the arrogance of our species and introduce some humility,” he says.

There are certain dimensions he has dealt with human evolution, based in large part on the findings of his parents, Louis and Mary, and his own discoveries in the Olduvai Gorge. Last year, he was driven to write his latest book, The Sixth Extinction: Biosphere and Its Survival (with Roger Lewin), which is set to be released next month. The theme is based on the idea that the Earth’s climate is changing and that the planet is facing a mass extinction, leading to the idea of how we can prevent it.

How would you find

I don’t think that sitting back and being quiet is in my blood.” Richard Leakey says. “Perhaps it’s the missionary genes that brought my family here three generations ago.”

The cause of the extinctions are a matter of heated debate, but Dr Leakey favours the view that they have been set off by events between the Earth and massive asteroid and comet. For other explanations for the sudden disappearance of almost all life in certain time periods can be found.

“Where is the Sixth Extinction? When is it coming? What is its cause? It’s the best mobilisation of vast numbers of species. It is happening now. And, the human race, and its cause,” explains Dr Leakey. Every year, between 17,000 and 50,000 species vanish from our planet, he says. For the sake of argument, let’s assume the number is 30,000 a year. If you look at a single day, say the 29th February, the Earth is a daycare centre for the planet, or even a shower of vast biodiversity.“

The scientists have estimated that the Earth’s climate is changing and that the planet is facing a mass extinction, leading to the idea of how we can prevent it. The first step is to reduce our carbon footprint and reduce the demand for goods and services. The second step is to protect the biodiversity of the planet and the species which inhabit the planet. The third step is to reduce the demand for goods and services.

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So what is the Sixth Extinction? When is it coming? What is its cause? It’s the best mobilisation of vast numbers of species. It is happening now. And, the human race, and its cause,” explains Dr Leakey. Every year, between 17,000 and 50,000 species vanish from our planet, he says. For the sake of argument, let’s assume the number is 30,000 a year. If you look at a single day, say the 29th February, the Earth is a daycare centre for the planet, or even a shower of vast biodiversity.“

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Credit: Chip Hires, Gamma photo agency (from The Times, 22 January 1996).
Dr Leakey’s expression is serious and rather tired, as if he were saying that he’s got better things to do than stand here and pose for this photographer. This is no scene of hope, but a resigned man who has been brought in front of the camera.

The visual balance in the shot is provided by the skull that Dr Leakey is holding in his right hand, which at once brings a very strong metaphorical element into the picture. The human skull must be one of the most metaphorical objects imaginable, with death probably seen as its foremost meaning. Although the composition may be regarded as cliché, the photographer has nonetheless succeeded in creating a representation that creates a powerful dialogue with the text. However, Dr Leakey is not in dialogue with death; it is not the skull he is looking at. In the context of the story, the existence of the individual subject remains a secondary issue. Instead, the composition generates a metaphor, which highlights the tension unfolding between the threat of extinction and human activity. In written form, the metaphor reads like this: extinction is in the hands of humankind itself.

At a metaphorical level then, the photograph constructs a relationship between humans and nature, though the nature that appears in the picture itself remains very much in the background. Unlike Hamlet, whose dialogue is with death, Dr Leakey appears to be explaining to the reader what is going on. Dr Leakey’s gaze ties the viewer into the picture as a third party to the drama, who cannot just stand by and watch what is happening. Dr Leakey’s bearing, the skull and the gaze combine to ask the question: so this is what we have come to, what can we do? Together, the photograph and the caption also introduce the theme of otherness into the image (see e.g. Hall, 1997): this is the theme of white man with a mission in the heart of Africa. Interpreted from this angle, Dr Leakey’s resigned expression and the metaphorical skull can be seen as reflecting the seemingly hopeless efforts of white man to bring the light of reason into darkest Africa. Insofar as this kind of interpretation makes sense, the story effectively reproduces the old stereotype of civilized Western countries vs. barbarian colonies.

On a more mundane plane, the skull might also mobilize anthropological meanings. Perhaps Dr Leakey is holding in his hand a relic that dates back tens of thousands of years, the skull of one of our extinct ancestors. In this reading the skull draws our attention to the
temporal dimension, referring to the evolution of species and to their disappearance over time. This provides a direct link to the time dimension of the story, which describes five mass extinctions in history and the ongoing sixth mass extinction.

The text says much more about Dr Leakey and his forthcoming book than about biodiversity; this is primarily a story of an interesting personality and his views. This is immediately clear from the layout: the photograph spreads out across six columns and takes up as much space as the text itself. In fact the term biodiversity only appears once in the whole text, and even then as a reference to the subtitle of Dr Leakey’s book. So how exactly do the text and the photograph contribute to popularizing this new scientific concept and the slogan of environmental policy? There is no question that this story has to be seen primarily in terms of giving a face to biodiversity and only secondarily in terms of popularizing the concept. The face belongs to the scientist and political activist Dr Leakey, who epitomizes the concern about the future of our environment.

Scientists and conservation biologists in particular have played a major role in the construction of the biodiversity crisis as a new environmental problem. According to Takacs (1996, p. 1), ‘as a result of a determined and vigorous campaign by a cadre of ecologists and biologists over the past decade, biodiversity has become a focal point for the environmental movement’. These scientists: Ehrlich, Wilson, David Ehrenfeld, Michael Soulé, Norman Myers as well as Richard Leakey and many others have brought the issue onto the public agenda. For them, the loss of biodiversity has often provided a basis for apocalyptic narratives of the rapid and seemingly irreversible extinction of species due to human intervention.

**SAVING THE ELEPHANTS**

Our second example comes from the category of nature pictures. On 28 May 1994, *The Times* published a story by Adrian Brooks and Marianne Curphey under the heading, ‘Britons save elephants from South African cull’. The first part of the story describes the efforts of the British-based International Fund for Animal Welfare to save elephants in South Africa: it has transported 158 animals from the Kruger National Park into private game reserves.
The rest of the story, in fact the biggest part of the story, deals with hunting for sport in Kenya, which it is reported might be reintroduced 17 years after it was banned. The reporters have interviewed Mr David Western, the director of the Kenya Wildlife Service, who links the protection of elephants (and other endangered species) to the problem of biodiversity: ‘The 54 protected areas are too small and ecologically isolated to survive without losing biological diversity’. Therefore, Dr Western promises to begin a conservation programme outside the parks as well.

The story is illustrated with two photographs. The main picture above the heading features a family of elephants; the caption reads: ‘A family of elephants in the Kruger National Park, Northern Transvaal, being driven towards a capture team after being separated from the main herd’. The second photograph runs the length of the story in the right-hand side column and shows a single elephant with its trunk hanging out of the top of a transporter: ‘An elephant on the journey by transporter to its new home in the Welgevonden game reserve’.

If we leave aside the text for a moment and concentrate on the two pictures, with the family of elephants on the left and the single elephant in a transporter on the right, we can see a clear story emerging. A free animal has been captured and will now be taken away somewhere. This is an emotive setting and causes a sense of unease in the spectator. The two photographs evoke the binarity free/captured, which in turn points at other binarities such as human–nature and culture–nature. They also create the dynamic tension in the text between the economy and the environment. People are capturing free animals; culture is destroying nature. If the order of these two pictures were reversed, the same binarities would come into play but the story would now be different: from captivity into nature. This brings us to the intriguing question of how the direction of reading and the overall visual composition impact the meanings of a set of pictures.

We normally read from left to right: on the left is what we have already read (old), on the right is what we have not yet read (new). Günther Kress and Theo van Leeuwen conceptualize this same point by using the terms Given–New (Kress and van Leeuwen, 1996, pp. 186–192). They say (p. 187): ‘When pictures or layouts make significant use of the horizontal axis, positioning some of their
elements left, and other, different ones right of the centre (which, does not, of course, happen in every composition) the elements placed on the left are presented as Given, the elements placed on the right as New'. In other words, Given is something that is already clear to the spectator. New, by contrast, is always represented as something the spectator does not yet know. ‘Broadly speaking, the meaning of the New is therefore “problematic”, “contestable”, “the information ‘at issue’”; while the Given is presented as commonsensical, self-evident’ (Ibid.).

Applied to the two photographs analysed here, this seems to be problematic. For instance, does the description ‘commonsensical and self-evident’ really apply to the picture on the left; and the description ‘problematic’ and ‘contested’ to the picture on the right? It is in fact not necessary to operate with as detailed meanings as this; the principle in question is a much more formal one. Quite simply, we are used to reading stories from left to right; the beginning of the story is on the left, the end on the right. This determines the direction in which different elements are interpreted, not necessarily how their meanings are related to one another, at least not on the Given–New dimension.

If the main picture in the story is removed from this context, it could well be seen as a representation of authentic and untouched nature. By all accounts the photo has been shot from an aeroplane, showing a familiar image of a herd of animals escaping the sound of an approaching plane: we have seen this before in nature documentaries that often use aerial photography in remote and inaccessible areas. The other photo in the story portrays a captured animal. However, the captions and the heading make it clear that these meanings are irrelevant. The caption of the main photo anchors what in itself is an anonymous photograph to a certain time and certain place and assigns to it a completely opposite meaning. This is a document of an operation to save elephants: the herd is being driven towards the rescue team that will eventually capture the animals. The caption of the picture on the right also de-emphasizes meanings of captivity: this is just a temporary measure whose purpose is in fact to give the animal a better chance of survival. The headline of the story ties together both these meanings and suggests a strong primary direction for interpreting the photos.

This is a typical situation where the meanings of a photograph are
fixed by its caption. The primary meanings of the story as a whole are determined by the texts, but they are unable to eliminate any elements carrying opposite meanings. The way the story is constructed serves as a good example of how meanings are layered and how they are created through partial exclusion.

The text is based, in part, on the same binarities as the photos. The most dominant of them is the binarity of economy versus environmental protection. Since elephants and other wild animals are causing destruction to crops, farmers at least would prefer to get rid of them rather than protect them. This is a familiar setting for both sides of the debate, in which conservation appears as a zero-sum game: victory for one or the other party necessarily implies a loss for the other.

The story does little to shed any new light on the concept of biodiversity; it is simply concerned with the extinction of species, just as the previous example. It does, however, introduce a new way of addressing environmental problems in general and the problem of biodiversity in particular. That is, not only does the story articulate the familiar conflict between environmental and economic interests, but it actually makes an attempt at reconciliation. Dr Western, who is interviewed in the story, suggests that the best way to protect elephants and other large mammals is to reconcile economic interests with environmental protection. This, Dr Western says, could best be achieved by reintroducing sport hunting, which could ‘lead to conservation in areas where wildlife would not otherwise survive’ and by promoting tourism, with tourists charged ‘an additional “wildlife viewing fee”’. These examples represent a new environmental discourse that has gained more and more ground since the late 1980s: the protection is justified by reference to economic criteria. According to Maarten Hajer (1995, 1996) these shifting emphases are related to more sweeping changes in environmental policy, which he calls the process of ‘ecological modernization’. Whereas the environmental debate used to revolve around fundamental conflicts, the discourse of ecological modernization aims specifically to resolve these conflicts or at least to push them into the background.

The integration of environmental protection with economic growth was a prominent theme at the Rio summit. Not only did the treaty reflect concerns about the extinction of species and the destruction of their habitats; it also reflected the interests of the global
economy and more specifically of biotechnology industries. An important part of the treaty was the protection of genetic diversity and the distribution of the profits gained from genetic material between Western industrial countries rich in economic terms but poor in biodiversity, and developing countries poor in economic terms but rich in biodiversity (Baumann et al., 1996; Hannigan, 1995; Vä liverronen, 1998).

In this sense the story on saving elephants indicates that the protection of biodiversity is not just a zero-sum game; it is also about weighing economic benefits. Yet it is interesting to note that the photos in the story, which take up roughly two-thirds of the column space, lean on such binaries as nature vs. humans, nature vs. culture, free vs. captive. Indeed the photos and the text, both separately and together, can be interpreted in many, even contradictory ways. Perhaps the strongest element of uniformity, also supported by the headline, is the binarity between Western (British) saviours of the environment and ignorant Africans, ruthlessly destroying biological diversity.

**ENVIRONMENTAL POLITICS AS GAME**

Our last example comes from the category of pictures representing humans—doing the ‘politics of biodiversity’. A news item on the 1992 Rio summit says in its headline: ‘Major ready to sign biodiversity treaty. Britain respects Bush resistance’. The item is preceded by a long story on the front page of the newspaper: ‘Major fails to persuade Bush on Rio treaty. Leaders agree to disagree’.

The news story concerns the biodiversity treaty discussed at the Rio Earth summit. British Prime Minister John Major has been prepared to sign the treaty, albeit reluctantly. US President George Bush, on the other hand, has refused to sign the treaty on the grounds that it would jeopardize the interests of biotechnology industries, and at the same time US national interests. Mr Bush and Mr Major met at Camp David to discuss the Rio biodiversity treaty, among various other issues.

The photograph in the story spreads across four columns, showing Mr Bush and Mr Major in a golf cart; they have Mr Bush’s dog between them. There is no mention of either the photographer or the photo agency. The caption reads: ‘In the driving seat: John Major
persuading Ranger, the presidential dog, to move over as President Bush drives them in his golf cart at his Camp David retreat. The two leaders discussed their stances on environmental accords at the Earth summit in Rio de Janeiro’.

Strictly speaking this shot could be classified in the humans-and-nature category: after all it also features a dog. In this case the dog would refer to nature shaped by humans for their own ends. This, however, is not where we will find the primary meanings of the dog that appears in this shot. Instead, the dog introduces an informality in the situation. The message conveyed by the presence of a presidential pet is that the two leaders are meeting and having discussions not where they would do so normally around the negotiating table. Mr Bush’s unbuttoned shirt points in the same direction, as of course does driving around in a golf cart. Mr Major’s tie sends out a more formal message, although that is very much undermined by him scratching Mr Bush’s dog. These elements soften the image of male politicians and are very powerful emotionally: the affective appeal of Mr Bush’s pet is transposed onto the two men appearing in the photo, who are both clearly enjoying themselves and trying in the kindest possible way to get the dog out of the ‘driving seat’.

Credit: Dennis Cook, Associated Press (from The Times, 8 June 1992).
In a generic analysis this photo may be slotted in a category of photo journalism that could be labelled ‘informal pictures of politicians’. The power of these informal messages lies in the stark contrast they create with tough decision-making, with the logic of economic interests and political calculation. In that sense they fall outside the political realm, in fact they could be seen as antithetical to the political realm. The ‘plainness’ underlines that politicians are just people like the rest of us, that they still can connect with ordinary people.

The paradox is that it is precisely the ‘informality’ of these photos that makes them so profoundly political. The informal is transformed into a formal, structured and controlled exercise of image-building. It is crucial for the image of politicians today how they are portrayed in the informal domain—which is of course well-known to every campaign office. The political within informal photographs derives largely from unconscious identifications and related affects. Let us examine the photograph of Mr Bush and Mr Major from these two different vantage points. The spectator may identify with one or the other politician in the picture, or possibly with both. For some male spectators, Mr Bush may represent a real interface for identification. For someone else, Mr Bush may represent values so alien that the only feelings they can project onto the photo are feelings of anger; they will ignore the story altogether.

Alternatively, the spectator may identify with the situation, its apparent warmth and conviviality. This is possible even if the spectator takes a critical view on the politicians featured in the photograph. Identification with the situation is important with respect to the story’s meaning universe.

So the photograph allows the spectator to identify with a situation which involves a social bond between two men. It is easy to get a sense of the genderedness of the situation if one removes Mr Bush and imagines a woman in his place. This would bring into the photograph the ideological meaning universe that is associated with having a ‘woman behind the wheel’. We now have on the front seat two apparently ‘competent’ men, whose camaraderie radiates from every pixel of the shot. Its meanings have to do with spending time together, friendship, and solidarity. The camaraderie of the two men gives at least to the male spectator ample opportunities for affective involvement.
Once again the photo constructs meanings that stand in a dialogical relationship with the text. First of all, it underlines the point that the talks between Mr Bush and Mr Major have been conducted in an atmosphere of mutual understanding. Indeed the photo might even be taken to convey the message that the Rio Earth summit really should not be allowed to spoil the good fun these men are having. It is just as well to talk things over during a round of golf. As the text of the story makes it clear that Britain respects the position of the United States, the photo adds to this an affective element with which many readers can easily identify.

The golf setting is of course an important scene for customer relations in the business world as well. It is a physical, boundaried space where men get together to relax and make important decisions. The informal game serves as a leisurely backdrop to formal business and at the same time as an important scene for doing business. It is into this meaning context that the golf cart is taking Mr Major and Mr Bush.

In this register (insofar as it is relevant) the photograph also brings economic metaphors into play: reaching agreement on environmental issues is essentially bargaining. This creates an interesting tension with the points raised in the text itself, which says one of the main reasons why Mr Bush cannot sign the biodiversity treaty is the resistance on the part of industry. In other words, the economic logic not only dictates what can be agreed; it also creates the scene on which the negotiations are conducted.

This opens up two possible avenues for interpreting the photograph. On the one hand the photograph may be taken to naturalize this kind of setting: it is natural that the scene for agreeing on biodiversity and the contents of the negotiations are a matter of trading. On the other hand, the photograph may be taken to lay bare the way in which the economic logic in industrial countries dominates both politics and biodiversity agreements.

Games and bargaining are of course familiar metaphors that are frequently used to describe the process of politics. They provide journalists with a useful way of popularizing politics, introducing an element of drama or the opportunity to make behind-the-scenes revelations. Both these metaphors underline strategy and tactics, the interests of the parties involved, the importance of controlling the situation. At the same time they also de-emphasize certain other
aspects of the process or certain other actors. In the present case it is the importance of protecting biodiversity as well as the objectives and means of protection that are sidelined. The photograph also makes it clear whose game this is ultimately about: we have two male, white golfers from the industrial world, with no sight of anyone from the Third World.

The story is first and foremost about the defence of one’s own interests, about the desire to win or at the very least to save one’s face. This emerges clearly from the reporter’s comment towards the end of the story as to why Britain agreed to sign the biodiversity treaty even though it was not fully satisfied with the text: ‘Mr Major found it politically impossible to avoid signing the treaty after Britain had played a significant role in setting up and publicizing the summit and its conventions’. The sentence can probably be interpreted as an expression of ‘political realism’ rather than one of ironic distanciation, which is also typical of present-day journalism. The story itself is largely in line with the position taken by the British government at the Rio summit, which is also supported by its discursive composition. The only parties who are given a voice in the text are representatives of the British government.

**IMAGE AND TEXT IN THE PRODUCTION OF MEANINGS**

Photographs and written text may produce the same meanings, but do so in different ways (Kress and van Leeuwen, 1996, p. 31). Photos can be used to produce a whole range of meanings that are difficult to reproduce in writing—and vice versa. Take for instance joy, sadness, depression, and exhilaration. A good writer will certainly be able to convey these feelings, but a photograph of someone who has just lost a close family member, for instance, will take the spectator more immediately and more intensely into the sense of sorrow and loss. Photos bring into newspapers an affective register that ties into the reader’s interpretations and feelings. What, then, could we say about the relationship between the photograph and the text in the visualization of biodiversity?

The photographs in this material have four key functions in the production of meanings concerning biodiversity. They

(1) concretize a complex scientific problem;
(2) construct social relationships between different actors;
(3) provide an opportunity for affective involvement; and
(4) produce a ‘reality effect’.

That most nature photographs concentrate on introducing readers to different species clearly underlines the extinction aspect of biodiversity: this helps to concretize a complex scientific problem and to make it more familiar. Elephants in our second example above provide a good example. Photographs work in the same way here as textual metaphors, which turn complex environmental problems into easily digestible slogans. Like metaphors, photographs too are selective in constructing an image of reality. In the case of endangered species they operate with metonyms, using parts to represent the broader whole. On the reverse side of the coin, concretization and simplification tend to mean that the problem itself is simplified. The two other aspects of biodiversity, i.e. genetic diversity and ecosystem diversity, are considerably harder to capture by means of photography.

On the other hand the use of these species in illustrating biodiversity provides an easy and convenient link with the earlier environmental debate. The use of species imagery pushes the meanings of the stories towards traditional nature conservation discourse: there were concerns about the extinction of species long before the protection of biodiversity emerged as a real environmental issue. Photographs also have a concretizing function when they personify biodiversity problems and construct social relations between different actors. Photographs give biodiversity a face, for instance through famous researchers or through endangered animal species. However, the new concept of biodiversity is not explained or debated in these stories and photographs, but rather taken for granted.

Photographs also construct social relations between different actors. For example, in the Bush–Major photograph given above the social bond between the two men denotes masculine friendship and solidarity. Two men are enjoying themselves and having a good time. Therefore, the photograph connects the meanings of the article to the more common and—perhaps—stereotypical patterns of masculine interaction and behaviour. Furthermore, the photograph is capable of carrying the story’s meanings beyond those conveyed in the text, indeed it can construct meanings that run counter to those appearing in the text. However, it is difficult to trace the final effects
of the photograph: one of the reasons for this is that it does not have the same kind of explicit narrativity as linear verbal text. It is much harder for the reader to bypass the photograph than it is to bypass the text. It is always possible to skip the text, but it is difficult not to see the photograph. Images evoke emotions that do not translate very easily into linguistic form. These affects may be decisive in terms of how the reader receives the meanings of the story. If the reader enjoys watching rare birds, for instance, then using pictures of rare birds in a story on biodiversity will probably evoke affective attachment to the story. In another reader, the same birds may evoke childhood memories of a nature programme, in yet another reader they may bring back the famous film by Alfred Hitchcock. Affective identification with the situations or people depicted may have a decisive impact on the meanings unfolding from the story, even on whether the story is read in the first place. For this reason, at least in the case of an illustrated newspaper story, it might be more appropriate to talk about experiencing rather than reading the story.

The photograph constructs the meanings of stories on biodiversity—not only through the objects and items it represents, but also through its own inherent cultural role as a natural, realistic and ‘transparent’ sign. This still leaves the photograph with the burden of authentication. When a story features a photograph showing an extinct or endangered species, that photo does more than demonstrate the (present or past) existence of that species. It affords authentic glamour to the whole text. This aspect of the photograph ties in closely with the news, which is often understood as a ‘window on reality’. At the affective level, the cultural characteristic of the photograph as a ‘window’ may also serve to distance the spectator from what the photographs represent. The photo allows the spectator to view events from a safe distance, without having to get involved in any way.

Our examples clearly demonstrate the key role that photographs can play in the production of meanings. Like metaphors, they point at alternative and rival interpretations, open the door to different affects and experiences. Texts can be used to influence the way photographs are interpreted, but photographs can also be used to construct new meanings into texts. Textual analysis that ignores photographs leaves some interesting and valuable avenues unexplored.
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NOTES
1. Our views of nature itself are structured by a similar binarity (see, e.g. Williams, 1988, pp. 219–224; Haila, 1999).
2. Sigmund Freud used the term affect (Affekt) to refer to various powerful affective states (see Laplanche and Pontalis, 1973, p. 13). In the field of cultural studies one of the most prominent advocates of the concept is Lawrence Grossberg, who removes it from the psychoanalytical context and uses it to refer to the social dimensions of emotions. Grossberg (1992, p. 56) writes: ‘Affect is closely tied to what we often describe as the feeling of life. You can understand another person’s life: you can share the same meanings and pleasures, but you cannot know how it feels. But feeling, as it functions here, is not a subjective experience. It is socially constructed domain on cultural effects’. In this article we use the term affect to describe the feelings evoked by photographs that may be culturally shared. The emphasis on the affective dimension of photographs does not mean to suggest that written texts are somehow weaker in terms of their ‘emotional register’.
3. This trilogy has been presented as a standard definition in scientific papers as well as in policy documents (for general reviews, see e.g. Gaston, 1996). However these definitions have also been criticized for their ambiguity and ‘descriptive complexity’: ‘biodiversity’ can be characterized and measured by several criteria, and the results do not necessarily coincide (Haila and Kouki, 1994).
4. We have categorized our stories on the basis of their main photograph. In stories that have more than one picture, we have selected the photo that is visually predominant. It would have made the analysis far too complex to take into account the dynamics between several pictures and the ‘intertextuality’ between photos and different kinds of graphs.
5. Stuart Hall (1997, pp. 234–238) has analysed the meanings of binarities from the point of view of difference.
6. Research on metaphors focuses traditionally on the verbal metaphor. Charles Forceville (1994) has studied the relationship of pictorial metaphors with verbal ones.
7. Roland Barthes says in his essay ‘Introduction to the Structural Analysis of Narratives’ (1982 [1966]) that the fixed image is narrative in the same way as the film. However, he fails to address the question of how the fixed image is narrative. It is quite surprising how very little debate there has been on the narrativity of the photograph. One notable exception is the exchange between Manuel Alvarado and Kevin Halliwell on the pages of Screen Education in the early 1980s (see Halliwell, 1980/81; Alvarado, 1979/80 and 1980/81).
REFERENCES


