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Anything we leave untouched we have already touched.
Bernard Williams (1995)

Endangerment: the notion stands at the heart of a network of concepts, values and practices dealing with entities considered threatened by extinction and destruction, and with the techniques aimed at preserving them.[1] An entity's "endangered" status crystallizes by way of its incorporation into various documentary devices – archives, catalogues, databases, inventories, and atlases. These devices materialize values that inspire an urge to perpetuate, but they do so through the concrete objects and information they choose to archive, and the techniques they use to do so. Usually animated by a sense of urgency and citizenship, both among scientists and the general public, cataloguing an endangered entity involves evaluating the intensity of the impending threat and opens the way for preservation strategies. The resulting instruments function as mechanisms to produce knowledge, pursue ideals, and enact policies. Looking into the contexts in which they are rooted and the processes whereby they come about involves examining the construction of data deemed significant, the kind of knowledge such data constitutes, the structures into which it is organized, the affects that permeate it, and the moral and epistemic values it incarnates across the vast range of entities, both "natural" and "cultural," which have come to be perceived as essentially vulnerable. "Endangerment," then, not only refers to states of the world that the sciences may identify and describe, but also names an individual and collective resource for apprehending the world at the level of symbols and action.

Architectural patrimony fixed in photographs, extinguished species in museum displays, or dead dialects in recordings may also nurture nostalgia for a more varied and beautiful world, and give rise to resuscitation fantasies. Together with dramatized depictions of surviving but imperiled places and organisms, they proclaim that those endangered things matter, and that we should care about them. They thus acquire significant political and moral valence inside and outside science. In the endangerment regime, turned as it is toward preservation, irreversible loss and definitive forgetting are ultimate forms of negativity, anti-values par excellence.

An indispensable step for coping with endangerment consists of inventorying and ranking. Although the list may be seen as a result of diagnosing entities as endangered, listing is itself both a diagnostic tool and a way of anticipating the failure of the cure: if the endangered entity came to disappear, it will persist as a record. In both capacities (aimed at creating records of what should be saved and at keeping traces of what disappeared), the cognitive and material practices of endangerment rest on sciences that "depend on data and specimens preserved by past observers and project the needs of future scientists in the creation of present collections" (Daston 2012, 156). What distinguishes these "sciences of the archive" is not the phenomena they study nor the methods they employ, but the fact that the data they gather, at vast temporal and spatial scales, are deliberately stored as material for future investigators.

These scientific practices belong in a complex of knowledge, values, affects and interests characterized by a particularly acute perception that some organisms and things are "under threat," and by a purposeful responsiveness to such a predicament. We characterize this complex as an *endangerment sensibility*. We do not use *sensibility* in a psychologistic sense focused on individual "feelings," nor exclude initiatives that predate the rise of *endangerment* as a contemporary keyword. Neither would we claim that such sensibility is universally pervasive and animates in the same way every single project related to the protection of biodiversity and culture. But we are interested in the emergence and features of the perception that vast portions of the human and non-human world are in danger of extinction or destruction: How, and in which contexts and circumstances, did the adjective "endangered" come to be so widely applied – to biological and cultural entities, to species and peoples, to languages and buildings? *That* perception *is* widespread and recurrent, and the historical overtones of "sensibility" capture some of its central features: a certain sentimental impulse, empathy extending to animals, landscapes and marginalized humans, as well as attention to one's own affective experience (Todd 1986; compare historian of anthropology George W. Stocking's 1989 use of "anthropological sensibility").

Basic in the endangerment sensibility are diverse forms of an emotional, moral, political, cognitive and institutional imperative to preserve – to protect the threatened so that it will not disappear, to register the fatally condemned, even to revive (a species "extinct in the wild," a language about to die out). How did that imperative evolve and become constitutive of perceptions of endangerment? Both conservation and memorializing assume that the objects to be protected or remembered are valuable; this sense of value is often accompanied by aesthetic appreciation, and associated with a supposedly natural state or with a condition of primeval authenticity. Which values, emotions and interests are entailed in the endangerment sensibility? How do they compare across fields and break down the barriers between "nature" and "culture"? What are their genealogies? And what are the particular "regimes," in the Foucauldian sense of sets of power mechanisms and knowledge structures, which are associated with them?

The ancient feeling for the shortness of life and the transience of all things, as captured by Koheleth's memorable incipit *vanitas vanitatum omnia vanitas* and its numerous variations, was accompanied by a sense for the futility of human ambition, the inexorability of time and fate, and the pointlessness of wishing to correct God's works (Ecclesiastes 1:2, 1:10, 3:1, 7:13). Loss and forgetting were part of life, and of course they remain so. Yet, in contrast to the ancient sensibility, the late-modern feeling for the fragility of things is permeated by the sense of future-oriented responsibility that comes from humanity's living in the Anthropocene – in other words, from an awareness that humans are responsible for the decimation of biological and cultural diversity, for the devastating consequences and extreme inequities of global warming, and ultimately for jeopardizing the survival of their own species by bringing about the sixth mass extinction (Kolbert 2014). In contrast to earlier forms of understanding extinction, current thinking is fraught with guilty feelings and a sense of responsibility. Both are made more tragic by the many ways in which present technologies make the natural world visible and compel us to recognize how much is at risk: as Gillian Beer (2009, 326) put it, "Instead of taxidermy we have film."

A major goal for humans in the 21st century will consist of preventing the fateful *de* of the long-documented phenomenon of *deforestation* and the more recently formulated *defaunation* (Dirzo et

al. 2014) from becoming, funereally, a privative *a*. Most societies seem not to have known anything analogous until recent times (see for example the overviews in McNeill and Mauldin 2012). It is nevertheless a basic principle of environmental history that humans have always transformed the "natural communities" to which they belong and that inhabited spaces are to a large measure shaped by human action (see for example Hughes 2009). It should therefore come as no surprise that environmental reflexivity and awareness of anthropogenic impact did not arise suddenly around the mid-20th century. Such reflexivity, however, was not the same as a sensibility dominated by a concern for endangerment.

To speak only of the Western tradition, awareness of human impacts predates the emergence of the modern concern for the environment, which can be traced to the 18th and 19th century (Lowenthal 1990). Ancient authors noted how quarrying destroyed mountains, complained about urban air pollution, and described how water, air and earth were contaminated with the waste products of domestic and industrial activities (Hughes 2014). They remarked on environmental depletion and deterioration, and correlated changes in local weather with human-induced processes they also depicted, such as drainage, deforestation, soil erosion and exhaustion. Greek and Roman farmers would sometimes combat such processes efficiently at the local level, but neither their practices nor philosophers' comments on how humans destroyed the environment modified attitudes, which remained essentially predatory and eventually contributed to the downfall of ancient societies. Ancient civilizations, Greco-Roman and others, lacked environmental awareness or a deliberate sense for "sustainability" – how to use natural resources so that they are not destroyed or completely used up. As for the conservation and restoration of monuments and objects, they happened and could express a desire to understand the past and sometimes even a vision of the future (Schnapp 2013). Nevertheless, they had fundamentally political, celebratory and authenticating functions, and in any case did not derive from any sensibility to "heritage," considered either locally or in a sense akin to that of UNESCO's 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage, which defines it as sites or monuments "of outstanding universal value" (whc.unesco.org/en/conventiontext).

Forest rarefaction was apparent in many regions of Medieval Europe, and lords and communities drew up rules to reconcile conservation and exploitation. However, then as today, attempts at regulating the management of resources to prevent their exhaustion gave rise to conflicts of interest (see for example Leroy 2007). The large areas of woodland that had become hunting reserves for the ruling elites were treated in the same exploitative spirit that guided land management (Jones 2013). In short, throughout the Old Regime, the handling of resources and the conflicts over them do not reveal anything like an "environmental awareness" including, as one component element, the idea that nature must be protected for its own sake.

Purposeful preservation of nature was envisioned as newly colonized lands were exploited (Grove 1992). The consequences of the plantation economy in the European colonies were clear by the second half of the 18th century. In Europe itself, early in the 19th century, the French government asked departmental prefects to conduct surveys on climate modification, which it saw manifest in such phenomena as atmospheric cooling or abrupt seasonal changes, and imputed in part to deforestation. What the utopian socialist Charles Fourier characterized as the "material deterioration of the planet" was widely attributed to human actions such as land clearing. In the 18th and 19th century, climate became an eminently political topic, providing "a

matrix for environmental reflexivity and was used to reflect upon people, objects, and processes . . . within a perspective that was attentive to their common future" (Locher and Fressoz 2012, 598).

At different points during the 19th century, in lands as distant from each other as Brazil (Pádua 2002, this volume), Spain (Casado de Otaola 2010) and the United States (whose national and wildlife refuges sparked an international movement; Gissibl, Höhler and Kupper 2012), the protection of forests and mountain landscapes brought together aesthetic sensibilities, poetic and sometimes mystical feelings, ideals for the consolidation of national identities, hopes for political and moral regeneration of the elites and the people, glimpses of solace from insalubrious cities, scientific inquiry in the field and the lab, and analyses of economic consequences and resource management. In parallel, both in Europe and in the Americas, a variety of professional and amateur scholars recorded vanished or vanishing cultures, both proximate and distant. Early "salvage anthropology" collected materials from human groups whose disappearance it anticipated, with a focus on assembling them for museums while seeing their makers as members of inevitably vanishing races (Gruber 1969, Gänger this volume, Lemov this volume). Not all of these elements were present everywhere and at the same time, they sometimes contradicted each other, and could be pursued by individuals and groups of incompatible political orientations. Nevertheless, even in its most melancholy forms (as in late 19th-century lamentations about Spain's decline), anguish about human environments and natural landscapes always came together with attention to resource management in local and national contexts.

What has been, historically, the connection between concern for imperiled natural environments and concern for threatened human cultures? (Sepkoski this volume). By the time Charles Darwin wrote in *The Descent of Man* (1871, ch. 7), that "[w]hen civilised nations come into contact with barbarians the struggle is short, except where a deadly climate gives its aid to the native race," a considerable literature had been devoted to the decay of indigenous populations as a consequence of "civilised" violence and their own "savagery" (Brantlinger 2003). In the 1830s, the painter George Catlin (1841, Letter n° 31, 262), known for his portraits of American Indians and their culture, called for a park to preserve the Indian and the buffalo, "man and beast," together, "in all the wild and freshness of their nature's beauty." Later, for example in India (Rashkow 2008) and the Belgian Congo (Adams 2004, 5), it was sometimes foreseen to preserve indigenous groups inside natural parks.

Paul Sarasin, the Swiss pioneer of world nature conservation in the years preceding World War I, called for threatened primitive populations to "be preserved as an 'anthropological natural monument' in the same way as endangered nonhuman forms of nature. They should be isolated in reserves and thus safeguarded 'in the greatest untouched purity for science, for ourselves, and for posterity'" (Kupper 2014, 58). Nevertheless, *we*, *science* and *posterity* are different from *they*, *their forms of knowledge* and *their descendants* – none of which were contemplated. Most realized national parks fenced off their original inhabitants, thus becoming exclusively "natural." Moreover, early interest in the fate of indigenous groups did not imply the will to perpetuate them as living cultures, nor manifested the sensibility captured by the late 20th-century term *biocultural diversity*. And even in this new framework, critics have contended that treating peoples (with their languages and cultural practices) as "endangered" maintains an analogy to non-human organisms and a top-down conservationist approach that may have racist and colonial overtones, occludes the causes of endangerment and deprives the concerned populations of agency (Gqola 2005).

* * *

The discursive, scientific and political practices related to endangerment are about changing the present for the sake of the future. This future, however, is imagined less as a continuation of the present than as a time in which the present (in the form of currently existing DNA, species, languages, or cultures), will no longer be. The endangerment outlook is both proleptic and regretful. It seems to involve some of the longing Svetlana Boym (2001, 41) calls "restorative" nostalgia. Contrary to the "reflective" nostalgia that emphasizes loss, ruins, and "the patina of time and history," the restorative seeks "to rebuild the lost home and patch up the memory gaps." The people committed to salvaging biocultural diversity know that the lost home was not in all respects better and that, anyhow, it cannot be regained; they work for the future, largely by combating destructive forces in the present. Yet insofar as it is turned toward a future shaped by a past that the present destroys, and by a present intrinsically under threat, the endangerment sensibility reveals a deep nostalgic undercurrent.

The contributions to this book concur to explicate that disposition and its apparently paradoxical proactive nature by putting the endangerment sensibility in historical perspective, and examining by way of concrete cases central aspects of its emergence and present forms. Focusing on issues of endangerment and extinction in relation to languages, species, cultures and scientific data, a first group of chapters documents the interweaving of affects, values and science in bringing about those very issues. A second group illustrates the political dimensions of endangerment-related discourses and practices with studies on threatened indigenous groups in the late 19th century, 20th-century biosphere reserves and changing views of tropical forests in Brazilian history. A third group explores technologies of preservation in connection with the California condor, cultural heritage and biodiversity collections. The book closes with a reflection on the "we" endangered by climate change, and gives the humanistic disciplines the task of ultimately defining the objects of endangerment. While each chapter discusses distinct empirical materials, they all touch, to various extents, on affects, values, politics and preservation technologies – these are all fundamental to their topics.

The present introduction sketches some of the main issues associated with the endangerment sensibility in three areas that are crucial across all domains: *diversity* as a constitutive value, *listing* as a fundamental epistemic practic, and *emotions* as integral to both the values and the sciences of endangerment. It should be clear that exploring endangerment as an idea set deeply in a sensibility does not mean it lacks concrete referents in the world. Species go extinct due to human action, buildings are demolished, languages disappear and landscapes change beyond recognition. Yet they do not qualify as "endangered" until someone perceives them as such; and although that perception involves scientific knowledge, it emerges only in connection with certain values, feelings, interests, and views about the present and the future of communities and humanity at large. Individuals and institutions involved in the defense of natural and cultural heritages use the term mainly in adjectival form, and convey the message that if an entity is designated as "endangered," then it must, ipso facto, be protected and preserved. Focusing on the noun introduces critical distance, and directs our attention to the processes that bring about the complex cultural phenomenon we call "endangerment sensibility."

Diversity and Endangerment

We just gave, in passing, an idea of the range of entities that are considered endangered. Although that range is potentially as large as there are things in the world, the particular objects of solicitude ultimately incarnate one of its aspects: diversity. In contrast to its synonym *variety*, *diversity* has ceased to be a descriptive term. It has become the name of a supreme late-modern value; and at the same time that diversity acquired the status of inherently endangered attribute, the concept's extension grew to encompass both "nature" and "culture," and came to be widely used to derive the value of both (see Maier 2012 for a critique of such uses). Many endangerment-related undertakings illustrate these characteristics, but they are particularly well displayed in large-scale endangerment-related projects.

The Svalbard Global Seed Vault, for example, opened in 2008 on the island of Spitsbergen, in the Norwegian Svalbard archipelago, about 1300 kilometers from the North pole. It consists of a tunnel protected with a sleeve against erosion and climate changes, which takes us first through an office and handling area, and then, at the end, beyond airlock doors, to the seed vaults themselves. There stand rows of metal shelves with boxes stacked on them; the boxes contain sealed envelopes, and the envelopes, seeds of all major food crops from around the world. These seeds are duplicates of samples held in other gene banks, but because of its location, Svalbard is expected to be the safest of them all. The local permafrost conditions – that is to say, an environment that is permanently at or below the freezing point of water – should aid preservation of the seeds for hundreds of years. They will be thus protected from natural and non-natural disasters, including, according to a *National Geographic* article about the Vault, "global warming, asteroid strikes, plant diseases, nuclear warfare, and even earthquakes."[2]

It is no wonder that the facility is also known as Doomsday Vault, and that Norway's prime minister described it as "our insurance policy." The Vault, he proclaimed, is "the Noah's Ark for securing biological diversity for future generations." Due to the massive loss of food varieties, we have come to depend on a small number of plants and animals, and if disease, or climate change, or human actions decimate them, "we might desperately need one of those varieties we've let go extinct" (Siebert 2011). The justification for the enterprise is in the first place utilitarian: humanity needs crop diversity in order to feed itself.

Its most distant horizon, however, is the threat of total extinction – a threat that has been incorporated into a worldview permeated with the perception of omnipresent risk and the need to manage it. Thus, Cary Fowler, director of the Global Crop Diversity Trust, which launched the Seed Vault project, explains that the facility was not created with doomsday in mind, but that "in the case of a regional or global catastrophe," it "would prove to be very, very useful."[3] When in February 2012, 25,000 seed samples from America, Colombia, Costa Rica, Tajikistan, Armenia and Syria arrived in the Vault, Fowler felt especially happy about the Syrian chickpeas and fava beans:

> the Philippines' national seed bank was destroyed by fire in January, six years after it was damaged by flooding. Those of Afghanistan and Iraq were destroyed in recent wars. Should the conflict in Syria reach that country's richest store, in Aleppo, the damage would now be less. Some 110,000 Syrian seed samples are now in the Svalbard vault, out of around 750,000 samples in all. "When I see this," says Mr Fowler, looking

lovingly at his latest consignment, "I just think, "'thank goodness, they're safe.'" ("Banking Against Doomsday")

Yet it is not enough to keep seeds alone. Since locally adapted cultivars are in most cases superior to imported breeds, storing seeds in banks "is only a halfway measure."

Equally worthy of saving is the hard-earned wisdom of the world's farmers, generations of whom crafted the seeds and breeds we now so covet. Perhaps the most precious and endangered resource is the knowledge stored in farmers' minds. (Siebert 2011)

As the Norwegian minister of agriculture put it on the Seed Vault's first anniversary, "field-level knowledge of our farmers continues to be the most important element of crop conservation."[4]

Hoarding nature and hoarding culture go here hand in hand, and indigenous knowledge emerges as a form of experiential "wisdom" that provides a better basis for interventions than those derived from imported science. Against such perception of closeness to nature, critics point out that autochthonous knowledge systems have long interacted with Western ones, and that their "native" character partly results from the very structures that marginalize them (Dove 2006). The imagined proximity of the natural and the indigenous tends to obliterate the history and form of the connections between local and imported knowledge, while at the same time proclaiming that culture and nature – peoples and forests (Brosius 1997) – are endangered together, and that it is only as a unity that they can be saved.

By its aims, functioning and structure, as well as by the discourses that support them and the media coverage it receives, the Svalbard Vault highlights the extent to which biological and cultural diversity has come to be characterized as a preeminently endangered property of living systems, and its endangerment, as both consequence and potential cause of major cataclysms. The Vault thus incarnates the built-in relationship between a celebratory passion for diversity and an anxious fixation on endangerment. Although the two are ontologically distinct, since the 1970s they have become sociological and cognitive correlatives through processes that include the professionalization of environmental consciousness, the development of various sciences of the environment (conservation biology for example) and other interdisciplinary areas (such as environmental anthropology, ecological or environmental humanities, political and cultural ecology, environmental ethics or climate ethics), the internationalization of environmental politics and human rights regimens, the multiplication of specialized NGOs, and the rise of a global biocultural perspective.

In the framework of the United Nations Environment Program, established in 1972, governments signed agreements to deal with such specific issues as the protection of wetlands and the regulation of international trade in endangered species. In 1987, the World Commission on Environment and Development (known as the Brundtland Commission) called for making development "sustainable," that is to say, capable of meeting "the needs of the present without compromising the ability of future generations to meet their own needs" (www.un-documents.net/ocf-02.htm). A few years later, in response to the growing awareness that sustainability was far from advancing and that a dramatically accelerated anthropogenic reduction of biodiversity had reached alarming levels, the Convention on Biological Diversity signed at the

1992 Rio de Janeiro Earth Summit emphasized that protecting biodiversity is in humanity's own interest:

> Biological resources are the pillars upon which we build civilizations. . . . The loss of biodiversity threatens our food supplies, opportunities for recreation and tourism, and sources of wood, medicines and energy. It also interferes with essential ecological functions. (www.cbd.int/convention)

Biodiversity loss, the Convention explained, not only destabilizes and reduces the productivity of ecosystems, "thereby shrinking nature's basket of goods and services," but also endangers cultures, since, it claimed, "[o]ur cultural identity is deeply rooted in our biological environment." Hence the commitment not merely to pursue biodiversity conservation, sustainability and the "fair and equitable sharing" of benefits, but also to "[p]rotect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements" (ib., articles 1 and 10c).[5]

These quotations are taken from some of the main international documents in the domain of biodiversity protection. Thousands of initiatives throughout the world echo their spirit, and corroborate the fundamentally pragmatic and anthropocentric justification of endangerment/conservation initiatives across the biological and cultural domains. For Luisa Maffi, the prolific co-founder and director of Terralingua, an NGO that works "to sustain the biocultural diversity of life" (www.terralingua.org), such initiatives aim at "the continued viability of humans on Earth." In this regard, she writes, "issues of linguistic and cultural diversity conservation may be formulated in the same terms as for biodiversity conservation:" both help keep open a multiplicity of options, resist the impoverishing monocultures of land and mind, and thus enhance or maintain the human species' adaptive strength (Maffi 2001a, 38). These claims are matters of debate since, as philosopher David Heyd (2010, 170) pointed out, it may well be that "the chances of survival of cultural communities are better advanced by policies of adjustment and adaptation to modern conditions than by protective policies which strive to perpetuate them in their traditional form."

Not all elements of a culture lend themselves to assessment in terms of utility. Yet in the framework of biocultural diversity, the *cultural* has become valuable on account of its reputed contribution to protecting biodiversity as condition for humankind's survival. While views about biocultural diversity have long been biased toward more "exotic," remote and isolated communities, there have been calls to integrate all types of local groups (for example urban ones whose traditions have been heavily rearticulated) into conservation initiatives (Cocks 2006).

One of the central claims of the Declaration of Belem, issued in 1988 during the First International Congress of Ethnobiology, is that "there is an inextricable link between cultural and biological diversity."[6] The Declaration was an important moment in the history of the rise of the notion of *biocultural diversity* as comprising "the diversity of life in all of its manifestations – biological, cultural, and linguistic – which are interrelated (and likely co-evolved) within a complex socio-ecological adaptive system" (Maffi 2010, 5). By the early 2000s, the *bio-cultural axiom* – according to which effectively preserving biodiversity requires protecting cultural diversity, and vice versa – seemed confirmed by two types of evidence. On the one hand, geographical overlaps between biological richness and linguistic diversity, and between

indigenous territories and "biologically high-value regions;" on the other hand, observations about the importance of indigenous peoples "as main managers and inhabitants of well-preserved habitats," and claims that their ecologically sustainable behavior derives "from their pre-modern belief/knowledge/practices complex" (Toledo et al. 2002, 561). All such research naturally assumes the joint "high social value of biological and cultural diversity" (Sodikoff 2011, 13).

Yet the bio-cultural axiom and the evidence presented for it have generated considerable debate, some of it updating the venerable controversy around the "ecologically noble savage" (Hames 2007, Krech 1999, Nadasdy 2005, Redford 1991). Such "savages" may have arisen chiefly as a result of the bad conscience of the ecologically ignoble civilized (Hames 2007, Kuper 2003). But historically marginalized communities have come "to recognize the political potency of strategically deployed essentialisms" (Brosius 1999, 281). Nineteenth-century Euro-Americans believed that Indians practiced a cult of the Mother Earth, and this fantasy ended up shaping the American Indian experience (Gill 1987). By the late 20th century, indigenous groups had adopted the ecological stance as part of their resistance strategies. As anthropologist Philippe Descola (2008) notes, they have assimilated

> the reasoning behind the pre-eminence of universal interest over local interests and how they can make the best of it. Accordingly they have begun to present themselves as the keepers of nature – an abstract notion which does not appear in their languages or cultures – to whom the international community should entrust the mission to keep watch at their level on environments which it is becoming clearer everyday have been shaped by their practices.

Of course, the point is not that the peoples called "indigenous" lack the sense of a larger or transcendent entity to which they belong, but, rather, that such an entity, if contemplated, does not necessarily correspond to "nature," with its dichotomous associate "culture." Whether or not they ancestrally had notions and practices translatable as *biocultural diversity* or *environmental awareness* (often called TEK or "traditional ecological knowledge"), they have actively entered into those "makeshift links across distance and difference" that, in Anna L. Tsing's (2005, 2) depiction, shape "globalization." (On TEK see the conceptual discussion by Whyte 2013, and Berkes 2012, a landmark book first published in 1999 and now in its third edition.) Just as we write these lines, a study carried out by a collaborative network of Amazonian indigenous organizations, NGOs, scientists and policy experts computes for the first time the carbon storage capacity of Amazonian indigenous territories and protected natural areas, highlights the contribution of indigenous territorial management to the preservation of ecosystems, and sees the recognition of indigenous cultural identities – and "land and resource rights" with them – as crucial for ecosystem integrity and climate stability (Walker 2014). At the same time, and in the same spirit, the Palangka Raya Declaration on Deforestation and the Rights of Forest Peoples criticizes top-down international anti-deforestation initiatives and calls for the full participation of forest peoples in environmental decision-making (Forest Peoples Programme 2014a, 2014b).

In short, debates notwithstanding, negotiation and decision-making with regard to biocultural endangerment has become integral to global governance. The bio-cultural axiom has turned into official doctrine, with linguistics as a major site for its defense and illustration. UNESCO's position postulates that precious environmental knowledge is embedded in indigenous languages, and can be lost if speakers shift to another language.[7] The assumption seems reinforced by the

fact that areas with high biological diversity are home to about 70% of the world's languages, and that endangered languages and endangered species coincide geographically. From this, increasing numbers of scholars and activists conclude that biodiversity conservation necessitates language preservation (Gorenflo et al. 2012). As the endangered language enterprise grew, it moved from documentation as rescue work to documentation as a participatory process (Turin 2011), and saw its premises, frameworks and procedures extended to music (Grant 2014). At the same time, some authors have criticized the analogy of languages and organisms, and pointed out that the "ecologization" of language endangerment depoliticizes cultural issues by turning culture into an extension of nature, subsuming political interests into a global celebration of diversity, and merely asserting that languages must be saved without asking why and for whom (Cameron 2007, Heller and Duchêne 2007, Dobrin and Berson 2011, Muehlmann this volume).

By the second decade of the 21st century, the bio-cultural axiom has come to underpin most conservation theory and advocacy, "biocultural diversity" has developed into a transdisciplinary research area (e.g. Maffi 2001b, 2005), attempts have been made to quantify global biocultural diversity by means of an index (Loh and Harmon 2005), and the notion has been assimilated into international phraseology in such a way that earlier conventions on heritage and biological diversity are now perceived as part of an integrated mode of action (e.g. UNESCO 2008, Bargheer this volume, Harrison this volume). But this phraseology is the crystallization of a process in which the notion that biodiversity and cultures are interrelated and mutually supportive grew piecemeal through projects anchored in a multiplicity of disciplines, from conservation biology to linguistics (Maffi 2010), and concerning a myriad organisms and cultures whose aggregation and reciprocal interactions actualize diversity.

These developments are rooted in the rise of endangerment as a process constitutive of contemporary perceptions of the world. The Cold War played here a decisive role. NATO scientists and military officers anticipated "environmental warfare" and worked on various projects, dealing for example with radiological contamination, biological weapons and weather control, "that united scientific knowledge of the natural environment with the strategic goal of killing large numbers of people" (Hamblin 2013, 4). As "the environment" became a global issue after World War II, the prospect of human-made apocalypse nourished the style and worldview of the emerging environmentalist movement and its attention to large-scale anthropogenic changes. The languages of global military crisis and that of environmental crisis were similar; military and environmental questions were "often identical and pursued by the same people," and the worldviews of the military and the environment experts "went hand in hand, both attempting projections of catastrophic environmental consequences on a massive scale" (ib., 8-10). The environmental monitoring that gave rise to the sense of global environmental vulnerability "began as an explicitly Cold War activity" (ib., 86). In short, those who planned how most efficiently to provoke a worldwide catastrophe fostered the sensibility that makes us see our planet as a constitutionally endangered place.

Although more recent apocalyptic scenarios derive from empirically-based projections and real scenes of hurricanes and floods, they are also heirs to that Cold War mind-set. The "silence" of Rachel Carson's 1962 *Silent Spring*, caused by the chemical poisoning of all birds, was that of established literary and filmic nuclear imagery (Buell 2010). At the same time, contrary to the nuclear holocaust, the environmental apocalypse is not pictured as a sudden event, but as a slow (though possibly accelerating) process, as a sort of asymptotic approach to a "tipping point." It

therefore demands urgent action to stop humanity's march toward an irreversible doom marked not by a definitive end, but by ever-increasing social misery and environmental deterioration. Even Naomi Klein, who in her 2014 *This Changes Everything: Capitalism vs. the Climate* imagined that the planetary emergency of global warming might bring about worldwide "regeneration" by spurring alternatives to the economic system that has caused it, told *Vogue* that she had "seen the future, and it looks like New Orleans after Hurricane Katrina" (Powers 2014).

The catastrophic imagination thus remains energizing – and all the more so because, as noted, humans themselves are the main source of endangerment for their own species, and that makes perceptions of extinction more unsettling than ever. But the apocalyptic viewpoint does more than merely equate the most likely future to the worst-case scenario. The apocalyptic mode of expression embodies a "dialectic of peril and recovery" that may be regenerative and allow for some recuperation of the loss (Turner 2007). Similarly, realizing that the biocultural persuasion is the product of a "crisis narrative" does not imply denying the many legitimate reasons for worrying about the erosion of diversity on a global scale; rather, it offers a starting point for analyses of endangerment that are less defined with regard to crisis, and more oriented toward the possibilities that emerge from assuming human agency and from the "processes of hybridity" that characterize globalization (Brosius and Hitchner 2010, 142, 143).

The important point here is that diversity is seen as valuable through the lens of its being at risk, and that, in the final analysis, endangerment takes center stage because it affects diversity and has become implicitly incorporated into its very definition. To the extent that diversity is the value, its defense is the moral imperative, endangerment the most ominous risk, and the extinction of life or the destruction of cultural heritage the paradigmatic anti-values. This process of reciprocal shaping underlies the moral and emotional tone of preservation initiatives, and motivates a particular way of doing science. But what kind of value is diversity, and what kind of duty is its protection?

The Duty to Preserve

We noted above that the ultimate justification for protecting biocultural diversity appears to be generally pragmatic and anthropocentric, aimed at ensuring humanity's viability. The feeling of crisis, as put it Terralingua co-founder David Harmon, is

> driven by the conviction that we soon will reach a momentous threshold, a point of no return beyond which a critical amount of biological and cultural diversity will have been lost, never to be regenerated on any time scale significant *to the development of humanity*. (Harmon 2001, 61; our emphasis)

What seems to be at stake, therefore, is less diversity as an intrinsically valuable feature of the world, than diversity as a practical condition of human survival. The widespread vocabulary of "natural capital," "ecosystem services," "sustainable management" and "biodiversity-based economies" attests to a range of pursuits aimed at balancing the exploitation and preservation of resources. And yet, when not the words, then the tone, style and moral passion of those engaged in protecting biocultural diversity convey the inherent value they attribute to it, and which they find materialized in the particular objects of their concern.

At the bottom of this apparent tension is the familiar distinction, widely discussed in environmental ethics but also applicable to issues of heritage, between the instrumental value given to things as means to other ends, and the intrinsic value conferred upon them as ends in themselves (typically, only human persons in the Western tradition; see Brennan and Lo 2011 for a concise overview of environmental ethics). What are the foundations of the duty to preserve biodiversity when its value is not conceived as following from the mere fact of its existence? If biodiversity is primarily considered as useful for human survival, then utility tells us to protect it. If it is regarded as part of the good life (for example because it provides aesthetic pleasure), then preserving it is a virtue but not a duty. Finally, if it is understood as affecting other peoples and future generations, then defending it is a matter of justice and therefore a moral obligation. These conceptual configurations combine variously with views about whether the problems to be faced are human-induced or not. Moreover, from biodiversity, they have expanded to biocultural diversity, and left behind the somewhat one-sided assumption that cultural diversity is one of the tools for preserving natural diversity. Thus, the Chilean ecologist Ricardo Rozzi (2012, 27) has coined the term "biocultural ethics" to name the project of "recovering the vital links between biological and cultural diversity, between the habits and the habitats of the inhabitants" (which, he believes, are acknowledged by early Western philosophy, Amerindian traditional ecological knowledge, and contemporary ecological and evolutionary sciences), and thereby combating "biocultural homogenization" on the basis of a detailed field knowledge of specific causes, agents and practices.

Such a project intends to go deeper than UNESCO's well-meaning cosmopolitanism, which considers cultural diversity as beneficial for security, peace and development (UNESCO 2001, Labadi 2010). The ultimate goal, again, is to safeguard the interconnected organic and cultural systems that will insure humanity's survival. The process requires the identification of the appropriate cultural entities. While this implies the risk of actually excluding local communities, exclusion is supposedly compensated by the fact that diversity itself emerges as the value to be cultivated and protected. In practice, only "selected objects of localized descent heritage" get transformed "into a translocal consent heritage," which is in turn defined as the heritage of humanity (Barbara Kirshenblatt-Gimblett 2006, 183). By producing cultural assets that are universalized as world heritage, difference is downplayed to the advantage of diversity, and diversity is given intrinsic value.

Intrinsic value, in turn, can be of different sorts. *Subjective* intrinsic value is conditional and recognized as resulting from evaluative judgments. Ecosystems, as well as "tangible" and "intangible" heritages may be valued for their beauty, variety or spiritual and cultural significance.[8] For example, at the beginning of the United States Endangered Species Act (section 2), the organisms to be protected are declared to be "of esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people." Yet these valuations and the objects to which they apply evolve, and the range of what is to be protected may expand or contract. In contrast, *objective* intrinsic value is not conditional, and is perceived as being identified, rather than created by humans. The most radical view in this respect assumes an analogy between human persons and non-human natural entities, such that these have value by virtue of an immanent good or interest that must be respected.

It may seem obvious that, both in nature and in culture, things can have value only through us (Thomas this volume) – and even that they *are* only by virtue of human action in the sense meant

by the English moral philosopher Bernard Williams (1995, 240) when he insisted that "[a] natural park is not nature, but a park," and that "[a]nything we leave untouched we have already touched." He thus formulated "the inescapable truth that our refusal of the anthropocentric must itself be a human refusal" (ib.). The existence of views to the contrary leads in principle to considerable quandaries for, as philosopher Elliot Sober (1986, 351-352) put it, "to the degree that 'natural' means anything biologically, it means very little ethically. And, conversely, to the degree that 'natural' is understood as a normative concept, it has very little to do with biology." Even in settings dominated by bleak perceptions of an ongoing "crisis of life," the prevalent attitude has become increasingly pragmatic.[9] While the philosophical discussion keeps going on and anthropocentrism remains contested, while the language of intrinsic worth is retained as useful in various contexts, and while a sense of inherent value lies at the bottom of many a conservationist passion and communication strategy, humankind's survival remains the ultimate purpose of preserving biocultural diversity.[10]

Such pragmatism also infuses a particular way of doing science, or at least calls for doing science in a new manner that no longer aims at separating it from morality and emotion, but embraces them as part of knowledge-production and policy-making. In 1996, on the basis of interviews with major actors in the research and defense of biodiversity, environmental law specialist David Takacs (1996, 99) observed that the term

> makes concrete – and promotes action on behalf of – a way of being, a way of thinking, a way of feeling, and a way of perceiving the world. It encompasses the multiplicity of scientists' factual, political, and emotional arguments in defense of nature, while simultaneously appearing as a purely scientific, objective entity. In the term *biodiversity*, subjective preferences are packaged with hard facts; eco-feelings are joined to economic commodities; deep ecology is sold as dollars and sense to more pragmatic, or more myopic, policy makers and members of the public.

What Takacs noted of *biodiversity* in the mid-1990s can be said of *biocultural diversity* in the first decade of the 21st century, and points to a central feature of the endangerment regime.

Activism by scientists is not a new phenomenon. In 1945, for example, Manhattan Project scientists urged President Truman not to authorize the use of atomic bombs, warning of a future atomic arms race and of the dangers it would represent for humanity.[11] In this and other instances, the actors involved assumed that truth was sought for its own sake, and was in principle separate from the subsequent uses of scientific discoveries. In 1972, however, the manifesto "Toward a Science for the People" declared "truth for truth's sake" defunct, emphasized that science does not exist in a political vacuum, encouraged "scientific workers" to put their skills "at the service of the people and against the oppressors," and advocated removing decision-making from experts' hands.[12] This still represented science *for* the people, but pointed toward participatory and citizen science, and even "extreme citizen science" – a "bottom-up practice" involving "broad networks of people to design and build new devices and knowledge creation processes that can transform the world" (www.ucl.ac.uk/excites).

Insofar as the ultimate goal of such an approach to science is to transform the world, knowledge production is inspired and guided by values that are primarily moral and socio-political. That science is not "value-free" has long been known (see Kincaid, Dupré and Wylie 2007 for recent

studies). However, science as understood and practiced in the framework of the endangerment sensibility tends not only to break down the boundaries between research and application, but also to assert itself as being neither value-neutral nor producing value-neutral facts.

On the one hand, preserving biocultural diversity requires not only factual evidence and expert knowledge, but above all "value orientation" (Eser 2009). Such orientation, it is sometimes claimed, can be achieved by means of participatory processes that incorporate local and lay knowledge, develop "regimes of environmental governmentality" that are no longer dictated mainly by "major organizations located in the global North," and broadens the foundations of credibility beyond the scientific community (Brosius and Hitchner 2010, 155, 157). On the other hand, the rise of the "participatory paradigm" in science policy and the idea of a "civic science" born in the context of global environmental politics (Bäckstrand 2003) have come together with a "general shift in conservation organizations from advocacy to management" (Brosius and Hitchner 2010, 153). What such a shift has meant is not that there is no more advocacy, but, on the contrary, that it is has become integrated into research. By the 21st century, as Maffi (2001a, 28) put it, "theoretical and applied issues are two sides of the same coin, as are scientific and ethical issues" – and "there must be a genuine commitment to dealing with the two sides together." In truth, the metaphor of the coin does not convey the intended message, which is that activism consists of doing a certain type of science, and that scientifically studying biocultural diversity is a militant move.

Such reconfiguration of the theory and practice of science is perhaps one of the most important correlates of the endangerment sensibility in the early 21st century – one that permeates cognitive forms down to the level of the most apparently basic of them all: the list.

Listing Endangerment

The very act of defining an entity as endangered entails the duty to find instruments and techniques to protect it. Conversely, practices of preservation and documentation presuppose the previous identification of an entity as "endangered." Tools associated with those practices – lists and repertoires to begin with – redescribe certain objects as endangered entities, and are by the same token expected to prompt awareness and trigger interventions. Such tools are not neutral catalogues, but result from processes of interpretation and selection, and function as calls for action and forms of argumentation (Schuster 2004). Officially labeling an entity as *endangered* is both an outcome and a beginning (Benson this volume). As has been noted in connection with the United States Endangered Species Act, simply listing a species as endangered virtually precludes any cost-benefit analysis and makes the species eligible for funds to support actions aimed at removing it from the list (Metrick and Weitzmann 1996). Similarly, in the field of historic preservation, counting and indexing transform the listed items into potential candidates for the allocation of resources (Harrison 2012). The biggest challenge is that of making the list. Ideally, in addition to fulfilling the quantitative or qualitative criteria for being "endangered," the entities to be listed should have indisputable boundaries (in the case of living species) or unequivocally posses certain features (in the case of tangible or intangible heritage). They rarely do.

In 2013, for example, lemurs were declared the most endangered mammal group in the world. Such an assessment was based on documentation and taxonomic standards that are constantly

reviewed by biologists working with the International Union for Conservation of Nature.[13] It required mapping all existing lemur species in order to define their exact distribution according to degrees (*critically endangered*, *endangered*, *vulnerable*).[14] Understanding the taxonomy, diversity and distribution of lemurs is thus essential for their conservation. Now, field and genetic research have contributed to the creation of new species, as well as to the splitting of some species "into smaller and sometimes more threatened taxonomic groups" (Yoder and Welch 2012; see also Davies and Schwitzer 2013). The classificatory operation of dividing an established unit into taxa of the same or lower rank therefore multiplied the number of endangered groups. By the same token, disagreements about the validity of the named forms and the attributed taxonomic rankings imply disagreements about the groups that are to be considered endangered (Mittermeier et al. 2008).

Although "endanger*ment*" emphasizes the process of something being threatened, the cognitive device that captures it is a list of states or conditions. Precisely because endangerment takes place in time, the definitions and contents of its categories are (with the possible exception of *extinct*) not merely revisable, but essentially a matter of problematic consensus. The Red List of Threatened Species (www.iucnredlist.org), elaborated since 1963 by the International Union for Conservation of Nature, places taxa in several categories ranging from *extinct* to *least concern* (for organisms under no immediate threat) through *extinct in the wild*, *critically endangered*, *endangered*, *vulnerable*, and *near threatened*. Below *extinct* and *extinct in the wild*, which designates a taxon "known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range," the categories reflect varying degrees of threat (probability of extinction in the immediate future, in the near future, or in the mid-term); *near threatened* applies to a taxon that "is close to qualifying for or is likely to qualify for a threatened category in the near future." Moving a taxon from one category to another depends on factors such as criteria revision, taxonomic change, or increase in the rate of decline. The vocabulary thus embeds temporality and the process of endanger*ment* at the very heart of the list.

The United States 1973 Endangered Species Act (ESA) establishes only four categories: *extinct*, *endangered*, *threatened*, and *delisted* – a rank that emphasizes the list's ontological power (Benson this volume). Indeed, as Geoffrey C. Bowker (2000, 675) noted, the biodiversity database "will ultimately shape the world in its image. If we are only saving what we are counting, and if our counts are skewed in many different ways, then we are creating a new world in which those counts become more and more normalized." The tension between the continuity of the endangerment process and the normalizing fixation operated by the list is here palpable. Between *extinct* and *delisted*, which are the opposite ends of a continuum, ESA retains only *endangered* and *threatened*, which are seamlessly connected by a continuum of probability. While *endangered species* labels a group that is "in danger of extinction throughout all or a significant portion of its range," the term *threatened species* designates one that is "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (ESA section 3, Barrow 2009, ch. 10).

In the case of languages too, endangerment is characterized by a gradient and by combinations of criteria. Thus, the six degrees of UNESCO's Language Vitality and Endangerment Framework, from *safe* to *extinct* ("no speakers left"), are based on nine criteria, of which intergenerational transmission is the most important.[15] Distinguishing levels of linguistic obsolescence from *potentially endangered* to *moribund*, or establishing "taxonomies of fatality" (Heller-Roazen 2005, 57)

implies seeing language transformation as a threat to an original yet essentially elusive tongue, which must be protected from its own evolution. The usual mechanisms whereby languages metamorphose and are sometimes replaced (by contact or divergence, by hybridization, by absorption or by more or less gradual and more or less forced or voluntary abandonment) tend to be seen less as part of a "natural cycle of change" than as threats to precious repositories of thoughts and worldviews that humanity cannot afford to lose (Austin and Sallabank 2011, 6). Some linguists recognize that the extravagant valorization of endangered languages turns these "into objects which seem better suited for museum showcases than for everyday usage by everyday people" (ib., 18). This suggests that the fundamental activities in which they are themselves engaged – documenting, archiving, counting, labeling, listing, classifying, and eventually revitalizing – may be more useful for the linguistic profession than for the communities of speakers it studies.

Commenting on the endangerment/diversity logic which correlates cultural richness with linguistic multiplicity, the Spanish philosopher Fernando Savater (2009) mordantly observed that its terminus is the idiolect, a language unique to a single person; and he questioned the analogy between species and language extinction: while no dinosaur wants to become extinct, some speakers do want to switch language when their own offers only disadvantages… Such intentionally contentious remarks share in University of Chicago linguist Salikoko Mufwene's (2005, 41) irritation vis-à-vis language rights advocacy for its tendency to wish "traditional culture" to survive in a supposedly "pristine form," as if European cultures themselves "were unaffected by the cultures of the populations that adopted them," and as if there were an ingrained connection between "endangered languages" and "endangered peoples." The question is not only whether there can be such a thing as "culture in its pristine form," but also, "What's the point of maintaining diversity if it appears to be adverse to one's adaptation to the new socio-economic ecology?" (ib., 39).

Mufwene's position is controversial, but it raises fundamental questions about the status of the knowledge devices used to label cultural entities as endangered. As Daniel Heller-Roazen (2005, 65) has noted, since linguistic decay mostly involves the transformation of tongues, "all documents of decease bear witness to the same obstinate will to set aside the one possibility the experts in the health and the sickness of tongues would rather not ponder: that in language there may be no dead ends, and that the time of the persistent passing of speech may not be that of living beings." Lists and gradients, with *extinct* as one extreme ontological status, epitomize the denial of such possibility.

The most common criterion of extinction remains the death of the last individual. Such a choice seems to identify a group clearly, and turns a process into a irreversible condition. Yet, in spite of appearances, it is not a precisely datable event. For example, in August 2014, the International Union for Conservation of Nature declared the giant earwig *Labidura herculeana* officially extinct. The insect, however, had been last seen in Saint Helena Island in 1967 and had been assessed as "critically endangered" in 1996 (www.iucnredlist.org/details/11073/0). Similarly, although Lonesome George, the last known specimen of a giant Galapagos tortoise, died in June 2012, its subspecies is still considered as "extinct in the wild" (www.iucnredlist.org/details/9017/0). The reason is that endangerment is a process, and therefore so is extinction and the procedures that make it official. Moreover, extinction is not one thing alone. The statement that the thylacine or Tasmanian tiger "became extinct on 7 September 1936 when the last known specimen died in

captivity in Beaumaris Zoo, Hobart" (Paddle 2000, 1) echoes heroic views about "the last of" (the Mohicans, the Tasmanian Aborigines, the last Wild Indian, and so on), which typically conflate the individual with the culture (Clifford 2013 Part II, Gänger this volume). Yet the figure of "the last" does not represent the only valid way of characterizing extinction (Delord 2007, Sepkoski this volume). A population may be considered functionally extinct when there are no more relations between its members. Or an extinct species may be considered as virtually or potentially non-extinct if it were possible to recreate it on the basis of genetic information (Radin this volume; see Sandler 2013 on the ethics of de-extinction). Or, finally, individuals may persist, while the species disappears as a cognitive category.

The domain of heritage offers an analogous situation. In the United Kingdom, the Heritage at Risk Register, began in 1998, includes not only buildings, but also assets of other sorts (monuments and archeological sites, parks, battlefields, wreck sites and conservation areas), provided they are included in the Statutory List of Buildings of Special Architectural or Historic Interest (risk.english-heritage.org.uk/register.aspx). The List classifies hundreds of items in "grades" according to "interest," and listed sites are assessed for inclusion in the Heritage at Risk Register on the basis of condition and, if applicable, use or occupancy. Condition ranges from *very bad*, to *poor*, *fair* and (occasionally) *good*, but the register – in a characteristic attempt to fixate evolving situations – also includes buildings "vulnerable to becoming at risk." Once a building is thus identified and included in the Register, priority for action is assessed on a scale. As Harrison shows in his chapter in this volume, such gradients "not only establish and articulate with other systems of valuation, but are strategic insofar as they imply different actions (or regimes of management) which should be taken if sites are threatened."

A snowball effect is built into the logic of those procedures. It is not only that the very concept of tangible and intangible world heritage originates in the West and implies attitudes toward culture and history that are also of European origin, but also that beneath the universalist rhetoric of the Authorized Heritage Discourse (Smith 2006), the practices at work are national and driven by national interests. As heritage becomes in itself a market economy of goods and services, countries compete to get on the list to gain prestige, publicity and economic advantage; the criteria for heritage (never the object of a workable operational definition) weaken under the pressure of public and private interests, and the list, incarnation of a growing "heritage glut" (Lowenthal 1998), acquires a life of its own as a space for trading economic and symbolic values (Frey and Steiner 2011, Harrison and Hitchcock 2005, Rizzo and Mignosa 2013).[16]

Defining the relevant gradients and their contents involves constant negotiations at the scientific, political and normative levels. On the one hand, categorizations manifest conflicting interests whose resolution, as substantiated in conventions, regulations and policies, is intrinsically fragile. Since the category "endangered species" functions as a legal concept, placing or maintaining particular species on a list may spark lawsuits – for example, when conservation groups seek to block oil drilling in order to protect whales. Such legal proceedings highlight the fact, consistent with the already-noted primacy of pragmatism, that the conservation of biocultural diversity is in practice inseparable from resource management. For example, the International Convention for the Regulation of Whaling, signed in 1946, explicitly seeks to "provide for the proper conservation of whale stocks and thus *make possible the orderly development of the whaling industry*" (iwc.int/convention).

On the other hand, the very existence of management and conservation negotiations throws light on more specifically scientific and conceptual challenges. Two major ones relate to uncertainty and categorization. First, as Michael Heazle (2006) has shown, the factious politics of whaling (to continue the example) is riddled by scientific uncertainty – over population estimates, the effects of environmental change, maximum sustainable yield levels, and the monitoring of catches. The perceptions and disputes about uncertainty itself play an essential role in shaping policy.

Second, as mentioned, endangerment is a process, but it is dealt with by means of categories that denote states of being. The use of adverbs in labels such as "*critically* imperiled" or "*apparently* secure" reflects the negotiable and temporary nature of decisions, and points to the difficulties involved. The Red List grade *extinct in the wild* is a good example. As we saw, the category designates species of which only captive individuals survive. Sometimes these captive-bred animals are reintroduced into ecosystems from which they had disappeared, and this is said to play a vital role in conservation (www.iucnsscrsg.org). The process, however, begins when the surviving individuals of a critically endangered species are moved from an area characterized as "the wild" or as a "natural ecosystem" into a non-natural human-made facility (Benson this volume). This redescribes the species as "extinct in the wild." Re-introduction specialists do not equate breeding individuals in captivity with domesticating them in the strict sense. Nevertheless, the Convention on Biological Diversity defines domesticated species as those "in which the evolutionary process has been influenced by humans to meet their needs."[17] This definition suggests that reintroduction is in fact a form of domestication. Indeed, while it alludes to human subsistence, human needs are not limited to organic survival. They are also moral, ideological, political or aesthetic; and breeding captive animals to reintroduce them into nature may obey to what is felt as a moral necessity. Moreover, the act of releasing a saved species "into the wild" may imply particular beliefs about wilderness – those expressed, for example, in the 1964 law that created the USA National Wilderness Preservation System when it defined wilderness as an area that retains its "primeval character" and "where man himself is a visitor who does not remain." However, as William Cronon put it (1996a, 69), wilderness "hides its unnaturalness behind a mask that is all the more beguiling because it seems so natural." The ideas of "primeval character" and "natural condition" obscure the fact that wilderness was invented in the 19th century in opposition to the urban-industrial civilization that was then seen as contaminating it.

Through wilderness, nature retains its traditional moral authority (Daston and Vidal 2004) and remains a vessel into which people pour "all their most personal and culturally specific values: the essence of who they think they are, how and where they should live, what they believe to be good and beautiful, why people should live in certain ways" (Cronon 1996b, 51). These beliefs, values and norms are imbued with intense emotions, which are to be considered neither foundational nor tributary, but constitutive of the endangerment sensibility.

The Emotions of Endangerment

It's time to kill off the extinction message. Such is the commandment found in a brochure entitled "Branding Biodiversity."[18] According to its author, the British "sustainability communications agency" Futerra, biodiversity messages appeal to Loss, Love, Need or Action. The first ones, based on the threat of extinction, are virtually intrinsic to the notion of biodiversity. Yet they are the least efficient. In most people, awareness of endangerment may induce no more than guilt and head-shaking, but no action; except for the "biocentric" few, "extinction comes across more

as an empty threat than a lifestyle threat." The most powerful of the other messages is the one appealing to Love, which trades on empathy, and builds upon feelings of "awe, fascination and wonder for the natural world." Need messages, which convey the economic value of biodiversity, work well in policy-making and business, but partner badly with Love. Both have to be combined with Action messages aimed at everyone beyond those who already demonstrate or donate. The goal, to make sustainable development "so desirable it becomes normal," is to be achieved by turning biodiversity into a brand where emotions take center stage and concepts play a minor role.

Some may object to the means advocated by Futerra, but the fact is that the branding agency applies principles academic psychology seems to confirm: that rationality and emotions work together, that behaviors are not guided by principles of "perfect rationality," that humans rarely make choices on the basis of conscious calculations, and that emotional dispositions are not bothersome factors that "bias" decisions, but integral and useful components of practical reason. "Emotional rationality" and "rational emotions" no longer are oxymora, but philosophical, psychological and neuroscientific commonplaces.[19] Inevitably, conflicting interpretations subsist. Embedded in the "turn to affect" in the human sciences is the opposition between those who separate affect from meaning and emphasize the pre-personal character of emotional responses, and those for whom emotions are states directed toward objects and depend on beliefs, meanings and desires (Leys 2011).

It should come as no surprise that, in arenas of dispute, emotionality plays its traditional villain role. Michael Crichton, the late author of *Jurassic Park* and other fiction best sellers, became notorious for his skepticism about global warming and his attacks on environmentalism. He described the latter as "the religion of choice for urban atheists," and sustainability as "salvation in the church of the environment." In Crichton's (2003) understanding, to say that environmentalism is a religion implied that it is "generated by our emotional state," by individual hopes and fears – in short, that it is driven by faith, apocalypticism and guilt rather than by clear-headed judgment based on scientific knowledge. Similarly, the conservative philosopher Roger Scruton (2007) accused the environmental movement of having "crystallized into a faith" and of being driven by an *odium theologicum* typical (in his view) of leftist movements. By reducing religion (and its allegedly deleterious impact) to pure affect, such comments once again demonstrate emotions' bad reputation. Naturally, their very style attests to the role of emotions in driving argument and sustaining values. In a more positive vein, physicist Freeman Dyson (2008) described environmentalism as a "worldwide secular religion . . . of hope and respect for nature" with which most people may agree. He nonetheless complained that some environmentalists adopted "as an article of faith the belief that global warming is the greatest threat to the ecology of our planet," and therein found "one reason why the arguments about global warming have become bitter and passionate." In fact, a more essential reason is to be found in the strategies conservative and industrial groups use to present anthropogenic climate change as a matter of dispute (see Kitcher 2010 for a concise review of the debates).

The condemnation of emotions can be understood as part of the "scientization of politics" – ultimately a process of depoliticization in which "matters of concern" are transformed into "matters of fact" (Bowman 2010, 182). Nevertheless, there can be no such thing as depoliticization, and those who push for that transformation are themselves animated by political passions. Whether seen as positive motivators or as obstacles to clear thinking, emotions are

recognized as crucial for conveying meanings, shaping perceptions, sustaining values and driving action. Takacs' (1996) already-mentioned interviews with researchers and advocates of biodiversity eloquently illustrate the integration of scientific, moral, and emotional dimensions well beyond utilitarian considerations. Emotions figure prominently in conservation psychology, a field that emerged in the 1990s to bring psychological research and theory to bear on discussions of environmental issues, as well as to promote "healthy and sustainable relationships with nature" (Clayton and Saunders 2012, 3). The very development of a discipline that studies why humans hurt or help the environment and wants to make their behavior more ecological is part of the history and sociology of the endangerment sensibility. Conservation psychology itself exhibits the sensibility whose structure, mechanisms, limits and conditions of possibility it investigates. Revealingly, one of the features usually highlighted as a novel contribution of the field is precisely that it gives prominence to the emotions.

Research carried out since the 1990s has suggested that both positive and negative emotions serve as predictors of conservation behavior; insofar as emotional affinity with nature is a strong individual motivation for ecological attitudes, negative emotions arise when treasured natural resources and environment are perceived as threatened; though less studied, self-conscious emotions such as pride, shame and guilt have also been shown to play a key role as conservation incentives; negative self-evaluative emotions can be used to encourage pro-environmental behaviors; and emotions have been studied as structural behavioral factors, as well as for their role in communication and persuasion (Vining and Ebreo 2002).

Especially important in this respect are emotions rooted in feelings of connection with nature. The endangerment landscape is dominated by "charismatic" species like the panda, the tiger and the koala, whose protection is more likely to attract funding than the protection of other species. A sign of how deeply emotional identification is implicated in the endangerment sensibility is that most "extinction stories" deal with animals, on whom humans can more easily project themselves, than with plants (Heise 2010). There has been debate on the animal preference and the choice of charismatic organisms. At the same time, it is recognized that "flagship species" help generate support for less glamorous biodiversity conservation projects. In the form of such species, nonhuman charisma may help people who hold "different understandings of nature to work together for a common conservation cause" (Lorimer 2006, 2007). It can also separate those who share views of nature, as illustrated by the 2009 flurry after a British TV naturalist suggested that pandas should be let to die out (Benedictus 2009; the debate goes on).

Emotion, then, is explicitly given a decisive role as vehicle for values. Many examples demonstrate the extent to which members of local communities may be animated by interests and feelings that clash with those of political authorities and environmental organizations (see Boitani 2000 for the case of European wolves and Dowie 2009 for extra-European cases), or how different types of organizations oppose each other fiercely in spite of apparently sharing the final goal of environmental justice, as for example in the clash of cultural rights and animal rights advocates over Makah whale hunting (Sullivan 2002; on the social effects of protected areas, see West, Igoe and Brockington 2006). The same takes place in the universe of cultural heritage, where the "UNESCOisation" of sites or the protection of native forms of art may conflict with the wishes and values of their makers and users (see for example Berliner 2010 on the old center of the Laotian city of Luang Prabang after it became a World Heritage Site; or Mowaljarlai et al.

1988 and O'Connor, Barham and Woolagoodja 2008 on the aboriginal repainting of ancient rock art in northwest Australia).

There might be differences in the quality of the affect involved, depending on whether the object to which it attaches is nearby and connected to one's life history (plant or animal species in one's region, a wind farm in one's favorite landscape, an abandoned medieval castle in one's birthplace) or distant and prompted by the media or NGOs communication (Madagascar lemurs, deforestation in the Amazon, the Djinguereber Mosque in Timbuktu). But in all cases, spanning the local and the global, the immediate present and the distant future, people's response is – in addition to anything else – fundamentally emotional. Organizations have understood this, and apply it in their social marketing strategies, which are aimed at evoking positive emotional responses rather than at communicating the complex concepts (such as *ecosystem* or *biodiversity*) that underlie the justification and development of conservation programs (Wilcove 2010). (This is not to say that the public is uninformed. Grassroots organizations and national institutions support information exchange systems, and many legislations ensure free access to official environmental information. Finally, as mentioned, various initiatives promote the "participatory" paradigm in environmental science and policy-making.)

In environmental education too, *management* has become the key notion with regard to emotion. Optimistic "emotion talk" and "emotion discourse" (Reis and Roth 2009) are basic resources for generating the bodily and psychological states which, it is hoped, will lead to awareness of endangerment, and from there to a sense of care and a will to act. In both their discursive and experiential aspects, emotions are simultaneously tools and outcomes, means and ends. We have seen that some critics accused environmentalism of being "religious," by which they meant: irrational, subjective, emotion-driven. Environmentalists, in contrast, vindicate affect; some pursue their cause as a religious quest (see for example Dunlap 2004 and Kearns 2004) and use religious emotions as a pedagogical tool.

For example, in *A Greener Faith*, Roger S. Gottlieb (2006, 160), a professor of philosophy at Worcester Polytechnic Institute in Massachusetts, argues that "environmentalism can function as a religion because it begins with religious emotions and connects them to an articulated set of beliefs about our place in the universe."[20] In the introduction to his anthology *This Sacred Earth: Religion, Nature, Environment*, Gottlieb (2004, 2-3) recounts that on the first day of his environmental philosophy class, he tells students of his own "fear, grief, and anger about the ecological crisis."

> I then ask them to speak in turn about what they feel. They respond hesitantly, emboldened by my example but still unsure that a university classroom is the proper place for emotions. As the hour progresses, however, their statements become more revealing.
>   "I'm terribly angry," one will say . . . .
>   "I'm scared," a young woman admits. . . .
>   It helps to begin not with a long list of environmental problems, but with the acknowledgment that our anguish over the fate of the earth is a real element in our everyday emotional lives. Bury these emotions as we may, they surface whenever we hear of another oil spill . . . . Before we can take in or effectively act in response to the environmental crisis we must admit just how deeply we feel for the earth. . . .

> There is nothing shameful or "weak" in the pain we feel about the environment.
> Grief and fear are rational responses to our losses and perils. And sorrow over what
> we have done is a hopeful sign that despite everything we can still love and mourn.

In this scene, emotions appear as consubstantial with values, are placed at the very root of decision-making and action, and come before information. Its style and contents express a Romantic pathos of human sympathy with the natural world, the sense of nature as the dwelling of the divine and the sacred, the stance of the "worshipper of Nature" who (as William Wordsworth wrote in his 1798 "Lines Composed a Few Miles Above Tintern Abbey") recognizes in It

> The anchor of my purest thoughts, the nurse,
> The guide, the guardian of my heart, and soul
> Of all my moral being.

While certainly such feelings are not universally shared, they highlight a strain of religious sentimentality that has not been without effectiveness in fostering environmentalism. The *Canticle of the Creatures* is about praising God, not celebrating nature for itself; the stories about Francis of Assisi and the animals are meant to express his love of God through the Creation, not of animals for themselves. Yet when in 1979 John Paul II named Francis patron saint of ecology, he was not merely rejuvenating the traditional role of saints as models of life, but specifically encouraging Catholics to behave better toward the environment (francis35.org/pdf/papal_declaration.en.pdf).

Beyond the individual level, emotions play a major role in conflicts over environmental issues and the psychological and social dynamics of activism.[21] Research highlights the emotions' significance as sources of diverging views and attitudes, as motivating forces, and as central factors in the processing of information and the escalation of protests (see for example Buijs and Lawrence 2013 on conflicts in forestry). It comes as no surprise that high arousal emotions such as anger manifest themselves in activism and sustain protest and resistance – nor, as we saw with Crichton and Scruton, that some contenders seek to delegitimize them. A study of conflicts over wind farm developments shows that industry and policy actors systematically appeal to rationality and dismiss positions and decisions that are contrary to theirs as being emotionally influenced: "Emotion is rejected strategically, neutralized substantively and is seen as in need of management" (Cass and Walker 2009, 68).

Yet affect in general plays a crucial functional and structural role in all areas involving perceptions of endangerment and their political and scientific consequences (see for example Carrus, Passafro and Bonnes 2008 on choices in recycling and use of public transportation). Saving the environment may require emotional and cognitive empathy across space and time (Krznaric 2010). As for language endangerment, it "is generally presented in emotive and moralistic terms" and "[a]s with most phenomena which become the focus of moral panic, there is no attempt to present a 'balanced' argument about whether or not endangered languages should be preserved" (Cameron 2007, 269). In the French-speaking world, where the notions of *patrimoine* and "national monument" were institutionalized in the early 1790s in the wake of Revolutionary violence (Poulot 1997), the anthropologist Daniel Fabre launched around 2000 the concept of "patrimonial emotions" to designate a key element
in the dynamics of heritage (Fabre 2013).

Heritage-bound emotions obviously differ from nature-bound emotions in the objects to which they attach. Yet they are likely to fulfill equivalent motivational, expressive and appraising functions, and convey different modes of the same values, such as diversity and authenticity, playing them in different keys. Commonalities and specificities remain to be empirically investigated. It seems nonetheless legitimate to extend to "non-natural" contexts the definition of "environmentally relevant emotions" as emotions referring directly to the "natural" environment or to entities linked to the environment (Kals and Müller 2012), and to imagine that they present substantive parallels. In the environmental context, "burdens and worries" are caused by (generally local) threats; affective connections to nature come in myriad forms, from loving one's pet to a sense of unity with the cosmos; and moral emotions, such as anger and indignation, typically arise when short-term individual interests collide with long-term societal ones, and give rise to behaviors or decisions that are judged contrary to certain moral standards. Although the emotional and behavioral configurations that ensue from such disputes are diverse in their details, internal emotional states and dispositions always carry meanings and contribute to motivate and drive both cooperation and conflict at the interpersonal and collective level. In fact, any emotion can be "environmentally relevant" and any environment, emotionally significant.

Endangerment-related decisions ultimately derive from values, and it is these values themselves that are ultimately at stake in conflicts and negotiations. This is not to deny that emotions can signal or motivate the adoption of particular values; but since parties who sit on opposite sides of a negotiating table may share those emotions (e.g. anger), it is not feelings that are at stake, but values and their practical consequences. While the place of emotions in morality has been the subject of controversy since the beginnings of Western philosophy, and while the issue of emotions and values is philosophically and psychologically complex, it is safe to say that, in the contexts we deal with here, emotions are understood as expressing values and involving cognitive appraisals of consequences.

As French sociologist Nathalie Heinich (2009, 2010-11, 2012) has documented, the expert assessment of tangible heritage appeals to features regarded as values, such as the "typicality" or "representativeness" of an object or site with respect to the category to which it belongs. Although these values are actualized via inventorial and descriptive techniques supposed to ensure emotional distance, feelings of harmony and pleasure associated with beauty play a role in expert judgments, even though beauty is proscribed as an official assessment criterion. As for the public, it reacts openly with high arousal negative and positive emotions: defensive ones, such as outrage when a monument is seen as disfigured or in danger of being unduly modified; approving ones, such as admiration at the state of preservation of a site.

Heritage-related emotions reveal three basic values: authenticity, the very core of heritage; "presence," a sense of entering in contact with people and realities formerly attached to the valued object; and beauty. These values can be positively or negatively modulated by two others, age and rarity. Rarity, for example, might work in favor of a site if eccentricity is appreciated, but against it if the objects are judged by the extent to which they represent traditions or common collective habits. In short, the sense of heritage subsumes a multiplicity of emotions, a limited set of values, and their interplay in particular contexts. That is why, to avoid substantializing "heritage," Heinich prefers to speak of a "patrimonial function" whose goal is to conserve objects considered to be a common good and to have everlasting value. Like beauty, "being

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patrimony" is a relational property rather than an inbred quality; thus, "it is not the object which makes heritage, but it is the patrimonial function which makes a patrimonial good out of an object" by way of emotional experiences that embody values (Heinich 2010-11, 127).

* * *

As we have seen, the values involved in the endangerment sensibility range from the intrinsic to the instrumental. To the extent that even the attribution of intrinsic value to biocultural diversity depends on human valuation, it might lead to expressions of cultural relativism that clash with the bio-cultural axiom as well as with the preservation imperative. In both its affective and cognitive dimensions, the endangerment sensibility thus partakes in one of the thorniest endeavors since the end of World War II, namely the reconciliation of human rights and cultural rights. In the context of what Charles Taylor (1994) calls the "politics of recognition," such an undertaking has involved trying to work the respect for the particular cultural identities of citizens, often based on race, gender, ethnicity, religion or disadvantage, into the universalism of the law and the neutrality of public institutions. This is the challenge of multiculturalism, which, as Amy Gutmann (1994, 3) has noted, "is endemic to liberal democracies because they are committed in principle to equal representation of all." The tensions inherent in the democratic or democratizing outlook – between toleration and respect, difference and equal dignity, particularism and universalism, ethnocentric standards and the "homogenizing demand for recognition of equal worth" (Taylor 1994, 72) – are built into UNESCO's doctrine of diversity. In its biocultural form, this doctrine has come to imply that all natural and cultural entities deserve in principle to be preserved, and functions as a cosmopolitan and secular soteriology (Stoczkowski 2009), as a vision of redemption and salvation that receives meaning and legitimacy from crisis narratives and a "doomsday" perspective.

The equation between the Svalbard Vault and Noah's Ark is not merely metaphorical, for both raise the question, "Salvation of what, by whom, and for whom?" Philippe Descola (2008) gives the question a shorter secular form – "Who Owns Nature?" – and calls for admitting "that there are no absolute, scientifically founded criteria on which to justify universally recognized values concerning the preservation of natural and cultural assets." If this is so, then negotiating and managing togetherness is the only way to face the challenges of cultural homogenization, environmental degradation and resource depletion. These challenges derive from forces that predate the endangerment sensibility, such as industrialization, commerce and imperialism; the sensibility itself entails a grasp of consciousness and eventually a will to act. As highlighted by the contributions to this volume, it involves perceptions of the world, conceptual choices, ethical and aesthetic attitudes, and emotional and scientific practices that have evolved in history and taken different forms in different contexts. It thus promises to keep offering a rich entanglement of possibilities around the crucial issue of human responsibility.

The idea of the human stewardship of nature has distant roots in the book of Genesis (2:15), according to which "the LORD God took the man, and put him into the Garden of Eden to dress it and to keep it." In the Christian Middle Ages, it was connected to the figure of Nature as *vicaria Dei* (Economou 2002). This allegorical and symbolic personification not only represented the benignity of a providential order to be preserved and obeyed, but, in some narratives, also involved the possibility that nature itself could disturb the divine order – that the *contra naturam* actually resulted from natural processes (Cadden 2004, 2013). Starting in the 1990s, the notion of

stewardship was revived in the environmentalist framework (Worrell and Appleby 2000), combining the themes of moral accountability for the present and the future with an emphasis on the sustainable management of natural resources. By the 2010s, stewardship had become "biocultural" (Beckford et al. 2010, Caston 2013). In its religious versions, God is the ultimate authority to whom humans are answerable; in the secular ones, stewardship is exerted on behalf of present society and future generations. In both cases, however, ulterior reasons coexist with the attribution of intrinsic value to nature as such – for God, as Genesis (1:31) proclaims, "saw every thing that he had made, and, behold, it was very good." The essential element here is not the belief in a transcendent God (who may or may not stay in the picture as first cause), but the assertion of an immanent good.

Yet the kind of goodness the medieval *Natura* signified and the kinds of threats it faced differ profoundly from those that motivate modern endangerment discourses and practices. Acting *against nature* consisted of behaving in ways that infringed rules based on Biblical precepts and empirical regularities – hence homosexuality as the *vitium contra naturam* par excellence. It entailed a violation of norms applicable to humans, not damage to other species and their habitats. In contrast, the forms of reflexivity that developed since the 18th were prompted by the perception of human's destructive action on natural and cultural environments.

As the "environmental crisis" took on worldwide proportions, so did this perception. Thus, since the mid-20th century, environmentalism – with all its diversity, contradictions, competing agendas, and manifold interactions with social, political and economic factors and interests – emerged as a global phenomenon (Oosthoek and Gills 2008, Radkau 2014). *Global* it is, not only due to its presence across the globe, but also by virtue of its ultimate concern for the fate of the planet as a whole in which events at the local level have worldwide significance. While some mid-19th-century conservation initiatives were inspired by a recognition of ecological interdependence (based, for example, on the observation of links between deforestation and erosion, or fish depletion and logging), that recognition now applies globally, and has, as we repeatedly saw, broadened to the domain of culture. Such expansion has given prominence to knowledge practices where documentation and preservation are collective and mobilize a vast number of scientists and non-scientists at the international scale.

Those features befit their ultimate object, diversity, understood as an object of global accountability. Such accountability implies the duty to preserve not only the biological and cultural heritages identified as endangered, but also the information that enables their protection. Thus, knowledge production, preservation and transmission are undertaken for the benefit of present and future humanity, but also designed for the scientists and conservationists of posterity. In anthropology, for example, the materials that record traces of the existence of unique lost peoples are themselves "unique and unrecoverable;" yet many of them may be destroyed, scattered or deteriorated, making it critical to take measures for preserving them "for future generations" (Silverman 1995, Lemov this volume). Such urge to produce traces of traces and to keep records of records is characteristic of an endangerment regime that, beyond concrete persons, looks with the sciences of the archive toward "an imagined community that transcends time" (Daston 2012, 184).

While earlier conservation sensibilities responded to perceived perils, they were sustained by visions of material and moral progress. The global preoccupation with biocultural diversity, in

contrast, embodies a sensibility that is saturated with *endangerment*. When it turns to action, it certainly aims at improving humanity's present and future lot, but it does so in a race against time, focusing on preventing further damage. The tasks it inspires, creative and admirable as they often are, seem mainly remedial, recuperative, therapeutic, even palliative. Given how fast, in its own description, the threats it combats keep advancing, and how powerful the forces that drive them remain, this can probably not be otherwise.

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Notes

1 Special thanks to Etienne Benson and Rodney Harrison, who generously acted as consultants on many intellectual and practical aspects of the project embodied in *Endangerment, Biodiversity and Culture*; and to Lorraine Daston for her sharp reading of the present text. Any signs of ineptitude are of course our own.

2 news.nationalgeographic.com/news/2008/02/photogalleries/seedvault-pictures.

3 Transcript of conversation with Cary Fowler, 26 February 2008, www.washingtonpost.com/wp-dyn/content/discussion/2008/02/26/DI2008022601020.html. Crop Diversity Trust website: www.croptrust.org.

4 www.regjeringen.no/en/dep/lmd/whats-new/Speeches-and-articles/speeches-and-articles-by-the-minister/speeches-and-articles-/one-year-anniversary-seminar-of-the-sval/one-year-anniversary-seminar-of-the-sval.html?id=547254#.

5 Over two decades after the Rio Summit, the 2014 Synthesis Report of the Intergovernmental Panel on Climate Change still notes that local and indigenous knowledge is not consistently taken into account in planning and implementing policy (www.ipcc.ch/report/ar5/syr) – a goal promoted by the Indigenous Peoples' Biocultural Climate Change Assessment Initiative (ipcca.info).

6 ethnobiology.net/what-we-do/core-programs/global-coalition/declaration-of-belem.

7 www.unesco.org/new/en/culture/themes/endangered-languages/biodiversity-and-linguistic-diversity. Those beliefs and values are wonderfully displayed in the 2008 documentary *The Linguists*, which is completely independent from UNESCO (thelinguists.com). For interactive documentation on endangered languages, see www.ethnologue.com (considered the most comprehensive source of its kind) and the UNESCO Atlas of the World's Languages in Danger (www.unesco.org/culture/languages-atlas).

8 UNESCO (whc.unesco.org) classifies "world heritage" into *natural heritage*; *tangible cultural heritage*, which includes objects (from buildings and monuments to books, works of art, and artifacts); and *intangible cultural heritage*, which includes "practices, representations, expressions, knowledge, skills" (such as song, music, drama, dance, rituals, festivals or artisanal traditions) transmitted from generation to generation, and insofar as they are "compatible with existing international human rights instruments, as well as with the requirements of mutual respect among communities, groups and individuals, and of sustainable development" (www.unesco.org/culture/ich/en/convention).

9 We use "crisis of life" because a good example of the combination of utilitarian pragmatism, sense of crisis, and conviction about inherent value is offered by the Crisis of Life video project (www.crisisoflife.net). There, scientists and activists talk about ways to stop the biodiversity crisis to ensure the survival of all living beings, including humans. While the explicit arguments concern mostly the utility and sustainability of ecosystems, the images (other than those of the interviewees) exclusively show charismatic organisms and landscapes, and the accompanying music is either sentimental or alarming and ominous.

10 Chakrabarty (2014, 9, 21) reports that paleoclimatologists "see climatic tipping points and species extinction as perfectly repeatable phenomena" and demonstrate that, while the current phase of warming is anthropogenic, "it is only contingently so" since it happens elsewhere in the universe, and happened and will happen again on Earth without the human species. Chakrabarty (ib., 9) insists that the climate crisis "requires us to move back and forth between thinking on these different time scales all at once." But since he also judiciously notes that the "'global' of

globalization literature . . . cannot be thought without humans directly" (ib., 22), it remains unclear how thinking across the time scales helps humans to face their current predicament.

[11] www.dannen.com/decision/45-07-17.html.

[12] ist-socrates.berkeley.edu/~schwrtz/SftP/Towards.html.

[13] www.iucnredlist.org/technical-documents/categories-and-criteria.

[14] www.iucn.org/news_homepage/news_by_date/?13487/Lemurs-of-Madagascar-three-year-conservation-plan-launched.

[15] www.unesco.org/new/en/culture/themes/endangered-languages/language-vitality/.

[16] Glut or merit, and just to provide a recent example, in November 2014 the UN Committee for the Safeguarding of the Intangible Cultural Heritage inscribed on its list of Intangible Cultural Heritage in Need of Urgent Safeguarding a dance from Kenya, a male-child cleansing ceremony from Uganda, and an oral tradition from Venezuela. See full lists in www.unesco.org/culture/ich/index.php?lg=en&pg=00559.

[17] Convention on Biological Diversity, article 2 (www.cbd.int/convention/text/). The Convention was opened for signature in June 1992.

[18] www.futerra.co.uk/downloads/Branding_Biodiversity.pdf.

[19] The literature on this topic is immense. Among recent publications in English, good entry points can be found in Goldie (2010) and Bagnoli (2011). The history and anthropology of emotions have been on the rise since the 1980s, and various disciplines, from biology to geography to cultural studies, have also undergone their "affective turn."

[20] Gottlieb's definition of "religion" overlaps with spirituality and belief systems that make room for the transcendental and the supernatural. For a balanced discussion of more theologically rigorous ways of "greening" religion, see Garreau (2010); and Milton (2002) for an attempt at joining emotion, religion and environmental issues. Founded in 1996, *Ecotheology: Journal of Religion, Nature and the Environment* became in 2007 the *Journal for the Study of Religion, Nature and Culture.*

[21] We speak of "conflicts over environmental issues" rather than of "environmental conflict" or "environmentally induced conflict." The latter notions, which connect human-induced environmental scarcity or degradation with interstate or intercommunal conflicts (and therefore do not refer to conflicts over the control or distribution of non-renewable resources), have been criticized on several grounds (Hagmann 2005). One of them is the neglect of what "issues" is meant to underline: the role of people's motivations, perceptions, meanings and emotions. Although climate change has been frequently approached as a security matter, there is no evidence of its links with armed conflict (Gleditsch 2012), nor consensus on "what kinds of environmental changes have what kinds of influences on what kinds of conflict or cooperation" (Bernauer, Böhmelt and Koubi 2012, 6; see also Koubi et al. 2012).

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Links:

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