The Intangible Values of Biological Diversity

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The title of this article may seem cryptic or peripheral, yet nothing is further from the truth. All human values are intangible by definition, regardless of whether they are associated with tangible or the intangible elements. They all flow through the net of science just as the sea slips through fishermen's nets, to quote Polanyi. In this article I intend to deal with the values of the intangible dimensions of biological diversity in order to offer a reflection from the perspective of environmental policies. Once the context and the importance of the subject have been established, I shall examine the semantic scope of the concept of biodiversity and its limitations, and compare it with the concept of nature and with other broader and ethically significant concepts; this will be followed by analysis of how consideration of intangible values has developed in large organisations over recent decades, with mention of some milestones, and then by comments on the European scene and, lastly, a focus on the situation in Catalonia.

A conflict of values and of attitudes towards nature

The question raised, therefore, has nothing to do either with the description or the scope of biodiversity, but rather with what it means for society or, in other words, with the value society gives it. Whether it is conserved or spoilt depends on what it means for the dominant groups or societies, and also on scales of values, which depend neither on data nor information, but rather on the worldviews they share, and on the ethical and moral systems arising from them.

At a time when the destruction of biodiversity is on a world scale and has assumed a rhythm unprecedented in the history of humanity, the question is not one of an abstract dichotomy between tangible values—utilitarian or economic—and intangible values—cultural or spiritual—, but rather of acknowledging the striking and sometimes tragic conflict there is in the very different relationship that societies, or countries, can actually establish with nature. Depending on what the prevailing values are in a specific place, it is a relationship that can be either pathological and destructive or healthy and harmonious. It is therefore not surprising that the contrast between the tangible and intangible values of nature, and of the rights associated therewith, should appear increasingly at the centre of important political debates, as demonstrated, for example, at the World People's Conference on Climate Change and the Rights of Mother Earth, held this year in Tiquipaya (Bolivia) in response to the failed Copenhagen summit.

Nobody now questions that the global ecological crisis—of which biodiversity loss is one of the most important features—is an undesired effect of a Western view of the world, a 'collateral effect' of a way of development that arose in Europe in the seventeenth and eighteenth centuries, which may have brought unimaginable tangible benefits years ago, but has also triggered some exponential problematic trends also on a scale that defies the imagination: hunger and poverty on an unprecedented scale, the irreversible destruction of species and ecosystems, the continuous expansion of deserts, irreparable loss of fertile land, a growing number of 'natural' disasters, the increase in greenhouse gas emissions and many, many more effects. Ideologically, the myth of 'progress' is based on materialist positivism, rationalism and individualism, and in economics, on a capitalist liberalism that still clings to the irrational utopia of sustained growth, even fifteen years after the planet's bioload capacity was exceeded.

Stopping and reversing current global trends of biodiversity decline cannot be achieved simply by a few adjustments; they require a complete change in the dominant paradigm, the value systemsthat sustain the current model of society. This change is necessary not only here, but also in rich countries with which we are extremely closely associated—and in the oligarchies of impoverished countries—because policies and activities that uphold 'progress' or 'the welfare state' are its main causes. Our country, it should be remembered, is a member of a 'privileged' minority: of the 20% of the population that consumes over 80% of the planet's natural resources. Both the Second Earth Summit (Johannesburg, 2002) and the Millennium Ecosystem Assessment (UN, 2001) made this clear. Jeffrey Sachs, director of the Millennium Assessment summed this up when he stated that 'ignorance, misplaced priorities and indifference are keeping the world firmly on a path to disaster'. Priorities naturally mean value systems.

Not even the European Union has been able to halt its biodiversity loss in 2010, even though it had appeared well placed to accomplish what it had set out to do. In fact, economics and technology notwithstanding, it was the only international government that formally proposed this objective (Gothenburg Summit, 2001) and the only one also to introduce ambitious policies based on solvent scientific approaches to bioregional areas. In early 2010, however, the European Environment Agency admitted that approximately 50% of species and 65% of the European habitats assessed were classified with an 'unfavourable' or 'bad' conservation status. In this assessment, Spain came at the bottom of the European Union scale.[1] This was the situation even though both Spain in particular, and the European Union in general, export most negative impact on biodiversity to other countries, from which we import the bulk of the resources we consume, and to which we also export the greater part of the waste and the emissions we generate.[2]

Scientific and technological progress, despite its potential, is therefore of little use unless it is placed at the service of a system of values different from that which has generated the global ecological crisis, because what is being irreversibly lost on the one hand is ultimately far greater than what it can save on the other with huge effort and costly conservation policies.[3]

Biodiversity *versus* Nature?

The concept of biodiversity spread internationally after the Rio de Janeiro Summit and the approval of the Convention on Biological Diversity of 1992. Like other similar concepts, such as rarity, fragility or vulnerability, it is very useful for scientific researchers, but extremely complex and difficult both to understand and to communicate socially for different intrinsic reasons, which are worth mentioning. First, it is a quantitative concept and impossible to measure properly, as it is estimated that over 90% of the world's species are unknown. Second, it includes all the structural scales into which science classifies organisms—from genes to ecosystems—and thus ranges from realities so minute they can only be observed by electron microscope, to others that are so huge they can only be seen by aerial photographs or satellite images. It is also virtually impossible either to define what the ideal status of biodiversity is in a specific place or country, or what the original biodiversity would have been in regions so changed by humankind like those we live in, where the original biodiversity has been altered over twenty-five centuries. Despite the breadth of the concept, the semantic scope of biodiversity is nevertheless narrower than that of nature, because it excludes geodiversity or, in other words, the biosphere substrate. All these reasons help understand the results of a recent European Environment Agency survey, which show that over 80% of Europeans do not know what biodiversity is, or what it means. The real importance of this concept for the world's population as a whole is therefore definitely negligible, and very unlikely to increase substantially. In practice, exclusively technical approaches to conservation, day in day out, come up against more complex, richer and more existential social perceptions.[4]

The concept of nature, on the other hand, is much deeper-rooted and easier to convey and to understand, and is even often used as an equivalent or approximate substitute for biodiversity. Although it offers far more advantages, it should be remembered that the concept of nature used today in natural sciences did not develop until after the scientific revolution that took place in Europe in the seventeenth and eighteenth centuries, the effect of which was a gradual reduction in the broader scope of the classical concept of nature.[5] The word 'nature' comes from the Latin *natus*—bears, gives birth—which initially ranged from intangible essence to tangible manifestation. The words *nature* in English and in French, and *naturaleza* in Spanish also come from the same Latin term. In Western languages, there is indeed a broader sense to the concept, which includes the intangible dimension. To refer to the spiritual dimension, it can be written in upper case letters, although this practice is usually restricted to the humanities—especially poetry—while the conservation of natural heritage, economics and other associated disciplines, have opted for the concept of the natural sciences, from which its consequent reduction to an exploitable 'natural resource' is derived.

Although in non-materialist societies, values associated with intangible, and normally spiritual, realities are the most important,[6] because the impetus for policies to conserve nature has come from Western countries, or from international organisations, in which Western materialist values prevail, acknowledgement of intangible values has come late and is partial and generally awkward. In practice this has led to disregard both for the ethical and moral codes they involve, and for the systems of governance associate therewith. This has prompted the exclusion—often by themselves—of many of the world's more resilient organisations or cultures, for whom these intrinsic values are both the most real and those that ultimately give meaning to life.

Although it is true that there exist other concepts, like the landscape, that better integrate the intangible aspects of nature valued most by our societies, such as beauty and harmony (perceptible yet immeasurable qualities), this does not change the fact that the dominant trend of biodiversity conservation programmes has been to focus exclusively on the dimensions of nature that are measurable by Western science.

More holistic concepts and values

The fact that the impact of technological civilisation has arrived in nearly every corner of the world does not mean at all that every society on the planet shares Western materialist ideology. It is estimated that there are between 6,000 and 10,000 languages in the world, even though over half of these, spoken by indigenous peoples, are oral, and most are heading for extinction because of trends towards uniformity prompted by a technology whose tentacles stretch out to even the remotest corners.

It is clear, moreover, that there is an extremely close correlation between cultural diversity and biodiversity; in other words: the regions with more biodiversity are also those with greater cultural diversity, and vice versa. Despite the genocides suffered by indigenous populations, the world proportion of biodiversity in their custody is still very much greater than many people imagine. Indeed, the world's largest protected areas, from the jungles of the Amazon and the Sierra Nevada de Santa Marta, to Canada's Borean tundra or the steppes of central Australia, have been established without any of the traditional Western conservation instruments; they have been set up simply through acknowledgement of the territorial sovereignty rights of the indigenous peoples—some of whom have still not been contacted—who care for these immense territories far more effectively than any government body could.

The great majority of languages, including the world's most used non-Western languages, such as Mandarin Chinese, Bengali and Hindi, have no equivalent to the materialist concept of nature, but do have concepts with a much broader and more holistic semantic scope. The concept of *Prakriti*, for example, used in Hindi, the most commonly spoken language in India, is applied to a host of levels of reality, ranging from the feminine, and highest, metaphysical beginning of the universe to its earthly tangible manifestation, what we call 'nature'. Indeed, the Cartesian distinction between the material and spiritual world does not exist in most cultures, in which people consider spiritual realities to pervade everything and humans, nature and the entire universe to share the same material and spiritual dimensions, in which interdependent links between one and the other are always meaningful and often decisive. The concepts used by most cultures may therefore be loosely translated as 'Mother', 'Mother Earth', 'Mother who makes all things possible', 'Community of all beings', 'Source of all', 'Self-regenerating', 'Angel', or even 'Spirit'. The world's great religions, moreover, which are followed by or influence over three quarters of humanity, have elaborated cosmologies and important highly differentiated concepts, significant amongst which are 'Creation' (Christianity, Islam and Judaism), '*Samsara*' (Buddhism), '*Prakriti*' (Hinduism), and '*Shan-shui*' (Confucianism and Taoism).

All these diverse concepts yield an impressive number of values, ranging from the intrinsic to the instrumental (associated with means of subsistence), and the functional (such as environmental or ecosystem services). What is essentially important is that complex, broad ethical and moral systems are always associated with them. The term 'cultural' here should be understood in a broad sense, ranging from a view of the world to systems of governance, and from traditional sciences and technologies to ethical or moral codes. These reasons undoubtedly explain why there has been growing acceptance of the concept of biocultural diversity,[7] within a context of considerations based on ethical and environmental and social justice criteria, championed by numerous organisations, which the UN, albeit timidly and slightly contradictorily has recently joined in its environment programme.[8]

The imposition of positivist and materialist approaches, expressed as the way of thinking characteristic of the market economy, together with technological, political and military superiority prompted by colonialism, have led to the erosion not only of the intangible values of nature, but also of traditional knowledge of ecology, and of the sciences and the technologies associated therewith, which are transmitted through traditional trades.[9] Like other non-

Western natural sciences, these traditional trades are being lost, or are threatened with extinction in many parts of the world, despite the wisdom they convey. This is also happening to the landscapes they themselves helped to shape and maintain for centuries.[10]

All these considerations have very significant and highly tangible consequences, because human action ultimately depends on how reality is conceived and on the scales of values based thereon. For example, the promotion of conservation policies or programmes based on technically and emotionally neutral concepts—such as biodiversity—in many parts of the world is perceived as a cultural imposition and prompts rejection or mistrust among societies or organisations that identify with different views of the world.[11] Another consequence is the impossible task of faithfully translating the main documents of organisations such as IUCN, UNESCO and FAO into many of the world's most-used languages, without conveying—or meanwhile imposing—the characteristically Western positivist and materialist approach.

The protection of biodiversity based on intangible values

Awareness of the spiritual scope of nature, and of its intrinsic values, and the resulting relations of profound respect, has survived to a variable degree and with some differences, around the world, particularly in countries or regions where non-materialist views of the world still prevail.[12] A World Wildlife Fund (WWF) study entitled *Beyond Belief* demonstrated the significant influence that belief systems and religions have on the conservation of biodiversity, and features examples and studies of cases worldwide.[13]

Study of the conservation of the natural environment over history shows that nearly all civilisations have developed often diversified and effective nature conservation strategies, which are generally associated with spiritual values. On a global scale, the scale of natural areas protected because they are considered sacred is as large and extensive (in certain countries or regions) as that of natural areas legally protected for their ecological values. All the world's terrestrial and marine ecosystems include sacred areas or landscapes associated with local communities, which, for generations, have safeguarded them.

The intangible value of species, meanwhile, is an even larger unknown and an area of great complexity. Although IUCN estimates that over 750 known species have recently become extinct and a further 65 are conserved only in captivity or on farms, the number of unknown extinct species is likely to be twice as high. Nearly all the world's religions consider some species to be sacred and although they are therefore treated with great respect, this does not prevent them from being used. Most sacred species are indeed used for ritual, ceremonial and medicinal purposes or as a food and many societies depend on sacred species for their existence. This is the case, for example, of rice in Japan, taro in Hawaii and reindeer among the Nenets in North-Eastern Europe, just as it was bison that sustained the tribes of the great North American prairies until they succumbed as victims to the genocide disguised as Manifest Destiny.

A study on 75 representative sacred species of animals, plants and fungi showed that the high spiritual esteem in which they are held prompted the communities analysed to develop and maintain efficient practices for safeguarding these species. Traditional protection is, however, not enough to deal with new threats or pressures against which these peoples are unable to respond. Nine of the 33 species of fauna and two of the 36 species of flora held as sacred that were analysed are therefore threatened with extinction, with its consequent negative social and cultural impact. The study also established that the growing of sacred plants in temple gardens, sanctuaries or cemeteries has saved many species, such as the ginkgo tree, from extinction.[14]

International recognition of intangible values

International recognition of the intangible values of biodiversity began shortly after the introduction of the concept in international environmental policies in an ambitious United Nations Environment Programme project that gave rise to two international congresses and led to the work *Cultural & Spiritual Values of Biodiversity*, published in 1999.[15] In its preface, Klaus Töpfer, then the programme's executive director, concludes that 'we must opt to weave the customs that sustain life in all the world's societies into a tough fabric that protects the sanctity of all forms of life'.

In the years that have gone by since then, recognition of the intangible values of biodiversity has increased slowly but gradually in international nature conservation policies. Some significant events are listed below.

In 2001, UNESCO approved the Universal Declaration on Cultural Diversity, the implications of which for value systems are significant. The following year, the Ramsar Convention - Conference of the Parties passed a resolution on the cultural values of wetlands.

At the Fifth IUCN World Parks Congress, held in Durban (South Africa) in 2003, a large delegation from the world's indigenous peoples both presented a very thoroughly devised criticism of Western approaches to nature conservation and condemned the terrible injustices indigenous peoples have suffered as a result of the creation of national parks and large wildlife reserves, based on the unfortunate 'Yellowstone model'.[18] As a result thereof, the congress approved the first recommendations for integrating cultural and spiritual values in the strategies, planning and management of protected natural areas, and set up a working party on the spiritual and cultural values of protected natural areas, within the World Commission on Protected Areas. This yielded an initiative focused on technologically developed countries, the Delos Initiative, which has been deployed mainly in Europe.[17]

Also in 2003, UNESCO approved the Convention for the Safeguarding of the Intangible Cultural Heritage, the need for which was apparent because the concept of cultural heritage, in the section on world heritage sites for example, had been reduced to its tangible dimension, as a result of the same materialist bias that had affected natural heritage. It also organised an international workshop on the significance of sacred natural areas in biodiversity conservation in the Kunming and Xishuangbanna Biosphere Reserve (China).

In 2004, the Secretariat of the Convention on Biological Diversity approved guidelines for evaluating environmental, cultural and social impact on sacred sites or on waters traditionally occupied by indigenous peoples.[18] At recent conferences of the parties, greater priority has been placed on the aspects associated with the intangible values of biodiversity.

In 2005, the UN and the IUCN organised an international symposium in Tokyo on the role of sacred natural sites in the conservation of the world's biological and cultural diversity. This yielded a declaration and a publication on the subject.

In 2007, after years of fierce discussions, the UN approved the Declaration on the Rights of Indigenous Peoples, which is extremely relevant to the subject matter of this article. The IUCN, in the meantime, embarked on a process to redefine protected natural areas and their conservation categories—a yardstick against which all the world's nature area protection concepts can be measured. At the summit held the same year in Almeria, the existence was acknowledged of sacred natural areas in all categories of protected natural areas around the world, as was the diversity of systems of governance, which transcend the stereotype of government-created parks. As a result, the new IUCN guide for categorising protected natural areas now recognises that these must not only conserve nature in the long-term, but must also ensure the conservation of 'their associated cultural values', consider the method of governance, and acknowledge the intangible values—sacred whenever applicable—of nature in all categories.[19]

In 2008, a large number of activities associated with the intangible values of nature were held at the IUCN World Conservation Congress in Barcelona. These included the presentation of the IUCN-UNESCO guidelines for managers of protected areas at sacred sites, focused on indigenous cultures.[20] The last IUCN General Assembly, which

was held immediately afterwards, saw the approval of a resolution which, for the first time, acknowledged the need for 'recognition of the diversity of concepts and values of nature' and the advisability of measures to this end that include 'practices and traditions that are rooted in culture and embody the cultural values of the diversity of peoples of the world'.

All these events have had a positive influence on large international organisations associated directly or indirectly with the conservation of biodiversity, which, to varying degrees of interest, have integrated intangible values and traditional ecological knowledge in their work programmes. Although very often that has not yielded binding instruments, their influence is now considerable and growing, despite formidable resistance to them in the policies of sectors with the greatest economic and environmental impact such as energy, mining, agricultural, fishing and tourism.

The same could be said to apply on a state level. The intangible values of biodiversity have gradually been acknowledged in the conservation policies, strategies, regulations and plans of quite a few countries, some of which are rich (such as Australia and Canada), others in transition (like Mexico and India), and others that belong to a numerous group of impoverished and extremely diverse countries such as Colombia, Bolivia, Peru, Ecuador and Bhutan, which are very creative in this sense. Bolivia, for example, was the first country to give legal backing to the rights of *Pachamama* (Mother Earth). Some of the intercultural nature conservation strategies that exist have been developed in the Colombian and Peruvian Amazon. In India, meanwhile, according to one influential activist with a long track record in community conservation 'no one takes you seriously unless you use religious arguments in a conservation campaign'.[21]

Large-scale cross-border initiatives could be added, one example of which would be the Kailash Sacred Landscape Initiative, presented in Kathmandu in 2009 with the support of the UNEP and ICIMOD. It comprises a large territorial area of Tibet (China) and adjacent areas of Nepal and India. Mount Kailash is venerated by over one thousand million Hindu, Buddhist, Jainist, Bön·po and Sikh devotees and has been a pilgrimage destination since prehistoric times.

The case of Europe

A concept of nature open to spiritual aspects was common among Western nature conservation pioneers. In North America, the developers of the national parks always put forward moral and spiritual, as well as natural, values. The ideas of the transcendentalist philosophers of New England, such as John Muir, found a strong ally in North American indigenous spirituality, which made nature an analogous place to the revelation and sanctuaries of the great historic religions. Hence, the idea became popular that protected natural areas were 'natural sanctuaries', a term used in much legislation worldwide, a fact that indicates they are the modern equivalents of the sacred natural areas of days gone by. Many people went, and still go, to these places not to 'become healthy' but rather in search of 'spiritual and emotional regeneration'. Such language, which is common in countries with an Anglo-Saxon, Baltic or Scandinavian culture, has given rise to significant social programmes in protected natural areas, such as those in Australia and in South Africa.

The situation in Western Europe was similar but, although for reasons not relevant here, the perspective of the initial conservationists was abandoned after the Second World War in favour of the scientific and technical approaches that, over the years, have ended up monopolising conservationist rhetoric. This is visible, for example, in the fact that the Natura 2000 network, the largest nature conservation policy implemented in the European Union, is restricted to the tangible aspects of natural heritage and features exclusively technical considerations.

History is nonetheless eloquent. Most European cultural landscapes have been pervaded with spiritual values since prehistory and there are remains of natural sanctuaries everywhere. The worldviews of the Proto-Uralic, Germanic, Viking or Celtic peoples are not substantially different from those of the Iberians, Tatars, Dacians or Hellenics. Ancient shamanistic, animist and theophanic worldviews have survived both among the indigenous communities of Northern Europe to the present time and also (with varying degrees of integrity) among numerous rural communities, such as those in the Carpathian Mountains, that have remained on the fringes of modern trends. Although Christianity did fight ancient 'paganisms', the Eastern Christian churches and, to a slightly lesser extent, the Roman church, did not hesitate to appropriate a host of sacred natural sites and pilgrimages. Continuity in the protection given to sites regarded as sacred in pre-Christian civilisations was thus more of a rule than it was an exception.

Recent years in Europe—cradle of anthropocentrism and materialism— have seen several congresses and international workshops, held to examine the intangible values of nature, values that have timidly yet gradually started to appear on the agenda of decision-making bodies. This is apparent in the following examples.

In 2006, the first Delos Initiative workshop (World Commission on Protected Areas) was held on Montserrat, with the support of the Montserrat Mountain Trust, of the Department of the Environment and Housing and of the Territory and Landscape Foundation. The following year, the second Initiative workshop was held at Ouranoupolis, near the world's only monastic state, which was established over a thousand years ago in north-east Greece and at which Byzantine culture is kept alive and some of the Mediterranean's best coastal and forest ecosystems are conserved.[23]

In 2008, the Estonian Ministry of Culture implemented the plan 'Sacred natural sites in Estonia: Study and Maintenance 2008-2012' at the request of the organisation Maavalla Koda. Estonia has some of Europe's best-preserved ancient traditions associated with nature. There remain an estimated 2,500 sacred natural areas, of which some 500 are sacred forests (*hiis*) of great importance not only as natural and cultural heritage, but also in collective identity.

In 2009, the Ramsar MedWet Programme organised a workshop an integrated on an approach to the natural and cultural aspects of the wetlands of the Prespa Lakes (Greece, Albania and Macedonia). In the same year, the German Federal Agency for Nature Conservation and the Europarc Federation organised another on 'Communicating values and benefits of protected areas in Europe', on the Baltic island of Vilm. This featured examination of the spiritual values of European protected areas and of the strategies to communicate spiritual values in areas inhabited by Christian monastic communities.

This year (2010), the third Delos Initiative workshop was held by Lake Aanaar, site of the sacred island of Ukkonsaari, in Finnish Lapland. It had the support of Metsähallitus and the Finnish Ministry of the Environment. In addition to matters regarding the indigenous Sami people, it dealt with the guidelines for sacred natural areas associated with the world's great religions. One month before, the Government of the region of Archangel (Russia) had organised the Sixth International Contact Forum on Habitat Conservation in Barents Euro-Arctic Region, on a joint basis with Russian and Scandinavian institutions. This featured the presentation of ten papers on synergies between natural and spiritual heritage.

The intangible values of nature cover other aspects, however, that may be of as much or more significance for contemporary European societies. This is shown in the following two examples.

In Finland, a country with some of Europe's highest educational standards and most effective nature conservation policies, an inventory has been drawn up of 42 lakes, 26 hills, 18 tarns, 15 rivers, 11 bays and 9 mountains with the prefix '*pyhä*' (holy or sacred), which include three national parks: Pyhätunturi, Pyhä-Häkki, and Pyhäkero. Some 200 natural areas with place names featuring the prefix '*hiisi*' or the genitive '*hiiden*', which refer to sacrificial stones[23] , have also been described. They are a clear reflection of the religious vision of the natural world that still exists, albeit fragmentarily, in Lapland. Yet what is the significance of the intangible values of nature for the present population of Finland, which is one of Europe's most secularised?

When the agency in charge of the survey asked park visitors what most attracted them about nature, the most frequent answer was neither biodiversity, nor observation of charismatic species of flora or fauna, but rather a search for an experience of peace, harmony and silence.[24]

The other example is from England. Upon reviewing the management plans of two national parks (equivalent to Catalonia's natural parks) established almost fifty years ago (the North York Moors and the Yorkshire Dales), two objectives were prioritised in the processes of public participation. These were not the conservation of rare or threatened species, but rather the experience of solitude and beauty, which again are two intangible values. This, what is more, happened in a leading country in the study of nature with one of Europe's highest levels of social awareness of fauna and flora.

Our immediate context

Modern conservation policies appeared in Spain at the start of the last century. Senator Pedro Pidal promoted the first Spanish law on national parks in 1916, on the basis of which, two years later, he himself developed the two first national parks of Covadonga and Ordesa. The law that created the first national park marked the twelfth centenary of the ancient battle of Covadonga, thus emphasising the spiritual and symbolic value of that legendary cradle of the Reconquest of Spain. This was considered analogous to the new 'reconquest' of nature, which was intended to challenge the harmful processes prompted by industrialisation.[25]

Subsequently, events resembled those in other European countries and nature conservation evolved gradually towards values of natural heritage. However, as a result of the international developments described above, intangible values were again debated in 2005, this time in the context of the Spanish section of Europarc. As a result of these debates, recommendations on intangible values were adopted at both the 2005 and the 2006 congresses.[26] In addition to official bodies, there are also diverse private organisations working along these lines. Significant among these is the Félix Rodríguez de la Fuente Foundation, which in its publication Agendaviva features dialogues on the great conservation challenges with top philosophers, artists and scientists, in a search for convergence between traditional rural culture and new scientific disciplines such as ecology and conservation biology.[27]

At the start of the last century, the prevailing view of nature among the minority of educated people concerned with nature conservation was similar in Catalonia to that of other places. Materialist positivism was still to dominate this field. The Catalan Natural History Institution, founded shortly before (1899), was influenced by the main idealists and metaphysicians of the German *Naturphilosophie*, and the great naturalists of that time belonged to religious orders or were laypeople with profound religious convictions: in the field of geology there was Father Bataller and Canon Almera, and in botany and ornithology, Vayreda. Similarly, many of the best landscape painters, like the leaders of the Olot school, viewed nature as something spiritual, as did the period's greatest poets, Verdaguer and Maragall, who presented nature as open to transcendence, the influence of which has survived in their works.

Such circumstances explain why patriotic, symbolic, philosophical or ritual values always play a prevailing role in proposals for the conservation of nature. Indeed, the first proposal for a Spanish national park was the 'sacred mountain' of Montserrat. Its promoter, forestry engineer R. Puig i Valls, stated in 1902 that 'this jewel of nature' was 'an ideal for a devotee, a marvel for a naturalist, a wonder for a believer and a monument for a patriot'. Likewise, fifteen years later, when J. Gelabert—priest, naturalist and landscape painter—requested national park status for the Boscdetosca and the volcanoes of Olot, he too justified this application on 'religious, aesthetic and scientific' grounds.

Trends in Catalonia, however, did not differ from general European tendencies and nature's intangible values were progressively sidelined. They were therefore absent in the declaration of the first national park, Aigüestortes i Estany de Sant Maurici, in 1955, under Franco. They were likewise ignored in the establishment of the first natural park, Sant Llorenç del Munt, which was developed by Barcelona Provincial Council in 1972. Similarly, the current system of protected natural areas, which was approved in 1992, was geared to the protection of natural heritage. In the few cases in which protection of a natural area was considered to be of cultural value, this was limited to components of historical or architectural heritage, which were understood to be complementary to the natural values that were always prioritised.

In recent years, however, because of the developments mentioned above, things have started to change. Montsant Natural Park thus approved a strategy for incorporating its rich cultural and spiritual values in all areas of planning and management,[28] while Montseny Natural Park studied intangible cultural heritage with a view to safeguarding it. In the private sector, the Region and Landscape section of Obra Social de Caixa Catalunya has backed management plans like those of the sanctuary of Santa Maria de l'Ecologia, in Gallifa, and at the Tibetan Buddhist monastery of El Garraf, which combines both a Buddhist and an ecological worldview.

The same has occurred in policies to protect species. These have been developed on the basis of criteria of conservation and ecological biology, without considering the significance of the values species have or have had throughout the history of our society. The peregrine falcon is a case in point; despite the extraordinary cultural and spiritual significance of the falcon in our culture, it has not occurred to any of the organisations that have striven to safeguard this endangered species to mention that significance to enhance their messages.
Only in landscape policies has there been any consideration for intangible values (mainly historical, literary and aesthetic); in landscape catalogues for example, even though their relationship with biodiversity, as they have developed in Catalonia, is rather indirect and any effects they may have will not be apparent until a quite few years from now.

By way of recapitulation

Since the solemn 'Warning to Humanity' of 1992, great scientific forums have constantly requested support for those who recognise other values of nature, especially for religious leaders, both of the great world religions and indigenous traditions. Most great geologists, biologists and ecologists are not utilitarians but rather wonder at the mysteries and the inexhaustible beauty of nature and modestly recognise that modern science and technology—bereft as they are of values—do not hold the key to resolving the formidable challenges raised by biodiversity conservation.

Experience accumulated since the Rio Summit has made it clear that the global loss of biodiversity cannot be stopped with conventional instruments and mechanisms, although they can all help. According to Lawrence Hamilton, eminent biologist and former Vice-president of the IUCN World Commission on Protected Areas: 'It is not the ecologists, engineers, economists, or earth scientists who will save spaceship earth, but the poets, priests, artists, and philosophers'.[29] Shortly before he died, Ramon Margalef, our country's most widely acknowledged ecologist, insisted on the need to 'view nature reverentially or with religious spirit' and although he acknowledged that 'at the moment that is not very common', he also stated that he was convinced this reverential vision must be 'based on ethics that move people'.

The conservation of biodiversity is too important to leave it solely to the utilitarian values which, at this particular time in history, happen to prevail among one part of the world's population—the same part that has developed technology capable of destroying the world forever. Western materialist values are questioned on all sides—both in the West and outside it—and from an ethical perspective they are very notoriously erroneous and limited. Rather than relying on such an unstable base, would it not be more sensible to seek inspiration in a broader vision, the roots of which are buried in humanity's most universal and lasting values?

Globalisation has brought all kinds of valuable lessons. Analysis of the collapse of recorded past civilisations has revealed that the most sustainable civilisations are those that have most respected their environment, and whose respect has been based on intrinsic and ultimately spiritual values. The most resilient value systems, which have lasted millennia and have shown their ability to adapt to real-

ity, wherever they are, therefore deserve not only our respect, but also our fullest attention. Where, if not, will we be able to find the keys to redress the unsustainable trends we are setting?

It is therefore essential that we quickly overcome superficial considerations that reduce nature to its tangible dimension, and recover a fuller perspective. In our context this should involve the values of last century's conservation pioneers, enriched with elements in common with humanity's great spiritual and wise traditions, using a truthful language that appeals to the intrinsic values that remain alive within our society, despite appearances to the contrary. When it comes down to it, the whole rhetoric of progressive developmentalists, their disproportionate forecasts of growth, indefinite accumulation of wealth, and trust in technocratic subtleties, come up against the limits of the biosphere, and collide with nature's elegant yet faultless laws. In light of the uncertainty of future situations, and the anxieties of systematic crises that besiege us from all sides, wise people from the most diverse cultures agree when they remind us—with serene realism—that nature will have the last word, and that only societies based on true values, in harmony with natural laws, will be able to survive.[30]

[1] European Environmental Agency. *Progress towards the European 2010 Biodiversity Target –indicator fact sheet*, 2009.

[2] This is documented in the report 'La responsabilitat exterior de l'economia i la societat catalanes sobre la biodiversitat global', produced by Globalisation Debt Watch –UNESCO Sustainability Chair of the Technical University of Catalonia (2009). Directorate-General for Natural Heritage of the Government of Catalonia.

[3] The philosopher Jordi Pigem deals with this eloquently in the book *La bona crisi* (2009).

[4] Falgarona, J. *Los valores inmateriales en las estrategias de espacios naturales protegidos. ¿Inclusión o exclusión?* Proceedings of the Europarc-Spain Congress, 2005, Cangas de Narcea, 2006.

[5] For a detailed account, see the work of physicist, philosopher and metaphysician Seyyed Hossein Nasr. *Religion and The Order of Nature*, New York University Press, 1994.

[6] See Huston Smith. *Forgotten Truth. The Common Vision of the World's Religions*, Harper & Collins Publishers, San Francisco, 1977.

[7] Loh J.; Harmon D. 'A global index of biocultural diversity', *Ecological Indicators*, vol. 5: 3, p. 231-241, 2005.

[8] See Terralingua. http://www.terralingua.org/html/home.html.

[9] See, for example, Berkes, F. Sacred Ecology; *Traditional ecological knowledge and resource management*, Taylor & Francis, Philadelphia, 1999.

[10] Mallarach, J. M. (ed.). 'Protected Landscapes and Cultural and Spiritual Values', *Values of Protected Landscapes and Seascapes Series*, No. 2, IUCN, WCPA, Fundació Obra Social Caixa Catalunya & GTZ, 2008.

[11] Palmer, M.; Finaly, V. *Faith in Conservation. New Approaches to Religions and the Environment*, The World Bank, 2003.

[12] See Oldmeadow, H. 'The Firmament Sheweth His Handiwork: Re-awakening a Religious Sense of the Natural Order'. A: McDonald, Barry (ed.). *Seeing God Everywhere: Essays on Nature and the Sacred*, Bloomington, Ind.: World Wisdom, Inc., p. 29-51, 2003.

[13] Dudley, N.; Higgings-Zogib, L.; Mansourian, S. *Beyond Belief: Linking faiths and protected areas to support biodiversity conservation*, World Wildlife Fund for Nature, Equilibrium and Alliance of Religions and Conservation, 2005. Chapter 9 contains recommendations for combining the needs of religions with biodiversity conservation, and chapter 10 presents the conclusions. In addition to this, many other high-quality works have been published. These are either theme-based—significant among which is the Edwin Bernbaum's work: *Sacred Mountains of the World.* California: University of California Press (1997)—, or specific geographical area-based such as the work of Juris Urtâns (2008) *Ancient cult sites of Semigallia*. Riga: Nordik.

[14] McIvor, A.; Pungetti, G. (at the press) 'The conservation status of sacred species: a preliminary study', *Sacred Sites and Sacred Species*, Cambridge University Press, Cambridge, United Kingdom. Publication from a congress organised by the Cambridge Centre for Landscape and People of the University of Cambridge, 2007.

[15] Collective work based on two international congresses held at the universities of Reading (United Kingdom, 1996) and Leiden (Netherlands, 1997). The final publication, edited by Darrell A. Posey and entitled *Cultural and Spiritual Values of Biodiversity*, was financed by the Global Environmental Facility.

[16] Mallarach J. M. 'Parques nacionales *versus* reservas indígenas en los EE.UU: un modelo en cuestión', *Ecología Política*, No. 10, p. 25-34, 1996.

[17] Mallarach, J. M.; Papayannis T. (at the press) 'Sacred natural sites in technologically developed countries. Reflections from the Delos Initiative' and B.Verschuuren, B., Wild R.; McNeely J.; Oviedo G. (ed.) *Sacred Natural Sites: Conserving Nature and Culture*, Earthscan, 2010. An explanation of their aims, methodology, case studies, international seminars and declarations made can be found at www.med-ina.org/delos. See also Harmon, D.; Putney A. *The Full Value of Parks: From Economics to the Intangible*, Rowman and Lichfield Publishers, 2003.

[18] Secretariat of the Convention on Biological Diversity. *Akwé: Kon Voluntary guidelines for the conduct of cultural, environmental and social impact assessment regarding developments proposed to take place on, or which are likely to impact on, sacred sites and on lands and waters traditionally occupied or used by indigenous and local communities*, Montreal, 2004.

[19] Dudley, N. (ed.). *Guidelines for Applying Protected Area Management Categories,* Gland, Switzerland, IUCN, 2008.

[20] Wild, R.; McLeod, C. (ed.). *Sacred Natural Sites:* Guidelines for Protected Area Managers, UICN, 16. Gland, Switzerland, 2008.

[21] Declaration by Ashish Kothari, then coordinator of TILCEPA, of the IUCN Commission on Environmental, Social and Social Policies, at a meeting of the World Commission on Protected Areas held in Cape Town, 2008.

[22] Mallarach, J. M.; Papayannis, T. (ed.). *Nature and Spirituality. Proceedings of the 1st Workshop of the IUCN WCPA Delos Initiative.* IUCN & Publications Abbey of Montserrat, 2007. Papayannis, T.; Mallarach, J. M. (ed.). *The sacred dimension of protected areas. Proceedings of the Second Workshop of The Delos Initiative.* Ouranoupolis 2007. IUCN Med-INA, 2010.

[23] Rauno Vaisänen, director of the Metsahällitus Natural Heritage Service. Paper presented at the third workshop of the Delos Initiative, held at Aanaar / Inari (Finland, 2010).

[24] Yrjö Norokorpi, Metsahällitus. Paper presented at the VI Contact Forum on Habitat Conservation in the Barents Region, Archangel (Russia, 2010).

[25] See the analysis of Santos Casado 'The Reenchantment of Nature. Spiritual Values and the History of Protected Areas in the Spanish Experience', and: Mallarach, J. M. (ed.) *Nature and Spirituality. Proceedings of the First Workshop of the Delos Initiative.* IUCN & Publicacions de l'Abadia de Montserrat, 2007.

[26] García Varela, J. 'Los valores inmateriales de la Naturaleza'. In Minutes of the 11 EUROPARC-Spain Congress: *Comunicar los beneficios de los espacios naturales protegidos a la sociedad,* Cangas de Nancea, 8-12 June 2005. Fernando González Bernáldez Foundation: EUROPARC-Spain, 2006.

[27] The website http://www.felixrodriguezdelafuente.com/index provides numerous resources and creative proposals.

[28] The study of the Silene Association recommended thirteen measures, which included the expansion of the protected natural areas, different improvements in public use, education and management, and the efficient integration of natural, cultural and spiritual values within the park. Once they had been agreed with the park management, they were unanimously approved by the plenary meeting of the Governing Board in 2008.

[29] Hamilton Lawrence (ed.). *Ethics, Religion and Biodiversity,* 1993. Its significant contributions include the plan of action on these same core values, proposed by J. Ronald Engel, then head of the IUCN's working group on ethics, culture and conservation.

[30] Most of the documents mentioned in this article on nature's intangible values are accessible through the online documentation centre of the Silene Documentation Centre (www.silene.es).

Maintaining Agrobiodiversity

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Agrobiodiversity is the result of our social and cultural evolution over the last ten thousand years. It is both the set of genetic material from cultivated plants and domesticated animal breeds that humans have selected over thousands of years, and all cultural, economic and social elements associated therewith that form the roots and foundations of every society. This evolutionary process has given rise to an extremely extensive number of local varieties and breeds adapted to the specific physical, biological and cultural conditions of each zone, and endless knowledge, systems and traditions on how to farm, raise, manage, conserve and exploit them.

Up to about seventy years ago, agrobiodiversity was increasing and adapting to the changing conditions and needs of each zone. Then came the start of what is known as "genetic erosion", which is a fast and progressive loss of agrobiodiversity (see table 1). The reason for this loss was the progressive imposition of just a few commercial seeds and breeds, associated with industrial agriculture, over local ones. These varieties and breeds were selected according to criteria of productivity, homogeneity and adaptation to highly intensive farming or breeding conditions or, in other words, an intense concentration of individuals and a high use of fertilisers or concentrated feeds and sanitary products.

Generalised use of commercial varieties and breeds, in what is known as the "green revolution" or the technological development and industrialisation of agriculture, has led to a considerable increase in food production, yet it has also had disastrous consequences on ecosystems such as the loss of organic material and de-structuring and erosion of the soil, degradation and abandonment of zones where intensive crop farming is more difficult, and the pollution of soils and aquifers because of the general and sometimes abusive use of fertilisers and chemical products.

Although it is necessary to ensure sufficient food production to feed the population, maintaining agrobiodiversity is important because:

- It represents a genetic, cultural, economic and social legacy that has been produced over thousands of years.
- Loss of genetic variability limits capacity to respond to new needs and increased vulnerability of our crops and herds in light of environmental changes or the appearance of new pests and diseases. It meanwhile limits the options of new selections and uses, etc. Since ancient times, peoples have preserved seeds and animals adapted to their environment in order to ensure their food survival.
- Local varieties and breeds are a marvellous source of organoleptic sensations, nutrients, and associated cultural features, etc. that commercial varieties do not have.
- Local varieties and breeds generally adapt to the specific conditions of each zone far better than commercial varieties and therefore in most cases require fewer nutrients, water, concentrated foods and sanitary products. They are therefore more rustic individuals that are highly suited to organic agriculture. Use of these varieties can be essential for sustainable agriculture as they develop in less intensive conditions and therefore rather than alter the agrosystem, they make it more stable.
- Local breeds are very useful tools for managing the environment as their rusticity makes them highly suitable for forest and shrubland grazing, etc. and therefore for the prevention of forest fires. This rusticity also enables them to adapt to harsh environments in which commercial breeds would find it very difficult to survive.
- Local breeds can assist the work of farmers in, for example, animal traction and indirectly in controlling and protecting flocks or herds, which, for example, is the function of Catalan sheepdogs and Pyrenean mastiffs.
- Farmers may reproduce or propagate local varieties and breeds, while commercial varieties often do not allow for the reproduction of individuals with the same characteristics, be it because they are hybrids, because they contain a gene that makes seeds sterile, or for legal or contractual reasons, as is the case of genetically modified organisms.
- Local varieties and breeds provide capacity for independence and self-sufficiency both to farmers and, as a result, to communities and regions. The maintenance of agrobiodiversity allows for the maintenance of systems based on the use of local resources and know-how and on sustainable and autonomous use of the region.

The study and preservation of local breeds and varieties has been a concern of scientists and naturalists for years and has given rise to numerous organisations and projects the purpose of which it is to conserve them. Tables 1, 2, 3 and 4 feature a list, not intended to be exhaustive, of the main bodies, institutions and projects that work to maintain agrobiodiversity in Spain and in Catalonia.

Table 1: Spanish agrobiodiversity conservation institutions

Some examples of official centres

- **The Spanish National Institute of Research on Agrarian and Food Technology (INIA):** a body that coordinates a network of germplasm banks (see section entitled "Possible strategies for maintaining agrobiodiversity"). Most of the material on herbaceous crops is located at the **Centre of Phytogenetic Resources, Alcalá de Henares** (cereals and leguminous plants