DIVERSITY AS A MORAL IMPERATIVE AND AESTHETIC VALUE

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The concept of biodiversity was introduced in the mid 1980s as symptom of a crisis, after empirical studies had demonstrated the significant decline in the number of species during the last decades and prognosticated the acceleration of this process. The biodiversity loss is the result of a complex social dynamics, which includes the large-scale destruction of the natural habitats of species in order to make room for more efficient systems of production, the intensification of the land use, the demographic explosion, the increased volume of consumption, the mass tourism, and the introduction of exotic species.

Usually understood as species diversity, the concept of biodiversity refers to the total sum of biotic variation, ranging from genes to populations, species, and biotic communities, and it can be therefore investigated within a species, in inter-species relations, and in ecosystems.[1] At all these levels, diversity is considered an objective fact. The biodiversity studies deal with genetic, taxonomical and systematical aspects. Still open questions concern the definition of the species in biology and taxonomic criteria,[2] the function of diversity within an ecosystem,[3] the

[1] B. Groombridge and M. D. Jenkins, *World Atlas of Biodiversity. Earth's Living Resources in the 21st Century*. University of California Press, Berkeley, Los Angeles, London 2002; *ICBCD Meeting Documents.* A Proposed Joint Programme of Work on Biological and Cultural Diversity Led by the Secretariat of the Convention on Biodiversity and UNESCO (Working Document), 2010, p. 2, http://www.cbd.int/meetings/icbcd/documents/ [10.05.2011]; H. Rolston III, *Conserving Natural Value*. Columbia University Press, New York 1994, p. 35.

[2] D. Harmon, "On the Meaning and Moral Imperative of Diversity", in: L. Maffi (ed.): *On Biocultural Diversity. Linking Language, Knowledge, and the Environment*. Smithsonian Institution Press, Washington, London 2001, p. 58.

[3] M. Türkay, „Was ist Biodiversität?", in: S. R. Gradstein et al. (ed.): *Biodiversitätsforschung. Die Entschlüsselung der Artenvielfalt in Raum und Zeit*. E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart 2003, p. 12.

quantification of diversity, i.e. the real number of existing species,[4] as well as the identification of the vital species within an ecosystem.

Given that a similar loss of diversity was remarked also in the field of cultural and linguistic communities, the concept of biodiversity was extended in the 1990s to the biocultural diversity. The latter was proclaimed at the International Conference on Biological and Cultural Diversity (Montreal 2010) as the key for the sustainable development of environment and society. Mapping methods indicate that the hot spots of biological and linguistic diversity are largely overlapping, the top 25 countries for both endemic vertebrates and endemic languages being concentrated in the South Eastern Asia, Central Africa, Canada, and Russia[5]. This provided the basis for the hypothesis about the isomorphism and coevolution between biodiversity and cultural-linguistic diversity.[6] However, cultural anthropologists regard this model skeptically, because it entails the imminent danger of falling into a biological determinism and it is based upon a reductionist (language-centred) concept of culture.[7] Last, but not least, postcolonial scholars regard the objective biodiversity loss as the epiphenomenon of deeper anchored general values and of the "monocultures of the mind,"[8] which are specific for the Western modern lifeworld.

From a philosophical viewpoint it is worth mentioning that some conservation biologists call themselves for unraveling the philosophical pressupositions of biodiversity.[9] Also the environmental ethics emphasises the possibility of a philosophical argumentation in favour of bio-

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4 J. Maclaurin and K. Sterelny, *What Is Biodiversity?*, Chicago University Press, Chicago 2008.

5 The Mega-Diversity List ranked Papua New Guinea, Indonesia, India, Australia, Mexico, Brazil, the Democratic Republic of Congo, Philippines, USA, Malaysia, China, Peru, and Colombia as the countries with the highest level of both biodiversity and cultural diversity (David Harmon and Luisa Maffi, "Are Linguistic and Biological Diversity Linked?", *Conservation Biology in Practice*, Winter 2002, vol. 3, No. 1, pp. 2–3).

6 D. Harmon, "Losing Species, Losing Languages: Connections between biological and linguistic diversity", *Southwestern Journal of Linguistics* 15/1996, pp. 89–109.

7 D. P. Hengst, *Die Idee der Diversität. Die Biocultural-Diversity-Debatte*. Der Andere Verlag, Tönning 2005, p. 273.

8 V. Śiva, *Monocultures of the mind: perspectives on biodiversity and biotechnology.* Zed Books, London 1993, p. 9.

9 L. Maffi, "Linguistic, Cultural, and Biological Diversity", *Annu. Rev. Anthropol.* 34/2005, p. 613; Hengst, *op. cit.*, p. 402.

diversity and the necessity of "a philosophical analysis of rarity."[10] The philosophical assumptions of the discourses on biocultural diversity refer not only to the concepts of identity and difference, which underlie any taxonomy, but also to the relationship between culture and nature. As a matter of fact, the environmental philosophy focuses on the *ethical* argumentation in favour of the species preservation,[11] and pays less attention to the concept of diversity as such (or to complexity, which is linked to it), as Holmes Rolston III or David Harmon do, who regard the conservation of diversity as a moral imperative.[12] Nevertheless, diversity is often emphasised as a positive characteristic of ecosystems in the ethics of Aldo Leopold, Baird Callicott, and Arne Naess, and is implicit in the discourses about the necessity of protecting endangered species, as well.[13]

We argue that, apart from the ethical implications of the movement for environmental conservation and restoration, the defense of biodiversity is based also on latent aesthetic presuppositions, which have been however less been subject to theoretical consideration so far in the context of the biodiversity. Useful for such an aesthetic approach to biodiversity is the recent literature which emphasises the impossibility of separating aesthetic from moral issues in the evaluation of nature,[14] discusses the concepts of aesthetic character and aesthetic integrity in the

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[10] Rolston III, *op. cit.*, pp. 50 and 54.

[11] See D. Ehrenfeld, „Das Naturschutzdilemma", in: D. Birnbacher (ed.): *Ökophilosophie*, Reclam, Stuttgart 1997, pp. 135–177; N. Rescher, „Wozu gefährdete Arten retten?", in: Birnbacher, *op. cit.*, pp. 178–201; W. Fox, "Human Relationships, Nature, and the Built Environment: Problems That Any General Ethics Must Be Able to Address", in: J. Pretty et al. (eds.), *The SAGE Handbook of Environment and Society*. SAGE, Los Angeles 2007, pp. 107–123; L.-M. Russow, "Why Do Species Matter", in: J. B. Callicott and C. Palmer (eds.), *Environmental Philosophy. Critical Concepts in the Environment. Vol. IV: Issues and Applications*. Routledge, London 2005, pp. 251–9; H. Rolston III, "Duties to Endangered Species", in: Callicott and Palmer, *op. cit.*, vol. IV, pp. 263–278; B. Norton, "On the Inherent Danger of Undervaluing Species", in: Callicott and Palmer, *op. cit.*, vol. IV, pp. 279–293.

[12] Rolston III 1994, *op. cit.*; Harmon 2001, p. 53.

[13] J. B. Callicott. "Non-Anthropocentric Value Theory and Environmental Ethics", in: L. Kalof, T. Satterfield (eds.): *The Earthscan Reader in Environmental Values*. Earthscan, London 2005, pp. 67–80.

[14] M. Seel, *Eine Ästhetik der Natur*. Suhrkamp, Frankfurt/M. 2001; A. Berleant, *Sensibility and Sense. The Aesthetic Transformation of the Human World.* Imprint Academic, Exeter 2010.

environmental conservation,[15] and even condemns the human restoration of nature as a fake.[16] In addition to these, the question has to be raised whether the "science-based" or the "non-science based models" of the aesthetic appreciation of nature would be more appropriate to endorse the plea for the protection of biodiversity. Finally, the issues of biodiversity and especially of biocultural diversity would have to be related to the attempts to develop an integrated approach for natural and built environments, in form of a general ethics.

What is (bio)diversity?

A philosophical analysis of the studies about biodiversity emphasises that these use the concept of 'diversity' in its modern narrow sense of 'plurality' and 'qualitative variety' (unlikeness in nature or qualities), that is, as the opposite of the concept of 'homogeneity' (likeness). A comparison of this current concept in biology with its philosophical interpretations throughout the history may therefore be useful in order to highlight implicit assumptions of the contemporary theories about biodiversity. Such a comparison can be only briefly outlined here.

In the history of philosophy, diversity (Greek: ετερότης, Latin: 'diversitas', German: 'Verschiedenheit', 'Vielfalt') was in general conceived as contrary to 'identity' ('Identität') and 'sameness'/'similarity' ('Gleichheit'/'Ähnlichkeit').[17] Let us consider three moments in the conceptualisation of diversity in the history of philosophy, which may be related to theories on biodiversity. The first one is epitomized by Aristotle, who makes a distinction between otherness and difference (ἑτερα – διάφορα), as well as between diversity and difference.[18] From his perspective, identity and diversity are to be considered *contraria* and nicht *contradictoria*; diversity excludes identity, but the negation of diversity does not imply

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[15] E. Brady, "Aesthetic character and aesthetic integrity in environmental conservation", in: Callicott and Palmer, *op. cit.*, vol. IV, pp. 351–368.

[16] R. Eliot, "Faking nature", in: Callicott and Palmer, *op. cit.*, pp. 305–317; Eric Katz, "The big lie: human restoration of nature", in: Callicott and Palmer, *op. cit.*, pp. 351–368.

[17] S. K. Knebel, „Verschiedenheit", in: J. Ritter, K. Gründer, G. Gabriel (eds.): *Historisches Wörterbuch der Philosophie*, Bd. 11. Schwabe & Co., Basel 2001, pp. 882.

[18] Aristoteles, *Metaphysik*, Akademie-Verlag, Berlin 2003, Book X.

identity. Also Aristotle classifies the diversity according to the difference of genus, species and individuation (a distinction that can be found also in Callicott's ecology), and mentions that diversity may result from a process of diversification. In the Middle Age, Thomas of Aquinas regards diversity as something good,[19] and relates it to the beauty of the world as divine creation.

Later on, G. W. Fr. Hegel identifies three moments of diversity (*Diversität*) and defines this concept as "Bestimmung der äußeren Reflexion"[20]: In a first moment, identity falls apart within itself, and "the distinguished terms *subsist* as indifferently different towards each other because each is self-identical"; the second moment consists in the "indifference of difference"; and the third implies the process of comparison, as back-and-forth movement between likeness and unlikeness. Diversity itself, and not only the increase in diversity or its loss, is thus regarded as a (logical) process.

The third selected moment is typical for the poststructuralist and deconstructive philosophy of difference. The reasons why this philosophy of difference was rejected by the defenders of the biodiversity[21] become evident if we take a closer look at Félix Guattari's "three ecologies": the social, the mental and the environmental ecology.[22] In spite of the similarity of concepts, Guattari's ecologies and the scientific ecology have divided opinions in a number of issues: Whereas Guattari focuses on processes of a permanent heterogenesis, biologists deal with a relatively stabile identity of species. Also the poststructuralist philosophy proclaims the primacy of the dissent and praises the destabilisation of existing systems; this attitude is hard to be accepted by biologists, who are rather interested in the stability and functionality of the ecosystems. Moreover, the production of singularity lies at the core of Guattari's so-called ecologies, whereas biology as a science can look only for the characteristic variety of *species*. To conclude, the poststructuralists' enthusiasm for differences as well as the aesthetic "touch" of these theories

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[19] Cf. Knebel, *op. cit.*, p. 881.

[20] G. W. Fr. Hegel, *Wissenschaft der Logik* II, Theorie Werkausgabe in 20 Bänden. Suhrkamp, Frankfurt/M. 1969, §§ 890 sq.

[21] For example, by J. Wollock, cf. Maffi 2005, *op. cit.*, p. 604.

[22] F. Guattari, *Die drei Ökologien*. Passagen, Vienna 1994.

had to make them endorse the creation of new species, as Guattari explicitely does, whereas the conservationists prioritise the protection of the existing species and are rather cautious about the biotechnological attempts to develop new species (as BioArtists, such as Eduardo Kac, have already done).

As for the meaning of diversity within the field of biology, the ecological discourses make difference between 'biodiversity' and related concepts, in the first place the ecosystem health and the biological integrity. More precisely, biodiversity refers to "the variety of *components* (or elements) at every level of biotic *community* organization."[23] And this implies "the diversity of diversity" itself,[24] that is, the plurality of the indices of diversity, be it the species richness and the frequency of a species within an area (Alpha diversity), be it the community diversity of habitats and ecosystems (Beta diversity) or, finally, the regional diversity (Gamma diversity), which is due to the contribution of endemic species. For example, a high endemism in a certain region, even though the local diversity may be rather low, still contributes to the global diversity. Above all, it is important that diversity should not be equated with chaotic variety, since it is closely linked to complexity, (open) unity, and integration. As for the relationship between diversity and diversification, the natural history was characterised by a succession of setbacks, which are often explained by accidental causes, being produced by factors that are external to the evolutionary ecosystem. However, the setbacks were followed by recoveries of diversity, so that the long term effect was an increase in diversity and complexity. In this respect, intermediate disturbances produce colateral positive effects, by stimulating processes of adaption: "The loss of diversity results in a gain in complexity."[25]

Arguments in favour of conserving biodiversity

Diversity is commonly regarded as good and in any case as better than uniformity. However, upon closer inspection, it turns out that not

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[23] J. B. Callicott, *Beyond the Land Ethic. More Essays in Environmental Philosophy*. SUNY Press, New York 1999, p. 360.

[24] Rolston III 1994, *op. cit.*, pp. 36sq.

[25] Rolston III 1994, *op. cit.*, p. 49.

any diversity represents for biologists a value, since it may be in some cases "pointless," "superfluous" or even unwanted (e.g. the countless forms of the flu virus). As a matter of fact, what is at stake in the conservation of biodiversity is the "relevant difference" or the "diversity that contributes to genuine richness in nature."[26] Nevertheless, this still does not answer the question why diversity should be more valuable than homogeneity. And would this be a value per se or only for us? In other words, is biological diversity an intrinsic or an instrumental value, should it be defended from a anthropocentric or from a biocentric or physiocentric perspective? An overview of the arguments in favour of preserving the natural diversity leads to the following classification, which develops and complements previous taxonomies.[27]

Biodiversity has been often regarded as an *anthropocentric* and *instrumental value*, either as a response to human needs or as having other functional values. For example, biodiversity may respond, on one hand, to a basic need, have a recreative value or satisfy cognitive interests. The biological and psychological need for variation belongs to the humans' *basic/vital needs* (and presumably of other living species) and may have an innate component.[28] Also the environmental philosophers who mention the *recreative and aesthetic value* of diversity usually understand the 'aesthetic' value as subjective, pleasurable and desirable, relating it mainly to health and tourism. Finally, the diversity of species and ecosystems satisfies to a higher extent than uniformity *cognitive or intellectual interests* in general; these interests may be frequently specified in relationship to scientific and pedagogical purposes. In other words, diversity and complexity trigger intellectual processes and are implied in processes of scientific research both as a method (the observation of variety) and a phenomenon to be explained.

Also biodiversity has a high *functional value*, given that ecosystems condition human life; correspondingly, the conservation of their diversity is in the humans' *practical interest*. Such functional values can be

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[26] *Op. cit.*, p. 39.

[27] Ehrenfeld, *op. cit.*; Rescher, *op. cit.*; A. Krebs, „Naturethik im Überblick", in: A. Krebs (ed.), *Naturethik*. Suhrkamp, Frankfurt/M. 1997, pp. 337–379.

[28] D. Harmon, *In Light of Our Differences. How Diversity in Nature and Culture Makes Us Human*. Smithsonian Institution Press, Washington, London 2002, p. 201.

further on specified as economic, stabilising or monitoring value. For example, all species may be regarded as ressources; even those which seem to be useless at present may turn out in the future as useful for economic, medical or other sectors and thus have an economic value in general. Moreover, biodiversity is frequently considered the basis of the ecological stability[29] and a precious indicator for the health of an ecosystem. This so-called "ecosystem health" is usually assessed according to the following criteria: biological productivity, local species diversity, global species diversity, genetic diversity within the species populations, as well as ecological functionality.[30] However, the correlation between diversity and stability is still subject to controversies among conservationists. Also situations in which both diverge are not excluded; in such cases, the integrity of the ecosystem should take priority over the claim of fostering diversity. In this respect, as it has already been mentioned, the "characteristic diversity" goes first, compared to the increase of diversity considered for itself. In addition to this, the local diversity of species is usually considered an indicator for environmental pollution or stress and thus has a *monitoring value*. Also the experience of *restoring dysfunctional biotopes* emphasised the necessity of having a functional ecosystem to serve as a model and as a reserve pool for healthy living individuals. Last, but not least, contemporary scientists had to learn from previous experiences with negative results that we should be more cautious about the causal chains within and between ecosystems; put it bluntly, the *conservation value* is based on the concern that the species loss may bring about irreversible changes with unknown consequences.

This general utilitarian perspective entitles the conclusion that it is "wise" to protect the species diversity,[31] but not that we *ought to* do so. In spite of the importance of the above-mentioned functions of diversity and of the strong impact of the "resourcism" in practice, the resourcist thinking is not only untenable, but it also provides a logically weak argument. In the common experience, other motivations which require to protect nature as a value per se are as compelling as the already men-

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29 Śiva, *op. cit.*
30 Callicott 1999, *op. cit.*, p. 296.
31 Rescher, *op. cit.*, p. 189.

tioned ones and even emotionally more intense or somewhat "deeper." Also the feeling about the existence of "non-ressource-value[s],"[32] which can be only non-anthropocentric,[33] seems even to precede rational argumentations, being "originary," spontaneous and unmediated.

The understanding of diversity as an *intrinsic* or *inherent* value is rooted in the evaluative metaphysics[34] and is linked to the requirement to overcome the limits of the anthropocentric ethics and to ground a biocentric or even physiocentric ethics. The non-anthropocentric ethics is based on the belief that existence and the richness of nature are per se values to be preserved. Also it requires to restrain in our activities from destroying the "natural" harmony between humans and nature and to focus on the formal properties of the ecosystems. Let us have now a closer look at the arguments used in the non-anthropocentric ethics:

The Noah Principle or the *value of existence*[35] emphasises in its positive version the value of age and duration. The Noah Principle says that the existing species "should be conserved because they exist and because this existence is itself but the present expression of a continuing historical process of immense antiquity and majesty."[36] In other words, "species have value in themselves, a value neither conferred nor revocable, but springing from a species' long evolutionary heritage and potential or even from the mere fact of its existence".[37] Complementary to this is the negative form of the Noah Principle, which draws the attention to the unpredictable consequences of the species loss, in the first place to the fact that the disappearance of a species may turn out to be irrepairable. This argument was criticised as a "naturalistic fallacy," given that it moves from the state of being to being valuable, "from what *is the case* in natural history to draw conclusions about what *is of value* there."[38]

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[32] Ehrenfeld, *op. cit.*
[33] Callicott 1999, *op. cit.*
[34] Rescher, *op. cit.*, p. 180.
[35] Ehrenfeld, *op. cit.*, p. 172.
[36] D. Ehrenfeld, *The Arrogance of Humanism*. Oxford University Press, New York 1978, pp. 207–8.
[37] M. E. Soulé, "What Is Conservation Biology?", in: D. Keller (ed.), *Environmental Ethics. The Big Questions*. Wiley-Blackwell, Chichester 2010, p. 389.
[38] Rolston III 1994, *op. cit.*, p. 44.

Another approach consists in the holistic perspective of the *harmony between humans and nature* and is specific to the deep ecology (Arne Naess, Warwick Fox) and ecofeminism (Val Plumwood). According to Naess, well-being and the unfolding of human and non-human life are inherent values, and the diversity of forms of life is the means to reach this goal. Humans are allowed to reduce this diversity only in exceptional situations, when this affects vital interests. The corresponding "ecosophy" is based upon the principle of self-realisation and of maximising the manifestations of life.[39] The evolution itself is reinterpreted as "a magnificent expression of a multitude of forms of life."[40] In spite of its popularity, the holistic argument is often considered rather confuse and difficult to be applied.[41] Nevertheless, it has to be remarked that the four norms of conservation biology, namely (according to Michael Soulé[42]) that the diversity of organisms is good, the ecological complexity is good, the evolution is good, and that biotic diversity has intrinsic value, were included by Arne Naess in his Ecosophy T.

In addition to this, several defenders of a non-anthropocentric ethics use to consider the *formal properties of ecosystems*, such as order, parsimony, complexity or variety, as objective, intrinsic values; the metaphysical roots of such thesis are undeniable. To take an example, already Aldo Leopold considers that an action is right "when it tends to preserve the integrity, stability, and beauty of the biotic community," and "it is wrong when it tends otherwise."[43] However, his concept of beauty remains vague and is somewhat coextensive with the ecological integrity. Later on, J. Baird Callicott reformulates Leopold's Land Ethic as a non-anthropocentric, yet humanistic ethics which considers the conservation of the integrity of biotic communities and species as "an instrumentally, aesthetically, and intrinsically valuable conservation goal."[44]

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[39] A. Naess, „Die tiefenökologische Bewegung: Einige philosophische Aspekte", in: A. Krebs (ed.), *Naturethik*. Suhrkamp, Frankfurt/M. 1997, p. 208.

[40] A. McLaughlin, in: D. Keller (ed.), *Environmental Ethics. The Big Questions*. Wiley-Blackwell, Chichester 2010, p. 236.

[41] Krebs, *op. cit.*, p. 361.

[42] Quoted in: A. Naess, *Ecology, community and lifestyle. Outline of an ecosophy.* Cambridge University Press, Cambridge 1989, p. 46.

[43] A. Leopold, *A Sand County Almanac*. Oxford University Press, New York 1949, p. 224.

[44] Callicott 1999, *op. cit.*, p. 363.

Another argument used in the non-anthropocentric environmental ethicswhich is interesting for us, given its connection to aesthetics, is related to the description of biodiversity as a form of *richness*. For example, Peter Miller regards richness as an objective, intrinsic value, yet without providing arguments in its favour.[45] Also Holmes Rolston III ascribes biological richness to "healthy and robust environments" and distinguishes at least four aspects of richness, considered as a value:[46] 1. Complexity and diversity enrich human lives and thus have an instrumental value. 2. The animal life has a specific richness and requires to go beyond a human-centered ethics. 3. Richness is essential for organismic life, too. And finally 4. richness is evident at the level of natural systems, for example when the ecosystems manifest themselves as "creative", productive systems. This fourth dimension of richness, which Rolston calls "systemic richness," has interconnections, autonomy, and storied history as indicators and is specific only for natural systems, but not for zoos, botanical gardens, dendrological parks, and other artificial attemps to "collect" richness of species. Moreover, systemic richness appears to be linked to sustainability.

While the above-mentioned arguments in favour of the intrinsic character of the value of biodiversity cannot be understood without their more or less implicit metaphysical presuppositions, another theoretical position which claims that biodiversity, ecological complexity, and evolutionary processes are "good" in themselves is prone to agnosticism, considering that such statements can neither be known, nor tested and thus cannot be confirmed.[47] Also the preference for nature/wilderness over artifice/gardens is simply unexplainable. One may only speculate about their subconscious, genetic basis, and universal character, and regard them as manifestation of some *unconscious anthropological constant*.

A detailed analysis of the above-mentioned arguments should discuss also the strength of the ethical claims which may be derived from them. For example, even if the value of existence would be intrinsic and

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[45] P. Miller, "Value as Richness: Toward a Value Theory to the Expanded Naturalism in Environmental Ethics", *Environmental Ethics* 4/1982, pp. 101–14.

[46] Rolston 1994, *op. cit.*, pp. 35sq.

[47] Soulé, *op. cit.*, pp. 388sq.

even "objective" (which is hardly acceptable in modern non-metaphysical philosophy), this still cannot underpin the *right* to existence of the non-human species, but only that the humans have a duty or "humanitary task" to preserve the natural richness.[48] Moreover, given that the relationship between human and nature does not imply any reciprocity, the duty of protecting endangered species cannot be justified as a moral obligation, but as a higher, disinterested duty, which promotes the augmentation of value in the living world in general. Also the question has to be raised whether all (endangered) species have to be at least in principle protected (which would be in practice impossible) and whether all populations of a given species have equal value, against our spontaneous preferences and tendency to prioritize species (regarding for example mammals as more important to be protected than insects). In the case of collision between the maintenance of several species, the more complex species is indeed usually privileged to the detriment of the less complex organisms. Thus the evolutionary hierarchy of species provides a supplementary criterion of action.

Aesthetic aspects in the conservation biology

Due to the focus of the environmental philosophy on ethical and practical issues, the relationship between aesthetics and ecology benefited from less attention. However, the knowledge of the history of continental aesthetics as well as the analysis of the aesthetic experience would enable to correct the so-called "aesthetic argument" in the environmental studies and to extend it beyond its recreative value and use it as an argument in favour of the intrinsic value of biodiversity.

The aesthetic argument for conserving diversity is currently misunderstood in the environmental philosophy as being merely subjective and hedonistic, implying pleasure, delectation, wellbeing or the factors "fun" and "experience."[49] This appears to correspond to the tradition of modern philosophy in the Anglo-Saxon culture and to their empirical approach to aesthetics. However, as we have already seen, the arguments

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[48] Rescher, *op. cit.*, p. 185.
[49] Cf. Ehrenfeld, Rescher and others.

in favour of biodiversity as an *inherent* value are often contaminated by an aesthetic terminology regarding the objective "beauty" of the world and the "inventivity" of nature. In the following we focus on three aspects of such an extended aesthetic argument: *unitas multiplex*, the aesthetic dimension of rarity and richness, and the consequences for environmental aesthetics of the reinterpretation of the aesthetic theory as 'aisthetics' (philosophy of perception).

Unity in diversity and objective beauty

Ecological experts remarked that diversity does not mean merely pluralism or "a blooming, buzzing confusion," as it may seem to untrained observers, but it is complemented by order, integration, and unity.[50] From an aesthetic perspective, this recalls the concept of an objective and even cosmological beauty, which is characterised by *unitas multiplex*, harmony, complexity, perfection, and plenitude; this approach is no other than what Wladyslaw Tatarkiewicz called "The Great Theory of Beauty", which remained undisputed until the 18th century.[51] To take only one example from the history of this theory, William Hogarth still defined variety in 1753 as "an abstract principle of beauty" and as the first characteristic of beauty, even before simplicity, symmetry, individuality, complexity or quantity.[52] This theory receded since the understanding of aesthetics as theory of the *experience* of beauty and *art* took overhand; nevertheless, the search for objective features of beauty and for a presumable universal formula which would transgress the difference between art and nature continues to fascinate scholars, such as the promoters of the positivistical psychological aesthetics in the second half of the 19th century[53] or those who put forward an arithmological explanation of beauty.[54] More recently, some architects are still convinced that

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50 Rolston 1994, *op. cit.*, p. 40.
51 *Op. cit.*
52 W. Hogarth, *Analyse der Schönheit*. Philo Fine Arts, Hamburg 2008.
53 G. Th. Fechner, *Vorschule der Ästhetik*. Breitkopf & Härtel, Leipzig 1876.
54 M. Ghyka, *The Geometry of Art and Life*. Sheed & Ward, New York, 1946.

the "good form" must be led by universal laws,[55] while other theorists subscribe enthusiastically to the aesthetics of the fractals.[56] Even some biologists attempted to identify criteria of an "ecology of the beauty."[57] However, each time that the emphasis was put on specific analogies between the properties of biological species and ecosystems, on one side, and the criteria of the objective beauty in aesthetics, on the other side, the aesthetics of the 20th century produced theories which were either unacceptable in the art philosophy or obsolete, by focussing, for example, on the coherence and closed unity of the artwork and attempting to transform beauty into a "streng wissenschaftlicher" concept. How would be then possible to bring art theory and biology closer without relapsing into an organismic approach which has gone out of use?

Rarity and richness

Rarity (uncommonness) and richness (profusion) are further connectives between conservation ecology and aesthetics, since "a biologically rich world is aesthetically and epistemically more satisfying and is materially more secure than an impoverished or 'poor' world."[58] Although the rarity of a phenomenon does not guarantee a value (as the phenomenon of "curiosities" proves), it is still sufficient to raise one's interest and tends to be assimilated to an aesthetic value. In art, rarity is linked to the aura of the original. In nature, rarity provides a strong argument for claiming the protection of certain landscapes. As for species, rarity cannot be a value indicator in itself, as diversity and complexity are: fossils, defective species, ineffective species are rare, but not important. Nevertheless, the rarity of species may be interpreted in terms of the richness and "splendour" of life, since it expresses "exuberance in nature," imply competence in a small niche, can be the result of contingent factors,

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[55] C. Alexander, *The Nature of Order*, 4 vol., Center for Environmental Structure, Berkeley 2002–2005.

[56] B. Spehar et al., "Universal aesthetics of fractals", in: *Computers & Graphics* 27 (2003), pp. 813–820.

[57] According to B. Heydemann's title, *Ökologie der Schönheit. Die Natur und die Ästhetik. Strategien des Lebens*, Wachholtz Verlag, Neumünster 2009.

[58] Callicott 2005, *op. cit.*, p. 72.

indicate an "inventive" natural history, and impress as "extraordinary manifestations of survival" and "remarkable success stories."[59] On one side, Rolston's analysis of rarity and complexity epitomizes how environmental ethics interprets ecological issues in aesthetic terms. On the other side, promoters of the environmental aesthetics are currently interested in founding an "ethics of profusion, care and justice."[60]

Sensibility and eco-sensitivity

Another possibility to link the environmental philosophy to aesthetics is related to the sensory experience of nature. In contrast to (modern) philosophy, the natural scientists tend to overlook the subject's *experience* of diversity in order to focus on the *objective* diversity. On the contrary, in the history of philosophy, plurality and variety have been traditionally ascribed to the senses and opposed to those mental operations that order and unify the sensory impressions.[61] During the past decades, aestheticians both in North America and in the German-speaking countries suggested to get back to the roots of the aesthetics in the 18th century and to ground the aesthetics on the theory of perception, as Alexander Baumgarten had initially conceived it.[62] Aesthetics was thus reinterpreted as 'aisthetics' (from the Greek *aisthesis*, 'sensation'). This transformation of meaning, which is also accepted in the cultural geography,[63] advocates an aesthetics of the infinitesimal, in which the complex faculty of discrimination called sensibility would gain center stage again.[64] However, *Sensibilität* is no more restricted to a culture of (emotional) sensitivity, as in the age of pre-Romantism and Romantism, but means *sagacity* or *perspicacity*, including to pay *attention to (fine) dif-*

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[59] Rolston 1994, *op. cit.*, pp. 52–54.
[60] Berleant, *op. cit.*, p. 219.
[61] Harmon 2002, *op. cit.*, pp. 122sq.
[62] G. Böhme, *Für eine ökologische Naturästhetik*. Suhrkamp, Frankfurt/M. 1993; W. Welsch, *Ästhetisches Denken*. Reclam, Stuttgart 1990; Seel, *op. cit.*; M. Diaconu, *Tasten, Riechen, Schmecken. Eine Ästhetik der anästhesierten Sinne*. Königshausen & Neumann, Würzburg 2005.
[63] G. Strohmeier and H. Steckl, „Wahrnehmung von Landschaft – aktuelle Positionen und Diskurse", *Österreich in Geschichte und Literatur*, Wahrnehmung von Landschaft, 53 (2009), Heft 2, p. 99.
[64] Diaconu, *op. cit.*, pp. 437–67.

ferences. However, this capacity to make differences within what appears to be homogeneous may be considered also as a subjective precondition for acknowledging the objective diversity which exists in nature.[65] The aesthetic experience distills not only the unity from diversity, but it also distinguishes variations within the sameness and makes comparisons; in other words, it transforms heterogeneity into differences, which corresponds to the above-mentioned Hegelian concept of diversity.

This change of perspective may prove to be enriching for both the aesthetic theory and the environmental philosophy. On one side, aesthetic theories have prioritized so far processes of reducing diversity to unity, although it is to the same extent essential to be able to see/make differences in what untrained subjects perceive as indistinguishable. On the other side, ecology can contribute not only to conserve the existing diversity, but also to enhance its perception – because not only we know what we see, but also we have to know in order to see better.

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[65] Cf. also Berleant's aesthetics as "theory of sensibility" (A. Berleant, "The Aesthetic Politics of Environment", in: Aesthetics beyond the Arts. Burlington, Ashgate, pp. 181 sq).

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