Naturschutz 3.0 −
Reflections on the Future of Nature Conservation

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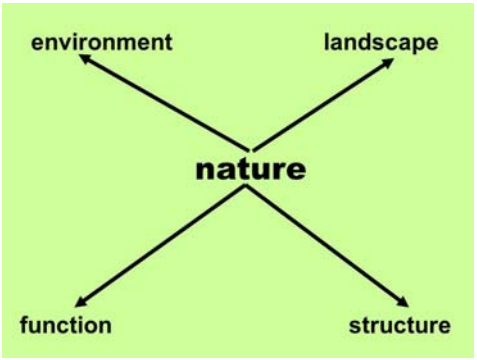
Introduction

Nature conservation is a still recent invention of western urban society and is really more self-serving than of use to nature. With its tremendous complexity, abundancy and dynamics, nature overwhelms human comprehension and makes difficult the search for criteria for its preservation. Moreover, sentiments and emotions, which also tend to absolutize, are often stronger than reasonable actions.

The transition into the urban-industrial era in the 19th century gave rise to modernization of land utilization to fulfil the growing urban need for rural supply. As a consequence, the landscape lost many of its near-natural components, and this roused amongst the urban middle class (not in the countryside, where it took place!) the nature conservation movement. The well-being of the townspeople, however, is based on intensive land utilization, which was also conceived of by responsible urban citizens. Responsibilities for conservation of nature and for the security of supply of the people, which also overlap each other, have been in constant conflict since that time.



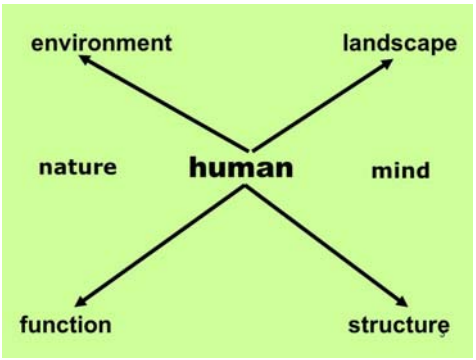


Fig. 1a and 1b: A human being subdivides nature into four domains. Humans' own *biological* nature is oriented on their environment and its function, whereas humans' *mental* nature is aligned with the landscape and its structure ('Gestalt' or picture).

Buhmann, E., Ervin, S. M. & Pietsch, M. (Eds.) (2015): Peer Reviewed Proceedings of Digital Landscape Architecture 2015 at Anhalt University of Applied Sciences. © Herbert Wichmann Verlag, VDE VERLAG GMBH, Berlin/Offenbach. ISBN 978-3-87907-555-3.

Soon nature conservation became a government function starting with the creation of many small nature reserves for the sake of the preservation of living nature, in the form of rare or beautiful faunal and plant species. But the cultural landscape surrounding and affecting the protected areas was initially not taken into consideration. The first German nature conservation act, passed in 1935, decreed the conservation of 'nature in all of its appearances' and included the maintenance of landscapes (but not their design), but the act's paragraphs only concern living nature and did not have any influence on land use changes.

1 Emergence of a New Discipline: Ecology

In the 20th century population growth and urbanization continued to increase, and so did, as part of this, the non-natural transformation of land. At the same time, the city dwellers, gaining more mobility, followed their inclination to spend more time in 'nature outside' for enjoying leisure activities and recreation. For this purpose, nature parks were established by individual initiatives, which, however, increased traffic and tourism. In the cities too, more 'nature' was created in form of green areas, city parks and gardens, leading to even more land needed for city use. These developments took place with very little participation of the official governmental nature conservation.

Its focus on 'living nature' caused around 1970 the emergence of a separate field of policy, namely the protection the abiotic environment – air, water, soil, climate – from emissions and waste pollution. This new environmental policy rapidly gained great influence, generating new laws and institutions, and became a competitor of nature conservation. The difference between 'nature' and 'environment' often remained obscure. In general 'environment' refers almost always to humans and their needs. However, the value and weight of its components, which also include 'wild' nature, are assessed quite variably.

In the 20th century, all of these discussions and activities became ever more internationalized. At the same time, the new discipline ecology was established within the natural sciences. Ecology examines the interplay between life, nature and the environment. With this new knowledge, ecology strongly affects nature and environmental conservation policy, breaking new ground and overthrowing old ideas.

Ecology shows how all life on earth is supported and at the same time threatened by the abiotic environment. On this foundation, life on earth has been evolving over a long period of time with its own organization in which every living being is involved – while living on it by utilizing it. This also includes harming or killing of other life! Despite such contrarieties, life is 'functioning' permanently. Two models help provide its comprehension. The first one is the tree of life, which depicts evolution with all its variety and diversity (Fig. 2).

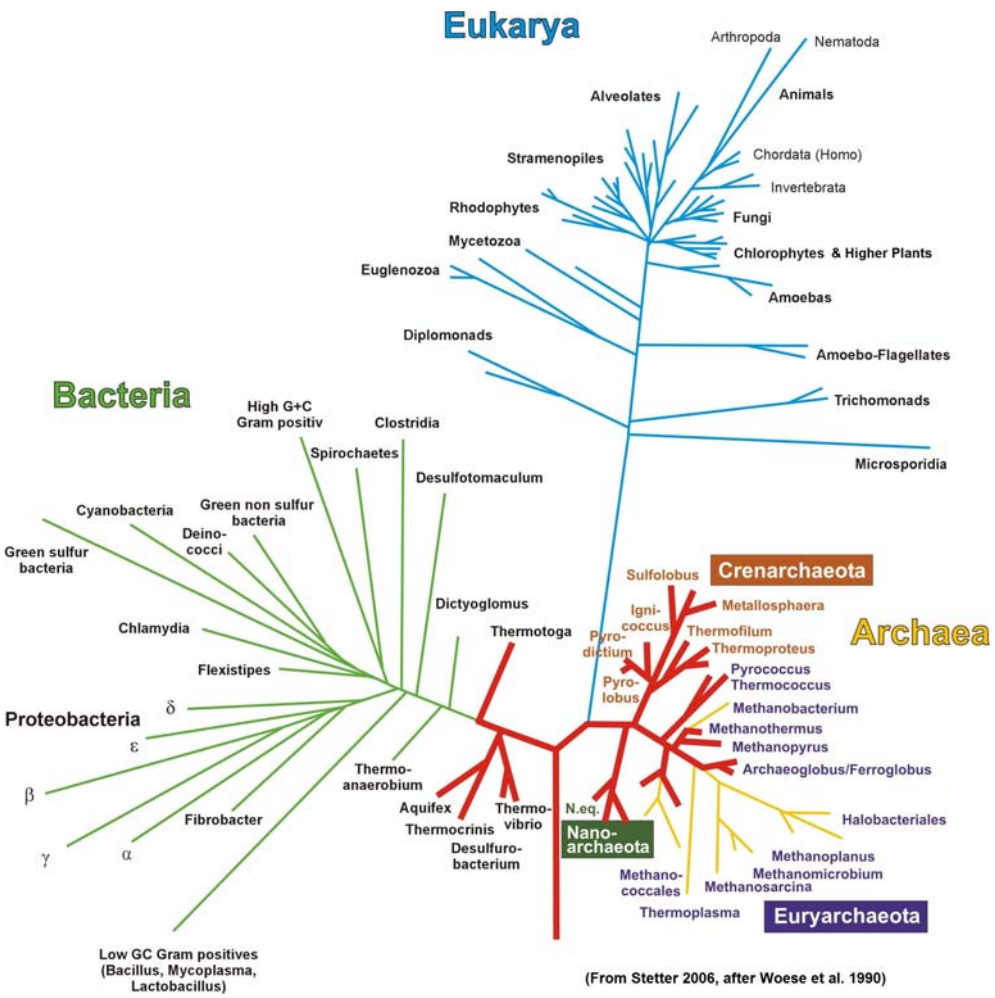


Fig. 2: The tree of life. The existence of the multicellular organisms – above the red line – completely depends upon the participation of the microorganisms with their immense abundance and diversity, the ecological importance of which is generally underrated. (From STETTER 2011, p. 23, Fig. 10; with kind permission)

The second one is the ecosystem scheme, illustrating the functional organization of life with its division of labour between plants, animals and microorganisms n the utilization of resources (Fig. 3). These two models are interdependent.

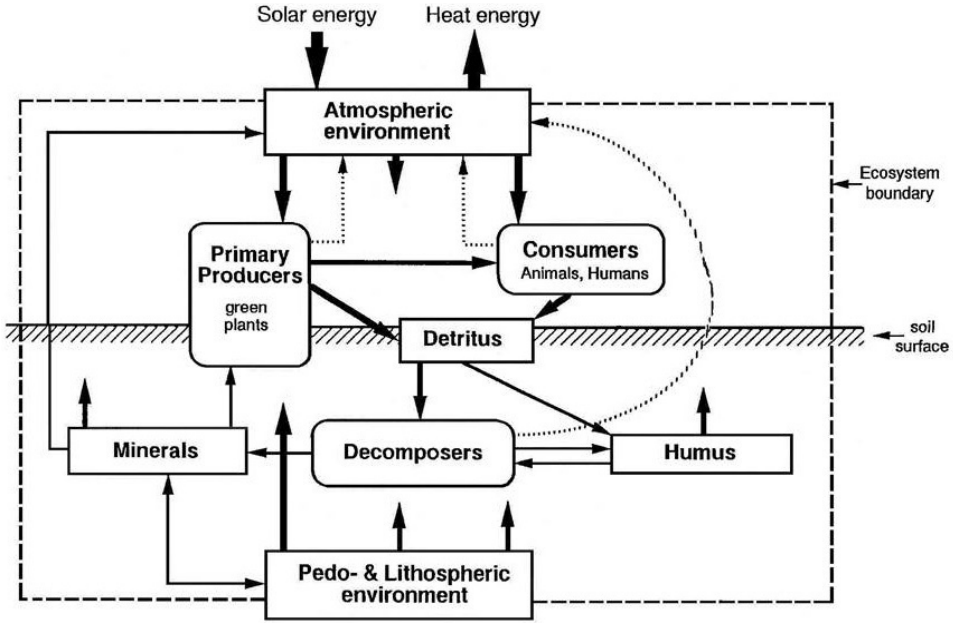


Fig. 3: Diagram of a natural terrestrial ecosystem, which visualizes the organization of life based on the principle of division of labour among three functional groups of organisms, within the framework of the non-living nature (From HABER 1993, p. 16, Fig. 3)

2 Humans Created Their Own Cultural Environment

From this evolution of life the human being has emerged as a special creature: a terrestrial mammal with additional intellectual abilities which however depend on animal functioning. With this bio mental equipment humans have created, in connection with their expansion over the earth, their own cultural environment against nature; and they have eluded the natural ecosystem regulations ever more, especially in terms of lifespan, procreation and reproduction. A decisive event was the transition to agriculture, with the creation of cropland and settlement areas as non-natural systems, ousting ‘wild’ nature as their enemy (Fig. 4).

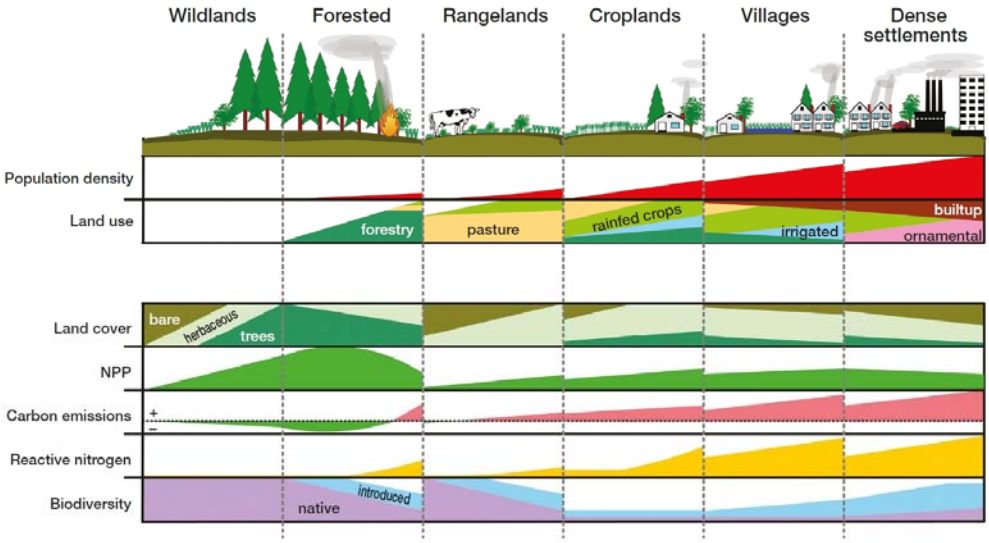


Fig. 4: Human transformation of nature through its cultivation and artificial covering, with their effects on four essential properties of nature and environment (Adapted from ELLIS & RAMANKUTTY 2008)

This cultivated land provides humanity with nourishment and raw materials and became its real environment. From settlement areas, cities evolved, with constantly improving technical-industrial infrastructures. The technological system of the metropolis became the center of civilization and the human's main habitat. But still, this system functionally depends (and remains to be dependent) on the rural areas which surround the cities, and on their "cultivated landscapes" (s. Fig. 4-7). All of these developments are irreversible.

Fig. 5: The main habitat of modern humankind – the metropolis: Urban-industrial sprawl of Peking (Photo: HABER 2008)

Fig. 6: Producing food for supplying metropolis: Large-scale wheat field (Photo: HABER 2011)

At this point emphasis deserves the fact that in a group of people, after securing a high standard of living, awoke an appreciation for the remaining natural components of their environment in the idea ‘nature conservation’, gaining political weight and respect. However, when this happened, the ecological and evolutionary coherences between humans and nature were still unknown, so that ideas of restrictions or halting of civilizing and technological developments, of renunciation or even reversal in favor of nature could spread. The deep conviction behind these ideas was borne by the sincere desire of the conservationists for a ‘life in harmony with nature’, which was awarded its own intrinsic value. The current most important benchmark of this is conservation of biodiversity, in terms of species diversity, whose decrease is to be stopped by the pivotal year 2020. For the sake of these ideas, full support from ecology – which is seen as almost a doctrine of salvation − is expected.

Fig. 7: Pedestrian street in the city centre of Shanghai: Human biomass within an environment of ‘technomass’ – with all problems of supply and waste disposal (Photo: HABER 2006)

3 No Life in Harmony with Nature

Ecology as a science shows such attitudes to be largely illusory, and the strategies and regulations decreed for this purpose at best partially realizable. The human being as a heterotrophic 'Eco systemic animal', obliged to kill or injure billions of other living organisms each day for its own survival, simply cannot live in harmony with nature, even if sparing other animals. The number of people and their demands are growing on a global level, thus disbanding the ideas of the post-growth and de-growth movements. Ecology used as a human model of life is principally inappropriate, since the decisive organization of the ecosystem does not know any values nor merits nor individual existence rights, neither justice nor morality. In fact it has nearly 99 % of all species of the tree of life let become extinct, and will not allow to be transformed into a humanitarian system through nature conservation.

Still, the legitimacy and necessity of nature conservation remain indisputable; it is the motivation and measures that require a fundamental revision. Nature conservation is one of several human dealings with nature which compete with each other – on the surface of a planet which is finite, in particular regarding its terrestrial part that is even shrinking, and cannot be increased for human demands. Therefore it is necessary to set priorities. Since all human beings, even conservationists, are physically and mentally dependent on nourishment, water, energy and raw materials, the extraction or production of these – *even though it damages nature* – must have priority for humanitarian reasons. But this is only justifiable in places where the nature of the planet is suitable for these purposes – and due to the diversity of nature this does not pertain to every place on earth. For food production, these are areas or regions with a naturally high productivity and fertility where it must get absolute priority – but at the same time, strict measures must be taken so that the level of productivity is maintained. This is also a part of nature conservation!

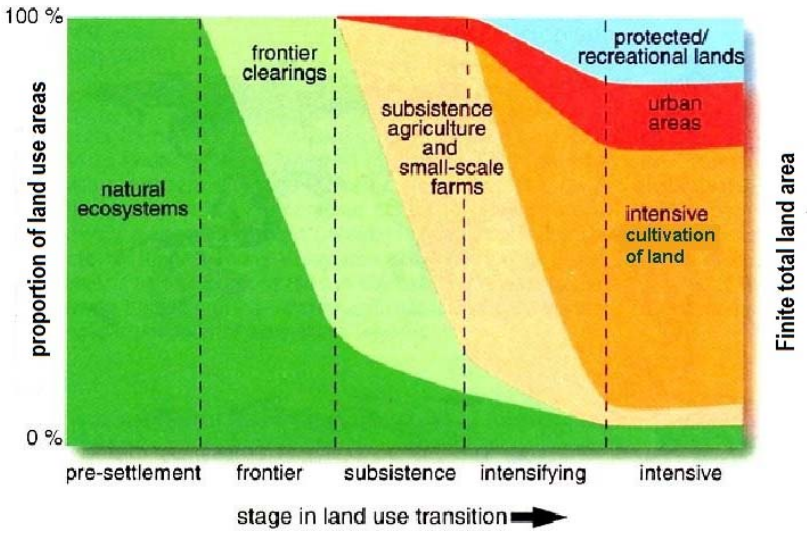


Fig. 8: The historical sequence of land uses and their shares of a finite land area (Adapted from FOLEY et al. 2005)

The most important object of conservation in these areas is not species diversity, but (on the land) soil with its immense variety of soil-inhabiting organisms forming humus and maintaining productivity, but constantly damaged through (for supply purposes essential) agriculture, by erosion, ploughing, compaction, fertilization or loss of humus. This damage cannot be prevented, only mitigated, preferably by increasing land-use diversity and crop rotations, and the inclusion of pasture or fallow ground. Furthermore, a minimum amount of hedges, field margins, ditches and small woodlands forming a network is required, serving biological pest control and erosion prevention.

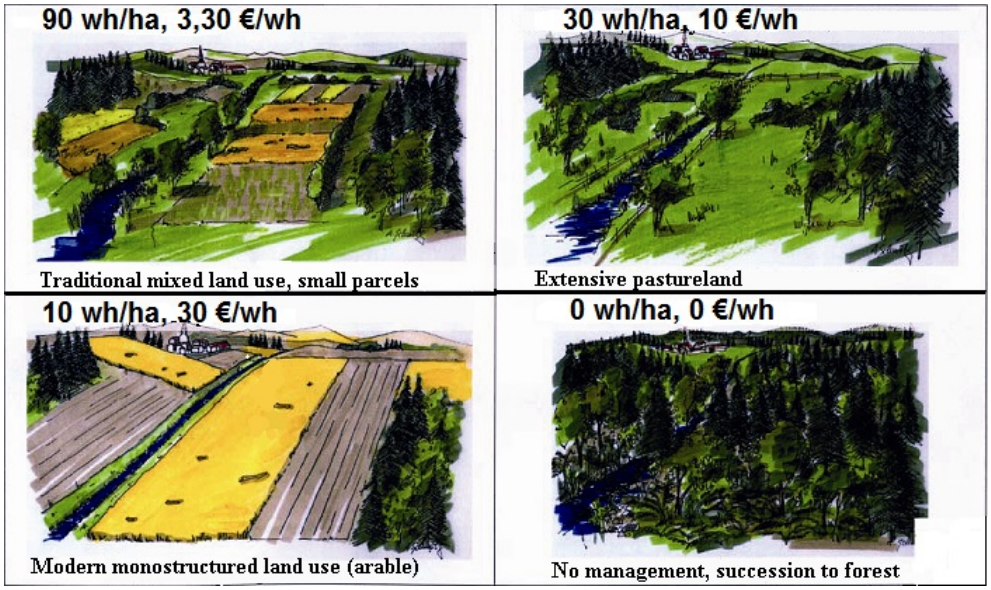


Fig. 9: Comparison of expenditures of work and money for different kinds of land use that determine the rural landscape structure in Germany. wh = workman or manpower hours. (From HABER 2014, p. 214, Fig. 10.1; adapted from HEIßENHUBER et al. 2001)

This differentiated land use constructively includes nature conservation into agriculture, promotes landscape diversity and thereby the diversity of species which normally decline in agricultural land.

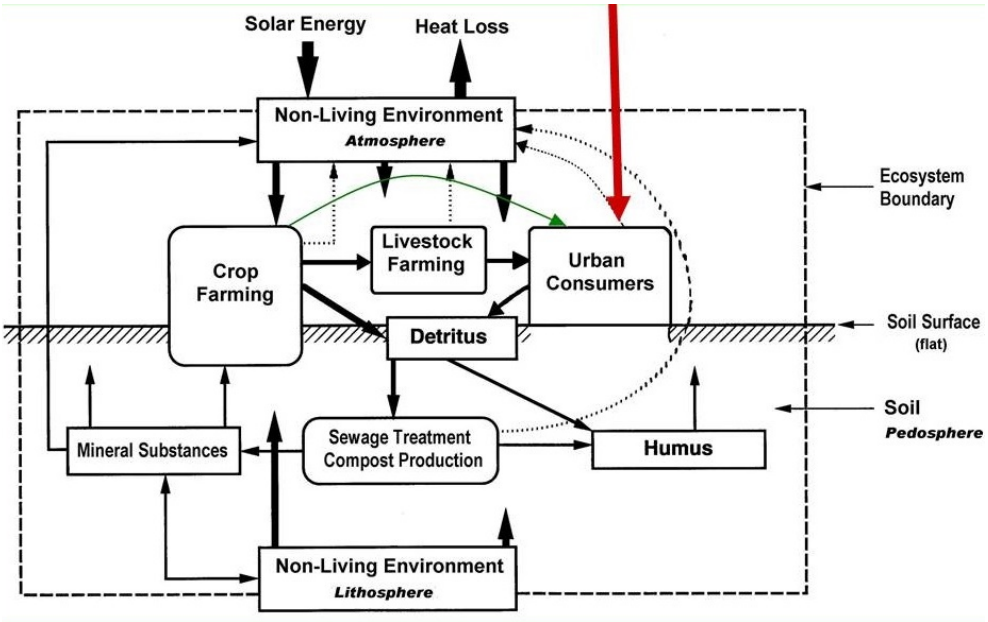


Fig. 10: The rural-urban land use system imitating the structure of a natural ecosystem as shown in Figure 3.

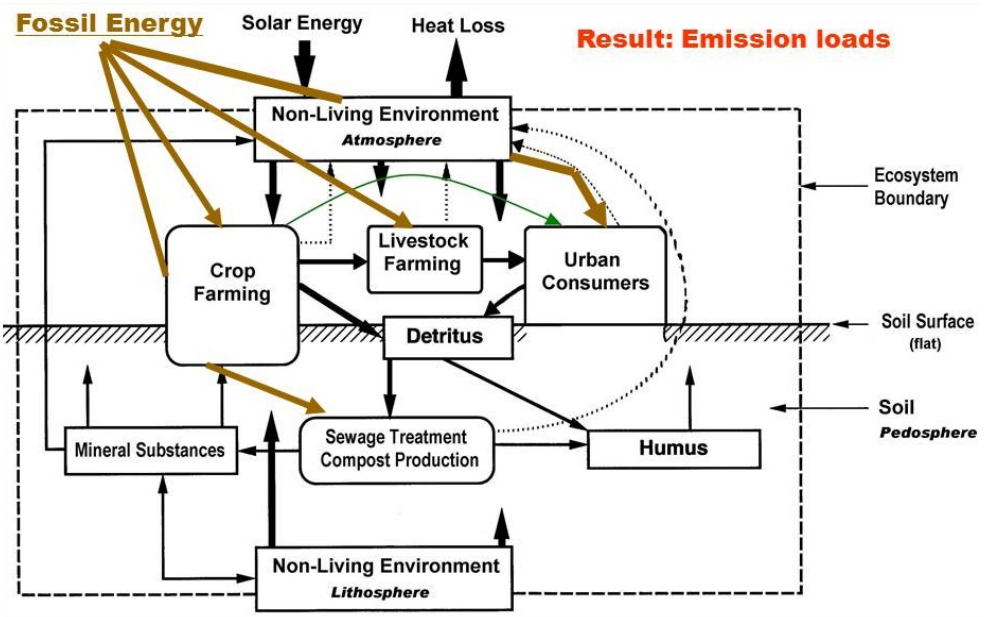


Fig. 11: The rural-urban land use system of the industrial age, with energy from fossil sources supplementing or replacing solar-based energies, in comparison with Figure 3 and Figure 10.

4 Let Nature Be Nature

Areas with a naturally lower production capacity can yield the floor to nature conservation with its increasing variety of demands and purposes. One of its claims is: 'Let nature be nature' or 'wilderness'. Here, however, the same principle as with agricultural land use must be followed. Preservation of 'wild' nature is only justifiable on locations that are not or only slightly suitable for food and raw material production. High or steep mountain areas, semi-deserts and dry steppes as well as the oceans are extensive wilderness regions which humans, according to their individual attitude, appreciate or fear. But also on small scattered sites or in patches, wilderness occurs almost everywhere where human usage and care is neglected or has ceased – with or without intention.

Therefore 'Naturschutz 3.0' has to develop entirely new concepts far beyond contemporary rules or prescriptions. Nature's diversity requires that nature conservation must be continually adjusted according to each specific site or location and its situation. Nature conservation has to acknowledge that the special cultural, technical and civilizing environment created by humans for their own needs, where almost all ecological regulations not compatible with them get switched off can only be partially compliant with nature and cannot be consistent with the "intrinsic value" of nature.

(Short version of a lecture given at the 'Weihenstephaner Forum', of Technische Universität München at Freising, on 10th October 2014,
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