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Protecting life: The common goals of nature reserves and architectural heritage sites

Proteger la vida: Los objetivos comunes de las reservas naturales y el patrimonio arquitectónico

Proteger a vida: Os objetivos comuns das reservas naturais e dos locais de património arquitectónico

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Abstract | Resumen | Resumo

This study addresses the general protection of sites through the idea of preserving the “environment” as a functional whole. Within this broad framework, the text focuses on the meaning and goal of the so-called conservation areas. The first part examines how and when a holistic concept of protection emerged. The second part reviews the current state of affairs, while the third section develops an argument in favor of a holistic understanding of the environment based on interdisciplinary research and complex adaptive systems. The study emphasizes the pioneering impulses from 19th-century Central Europe for the protection of the style and “memory” of historical cities, the creation of nature reserves, the protection of landscape character, the democratization of conservationist initiatives, and the discussion about these initiatives’ motivations. It further argues that traditional environments, today preserved in conservation areas, differ starkly from unprotected areas in terms of these environments’ systemic qualities. Traditional environments have the natural qualities of living structures, which explains their attractiveness, making “preservation of life” the common goal of the entire conservation movement.

El presente estudio aborda la protección general del patrimonio a través de la idea de conservar el “entorno” como un conjunto funcional. Dentro de este amplio marco, el texto se centra en el significado y el objetivo de las llamadas zonas protegidas. En la primera parte se examina cómo y cuándo surgió un concepto holístico de protección, en la segunda parte se analiza la situación actual, mientras que en la tercera se argumenta la necesidad de un conocimiento integral del entorno, basado en la investigación interdisciplinar y en sistemas adaptativos complejos. El estudio destaca los impulsos pioneros que surgieron en Europa Central en el siglo XIX para la protección del estilo y la “memoria” de las ciudades históricas, la creación de reservas naturales, la protección del carácter del paisaje, la democratización de las iniciativas ecologistas y el debate sobre las motivaciones de dichas iniciativas. Además, sostiene que los entornos tradicionales,

que actualmente se mantienen en áreas protegidas, difieren radicalmente de las áreas no protegidas en cuanto a las cualidades sistémicas de dichos entornos. Los entornos tradicionales tienen las cualidades naturales de las estructuras vivas, lo que explica su atractivo, haciendo de la “protección de la vida” el objetivo común de todo el movimiento a favor de la conservación.

Este estudo aborda a protecção geral dos locais através da ideia de preservação do “ambiente” como um todo funcional. Dentro deste enquadramento amplo, o texto centra-se no significado e objectivo das chamadas áreas de conservação. A primeira parte examina como e quando surgiu um conceito holístico de protecção. A segunda parte analisa a situação actual, enquanto que a terceira secção desenvolve um argumento a favor de uma compreensão holística do ambiente, baseada na investigação interdisciplinar e em sistemas adaptativos complexos. O estudo enfatiza os impulsos pioneiros da Europa Central do século XIX para a protecção do estilo e “memória” das cidades históricas, a criação de reservas naturais, a protecção do carácter paisagístico, a democratização de iniciativas conservacionistas, e a discussão sobre as motivações destas iniciativas. Argumenta ainda que os ambientes tradicionais, hoje preservados em áreas de conservação, diferem fortemente das áreas desprotegidas em termos das qualidades sistémicas destes ambientes. Os ambientes tradicionais têm as qualidades naturais das estruturas vivas, o que explica a sua atractividade, fazendo da “preservação da vida” o objectivo comum de todo o movimento conservacionista.

Introduction

In recent years, the connection between the protection of natural and cultural heritage has become important in the international heritage debate (*Culture-Nature Links* 2015; Pretty et al. 2009). While specialized activities such as restoring renaissance paintings or breeding rare rhinoceroses remain in the hands of their respective specialized experts, the agenda and language converge when it comes to more general questions.

This study focuses on the overall protection of areas, on the preservation of “the environment” as a functional whole. Protected natural areas have their parallel in protected sets of buildings, and the English expression “conservation area” is used for both. The paper is divided as follows: the first part of the study offers an excursion into the history of the conservation movement and looks back to the beginnings of the holistic understanding of conservation; the second part sums up the present situation, and; the third part argues for an integrated conception of environment, which comes out of interdisciplinary research in complex adaptive systems. While heritage workers and nature conservationists have each picked up and elaborated on aspects of this research, its unifying potential has yet to be fully developed.

The findings of this paper are based on historiographical and critical research into the work of important architectural, urban and conservationist thinkers. This body of knowledge is put into conversation with the personal experiences of the author who, as a university professor and an ICOMOS and INTBAU member, naturally questions the direction

and meaning of his work. The resulting text is therefore an amalgam of references to authorities, field observations, numerical data, and personal remarks and conclusions. Such an approach has its downsides, and it seems honest to indicate them in advance.

Because the article format requires a certain length and structure, some arguments are not addressed, leaving the expectations of some readers unfulfilled. However, these necessary omissions are made with an expert audience in mind, so the basic meaning should not be lost. I assume *JTBAU* readers do not need to hear about the “progressivist” objections to the conservation movement as such and the same applies to the modernist criticism of the twentieth- and twenty-first-century traditional architecture mentioned in the Conclusion.

In terms of the choice and extent of quotations and references, the selection mirrors more personal criteria. In the first chapter in particular, I preferred to sideline the oft-cited classics in favor of Central European examples, less widely known and sometimes overlooked by mainstream scholars. This focus correlates with the choice of illustrations. I hope the reader will appreciate that the text’s expansive contemplation of “life” on Earth is not accompanied by the usual images of Venice or Serengeti. Although the reasoning is firmly anchored in the (Western) European narrative, I believe that words and actions in our story can be connected to ideas, names and sites elsewhere in the world once we examine them more thoroughly (Stubbs 2009; Stubbs and Thomson 2017). Rather than showing that one part of the world holds primacy in

the holistic approach to environmental protection, the text aims to place this approach in its historical context. In other words, humanity did not have to wait for the present-day environmental alarmism to realize that natural phenomena and human artefacts evoke similar responses when subjected to value assessments and subsequent conservation efforts. Our task, as theorists, is to clearly define those values and elaborate on their attributes in the rich, complex and diverse material world. This duty is not a minor one.

The last part of the article mentions some recent achievements in the discourse and praxis, divided into thematic groups. This section is far from exhaustive and the reader might want to follow the bibliography to extend the list.

The Path to Conservation

When observing so-called indigenous peoples, we tend to feel admiration and nostalgia for their modest lifestyle and intense physical and psychical interconnection with their environment, and we often attribute these qualities to all pre-modern societies (Diamond 2012). It is as if the civilization with all its disastrous side effects including greed, exploitation and vandalism was an epidemic that comes from “elsewhere,” attacking the helpless local communities and compromising their harmless coexistence with the environment. However, this view is mistaken (Pinker 2011). Prehistoric, ancient, medieval and early modern people did indeed refrain from wasting resources because their experience taught them they could otherwise

Figure 1. Weißenkirchen in der Wachau, Wachau Danube Valley, Austria: The agricultural landscape, inhabited since the prehistoric times, is still largely used to grow wine. It is both a World Heritage Site and a nature conservation area. An example of agriculture respecting the limits of the local ecosystem (2020)



suffer from weather fluctuations or other disturbances causing food scarcity (Fig. 1). At the same time, awe of religious and political authorities made them respect territories or artefacts declared taboo; some Saharan inhabitants still avoid rocks with prehistorical drawings for fear of disturbing evil spirits, even though these are people of a hard, unsentimental character who formally adhere to Islam and use modern technology (Soukopova 2012).

On the other hand, frugality led the same people to recycle material from abandoned buildings. Antique residential palaces and public buildings in Europe and the Mediterranean disappeared primarily because people broke them into stone or brick blocks and used them for new structures. In exceptional cases, rulers tried to prevent this by issuing protective orders or at least by expressing admiration: for example, Germanic King Theoderic and Pope Leo X wanted to preserve ancient monuments in Rome, while the French King Louis XIV praised the ancient Roman theatre in Orange (Fig. 2). These acts of protection were motivated by an effort to show kinship with the collapsed empire in terms of both political and aesthetic continuity. The most prominent Roman structures then served as prototypes for the classical revival which spread out, mostly from the 15th century onward but even before that, from Italy to primarily aristocratic patrons as an intentional distinction from the language of “lowly” vernacular architecture.

However, there were other strategies for treating local heritage, which communities employed when they migrated, traded or expanded. When they killed all the large animals in a certain area, Paleolithic hunters did not die out because they could migrate elsewhere. Ancient peasants with their extensive agriculture may have turned the blossoming landscape into desert but their nations

Figure 2. Roman theatre, Orange, France, 1st century AD, “the most beautiful wall in my kingdom” according to Louis XIV (2011)



survived because they could conquer neighboring territories and acquire food there or simply buy or trade it for other commodities (Parzinger 2016).

None of the above-described economic models—local autarky or acquiring food from external sources—necessarily implies what we now understand as “sustainability”, a system accentuating respect for material and nonmaterial heritage. Pre-modern or more precisely, pre-industrial societies often were less destructive not because of their generally “better” attitude to the world but because they were smaller and less technologically able to cause harm. In return, they had a lot of time on their hands: aerial surveys of New Guinea in the first half of the 20th century revealed that it was a relatively densely populated island with a several-thousand-year-old agricultural landscape, much to the surprise of the scientists who expected a pristine tropical forest (Diamond 2005). After all, traditional hand-held tools can also cause significant damage. Large, slow animals can be speared or clubbed to death (mammoth, Steller’s sea cow, moa, dodo) and a cathedral or temple can easily perish by pickaxes and hammers or fire.

From the beginning, protective efforts were inevitably tied to the confrontation of interests, control and limited freedoms for those who did not agree with them. Conservation was easier to enforce for individuals or groups who enjoyed general authority and, ideally, also held actual power. European feudal lords, court artists and scholars did not need to popularize their ideas or advocate among the public for the measures that would prevent the crowd from tearing down a seemingly useless building or destroying a forest or a lake. In isolated historical cases, conservationists came from “the bottom”, and faced the arrogance of those “on top”. For example,

in the 16th century, the Roman city hall attempted to stop the pope’s undercover support for “mining” marble from the ruins of the Forum Romanum (Glendinning 2013: 32-33). These cases laid the foundation for what has become almost automatic since the 19th century: the art of negotiating protection and conservation, the need to explain it and flexibly operate with back-up plans. Up until the 19th century, conservation focused on exceptional and, from the initiators’ perspective, curious artefacts and life forms, rather than “environments”, if we omit cases such as the forests where vassals or indigenous people were forbidden to collect wood and fruit and hunt animals by their local lords or colonial administrators. In these cases, the preservation of ecosystems was a by-product of what were primarily economic or other interests. Similarly, the orders regulating the material or height of buildings in old cities aimed to increase safety and social peace between the neighbors rather than to protect the artistic qualities of architecture as such or maintain its historical character.

It is also necessary to emphasize that the changes in both natural and cultural landscapes were not structural: the changed environment did not strikingly differ from what people were used to. Rome, once rebuilt in the Baroque style, still structurally resembled Renaissance, Medieval and Classical Rome because the architectural language of new buildings and urban plans followed the grammatical rules developed and established in previous periods (Fig. 3). Similarly, the cultivated country landscape, with its small, narrow fields, bushes, groves, deer parks and ponds did not look fundamentally different than the uncultivated landscape, a situation occurring in temperate climates but likely also in the tropics (see for example the above-mentioned settlements on New Guinea) (Fig. 4-5). This important fact will be further discussed in the second and third parts of our study.



Figure 3. Forum Traiani, Rome: Buildings that come from various epochs but use the same or very similar architectural language. There is not much difference between the “modern” (in 18th century terms) and the “old” (2010)



Figure 4. A cultural landscape did not necessarily differ from an uncultivated landscape, like in the former grazing land close to the town of Vyškov, Czechia: The area known as Větrníky has been a national nature reserve since 1953 (2020)

The situation changed with the industrial revolution, when interventions in the landscape greatly increased, resulting in a variety of monocultures (for example, mixed forests turned into plantations with one kind of tree only). It was at this point that enlightened individuals began to realize that certain kinds of environments as a whole were as endangered as the individual artefacts, and that the danger was not locally isolated. Fortunately, this realization led some influential landowners to introduce protective restrictions, but unfortunately (from the conservationist perspective), it happened precisely at the moment when increasing democratization of social life made their enforcement more and more complicated.

Central Europe was on the vanguard of these efforts. In the conservation of “historic urban landscapes”, Nuremberg

Figure 6. Nuremberg, Germany, was one of the first larger cities to protect its “historic urban landscape”, in this case due to the personal intervention of Bavarian King Ludwig I (1825-1848) (2006)



Figure 5. The same is true for the rice or sugar cane fields in the south of China: Landscape around the village of Mingshi, Guangxi Zhuang Autonomous Region (2019)

was a model example. The Bavarian King Ludwig I decided to save it from modernization, aiming not only to protect the architectural style (no buildings in the by then fashionable Neoclassical style were allowed among the Gothic landmarks) but also to preserve and fuel memories of the city’s great cultural and political past, connected especially with Albrecht Dürer and his generation (Erichsen and Puschner 1986). This way, he created what theorists today call a “memory landscape” (Fig. 6-7). One of the first wilderness conservation areas was founded in 1839 by Count Georg Augustin de Longueval-Buquoy, the owner of the Nové Hrady manor, in South Bohemia, who decided to protect a remnant of the local primeval forest, creating what is now known as the Žofínský prales [Sophien-

Figure 7. Wittelsbacher Platz, Munich, first half of the 19th century: While in the King’s mind, Nuremberg represented German history, Munich was meant to become a showcase of the state’s modernization. The classical architectural language was found to convey this better than Nuremberg’s Gothic architecture (2011)



Urwald / Žofin Forest] national conservation area. His motivation was not economic, but strictly conservationist in the classical sense of the word, with an emphasis on the ecosystem's aesthetic and documentary value, and on the prohibition of all interventions, including active "sustainable management." In a letter written on August 28, 1838 to the manor's forest inspector, the count declares and justifies the protection as follows (Albrecht 2003: 89):

Because forests with these qualities will soon be known only from historical descriptions, I have decided to preserve the forest part in question as a memorial to periods long past for true friends of nature to behold, and to refrain from any kind of logging for profit; I order you to issue further orders to put my will into effect, so that no trees would be harvested in this forest, no litter raked and no sticks collected, in brief, everything is to be left in its present state.

Roughly fifty years later, the Central-European milieu gave rise to three other important contributions to the conservationist discourse. First, initiators of so-called homeland protection — both artists (such as Ernst Rudorff or Paul Schultze-Naumburg) and researchers (such as Hugo Conwentz) — realized that industrialization, urbanization, population upsurges and progressivist ideologies of all kinds endangered not only "old cities" and the "wilderness" but also the traditional cultured landscape, i.e. everything that has come into existence so far, either with or without human contribution. They saw not only the complex relationship between nature and culture but also the connection between artefacts and activities behind their creation, that is, what Paul Schultze-Naumburg called "cultural work" (Schultze-Naumburg 1901-1917; Borrmann 1989) and what in today's language is referred to as "intangible heritage". Second, these early conservationists managed to activate the masses and transform conservationism into a truly democratic movement with a significant political influence and a pioneering agenda grounded in a holistic and ecological approach. Third, the Viennese art historian Alois Riegl produced what was likely the first philosophical analysis of "values" fundamental to the relationship between heritage monuments and decisions about what to do with them, when in 1903 he published his *Modern Cult of Monuments* (Riegl 1903). Riegl understood that if we want to explain the true motivation of this "cult", we need to deeply examine people's individual psychology in order to reveal the universal, pan-human foundation beneath the ephemeral, culturally and historically conditioned layers (Jokilehto 1999: 213-219; Bandarin and van Oers 2012: 7-10; Rampley 2013). The universalist aspect of Riegl's thinking was also concerned with the practical execution of conservation projects: when maintaining an artefact, we act not only for our own benefit or that of our social and national group but also for the benefit of all people, including those we do not know, will never know and with whom we presumably have nothing in common, other than their ability to experience strong emotions in the face of protected artefacts.

Inside the Borders and Beyond

Over the course of the past hundred and fifty years, the conservation movement has succeeded in designating approximately thirteen percent of land and less than three percent of oceans as conservation areas (Parker 2017). These include largely nature reserves, while heritage sites take up a fragment of the overall expanse of cities that surround them. Ancient Rome enclosed within the Aurelian city walls accounts for about one hundredth of Rome's metropolitan area. Based on 1970 data, all French "historical centers" within the city walls make up 3.7% of urban areas and less than 10% if 19th-century developments are included (Calzolari 1992: 136; Melissinos 1992: 189).

The numbers do not reveal much on their own. It is far more important to compare the environment inside and

Figure 8. Old Town Square, Prague (2012)

Figure 9. Houses from the turn of the 20th century at the Republic Square, Prague (2011)



outside these reserves. From what are we protecting the conservation areas? Quite interestingly, beginning at the turn of the 20th century, old cities were sometimes perceived in a similar way as wild nature. While conservationists emphasized similar aesthetic qualities, such as “picturesqueness”, in both environments, the opposition, seeking to remove old buildings as part of the so-called urban renewal, planned to clear the way for new avenues as if they were felling trees in the forest. The undulating terrain was to be evened out, rivers and streams straightened or buried, old residential buildings deemed “caverns”, “dens” or “hotbeds of diseases” as if they were swamps, places that people traditionally feared. Deeply rooted negative emotions associated with alleged danger lurking outside human settlements were used as a propaganda tool against the conservation movement.

From today’s perspective, however, the differences between the preserved localities and those rebuilt around the turn of the 20th century are minimal. A common visitor to “old” Prague usually fails to see the difference between Baroque streets and those built in the Art Nouveau style, just as the visitor of Paris regards Haussmann’s boulevards as an integral part of the city’s historical center (Fig. 8-9). Outside Europe, the differences between the scarce conservation areas and the unprotected majority of the territory were largely negligible even for people living around 1900: the new development’s urban and architectural language resembled the old development (even in large cities in Asia) and there was enough space for wildlife outside the cities. For example, it has been estimated that in 1900, when the planet was home to 1.6 billion people, Africa housed 120 million people and 10 million elephants. The present situation (2020) is very different. There are 7.8 billion people on Earth, 1.34 billion of whom — eleven times more than the previous number — live in Africa. African population growth between 2015 and 2016 was 30 million (Bish 2016). The number of elephants has plummeted to 350,000 with a further 8% (27,000 animals) lost each year (Steyn 2016). Tropical rainforest areas decrease by 80,000 km² each year. In 2014, the sum total of global biomass (the weight of all larger animals combined) comprised 300 million tons of people, 700 million tons of domestic animals and only 100 million tons of wild large animals. There are 1.5 billion heads of livestock, 600 million domestic cats and over 20 billion chickens, of which 1.9 billion are in Europe. Meanwhile, in 2009, the number of all wild birds in Europe was 1.6 billion, a significant decrease compared to 1980 when it was 2 billion (Harari 2016: 71-72).

The numbers concerning heritage monuments are equally significant. In the 20th century, Amsterdam lost one fourth of its historical buildings, Rome one third, Cairo a half, and Beijing most of its traditional developments, a process approved by the majority of these cities’ inhabitants (Tung 2001: 16). The two World Wars almost entirely destroyed scores of historical cities in France, Germany, Poland and Russia (Eckardt 1980; Kretschmer 1988). In



Figure 10. Černý Most housing estate, Prague, second half of the 20th century: Although the urban environments in figs. 9 and 10 are closer in terms of their dates of origin and their inhabitants’ social structure than the places in figs. 8 and 9, their character does not show the same closeness. Why is this the case? (2007)

the Bohemian, Moravian and Silesian parts of communist Czechoslovakia, approximately one thousand villages, 2,500 churches and 350 aristocratic country palaces were torn down between 1948 and 1989 (Horáček 2013: 262-263). Nobody has ever tried to count all the existing buildings according to types (for example, Renaissance urban palaces vs. one-story shopping centers) and create charts capturing their decline or increase. But it is likely that the numbers would correspond with the charts showing changes in the population of elephants and livestock. Because the architectural language of new developments in the vast majority of cases differs strikingly from that of older buildings, a phenomenon occurring globally since the 1940s, we cannot assume any growth of traditional buildings, as these architectural types have been deemed antiquated (Fig. 10).

Today’s comparison of conservation areas and unprotected environments leads to unambiguous conclusions. Natural reserves contain the greatest diversity of landscape forms, or biotopes, and are home to the largest number of plant and animal species. At heritage sites, diverse architectural and art forms coexist, housing the liveliest public life. By contrast, the landscape beyond the reserves’ borders is gradually swallowed by the amorphous “modern” world with billions of people and domestic animals, botanical and architectural monocultures and technological facilities for maintaining them. People go to conservation areas to regenerate and revitalize themselves, to rest physically and mentally (Fig. 11-12). Conservation areas thus represent the paradoxical victory of modernist ideology: they shed critical light on its negative side effects and at the same time serve as a cultural alibi, confirming the alleged inevitability of “zoning”, which separates the individual functional segments of modern life.

Conservation areas are too small and scattered to stop the advancing biodiversity loss (Mora and Sale 2011). The same applies to heritage sites and the diverse traditional, non-virtual cultural activities naturally occurring in these



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Figure 11. Life in a heritage reserve: Český Krumlov, Czechia (2018)

Figure 12. Life in a nature reserve: the National Park of Saxon Switzerland, Germany (2013)

Figure 13. Plan B in case protection is insufficient or impossible in the original locality: Veszprém Zoo, Hungary (2019)

Figure 14. Plan B for architecture that cannot remain where it was built and for “intangible heritage” that disappears from everyday life: the Open Air Village Museum in Lublin, Poland (2019)

environments: they have to various degrees adjusted to the needs of tourists interested in “heritage” (Fig. 13-14). On the other hand, it is precisely this laboratory-like character of conservation areas, in contrast to their monotonous surroundings, that helps us emphasize the structural features shared by “nature” and “heritage sites”. These features, sensed by the first conservationists as early as the 19th century, will be the subject of the third part of this study.

The Nature of Order

It is a well-known rule that we only begin to appreciate certain phenomena when they are almost gone or when a contrasting phenomenon defines their contours with unexpected intensity. By way of observation, classical European theorists of architecture and art developed the mimesis hypothesis, suggesting that people’s creations tend to imitate natural forms either literally (in figural painting, sculpture and drawing) or part literally and part

metaphorically (in architectural elements and ornament). Based on the study of the scale and proportions of living creatures, binding design rules were developed, such as the golden ratio (Hershey 2001; Smith 2003: 27-28). In the second half of the 19th century, the empathy theory was employed to describe people’s sensory and emotional interactions — both passive and active (perception and design) — with their environment. Empathy was to help humans “live” their environment, understand it in an intuitive, irrational and non-verbal way (Mallgrave and Ikononou 1994), and also enrich it with artefacts created in harmony with their surroundings. Using classical architecture as an example, the English aesthician Geoffrey Scott tried to describe this harmony as the biological interconnection between humans and the natural order, modulated by an artist’s sense for stylization (Scott 1974 [1914]). He also suggested that order is a complex, carefully balanced and fragile matter, conditioned by what he calls a “humanistic” worldview. For Scott, the alternatives included “chaos” and “non-human order”. In the same period, biologists strove to explain the origin of



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Figure 15. Orchid *Psychopsis Mariposa*, Botanical garden and arboretum of Mendel University in Brno, Czechia: A hybrid that was cultivated for aesthetic reasons and only registered in 1972, and yet looks natural (2017)

Figure 16. Reök Mansion by Ede Magyar, Szeged, Hungary, 1906-1907: The authorial art-nouveau style that was cultivated for aesthetic reasons and only registered in the 1890s, and yet looks natural (2016)

Figure 17. Arboretum of Mlyňany, Slovakia: The northern pitch pine tree can be described as an approximately self-similar fractal. This means that its complex shape is generated by way of repeating simple rules and that any of its parts have a similar shape as the whole when scaled up or down (2019)

a living organism's appearance with its often aesthetically impressive aspects resisting any simple interpretation, either evolutionist or otherwise (Thompson 1917; Komárek 2003; Horáček 2013: 34-38). Scientists and artists looked for parallels between the diverse natural shapes (flowers, branches, butterfly wings, shells), which some researchers tried to describe mathematically and derive from them binding rules for design (Hubatová-Vacková 2011; Fig. 15-16). Some urban planners developed sustainable concepts of planning based on the biological and psychological perception of human beings, like Camillo Sitte in Central Europe, Gustavo Giovannoni in Italy, and Patrick Geddes worldwide (Sitte 2003 [1889]; Bohl and Lejeune 2009; Giovannoni 1931; Semes 2017; Geddes 1915; Rodwell 2007: 29-36, on Geddes and Giovannoni; Bandarin and van Oers 2012: 10-15).

Twentieth-century architectural history, art history and science history have helped us understand that, when a certain threshold is reached, the above-described view of the world and human interventions in it can be consciously negated and that humans, in conflict with thousand-year-old traditions can generate fundamentally different artefacts and mental patterns which are incompatible with the previously existing achievements. Modernist architectural programs on their own represent just one part of a larger problem where intellectual debate no longer sought to understand the formal associations between the morphology of natural elements and stylized human products and to scientifically explain their positive or negative aesthetic impression. The lack of concern in this regard among architects corresponded with the mechanistic paradigm in biology and neuroscience prevailing in the critical period of rapid industrial development, accelerated by the two World Wars. The conservationist movement reacted to the drastic decline of the traditional natural and

cultural environment by advocating for the creation of conservation areas.

As they collected new experiences, researchers-theorists began to ask again: What states and actions characterize the traditional environment and what does it mean for us? Their research was based on three interconnected pillars: mathematics, ecology and aesthetics. In the 1970s and 1980s, mathematician Benoît Mandelbrot described the geometrical structure of natural shapes using fractals, objects featuring qualities such as hierarchy of scales and self-similarity (Fig. 17). Mandelbrot (1983: 23-24) argued that "a Mies van der Rohe building is a scalebound throwback to Euclid, while a high period Beaux Arts building is rich in fractal aspects" (Fig. 18-19). In the same period, biologist Edward O. Wilson focused on human kinship with other living forms, a relationship he considered evolutionary and enriching for our species, and in fact necessary (Wilson 1984). He called this unconscious and conscious relationship "biophilia". Mathematician and architect Christopher Alexander thoroughly analyzed existing buildings and other artefacts across time and cultures and revealed parallels that inductively confirm the hypothesis that the universe is an organized system whose "order" we are only beginning to understand, even though we can perceive it, reproduce it and appreciate it (Alexander et al. 1977; Alexander 2002-2005).

These pioneering studies gave birth to the research which now involves a growing number of researchers from all over the world — aside from mathematicians, biologists and designers, they include physicists, environmental psychologists and environmentalists, physicians, and art historians. It is impossible to even outline this body of research here. Studies that are most relevant for the present topic describe the traditional built environment and its



Figure 18. Plaza de España, Seville, by Aníbal González, 1914-1929: Beaux-Arts architecture is fractal in character, employing a complex, non-random shape and many levels of scales, interconnected with higher-level wholes (2017)

Figure 19. Lafayette Towers, Detroit, Ludwig Mies van der Rohe, 1963: Modernist architecture has simple shapes, only a few levels of scales (in this case four), and is isolated from its non-modernist surroundings (2016)

parts as a living system, illustrating qualities inherent to biological structures such as: (1) organized complexity (storing information), (2) metabolism (use of energy), (3) replication (self-reproduction), (4) adaptation (organism changes itself in order to gain more benefit from its environment), (5) intervention (organism changes its environment), (6) situatedness (integration into the world through sensors), (7) connectivity (processing information) (Salingaros 2013). From this perspective, a daisy blossom and a log house have more in common than the latter and a concrete high rise, just like a forest and an old city share more characteristics than this city and a contemporary suburb. Organized complexity can be grasped mathematically using Mandelbrot's "hierarchy of scales" (Salingaros 2006; Horáček 2013). We can observe it in living systems where the variable degree of complexity is directly proportional to the system's "health". For example: the Australian coral reef and the center of Rome can both be considered rich, complex, diversified, adaptable and healthy living systems, while environments created in the industrial and post-industrial period, such as palm plantations or typical modern suburbs are mono-functional and depleted, insufficiently elastic, isolated from their environs and designed with no regard to long-term sustainability — that is, dying.

This decline in complexity can be blamed on both the simplified modernist architectural language which replaces "structural order" (the concept coined by Nikos A. Salingaros) with "chaos" or "non-human order", and the designing process prioritizing individual interests over the benefit of the whole — the human species and other inhabitants of the planet. It is easier to create a dead or only seemingly living zone than boost life while taking into account as many existing factors as possible (Fig. 20-23). To illustrate this, scientists draw a parallel with non-complex viruses that exist "outside the system" but need complex organisms integrated in a system as a substrate for their uncontrolled (chaotic) spread, limited only by the death of their host (Salingaros 2006: 244-252).

Conclusion

Does the conservation movement follow any of the trends described here? While notions like "fractals", "empathy" or "structural order" have yet to become part of the professional vocabulary, "biophilia" has caught on to some extent (Kohl and McCool 2016; Salingaros 2017). In any case, those engaged in heritage and conservation appear to be headed towards the same goal despite using different methods and words. We can roughly distinguish four, often converging routes:

(1) International charters and recommendations on cultural heritage conservation adopted by ICOMOS, UNESCO and the European Union accentuate the "place-making" features of heritage and its active role in contemporary cultural and environmental networks. *The World Heritage Convention* (1972), *The Declaration of Amsterdam* (1975) and the *Warsaw-Nairobi Recommendation Concerning the Safeguarding and Contemporary Role of Historic Areas* (1976) strive to precisely formulate the "non-museum" qualities of heritage assets and enact measures against their decline (Szymygin 2015a). The Nature-Culture Journey initiative, jointly coordinated by IUCN and ICOMOS since 2016, reinforces this tendency with an emphasis on the interconnectedness of nature and culture. In 2018, the European Ministers of Culture adopted the *Davos Declaration*, calling for a policy of high-quality "Baukultur" for Europe. This declaration requires new developments to have the same positive impact on urban tissue as historic buildings: "High-quality Baukultur protects the environment. It supports sustainable transport and responsible land use, increases urban green spaces and promotes health and biodiversity" (*Davos Declaration* 2018, Article 12).

(2) Open air museums mimic tangible and intangible features of pre-industrial settlements. These highly complex artificial environments were envisaged by the pioneers of the idea in Scandinavia, Central Europe and the United States as early as the 19th century (Rentzhog 2007).

(3) The traditionalist architectural movement emerged from the wave of disappointment with the aesthetic and semantical poverty of international modernism after the Second World War. Nevertheless, it slowly shifted its priorities from the battle of styles to environmental sustainability, where architectural language constitutes just one supporting pillar among many (Tagliaventi 1996; Tagliaventi and Bucci 2009). Exploration of heritage reveals manifold, time-proven answers to recurring questions in architectural, urban and landscape planning. Hence, conservation matters are an integral part of education curricula and the design agenda as once recommended by Sitte, Geddes and Giovannoni (Hardy 2008; Semes 2009). Moreover, in the realm of contemporary traditionalism, the dialogue between professionals and other interested parties has been developed to bolster consensual, and therefore sustainable, solutions. The Notre Dame School of Architecture (Indiana, USA) serves as a model for professional training, while INTBAU exemplifies the interconnection between scholars, planners and civic society (cf. websites, especially that of the Rafael Manzano Prize). The traditionalists' mission found its expression in

The Prince of Wales's book *Harmony: A New Way of Looking at Our World* (Prince of Wales 2010).

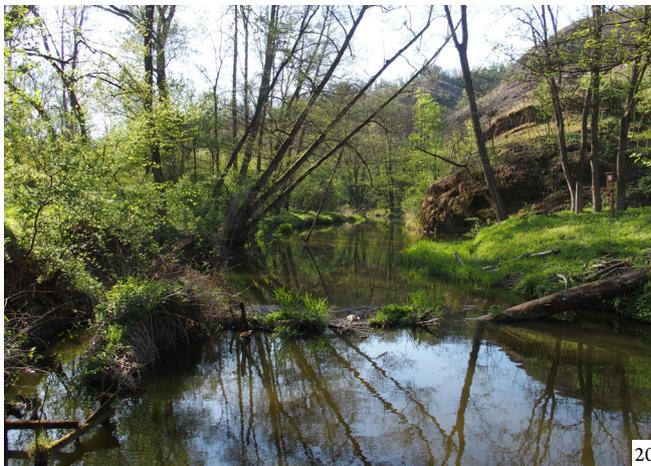
(4) Extending beyond the conclusions of a particular expert, the methodology of heritage value assessment allows for diverse indicators and underlining functional relationships with the surroundings to come into play (Szymgin 2011; Szymgin 2015b). There is one set of criteria of "outstanding universal value" for the selection of World Heritage designations. Although six of them are "purely" cultural and the remaining four are natural ones, it is possible for the so-called mixed sites to appear on the List. Remarkably, the criterion of "exceptional beauty and aesthetic importance" figures among the natural criteria (vii), although it is rooted in an ancient admiration for artistic masterpieces. Such transposition of criteria may suggest an emerging, unified view of the world as an infinitely complex whole. Was it coincidental that Sir Peter Scott, one of the founders of the WWF (now World Wide Fund for Nature), studied art history and became famous for his paintings? (Scott 1966).

Figure 20. The Krumlov-Rokytná Conglomerates National Nature Reserve, Czechia: Living system with structural order (2020)

Figure 21. Telč, Czechia: Living system with structural order (2019)

Figure 22. A field in Czechia: Biological monoculture with reduced structural order (2020)

Figure 23. Macau: Architectural monoculture and chaos (2018)



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Broadly speaking, the conservation movement has gradually upgraded its mission from protecting selected biological and cultural forms to protecting life on Earth in general. Conservation areas scattered around the planet have become focal points of life, “centers”, as Christopher Alexander calls them, magically attracting millions of tourists who go there on their vacations to connect with a world from which they are cut off in their everyday lives. Feeling more “alive”, they enthusiastically photograph these places and share the pictures with their friends! The lonely rock or ruin with rugged details and self-seeding, wild bushes seems livelier to us than a box-like administrative building with hundreds of office workers filling out forms (Fig. 24). In ravaged territories, life moves to virtual reality. Unsurprisingly, the fantastic worlds in films, computer games and internet environments bear a striking resemblance to the ones that people have destroyed in the real world.

Considering current demographic trends and global economic momentum, it is increasingly difficult to formulate a realistic strategy for conservationist policies that would stop the ongoing depletion of diversity on Earth. Informed by traditional architecture and the above-described interdisciplinary inquiry, researchers have provided contemporary architects with instructions for the biophilic design but these have been overlooked by most architects so far (Kellert 2005; Mallgrave 2013; Mehaffy and Salingaros 2015). However, it does not mean conservationists should give up. On the contrary, the convergence between the protection of “nature” and “heritage” in the name of a common goal — the protection of life — gives the conservationist movement an extraordinary ethical charge and, I believe, the energy it needs to face our current challenges. These challenges include not only preserving

“heritage” but also understanding the web of relationships between its components.

For a long time, the research focused on “building blocks” — waterlilies, elephants, Gothic churches, adobe huts, ritual dances or individual kinds of ecosystems. But there is an evident need to mutually compare these components, study their interactions in networks as well as the synergistic effects resulting from their “correct” role in a system. We must understand the forces that ensure vitality in pre-industrial environments when these forces are still sufficiently functional and perceptible in protected areas.

Such understanding is necessary not only for keeping the existing reserves safe and sound but also for reconstructing life in devastated areas should the opportunity arise in the future. Good architecture will be a part of this process.

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Figure 24. Delphi, Greece: A subjectively felt intensity of life in an environment is not dependent on the newness or youthfulness of individual elements — a solitary ruin may seem livelier than a new building filled with people (2009)

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Biography | Biografia | Biografia

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