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Non-Territorial Nature Conservation? On Protected Areas in the Anthropocene

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with 4 figures and 2 tables in the text

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Zusammenfassung

Nicht-territorialer Naturschutz? Über Schutzgebiete im Anthropozän

Schutzgebiete gelten als zentrale Instrumente zur Umsetzung globaler Naturschutzziele und sollen der Erhaltung und Sicherung von Biodiversität dienen. Die meisten Schutzgebiete wurden in den letzten Jahrzehnten ausgewiesen und sind nach strikten territorialen Gesichtspunkten konzipiert: sie sind lokal verankert und eng begrenzt durch die Aushandlungsprozesse der Grenzziehungen sowie die festgeschriebenen Verwaltungsgrenzen und genauen Zonierungen. Diese Vorgehensweise basiert implizit auf der An-

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nahme von Gleichförmigkeit und Unveränderbarkeit der natürlichen und sozialen Umwelt der Schutzgebiete. Der vorliegende Beitrag stellt dies in Frage und zeigt auf, dass das territoriale Konzept von Schutzgebieten sowohl aufgrund der komplexen Prozesse einer sich wandelnden Umwelt als auch vor dem Hintergrund sich ausweitender Naturschutzziele kaum haltbar erscheint. Darüber hinaus konfrontiert der Beitrag wesentliche Grundannahmen des Naturschutzes mit komplexitätstheoretischen Überlegungen und zeigt auf, dass die Grundannahmen des Naturschutzes einer gründlichen Revision bedürfen, welche auch weitreichende Konsequenzen in der praktischen Naturschutzarbeit hätten. Den Rahmen dieser Überlegungen bildet die These vom Anthropozän, die althergebrachte Dualismen wie Natur/Kultur grundlegend in Frage stellt.

Schlagwörter: Naturschutz, Schutzgebiete, nichtterritorialer Naturschutz, Komplexität, Nichtlinearität, Anthropozän

Summary

Protected areas are regarded as central instruments for the implementation of global nature conservation objectives and have been conceived to serve the purpose of conserving and safeguarding biodiversity. Most protected areas have been designated during the past decades and comply with strict territorial considerations: they have strong local roots and are very narrowly defined due to the negotiation processes involved in determining the demarcation, as well as the established administrative boundaries and precise zoning. This method is implicitly based on the assumption of the constancy and immutability of the natural and social environment of protected areas. The following article calls this into question and reveals that the territorial concept of protected areas appears difficult to sustain in light of the complex processes of a constantly changing environment on the one hand, and when viewed against the background of ever expanding nature conservation objectives, on the other hand. Furthermore, the contribution confronts essential underlying assumptions of nature conservation with complexity-theoretical considerations and illustrates that the basic assumptions pertaining to nature conservation require a fundamental revision, which would also have far-reaching consequences in practical conservation work. The considerations are presented within a framework provided by the thesis of the Anthropocene, which fundamentally challenges established dualisms such as nature/culture.

Keywords: nature conservation, protected areas, non-territorial conservation, complexity, non-linearity, Anthropocene

1 Introduction: Why consider non-territorial conservation?

Despite its often globally drafted protection goals, nature conservation and environmental management is a matter of localised spaces and territories, of borderlines and zoning issues. To pursue the goals of nature conservation, protected areas are recognised as the most important tool of conservation “in situ”, contributing to the preservation of

biodiversity (cf. e.g. Chape et al. 2005; Hambler and Canney 2013, p. ix; Jones 2014, pp. 173ff). Each protected area, be it a biosphere reserve of the UNESCO, an IUCN-based protection site or a protected area following national laws and regulations, is based on a zoning system that draws borders between those sections that should be preserved and those that are beyond conservation, as well as separating zones of different states of protection. All these boundaries are territorially fixed and anchored in legal documents such as land registers and cadastres, providing legal force for quite some time into the future. There are some more flexible types of territories (such as development zones of biosphere reserves or an Austrian "Nationalpark-Region"); non-the-less these have and need to have distinctive boundaries.

However, over time, local, regional and global (societal and natural) dynamics will change and thus challenge the designated protected areas in a fundamental way. Under current eco-political conditions in most parts of the world, the possibilities of legally redrawing demarcation lines or implementing other adaptations of the zoning are limited and it might be high time to reconsider our current assumptions and the corresponding approaches in nature conservation. There are many experiences in re-defining, enlarging or re-launching a protected area, but all these activities refer to the existing territorial paradigm. This contribution focuses on the tensions between territorially fixed protection, the global|regional changes due to global dynamics, as well as the global societal demands and conservation goals. We aim to contribute to, if not open, the discussion on how nature conservation could be conceptualised in a non-territorial way, thus enabling protected areas to adapt to shifting and changing environments. The idea of nature conservation is still based on the fundamental rupture between human and nature, which is expressed in the dualism that has constituted our thinking for ages. At the very latest since 2000, when Paul Crutzen and Eugene Stoermer proclaimed the Anthropocene as the newest geological epoch, the dual thinking of nature|culture or environment|society is on the test bed. Since nature conservation is one of the core aspects in which our understanding of the interaction of human and nature is manifested, this article contributes to the debate on the fundamental changes that accompany the acknowledgement that humans and their societies are no longer living in symbiosis with nature but rather modifying natural processes.

Against this background, we discuss the concept of the territoriality in conservation in detail (chapter 2.2) and show how local protected sites are challenged by global dynamics, such as moving conservation objects and processes (chapter 2.3) and global societal demands such as internationally agreed conservation goals and promises as well as internationally standardised management instruments (chapter 2.4). Of course, these challenges are already recognised and well known within the conservation network; chapter 2.5 elucidates first conceptual steps towards a more open concept, but still stays within the general framework of fixed territorial sites.

Additionally, in order to challenge the traditional concepts of conservation with notions of contingency, dynamic change, chance and chaos, we revisit some fundamental assumptions regarding protection in chapter 3, such as the idea of "conservation" in a dynamic and, thus inevitably, changing world, as well as our concepts of "nature" (chapter 3.1). One of the very fundamental ideas of nature conservation still refers to notions of equilibrium understood as a *telos* of nature (chapter 3.2), which is disturbed by human ac-

tivity. The approach of equilibrium nicely contributes to the idea of "conservation" which might be why it was so sweeping and managed to become so prominent. Recent notions of complexity theory as well as systems theory focusing on self-organising, complex, non-linear systems show that there might be equilibria in dynamic systems, but that these will last only for comparatively short periods of time. Moreover, the detection of an equilibrium is highly related to the observation scale.

We conclude this contribution with the (still) open question of how we could conceptualise non-territorial nature conservation, i.e. protection with fluid zones and borders and how nature conservation could be seen as a role model for the future demands of the Anthropocene (chapter 4). The question of non-territorial conservation relates to recent discussions about aims and functions of protected areas in the 21st century (IUCN 2014; JUNGMEIER 2014). Instead of creating more and more territorially fixed protected areas and asking whether those protected areas "work" or not, the discussion should focus on asking about the gains and losses of our ways of conserving nature.

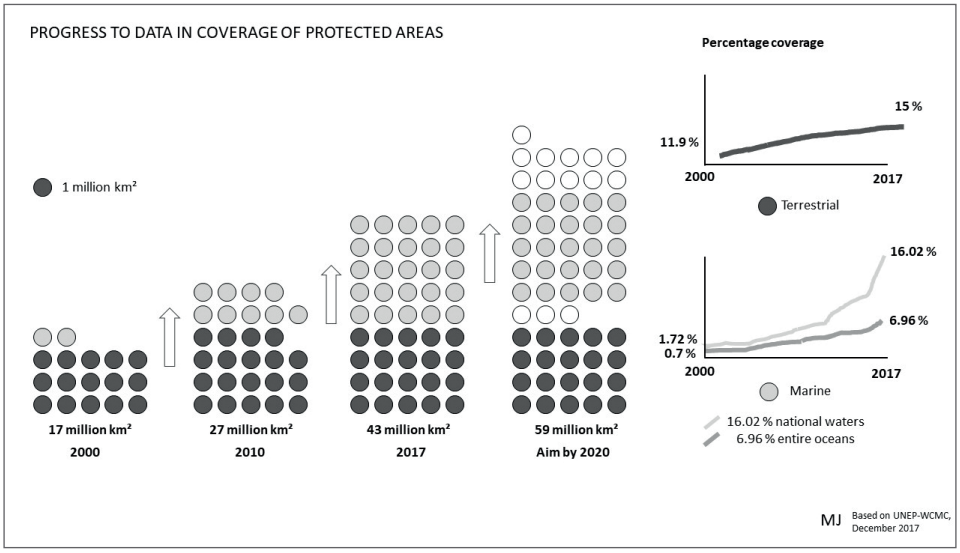
2 Conservation and territoriality

Any concept of nature conservation immanently comprises various intrinsic conflicts. In this chapter we focus on the conceptual mismatch between the local territorial instruments as they were developed and thoroughly tested during the last approximately 150 years and the extra- or supra-territorial (generalised as: global) demands and expectations as addressed towards or by protected areas.

2.1 Protected areas – a story of success?

During the last 150 years, nature conservation has developed in a surprisingly successful way. Since the designation of the first national park in 1872 in Yellowstone (USA), the general idea of designating areas for the protection of nature has spread around the world. After a comparatively slow start, the numbers of protected areas have shown an exponential growth since the mid 20th century (Fig. 1). Referring to DEGUIGNET et al. (2014, p. 209, p. 429) sites are registered in the "World Database on Protected Areas". The overall coverage of the sites is 32,868,673 km², which amounts up to some 14 % of the Earth's surface; the European network of "Natura 2000" consists of 27,308 sites with a total coverage of about 1,040,000 km². Most recently the coverage of protected areas has reached up to 15 percent of the global surface (see Fig. 1).

This development was induced by a wide range of international agreements, conventions and institutions (Table 1), which meanwhile form a globally networked framework to foster protected areas and connect the conservation work beyond the regional or national scale. Put pointedly, the dense web of conservation agreements and institutions seems to work in a manner that is at least twofold: On the one hand, as a powerful globalised lobbyist network (with a decentralised and fuzzy pattern of network activities and steering), meanwhile having incorporated conservation concerns into laws and regulations to foster



Source: World Conservation Monitoring Centre / World Database of Protected Areas

Figure 1: Recent development of protected areas (reported 2018)

their issues beyond the vested interests of nation states, for instance when conservation topics are forced onto national agendas when they are about to be neglected.[1)] On the other hand, many conservation issues could not be brought forward on a national level only, leaving a single nation state in a very weak position against a (hyper-)globalised economy.

Despite the high acceptance of the ideas of conservation in general, the designation of a protected area usually will not occur without protests at the local level. In many regions where a site is to be implemented for protection, heated debates between different stakeholders and interest groups emerge; any decision concerning the demarcation of the protection site is contested and voices quickly become shrill. Moreover, there are critics among the professionals in conservation as well who conclude that despite its rapid development, so far, the conservation movement has not done well in protecting nature: "The 20th century saw conservation's creation, but nature's decline" (Adams 2004, p. 231; see also WWF 2014; Croft 2014, p. 53).

According to Brockington et al. (2008), there seems to be a strong connection to our modern forms of capitalism that appears to favour the establishment of protected areas, since the most significant growth in the number and size of protected sites took place between 1985 and 1995: "Yet it was precisely when pressures to reduce government were greatest that the extent of state control and restriction on land and natural resource use increased more dramatically than any other period" (Brockington et al. 2008, p. 1). This may be an antagonistic trend in the phase of hyperglobalisation with its consequence of

[1)] An overview of the "infringement cases" within the European Union, for instance, can be found at *http://ec.europa.eu/environment/legal/law/press_en.htm* (last access Dec. 15, 2018).

declining and eroding power of national governments (cf. GIDDENS and SUTTON 2013, p. 138), that it stimulated and fostered the designation of conservation sites to an almost exponential degree (Fig. 1). It has to be considered that this extension of protected areas went parallel with a shift of paradigm in nature conservation (cf. MOSE and WEIXLBAUMER 2012), recognising more and more traditional land-uses, specific cultural features and the livelihoods of indigenous people as integral components of ecosystems and landscapes.

Institution	Established	Description
UNESCO	1945	United Nations Educational, Scientific and Cultural Organisation with its World Heritage Convention (WHC, 1972) and the administration of the Man and Biosphere Program (MAB, launched 1971)
IUCN	1947	International Union for the Conservation of Nature (established 1947) yielding WCPA – World Commission on Protected Areas – as one of their essential sections
WWF	1961	World Wildlife Fund, originally founded to raise private sector funds for the IUCN
RAMSAR	1971	International Convention on Wetlands of International Importance
UNEP	1972	United Nations Environment Program
CMS	1979	"Bonn Convention" on the Conservation of Migratory Species of Wild Animals
EU	1979	European Birds Directive as one of the pillars for the European network of "Natura 2000" sites
WCMC	1988	World Conservation Monitoring Centre, established in partnership with UNEP, IUCN and WWF (functions as biodiversity monitoring, information and assessment centre)
GEF	1991	Global Environment Facility, established in partnership of UNEP, UNDP – United Nations Development Program – and the World Bank
EU	1992	Flora-Fauna-Habitats Directive as one of the pillars for the European network of "Natura 2000" sites
CBD	1993	Convention on Biological Diversity

Source: Adapted from LOCKWOOD et al. 2006, pp. 73ff

Table 1: International institutions forming the global protected area framework (in chronological order of their foundation)

However, the combined efforts of the global network of conservation institutions were very successful. The processes of designating, implementing and managing protected areas are already standardised procedures that are taught at universities and in applied science courses[2)] supported by several textbooks (e.g. GETZNER et al. 2010; HUBER et al. 2013;

[2)] For instance, the MSc program "Management of Conservation Areas" at the Carinthian University of Applied Sciences (*https://e-c-o.at/trainings-en.html*).

Jones 2014; Lange and Jungmeier 2014; Leverington et al. 2010; Lockwood et al. 2006) – most of them based on "IUCN Best Practice Protected Area Guidelines", a series published by the World Commission of Protected Areas (WCPA). Thus, after 150 years of experience, the ways of designating and managing parks have become highly standardised. A large share of the over 200,000 protection sites on this planet has been designated during the last 30 years and was implemented under roughly the same global conditions, based on similar natural conservationist assumptions and highly elaborated implementation and management tools.

Along their path of success, protected areas have developed to institutions beyond their primary aim of protecting natural goods and have taken on many of societal functions, such as economic development in mostly rural peripheral regions, creation and education of sustainable knowledge, handling regional and global change (cf. Jungmeier et al. 2018; Egner et al. 2017; Hammer et al. 2012). Hammer et al. (2016, p. 19) point to this shift of paradigm by stressing, that "parks in Europe thus represent a great hope for shaping the future at the regional level. […] The majority of parks today are no longer nature reserves but have the character of living or working landscapes. […] They are thus diversely involved in agriculture, forestry and tourism, and develop educational activities in the fields of the environment, sustainable development and culture." Expressed pointedly one could state, that in the course of their institutional evolution towards "multifunctional landscapes" (Hammer et al. 2016, p. 19), protected areas have lost sight of their primary goal – the preservation of biodiversity.

It has been put to debate repeatedly that – in contrast to the tremendous efforts and impressive growth rates of conservation sites – protected areas still insufficiently fulfil their functions in preserving biodiversity. Obviously, many of the sites "are poorly managed" (IUCN 2014; Croft 2014). Worboys et al. (2015) stress diverse difficulties for protected areas and raise the question of management effectiveness. Beyond this, in their analysis of the global distribution patterns of biodiversity hot-spots, Ana et al. (2004, p. 1092) point out that the growth in numbers of protected areas "has not been strategically aimed at maximizing the coverage of global biodiversity." They conclude that a random distribution of protected areas on the globe would have fulfilled the conservation goal even better than the current carefully applied selection processes. Thus, it seems to be quite clear that pragmatic considerations (e.g. minimising conflicts, saving money etc.) dominate the selection processes, resulting in protected territories located in less relevant areas for conservation (cf. Broggi et al. 1999). Thus, the question of how to fulfil the global goals of nature conservation is becoming more pressing.

2.2 Protected areas as "clearly defined geographical spaces"

Since the establishment of the first protected areas, the concepts have continuously changed (cf. Pichler-Koban and Jungmeier 2013). The diverse understandings of conservation sites are deeply rooted in different cultural backgrounds (cf. Huber et al. 2013) and the process of developing internationally recognised definitions and standardised categories for protected areas, as started in the late 1960s, has not yet come to an end. The

most recent definition provided by the International Union for Conservation of Nature (IUCN) advocates a protected area as "a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values" (DUDLEY 2013, p. 8). The term "clearly defined" implies "a spatially defined area with agreed and demarcated borders. These borders can sometimes be defined by physical features that move over time (e.g. river banks) or by management actions (e.g. agreed no-take zones)" (ibid.). With its system of categories of protection, the IUCN (1994) established a set of rules which have served since then as the exclusive reference for protected areas – besides the biosphere reserves-program, which is the state-of-the-art conservation ruled by UNESCO (2010, p. 3) and has been their flagship project for some years.

Semantics and metaphors in nature conservation have an explicit territorial component, sometimes even with a military connotation: Talking about the establishment of "buffer zones", an "effective intervention", the "threat" and "eradication" of "invasive species" or "demarcation of an area"– the idea of a territory dedicated to the cause of biodiversity and ecosystems is most evident. However, the planning and delineation of new protected areas' borders has become a difficult process. Different societal needs, conflicting interests and antithetic values need to be discussed and decided. The border of a protected area usually is, or at least should be, a compromise between different societal groups and thus creates new spatial entities, representing new priorities of societal use (i.e. conservation).

Referring to IUCN´s definition of a protected area (Table 2), the conservation activities must take place in a concrete natural, social and cultural environment, no matter whether the aim is strict and rigorous protection (category I), management intervention for particular species (category IV), or the maintenance of traditionally shaped cultural landscapes (category V). Besides the "natural" situation (type of landscape or seascape, ecosystems, biodiversity, species, etc.) this environment is determined by a specific territorial framing in terms of a) juridical declarations, b) land use and property rights, and c) an institutional framework:

(a) Any regulatory regime – as well as incentives or payment schemes such as "conservation by contract", for instance, – is addressed to the protected area within its borders. Legislative interventions (i.e. designation, gazettement, announcement) name area, location or cadastral units. The border is a distinctive element in the legal framing of the protected area, and this also applies to international designations.[3)]

(b) A protected area is assumed to be successful when the management is able to promote and enforce new land-use regimes as well as regimes for the utilisation of resources and the conservation of biodiversity. However, the land belongs to someone and any intended change has to be brought forward in interaction with the "owners" (in the broadest meaning of the term). Consequently, these activities must be focused, connected and restricted to a certain territory. The stakeholders could not and would not be willing to accept any uncertainties about the borderlines of the affected area.

(c) The protected area is embedded into a specific institutional landscape. In most states the responsibilities of the institutions are more or less defined (cf. BORRINI-FEYER-

[3)] Interestingly enough, "early" "Ramsar"-sites, heritage sites or biosphere reserves could be recognised without explicit borders, which lead to considerable confusion and problems.

abend 2013) and therefore the tolerance for deviations from assigned duties is restricted. The resources, however, are restricted anyway (cf. Hockings et al. 2006).

Category Ia – strict nature reserve: protected area managed mainly for science	Area of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring.
Category Ib – wilderness area: protected area managed mainly for wilderness protection	Large area of unmodified or slightly modified land, and/or sea, retaining its natural character and influence, without permanent or significant habitation, which is protected and managed so as to preserve its natural condition.
Category II – national park: protected area managed mainly for ecosystem protection and recreation	Natural area of land and/or sea, designated to (i) protect the ecological integrity of one or more ecosystems for present and future generations, (ii) exclude exploitation or occupation inimical to the purposes of designation of the area and (iii) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.
Category III – natural monument: protected area managed mainly for conservation of specific natural features	Area containing one or more, specific natural or natural/cultural feature which is of outstanding or unique value because of its inherent rarity, representative or aesthetic qualities or cultural significance.
Category IV – habitat/species management area: protected area managed mainly for conservation through management intervention	Area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats and/or to meet the requirements of specific species.
Category V – protected landscape/ seascape: protected area managed mainly for landscape/seascape conservation and recreation	Area of land, with coast and sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character with significant aesthetic, ecological and/or cultural value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance and evolution of such an area.
Category VI – managed resource protected area: protected area managed mainly for the sustainable use of natural ecosystems	Area containing predominantly unmodified natural systems, managed to ensure long-term protection and maintenance of biological diversity, while providing at the same time a sustainable flow of natural products and services to meet community needs.

Source: IUCN 1994, quoted from Chape et al. 2005, p. 445

Table 2: Definitions of the IUCN protected area management categories

2.3 Moving objects and processes – global challenges for local conservation sites

Although clearly defined geographical spaces, protected areas are no islands (e.g. JUNGMEIER et al. 2008), they rather interact and are entangled with their immediate and far-off surroundings in manifold ways. Natural processes within the protected area usually show effects in adjacent developments, and human activities and natural dynamics outside may affect the inner dynamics of the protected site. Of course, biodiversity is neither locked in nor locked out (with the exemption of some, mainly private, game reserves). Global natural developments, however, show their effects on a large scale, irrespective of a given protection status or the boundaries of a zoning area. The following three examples shall illustrate in what ways and to what extent the territorial paradigm of protection is highly challenged.

Example 1: Immovable protected areas in shifting and dynamic environments

Ecosystems are composed of abiotic factors and species that are adapted to a particular habitat. Even slight alterations of relevant ecological factors may change the competitiveness of species as well as groups or types of species and thus result in shifting species composition, new successions and new climactic equilibria (the notions of equilibrium and steady state have been reconsidered in the "new ecology", see also chapter 3.2). Such developments may be induced by abiotic incidents, such as flooding, erosion or siltation. Natural biotic processes such as evolution, pests or life cycle may also result in new species composition. A key factor in many protected areas is the reduced human impact on the habitats, leading to intended, and sometimes unintended effects. However, the territory of a protected area stays constant, whereas the habitats and species shift.

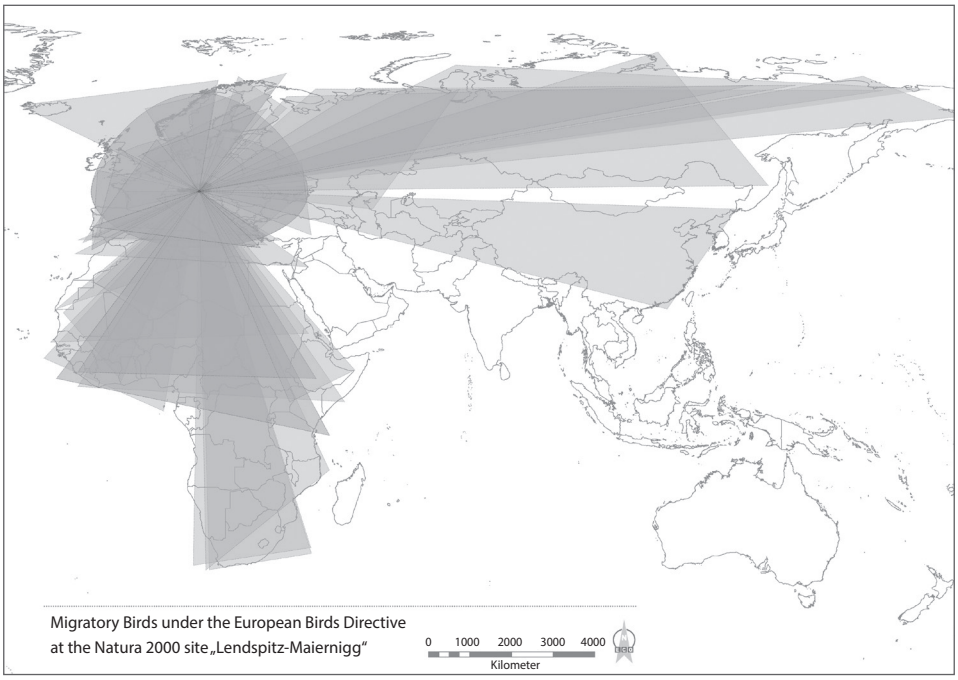
A most relevant driving factor in this context is climate change (ENGLER et al. 2011; LOCKWOOD et al. 2006; PAULI et al. 2012; WWF 2014; WORBOYS et al. 2015). In the Alps, for instance, an increase of temperature of some 2 °C will result in a 300-meter shift of altitudinal belts. An increase of more thermophile or less cold-resistant species and communities can already be observed in the higher elevations: Based on an investigation carried out on some 60 European summits, GOTTFRIED et al. (2012, p. 113) state: "The transformation of plant communities on a continental scale within less than a decade can be considered a rapid ecosystem response to on-going climate warming." Such developments demand for adapting concepts in nature conservation, if most sensitive high alpine species, such as endemic summit flora and fauna, are subject to protection. The future challenges of the concept are pointed out by GOTTFRIED et al. (2012, p. 111): "In view of the projected climate change the observed transformation suggests a progressive decline of cold mountain habitats and their biota."

Example 2: Protected areas as stepping-stones in the life-cycle of the target-species

No protected area, not even a large-scale site, can host all relevant species in all phases of their life cycle. This is most evident for vertebrates such as fish, birds or large carnivores, but also applies to other migratory species. For these species, protection regimes

usually focus on reproduction areas (nesting, breeding), relevant feeding grounds (pastures, water) or specific habitats (shelter, wintering).

The example of the Austrian "Natura 2000" site Lendspitz-Maiernigg (Klagenfurt AT2130000), closely connected to the city of Klagenfurt, illustrates this challenge. It is a small urban protection site of about 70 ha, giving habitat to some 120 species of birds, many of them migratory birds. Figure 2 presents the migratory bird species as listed in the standard data form of the site, together with their seasonal migration. The map provides evidence that birds nesting, staging or wintering on the site spent other phases of



Source: Jungmeier and Glatz-Jode 2016 (sketch: Elisabeth Kreimer, based on the standard data sheet of the site (European Commission 2015) and expert input by "BirdLife")

Figure 2: Routes and ranges of migratory birds under the European Birds Directive at the "Natura 2000" site "Lendspitz-Maiernigg" (Austria)

their lives up to 20,000 km away from the small protected area in Klagenfurt. The distances overcome range from Iceland (Dunlin, *Calidris alpina*), Siberia (Spotted crake, *Porzana porzana*), East Asia (Common reed bunting, *Emberiza schoeniclus*), Central and Eastern Africa (Eurasian wryneck, *Jynx torquilla*) to Southern Africa (Red-backed shrike, *Lanius collurio*). Evidently, the conservation management beyond the borders of the individual site is more relevant to improving the protection status of the specimen than all on-site management activities. It is no accident that the first international treaty

on conservation was the "Ramsar Convention" (1971) on "Wetlands of International Importance especially as Waterfowl Habitat". The plea for dense networks of protected areas, managed in connection, has been formulated repeatedly (e.g. WORBOYS et al. 2015; JUNGMEIER et al. 2008).

Example 3: Straying threats approaching a protected area

Invasive neobiota are highly competitive and mobile species that are intentionally or unintentionally introduced by human activity (for a critical reflexion see also chapter 3.2). Since they can replace and compete against species or change ecosystems that are subject to protection, these species are considered threats to protected areas. Globally, many resources are invested to "fight" these species (WORBOYS et al. 2015). Beside many others a well-known example is Japanese knotweed (*Fallopia japonica*), a neophyte widely spread in Central European wetlands, along riverbanks, floodplains and ruderal areas. BÖHMER et al. (2006, p. 29) analyse the status of *F. japonica* in Germany and argue that the specimen "is capable of completely changing the structure and species composition in affected ecosystems". Even if a control is possible in particular desired sites, the authors state that "is has to be considered that a complete eradication of the species in Germany is, probably, not possible any more". In theory, the spread of "problematic" species can be monitored, predicted or can even be modelled in advance. However, any preventive measure would imply that the management of the site is actively engaged in operations far beyond the borders of the site.

2.4 Global societal demands challenging local conservation sites

The main driver for the establishment of protected areas as well as for the definition of their goals, functions or further development, is an international conservation framework, as already briefly noted in the introduction. This framework, composed by intergovernmental institutions, NGOs, conventions and private networks is at the same time result and promoter of the ecological globalisation. The agenda for the global network of protected areas is set way beyond individual protected areas or the vested interests of single nation states, but rather in mega-conferences (e. g. "Earth summit"). Thus, the conservation matter is pushed by institutionalised global players and more and more by international donors such as GEF (Global Environment Fund) or big funding agencies (cf. DOWIE 2009). Even if many efforts die down or end up as irrelevant paper tigers, a particular fallout of these declarations, treaties, campaigns and protocols hits the ground and puts – conservationists would say: positive – pressure on the governments of nation states. In the following, we take a) the Sustainable Developments Goals (UNESCO 2015), b) the "Promise of Sydney" (IUCN 2014) and c) some smaller instruments of the international conservation framework as examples to show that the advocated goals and issues already reach far beyond locally territorial defined protection sites. However, the concept of how to implement nature conservation without concrete borderlines and by focussing on fuzzy concepts and fluid zones still has to be developed.

ad a)

In September 2000 representatives of 189 countries agreed upon the "United Nations Millennium Declaration", addressing the eight most urgent problems of mankind, later known as "Millennium Development Goals" (MDG) that should be achieved by 2015. Currently, the United Nations development agenda beyond 2015 is being prepared: the eight MDGs shall be followed by a total of 17 Sustainable Development Goals (SDG). An open working group has drafted the SDGs to be discussed and enacted by The United Nations' General Assembly (United Nations 2014). Goal 15 is addressed to "protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss" (UNESCO 2015). In the sub-goals protected areas are not explicitly mentioned, but "the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands" is clearly put in a very wide context. If protected areas involve themselves in the realisation of the future SDG they surely will have to act beyond their borders or – on the other side – concepts and tools for nature conservation with fuzzy borders and fluid zones have to be conceptualised.

ad b)

Since 1962 The World Union for the Conservation of Nature (IUCN) has launched a decennial World Parks Congress (WPC) (Seattle 1962, Yellowstone 1972, Bali 1982, Caracas 1992, Durban 2002, Sydney 2014). It is easy to track how the conferences' outcomes have influenced international treaties and policies, as well as national legislation and protected areas' managements. The latest WPC, which took place in Sydney in 2014, attracted more than 6,000 participants from some 160 countries and came up with the "Promise of Sydney" (IUCN 2014). While already the Durban WPC of 2002 focused on "Benefits beyond Boundaries" (meaning: of protected areas), the "Promise of Sydney" aims to go much further. The signees consider that "bold vision and concerted action are required if we are to meet both conservation goals and human aspirations for current and future generations". Consequently, the participants promise to "help to halt biodiversity loss, mitigate and respond to climate change, reduce the risk and impact of disasters, improve food and water security, and promote human health and dignity. We will work to enable protected and conserved areas to design [...] responses to these challenges" (IUCN 2014). If this promise is to be delivered within the next decade, nature conservation cannot be restricted to the spaces of protected areas but has to go far beyond territorially fixed boundaries.

ad c)

In addition to purely policy-based interventions, the international conservation framework also launches, promotes and enforces technical instruments that have direct or indirect effects on the managements of protected areas. In this way, the international conservation network forces the locally embedded protection sites into the specific directions; currently, many of them are following the all-encompassing neo-liberal paradigm. Martin Müller (2014, 127) even speaks of "neoliberal conservation" as *the* current trend in conservation. For instance, the METT (Management Effectiveness Tracking Tool) as devel-

oped by WWF and implemented by The World Bank is a standardised tool for "Reporting Progress at Protected Area Sites" (WWF/TWB 2007). Amongst approximately two dozen of similar tools (cf. LEVERINGTON et al. 2010), the METT has direct impacts on projects funded by one of the world´s most important donors. On a more general level, the economical concept of "effectiveness" has been pushed into conservation. Similarly, instruments such as REDD (Reducing Emissions from Deforestation and Forest Degradation), mechanisms for carbon trade-off or ABS (Access and Benefit-Sharing), mechanisms for the "access to genetic resources and the fair and equitable sharing of benefits arising from their utilization" (Nagoya-protocol of the CBD) are emerging. The same applies to Open Standards in Conservation (CMS, WORBOYS et al. 2015, p. 222), and the widely spread concepts for payments for ecosystem services based on TEEB (2010, The Economy of Ecosystems and Biodiversity) also need to be considered in this context. Even if these instruments are still under debate, they have a significant influence on practical matters in the management of local protected areas. Globalised tools permanently demand awareness and trigger activities on a local level.

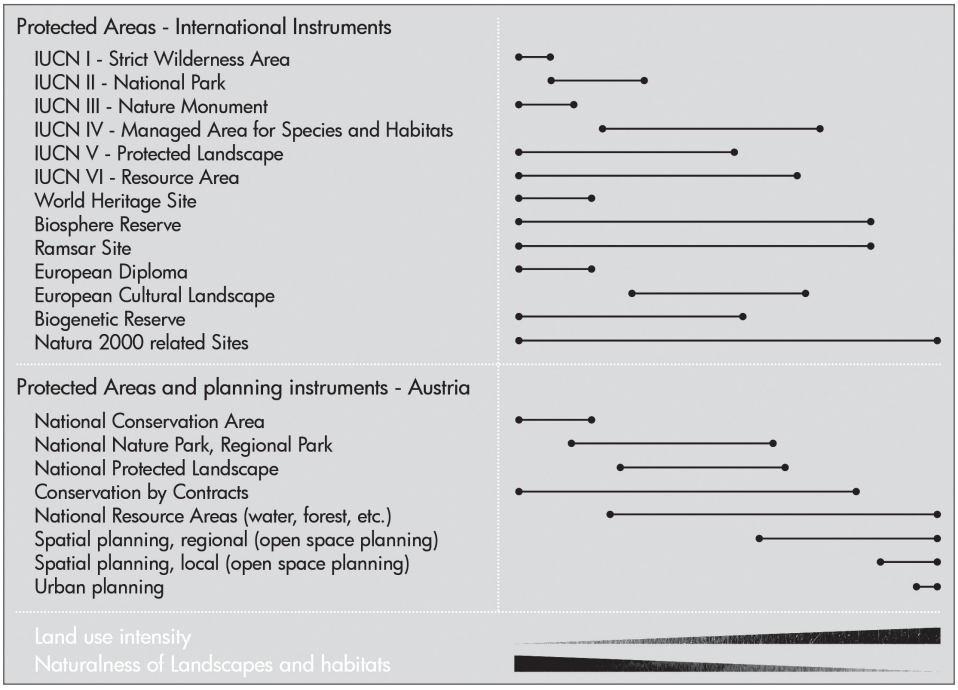
2.5 First steps to break and soften territorial conservation concepts

The mismatch between (global) conservation goals and the restrictions of conservation's most important tool that come with territorially fixed protected areas have not gone undetected. In 1910 Paul SARASIN, mentor of the Swiss National Park that was established in 1914, presented his concept of global conservation ("Weltnaturschutz", cf. SCHOENICHEN 1954, p. 264). This can be considered as one of the first conceptual links between local and international perspectives on conservation. Since then, the dilemma between strictly territorial instruments in nature conservation and non-territorial or international requirements has repeatedly been addressed. To a large extent, this is not only an academic question since the discrepancies show as permanent challenges in the practical management of conservation sites. By and by, different ways to deal with these dilemmas have been developed. However, with regard to opening up the basic territorial concept of protected areas, the considerations so far have fallen too short. The most common attempt tries to mitigate the restrictions of territoriality by mixing protection categories in one site, as shown in the following case study.

In a global perspective, the differences in ecosystems, variations in the cultural attitudes towards nature and objectives of conservation, the multiple denominations in many different languages referring to different legal frameworks lead to a highly confusing picture. It was an achievement requiring the work of half a century to develop and define management categories that follow consistent standards and allow for a global comparison of individual sites. Today, the management categories of IUCN (DUDLEY 2013, see Table 2) are more or less commonly applied. The picture is completed by other international designations, such as "Ramsar" sites, biosphere reserves, world heritage sites, geo parks and many others. On a national or regional level, the international protection schemes are supplemented by many further types of protected areas (e.g. nature conservation sites by national or federal law, nature monuments, protected landscapes). Many of these types re-

fer to international categories, some don't. Furthermore, there are many types of particular designation that are used as instruments for spatial, urban or rural planning.

It is obvious that these instruments relate to different intensities of protection as well as to different types of landscapes, along a gradient from "untouched" nature to urban environments. With the combination of these instruments, any required intensity of protection can be achieved. The Austrian example (Fig. 3) demonstrates that this could allow for a full coverage of conservation schemes by combining different categories. As a side effect, the limits of rigid territorial borders could be diminished.

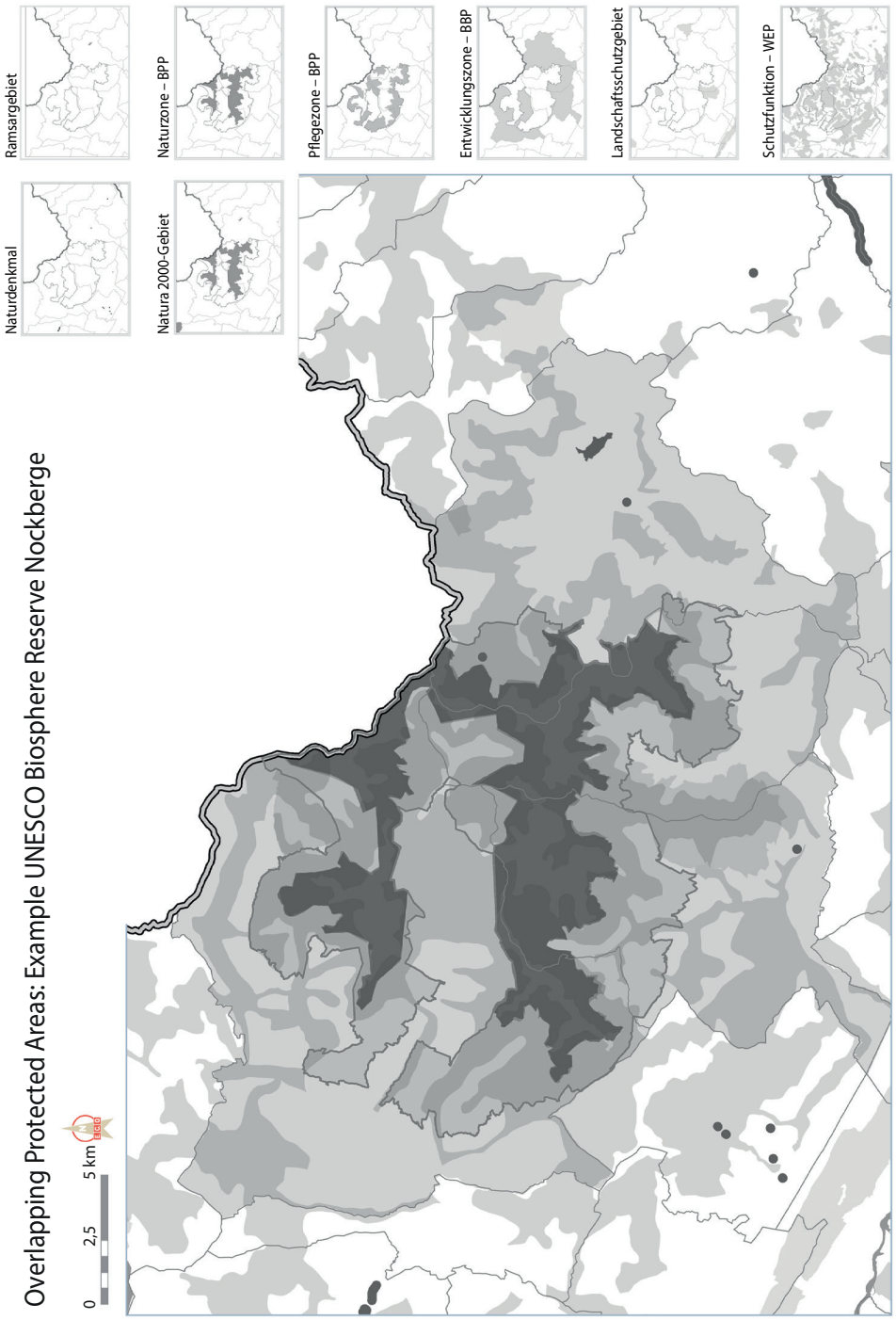


The Figure indicates the relevance of different categories and types of protected areas along the gradient of land use intensity and naturalness (as presented at the bottom of the figure).

Source: Sketch by Anna Kovarovics, based on Jungmeier et al. 2008

Figure 3: Potential for full-coverage protection schemes by combining different categories of protected areas

What seems to offer a good solution on a theoretical level is not being used in practice, since the categories and instruments relate to different institutional and legal frames and do not effectively relate to each other, as can be shown by reference to the biosphere reserve "Salzburger Lungau und Kärntner Nockberge" (Austria) which was recognised by UNESCO in 2012. Figure 4 presents the Carinthian part of this biosphere reserve. Based on a referendum in 1980 a national park was created, which was subsequently converted


Overlapping Protected Areas: Example UNESCO Biosphere Reserve Nockberge
0
2,5
5 km
Naturdenkmal
Natura 2000-Gebiet
Ramsargebiet
Naturzone – BPP
Pflegezone – BPP
Entwicklungszone – BBP
Landschaftsschutzgebiet
Schutzfunktion – WEP

into a biosphere reserve (cf. Gräbner 2014). The zoning of the biosphere reserve follows the requirements of UNESCO, with strictly protected core zones embedded into buffer zones and a development zone, where (sustainable) economic development, infrastructure and settlements are not only allowed but explicitly supported. The biosphere reserve is embedded into and overlapped by further protected areas of different categories, such as two "Natura 2000" sites, a "Ramsar" site, ten natural monuments and different protective forests ("Schutzwald"). The different intensities of protection add up to camouflage-like patterns of conservation. Thus, the border of a specific protected area is smoothed by fuzzy gradients of overlapping conservation regimes. Still, this attempt does not solve the challenges of shifting environments, migrating protecting objects and all the other issues belonging to a dynamic and changing world.

To sum it up: The previous chapter focussed on territoriality in nature conservation concepts with the aim to elucidate in what way the current territorial concept in nature conservation does not match the global conservation goals and to highlight how global demands and (natural and social) dynamics challenge local protection sites. The following chapter focuses on assumptions and certainties in nature conservation that hardly go together with natural dynamics. We try to tackle them with concepts and notions drawn from complexity theory.

3 Fundamental assumptions on conservation – revisited

In the light of degrading landscapes, massive loss of biodiversity, eroding living conditions for millions of humans, the efforts of nature conservation seem to be more than necessary, adequate and highly credited. However, nature conservation is based on assumptions that refer largely to static thinking as well as to narrow scopes of time and space, as we have already tried to show in chapter 2. With the onset of the 21st century, the recognition of *complex dynamics* with networks and fluids rather than fixed states with elements, being non-linear and self-organising rather than linear and controllable, is growing – at least within science (cf. e.g. Lewin 1992; Prigogine 1987; Prigogine and Stengers 1988; Mainzer 2003, 2005; Urry 2003). In this chapter, we examine some of the fundamental assumptions of nature conservation against the background of complexity theory.

3.1 "Conserving" "nature"

The argument in this section is twofold: Firstly, the idea of *"conserving"* nature is examined and, secondly, we will discuss the matter of *"nature"* as the object of nature conservation goals.

Figure 4: Multiple designation patterns illustrated by the example of the Carinthian part of the biosphere reserve "Salzburger Lungau und Kärntner Nockberge"

Source: Sketch by Elisabeth Kreimer, based on material of the biosphere reserve (KAGIS)

ad 1)

Understanding natural (as well as societal) developments foremost as the result of complex dynamics, the idea of "conservation" seems to be – at least – surprising. What exactly should be preserved, facing simultaneously heterarchic and hierarchic elements interacting in a non-linear, complex and mostly self-organising way? How could a conservation of a dynamic be done? And for whom and for what reason should a certain object or process be preserved? With regard to time, the idea of conservation touches at least two timeframes: the present (as the time in which the decision for conservation is reached) and the future (as the – somewhat unspecific – time for which the object or site will be preserved).

Against this backdrop, the idea of "conservation" of nature appears to be closely connected to the notion of monument protection. This seems to be a potentially appropriate measurement for cultural objects such as buildings or monuments; – applying this approach to natural dynamics, however, reveals at least three implicit assumptions: (a) the utopian idea of an ideal world, as the "best of all possible worlds"[4] that could be retained; (b) we, as humans, are capable of "protecting" the complex dynamics of our natural environments from all harm and (c) – which is even underlying the first assumption – we are capable of deciding on measurements to induce "the best of all possible worlds". What might sound like a naive over-simplification of nature conservationists' attitudes, which are thought to have been long overcome, easily shows in any heated debate on nature conservation, which often enough reveals an astonishing amount of romanticism (cf. PICHLER-KOBAN and JUNGMEIER 2015).

Recognising the notions of complexity theory, this understanding of nature "conservation" as well as the assumptions of being able to control, stear and manage complex dynamics seems odd, at any rate. However, any protected area in a way represents this utopia in a focussed tiny spot on this planet, a micro-version of the romanticised idea of nature and a light version of the "best of all possible worlds", so to speak (see for instance the examples in chapter 2.3).

ad 2)

Having many conventions, agreements and institutions woven together with the goal of protecting nature, one could assume that there is a clear understanding of what "nature" is and what it is that we protect when we talk about "nature conservation". Beside the aspect that nature is still widely assumed to be something that is apart from (and opposite to) the human sphere and which has to be protected from humans by humans, there seems to be little doubt about the "nature of nature" among conservationists. Thus, it seems to be clear and non-disputable, what it is that has to be protected, that there is some objective core lying within nature itself – representing a form of realist epistemology. However, within science, the social or cultural constructedness (and thus the contingency) of "nature" has already been pointed out extensively (cf. e.g. CASTREE and BRAUN 1998; DEMERITT 2002; PROCTOR 1998; SIEFERLE 1999).

[4] We gratefully borrow the title of Steven NADLER's (2010) delightful historic-philosophical work on radically divergent worldviews.

However, the following argument shall point beyond the constructivist (or anti-realist) debates. What is called "nature" and what finally will be chosen for conservation is a social process of selections and assessments, embedded into various societal goals and contexts. Thus, "nature", especially as an object of protection, seems to be highly contingent; it is "nature by design" or even "wilderness by design" (Jones 2012, p. 46). With their accentuated title of "civilizing nature", Gissibl et al. (2012) illustrate that any decision on preserving nature is not about keeping it wild and dynamic by excluding it from the human sphere, but rather to include it in the social: "No matter for what purpose wild nature came to be protected, its enclosure was employed not to exclude nature from civilization but rather to incorporate certain forms of valued nature into schemes of national or imperial development" (Gissibl et al. 2012, p. 8). For a definition of "to civilize", they refer to the Oxford English Dictionary, which lists the following entries: "To bring (a person, place, group of people, etc.) to a stage of social development considered to be more advanced; esp. by bringing to conformity with the social norms of a developed society; to tame or domesticate; to conduct oneself in a manner appropriate to the norms of civilized society and to subject to civil order, to subdue, pacify" (ibid).

Already in 1921, the Canadian entomologist Charles Gordon Hewitt elucidated the conservationists' mission as "to prove that the advance of civilization into the more remote sections of Canada does not imply the total destruction of the wild life, but that civilization in its true sense signifies the elimination of the spirit of barbarism and the introduction of an enlightened attitude" (Hewitt 1921, pp. 1f; quoted by Gissibl et al. 2012, pp. 8f). The "enlightened attitude" that should be introduced into the "spirit of barbarism" is a motif that still is powerful in conservationists' narratives; although diction and pathos of the quote seem to be much too strong nowadays, it may illustrate the implicit assumptions on conservation mentioned in the section above.

The selected "nature" for protection (see also chapter 2.2) thus turns out not only to be cultivated by us for putting on display in a conservation area, but rather is deeply rooted in social processes and could, thus, be handled as an inherent cultural product. Moreover, from an environmental history perspective, all that we address as "nature" has developed in a co-evolution with us humans, at least during the last 200,000 years, since *homo sapiens* first appeared on the stage, creating so-called socio-natural settings through interactions with the natural environment (cf. e.g. Schmid 2009; Winiwarter and Bork 2014).

The current scientific debate about the Anthropocene as the newest geological epoch even sharpens this notion, giving us humans a much greater agency than previously perceived. The major argument of the hypothesis of the Anthropocene stresses that we humans and our societies have not longer a symbiotic relationship with nature in the sense of co-creation and co-development as formulated in environmental history. We humans rather modify and transform *all* processes in nature to such an extent that we humans have to be acknowledged as a natural force. If taken seriously, the hypothesis of the Anthropocene thus requires a fundamental revision of almost every (western scientific) concept of the relation of societies, humans and nature, as well as of our concepts of ourselves as humans. The traditionally so distinct division in spheres of nature and spheres of culture, that also forms the basis of nature conservation, diminishes (cf. Egner 2017).

To clarify and sum it up: This is not an attempt to eliminate "nature" in nature conservation. If so, nature conservation would lose its core argument and this cannot be (and definitely is not) the goal of this paper, especially in the face of the on-going loss of biodiversity and eroding living conditions for animals, plants and humans. Our arguments aim at a higher recognition of our responsibility in the process of conservation as well as at the appreciation of "nature" as part of social selection and assessment decisions. It is not only about some animal or plant that has to be protected in a certain spot or terrain here and there, nor is it enough to protect "processes" in connected and continuous areas, as it is done in process conservation. Rather, it is about the question which areas or objects we select and designate as "nature", for what reason and what to perform which what function in our society. And, to be aware of the contingency of these processes and functions we select and "protect".

3.2 Nature in equilibrium and the disturbance by human activities

The concept of nature that shapes nature conservation and environmental management is – mostly implicitly – very closely linked to the notion of equilibrium, which is assumed to be one of the driving forces within natural dynamics. Following this assumption, nature is normally in "balance" and the equilibrium is presumed to be the *telos* of nature. From this perspective, human activities cannot be interpreted in a way other than as disturbance and disruption, despite our jointly shared history in the co-evolution of nature and society. Against the background of a presumed nature in balance, it is a challenge for protected areas to keep their "inventory" in a certain state. Consequently, LOCKWOOD et al. (2006, pp. 223ff) discuss some thirty threats that hinder protected areas in achieving their goals. Besides seven underlying causes (such as human population growth, inadequate economic systems, dysfunctional social, cultural or political relations), they name six "indirect threats" (such as climate change, inappropriate land- and sea-use decisions, poverty, etc.) and seventeen "direct threats" (such as illegal activities, introduced animals and plants, mineral resource extraction or unsustainable visitor use, etc.).

Referring to the Living Planet Index (WWF 2014, p. 20), major threats to endangered populations are exploitation (37 %), habitat degradation and change (31 %), habitat loss (13 %), climate change (7 %) and others, such as invasive species, pollution or diseases (12 %). It is due to the assumption of nature as striving for an equilibrium, combined with the idea of "conservation" in terms of preserving a certain state of nature, that changing habitats, climate change or roving and straying plants and animals are defined as "threats" to a protected site. Neophytes, for instance, can only be seen as "neo"phytes, if the respective plants were not there, at the time the "inventory" of the park was executed (see also example 3 in chapter 2.3). Thus, they cannot and do not belong to the configuration of the protected site. Obviously, change and dynamics are not yet integrated into the idea of conservation. Thus, migrating plants and animals (or even the changing climate), which happily ignore the demarcation lines and specific protection zones, are not part of the concept of the protected area and, consequently, are defined as "threats".

In ecology, a paradigm shift is appearing on the horizon, turning away from such assumptions of nature in equilibrium towards a "new ecology" emphasising contingency, chance and chaos (Eden and Bear 2011, p. 394; cf. also Cooper 2001; Zimmerer 2000). Viewing the ecosystem with those systems' theoretical perspectives that are based in the "scientific amalgam" (Thrift 1999, p. 33) of complexity theory, nature shows up as a set of complex systems involving multiple components in heterarchic and hierarchic ways, operating in a self-organising manner, showing more nonlinear than linear behaviour, with the result that patterns and structures can form spontaneously (e.g. Bose 2013; Bracken and Wainwright 2006; Harrison et al. 2006; Malanson 1999; Prigogine 1987). Such dynamics cannot be managed or controlled within the set of linear measurements permitted by the usual management tools (cf. Egner 2008a, 2008b). While it is established that self-organising systems "are open and away from equilibrium" (Bose 2013, p. 362), they can, however, have steady states (ibid, p. 360). But the assumption of stability also needs to be revisited, since the stability concept turns out to be unstable, too (cf. McCoy and Shrader-Frechette 1992).

Of course, both, equilibrium and steady states are a question of scale in time and space. While they can be found in short-term perspectives and comparatively small areas within natural environments, any up-scaling of the level of observation quickly reveals a different picture. Even though nature conservation in general aims to provide a long-term contribution to large-scale conservation goals, the prevailing devotion to equilibrium and steady state is proving to be counterproductive, since it reveals largely static thinking and far too narrow scopes of time and space. In addition to the open question of this article of how to conceptualise non-territorially fixed conservation, more research as well as training is needed to develop tools and expertise in complex adapting management systems (e.g. Ratter 2000).

4 Further perspectives: Nature conservation in the Anthropocene?

How to proceed? In 2000, the meteorologist and Nobel Prize winner for atmospheric chemistry, Paul Crutzen, nearly incidentally mentioned the term "Anthropocene" at a UN conference on global environmental change, hinting at the point that the consequences of human activities on our planet have reached such a massive impact that we have already proceeded to a new geological epoch and left the preceding planetary era, the Holocene, behind (Crutzen and Stoermer 2000; Crutzen 2002).

By coining this term, Paul Crutzen set off an intense debate within and beyond science. At the 35th International Geological Congress in Cape Town in 2016, the Anthropocene has been formally approved as a geological unit within the Geological Time Scale (i.e. at the same hierarchical level as the Pleistocene and Holocene epochs, with the implication that it is within the Quaternary Period, but that the Holocene has terminated; cf. Zalasiewicz et al. 2017). Obviously, there is much evidence to designate a new period of Earth's history during which humans have a decisive influence on the current state and the future dynamics of natural systems on our planet (Steffen et al. 2007, 2011; Zalasiewicz et al. 2010, 2011).

Thus, the hypothesis of the Anthropocene is used to point to the assumption of the collective impact of humans on the physical, biological, and chemical processes on Earth, which are complex in time and space. Far beyond the decision of the International Commission on Stratigraphy, the Anthropocene has already proved to be a very catchy scientific term with an exponential increasing number of (scientific) publications month by month and a growing popularity among the scientifically engaged public, the media and – to a surprisingly high degree – artists.

An acknowledgment of the thesis of the Anthropocene can be understood as a kind of affirmation of the hotly debated climate change research. However, the thesis of the Anthropocene is not only about new terms or new stratigraphic entities in the geological understanding. Rather, it could mark a fundamental turning point in our thinking and in the acknowledgement of our responsibilities. The thesis of the Anthropocene implies a concept radically different from many precursors, such as the concept of sustainability, for instance: Humans and their societies do not have a symbiotic relationship with nature but rather modify natural processes (Austin and Holbrook 2012; Steffen et al. 2007). Consequently, the challenges of the Anthropocene are not only about adapting human activities to keep them within "a safe operating space for humanity" (Rockström et al. 2009), and for this staying below a specific temperature increase, for instance, such as 2 °C or 4 °C, as the warners of climate change proclaim.

The thesis of the Anthropocene would rather enforce a revision of almost every concept of the interrelation between humans and nature, but also of our concepts of ourselves as humans, as well as our responsibilities as scientists. By this, our efforts might even have to go far beyond the idea of learning from the past to gain future possibilities, as it is suggested and pursued in the project IHOPE ("Integrated History and Future of People on Earth", e.g. van der Leeuw et al. 2011). Instead, it is an opportunity to question all traditional thinking and practices.

Against this background, the emerging necessity to consider non-territorial nature conservation, i.e. environmental management with fluid zones and fuzzy borders, nicely contributes to the greater context of the thesis of the Anthropocene and its incipient process of fundamental revision of the interactions between human and nature and culture and society (cf. Egner 2014, 2017). Taking the question of nature conservation and preserving biodiversity as one of the core fields, we see it as a very good opportunity to try and overcome the traditional dualistic approach and to mitigate the contested dynamics, which by now seems to be an unavoidable part of any conservation matters.

In the age of the Anthropocene, "nature conservation" is be understood as the call for acknowledging our co-species – and maybe even inanimate nature such as geological forms (cf. Yusoff 2015) – on an equal footing. When the traditional division (and separation) of distinct spheres of nature and culture is no longer sustainable, nature and its conservation can no longer be treated as an "externality" (Lessenich 2016), which pays the prize for our way of live as the "other". Even if protected areas already have been described as "other spaces" with their important role for the self-reflexivity of societies and the formation of practices in our connection with nature (cf. Vilsmaier 2016), their function as laboratories for a truly sustainable living, in which nature is treated on equal footing and with respect, still has to be developed. The concept of biosphere reserves, as

developed and advocated by UNESCO („Learning Sites for Sustainable Development“) has the potential to address most of these issues.

Absolutely innovative developments come from a very different side: The surprising decisions of the Constitutional Courts of Colombia, India and Australia (taken independently from one another) in 2016 and 2017, with which they endowed legal personhood to one of their mostly degraded rivers, could be understood as first attempts of a radically new encounter with nature. The river as subject of personal rights transcends the taken for granted division of the world into (human) subjects and (non-human) objects and forces us to a fundamental revision of our world-views. Granting personal rights to entities that have so far been perceived as objects that are to our disposal does not necessarily contribute to question the territorial paradigm of nature conservation, but it surely challenges the (recently neo-liberal grounded) management practices in protected areas – protecting (potential) subjects needs at any rate different approaches than protecting objects. This is a paradigm shift that will take a good measure of time – the decisions of the Constitutional Courts of Colombia, Australia and India so far only pointed the way.

Instead of creating more and more territorially fixed protected areas and asking whether those protected areas “work” or not, the discussion should focus on asking what the social, societal and ecological gains (and losses) are that the designation of protected sites brings about, who – including our co-species and the inanimate nature – and in what way will experience the gains and who and in what way will experience the losses. For the implementation of new (or for the adaptation of existing) protected areas, the question “where will conservation action protect the most species”, as put forward by the project “Half Earth”,[5] should serve as the uppermost maxim. This alone would mark a radical shift in the selection processes which are so far too often dominated by pragmatic consideration trying to avoid or at least to reduce the number of conflicts and, by this, supposedly to save money. Changing the selection processes may lead to an enlargement or a reduction of existing protected areas, as well as to a far more connected network of protected areas, with corridors and bridges, increasing the ecological connectivity and allowing natural dynamic to flow and grow.

The question of nature conservation in the Anthropocene is, once again, about the crucial question of how we want to live and how we will be able to preserve our living conditions. Against the background of the accelerating rate of species extinction and global environmental degradation, it is high time to start a lively debate on these questions – in the public and in the circles of the global conservation communities – and to terminate the still persisting form of externalisation, in which our (protected) nature pays the price for our way of live.

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[5] The Half-Earth Project is based on the idea of E. O. Wilson and is “working to conserve half the land and sea to safeguard the bulk of biodiversity, including ourselves” (*www.half-earthproject.org/*). Even if the proclaimed goal of the project (“set half the earth aside for our co-species”) seems too ambitious for our current dominant neo-liberal mindset, it points to *the* important issue with regard to our living conditions: It is about the preservation of biodiversity and not: about regional development.

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