

# Chapter 11

## Towards a European Policy for Rewilding

Laetitia M. Navarro and Henrique M. Pereira

**Abstract** Millions of hectares of agricultural land could be released from human pressure within the next decades in Europe. Rewilding presents a great opportunity to restore the abandoned landscapes, along with the biodiversity and the supply of those ecosystem services that were until now restricted to the remaining few wild areas of the continent. As a result, rewilding is in a dire need of a policy framework in the European Union, to promote its implementation as a land management option, to evaluate its outcomes, and to share knowledge and good practices among stakeholders. In this chapter, we review the history of conservation policies and protected areas in the EU, the implementation of the Natura 2000 Network being one of the major milestones. We also discuss the role of conservation in sectoral activities such as agriculture. We present the growing importance given to wilderness areas and the inclusion of wilderness management into European policies. We then evaluate the contribution of wilderness and rewilding to the achievement of global and EU targets. Finally, recommendations are made to efficiently and adequately include rewilding into the European framework of conservation policies.

**Keywords** Nationally Designated Protected Areas · Natura 2000 · High Nature Value Farmland · Agri-Environmental Schemes · Wilderness · Conservation targets · Land management policies

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## 11.1 Introduction: A Historical Perspective

Though evidence of land conservation goes back several thousands of years in Europe, the concept of protected areas was first implemented across the continent by the fifteenth century, when poaching and logging were banned from royal hunting forests by the nobility in order to protect the game (Jones-Walters and Čivić 2013; Possingham et al. 2006; Ramão et al. 2012). Those protected areas (PAs) were designed to preserve a given resource (e.g. timber or game), rather than to preserve nature in general. It was not until the nineteenth century that landscapes would be preserved for their “natural beauty”, following a movement initiated in Germany to preserve *Naturedenkmal*, i.e. nature monuments (Jones-Walters and Čivić 2013). At the same time, the first “National Parks” (NP) were designated in the USA, in Yosemite NP, in 1864, then Yellowstone NP, in 1872 (Possingham et al. 2006), with the aim of preserving nature for recreational, cultural and ethical reasons (Borrini-Feyerabend et al. 2013). In 1909 the first European park was created in Sweden (Pinto and Partidário 2012; Ramão et al. 2012). Yet, it was not until the second half of the twentieth century that the official definition of “National Parks” was given by the IUCN as the first resolution of its 10th assembly (IUCN 1969).

The 1970s later mark a change in the way Protected Areas were managed in Europe, shifting from strict protection to the acknowledgment of the role and needs of local communities and other stakeholders, and their integration in the management of the landscape (Jones-Walters and Čivić 2013; Ramão et al. 2012). In 1971, the UNESCO launched the Man and Biosphere (MAB) program, leading to the concept of Biospheres Reserves in 1974 (Coetzer et al. 2014). It was followed, 20 years later, by the establishment of the World Network of Biosphere Reserves (UNESCO 1996), with a particular focus on the involvement of local communities, and their sustainable use of the resources present within the area. 1971 is also the year of the signature of the Ramsar Convention, for the global cooperation and conservation of wetland habitats (Possingham et al. 2006). In 1972, the UNESCO also signed the “Convention concerning the Protection of the World Cultural and Natural Heritage” (World Heritage Centre 2013). The first EU Natural Heritage Sites were established in 1979, in Croatia (Plitvice Lakes National Park) and in Poland (Białowieża Forest). In 2013, the EU28 counted 27 “natural” and 6 “mixed” Heritage sites (whc.unesco.org). More recently, wilderness areas have been given more importance in the EU, including with the acknowledgment of their role in biodiversity conservation (European Parliament 2009), while the abandonment of remote agricultural areas can be seen as an opportunity to increase the area of wild land via rewilding (see Chap. 1).

In this chapter, we first present the status and trends of current biodiversity conservation in the European Union, via the national designation of Protected Areas, the Natura 2000 network, and agri-environmental schemes. We then discuss the recent integration of wilderness in the EU conservation framework, along with the potential of rewilding abandoned farmland. We evaluate rewilding and wilderness

conservation in regards to the achievement of the global and European conservation targets set for 2020. This chapter only discusses continental conservation and marine protected areas were removed from the analysis.

## 11.2 Current Conservation Policies in the EU

### *Nationally Designated Protected Areas*

Nationally Designated Protected Areas (NDPAs) encompasses a variety of designations: “national park”, “regional park”, “nature park”, “nature reserve”, “biosphere reserve”, “wilderness area”, “wildlife management area”, “landscape protected area”, and “community conserved area” (Dudley et al. 2008; Ramão et al. 2012), which also vary greatly in their management policies. When countries are divided into “federal” states (e.g. Spain, Germany), each entity can also have regional designation policies. Moreover, some countries protect specific ecosystem nation-wide (e.g. wetlands in Croatia, rivers in Portugal), without designating them within their protected areas (Ramão et al. 2012). More than 31 % of the European NDPAs cover forest ecosystems, while agro-ecosystems are represented in over 28 % of the areas (Ramão et al. 2012). These areas also tend to be designated in mountain regions, due to their remoteness and the resulting lower human densities.

The IUCN defined, in 1994, six protection categories for the NDPAs (Dudley et al. 2008), based on the level of management and the allowed degree of human activity (Table 11.1), though not all areas are yet classified, or even registered as such. In practice, the managers of a given protected area report its protection category on a voluntary basis. Out of the 68 % of NDPAs classified by IUCN categories in Europe ( $N=52,995$ ), the vast majority belongs to category IV, Habitats/Species management areas (Table 11.1). However, category V (Protected landscape/seascape) covers the largest area on the continent. It is also interesting to observe that the strictest PAs in terms of management (Categories I and II) are not the most common, both in terms of number and area, with coverage of 20 % of the total protected areas. Nonetheless, although comparatively few areas are in category II (National Parks), they cover an area almost similar to the most represented type of protected area, category IV (respectively 88155 and 88352 km<sup>2</sup> in Table 11.1).

The historical distribution of the different types of NDPAs matches the history of the European perception of the role of protected areas. From the 1950s to the mid-1960s about half of the PAs were in the most restrictive categories (mostly national parks, Cat.II), while the other half were managed with the inclusion and/or tolerance of human activity (Fig. 11.1). In the 1970s there was a large increase of PAs designated as the less restrictive category V (Protected landscape). Currently, the IUCN categories II and I represent less than a quarter of the total classified PAs of Europe (Fig. 11.1).

**Table 11.1** Description of the different IUCN categories for protected areas and contribution of the continental Nationally Designated Protected Areas of Europe to those categories. (Dudley et al. 2008; EE/A 2013a)

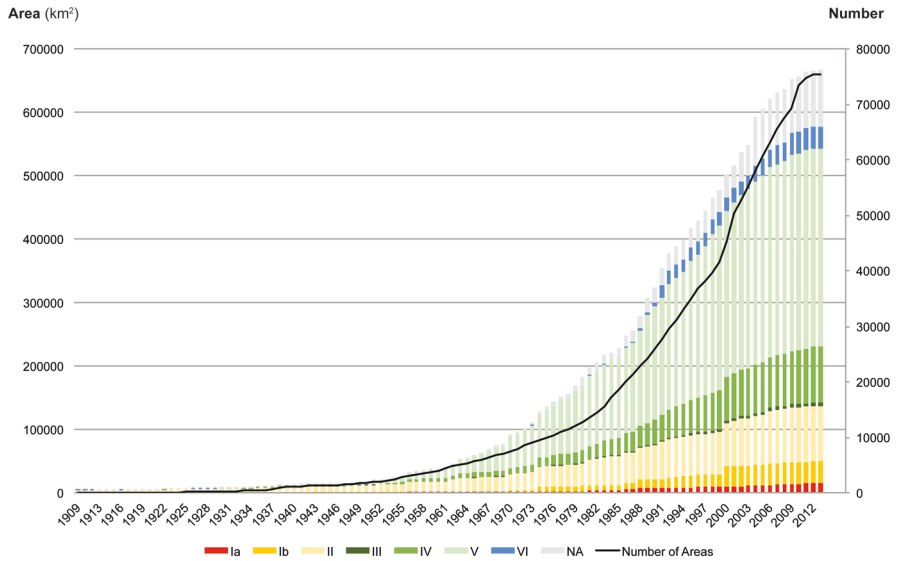
Category	Name	Management type	Detail	Number (%)	Total area in km <sup>2</sup> (%)
Ia	Strict nature reserve <sup>a</sup>	Strict protection	Strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphological features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values. Such protected areas can serve as indispensable reference areas for scientific research and monitoring	4514 (6%)	14549.18 (2%)
Ib	Wilderness area	Strict protection	Usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition	1207 (2%)	34672.43 (5%)
II	National park <sup>b</sup>	Ecosystem conservation and protection	Large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities	320 (<1%)	88155.57 (13%)
III	Natural monument or feature	Conservation of natural features	Protected areas set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value	3124 (4%)	4571.65 (1%)

Table II.1 (continued)

Category	Name	Management type	Detail	Number (%)	Total area in km <sup>2</sup> (%)
IV	Habitat/species management area	Conservation through active management	Protected areas aim to protect particular species or habitats and management reflects this priority. Many category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category	31654 (41%)	88352.17 (13%)
V	Protected landscape/seascape	Landscape/seascape conservation and recreation	A protected area where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and scenic value, and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values	10837 (14%)	319117.34 (47%)
VI	Protected area with sustainable use of natural resources	Sustainable use of natural resources	Protected areas conserving ecosystems and habitats, together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in a natural condition, where a proportion is under sustainable natural resource management and where low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area	1339 (2%)	35044.49 (5%)
Not classified		N/A	N/A	24420 (32%)	97781.40 (14%)

<sup>a</sup> Two protected areas were assigned to category I, without distinction between Ia and Ib, and were not counted in this table

<sup>b</sup> Areas designated as “National parks” in Europe can fall in different IUCN categories than II



**Fig. 11.1** Temporal evolution of the number of Nationally Designated Protected Areas in Europe, and the total area protected. The NDPAs are classified according to the IUCN categories, NA meaning that the area was not yet classified. (EEA 2013a)

### *Birds and Habitats Directives*

The Council of Europe signed the Bern Convention in 1979 to give a legal framework for the conservation of biodiversity on the continent (Jones-Walters and Čivić 2013). This was followed by the adoption of the Birds Directive by the nine Member States of the EU in April 1979 (79/409/EC), to respond to worrying decreases in bird populations observed on the continent, and acknowledging that some species of birds are a European heritage and that the conservation of migratory species is a transboundary matter. The Directive was later amended, as new Member States joined the EU and was updated in November 2009 for the EU27 countries (Directive 2009/147/EC).

The directive’s articles engage the Member States, *inter alia*, into maintaining populations at viable levels, creating protected areas and managing bird populations within and outside those areas. Particular attention should be given to bird species in Annex I (193 species), while species in Annex II (82 species) may be hunted under national legislations. The directive resulted in the creation of Special Protection Areas (SPAs), which number increased steadily, including with the addition of new Member States to the European Union.

The Birds Directive was followed, 13 years later, by the Habitats Directive (92/43/EEC), adopted in May 1992. This directive emphasizes the conservation of biodiversity via the conservation of “habitats, wild fauna and flora”, in a context of sustainable development for the continent. A total of over 230 habitat types and

over 1000 species of animals and plants were selected. Country specific lists of Sites of Community Importance (SCIs) were then evaluated by the Commission, before being implemented as Special Areas of Conservation (SACs) by the Member States (European Commission, 2002; Gaston et al. 2008a). The Habitats Directive further aimed at building a “coherent European ecological network”, the Natura 2000 Network, which would encompass the Protected Areas created under the Birds Directive of 1979, the SPAs, and the newly designated SACs. The contribution of each EU country to the Natura 2000 network depends on the proportion of habitats (in annex I) and habitats for species (in annex II and IV) present within their borders.

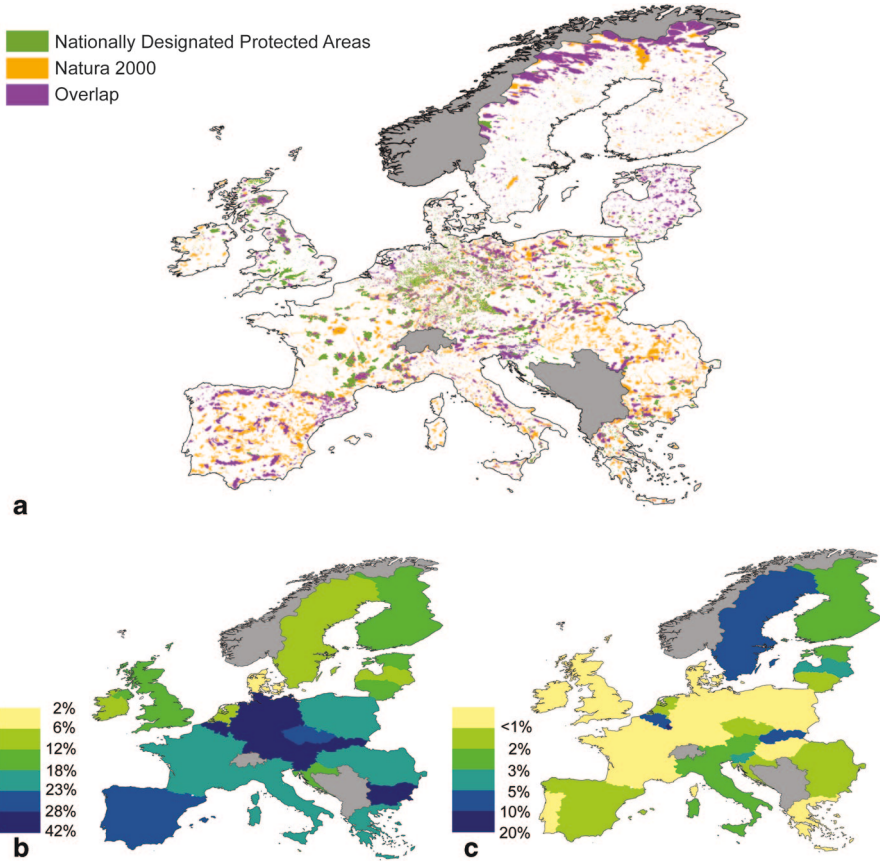
The management of the Natura 2000 areas is the responsibility of each Member State, which can delegate and decentralize to federal or regional agencies (European Commission 2002). Traditional European landscapes may serve as a conservation baseline (Gaston et al. 2008a), as the guidelines on Natura 2000 site management emphasize the importance of ensuring “the continuation of traditional management regimes, which very often have been critical in creating and maintaining the habitats which are valued today” (European Commission 2002).

The Natura 2000 network is a unique example of a regional, transboundary, and unified network of protected areas (Crofts 2014; Hochkirch et al. 2013). As of 2008, Denmark and the Netherland had reached 100% of their sufficiency for the Habitats Directive Annex I habitats and Annex II species, meaning that their network of PAs covered at least one instance for 100% of the habitats and species of the annexes that had a known distribution on their territories (EEA 2009a). The rest of the EU Member States had between 70 and 99% of sufficiency, with the exception of Lithuania (61%), Czech Republic (59%), Cyprus (25%) and Poland (17%). The Natura 2000 Network is now shifting from establishing the areas to defining proper coordinated management strategies (European Commission 2013).

### ***Overall Picture of Protected Areas in the EU***

The ensemble of protected areas in the European Union, composed of Nationally Designated Protected Areas (NDPAs), Special Areas of Conservation (SACs), and Special Protection Areas (SPAs) is extensively covering the continent (Fig. 11.2a). As of 2013, the EU28 counted over 77,000 terrestrial NDPAs and nearly 23,000 continental Natura 2000 areas. Yet, 30% of the area protected in Europe represents an overlap between a type of designation or another. As a matter of fact, in some countries, such as Spain, Slovenia, and Estonia, the Natura 2000 areas almost entirely overlap with NDPAs (Fig. 11.2a). At the European scale, the overlap is particularly true for NDPAs in the IUCN categories I to IV (Ramão et al. 2012).

The majority of the Member States count more than 18% of their territories in a protected area (Fig. 11.2b). Nonetheless, the map of Europe depicts a different picture when focusing on the most restrictive conservation categories of the IUCN (Categories I and II on Fig. 11.2c): most countries have less than 3% of their area in those categories. Sweden, Belgium, and Slovakia are the only countries protecting



**Fig. 11.2** Spatial perspective on European protected areas (EEA 2013a, 2013b). **a** European network of Nationally Designated Protected Areas, Natura 2000 sites, and overlap between the two designations; **b** Proportion of each EU28 country within a protected area (Nationally Designated Protected Areas and Natura 2000 sites); **c** Proportion of each EU28 country within a protected area in category I or II of the IUCN

more than 5% of their national area as a strict nature reserve, a wilderness area, or a National Park (Fig. 11.2c). Natura 2000 areas overlapping with NDPAs classified as categories Ia and Ib represent 4% of the network (European Commission 2013).

The EU Protected areas tend to be created in high and remote areas, with lower productivity (Dudley et al. 2008; Gaston et al. 2008b), and with less regard for the habitats and the species that inhabit them than for the availability of the land. Nonetheless, conflicts might arise with local populations when an area used for resource extraction is set to be strictly protected. Such tensions are exacerbated by strictly top-down approaches, i.e. with the lack of consultation of local stakeholders in the establishment of a PA, which is often the case with the establishment of Natura 2000 areas (Crofts 2014). On the contrary, less restrictive categories, or “multiple use” PAs are typically more easily accepted (Possingham et al. 2006).



Moreover, designating a protected area is one thing, but establishing it *in situ* and managing it efficiently will depend on the financial and political supports of the local governments (Leverington et al. 2010; Pinto and Partidário 2012). As a result, designated PAs might suffer from a lack of adequate monitoring budget and trained staff (Hochkirch et al. 2013). The Natura 2000 Network has also recently been criticized for its lack of flexibility, adaptability, and monitoring (Crofts 2014; Hochkirch et al. 2013).

### 11.3 Agriculture and Conservation

Extensive agriculture is often associated with high biodiversity (EEA 2004; Halada et al. 2011). As a result, the concept of “High Nature Values Farmland” (HNVF) was introduced in the 1990s and now represents 15–25% of the EU countryside (EEA 2004). High Nature Value Farmland areas typically depend on human activities, which maintain them by blocking the process of natural successions (EEA 2004; Halada et al. 2011; Merckx and Macdonald, *in press*; and see Chap. 6). In particular, some of the Natura 2000 sites are covered on more than a fourth of their area by extensive farmland (EEA 2004). In a review of the 231 habitats types of the Annex I of the Habitat Directive, Halada et al. (2011) identified 63 habitats depending on agricultural practices for their management, 23 of which are “fully dependent”, while 40 “partly depend” on agriculture, mainly due to the prevention of natural successions.

High Nature Value Farmland areas are currently threatened by two opposing forces, intensification of agriculture on the one hand, and rural depopulation and farmland abandonment on the other hand (EEA 2004, 2009b). In 2003, the Kyiv Resolution on Biodiversity, made the identification and preservation of HNVF a conservation goal (EEA 2009b). This EU conservation strategy was later integrated into the second pillar of the CAP. Agri-environment schemes (AES) and other EU subsidies thus became a tool for High Nature Value Farmland conservation (EEA 2004).

Additionally, though the European Parliament recently stated that the EU biodiversity policies were not well integrated into other sectoral policies such as energy, transport, and agriculture (European Parliament 2009), agri-environmental policies have attempted for quite some times to better integrate agricultural productivity and biodiversity conservation. Currently, EU funds address the relationship between farmers and conservation in two ways. On the one hand, the EU compensates farmers receiving a lower income due to environmental restrictions. On the other hand, the EU created incentives for farmers to develop an environmentally friendly agriculture. Both forms of subsidies are not exclusive. Following the 2003 amendment of the regulation on Rural Development of the EU (1783/2003), farmers will receive monetary compensations for the “costs incurred and income foregone” resulting from the classification of their land as a Natura 2000 site according to Article 16(1). Articles 22–24 of the same regulation directly address AES, and how “support should be granted to farmers who give agri-environmental [...]

commitment for at least 5 years” (Article 23). The subsidies are destined to cover the “income foregone”, “additional costs resulting from the commitment”, and “the need to provide an incentive” (Article 24). The payment of subsidies and the implementation of agri-environmental policies vary greatly from one Member State to the other (EEA 2009b).

Nonetheless, the consequences of subsidizing nature conservation through the Common Agricultural Policy are debatable. First, a contradiction can emerge when the first pillar of the CAP favors intensive and productive agriculture on one hand, and hence fragments natural habitats (Crofts 2014; EEA 2009b; Henle et al. 2008), while, on the other hand, the second pillar incents farmers to develop environmentally friendly practices. Additionally, the compensations paid to farmers in Least Favored Areas (supported by the second pillar of the CAP to limit farmland abandonment) poses no real limits to intensification and overgrazing, provided that farmers follow country-specific “good farming practices” (EEA 2004). There is also no direct link between the amount spend in CAP subsidies per ha and the level of High Nature Value Farmland in an area (EEA 2004, 2009b; Halada et al. 2011). Finally, the payments of CAP subsidies in remote and less productive areas can appear inadequate so far. The phenomenon of rural depopulation was initiated in the 1950s in Western Europe, driven by socio-economic factors interacting to create a “circle of decline” in those remote areas (MacDonald et al. 2000; Rey Benayas et al. 2007), which is not likely to be interrupted, despite the rural development policies that have been implemented, and the resulting payment of subsidies (see Fig. 1.3 in Chap. 1).

The direct consequence of the phenomenon of rural depopulation is the abandonment of farmland in the less productive areas of the EU (see Chap. 1). Agricultural land abandonment is typically perceived negatively in developed countries (Meijaard and Sheil 2011; Queiroz et al. 2014), as a result of, *inter alia*, observed land encroachment, increased risk of fires, and decreases in populations of farmland birds. Yet, the withdrawal of human activities from those areas is also an (often disregarded) opportunity to increase the area of wilderness in the EU by applying rewilding as a land management policy.

## 11.4 Opportunities for Wilderness and Rewilding

Wilderness is both an ecological and social concept. The ecological meaning and extent of wilderness is multi-dimensional and varies depending on the metrics used (see Chap. 2). Wilderness is typically associated with the (quasi) absence of human impact, the large size of the area (e.g. 10,000 ha), and the naturalness of the dynamics that govern ecosystems (European Commission 2013; Fisher et al. 2010). The social and subjective concept of wilderness and wildlands is, for example, associated with the notions of remoteness and solitude (Fisher et al. 2010; Fritz et al. 2000). As a result, the definition of wilderness by the various people experiencing it will also depend on their perceptions of such areas (Nash 1967). Probably one of the

most well known definition was given by the Wilderness Act of 1964 in the United States as “ [...] an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain.” (US Congress 1964). An area characterized as “wilderness” will thus be managed by “no-intervention” or “set-aside” practices (European Commission 2013). Europe is one of the continents with the least amount of wilderness (Mittermeier et al. 2003), mainly due to its long history of human induced land-use changes (see Chap. 8). Currently, the wilderness of the EU28 is mainly located in Scandinavia and in mountainous areas (see Chaps. 2 and 3).

Globally, wilderness and protected areas do not necessarily coincide. Though some wilderness areas might not currently require protection (e.g. due to their remoteness), wilderness conservation is a proactive measure that could pay off in the near future (Brooks et al. 2006). Using human density, size of the area, and historical intactness as metrics, Mittermeier et al. (2003) found that only 7% of the world’s remaining wilderness was included in Protected Areas of IUCN categories I to IV. When looking into all types of Protected Areas in Europe, there is little to no correlation between the location of Nationally Designated Protected Areas and Natura 2000 areas with higher values in the Wilderness Quality Index (Fisher et al. 2010). However, there is a correlation between the occurrence of areas under the IUCN Categories I and II and high wilderness quality (Fisher et al. 2010). The number of Nationally Designated Protected Areas in Europe that falls under the IUCN Ib category (“wilderness areas”) are located mainly in Sweden, Estonia, Slovakia, and Slovenia. Only 12 of the 28 EU Member States manage PAs designed in categories Ia or Ib, with different national legislation regarding the designation, the size of the area, the type of management and the level of human activity allowed (European Commission 2013).

Nevertheless, European wilderness is progressively gaining more importance, both in science, in conservation policy and at their interface. Its role in halting biodiversity loss was officially recognized (European Parliament 2009; Jones-Walters and Čivić 2010), with a will to include wilderness in the post-2010 targets. As a result, the European Parliament called for an effort to define both wilderness and the benefits derived from it, and for a better integration of wilderness in conservation policies. A special attention was to be given to wilderness areas within the Natura 2000 network. Indeed, some conceptual conflicts can arise when the non-interventional management of wilderness areas goes against the management of secondary (semi-natural) habitats of Annex I, such as the “European dry heaths” and “Dehesas with evergreen *Quercus spp.*” (Halada et al. 2011), unlike primary habitats, which rely on natural processes, for example “Western Taiga” and “Bog woodlands” (European Commission 2013; Fisher et al. 2010).

The European Commission (2013) recently published guidelines on the management of wilderness areas within the Natura 2000 Network. Though not legally binding for the Member States, they illustrate the will to include wilderness in EU conservation policies. The guidelines state that management practices for wilderness in the Natura 2000 network can involve the total or partial interdiction of

human activities. When applicable, zonation can be used to define an area of non-intervention management for the wilderness core habitat, and a managed zone for secondary habitats. The guidelines also emphasize the importance of addressing local communities, to explain them the functioning of non-intervention management, and the benefits they could derive from it. Finally, scale has its importance in the designation and management of wilderness areas, as too little, or too fragmented land would not meet the criteria to allow for natural processes (European Commission 2013).

With the ongoing trends of farmland abandonment occurring on the continent, and the momentum gained by wilderness, rewilding appears as a valid land management option (see Chap. 1). It consists in the restoration of ecological processes and self-sustaining ecosystems, either passively, or with low to mild levels of intervention early on if the land-use history requires it (see Chaps. 7 and 8). Rewilding has proven to be beneficial to both biodiversity and human well-being (see Chaps. 1 and 3).

Increasing the area of wild land via the rewilding of abandoned landscapes will contribute to delineating new wilderness areas in the European landscape, with adequate conservation status and appropriate management. As such, rewilding can further increase the ecological coherence and connectivity of the protected areas in the EU28. Increasing the area of wilderness via rewilding will also contribute to the large scale natural processes that maintain it (e.g. European Commission 2013).

Some of the most emblematic species benefiting from land abandonment and rewilding are large mammals (Deinet et al. 2013; Enserink and Vogel 2006; Russo 2006; see Chaps. 1 and 2). They demand a large availability of land in order to sustain their dispersal and home range establishment requirements (Jones-Walters and Čivić 2010), and limit conflicts with humans, which also makes wilderness areas essential to their conservation (Mittermeier et al. 2003). Additionally, species listed in the Birds Directive, which are specialists of old-growth forests (e.g. the three-toed woodpecker—*Picoides tridactylus*), or which have large habitat requirements (e.g. the Siberian tit—*Parus cinctus*, the black woodpecker—*Dryocopus martius*), can benefit from the increase of wilderness areas (European Commission 2013).

The notion of a “perceived wilderness” (Jones-Walters and Čivić 2010) is important when investigating the benefits supplied by rewilded areas for people. For example, the increase in wild areas and the resulting wildlife comeback are thought to contribute to reconnecting Europeans with nature (Deinet et al. 2013). The cultural services provided via the enjoyment and experiencing of wilderness, for example the perception of solitude and remoteness, can reciprocally motivate its conservation and guide policies and land management. Wilderness areas also supply a wide range of provisioning and regulating services, such as freshwater provision, carbon sequestration, and nitrogen regulation (see Chap. 3).

Having in mind the potential benefits of rewilding and increased areas of wilderness, we can now investigate which could be their contribution to global and European conservation targets.

## 11.5 Global and European Conservation Targets

After failing to meet the biodiversity targets which had been set for 2010 (Butchart et al. 2010), the parties of the Convention on Biological Diversity (CBD) adopted an agreement in Nagoya, which set 20 Aichi Targets to preserve biodiversity and ecosystem services by 2020 (CBD 2011). Several targets can be addressed by protected areas, wilderness, and rewilding. In particular, Target 11 requires that “at least 17% of terrestrial and inland water [...] are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas [...]”. For most European countries, this target has already been reached, in the sense that most countries have more than 17% of their national territory within a protected area (Fig. 11.2b), although effective management and wilderness conservation might fall short (e.g. Fig. 11.2c). For other targets, the level of completion is not so easily measured. Target 15 calls for the enhancement of ecosystems’ resilience including through the “restoration of at least 15% of degraded ecosystems”, and the increase of carbon stocks. Rewilding is a particular case of restoration, and can contribute to the achievement of this target, particularly when looking into the increases in carbon stocks that could result from an enlargement of wild areas (see Chap. 3). Furthermore, Target 12 requires the prevention of the extinction of threatened species and the improvement of their conservation status. Again, the rewilding of abandoned landscapes, and an increase in wilderness areas, can directly contribute to this target, as several species already show increasing trends (Deinet et al. 2013; LCIE 2004; and see Chaps. 1 and 4). Finally, Target 7 requires that “areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity”, while Target 3 calls for the termination, or the reform, of “incentives, including subsidies, harmful to biodiversity”. Both these tasks could be addressed by a reform of the subsidies system of the CAP and the AES, and their shift towards rewilding and the restoration of wild lands in low income agricultural areas (e.g. Merckx and Pereira, [in press](#)).

The Aichi Targets and their implications are not legally binding for countries. Nonetheless, the EU and all its Member States adopted the conservation targets in the European Biodiversity Strategy and defined a new regional strategy to 2020 (Table 11.2), in order to both halt biodiversity loss and restore degraded systems (European Commission 2011; Hochkirch et al. 2013). Some of these targets can be addressed by an efficient, and when needed better designed, network of PAs. The preservation of wilderness and the increase in wild areas is also considered as playing a crucial role in reaching some of the targets (European Commission 2013), namely “protecting and restoring biodiversity and ecosystem services” (Targets 1 and 2), and “reducing pressures on biodiversity” (Targets 3 and 5). Additionally, wilderness areas, being remote and not densely populated, present the advantage of lower land prices per hectare, while non-intervention implies drastically lower management costs (Mittermeier et al. 2003).

**Table 11.2** EU targets and biodiversity strategies to 2020, most relevant within the context of protected areas, wilderness and rewilding discussed in this chapter. (European Commission 2011)

European targets	Status in 2010	Objective for 2020
1. Implement the habitat and bird directives	17% of habitats and species protected by the Habitats directive are in favorable status	34% of the habitats and 26% of the species should either improve or be in a favorable status
	52% of the bird species are in a secure position	80% of bird species should be secured or improving
2. Maintain and restore ecosystems and their services	No continental data on degraded ecosystems, and the supply of ecosystem services	Increase knowledge and define actions <ul style="list-style-type: none"> <li>• Mapping and assessment of the state of ecosystems and their services</li> <li>• Definition of a strategic restoration framework, including with the development of green infrastructures</li> <li>• Ensure no let loss of biodiversity and ecosystem services</li> </ul>
3. Increase the contribution of agriculture and forestry to biodiversity	Only 15–25% of extensive high nature value farmland remains	Maximize agricultural areas covered by biodiversity measures of the CAP <ul style="list-style-type: none"> <li>• Enhance direct payments for environmental public goods in the EU CAP</li> <li>• Better target Rural development to biodiversity conservation.</li> <li>• Conserve Europe’s agricultural genetic diversity</li> </ul>
	7% of the habitats and 3% of the species protected by the Habitats Directive and depending on agriculture have a favorable status	
	Farmland bird populations have decreased by 50% since 1980 but have now leveled off	
	Farmland butterfly populations have decreased by 70% since 1990	Forest management plans, in line with sustainable forests management are in place for all publicly owned forest and forest holdings above a certain size <ul style="list-style-type: none"> <li>• Encourage forest holders to protect and enhance forest biodiversity</li> <li>• Integrate biodiversity measures in forest management plans</li> </ul>
	21% of forest habitats and 15% of forest species protected under the habitat directive have a favorable status	
	1–3% of forests are in natural and unmanaged status	

The EU incorporated the Aichi Target 3 to its plan, in particular to “reform, phase out and eliminate harmful subsidies at both EU and Member States level” (Target 6–Action 17c). At the same time, the Commission highlights the importance of integrating biodiversity policies into wider European policies concerns such as agriculture and forestry, and to “minimize the duplication of effort and maximize synergies between efforts undertaken at different levels” (European Commission

2011). In a context of farmland abandonment in remote and less productive areas, maximizing the synergies between conservation efforts can be done by redirecting subsidies towards rewilding (Merckx and Pereira, *in press*, and see Chap. 6), while allowing the remaining local population to live off the land through different means than its cultivation. Moreover, an efficient implementation of rewilding for the management of the abandoned land will have, in the long run, a positive impact on biodiversity and the supply of ecosystem services (see Chaps. 1, 3). The latter includes cultural services, such as ecotourism, which will directly benefit local populations.

## 11.6 Recommendations for Rewilding

The current European policy response to pressures on biodiversity can be either with site protection (e.g. SPAs SACs), or with the regulation of the activities of those exploiting the land, which can also be relying on voluntary actions, i.e. with Agri-Environmental Schemes (EEA 2004). Rewilding abandoned farmland can efficiently contribute to reaching European and global conservation targets. But in order to do so, a policy framework must be designed to include rewilding in the land management options given to practitioners (see Chap. 1). To that extent, European conservation policies must aim toward several goals.

In places where people still keep a strong link with nature, a wilderness comeback via natural regeneration should not be excessively problematic (McGrory Klyza 2001). Yet, when the link with traditional landscapes is the strongest, as in many regions of Europe, rewilding might be perceived negatively (Bauer et al. 2009; Hochtl et al. 2005). Communication between scientists, policy-makers, decision-makers, and the public will be essential to allow the implementation of rewilding, and to promote the values of wilderness in a landscape. Development initiatives are also known to ease the transitions between one form of management and another, for instance by increasing the support of local communities for the protected area (Pinto and Partidário 2012). Giving the opportunities to populations to shift their activities from low-income agriculture to ecotourism in rewilded areas can be an efficient way to meet both ends (see Chaps. 3 and 9).

The proposed “greening” reform of the CAP could further compensate stakeholders maintaining low productive practices in order to preserve traditional agricultural habitats (Hochkirch et al. 2013). Another option is to maintain payments for farmers that apply environmentally friendly practices on productive soils, and redirect subsidies on less productive lands towards rewilding (Merckx and Pereira, *in press*). By doing so, Member States will still be able to meet the demands for agricultural goods, yet promoting responsible and green practices on productive soils, while the lands left abandoned due to their remoteness, their lower productivity, and the difficulty to cultivate them (MacDonald et al. 2000; Rey Benayas et al. 2007, and see Chap. 1) will be rewilded and managed for other activities linked with wilderness. Such approach can be seen as land-sharing at the local scale (with

environmentally friendly agriculture), while at a broader scale food production and wilderness will occur on different areas, i.e. land-sparing (Merckx and Pereira, [in press](#); Phalan et al. 2011).

When a transition from “species conservation” to “species management” occurs, adapted policy tools will be needed (Henle et al. 2013). Some of the species benefiting from rewilding and showing positive population trends with land abandonment are large mammals, which are often associated with human/wildlife conflicts (see Chap. 1). If those populations were to increase substantially, it could be difficult to segregate them entirely to wilderness areas and mechanisms will have to be designed to allow for mitigation, compensation and/or cohabitation (e.g. large carnivores—see Chap. 4, and large scavengers—see Chap. 5). The set of policy instruments that can address human/wildlife conflicts are: regulatory (i.e. referring to the management and control of species); economic (e.g. compensations for damages caused by wildlife, subsidies for technical development for the prevention of damages); and educational, directed at the civil society (Similä et al. 2013).

Promoting rewilding to manage abandoned farmland means shifting the policies towards an ecosystem process-based conservation, rather than the static conservation of a set of species and habitats which is the current paradigm (Hochkirch et al. 2013). Assisted restoration can be needed in the early stages of conservation, depending on the ecological filters that could prevent and/or limit the return to self-sustaining ecosystems (see Chaps. 1, 7, and 8). For instance, the restoration of disturbance regimes to rewild opened landscapes following the abandonment of pastoral activities will mean the need of wild, or semi-wild grazers (see Chap. 8), which could be (re)introduced if no local population was present. Though the introduction of wild species is legally framed (IUCN 2013), it is not the case for domestic species, such as horses, which could be used to maintain the disturbance regime of abandoned pastures. This calls for a legal framework on their reintroductions and on the liability of the various stakeholders involved (Jones-Walters & Čivić 2010).

Rewilding will help policy-makers and stakeholders in rethinking their relationship with nature. In particular, the opportunity given by farmland abandonment to passively restore millions of hectares of land could give Europe an occasion to end the trends of double-standards between developed and developing countries in regard to conservation policies. For instance, deforestation is (rightfully) considered as a major degradation of ecosystems in developing countries, yet EU countries subsidise the maintenance of low productive agriculture to limit secondary successions on their land (Meijaard and Sheil 2011). Rewilding thus needs to gain visibility in the public and political sphere, as saliency (e.g. mainstreaming the concept of rewilding) has proven to be essential to the integration of concepts and ideas into the policy agendas (Jørgensen et al. 2014; Rudd 2011). In particular, rewilding research should aim at having three important impacts on policy makers (Rudd 2011): a conceptual impact (to change the way policy makers think), an instrumental impact (to directly influence existing policies and managements), and a symbolic impact (to support established positions).

Changes in what societies want to preserve, and how they protect it have already been observed (e.g. Pinto and Partidário 2012). The conservation and management of the European biodiversity has evolved since the 1970s (Fig. 11.1), giving for instance increasing importance to the role of local communities in managing Pro-



tected Areas, and to the benefits that they should get from those (Jones-Walters and Čivić 2013). For better or for worse, throughout decades of transitions in the way biodiversity is preserved, conservation baselines shifted, decision makers and stakeholders adapted, and so did the management approaches. Bringing rewilding in the agenda of conservation policies by showing its potential to both tackle the issue of land abandonment and restore wilderness could lead the way to a new transition of biodiversity conservation in Europe.

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