
Biosphere Reserves in National Legislation and Public Policy

1.1. Introduction

Biosphere reserves, beginning in the 1970s, are land management apparatuses established within the framework of UNESCO's intergovernmental scientific program Man and the Biosphere (MAB).

Initially they were sites devoted to research and monitoring and regional bases for the program (Jardin 2021), but today they propose an integrated approach, securing a conservation of biodiversity and biological resources tied to the sustainable development of populations and based on knowledge in its broadest sense: scientific tracking and research, allowing for better demarcation of these areas' challenges, with regard to all of their natural and human components, and for an improved ability to respond to these challenges in an appropriate manner; and education, training, public awareness and local participation, allowing for a broader understanding of these challenges by a greater number of people. They stand as demonstrations of the implementation of the sustainable development objectives set by the United Nations for 2030 (UNESCO 2016).

For a color version of all the figures in this chapter, see www.iste.co.uk/romagny/biosphere2.zip.

Chapter written by Catherine CIBIEN, Lahoucine AMZIL, Joelle BARAKAT, Antonio BONTEMPI, Pierre DOUMET and Maria Carmen ROMERA-PUGA.

Since 1995, the functions and criteria that govern biosphere reserves have been formulated within texts officially endorsed by the UNESCO General Assembly: the Seville Strategy for Biosphere Reserves, and the Statutory Framework of the World Network of Biosphere Reserves (UNESCO 1996). A large number of countries have now established biosphere reserves, organized within the World Network, 727 in 131 countries as of 2021. As a formal designation from UNESCO, the “biosphere reserve” is a management model, but it is also considered an internationally prestigious label leading to patrimonialization. Which part is played by the former characteristic in the engagement of nations with the MAB framework?

This chapter aims to determine whether four Mediterranean nations (Lebanon, Morocco, Spain, France) have adopted this management model and whether, 25 years after their introduction, they have integrated the above texts into their legislations and institutions and, if so, how they have put them into practice. Which ties have they managed to establish between the MAB program, often associated initially with the scientific community, and public policy? How does this influence ways of managing and conserving biological resources and biodiversity? And how does it influence the management of lands and local development?

1.2. The place of the “biosphere reserve” in national legislation

Biosphere reserves are mentioned in the laws of the two European countries, but not in those of Morocco or Lebanon (Table 1.1).

Country	Biosphere reserves mentioned in national law	Date of introduction into the law	Mentions
Lebanon	No	—	—
Morocco	No	—	—
Spain	Yes	2007 and 2015	Law 42 on Natural Heritage and Biodiversity (articles 3.31, 65, 66 and 67) Updated in law 33
France	Yes	2016	Law for the reconquest of biodiversity (article 66)

Table 1.1. Mentions of biosphere reserves in national laws

Lebanese law makes no mention of biosphere reserves as such. Designated by UNESCO, they are only protected as far as local jurisdiction enacts a relevant juridical framework and implements the law appropriately. In Lebanon, laws protecting natural sites date from 1939 and, when implemented, offer a broad measure of protection for numerous natural and cultural sites. A new law on protected areas was enacted in 2019 under the supervision of the Minister of Environment. It encompasses public and private protected areas and details the planning and management required for initial designation as a protected area, and for the preservation of this status.

The particular value of biosphere reserves is that, rather than settling for the protection of the flora and fauna of a particular area, the conservation of a biosphere reserve must promote the ecosystems which profit the greatest possible number of rural and urban dwellers. To realize this new approach, an essential first step is the delimitation of all of the public and private land holdings and the implementation of land use regulations. Without these twin parameters of delimitation and land use regulation, most conservation activities are doomed to fail.

In Morocco, the law makes no explicit mention of biosphere reserves, and offers no specific juridical instruments for the adaptation and implementation of the MAB program in legislation and national policy. In consequence, the regulations incorporating Morocco's commitments to the MAB program are limited to the signing and ratification of international accords/conventions (such as the Convention on Biological Diversity in 1996) and to the official support given to each biosphere reserve for its designation, framework and action plan, and periodical reviews to be sent to UNESCO.

But on the occasion of a revision to Law 22-07¹ on Protected Areas enacted in August 2010 (BO August 19, 2010), the redesigned juridical framework adapted the criteria for international recognition to the specific conditions of Morocco. This development aims to involve administrations, regional authorities and organizations, and NGOs in the management and sustainable development of protected areas. Law 22-07 allows us to consider the management of protected areas as a tool for the conservation and development of biodiversity and of local sustainable development. But the lack of an implementing decree defining the responsibilities of actors and the raising of financial and human resources reduces the profile of Law 22-07.

¹ Dahir no. 1-10-123 of 3 chaabane 1431 (July 16, 2010) promulgating Law no. 22-07 relating to protected areas. This law does not mention biosphere reserves among the protected areas recognized in Morocco.

The two European countries, Spain and France, offer systems reliant on the UNESCO texts:

– In Spain, the MAB has been strongly supported by its institutions, thus reinforcing the Spanish Network of Biosphere Reserves and inscribing it in law from 2007. Law 42/2007 of December 13 on Natural Heritage and Biodiversity takes into account the existence of biosphere reserves (articles 3.31, 65, 66 and 67). Article 65 indicates that the Spanish Network of Biosphere Reserves constitutes a defined and recognizable subgroup of the World Network of Biosphere Reserves. The text takes into account the objectives of UNESCO's MAB program and provides for the possibility for biosphere reserves to include other protected areas. Their characteristics are notably based on the criteria of article 4 of the Statutory Framework of the World Network (UNESCO 1996): zooming, governance, etc. The 2007 law was updated by Law 33/2015 of September 21, 2015.

– In France, the law mentions biosphere reserves more belatedly. The 2016 Law for the Reconquest of Biodiversity (article 66) considers biosphere reserves as contributing to the objective of sustainable development. It stipulates that:

in application of Resolution 28C/2.4 of the UNESCO General Assembly which approved the Seville Strategy and adopted on 14 November 1995 a Statutory Framework of the World Network of Biosphere Reserves, regional authorities, their groupings, the 'syndicats mixtes'² mentioned in Chapter VII of the fifth part of the general code of regional authorities, the national public associations and establishments administrative of parks may put into place a biosphere reserve. A biosphere reserve contributes to the objective of sustainable development defined in II of article L. 110-1 of the present code. The national strategy for biodiversity favors the development of biosphere reserves in mainland France and its overseas territories and dominions.

This text therefore does not define the biosphere reserve as a new category of protected area, with France already having a full range of such areas. It allows them to be organized in reliance on one or more administrative structures (in support of protected areas of different types and regional authorities) and associations combined according to the zoning model specific to biosphere reserves. In contrast to Spain, the law makes no reference to the network(s) constituted by the reserves, at the national or international levels.

2 In France, there are joint ventures between different public authorities.

1.3. The place of MAB national committees in national governments

Country	Creation date	Form as of 2021
Lebanon	–	Committee presided by a scientific figure (CNRS) who maintains the link to biosphere reserve support structures.
Morocco	1995	Honorary committee, created in 1995, composed of volunteers and presided by a scientific figure, who represents the biosphere reserve during national and regional meetings. This committee operates in conjunction with the High Commission for Water and Forests, this commission being in charge of protected areas, NGOs and ANDZOA.
Spain	1975	Collegiate, interministerial, advisory body, with representatives from multiple departments of the General State Administration, from all of the autonomous communities whose land contains biosphere reserves, from the scientific sector, and from other categories of actor.
France	1973 (and 2015)	MAB committee integrated into the National Commission for UNESCO from 1973. Modified in 2015 with the creation of a specific legal body, the MAB France Association. This gathers biosphere reserves, national scientific institutions (CNRS, INRA, CIRAD, MNHN, IFREMER, IRD), the relevant ministers (Foreign Affairs, Environment, Research and Education), public and private partner organizations dealing with questions of biodiversity and sustainable development, researchers and individual experts. The president (also the representative of France at the MAB-ICC) is named by the Minister for Foreign Affairs.

Table 1.2. *Organization of national MAB committees*

1.3.1. In Spain

According to the historical reconstruction of Spain's National Parks Autonomous Agency (Organismo autónomo de parques nacionales (OAPN 2012)), the Royal Decrees 342/2007 of March 9 2007 and 387/2013 of May 31 currently govern the development of the MAB program's functions, as well as those of the Spanish MAB Committee, within the OAPN.

The Spanish National Committee for the MAB program, since its creation in 1975 under the aegis of the Spanish National Committee for Cooperation with UNESCO, has seen considerable development, of which several stages can be identified.

Between 1975 and 1987, the Spanish MAB Committee functioned as a work group within the framework of the Spanish National Committee for Cooperation with UNESCO. At this stage, its composition was essentially academic, despite representatives from the domains of management and administration being gradually integrated.

In 1987, with the creation of an MAB Committee Support Office within the General Directorate for the Environment of the Ministry of Public Works and Urban Development, the activities of the MAB Committee received a strong boost which, with time, became focused on the concept of the biosphere reserve (OAPN 2012). Consequently, a technical work group for biosphere reserves was created in 1992, marking the beginning of the formation of the Spanish Network. The development of this group's tasks culminated in the Spanish contribution to the 2nd World Congress of Biosphere Reserves in Seville in 1995, organized by UNESCO. The period from 1987 to 1996 can be seen as a period of mutual understanding and interest between the Spanish MAB Committee and the public institutions responsible for the environment, at both regional and state levels.

The Royal Decree 1984/1996 of August 2 1996, which made reference to the structure of the Ministry of Environment, assigned to the OAPN the function of coordinating and developing the MAB program (OAPN 2012). These coordination functions have been maintained following the Royal Decree 1130/2008 of July 4, relative to the organic structure of the Ministry of Environment and Rural and Marine Affairs. The Royal Decree 401/2012 of February 17, which developed the organic base structure of the Ministry of Agriculture, Food and Environment, did not modify the functions of the National Parks Autonomous Agency with regard to the development of the MAB program in Spain. Consequently, since 1996, the OAPN has supported a technical office to aid the development of the MAB Committee's activities. From 1996 to 2007, the MAB Committee continued to carry out its activities, notably through an increase in the number of Spanish biosphere reserves and the impetus given by Spain to the IberoMAB Network (a network gathering the nations of Latin America, the Caribbean and the Iberian Peninsula).

The Royal Decree 342/2007 of March 9 2007, governed the development of the MAB program's functions, as well as those of the Spanish MAB Committee and its advisory bodies (the Scientific Council and the Board of Biosphere Reserve Managers) under the aegis of the OAPN. This royal decree, which specified the manner in which the OAPN ought to carry out its functions, assured institutional support for the functioning of the MAB program in Spain and gave a new impetus to the development of the program's activities. Almost simultaneously, the inclusion of biosphere reserves in Law 42/2007 of December 13, on Natural Heritage and Biodiversity, provided regulatory backing and consolidated the Spanish Network of Biosphere Reserves.

The decree also specified the composition and functions of the Spanish MAB Committee, as well as its ties with the Agency, making the committee an effective instrument of institutional coordination for the biosphere reserves and for the transfer of initiatives to institutions. The Spanish Committee for the MAB program has since been a collegiate interministerial advisory body, with representatives from multiple departments of the General State Administration, from all of the autonomous communities whose land contains biosphere reserves, from the scientific sector, and from other categories of actor. The MAB Committee is equipped with two advisory bodies: the Scientific Council and the Board of Biosphere Reserve Managers, who are very active in the creation of initiatives and the putting in place of biosphere reserves in Spain.

Spain's investment in the MAB program is unique in that, on top of the Seville Congress, which provided biosphere reserves with their fundamental texts, the third World Congress of Biosphere Reserves was held in Madrid in 2008, and the international congress Seville +5 was held in Pamplona in 2000, the latter providing the recommendations which determine the modalities for the creation and functioning of transfrontier biosphere reserves still in place today.

1.3.2. *In France*

The MAB Committee was created in 1973. From 1973 to 2015, the MAB Committee functioned under the aegis and with the support of the French National Commission for UNESCO. At this stage, its composition was essentially academic, and with representation from the relevant ministries (environment, foreign affairs, education). From 1991, representatives from biosphere reserves have been associated with the MAB Committee. Its funding primarily came from the ministry responsible for the environment, the Ministries for Foreign Affairs and for Research and Education providing small supplementary budgets. In the first few years, leadership was provided by a researcher from the ORSTOM (today the IRD). From 1991, the MAB Committee was able to recruit a scientific secretary thanks to funding from the ministry responsible for the environment. From 2002, a CNRS researcher was also associated with the leadership of the MAB Committee.

With the development of the National Network of Biosphere Reserves, and notably with the arrival into this network of three new sites between 2012 and 2014, it became necessary to introduce a legal figure into the MAB Committee's leadership. This was done with the intention of giving the committee the profile it lacked, to allow for more ambitious projects and to better promote the "biosphere reserve" model within the French conservation and sustainable development landscape. This was done in 2015 with the creation of the association MAB-France. Its governance relied on the participation of its active members, large French

research bodies and biosphere reserve support structures, associated members, ministers, institutional partners (notably the French Office for Biodiversity) and associations. Its administrative council is composed of 15 members, half from biosphere reserves and half scientists, elected for three years. Its staff is composed of two people (one director and one project manager) supported by a CNRS researcher.

Its principal budget is supplied by the French Office for Biodiversity as created in 2020, filled out by modest contributions from the ministries responsible for higher education and research and for foreign affairs, and on the basis of specific projects. The association stands as the French MAB Committee, and as such, manages candidacies and periodical reviews. It leads the French Network of Biosphere Reserves, work groups (for research, youth engagement, EDD (sustainable development education), forestry management, and communication) and projects relating to the development of the companies and actors of the lands in question (awards, eco-actors). It also jointly runs the MAB master's degree program at the University of Toulouse. The president of the MAB-France Committee, generally a recognized scientific authority, is named by the Ministry of Foreign Affairs. It represents France at the MAB-ICC, in conjunction with the UNESCO delegation from France.

1.3.3. *In Morocco*

The Moroccan MAB Committee was created in 1995, a little before the establishment of its first biosphere reserve (the Arganeraie Biosphere Reserve, declared in 1998). The Moroccan MAB Committee, honorary, is comprised of volunteers, normally researchers without administrative responsibility. The current president is in frequent contact with the National Agency of Water and Forests in Rabat and has a relationship with the ANDZOA (National agency for the Development of Oasis and Argan Zones) and the forestry administration. It is present in the majority of national debates and forums regarding biosphere reserves and in UNESCO international meetings, particularly at the MAB-ICC. As in other southern Mediterranean countries, Morocco has no specific juridical instruments for the adaptation and implementation of the MAB program into law or national policy. As in other southern Mediterranean countries, Morocco has no specific juridical instruments for the adaptation and implementation of the MAB program into law or national policy.

1.3.4. *In Lebanon*

The Lebanese Committee for the Man and Biosphere Program (LebMAB) is supported by the Lebanese National Centre for Scientific Research (CNRS). Initially

composed of three members belonging to this body (the president, Professor Tohmé, and the secretary, Ghassan Jaradi), it was enlarged to encompass a representative from each biosphere reserve (Shouf, Rihane and Jabel Moussa) following the World Congress of Biosphere Reserves in Lima in 2016.

1.4. The place of the “biosphere reserve” model in public policy

The Management Manual for UNESCO Biosphere Reserves in Africa (2018), published by the German Commission for UNESCO, presents two categories of governance structure, one called the “authority model” and the other the “NGO model”.

In the first model, the approach is top-down, the authority in question – a management unit dependent on a ministry or another authority – being primarily responsible for the conservation of the nation, and normally responsible for only the core area (and sometimes the buffer zone). When this is the case, it can be difficult for the authority to be active with regard to sustainable development, or within the transition zone.

In the second model, the “NGO model”, the management committee, composed of multiple private and public institutions, serves as a platform for the meeting of interests and communities. This model is well adapted to acting in an advisory fashion, but generally has no direct power of intervention, and is often obliged to negotiate with other institutions to implement decisions made on its platform. It is also more oriented towards projects than towards management. Integrating management into this ensemble is more difficult.

Jardin (2017) proposes a different distinction between the existing structures and the ad hoc structures established for biosphere reserves at the time of their creation. The first category includes the body in charge of a protected area, extended or not, or of a part of an area, for example: a national park, a nature reserve or a national marine park. This body would have a direct power of intervention, but arrangements would need to be made to respond to the objectives of the biosphere reserve, notably with regard to the transition zone where the body would have no authority; a management committee would need to be added for consultation.

The case of an IUCN Category 5 protected area would need to be dealt with separately, as it would include the transition zone and thus correspond to the limits of the biosphere reserve.

In other situations, for example, when a perimeter is established on a geographical, ecological or cultural logic, it would include a public governing body adapted to its needs, such as a municipality with an added management committee and associations, or the government of an island (Menorca, the Isle of Man) in which special arrangements would be taken to respond to the objectives of the biosphere reserve. It would include a group of institutions and municipalities (a “syndicat mixte” in France; a public structure) or a group of partners, including associations (a private structure). It could also be comprised of public/private partnerships. In the case of a private structure, its role would be solely advisory.

1.4.1. *In Spain*

In 2021, the Spanish Network of Biosphere Reserves counted 52 sites spread over 16 of the country’s 17 autonomous communities (OAPN 2021).

The practical implementation of the concept of the biosphere reserve has evolved in Spain, as it has done at the international level. The OAPN (2012) indicates that since the first biosphere reserves were named, from 1977 to 1992, all named biosphere reserves have previously been natural parks, national parks or nature reserves, with the exception of Urdaibai, which was declared in 1983 and was covered by a specific law. In 1993, Spain proposed the naming of two islands in their entirety: Menorca and Lanzarote, covered also by a specific law. They contained protected areas, and were presented as integrated management projects for a complex region, covering all sectors of production, all uses of the land and all of its inhabitants, and proposing an operational program based on participation, as well as objectives conforming to sustainable development. The impact of these two experiences on the approaches adopted at the Seville Congress in March 1995 (UNESCO 1996) was significant. From 1997 to 2006, 23 new areas were declared as biosphere reserves. Following this, the rate of declarations slowed while their integration into a network was reinforced, on the basis of the restructuring of the Spanish MAB Committee and of the support provided for the running of the reserves by the National Parks Autonomous Agency. The new situation offers solid support to the Spanish Network of Biosphere Reserves that is entering a period of intense activity, seeking to improve their reach and to adapt their situation to the requirements put in place at the Seville Congress in the cases of biosphere reserves lacking an adequate organizational structure.

The increase in requirements, however, has not diminished the number of areas aspiring to join the network. On the contrary, it seems to have the opposite effect, and there are many areas expressing their wish to be declared as biosphere reserves.



Figure 1.1. Map of Spanish biosphere reserves (source: OAPN 2019)

Santamarina Arinas (2015) puts forward an image of the legal situation of biosphere reserves in the official regulations of each autonomous community, and highlights the most important gaps. Figure 1.2 shows the mosaic of the different institutional systems of governance.

Around half of Spain's biosphere reserves (23) are governed directly by the environmental departments of the autonomous communities. The majority coincide with protected areas, following the schema dating from the end of the 20th century. This is the model chosen, for example, by the administrations of Andalusia, Extremadura, Madrid and Asturias. It has the advantage of strong budgetary security and is clear with regard to administration. However, in certain cases, examples of this model suffer from gaps with regard to the objectives of the MAB program in their concentration of the majority of their resources on the conservation of the protected area and logistical support for the core area, at the expense of socio-economic development. These spaces are governed by specific regulations that define their functions with regard to conservation and have often limited power with regard to the environmental domain, integrating only with difficulty the other sectors that play a pertinent role in a biosphere reserve: industry, tourism, culture, economy, etc.



Figure 1.2. *Typology of institutional governance in Spanish biosphere reserves (Oñorbe 2018). In the legend, from high to low: municipal association; autonomous community; Bardenas Reales community; Consell/Cabildo; consortium; collaboration agreement; private council; foundation; Local Action Group (GAL)*

The case of the Sierra de las Nieves Biosphere Reserve in Andalusia ought to be highlighted: the biosphere reserve integrates a natural park into its territory. The management of the reserve and of the park is carried out in a coordinated but autonomous manner. The management body is articulated through a collaboration agreement that includes the relevant municipalities, an association and the autonomous community as parties responsible for the management of the natural park. The biosphere reserve's manager is an employee of the group of municipalities, responsible for the functions of the biosphere reserve on the ground, and who depends, in large part, on external opportunities for resources. It is a successful example that could well serve as a reference for other reserves.

In the same vein, in the cases of the Las Marismas del Odiel Biosphere Reserve (Andalusia) and the Cuenca Alta del Rio Manzanares Biosphere Reserve (Madrid), the traditional schema, superimposing a protected area and a biosphere reserve, is in place. However, at the request of UNESCO, it was necessary to extend their limits beyond the natural parks.

The model of governance evolved and integrated relevant municipalities and actors from outside the park.

Regional authorities (Diputaciones, Cabildos and Consells) are a governing mechanism involved in a quarter of the biosphere reserves in the Spanish network (11). They ensure higher levels of budgetary security, assignment of staff, and despite their legal powers being limited on the ground, they have a capacity for management. They serve as a liaising body between autonomous communities and municipalities, generally displaying good sectorial coordination.

The case of Montseny is another to be foregrounded, one which had to revise its management model following a process of extension beyond the limits of the natural park. The adopted solution consisted of the integration of the park into the framework of the provincial council within the reserve, rendering the director of the park naturally dependent on the manager of the reserve. Since then, the multifunctional model has displayed an exemplary performance. The park and its director are focused on running conservation efforts within the core area. The biosphere reserve, in coordination with those efforts, works on the other functions of the buffer and transition areas: namely socio-economic development and logistical support.

The other biosphere reserves are managed by an amalgam of local bodies which are not necessarily led by an administration (foundations, associations of municipalities, consortiums). One of their principal weaknesses is budgetary insecurity, but at the same time, they are extremely flexible and have a strong ability to adapt. This is the type of management chosen, for example, by the Castilla y León and the Aragón Biosphere Reserves (Ordesa Viñamala). It is worth mentioning in particular the Mariñas Coruñesas e Terras do Mandeo Biosphere Reserve (A Coruña) and the Allariz Biosphere Reserve (Ourense), managed by rural development associations under the supervision of the corresponding administrations.

A priori, the advantage of these more localized models is that they allow for greater contact between the managing bodies and the locals, favoring their participation and their involvement in land management. The main inconvenience of this model is the lack of budgetary and/or specific human resources with which to run the reserve.

Five autonomous communities have not yet developed a regulatory framework for biosphere reserves: Cantabria, Catalonia, Galicia, the Balearics and Navarre. This does not necessarily suggest that their biosphere reserves lack managing bodies and instruments.

A range of situations show that having regional regulations around biosphere reserves does not necessarily signify that there is *sufficient* regulation for the planning and organizing of reserve management. The content of the regulations still in place in Andalusia or Castilla-La Mancha, and, more recently in Madrid and even, to a degree, in Castile and León, perfectly illustrates what could be seen as another means of not materially fulfilling commitments.

The six remaining autonomous communities partially respect their commitments. There are important differences in content based on local circumstances present in each case and provide an interesting diversity, which may enrich it as a whole as well as the exchange of experiences. It is also true that, in most cases, it would be ideal to proceed towards adjustments or updates of differing scopes. But in general, we can say that the degree of conformity is higher with regard to the organization of biosphere reserves than in their management plans.

In surmounting these difficulties, the autonomous communities could fail to fulfill the task of coordination present at the level of the state, a coordination which is not a question of erasing reasonable differences, but of putting forward a modicum of shared guidelines to clarify doubts. In the meantime, this is not the only contribution that the legislator at the state level could make to help surmount the aforementioned problems, which are particularly complex where biosphere reserves coincide with certain national parks.

1.4.2. In France

France designated its first biosphere reserves from 1977, which remained undefined within French law until 2016, with the adoption of the Law for the Reconquest of Biodiversity. They thus represented a materialization on the ground of a scientific program, the MAB, and an internationally recognized designation.

MAB-France is nevertheless associated with different bodies relating to biodiversity and protected areas: it is part of the National Committee for Biodiversity of the Ministry of Environment, and of the National Conference for Protected Areas, under the aegis of the French Office for Biodiversity (OFB). This office was created in 2018 with a broad approach to conservation and biodiversity, as it relates to society. This implies a stronger support for the approaches of the MAB program than was previously seen, but a support which remains modest with regard to the challenges and possibilities of the network's development.

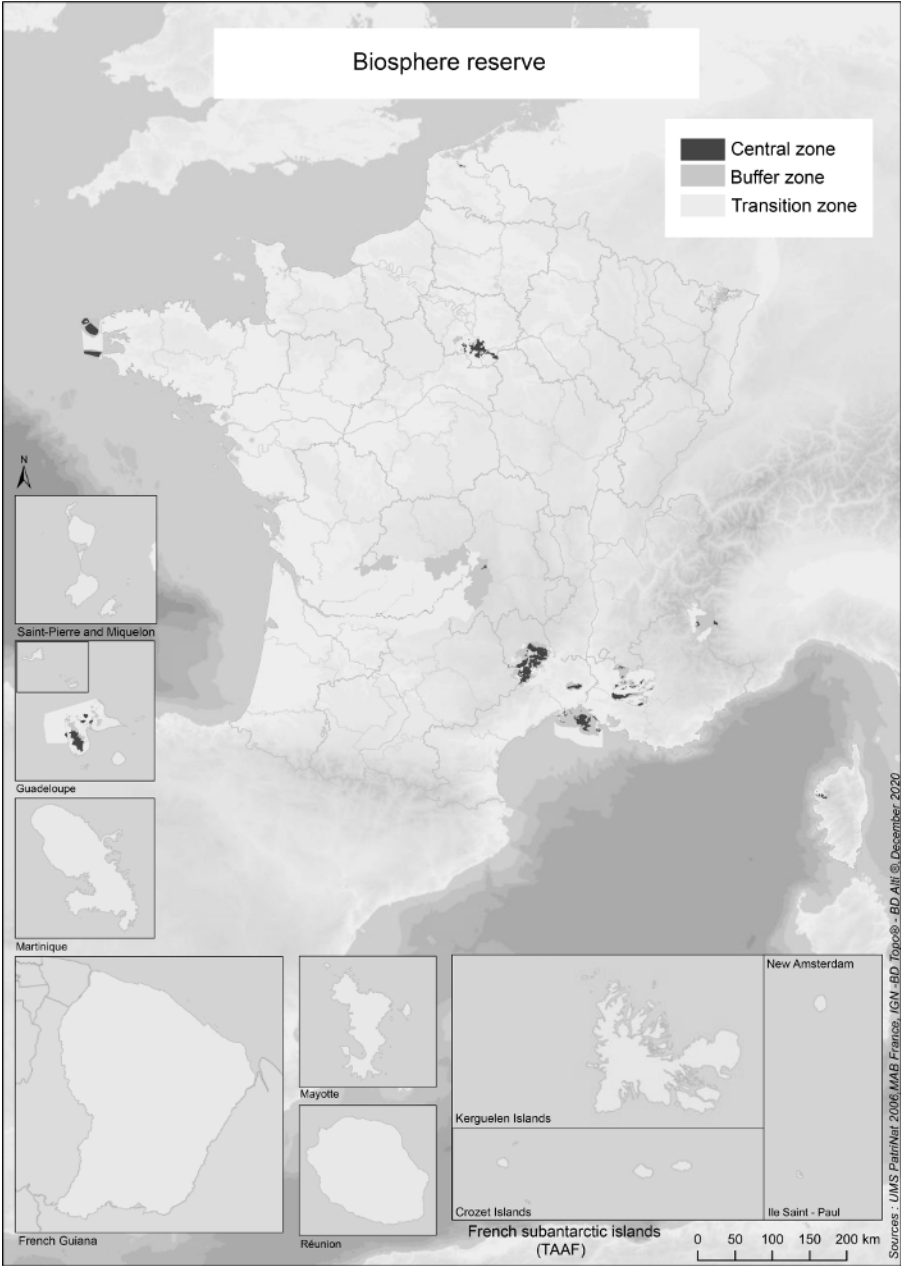


Figure 1.3. Network of biosphere reserves in France (2020) (source: MNHN)

The biosphere reserves are also integrated into the national system for biodiversity information (the National Inventory of Natural Heritage) run by the Muséum national d'histoire naturelle (MNHN).

In practice, each biosphere reserve relies on one or more management or leadership apparatuses: protected areas, municipalities, associations. The reserves receive no financing from the state or from regions for running costs as such, this funding rather filtering down through their management structures.

Biosphere reserves are thus delimited according to several different logics:

- Firstly, their perimeter may correspond to that of their support structure. This is the case for the national parks of the Guadeloupe Archipelago and the Cévennes, governed by a 2006 law which places the heart of the park within an area of free partnership for local communities, following a principle of ecological solidarity. The governance of the biosphere reserve coincides with that of the park (an administrating council comprised of institutions, local municipalities, socio-professional representatives, associations, etc.), and the management plan of the biosphere reserve is assimilated into the park's charter. It is important to note that the functions of the “new generation” of national park are very close to those of the biosphere reserve, their zoning being made up of two zones (rather than three): the heart of the park, which is regulated, and the partnership zone.

- The same principle of the superimposition of perimeters, bodies and management documents (and functions) applies to the *regional* national parks of Vosges du Nord (the French part of the German–French transfrontier biosphere reserve) and Mont Ventoux. Again, the functions of the two apparatuses are very similar. The regional national parks have no zoning systems. They often include protected areas (natural reserves or other types of protections) on which the biosphere reserve's zoning may be based.

These situations ensure stability with regard to funding and staffing:

- The Falasorma Dui Sevi Biosphere Reserve (an extension of the Fango Biosphere Reserve dating from 2019) constitutes a coherent and clearly identified subgroup with regard to the perimeter and management of the Corsica Regional National Park, in this case its maritime aspect. The decision-making structure is that of the regional national park, but it also has an advisory management committee belonging uniquely to the biosphere reserve which represents its various stakeholders, twinned with a scientific council and a management policy identifying specific objectives.

- The perimeter of the biosphere reserve may be laid out according to a geographical, ecological or socio-cultural logic which requires the collaboration of multiple structures which co-manage a coherent whole: this has been the case in the

Camargue Biosphere Reserve (the Rhône delta), one of the first French biosphere reserves (1977), since its extension in 2006. It is also the case for the Marais Audomarois Biosphere Reserve (the city of Saint-Omer and its wetlands), and the Îles et Mer d'Iroise Biosphere Reserve, where a regional natural park and a marine park co-manage the biosphere reserve. In each of these cases, each structure has decision-making power over its territory and applies its own management policies. Cooperation is defined for projects at the level of groups responding to specific funding. In the Fontainebleau et du Gâtinais Biosphere Reserve, a specific association ensures joint leadership between the relevant authorities, a regional natural park and the associations involved. There is also a dedicated scientific council.

- The large Bassin de la Dordogne Biosphere Reserve responds to the logic of a drainage basin. It is run by a public structure empowered to manage the rivers and aquatic spaces. This situation calls for the implementation of partnerships with other institutions or local authorities to deal with the range of missions required by biosphere reserves with regard to management (of agriculture, forestry, economic development, urbanism, etc.), education, etc. In the absence of specifically dedicated funding and of support from public powers, the biosphere reserve struggles to sufficiently enlarge its range of partnerships and thus to ensure leadership and presence at the scale required of such a large territory.

- The biosphere reserve may exceed the perimeter of its support structure (as is the case in the Biosphere Reserves of Luberon Lure, Mont Viso and the Gorges du Gardon). This necessitates political agreements with neighboring territories that are not always formalized, and sometimes prefigure the extension of the support structures' reach.

The absence of a proper budget, combined with these situations of superimposition, problematizes the public profile of biosphere reserves in France. On the contrary, the variety of institutional arrangements offers a great flexibility with regard to implementation, which is genuinely valuable, allowing for ease of adaptation to different challenges and for temporal changes, and offering spaces for dialogue (at the level of coherent bodies) beyond administrative and political divisions. This would certainly explain the new candidacies, despite the contributions of the “biosphere reserve” management model being little known and little supported by authorities (no public funding is currently allocated to any territory designated as a biosphere reserve). The particular values of the model, as well as its flexibility, are above all its ability to function within a network and in conjunction with the scientific and educational worlds, its international outlook and the renown of UNESCO.

	Dates of designation	Coordinating structure	Area (ha)	Populations
Commune de Fakarava	1977 Extended in 2006	Commune de Fakarava Biosphere Reserve Association	288,880	1,500
Camargue (Rhône delta)	1977 Extended in 2006	Camargue Regional Nature Park, in collaboration with the Syndicat Mixte Camargue Gardoise	160,000	From 110,000 to 220,000 (in summer)
Falasorma Dui Sevi Fango Valley	1977 Extended in 2019	Corsica Regional Nature Park	23,500	450
Cévennes	1985	Cévennes National Park	325,000	50,000
Îles et Mer d'Iroise	1988 Extended in 2012	Armorique Regional Nature Park and Iroise Marine Nature Park	200,000	1,400
Vosges du Nord Pfälzerwald	1989 Cross-border since 1998	Vosges du Nord Regional Nature Park in France, Naturpark Pfälzerwald In Germany	310,300	337,000
Mont Ventoux	1990	Mont Ventoux Regional Nature Park	80,368	30,000
Archipel de Guadeloupe	1999 Extended in 2013	Guadeloupe National Park	69,707	124,000
Luberon – Lure	1997 Extended in 2009	Luberon Regional Nature Park	244,645	170,000
Fontainebleau – Gâtinais	1998 Extended in 2009	Fontainebleau et du Gâtinais Biosphere Reserve Association	150,544	267,665
Bassin de la Dordogne	2012	EPIDOR (Basin Public Territorial Establishment)	2,400,000	1,200,000
Marais Audomarois	2013	Caps et Marais d'Opale Regional Nature Park and Saint-Omer Agglomeration Community	22,539	68,900
Mont Viso	2013 Cross-border since 2014	Queyras Regional Nature Park and Parco del Po Cuneese	427,080	292,369
Gorges du Gardon	2015	Syndicat Mixte des Gorges du Gardon	45,501	188,653

Table 1.3. Primary characteristics of France's biosphere reserves

1.4.3. In Morocco

Biosphere reserves seek to promote, outside of the network of protected areas, solutions consolidating biodiversity and its sustainable use (the global concept of land management) at the national level. Morocco has been officially committed from the beginning to a policy of creating the latest generation of biosphere reserves. This choice poses a number of problems with regard to implementation, as the concept and the governing model of biosphere reserves are still on the table in the institutional debate, 20 years after the declaration of the first biosphere reserve. The national master plan for protected areas from 1996 led to the creation of a national network of protected areas, which does not include biosphere reserves.

While they are still without recognition in any legal framework, biosphere reserves do form a part of national and regional strategies in the fight against desertification and the conservation of natural resources encouraged around the years from 1995 to 2000 (e.g. the Arganeraie and Oasis du Sud Marocain Biosphere Reserves) and of more recent strategies oriented around biological conservation encouraged since 2005 (the Intercontinental Biosphere of the Mediterranean and the Atlas Cedar Biosphere Reserve).

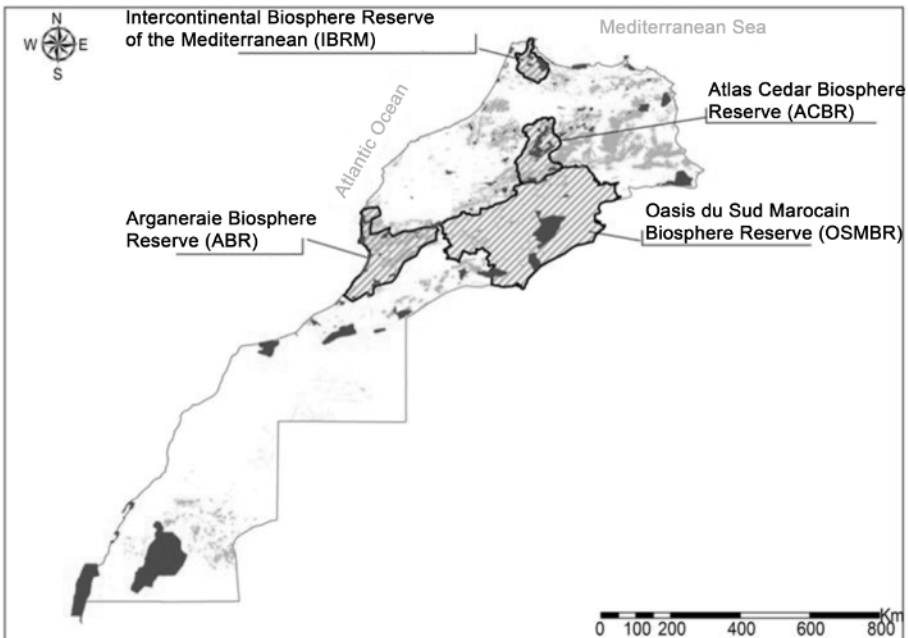


Figure 1.4. Map of Morocco's Biosphere Reserves (and network of protected areas included in the biosphere reserves) (source: HCEFLCD 2016)

The governance of each biosphere reserve differs, the Arganeraie and Intercontinental Biosphere Reserves being the most active today. They all follow an “authority model”, governance in each case being top-down, and the managing body being dependent on a governmental authority at the regional level, of which regional water and forest departments are the catalysts.

Select committees are organized and coordinate multiple regional actors. The Regional Directorate of Water and Forestry and the Fight against Desertification (DREFLCD) of the High Commission for Water and Forestry and the Fight against Desertification (HCEFLCD, Ministry of Agriculture, Maritime Fisheries, Rural Development and Water and Forests) is primarily responsible for the conservation of nature and forests, the management of central areas, buffer zones and to a large degree transition areas: all forests are in the public domain, under the authority of HCEFLCD, both within and outside protected areas. Management can become difficult in areas not considered to be forests, where the HCEFLCD has no direct power of intervention. These non-forest areas come under the authority of various local administrations, and the managing body is often obliged to negotiate and coordinate with other institutions to implement decisions.

The Regional Directorate of Water and Forestry and the Fight against Desertification is recognized as the managing authority over biosphere reserves with regard to the following missions:

- the implementation of the biosphere reserve strategy;
- the application of the biosphere reserve development and management plan;
- the preparation of annual programs;
- the planning of activities;
- the preparation and signature of partnership agreements;
- administrative and financial management;
- compilation of activity reports;
- coordination of all involved actors.

Moreover, a network of local actors is equally involved in decision-making about the future of biosphere reserves: local/regional authorities (municipalities and “collectivités territoriales”), public administrations and institutions, professional sector organizations, universities and research institutions, NGOs and representatives of the participative wings of the national parks situated within the biosphere reserve. Its prerogatives are limited to the following missions:

- to examine and approve the biosphere reserve management plan submitted by the managing body;

- to formulate recommendations regarding any measures likely to improve the management of the biosphere reserve;
- to ensure coordination between the different local actors involved in the biosphere reserve and the consistency of interventions.

The participative body is presided over by the president of the regional council. An annual meeting is organized at the request of the participative body. However, the DREFLCD provides the secretariat of the participative body.

With regard to administrative and managerial responsibilities, the biosphere reserves are spread across two levels: I) the national level (the Parks and Natural Reserves Department of the HCEFLCD, in Rabat), which coordinates and supervises the national implementation of the UNESCO MAB program, all general matters concerning Moroccan biosphere reserves, and the governmental partnerships regarding them (e.g. cooperation with Germany on the Arganeraie Biosphere Reserve, cooperation with France on the Oasis du Sud Marocain and cooperation with Spain on the Intercontinental Biosphere Reserve of the Mediterranean); and II) the regional level, where each biosphere reserve deals with the mechanisms and area-specific policies of different governmental and administrative actors who are plotting their future.

1.4.4. *In Lebanon*

The Shouf and Jabal Moussa Biosphere Reserves are incorporated into the institutional landscape in a differentiated way.

The Shouf Biosphere Reserve (which is included in the Al Shouf Cedar Nature Reserve) is placed under the authority of the Lebanese Ministry of Environment, which runs it through the intermediary of the Committee for Protected Areas (APAC), responsible for the decision-making and the implementation of management objectives. The members of the APAC are volunteers, chosen by the Ministry, and representing local communities (municipalities, district commissions), independent environmental experts, environmental NGOs and institutional representatives (Ministry of Agriculture). The APAC ensures liaison with the biosphere reserve's team, which works on the day-to-day management and planning of the reserve.

Beyond the Ministry of Environment, other government agencies are involved: the Ministry for Public Works, responsible for the roads passing through the reserve; the Department of Antiquities (antiquities and ancient ruins); the Ministry of Information and the Maasser municipality (television broadcaster); and the Barouk Office of Water. The biosphere reserve needs the cooperation of all governmental

and nongovernmental sectors to attain its objective, the conservation of natural and cultural heritage, with the improvement of well-being and income of the villages surrounding it.

The management team is responsible for the running of administration, management, technical activities, interview activities, protection, public awareness, communication and scientific research. It currently has 60 permanent employees and more than 40 temporary employees, who are all residents of the Shouf region.

The Association for the Protection of Jabal Moussa (APJM), a Lebanese nonprofit NGO, runs the Jabal Moussa Biosphere Reserve. It is the source of the accumulation of several international designation on top of that of UNESCO: from BirdLife International (Global IBA), from the UICN (as an example of private protected area “best practice”), from MedMAB, as well as the Lebanese protection labels of “protected forest” (from the Ministry of Agriculture) and “protected archeological site” (Ministry of Culture).

The APJM is composed of an assembly (which meets annually), an administrative council (which meets quarterly) and a management structure which oversees the day-to-day running of the reserve.

In 2012, the ALJM presented its first 10-year plan for sustainable management to the public (supported by the Swiss MAVA foundation and the UNESCO Regional Office in Beirut) during an interactive conference participated in by academics, researchers, local elected officials, religious representatives and local communities from the villages found within the reserve. This conference was the culmination of two years of work in cooperation with the above actors.

The primary management orientations in terms of biodiversity, culture and archaeology, academic research and above all of socio-economic development were defined on this occasion, and were made the object of a constant development and permanent dialogue between the parties involved in the 10-year plan from the beginning.

The 10-year plan for management and development should be updated in 2022.

1.5. Discussion

It is in Spain that the “UNESCO Biosphere Reserve” model has received the strongest and most consistent support: there, it occupies an important and recognized place, as much in legislature as within institutions. There are numerous high-profile sites, and the network that they make up is structured and well-organized.

The country strongly invests in international cooperation within the framework of the MAB program. It has organized three of the World Congresses that have structured the MAB program and the concept of the biosphere reserve, notably that of Seville in 1995, which produced the primary reference texts for the biosphere reserve, the Seville Strategy on Biosphere Reserves and the Statutory Framework for the World Network of Biosphere Reserves. It also supports the IberoMAB network (encompassing the Iberian Peninsula and Latin America) and more recently the Mediterranean Network of Biosphere Reserves.

In France, such a level of support is and continues to be lacking, which is certainly explained by the proximity of the concept of the biosphere reserve to the French concept of the Regional Nature Park, dating from 1970. There are 56 such Nature Parks (as of 2021), well structured within a federation, much like the biosphere reserves of Spain. Some of these, to increase their international profile, have also requested UNESCO designation as a biosphere reserve.

The originality of the French MAB program is tied to its permanent proximity to the world of research, which has led to the creation of an original structure, the MAB-France association, which is committed to reinforcing the links between the scientific world, ecology as a human and social science, and higher education, and the experimental spaces that are biosphere reserves, to promote an active transition towards increased sustainability. The force of this associative structure is the commitment of its members, a network of passionate, competent and engaged individuals.

This has resulted in innovative projects, but often with insufficient support, structure and circulation. Recent years have shown an improvement in its profile within the national landscape, as demonstrated by the recognition of biosphere reserves in law in 2016.

Adequate institutional positioning for the MAB program is clearly lacking in the two southern Mediterranean countries. However, it is notable that in all the countries studied, the integrated approach promoted from the beginning by the MAB program and formulated within the texts that underlie the biosphere reserve – the links between conservation, land management and development, the need for support through education and training, and understandings of relevant socio-economic dynamics – is a common thread through legislation and practice, as can be seen in the changes to the law surrounding protected areas in Morocco, and the 2006 law on French National Parks.

It is undeniable that the conceptual approach of the MAB and of biosphere reserves has spread, but has insufficiently informed the public policies of certain countries. Biosphere reserves are still thought of too often as mere international

labels, with a lack of understanding of the concept's richness. It is not easy to give a detailed explanation of what a biosphere reserve is, and furthermore, they are harmed by their name, which seems rather inaccessible to the public at large.

These countries could, however, lean on the now mature experiences of others, of changes largely facilitated by the network.

The environmental urgency connected to the tardiness in taking action to limit crises of biodiversity and climate, despite repeated warnings from the scientific world for 50 or more years, and despite growing awareness in numerous countries, speaks (on a local as much as a global level) to an insufficiently productive dialogue in favor of the protection of fundamental resources. The MAB, in seeking to facilitate interaction between worlds that are too often kept separate, is more relevant than ever. The meeting of the worlds of higher education and of biosphere reserves, the mobilization of young generations, always highly motivated by this now 50-year-old program, is thus a winning venture, with regard to training, to engagement and citizenship, to the local management of land, to creating an international outlook, to cooperation and, above all, to the ability to tackle the profound changes that are surely to come.

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