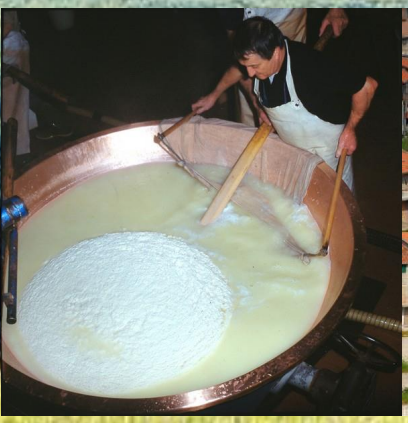
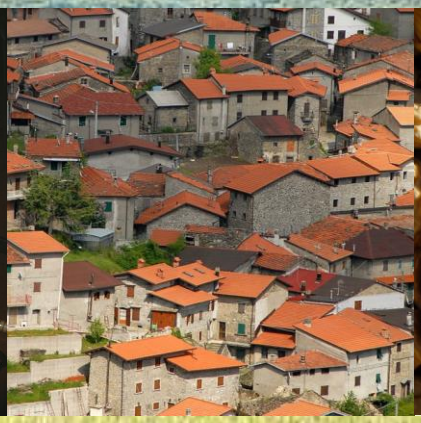
# APPENNINO TOSCO EMILIANO

## UNESCO Man & Biosphere Reserve

*Candidature Dossier*

*September 2014*

A MOSAIC OF DIVERSITY ACROSS THE APENNINIC CREST,
A BORDER BETWEEN EUROPEAN AND MEDITERRANEAN CLIMATE

PROMOTED BY

Parco Nazionale
APPENNINO
TOSCO-EMILIANO

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# PART I: SUMMARY

## 1. PROPOSED NAME OF THE BIOSPHERE RESERVE:

Appennino Tosco-Emiliano Man & Biosphere Reserve

## 2. NAME OF THE COUNTRY:

Italy

## 3. FULFILLMENT OF THE THREE FUNCTIONS OF BIOSPHERE RESERVES

### 3.1. "CONSERVATION - CONTRIBUTE TO THE CONSERVATION OF LANDSCAPES, ECOSYSTEMS, SPECIES AND GENETIC VARIATION".

The Apennines, part of the Alpine-Himalayan belt, are a mountain range forming the backbone of the Italian peninsula. The candidate area, located in the Northern Apennines, is typical of this mountain region, but also has a unique feature: it is a focal point of the Continental-Mediterranean climatic boundary which, together with geological heritage and other factors, has given rise to a complex ecological and cultural patchwork, which, in turn, forms the basis for the evolution of the landscape.

Inside the Reserve territory have been recognized at least 42 habitats of Community interest, of which 8 priority types and 3 of regional interest.

Here lives almost the 70% of species totally existing in Italy and this highlights the huge diversity of Apennine's nature: over 2000 species, of which at least 122 among birds, amphibians, reptiles, mammals, fish and invertebrates of Community and regional conservation value, 3 of priority interest. It should be noted the presence of: Wolf, Golden Eagle (national red list as vulnerable species, red list of Emilia-Romagna as threatened with extinction species), crested Newt, spectacled Salamander, fire Salamander, common Frog, several species of chiroptera such as the Hermit beetle, coleoptera of priority interest.

Floristic biodiversity is rich and significant: at least 260 aquatic and terrestrial plant species of Community and regional conservation interest including several endemism's: Primula apennina (priority species), Vicia cusnae, Saxifraga etrusca, Saxifraga oppositifolia subsp latina, Sedum monregalnse, Globularia incanescens, Geranium argenteum, Aquilegia alpina.

It should be noted actual hot spot of biodiversity such as Mount Prado, considered a botanical heaven and subject of several studies, which represents a summary of knowledge acquired until today by means of studies concerning above forest vegetation of the whole northern Apennine; or the Triassic chalk outcrops area where, in spite of its limited extension, almost 700 floristic species are present. In particular the extraordinary floristic richness of the whole Reserve is justified by its exclusive geographical position on the border between two climate regions, by altitude range and orographic complexity which benefits the number of species.

A main feature of the Apennine Tosco-Emiliano is a centuries-old stratification of the land related to the dynamic balance between a strong and vibrant natural area and human inhabitation. The Apennine backbone has always been a natural corridor: a conservation area for a multitude of habitats across which man travelled, and which he knew how to exploit as a crossroads of trade and cultural exchange. Man (who has encouraged functional biodiversity for survival and socio-economic development) and the numerous en-

demic species bound by the area's unique climate (which, in recent decades, as a result of the gradual desertion of these areas, are becoming more resilient), coexist in an area that needs to be protected and studied as a place of further genetic and landscape diversity. It is here that man has not only selected/introduced new species over the centuries but has also managed to adapt and exploit the natural resources of the territory itself, safeguarding them intuitively and adapting to the uniqueness of its geology, morphology, climate, botany and fauna. This has led to the landscape being fragmented into several pieces, which currently comprise of exclusive traditional agricultural food production – including Parmigiano-Reggiano cheese and its forager "habitats" – and woodland areas or grasslands at high altitudes, which have contributed to increasing overall biodiversity. This complex patchwork of biodiversity has encouraged many forms of culture, mostly relating to rural life, which, throughout history, have distinguished the resident populations and, of which, traces are still evident: in architecture (the mighty fortifications that characterized the Middle Ages from Matilda of Canossa onwards), in the genuine sociological examples of the many traditional, niche products and in the original and unique, on-going folk traditions (dramatic "Maggio").

The candidacy for the Man and Biosphere Reserve thus intends to formalise the collective and perceived need to maintain this balance, which is currently under threat due to the progressive and partial loss of human resources and the desertion of a rural lifestyle, as well as to climate and cultural changes in relation to which current conservation policies only acknowledge specific sectors and do not have an all-inclusive approach.

## 3.2. "DEVELOPMENT - FOSTER ECONOMIC AND HUMAN DEVELOPMENT WHICH IS SOCIO-CULTURALLY AND ECOLOGICALLY SUSTAINABLE".

Through its *governance* model, the Appennino Tosco-Emiliano biosphere reserve proposes to steer, encourage and formalise interventions and strategies for the development of innovation and sustainability, which have been outlined and are being carried out, by most administrative, entrepreneurial and social organisations in the area, but are difficult to implement.

The application process aims to do this, as well as bring about cultural development and awareness to encourage local communities to invest in motivating and training people, particularly young people. The aim is not "solely" to get them to stay on the land but to give them the opportunity to be the linchpin of the flow of ecosystem services arising from the reserve.

The main "infrastructure" in which the territory now needs to invest most heavily is human capital, in order to increase its value: a human capital that needs to be made more aware of and better trained in the values and merits of its territory, and to understand its currently interesting potential both nationally and internationally. Human capital could, thus, become the key player in new lifestyles and ways of working that typify a modern rural community, which, thanks to sustainable tourism, will not be stuck in the past, or isolated on the Apennine ridge, but connected and in tune with the patterns of the era of globalisation.

The local community needs to become active in and responsible for protecting and developing the MaB reserve, turning it into a laboratory for innovation and sustainable development. This laboratory will be implemented in two main areas, which nowadays can be more closely linked: firstly, by supporting the continuity/innovation of rural activities, historically dominated by traditional and high-quality production, which have helped shape the unique features of the area's agricultural landscape; secondly by promoting ecotourism, a new opportunity but also an instrument of knowledge. Active conservation of the agricultural landscape thus becomes the cornerstone of the link between agriculture and tourism, as well as of the development of the Appennino Tosco-Emiliano MaB Reserve.

## 3.3. "LOGISTIC SUPPORT - SUPPORT FOR DEMONSTRATION PROJECTS, ENVIRONMENTAL EDUCATION AND TRAINING, RESEARCH AND MONITORING RELATED TO LOCAL, REGIONAL, NATIONAL AND GLOBAL ISSUES OF CONSERVATION AND SUSTAINABLE DEVELOPMENT".

The aim of the Appennino Tosco-Emiliano MaB reserve is to perform a supporting role, presenting itself to the territory as a "laboratory of concrete ideas", encouraging the sharing of objectives and projects and providing a network of partnerships and expertise to facilitate its execution. More specifically, the reserve will perform its supporting role in three main areas: education on the environment and sustainability and development of the natural capital and cultural heritage; monitoring and scientific experimentation; innovation through demonstration projects in the context of sustainable tourism, conservation and the promotion of agricultural biodiversity and the best use of water and energy.

"Education" on sustainability is not intended solely for students, but also for the local community, economic operators and visitors. It will be executed using an approach based on innovation, experimentation and practical experience of sustainability. Some areas (infancy, water and energy – Reggio Approach) have already been successfully implemented and could make an immediate and significant contribution to the entire international MaB network. From an understanding of and experimentation on the natural phenomena in general, environmental education will be developed alongside an understanding of the territory as a whole, with the aim of it becoming the chosen classroom setting.

The Appennino Tosco-Emiliano MaB reserve endorses the focus on multi-disciplinary research projects and monitoring carried out over the last decade by a network of universities (particularly the universities of Bologna, Modena and Reggio, Parma, Florence and Rome). With a particular focus on climate change, it promotes pilot projects for the preservation of biodiversity and research on specific ecosystems. This high-level research facilitates a cultural ferment, capable of stimulating a drive towards innovation and continuous improvement within the territory.

With regards to tourism, the Appennino Tosco-Emiliano MaB reserve intends to: develop the innovative and positive experiences of the "Turismo di Comunità", which has been active in some villages on the ridge for several years; highlight the territory's points of excellence identified in this candidature; generate a new awareness of the Reserve's values within the local communities by involving them not only for their tourist hospitality services, but also in performing a permanent, informative-educational role in order to share and understand the territory's values with visitors.

It aims to carry out the aforementioned objective of making the territory more attractive by fulfilling the policies implemented in recent years to enhance its geographical, ecological and cultural identity and lessen tourism's dependence on seasonal factors, in order to ensure the most widespread distribution of tourists.

In relation to rural development, the MaB reserve aims to consolidate model experiences directed at recovering and, at the same time renovating and promoting a high-quality, endemic agrosilvopastoral culture, by encouraging those productions which can better contribute to protecting the reserve and passing values and merits on to the consumer, as well as serving as a marketing tool for the territory. This approach tends to revitalise rural communities, giving them back a renewed role in overseeing and protecting the territory.

The supporting roles will be implemented through a network of partnerships involving parties outside the territory of the MaB reserve, who see an opportunity to experiment with replicable models in the area, as well as in other contexts.

Figure 3-1 Location of the candidate area

# 4. CRITERIA FOR DESIGNATION AS A BIOSPHERE RESERVE:

## 4.1. "ENCOMPASS A MOSAIC OF ECOLOGICAL SYSTEMS REPRESENTATIVE OF MAJOR BIOGEOGRAPHIC REGION(S), INCLUDING A GRADATION OF HUMAN INTERVENTIONS".

The candidate area is part of the Palearctic Ecozone biogeographic region (temperate Eurasia and northern Africa) and is affected by the presence of the climatic boundary between two biogeographic regions: the so-called “euro-mediterranean” boundary, which divides the Continental and Mediterranean climate zones. In light of this, the location of the area in question is fairly unusual, bringing together a range of specific features in a relatively confined geographic space. These different features are reflected in the ecosystems and in the relationships between biosphere and anthroposphere. The candidate area’s unusual geographic location means that the ecosystems, landscapes and cultural characteristics within it comprise elements belonging both to the Tyrrhenian area (Versilia and the Gulf of La Spezia) and the Po Valley with its Alpine influences, as well as the Apuan Alps and the southern area of the Apennines where the mountain range ends.

The geological and structural layout of this section of the northern Apennines is what characterises it and defines its geomorphological, topographic and pedological patterns. In light of this, the climatic features of the two slopes of the ridge are very unusual, and this is one of the reasons for the unusual distribution of ecosystems.

Finally, humans have continuously used the land here since prehistoric times, with human activity in the area almost reaching maximum levels. The morphology and ecosystems of the area have clearly had an impact on human activity within it. At the same time, this activity has accompanied and influenced the development of local ecosystems.

The unusual geography of the area of the Appennino Tosco-Emiliano candidate biosphere reserve comprises a wide range of different environments, which, in this section of the Apennines, are highly influenced by the presence of the euro-mediterranean climatic boundary, which coincides with the ridge.

The ridge, a morphostructural formation positioned in a NW/SE direction, displays features that are extremely different to the predominant patterns in the rest of the Apennines, this section of which corresponds to the Tyrrhenian coastline of the Riviera di Levante, as well as the course of the central section of the Po Valley plain.

The southern and northern slopes of the ridge are extremely different from one another, in terms of climatic conditions as well as their specific orography. The complex relationships between vegetation, soil and geomorphological features in the section coinciding with the climatic boundary provide the basis for the candidate area to be seen as a key laboratory for understanding the link between physical surroundings and climate, as well as for prompt and exact monitoring of climatic changes in progress.

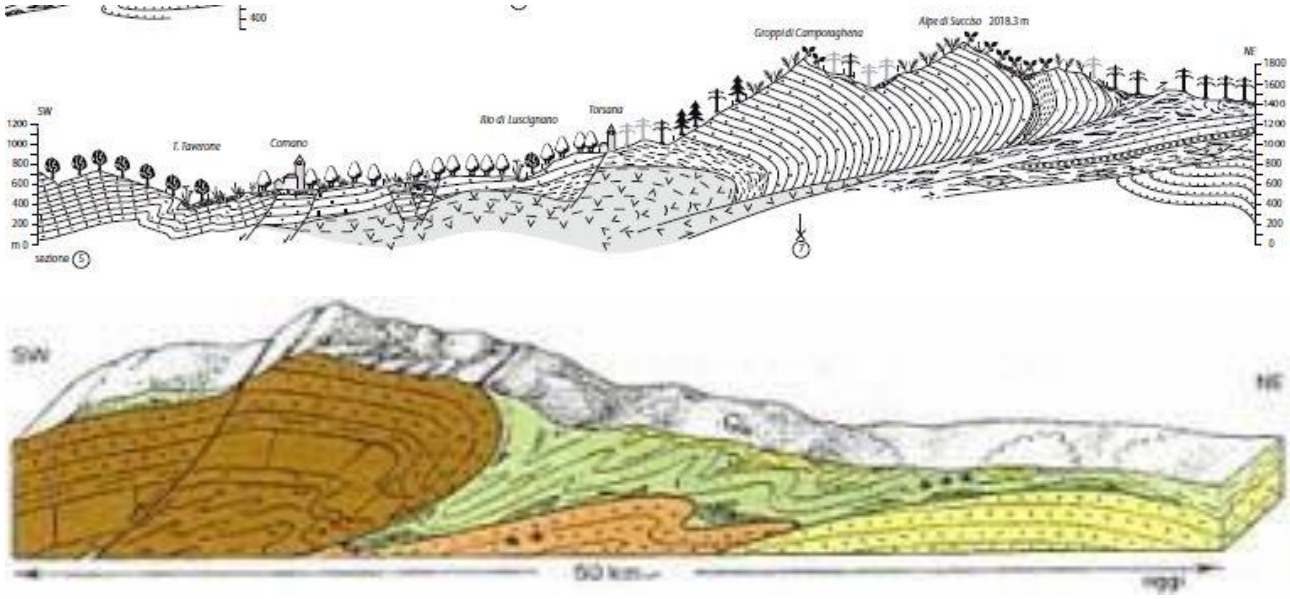



Figure 4-1 Subsurface geology, geomorphology and different vegetation coverage across the crest slopes

Indeed, different structural and lithological features have, over time, been affected by erosional and depositional processes brought about by two clearly defined climatic phenomena.

The ecological mosaics that can be identified within the candidate area arise out of specific physiographic and geographic patterns, and can be defined by:

- **A high-altitude section in the vicinity of the ridge;**
- **A hill section that extends around the high-altitude ridge sections, almost surrounding them.**

The *Core* areas identified in this application coincide with the ridge sections and are characterised by a high degree of naturalness. The hill section coincides predominantly with the *Buffer* and *Transition* areas, and offers different levels of protection. In the *Buffer* and *Transition* areas, there is widespread, varied human integration.

## RIDGE SECTION

**We shall define the range of this section as comprising the high-altitude section and the ridge, stretching between 2121m and 800m above sea level, and also extending to the main longitudinal ridges that make up the predominant course of the ridge.**

The ridge follows a relatively uniform course, despite including accessible routes (mountain passes and connections), that create a certain diversity. This feature was extremely noticeable in the past, due to it being sustained by the necessity to access different places (trade and transhumance to the Maremma region, pilgrimages to Rome, banditry, the Italian resistance, etc.), made possible by the routes, and the strategic role of the stronghold. Some specific features of the landscape have become diluted throughout history but are still noticeable, marked out by ecological aspects that have taken root there, with these conditions sometimes being stimulated by certain interactions (the relationship with human activity and the effects of activities linked to this, relationship with wild animals, etc.).

In order to understand the symbolic and strategic significance of the ridge, one only needs to look at the widespread presence of shrines devoted to saints (ex voto), known as “Cappellette Maestà” or even “stone prayers”, which were often decorated with marble deriving from the Apuan Alps and were sometimes made

using materials excavated from the local calcarenite boundary stones. These “Cappellette Maestà” are distributed all along the main passes.

The passes across the ridge have influenced the history of the area and therefore the ecological mosaic.


Figure 4-2 Passo del Cirone

The routes of the main mountain passes, which lead from the Po Valley to the Lunigiana and Garfagnana areas (and vice versa), represent sections of land which stand out for their specific features and merits. As a result, it is possible to determine four separate branches, which nevertheless all refer to the ridge as a whole.

These are:

- Section from the Passo del Cirone to the Passo di Lagastrello;
- Section from the Passo di Lagastrello to the Passo del Cerreto/Ospedalaccio;
- Section from the Passo del Cerreto/Ospedalaccio to the Passo di Pradarena;
- Section from the Passo di Pradarena to the Passo delle Radici.

For each section, historical trends have influenced the development of human activity in different ways:

- Relationship with the outside world, use of forests – charcoal pits, the Valli dei Cavalieri area of fortified medieval villages, forms of independent governance (the Vallisneri Charter);
- Pilgrims and wayfarers, trade and exchange, Lagastrello artificial lake, charcoal pits, waterfalls, tourism;
- Pilgrims and travellers, trade and exchange, access to the Apuan Alps, excavation and crafting of minerals (charcoal pits), the Nasseta Court and other ancient communities that have died out, water uses, tourism;
- The “royal” Abetina Reale wood with its water-powered sawmill, tourism (Abetina Reale and the Ozola forest – shelters), the valleys of the Dolo and Ozola streams, which were exploited in the past (for the ancient sawmill and the transportation of timber) just as they are now (for hydroelectric energy).

Together, all of these sections contribute to a sense of unity of the ridge, which, from an ecological point of view, is relatively uniform, dominated by a mountainous mosaic with a high degree of naturalness comprising high-altitude beech and grassland.

With regard to elements that can be considered as environmental resources, the area is dominated by broad-leaved and beechwood forests. The latter occupy a broad altitudinal range (800-1,600m above sea level), in which the climate is constantly fairly humid, with high levels of rainfall and an absence of dry periods. With rare exceptions, the beech trees are found within coppice forests, which have been introduced slowly either via a natural or artificial process in certain areas of high forest.

Despite this, marked differences between the **northern slope** and **southern slope** can be observed.

**The northern slope** of the ridge is vast and slopes down in a fairly uniform manner towards the Po Valley. At the same time, the northern slope stands out for its extremely unusual appearance, which is a product of its geological and environmental heritage.

Figura 4-3 Pietra di Bismantova

It is worth noting the diversity of the landscape in this section of the ridge slope. The range of different landscape features that can be observed are characterised by marked variations in their physiography. The mountains that define the ridge are often majestic formations, with summits that are gentle as well as wild and displaying many signs of ancient glaciers. Moving down into the valleys, it is worth noting the presence of deep incisions in the rock, such as the magnificent hollowed-out sections of the ravine, known locally as “cracks”, and the majestic valleys carved by large watercourses.

The presence of extremely wide, thick calcarenite shelves identify sudden high plateaus, which are supported at the edges by vertical rock formations and surrounded by gently undulating meadowland and woodland. The plateaus are endowed with extremely powerful aesthetic value, strongly conveying the scenic elements of the area, notably the verticality of the landscape and its contrasting colours (one example is the Pietra di Bismantova plateau).

**The southern slope** is extremely steep and relatively uniform in terms of its morphology, which is characterised by deep, V-shaped fluvial incisions. In these valleys, pseudo-vertical drops from the ridge have frequently developed, featuring accompanying pioneer vegetation and widely distributed small wild fruits. The slope displays established arboreal vegetation: in the lower altitude sections hornbeam oak, in the higher altitude areas beech trees including pastures obtained from former beech tree areas and in the areas close to the peak of the Apennine ridge pastures deriving from blueberry plants.

Towards the higher altitude sections and/or on the shelves corresponding to lithological changes throughout the slope, we can see a specific, albeit intricate, sequence of woods, ridge grasslands and rocky outcrops.

Levels of rainfall are lower on average than on the northern slope.

The geomorphological appearance of the landscape contributes to defining this area of the ridge where the steepness of the main slope and secondary slopes becomes more accentuated, often resulting in an area

that is in sharp contrast to the overall gradient of steepness. The absence of any kind of permanent settlement (communities or villages), except for a few rare examples of isolated buildings or seasonal alpine pastures, and, at the same time, the absence of any infrastructure, represents one of the key characteristics of the southern slope of the ridge.

Here, the landscape is divided very evenly into ridge grasslands, rocky outcrops and woodland. This evenly divided layout can also be noted progressing constantly from the bottom towards the top of the slope.

## HILL SECTION

### THE EMILIAN HILL SECTION

The altitudinal range of this section is between 800m above sea level and 150m above sea level. The section is divided between the Tuscan-Emilian Apennine ridge and the Po Valley.

The alternation of soft and hard lithotypes have resulted in a landscape characterised by extremely high elevations with steep slopes covered by widespread vegetation, which soar high above the clay formations, often featuring badland surfaces and uneven terrain. For this reason the area is characterised by a wide diversity and rapid variability of environments. These range from the woodland dominating the areas that are the most inaccessible and devoid of agricultural activity, the pastures where fodder is farmed as part of the production of Parmesan cheese, the Scots pine and chestnut woods, right up to the dense network of castles, churches, medieval villages, small chapels, ancient streets and towers which together represent the most obvious traces of the rich historical and cultural tapestry that forms the backdrop to the mountain.

Since ancient times, these sections have been used for specific activities relating to the production of certain goods (ham, mature Parmesan cheese and even chestnuts). Over the centuries, these activities have contributed to shaping the local landscape (which characterises the entirety of the reserve's Transition Zone and part of its Buffer Zone), becoming important pieces within the rich, varied ecological mosaic. The predominant forms of land use are, therefore, arable land, especially for growing fodder for the animals used in the production of Parmesan cheese, and forests of broad-leaved trees (downy oak, Turkey oak and hop hornbeam), pine trees (Scots pine) and chestnut trees. The most significant changes over the last few decades are related to the decrease in arable land and open areas in favour of wooded areas, which can generally be attributed to the albeit small decline in the use of the land for agriculture.

In these sections, landslides are extremely important, in terms of their impact on the management of the land and settlement activity in the area, as well as their contribution to ecosystemic changes.

With regard to the question of hydrogeological instability, the area is one of the zones most prone to landslides in the Emilia-Romagna region. More than 4,000 phenomena relating to hydrogeological instability affect 24.7% of the hilly and mountainous terrain in the area. The phenomena are mainly brought about by clay lithotypes, such as the repositioning of ancient, loose bodies which are unearthed following substantial rainfall or the melting of a snow cover.

Elements that can be considered as sources of pressure on the environment include the presence of human settlement in some areas. However, these settlements are generally dispersed sporadically or, in many cases, sparsely.

### THE LUNIGIANA HILL SECTION

This section of the candidate area is characterised by a network of fairly gentle hills and valley systems that are intricate but not particularly steep.

We can note clear signs of major neotectonic movements, which are emphasised by recent and ongoing intense erosion which has affected this area. The presence of the edges of fluvial terraces located at an altitude of up to 600m above sea level, widespread landslides and recessed streambeds that have undergone intense erosion is set against the distribution of lithotypes of the area. The hydrographic network is defined by substantial water systems which flow predominantly through natural environments.

The widespread gentle elevations can often be attributed to the presence of fluvial-lacustrine sediments, which are now raised above the flood plain. On the other side, many hilly elevations have been formed from extremely loose clay and calcareous-marl rocks with a highly complex tectonic history.

The land is notably used for farming specialised crops (olive groves), which alternate, at a rhythm that matches the course of the hills, with chestnut and hop hornbeam trees. Woodland has remained in the zones that are less suited to the integration of olive groves.

In the higher altitude sections, we can find chestnut and beech trees, as well as Turkey oaks, and grasslands, obtained from former beech tree areas, which are intended for use as pastures. Farmed areas are found in the flatter section and in the foothills of the area. This is mainly made up of arable land and horticultural crop cultivations. In some areas of the hill, between an altitude of 300m above sea level and 400m above sea level, olive groves are farmed. Throughout history, agriculture in the area has generally retained its status as an important productive activity.

The area, which began to be urbanised as early as Roman times, still today features a system of settlements, all of which are similar to one another and have retained their original identity and structural characteristics. They are found in the middle section of the hill. Here, traditional rural houses still today retain their identity and specific structural characteristics.

These settlements reflect a positive image of the landscape linked to the presence of urban structures and the beauty of the agricultural environment surrounding the settlements, which then gives way to thick woodland.

## THE GARFAGNANA HILL SECTION

From a morphological point of view, the area is structured around the Serchio river network and the mountain slopes from which water flows into it. The mountain slopes – the Apennine slope on the left bank and the Apuan slope of the right slope – come together at the head of the valley, beyond Piazza al Serchio, in the Argegna and Carpinelli mountain pass area, to form what is known as a saddle, a delicate environment which in this case divides the Garfagnana and Lunigiana areas.

In terms of orography, the Garfagnana area is one of the so-called tectonic basins that characterise sub-Apennine Tuscany. Its geological structure consisting of a narrow valley between two vast mountain ranges – the Apennines and the Apuan Alps – gives it a particularly marked mountainous identity. The dominant forests in the area are beech in the higher-altitude sections and chestnuts lower down. However, Turkey oaks and forests comprising mainly deciduous, thermophilic broad-leaved trees are also widespread and numerous. Of all the areas in the Tuscan mountains, the Garfagnana zone is the area with the highest number of vegetation biotopes (among these, it is worth noting several botanical rarities such as holm oaks and Phoenician juniper, which are found amid rocky sites in the Turrite Secca valley). The banks of the watercourses house a rich variety of vegetation, which ranges from purple willow and widespread riparian willow to pussy willow and dogwood.

Only the Apennine mountain slope is included within the MaB reserve candidate area. The slope progresses gently and gradually, despite its high-altitude sections. Its hydrographic network is close and irregular, while its valleys are short and steep, and its watercourses have a torrential regime.

All across the valley, watercourses stand out as key elements within the landscape, helping to pinpoint different local areas and making it possible to identify both the morphological structure of the land and the structure of ancient settlements.

These settlements, which take the form of communities or hamlets, many of which are relatively small, are mainly found in the middle section of the slope, further up than the flood plain but before the mountainous elevations, the start of which is marked by the change in land use (with arable land giving way to mainly chestnut and beech trees). By looking at the development of settlements in the area, we can clearly note the way that land use has been influenced by the need to preserve agricultural resources. The fact that the majority of settlements are found in the middle section of the slope (500-800m) highlights the way that agricultural activity has been organised, as well as demonstrating the relationship between agricultural activity and intense livestock rearing, complementary practices that have been brought together. In the lower part of the section, we can note the presence of contour ploughing – a sign of the intensive exploitation of the land. Meanwhile, the upper part corresponds with the point at which the use of the land changes, with grasslands and pastures giving way to activities linked to woodland resources. Due to the presence of boulders, the areas of mountainous terrain contain a higher degree of acidity and, as a result, are conducive to the growing of chestnut trees. Chestnut trees grow in the shelter of the mountain grasslands and extend up to the point that marks the start of arable land developed around ancient settlements.

The significant diversification within the agricultural mosaic found in the middle section of the slopes of the main valley – as shown by the alternation of arable land, pastures, woodland zones, and vineyards growing along cliffs and ridges – helps to maintain high levels of biodiversity.

Settlements in the area comprise flood plain communities, a few rare mountain communities, settlements around mountain passes and alpine pastures. These settlements are linked by an extensive road and infrastructure network, along which churches and hospitals have been built, and rural communities established. This network also feeds into other functional routes that connect the area with the sea to facilitate the provision of salt and the transportation of iron ore.

## 4.2. "BE OF SIGNIFICANCE FOR BIOLOGICAL DIVERSITY CONSERVATION".

Comparison of information about the number of species in Italy and the total for Europe (an indicator that is used to measure biological diversity, despite its limitations) clearly reveals that there is a good level of biodiversity in Italian territory, which is in keeping with the significant number of habitats, the variety in its geographical features and its latitudinal extent.

This great biological diversity can also be found on a regional level (see sections 11.6 and 14.2 for details).

In the territory of the reserve, at least 37 habitats of community interest have been recognised, including 6 priority sites and 3 of regional interest. Inside the candidate Reserve area, there are at least 122 species of birds, amphibians, fish and invertebrates of community conservation interest, including 3 priority species. There are a number of species of priority interest: the Wolf, the Golden Eagle (which is on the national Red list of vulnerable species and the Emilia-Romagna Red list of species in danger of extinction), the Crested newt, the Spectacled salamander, the Fire salamander, the Common frog, a number of species of bats, the Hermit beetle and other beetles. The Reserve's location on a climatic boundary means that there is great

floristic biodiversity: there are at least 260 species of aquatic and terrestrial plants of community and regional conservation interest, including the *Primula appenina*, which is notable for its endemism and priority status.

In the candidate Reserve area, it is possible to observe Wolves (Canis lupus). They are classified as a (VU) D1 Vulnerable species in the IUCN Red List for Italy because there are estimated to be a maximum of 800 of the animals in the national territory, so the number of mature individuals is unquestionably well below the threshold for inclusion in the category, which is 1,000. Illegal killing, disjointed management by local institutions and interbreeding with dogs are all big threats to the species. This is the situation faced by the Nature Conservation Service of the National Park and the Life ExTRA Project, which are the flagship bodies for the management of problems associated with living alongside wolves not only in the Park area but also well beyond its administrative boundaries, as part of a management and study scheme at the cutting edge of the national scene (see section 17.2 for details). In Italy, the species has been legally protected and the focus of research since 1971. The Wolf is listed in Annexes II and IV of the Habitats Directive (92/43/EEC), CITES Appendix II and Appendix II of the Berne Convention (1979), in accordance with which it is prohibited to kill, trade or destroy the dens of wolves. Wolves were widespread in the territory of the Biosphere Reserve until the mid 19$^{th}$ century, but they were wiped out in the local area in the 1940s. In the early 1970s, wolves could only be found in a few, isolated areas of the Central and Southern Apennines, but since the 1980s the population has increased and the territory covered by the species has expanded.

Wolves can currently be found all along the Apennine ridge as far as the westernmost point of the Alps, so they are also present in the candidate area. The main factors behind their recovery have been natural regeneration of the mountain territory, legal protection of the species, the biological characteristics of the animals and a number of conservation and environmental protection measures.

There are stable packs of wolves in the reserve area which have been monitored continuously since 1997 in a number of Life Natura projects. In order to build knowledge and develop suitable management tools, specific maps were produced of the areas that could be used to raise cubs, starting with acoustically detected *rendezvous* sites, as well as possible sites of predation in pastures.

In addition, in the Reserve territory a LIFE Natura project called “Monitoring and Conservation of Golden Eagles in Three Emilia-Romagna Regional Parks” (“Monitoraggio e Conservazione dell’Aquila reale in tre parchi regionali dell’Emilia Romagna”) took place and subsequently in 2009 the National Park started a “Preliminary Study of Golden Eagles” (“Studio preliminare sull’Aquila reale”) that was funded by the Ministry of the Environment and the Protection of the Territory and Sea and carried out by the Parma branch of LIPU (the Italian League for the Protection of Birds). The general objective of these schemes is to monitor the presence of Golden Eagles in the Apennines territory and in particular the take-off rates of the five nesting pairs in and around the protected area. The specific objectives are:

- To develop guidelines for the management of the species in the territory.
- To create a synergic effect between the staff of all of the Authorities with golden eagles in their territories.
- To ensure that Park supervisory staff are suitably informed and exchange information.
- To raise awareness, actively involve and inform the local communities about the importance of safeguarding protected species.
- To promote “environmentally friendly” behaviour through precise information and educational campaigns for the users of protected areas.

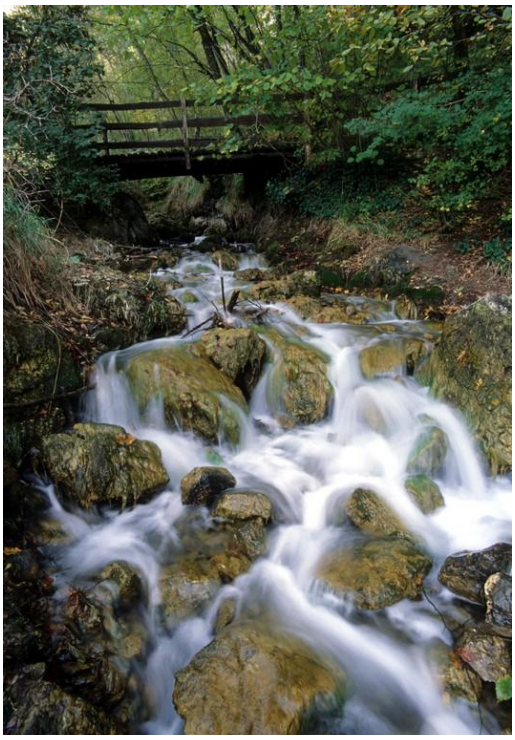


Figure 4-4 Sources of Poiano

In addition, work is still underway on the project LIFE08 NAT/IT/000369 GYPSUM (www.lifegypsum.it): protection and management of the habitats linked to the gypsum formations of the Emilia-Romagna region (2010-2015). It has involved numerous initiatives concentrated in a particularly valuable area of Triassic Gypsum Outcrops, with monitoring of habitats such as those of bryophytic flora and bats, analyses of the threats that are still present, and proposals for measures and actions to help manage the fragile ecosystems in the medium and long term. One of the tangible actions by the project is a natural rehabilitation scheme that is currently taking place for hydraulic and morphological restoration in the partially compromised habitat of the Sources of Poiano area (7210 *). The objective is to boost the biodiversity of the area, which was once much richer and has been significantly reduced by anthropic activity. Two species that had disappeared from the environment (Triglochin palustre and Carex davalliana) have been reintroduced in partnership with Veneto Agricoltura – the Plant and Non-Forest Biodiversity Centre of the Veneto Region.

## 4.3. "PROVIDE AN OPPORTUNITY TO EXPLORE AND DEMONSTRATE APPROACHES TO SUSTAINABLE DEVELOPMENT ON A REGIONAL SCALE".

The Biosphere Reserve candidature presents the local community with an important opportunity to continue and boost the renewal process which has already been underway for several years, influencing all of the parties involved in their relations and the systems that they use to achieve shared social and development goals. This portion of the Apennine ridge has complex, dynamic natural systems that perform very significant economic, residential, transportation and recreational functions. In the Tuscan-Emilian Apennines, the main economic activity is agriculture. It is largely managed in a traditional, extensive manner, so a great deal of variety has been preserved in the landscape units and the cultivated biodiversity. Recently, a tourism economy has developed. It is mainly based on the environmental quality of the territory and the appeal and quality of the typical agricultural output and foods produced. Therefore, the Tuscan-Emilian Apennines are inherently suited to becoming a Biosphere Reserve, in the sense of a genuine "sustainable development laboratory" that can combine the duty to preserve the ecological values of the territory with making the most of its specific qualities and traditional, environmentally friendly activities.

In the last ten years, the portion of the Apennine ridge that has been nominated to become a MaB reserve has promoted innovative sustainable development initiatives in a number of fields. It sets the benchmark for the entire Apennine ridge and Italian mountainous areas in general that have remained on the sidelines of industrial development and mass tourism. Its positive status in this respect is down to a number of factors, but there is no doubt that a central role has been played by the efforts of the Appennino Tosco-Emiliano National Park. It has worked in conjunction with local and regional authorities, the network of neighbouring protected areas (in the "Parchi di Mare e di Appennino" project, as described at http://www.parks.it/indice/mare_appennino/) and a wide range of partners, using memoranda of understanding to involve the majority of local stakeholders (Local Action Groups, Chambers of Commerce, Trade Associations and Environmentalist Associations). Together, they have launched a number of pilot schemes

which have gone on to establish best practices in the spheres of sustainable tourism, quality agriculture, environmental education, strengthening the local identity, and action to combat the effects of internationalisation and globalisation.

The above-mentioned schemes include innovative projects to support sustainable forms of tourism in the territory. Prominent examples include "Neve e Natura" (http://www.parcoappennino.it/neve.natura.php), "Autunno d'Appennino" (http://www.parcoappennino.it/pagina.php?id=241), "Turismo di Comunità" (http://www.ibrigantidicerreto.com/ - http://valledeicavalieri.it/), "Montagna Incantata" (a cultural initiative by the Central Emilia Land Reclamation Consortium to reinterpret the territory and highlight its values and potential, and "Sapori d'Appennino (Soft economy)", which was organised with the Protected Areas of Emilia, Local Action Groups and 150 players from the fields of agriculture and tourism. These initiatives have managed to extend the tourist season (which was formerly limited to the summer except in a few cases), while also actively involving in tourism villages and communities that had previously felt excluded from the field due to their lack of "infrastructure". The key to the success of the chosen tourism model is that the only infrastructures required are the territory and human resources to present and introduce it to visitors. This also means that the model is extremely easy to imitate and many similar schemes have been launched in other areas of both the Apennines and the Alps. The Appennino Tosco-Emiliano National Park has nicely complemented the area's commitment to sustainable tourism by presenting its candidacy for the Europarc European Charter for Sustainable Tourism in Protected Areas. In addition, the LIFE+ Ecocluster (www.ecocluster.it) project recently came to a close. It developed an environmental management system for public-private clusters that was tested in Cerreto Laghi, a tourist destination in the heart of the prospective MaB Reserve.

The close ties between tourism and agriculture in the territory are underlined by the "Menu' a km zero" competition (http://www.parcoappennino.it/menuKm0.php), which sees the participation of dozens of restaurants from the area. It was launched in 2008 and it was one of the first initiatives in Italy to introduce the concept of creating recipes to make the most of local produce and showcase nearby farms. For some years, the "Alma" international school of Italian cuisine has taken part in the competition. It is a prestigious establishment created by a group of public and private institutions. It is based in Colorno (Parma) and the rector is the internationally renowned chef Gualtiero Marchesi. Thanks to a contribution from Local Action Groups in the Emilian Apennines, as of 2014 the competition will be converted into a network of restaurants throughout the Apennines offering seasonal, locally sourced menus.

Other important sustainable development projects whose innovativeness and effectiveness have attracted interest from other territories considering similar schemes include "Di Onda in Onda" (From Wave to Wave) in Ligonchio (http://www.diondainonda.com/) and "Parco nel Mondo" (http://www.parconelmondo.it/).

"Di Onda in Onda" is promoted by the National Park in association with Ligonchio Town Council, Enel and in particular Reggio Children, which is behind the internationally renowned "Reggio Emilia" educational approach used in the Preschools and Primary Schools of Reggio Emilia. It is a huge workshop spread across the territory where indoor and outdoor exploration and experimentation intermingle and drive each other, creatively developing awareness about water and energy issues, as well as more general matters relating to ecology and natural sciences. In this respect, the specific territorial settings of the Tuscan-Emilian Apennine ridge – with its biodiversity values and watercourses – provide a venue for encounters and investigations. They are intertwined with the Hydroelectric Power Station in Ligonchio, which is a sort of base camp. "Parco nel Mondo" is a project by the Appennino Tosco-Emiliano National Park that aims to give a modern, positive slant on the emigration from the Tuscan-Emilian Apennine ridge in the last century and a half. The "Parco

nel Mondo" scheme strives to reconnect with emigrants and their children and grandchildren. It seeks to re-establish bonds and relationships between them and the Tuscan-Emilian Apennines, at least on an emotional level. The objective is to transform the outlook on emigration from "missing those who have gone" to opportunities for the territory to build "global ties". The "Orizzonti Circolari" project also endeavours to create an international network of "emotional ambassadors of the Tuscan-Emilian Apennines" (with funding from the regions of Emilia-Romagna and Tuscany http://www.parconelmondo.it/?cat=36). It enables young people from all over the world with origins in the territory to apply to come to the Apennine ridge for an educational visit. Since 2014, living in or near a UNESCO MaB Reserve will count in the favour of applicants.

None of these projects should be deemed finished and complete. They all require development, innovation and reinforcement. Being able to find out about similar experiences in the international network of MaB Reserves would certainly help them in this respect.

## 4.4. "HAVE AN APPROPRIATE SIZE TO SERVE THE THREE FUNCTIONS OF BIOSPHERE RESERVES"

The proposed Biosphere Reserve area covers 223,229 hectares, 4.5% of which are Core Areas, 11.5% Buffer Zones and 84% Transition Areas. The area covers the Tuscan-Emilian Apennine ridge from Passo della Cisa to Passo delle Forbici. This stretch of ridge marks the geographical and climatic boundary between Continental Europe and Mediterranean Europe.

The area covers 38 Municipalities that have always been traditionally associated with the Tuscan-Emilian Apennines in the provinces of Reggio Emilia (Baiso, Busana, Canossa, Carpineti, Casina, Castelnovo ne' Monti, Collagna, Ligonchio, Ramiseto, Toano, Vetto, Vezzano and Villa Minozzo), Parma (Berceto, Calestano, Corniglio, Monchio delle Corti, Langhirano, Lesignano, Neviano degli Arduini, Palanzano and Tizzano Val Parma), Modena (Frassinoro), Massa-Carrara (Bagnone, Casola in Lunigiana, Comano, Filattiera, Fivizzano, Fosdinovo, Licciana Nardi and Villafranca in Lunigiana) and Lucca (Castelnuovo di Garfagnana, Giuncugnano, Piazza al Serchio, Pieve Fosciana, San Romano in Garfagnana, Sillano and Villa Collemandina).

The area naturally stretches further into Emilia than into Tuscany due to the different shapes of the land on the two sides. In Tuscany to the South, the Apennines have steep slopes reaching down to the Tyrrhenian and Ligurian Seas due to fluvial incision and structural geological contact with clearly distinct units such as the Apuan Alps. In Emilia to the North, the ridge slopes gently down towards the Po Valley. Consequently, there is a large area that has strong ecological, cultural and socio-economic links with the ridge (see Fig. 7.1).

## 4.5. THROUGH APPROPRIATE ZONATION:

### "(A) A LEGALLY CONSTITUTED CORE AREA OR AREAS DEVOTED TO LONG TERM PROTECTION, ACCORDING TO THE CONSERVATION OBJECTIVES OF THE BIOSPHERE RESERVE, AND OF SUFFICIENT SIZE TO MEET THESE OBJECTIVES".

The candidature revolves around the area's distinctive status as a "ridge" territory. It is a place of union/division and therefore equilibrium and exchanges between climates, ecosystems, cultures and economies. With its rich, varied mosaic of diversity and peculiarities concentrated in just a "few" hectares, it is truly unique. The main Apennine ridge which divides Emilia from Tuscany is a Euro-Mediterranean climatic boundary and it is the common factor that links the excellent qualities of the vast territory (represented by the Transition Areas) between the Po Valley and the Tyrrhenian Sea, as well as a key ecological corridor, and for all these reasons it includes 4 of the 6 Core Areas, named after the highest peak in the area:

- Monte Sillara (2,277 hectares)
- Alpe di Succiso (1,964 hectares)
- Cima Belfiore (958 hectares)
- Monte Cusna (4,472 hectares)

These four Core Areas run almost all along the ridge. They are only broken up at three points: the Lagastrello, Cerreto and Pradarena passes.

These four *Core* areas run all along the ridge and are only broken up at three points (the Lagastrello, Cerreto and Pradarena passes) in which there are historical crossings evidenced by the presence of ancient hostels and archaeological evidences. Nowadays, these three passes correspond primarily with a low-medium speed road network, which does not interrupt the ecosystem's continuity. The pressure of human activities in the area of the Lagastrello, Cerreto and Pradarena passes has no significant impact on neighbouring core areas and on their conservation and protection measures.

The other two Core Areas show the importance of the natural environment and landscape on the secondary North-South ridges, which are perpendicular to the Apennine ridge and can only be found on the northern side:

1. Monte Ventasso (386 hectares)
2. Pietra di Bismantova (71 hectares)

The Core Areas of Monte Ventasso and the Pietra di Bismantova are actually part of the same secondary ridge.

All of the Core Areas (10128 hectares) overlie areas characterised by high natural values and a large collection of priority natural habitats that already benefit from significant levels of protection for they are instituted and regulated by laws that are hierarchically sovraordinated to the municipalities Master Plans: Natura 2000 network sites, State Conservation Areas, the National Park, Regional Parks. Shape and dimension of Core Areas guarantee the fulfilment of Reserve conservative objectives, actually defending all of those territories including the greatest environmental values (see also the table below).

Figure 4-5 Alpe di Succiso

| Core Areas | Natural features | Protection status | Protection measures | Regulatory framework |
|---|---|---|---|---|
| **Monte Sillara** | Presence of elements of the geological heritage<br>9 habitats of Community interest, 2 of which priority ones (6150, 8110, 4060, 4030, 8220, 8220, 6230*, 6430, 8130, 9110, 9220*).<br>About 100 plant species of biogeographical and conservation value, 1 of which priority species (Primula Appenina) and almost a dozen endemic species.<br><br>13 Species of Community interest: 2 Accipitriformes (*Pernis apivorus, Aquila chrysaetos*); Caprimulgiformes (*Caprimulgus europaeus*) and 3 passeriformes (*Lullula arborea, Anthus campestris, Lanius collurio*, Ficedula albicollis); the wolf (*Canis lupus**) priority species, the Bats Barbastella barbastellus and Miniopterus schreibersi; the Moth of the Ivy (*Euplagia quadripunctaria*); the river crayfish (*Austropotamobius pallipes*); the dace (*Leuciscous souffia)* the Italian warty newt (*Triturus carnifex*). | Area of significant scenic, natural, cultural, agricultural, environmental interest, with absent or limited human presence - Zone 1 of the National Park (very high degree of protection)<br>Area of significant scenic, natural, cultural, agricultural, environmental interest, with limited human presence - Zone 2 of the National Park (high degree of protection)<br>Area of significant scenic, natural, cultural, agricultural, environmental interest, with larger human presence - Zone 3 of the National Park (moderate degree of protection)<br>National Reserve of Guadine Pradaccio<br>SCI-SPA IT4020020 | It is prohibited:<br>➢ Cutting down trees for wood in the forests<br>➢ Fishing and the introduction of species, varieties and populations unrelated to the natural flora and native fauna<br>➢ Capturing, killing, damaging and bothering the animal species<br>➢ Collecting and damaging the spontaneous flora<br>➢ Collecting of geological and paleontological material<br>➢ Opening of quarries and mines<br>➢ Construction of new buildings, mobility infrastructure and technological works<br>➢ Construction of wells and water diversions<br>➢ Camping<br>➢ Access of motorized vehicles<br>➢ The introduction of weapons<br>➢ To overfly<br>➢ Placing of advertising boards<br>➢ The conversion of the forest to other crops or forest formations, except for scientific purposes and for environmental improvement<br><br>The access in the Reserves is permitted only for the purpose of study, management and supervision as well as for reasons of agriculture (crop and livestock) | • Guidelines for the Protection of the National Park – Decree of the president of the Italian Republic, 21/05/2001<br>• EU Directive "Habitats"<br>• EU Directive "Birds"<br>• Conservation Measures of Natura 2000 Sites<br>• "Regulations for the formation and management of the regional network of Nature Reserves. |

| Core Areas | Natural features | Protection status | Protection measures | Regulatory framework |
|---|---|---|---|---|
| **Alpe di Succiso** | Presence of elements of the geological heritage<br>9 habitats of Community interest, 1 of which priority one 6170, 8220, 4030, 4060, 8110, 8130, 6230*, 3240<br>About 70 plant species of biogeographical and conservation value, 1 of which priority species (Primula Appenina) and 6 endemic species<br><br>13 Species of Community interest: 2 Accipitriformes (*Pernis apivorus, Aquila chrysaetos*), 1 falconiformes (*Falco peregrinus*), 1 Caprimulgiformes (*Caprimulgus europaeus*) and 3 Passeriformes (*Lullula arborea, Anthus campestris, Lanius collurio*).<br>The wolf (*Canis lupus**) priority species; the horseshoe bat (*Rhinolophus ferrumequinum*); the Moth of the Ivy (*Euplagia quadripunctaria*) the river crayfish (*Austropotamobius pallipes*), the roach (*Leuciscous souffia)* the Italian warty newt (*Triturus carnifex*). | Area of significant scenic, natural, cultural, agricultural, environmental interest, with absent or limited human presence - Zone 1 of the National Park (very high degree of protection)<br>Area of significant scenic, natural, cultural, agricultural, environmental interest, with limited human presence - Zone 2 of the National Park (high degree of protection)<br>SCI-SPA IT4030001 | It is prohibited:<br>➢ cutting down trees for wood in the forests<br>➢ fishing and the introduction of species, varieties and populations unrelated to the natural flora and native fauna<br>➢ capturing, killing, damaging and bothering the animal species<br>➢ collecting and damaging the spontaneous flora<br>➢ collecting of geological and paleontological material<br>➢ opening of quarries and mines<br>➢ new buildings, mobility infrastructure and technological works<br>➢ well and water diversions<br>➢ camping<br>➢ access of motorized vehicles<br>➢ the introduction of weapons<br>➢ to overfly<br>➢ placing of advertising boards<br>➢ the conversion of the forest to other crops or forest formations, except for scientific purposes and for environmental improvement | • Guidelines for the Protection of the National Park – Decree of the president of the Italian Republic, 21/05/2001<br>• EU Directive “Habitats”<br>• EU Directive “Birds”<br>• Conservation Measures of Natura 2000 Sites |

| Core Areas | Natural features | Protection status | Protection measures | Regulatory framework |
|---|---|---|---|---|
| **Cima Belfiore** | 9 habitats of Community interest, one of which priority one (8230, 8220, 4060, 8110, 6150, 6230*, 6170, 4030, 8130), 2 habitat of natural importance at the local level.<br>About 100 plant species of biogeographical and conservation value, one of which priority species (Primula Appenina) and almost 10 endemic species.<br>Nine Species of Community interest: 2 Accipitriformes (*Pernis apivorus, Aquila chrysaetos*), Caprimulgiformes (*Caprimulgus europaeus*), 3 passeriformes (*Lullula arborea, Anthus campestris, Lanius collurio*), the wolf (*Canis lupus**) priority species; the Moth of the Ivy (*Euplagia quadripunctaria*) the river crayfish (*Austropotamobius pallipes*) the Italian warty newt (*Triturus carnifex*). | Area of significant scenic, natural, cultural, agricultural, environmental interest, with limited human presence - Zone 2 of the National Park (high degree of protection)<br>Area of significant scenic, natural, cultural, agricultural, environmental interest, with larger human presence - Zone 3 of the National Park (moderate degree of protection)<br><br>SCI-SPA IT4030003 | It is prohibited:<br>➢ capturing, killing, damaging and bothering the animal species<br>➢ collecting and damaging the spontaneous flora<br>➢ collecting of geological and paleontological material<br>➢ opening of quarries and mines<br>➢ new buildings, mobility infrastructure and technological works<br>➢ well and water diversions<br>➢ camping<br>➢ access of motorized vehicles<br>➢ the introduction of weapons<br>➢ to overfly<br>➢ placing of advertising boards<br>➢ the conversion of the forest to other crops or forest formations, except for scientific purposes and for environmental improvement | • Guidelines for the Protection of the National Park – Decree of the president of the Italian Republic, 21/05/2001<br>• EU Directive "Habitats"<br>• EU Directive "Birds"<br>• Conservation Measures of Natura 2000 Sites |

| Core Areas | Natural features | Protection status | Protection measures | Regulatory framework |
|---|---|---|---|---|
| **Monte Cusna** | Presence of elements of the geological heritage<br>18 habitats of Community interest, 3 of which priority ones (6520, 8220, 4030, 4060 8110, 8130, 6230*, 91EO*, 9110, 9220*, 9150, 6170, 6410, 8310, 7140, 7230, 8210, 6210) 2 habitat of natural importance at the local level<br>About 100 plant species of biogeographical and conservation value, one of which priority species (Primula Appenina) and almost 10 endemic species<br><br>16 Species of Community interest: 4 Accipitriformes (*Pernis apivorus, Aquila chrysaetos, Circus aeruginosus, Circus pygargus*), 1 falconiformes (*Falco peregirnus*), 1 charadriforme (*Charadrus morinellus*), 1 Caprimulgiformes (*Caprimulgus europaeus*) 4 Passeriformes (*Lullula arborea, Anthus campestris, Ficedula albicollis, Lanius collurio*).<br>The wolf (*Canis lupus**) priority species the Moth of the Ivy (*Euplagia quadripunctaria*); the *Rosalia alpine;* the river crayfish (*Austropotamobius pallipes*); the Italian warty newt (*Triturus carnifex*). | Area of significant scenic, natural, cultural, agricultural, environmental interest, with absent or limited human presence - Zone 1 of the National Park (very high degree of protection)<br>Area of significant scenic, natural, cultural, agricultural, environmental interest, with limited human presence - Zone 2 of the National Park (high degree of protection))<br>Area of significant scenic, natural, cultural, agricultural, environmental interest, with larger human presence - Zone 3 of the National Park (moderate degree of protection)<br>National Reserves: Orecchiella, Lama Rossa, Pania di Corfinno<br>SCI-SPA IT4030004; IT4030005; IT4030006; IT5120003; IT5120002 | It is prohibited:<br>➢ cutting down trees for wood in the forests<br>➢ fishing and the introduction of species, varieties and populations unrelated to the natural flora and native fauna<br>➢ capturing, killing, damaging and bothering the animal species<br>➢ collecting and damaging the spontaneous flora<br>➢ collecting of geological and paleontological material<br>➢ opening of quarries and mines<br>➢ new buildings, mobility infrastructure and technological works<br>➢ well and water diversions<br>➢ camping<br>➢ access of motorized vehicles<br>➢ the introduction of weapons<br>➢ to overfly<br>➢ placing of advertising boards<br>➢ the conversion of the forest to other crops or forest formations, except for scientific purposes and for environmental improvement<br><br>-the access in the Reserves is permitted only for the purpose of study, management and supervision as well as for reasons of agriculture (crop and livestock) | • Guidelines for the Protection of the National Park – Decree of the president of the Italian Republic, 21/05/2001<br>• EU Directive "Habitats"<br>• EU Directive "Birds"<br>• Conservation Measures of Natura 2000 Sites<br>"Regulations for the formation and management of the regional network of Nature Reserves. |

| Core Areas | Natural features | Protection status | Protection measures | Regulatory framework |
|---|---|---|---|---|
| **Monte Ventasso** | Presence of elements of the geological heritage<br>10 habitats of Community interest, 2 of which priority ones: 3150 4030, 4060, 6170, 6230*, 6520, 8130, 8220, 9110, 9220*<br>56 plant species of biogeographical and conservation value<br><br>12 Species of Community interest: 2 Accipitriformes (*Pernis apivorus, Aquila chrysaetos*), a Caprimulgiformes (*Caprimulgus europaeus*) and three Passeriformes (*Lullula arborea, Anthus campestris, Emberiza hortulana),* the wolf (*Canis lupus**) priority species horseshoe bat (*Rhinolophus ferrumequinum*)<br>the Moth of the Ivy (*Euplagia quadripunctaria*) the river crayfish (*Austropotamobius pallipes*), **roach** (*Leuciscous souffia)* the Italian warty newt (*Triturus carnifex)* | Area of significant scenic, natural, cultural, agricultural, environmental interest, with absent or limited human presence - Zone 1 of the National Park (very high degree of protection)<br>Area of significant scenic, natural, cultural, agricultural, environmental interest, with limited human presence - Zone 2 of the National Park (high degree of protection))<br>SCI-SPA IT4030002. | It is prohibited:<br>➢ cutting down trees for wood in the forests<br>➢ fishing and the introduction of species, varieties and populations unrelated to the natural flora and native fauna<br>➢ capturing, killing, damaging and bothering the animal species<br>➢ collecting and damaging the spontaneous flora<br>➢ collecting of geological and paleontological material<br>➢ opening of quarries and mines<br>➢ new buildings, mobility infrastructure and technological works<br>➢ well and water diversions<br>➢ camping<br>➢ access of motorized vehicles<br>➢ the introduction of weapons<br>➢ to overfly<br>➢ placing of advertising boards<br>➢ the conversion of the forest to other crops or forest formations, except for scientific purposes and for environmental improvement | • Guidelines for the Protection of the National Park – Decree of the president of the Italian Republic, 21/05/2001<br>• EU Directive “Habitats”<br>• EU Directive “Birds”<br>• Conservation Measures of Natura 2000 Sites |

| Core Areas | Natural features | Protection status | Protection measures | Regulatory framework |
|---|---|---|---|---|
| **Pietra di Bismantova** | geosite<br>9 habitats of Community interest, 3 of which priority ones: 5130, 6110*, 6210*, 6170, 6510, 6520, 8210, 8130, 9180*<br>About 100 plant species of biogeographical and conservation value, 7 of which species of Community interest: 3 Accipitriformes (*Pernis apivorus, Circaetus gallicus*, *Falco peregrinus*), Caprimulgiformes (*Caprimulgus europaeus*) 2 Passeriformes (*Lullula arborea, Lanus collurio*), stag beetle (*Lucanus cervus*) | Area of significant scenic, natural, cultural, agricultural, environmental interest, with limited human presence - Zone 2 of the National Park (high degree of protection)<br>SCI IT4030008. | It is prohibited:<br>➢ capturing, killing, damaging and bothering the animal species<br>➢ collecting and damaging the spontaneous flora<br>➢ collecting of geological and paleontological material<br>➢ opening of quarries and mines<br>➢ new buildings, mobility infrastructure and technological works<br>➢ well and water diversions<br>➢ camping<br>➢ access of motorized vehicles<br>➢ the introduction of weapons<br>➢ to overfly<br>➢ placing of advertising boards<br>➢ the conversion of the forest to other crops or forest formations, except for scientific purposes and for environmental improvement | • Guidelines for the Protection of the National Park – Decree of the president of the Italian Republic, 21/05/2001<br>• EU Directive "Habitats"<br>• Conservation Measures of Natura 2000 Site (SCI Pietra di Bismantova) |

## "(B) A BUFFER ZONE OR ZONES CLEARLY IDENTIFIED AND SURROUNDING OR CONTIGUOUS TO THE CORE AREA OR AREAS, WHERE ONLY ACTIVITIES COMPATIBLE WITH THE CONSERVATION OBJECTIVES CAN TAKE PLACE".

A single Buffer Zone of 25,706 hectares entirely surrounds all six Core Areas, acting not only as a "protective cushion" but also as a wildlife corridor between them. The Buffer Zone, in fact, also includes several areas already protected under conservation schemes that prevent human activities, but rather set limits and detailed rules for it, with the aim of preserve natural and environmental values.

In detail, the area goes to include entirely areas 2 and 3 of the Park, where the regime of protection and conservation is widely described in paragraph 14.1.3. The Buffer area extends beyond the boundary of the Park only in some specific mountainous areas that have peculiar natural features and landscapes, certified by the presence of zones of protection, SCI and SPA at high altitudes, in areas that are not reachable by strongly incisive human activities, but mainly to visit and transit. The Buffer Zone narrows around steep zones, like in the Pietra di Bismantova Core Area where it mostly follows the National Park protection boundaries that encircle the significant formation: the steepness and lithological characteristics of the Pietra (an arenaceous spur emerging from the argillite all around it) create an isolated, not easily accessible and thus an area naturally protected by its surroundings.

The boundary of the buffer zone thus is made to encounter only the rare traditional human activities, which aim to the maintenance, with the integral conservation regimen that characterizes the core area regulated upon specific Authorization from the National Park Authority.

## "(C) AN OUTER TRANSITION AREA WHERE SUSTAINABLE RESOURCE MANAGEMENT PRACTICES ARE PROMOTED AND DEVELOPED".

The aim when mapping out the Transition Area was to include the territories that have environmental, social and economic relationships with the Euro-Mediterranean Tuscan-Emilian Apennine Ridge, which lies between Passo della Cisa and Passo delle Forbici. Partly because of the depopulation and ageing processes in the upper ridge Municipalities, the Transition Area was extended towards the valleys to show the desire to involve the human resources of the Apennines in the protection of the territory's distinctive features, first and foremost by encouraging and advocating understanding of the area and then by upgrading it through sustainable socio-economic development. Consequently, the Transition Areas include urban settlements (with services such as schools, commercial businesses and hospitals), manufacturing and tourist areas, and above all large agricultural and rural areas, since zones of this kind are the best places to test and spread a sustainable development model that supports, protects and promotes the Core Areas and Buffer Zones.

Therefore, in principle it was decided that the 187,413-hectare Transition Area should cover all of the territory of the Municipalities that expressed interest in the UNESCO MaB Reserve candidature, except for territories:

- That are part of the clearly distinct geological unit of the Apuan Alps (in Lunigiana and Garfagnana).
- Where the ties with the Apennine Ridge are less clear and there is a closer economic and social relationship with the industrial districts in the Po Valley (Municipalities in the Reggio Emilia and Parma hills).
- Where there are infrastructures (the A15 Parma-La Spezia Motorway and the SS62 Cisa State Road) that constitute an ecological and social barrier (in the Municipality of Berceto and the Municipalities in the "lower" Lunigiana area).
- That lie beyond Passo delle Forbici and the SS486 State Road (in the Municipality of Frassinoro), because beyond this "boundary" the Apennine ridge no longer forms a Euro-Mediterranean climatic and geographical boundary. The ridge continues towards the Monte Cimone ski resort, which also has clear differences from the candidate MaB Reserve Area in economic and social terms.
- In the Municipalities of Piazza al Serchio (Lucca) and Giuncugnano (Lucca), which were not included in their entirety due to issues relating to geographical contiguity.

For the reasons given above in the description of the Buffer Zone, along the Reserve's boundaries with the Municipalities of Sillano and Castiglione di Garfagnana (near Passo delle Forbici) the Core Areas are protected by a strip of Buffer Zone but there is no Transition Area. Given the intentions described above, it was deemed pointless to create a Transition Area where there are no significant anthropic or social elements.

## (D) PLEASE PROVIDE SOME ADDITIONAL INFORMATION ABOUT THE INTERACTION BETWEEN THE THREE AREAS.

Materials and energy can easily be exchanged between the ecosystems in the candidate Biosphere Reserve Area in the Tuscan-Emilian Apennines. There are almost no physical or anthropic barriers capable of preventing interaction between the Core Areas, Buffer Zones and Transition Areas.

**Figure 4-6 Passo del Lagastrello**

## *4.6.* "ORGANIZATIONAL ARRANGEMENTS SHOULD BE PROVIDED FOR THE INVOLVEMENT AND PARTICIPATION OF A SUITABLE RANGE OF INTER ALIA PUBLIC AUTHORITIES, LOCAL COMMUNITIES AND PRIVATE INTERESTS IN THE DESIGN AND THE CARRYING OUT OF THE FUNCTIONS OF A BIOSPHERE RESERVE".

### 4.6.1. DESCRIBE ARRANGEMENTS IN PLACE OR FORESEEN.

In 2009, the Park Community of the National Park approved a Long-term Economic and Social Plan to promote compatible activities. It established a sustainable development strategy for the Municipalities on Apennine ridge as a whole. The initiative consisted of 105 projects, the majority of which are now complete or underway.

Management Plans have also been drawn up for large SCIs and SPAs in the candidate area. In addition, there are Territorial Plans for Coordination and Protection of the Landscape which have been approved by the two Regions or by proxy by the ruling Provinces. Furthermore, there are Rural Development Plans approved by the two regions for the period from 2014 to 2020 which establish criteria and measures to protect the environment and promote high-quality, sustainable development of agriculture and tourism.

This candidature to make the Tuscan-Emilian Apennines a Biosphere Reserve is the result of further intense efforts to consult, involve and encourage the participation of the local community and all of the stakeholders in a process that was started by the Appennino Tosco-Emiliano National Park in 2012. As the candidature has progressed, a number of suitable forms and methods have been used (for further details, see section 17.3).

In 2012 and the first few months of 2013, the proposal committee mainly focused on providing information and raising awareness about the UNESCO MaB Biosphere Reserve. During major events in the municipalities of the Tuscan-Emilian Apennines, it organised a petition in favour of the candidature, thus justifying its desire to suggest starting the process. In this initial phase, more than 1000 signatures (see the enclosure) were collected, including those of the representatives of numerous Public Bodies, Companies and Associations from the candidate territory.

In a second phase (from mid-2013 to the present day), more than 600 people attended a total of 32 meetings to coordinate the mission and the strategic objectives of the scheme to make the Appennino Tosco-Emiliano a MaB Reserve. Some of these meetings were public and some were with select groups of stakeholders. They served in part to dispel any fears or doubts and to motivate the local community and stakeholders, gain their approval and encourage them to participate actively in the candidature. Reports and/or attendance sheets are enclosed for each of the organised meetings.

There was an intense consultation process with the Local Communities for the MaB Reserve candidature and participation was high. At present, no agreements have been signed for the management and governance of the Biosphere Reserve. However, the candidature has already received numerous forms of official support in the shape of the enclosed endorsement letters and resolutions by Local Bodies and important stakeholders from the territory. In addition to supporting the National Park as it drew up the candidature, the signatories of these resolutions have committed to helping to manage the Reserve in accordance with the proposed model of governance (see section 17). The intention is to set up two organisations: one on a large scale and another on a more limited scale. The representatives and operating mechanisms within these organisations will steer and carry out the management work on the whole, covering aspects such as protection, monitoring, development, education and support functions (see section 17.4).

In particular, the broader organisation will have a permanent consultative assembly and it will encourage the participation on a voluntary, unpaid basis of representatives of: Municipalities; Unions of Municipalities; Provinces; Land Reclamation Authorities; managers of protected areas, SCIs and SPAs; the chambers of commerce, industry, agriculture and small business (CCIAAs) in the MaB Reserve area; the State Forestry Corps; the head teachers of primary schools; the main business, environmental, cultural and recreational associations; and committees of local residents. General or specific agreements for projects to implement MaB Reserve strategies may be made by all or some of the members of this advisory committee.

### 4.6.2 HAVE ANY CULTURAL AND SOCIAL IMPACT ASSESSMENTS BEEN CONDUCTED, OR SIMILAR TOOLS AND GUIDELINES BEEN USED?

Precise assessment of the cultural and social impacts will only be possible once the MaB Reserve has been established. Nonetheless, assessments, critical observations and corrective proposals in keeping with the current outlook for the MaB Reserve were systematically acquired during the creation of the Plan for the Appennino Tosco-Emiliano National Park. They were also produced in different forms for other planning tools such as the Management Plans for SCIs and SPAs, as well as more generally in territorial and landscape plans that have already been drawn up by regions and provinces. Interactive consultation processes and studies with economic players from the fields of agriculture and tourism were recently carried out in preparation for the 2014-2020 Rural Development Plans. Between 2012 and 2014, the Apennine Monitor of the Reggio Emilia Chamber of Commerce carried out a specific research project and survey into the assessments and expectations of students, teachers and families in the Reggio Emilia Apennines.

## 4.7. MECHANISMS FOR IMPLEMENTATION: DOES THE PROPOSED BIOSPHERE RESERVE HAVE:

### "(A) MECHANISMS TO MANAGE HUMAN USE AND ACTIVITIES IN THE BUFFER ZONE OR ZONES"?

The buffer zone of the MAB Reserve includes areas that are already subject to degrees of protection offered by the National Park, the Emilia-Romagna Regional Parks, the Network of Natura 2000 Sites (Siti Rete Natura) and landscape protection.

In the Buffer zone there are some towns that, due to their unique geographical situation, house valuable biodiversity and represent the starting point for undertaking functions relating to development, which will be completed in the transition areas.

The existing plans for managing land use and anthropic activity ensure a good level of current and future protection for the Biosphere Reserve through the implementation of the Code of Cultural Heritage and Landscape (Codice dei Beni Culturali e del Paesaggio), the current Guidelines for the Protection of the National Park (Disciplina di Tutela del Parco Nazionale), as well as the Territorial Plan, the Regulations and the multiannual social and economic Plan (the procedures of which are under approval) and the Management Plans and Conservation Measures for the Network of Natura 2000 Sites.

Through being recognised as a Biosphere Reserve, the level of protection, recognition and intervention, currently involving various levels of local and national government (municipal territorial planning for building and the use of land, regional indications for the installation of renewable energy plants, regulations contained in the General and Forestry Corps Regulations (Prescrizioni di Massima e di Polizia forestale), will be better coordinated with a focus on shared objectives and actions as defined by the system of governance and the Management and Development Programme.

### "(B) A MANAGEMENT POLICY OR PLAN FOR THE AREA AS A BIOSPHERE RESERVE"?

The nomination stage involved the drafting of the management and development Programme guidelines (attached). This outlines the vision, which gives form and substance to the nomination by putting human resources, and its relationship with nature, at the heart of the Reserve's future sustainable development actions. The document, approved on 24th February 2014 within the Park Community which, on that date, was extended extraordinarily to all municipalities interested in becoming a MaB Reserve, is published on the website dedicated to the nomination process[1]. It is a work in progress and gives rise to opportunities for past and future discussion and sharing.

The first actions identified and shared, in line with the indications contained in the guidelines and the management plans of the national and regional protected areas included in the MaB, include the creation of a "laboratory of sustainable development" with the aim of training and encouraging the younger generation to invest in the area, supporting the development of traditional mountain agriculture and implementing forms of sustainable tourism. Further actions indicated by the guidelines include the identification and development of clusters: areas which, due to their inherent uniqueness and superiority, will represent the preferred areas for studying the relationship between human activity and land.

Although, at the time of nomination a Management program for the Biosphere Reserve of the Tuscan-Emilian Apennines has not yet been developed, a draft model has been developed in addition to the guide-

[1] http://www.parcoappennino.it/uomo.biosfera/?attachment_id=185

lines (for details, see chapter 17.4) and those drawing it up have been involved and engaged in a Management Committee (see chapter 17.1). The "Conservation, Management and Development Policy of the MaB Area" ("Politica di tutela, gestione e sviluppo") will be a fundamental feature of the management program and will clarify the strategies and objectives of the MaB. The "Policy" will be subject to a participatory process, which will enable the local MaB communities and stakeholders to share in it and propose additions and amendments. In order to achieve the objectives and strategies of the "Conservation, Management and Development Policy of the MaB Area" at least 4 operational programs will be established:

- an operational program for the protection and conservation of the MAB Area
- an operational program for monitoring and research in the MaB Area
- an operational program for supporting the sustainable development of the MaB Area
- an operational program for education and professional training on sustainability in relation to the values and merits of the MaB Area

The Management Program, or rather the "Conservation, Management and Development Policy of the MaB Area" and the 4 operational programs will be approved by the Permanent Consultative Assembly (see section 17.1.7), which shall include all of the local authorities involved in the Biosphere Reserve.

Alongside discussion, sharing of content and subsequent implementation of the preparatory document on the Management Program and Development of the MaB Reserve, the National Park is in the process of obtaining certification from the European Charter for Sustainable Tourism (ECST), which, by constituting an additional methodological tool for the development of sustainable tourism in the Protected Areas, establishes a central collaborative role among all of the stakeholders involved in developing a common strategy and an action plan for the development of tourism, with the aim of combining local development with the protection of natural and cultural heritage.

The 10 founding principles of the ECST are:

- **Working in Partnership:** to involve all those implicated by tourism in and around the protected area in its development and management
- **Preparing a strategy:** to prepare and implement a sustainable tourism strategy and action plan for the protected area with the commitment of all stakeholders involved
- **To protect and enhance the area's natural and cultural heritage:** to protect resources from an irresponsible and high impact tourism
- **Quality:** to provide all visitors with a high quality experience in all aspects of their visit
- **Communication:** to communicate effectively to visitors about the special qualities of the area
- **Specific local tourism products:** to encourage tourism linked to specific products, which enable discovery and understanding of the area
- **Improve knowledge, training:** to increase knowledge of the protected area and sustainability issues amongst all those involved in the tourism industry
- **Quality of life of residents:** to ensure that tourism supports and does not reduce the quality of life of local residents

- **Benefits for the economy:** to increase benefits from tourism to the local economy
- **Monitoring flow, reducing impact:** to monitor and influence visitor flows to reduce negative impacts

These principles align wholly with the objectives of the MaB Reserve; for this reason, the process initiated by the National Park in April 2013, which was executed through several information sessions both on the Tuscan and Emilian side, included, from the outset, tourism operators that also conduct their activities outside the territorial area of the Park. The evaluator, appointed by the Europarc Federation to verify the participation of the territory during the ETSC application process, carried out a regulatory visit in May 2014; the final report will subsequently be reviewed by the Evaluation Committee, which will decide whether to grant certification solely to the National Park in the first instance and whether, at a later stage, to all of the tourist facilities involved in the process and interested in obtaining it.

The MaB Reserve also includes a number of municipalities (Berceto, Caledon, Corniglio, Langhirano, Lesignano, Monchio delle Corti, Neviano degli Arduini, Palanzano, Tizzano Val Parma in the province of Parma; Ramiseto, Collagna, Ligonchio, Baiso, Busana, Castelnovo ne' Monti, Vetto, Canossa, Casina, Carpineti, Vezzano sul Crostolo and Toano in the province of Reggio Emilia), which have joined the Covenant of Mayor, regarded by the European institutions as an outstanding model of multi-level governance in the implementation of policies in the sustainable energy field. Its actions are based on support networks that operate on various levels - economic, administrative, scientific, promotional - such as the Covenant Coordinators, the Covenant Supporters, the Office (CoMO) and the Joint Research Centre (JRC) of the European Commission; a method that, similar to that of the MaB Reserve, puts into place and utilises the best specialists available for each of the relevant areas in order to achieve effective results.

The member authorities are committed to involving their citizens and stakeholders, as well as spreading the message of the Covenant and encouraging other Local Authorities to join the initiative. This approach, aimed at involvement and the dissemination of best practices, specifically in the field of energy, will be further enhanced within the MaB Reserve, where the network of existing relationships will serve as a means of reinforcing the message, including to those institutions that are not currently involved in the Covenant.

## "(C) A DESIGNATED AUTHORITY OR MECHANISM TO IMPLEMENT THIS POLICY OR PLAN"?

The Appennino Tosco-Emiliano National Park is the body intended to perform the functions of Coordination and Secretariat of the Biosphere Reserve, which support the “Management Committee” and the “Permanent Consultative Assembly” (see chapter 17.1), which are the main decision-making bodies for all matters regarding the management of the reserve including definition, approval, implementation and monitoring of the Management Programme.

The Chairperson of the Appennino Tosco-Emiliano National Park holds the legal and administrative responsibilities for the nomination and for the preparation of reports to be sent to the relevant ministerial offices of the national MaB Committee and the UNESCO offices in Paris, from nomination and for at least the first ten years of its implementation. The official headquarters is that of the Appennino Tosco-Emiliano National Park in via Comunale 23a Sassalbo di Fivizzano (Massa-Carrara), Italy.

## “(D) PROGRAMMES FOR RESEARCH, MONITORING, EDUCATION AND TRAINING"?

Particularly the Tosco-Emiliano National Park, as well as the other Protected areas (Parks and Reserves) within the candidate area, has undertaken and is currently undertaking a number of studies and research

projects, as well as contributions from thesis and Doctoral degrees, which focus on deepening the environmental, socio-economic and educational aspects of the respective territories.

The Appennino Tosco-Emiliano National Park has participated in European and transnational projects. The LIFE Projects are a major part of this, structured so as to include both research and monitoring before and after implementation, as well as long-term education and training.

Recently concluded projects include the LIFE09/ENV/IT//000188 ECO-CLUSTER "Environmental Cooperation model for cluster", an environmental management model that can be replicated for the tourism sector, LIFE07/NAT/000502 EXTRA *Improvement of conditions for the conservation of large carnivores - Transfer of best practices* (*"Miglioramento delle condizioni per la conservazione di grandi carnivori– Trasferimento delle migliori pratiche"*) (www.lifextra.it) with measures for monitoring wolves and livestock losses, and the Co.R.E.M. (Cooperation of Ecological Networks in the Mediterranean).

The following are also underway:

1) LIFE08 NAT/IT/000369 GYPSUM: protection and management of Habitats linked to the chalky formations of the Emilia-Romagna region (www.lifegypsum.it), with the monitoring of habitats, bat colonies, karst aquifers; drafting of promotional and informative material, informative and educational activities in schools and informative events for the public (bat nights);

2) LIFE14NAT/IT/001129 BARBIE – Conservation and management of Barbus meridionalis and Barbus plebejus in the Emilian tributaries of the River Po. The project aims to preserve and restore the native populations of Barbus in the Emilia tributaries of the River Po, in 14 RN2000 sites, through interventions in situ and ex situ, as well as the development of guidelines (2014-2017);

3) LIFE 13 NAT IT 728 MIRCO – wolf "Reducing the impact of stray dog phenomenon on wolf conservation in Italy" ("Minimizzare l'impatto del randagismo canino sulla Conservazione del lupo in Italia").

In addition, at the time of its inception, the National Park included the Alto Appennino Reggiano Regional Park and part of the Cedra and Parma Valleys Regional Park, which have, in turn, benefited from 5 LIFE projects (target species: Wolf-Eagle-White Fir): LIFE95NAT/IT/000610; LIFE96NAT/IT/003115; LIFE97NAT/IT/004163; LIFE00NAT/IT/007214; LIFE00NAT/CP/IT/000046.

An excellent educational, training and research project was designed by the Reggio Children Non-profit Foundation (Fondazione no profit Reggio Children) at the Atelier of Water and Energy (Atelier dell'Acqua e dell'Energia) within the hydroelectric power plant of Ligonchio (Reggio Emilia). Here, an annual SUMMER SCHOOL is organised with Italian and international participants to ensure that the innovative practices of Reggio Children and its educational approach, which is recognised and respected on an international level, remain dynamic and fruitful; adding value to the global network of Biosphere Reserves. In its letter of endorsement of this nomination (attached), the Reggio Children Foundation has declared its intention to participate actively in preparing the Reserve's governance plan, helping to define its Management Program and carry out the functions of protection, development and logistical support, particularly within the field of environmental education, offering its acquired *know how* and promoting active links with teachers and institutions in various countries across the continents.

Each year, valuable training and refresher courses (2-3 days) are also organised for the teachers and heads of schools of all year groups that are based throughout the area nominated to become a Reserve; every year a theme to explore is chosen and the trainers continue to be figures of considerable cultural im-

portance. In 2014, the theme is "Codice Appennino" ("Code Apennines"), which is based precisely on the cultural operation underlying the Apennines' nomination to become a MaB Reserve.

Major environmental monitoring programmes have been carried out and are underway in the Reserve area by ARPA Emilia-Romagna and ARPA Tuscany (Regional Environment Agencies), the most significant of which are highlighted below:

**1) GLORIA Project (GLobal Observation Research Initiative in Alpine environments):** a global research project in which the Universities of Pavia and Parma have been involved since 2000, managing one of the 5 permanent monitoring sites in Italy: the northern Apennines, within the Appennino Tosco-Emiliano National Park. Its purpose is to establish and maintain a world-wide, long-term monitoring network in alpine environments. Vegetation and temperature data are collected at the GLORIA sites to identify trends in species diversity and temperature. The data will be used to assess and predict climate change-induced threats to the fragile alpine ecosystems, including losses in biodiversity.

**2) Networks for monitoring inland surface waters, rivers, lakes and transitional waters:** the quality of water bodies will be monitored through the implementation of the Water Framework Directive (2000/60/CE); observation takes place over three years (from: 2013-2015). The objectives set by the European Union include: to prevent quantitative and qualitative degradation and to ensure the water quality is "good" by 31st December 2015.

**3) Network for monitoring air quality**: air quality is monitored through the implementation of Directives 22008/50/CE and 2004/107/CE; within the MaB, specifically in Torrechiara (Langhirano) and Febbio (Villa Minozzo), there are currently two fixed sampling sites in rural areas.

**4) European Project CC-Ware**: its objective is the mitigation of the quantitative and qualitative vulnerability of water resources in relation to climate change and socio-economic changes. Arpa Emilia-Romagna is involved in identifying new indicators of vulnerability and developing a transnational vulnerability map for Italy; activities on a local level relate to monitoring and studying three sources in the mountain areas of Modena and Reggio Emilia, two of which fall within the MaB Reserve: the Fontana Grossa source in the municipality of Toano and the Mulino delle Vene source in the municipality of Carpineti.

**5) Biomonitoring project of the ARPA Emilia-Romagna agency network – APAT (Agency for Environmental Protection and Technical Services) "Mosses as bio-accumulators" (2006):** Arpa Piacenza tested the application of the method adopted by the protocol of the European Heavy Metal Survey (EHMS) in the project for monitoring the atmospheric depositions of heavy metals in Europe; the research into the bioaccumulation of metals and the practice of biomonitoring (monitoring the effects of pollution using living organisms and biological parameters) involved several areas of the Reserve (the provinces of Parma, Reggio Emilia and Modena).

The Reserve's Management Program will therefore be designed with the aim of encouraging, reinforcing and better coordinating these activities, which are mainly concentrated within Protected Areas at present, and extending them to the entire MaB area. Climate change studies and monitoring will be increased and important and innovative practices, such as those relating to the coexistence of man and wolf and the educational approach of Reggio Children, will become examples for other MaB Reserves to follow.

**Figure 4-7 The Golden Eagle (male, adult)**

# 5. ENDORSEMENTS

## 5.1. SIGNED BY THE AUTHORITY/AUTHORITIES IN CHARGE OF THE MANAGEMENT OF THE CORE AREA(S):

Parco nazionale

Busana

Castelnovo

comano

corniglio

filattiera

fivizzano

giuncugnano

licciana nardi

ligonchio

monchio delle corti

ramiseto

san Romano in G.

villacollemandina

villa minozzo

## 5.2. SIGNED BY THE AUTHORITY/AUTHORITIES IN CHARGE OF THE MANAGEMENT OF THE BUFFER ZONE(S):

Busana

Casola in L.

Castelnovo

comano

corniglio

filattiera

fivizzano

giuncugnano

licciana nardi

ligonchio

monchio delle corti

Piazza al serchio

ramiseto

san Romano in G.

villacollemandina

villa minozzo

## 5.3. SIGNED AS APPROPRIATE BY THE NATIONAL (OR STATE OR PROVINCIAL) ADMINISTRATION RESPONSIBLE FOR THE MANAGEMENT OF THE CORE AREA(S) AND THE BUFFER ZONE(S):

The sign by the National Park, responsible for the management of both core and buffer areas, was already provided separately in the previous sections (5.1 and 5.2) and has not been replicated here.

## 5.4. SIGNED BY THE AUTHORITY/AUTHORITIES, ELECTED LOCAL GOVERNMENT RECOGNIZED AUTHORITY OR SPOKESPERSON REPRESENTATIVE OF THE COMMUNITIES LOCATED IN THE TRANSITION AREA(S).

baiso

berceto

Busana

calestano

canossa

carpineti

casina

Casola in L.

Castelnovo

comano

corniglio

filattiera

fivizzano

fosdinovo

frassinoro

giuncugnano

langhirano

lesignano dei b.

licciana nardi

ligonchio

monchio delle corti

neviano degli a.

palanzano

Piazza al serchio

Pieva fosciana

ramiseto

san Romano in G.

sillano

toano

vetto

vezzano sul c.

villacollemandina

villa minozzo

villafranca in l.

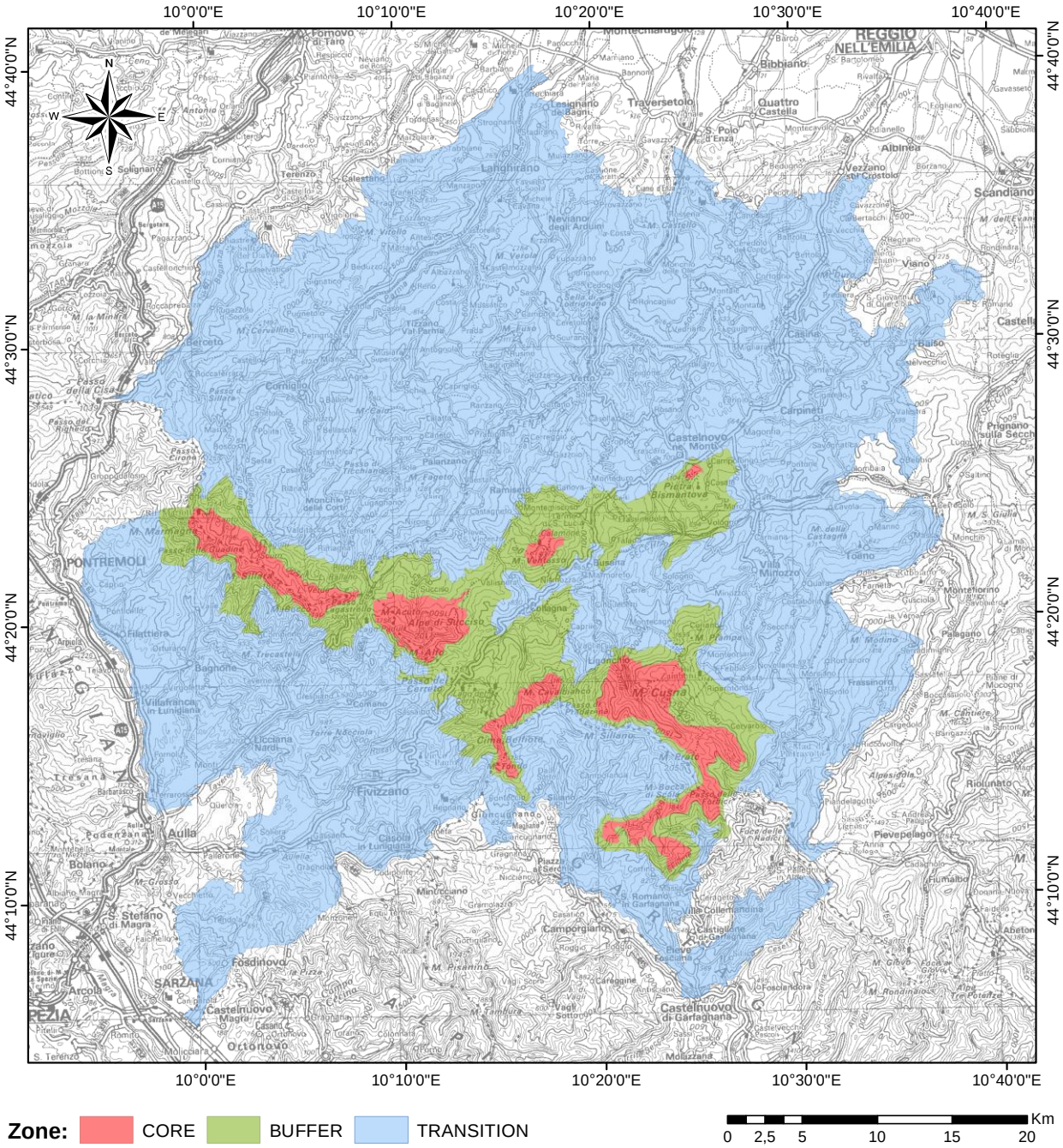
## PART II: DESCRIPTION

### 6. LOCATION (COORDINATES AND MAP(S))

#### 6.1. PROVIDE THE BIOSPHERE RESERVE'S STANDARD GEOGRAPHICAL COORDINATES (ALL PROJECTED UNDER WGS 84):

| Cardinal points | Latitude | Longitude |
|---|---|---|
| **Most central point:** | 44.387702° | 10.268886° |
| **Northernmost point:** | 10.28547° | 44.666788° |
| **Southernmost point:** | 9.992925° | 44.09266° |
| **Westernmost point:** | 9.898989° | 44.356868° |
| **Easternmost point:** | 10.660707° | 44.525891° |

## 6.2. PROVIDE A MAP(S) ON A TOPOGRAPHIC LAYER OF THE PRECISE LOCATION AND DELIMITATION OF THE THREE ZONES OF THE BIOSPHERE RESERVE.

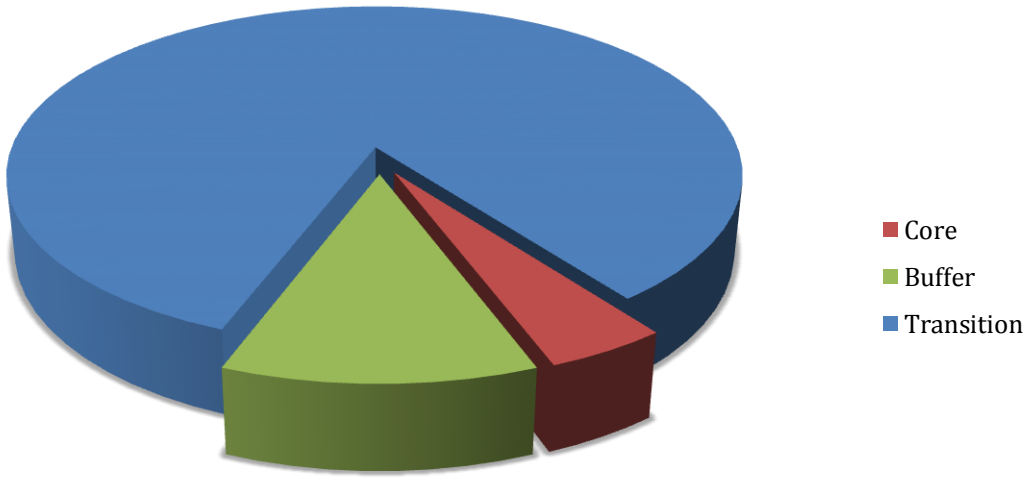



Due to page size limits it is not possible to provide a more detailed topographic map here, however a 1:50.000 set of topographic maps of the three zones of the Reserve is available in the annexed cartographic atlas.

## 7. AREA (SEE MAP)

Total: 223229 ha

| | Terrestrial | Marine (if applicable) | Total |
|---|---|---|---|
| **Area of Core Area(s):** | 10110 ha | N.A. | 10110 ha |
| **Area of Buffer Zone(s):** | 25706 ha | N.A. | 25706 ha |
| **Area of Transition Area(s):** | 187413 ha | N.A. | 187413 ha |
| **TOTAL** | **223229 ha** | **N.A.** | **223229 ha** |




### 7.1. BRIEF RATIONALE OF THIS ZONATION IN TERMS OF THE RESPECTIVE FUNCTIONS OF THE BIOSPHERE RESERVE.

The area nominated to become a UNESCO MaB Reserve has been outlined for its special feature: that of being the Apennine ridge in which the climatic and geographical boundary between Continental and Mediterranean Europe is situated, a line of union/division and thus of equilibrium and exchange between climates, ecosystems, cultures and economies: with its rich, varied mosaic of diversity and peculiarities concentrated in just a “few” hectares, it is truly unique. The ridge is a Euro-Mediterranean climatic boundary and is the common factor that links the excellent qualities of the vast territory (represented by the Transition Areas) between the Po Valley and the Tyrrhenian Sea.

The geographical boundary is delineated by a ridge studded with peaks, most of which are over 1800 m, which emerged during the Apennine orogeny in which lands, which were previously considerably further apart, were stacked up (see also chapter 11.4). The difference in the lithology of the two sides of the ridge has resulted in different acclivities and a significant variation in the soils which, together with a different slope exposure and a different use by Man, has given rise to the complex mosaic of habitats mentioned in the previous paragraph. These habitats coexist in extremely close-knit spaces that are controlled by the altitudinal and climatic factors, rendering them particularly sensitive to changes in the latter. This mosaic of habitats is one of the main factors determining this proposal, while also being a special feature that is ex-

tremely sensitive to pressures exerted by external factors: this is why it needs conservation measures and a perimeter to serve both as protection and for the dynamics of its interaction with the surrounding areas.

The candidate area has therefore been divided into three zones (*Core, Buffer* and *Transition*) depending on the role that each will play in performing the functions of conservation, development and logistics.

The overall area includes 38 municipalities that have always been traditionally associated with the Tuscan-Emilian Apennines and are located in the provinces of Reggio Emilia (Baiso, Busana, Canossa, Carpineti, Casina, Castelnovo ne' Monti, Collagna, Ligonchio, Ramiseto, Toano, Vetto, Vezzano, Villa Minozzo), Parma (Berceto, Calestano, Corniglio, Monchio delle Corti, Langhirano, Lesignano, Neviano degli Arduini, Palanzano, Tizzano Val Parma), Modena (Frassinoro), Massa-Carrara (Bagnone, Casola in Lunigiana, Comano, Filattiera, Fivizzano, Fosdinovo, Licciana Nardi, Villafranca in Lunigiana) and Lucca (Castelnuovo Garfagnana, Giuncugnano, Piazza al Serchio, Pieve Fosciana, San Romano in Garfagnana, Sillano, Villa Collemandina).

The area naturally stretches further into Emilia than into Tuscany due to the different shapes of the land on the two sides (see fig. 7.1). In Tuscany to the South, the Apennines have steep slopes reaching down to the Tyrrhenian and Ligurian Seas due to fluvial incision and structural geological contact with clearly distinct units such as the Apuan Alps. In Emilia to the North, the ridge slopes gently down towards the Po Valley. Consequently, there is a large area that has strong ecological, cultural and socio-economic links with the ridge.

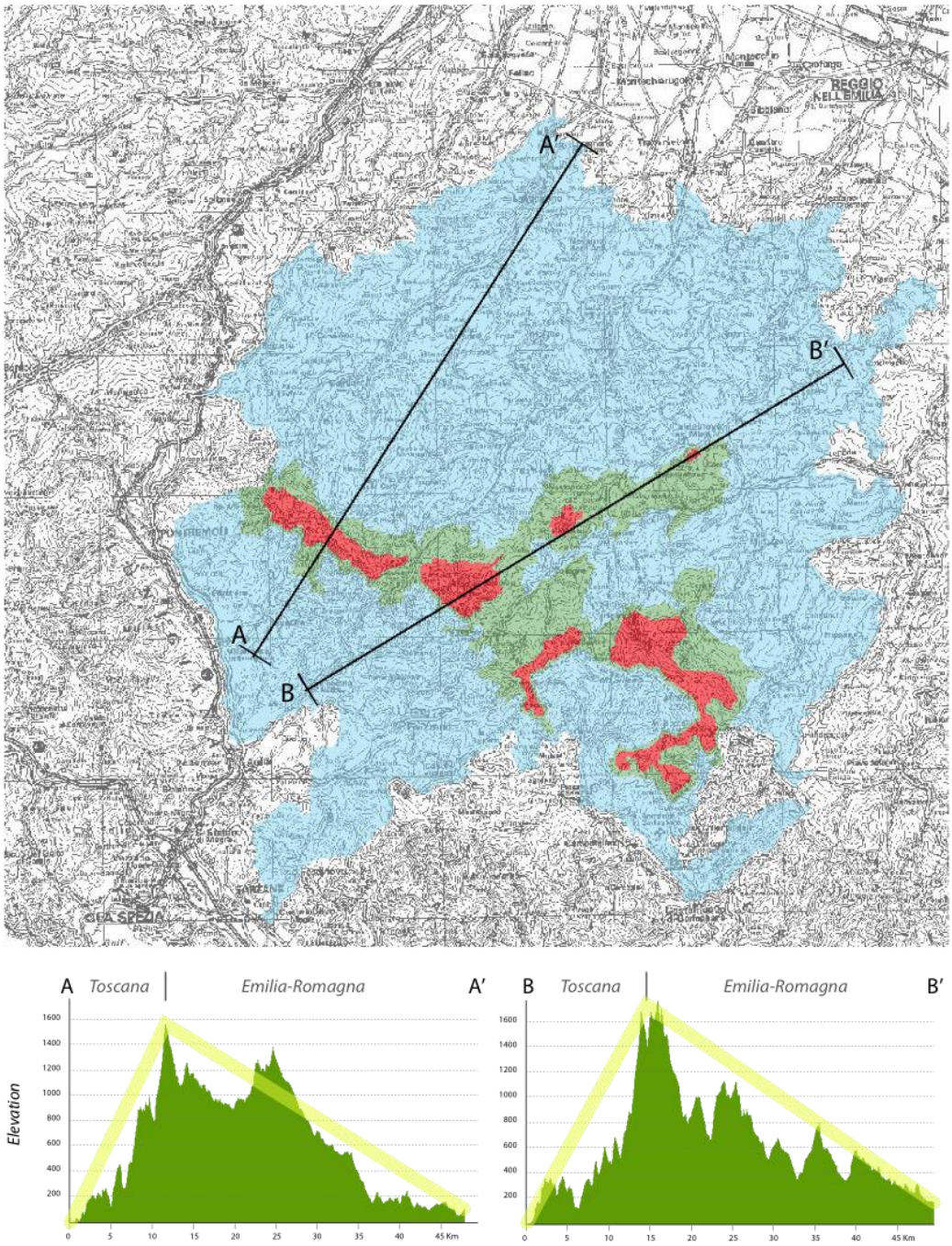



**Figure 7-1 – Examples of the asymmetry among the two sides of the Apenininc ridge, that explains for the different extension of the candid ate area in the two regions.**

## CORE AREAS

The *Core* areas have been demarcated by linking highly protected areas on the two sides of the ridge. All of the core areas fall within the protected areas of the Appennino Tosco-Emiliano National Park.

The main feature of this nomination is the ridge: four of the six *Core* areas are situated on the main Apennine ridge that separates Emilia from Tuscany and have been named after their highest peak:

- Core area “Monte Sillara” (2,277 ha)

- Core area “Alpe di Succiso” (1,964 ha)
- Core area “Cima Belfiore” (958 ha)
- Core area “Monte Cusna” (4,472 ha)

In fact, these four *Core* areas run all along the ridge and are only broken up at three points (the Lagastrello, Cerreto and Pradarena passes) in which there are historical crossings evidenced by the presence of ancient hostels and archaelogical evidences. Nowadays, these three passes correspond primarily with a low-medium speed road network, which does not interrupt the ecosystem’s continuity. The pressure of human activities in the area of the Lagastrello, Cerreto and Pradarena passes has no significant impact on neighboring core areas and on their conservation and protection measures.

The two other *Core* areas have been identified to demonstrate the natural and scenic importance of the secondary, north-south ridges, running perpendicular to the Apennine ridge, extending to the north side border of the Biosphere Reserve and acting as ecological corridors and a important connection between areas where environmental protection is in fact prevalent (Core and Buffer zones) and those in which prevail compatible human activities such as mountain agricolture and eco-turism (transition Zones). These Core areas are:

- Monte Ventasso (368 ha)
- Pietra di Bismantova (71 ha)

which in fact belong to the same secondary ridge, have been chosen for their naturalistic and geological value.

All of the *Core* areas will constitute the mainstay of the MaB Reserve’s conservation role. This is due to the fact that they are recognised as areas of natural importance and are located in areas that already benefit from significant protection as Integral State Reserves, Emilia Regional Parks and the network of Natura 2000 sites, in addition to as a National Park, and are protected by national and regional laws including provincial territorial coordination plans (PTCP), as largely described in 14.1.3.

With regard to the gathering of mushrooms and forest produce, the regulations protecting these areas include the relevant legislation that derives from regulations on a regional, provincial and mountain community level, as well as with regards to fishing, which, however, is prohibited in zones 1 of the Park. Grazing and use of the forests is regulated either by the “General and Forestry Corps Regulations” (“Prescrizioni di Massima e di Polizia forestale”) or by the specific regional laws; forest felling, prohibited in zones 1, must, however, be pre-authorised by the Park authority in zones 2, while it is permitted in zones 3 of the Park (which is only present marginally in relation to the core areas nominated here), in line with current regulations (details about the norms that regulate the activities in the various areas of the Park are given in 14.1.3).

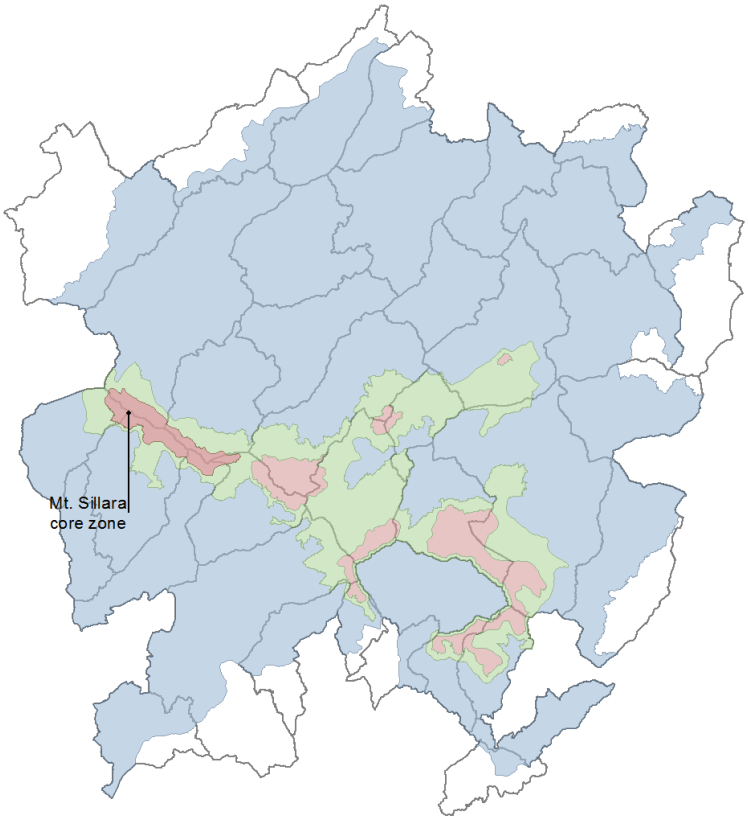
Bringing weapons into and flying over the Core areas is prohibited unless pre-authorised by the Park authority. In the core area camping is forbidden; whereas the use of a bivouac or erection of a tent at dusk, with removal at dawn, is allowed only in some parts of the Core Areas corresponding to the zones 2 and 3 of the National Park.

The passage of motorised vehicles beyond the state, provincial, municipal and dirt roads burdened by servitudes is prohibited in the Core areas; motor vehicle access is however prohibited in zones A, unless specifi-

cally authorised by the Park authority; on the forest roads, passage is also regulated by the "General and Forestry Corps Regulations", as well as by the general and specific relevant legislation. Intervention within Sites of Community Importance and Special Protection Areas is regulated either by the European "Habitats" and "Birds" directives, by national legislation, by general and specific conservation measures or by the management plans of the individual sites, where these have been approved.

A detailed map of each core area is avable in the annexed cartographic atlas

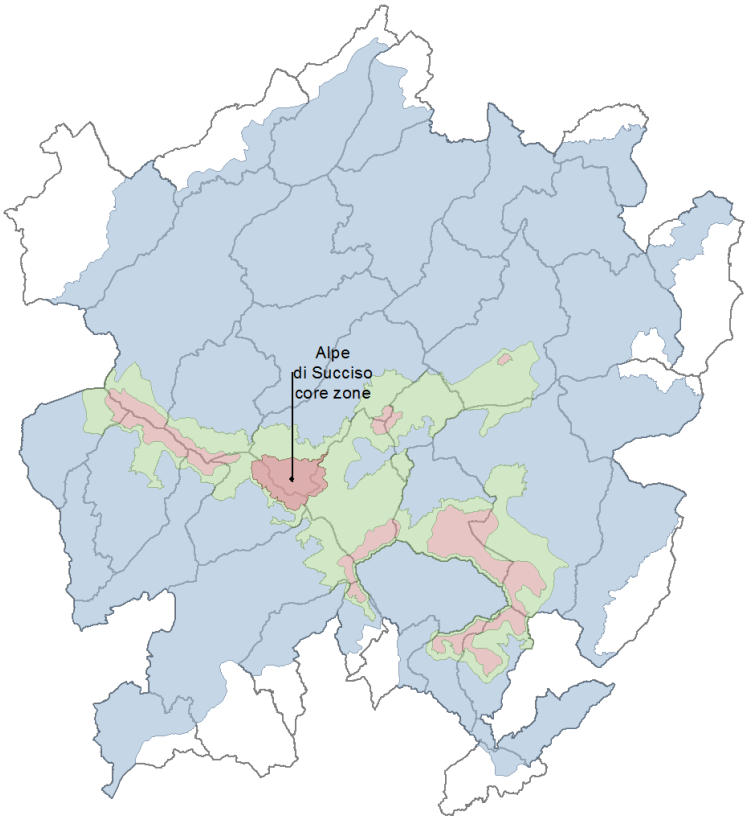
## CORE AREA M.TE SILLARA




The core area includes a scarcely anthropised, vast mountain range on the Eastern Parma ridge. It includes the northern slope of the Apennine ridge, starting just above Passo della Cisa to Passo del Lagastrello. The highest peaks are Monte Marmagna (1851 m) and Monte Sillara (1850 m), the main watercourses are the Parma and Cedra streams, which flow towards the north-east. This core area has been nominated for its glacial landforms, which are among the most southerly in Europe. The area features scree, rocks, lakes of varying magnitudes and peat bogs in a landscape that was shaped by the last ice age and the signs of which are still clearly evident. The bedrock is covered by alpine beech trees and grasslands, heaths and chasmophytic vegetation. Irregular-shaped boulders, washed down from the glaciers, jut out from ancient chestnut groves, which have established on moraine deposits. Meanwhile, at higher altitudes, various herbaceous species survive in isolated relict stands while groves of white fir, red fir and yew, found in the beech woods, result from much colder climatic periods. However, the clearest evidence of the ancient glaciers is the numerous bodies of water and peat bogs in basins and glacial cirques in which valuable plant and animal species find refuge. The rocks also bear witness to remarkable geodiversity: ranging from the barren, dark ophiolites of the Groppi Rossi to the Arenarie (sandstones) of the ridge and the layered marl and clay Flysch.

At least 9 different habitats of Community interest have been identified in the area, including in grasslands, in forests, in heathland, in scrubland, in peat bogs and, lastly, in scree slopes and rocky slopes, covering an area that exceeds 50% of the area's overall surface. The conservation status of the habitats of community interest in this core area is considered to be favourable overall.

## CORE AREA ALPE DI SUCCISO:

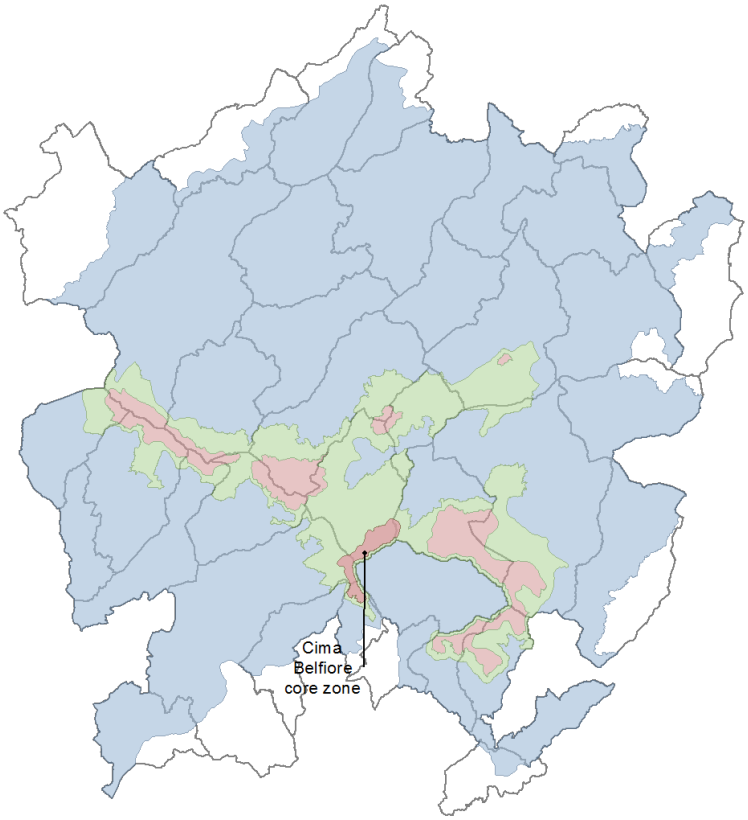



The boundaries delineate an area that runs along the northern side of the Tuscan-Emilian Apennine ridge, from the border with the province of Parma (Lagastrello) to Passo del Cerreto, and includes the interconnected alpine ridge of Monte Acuto, the Groppi di Camporaghena and Monte Alto from where it branches off beyond the rocky and historic indentation of Passo di Pietratagliata, the extremely high spur of Alpe di Succiso and Monte Casarola, which extends in a "T" shape towards the Po Valley. It then encircles, within extensive outcrops of sandstone, the two large glacial cirques, which are the source of the Liocca stream to the west and the Secchia stream to the east. The Gora, Gonella, Monte Acuto and Mesca lakes can be seen at the base of the glacial cirques and on the bottom of the basins created by the ancient moraines. They are in an advanced state of sedimentary infill and sometimes dry up entirely in the summer. Beech forests feature in the area (covering a good half of its surface) and are almost entirely managed as coppices (there are also interesting examples of coppice selection systems alongside obsolete charcoal kilns at high altitudes), as well as alpine scrublands and grasslands, alternating with scree and dark, granular sandstone, rocky cliffs, which tend to lie horizontally with smooth walls and few promontories, creating the unusual scenic effect of encircling the beautiful cirque of the Sorgenti del Secchia.

Figure 7-2 Groppi di Camporaghena

The area includes areas of outstanding natural beauty where human action is absent or insignificant (entirely conservation-based). Much of the core area falls within zone where human action is scarce and the focus is mainly on conservation and achieving a natural balance; parts of it are classified as biogenetic reserves. The current structures and infrastructures are used to manage the natural heritage, for the livelihoods of local people. The features of the natural environment have therefore been affected and need to be protected. The area includes large forests, grasslands, cultivated land, public and private buildings as well as several, scattered houses. Most of the territory comprising of forests and grasslands, in the central and southern part of the site, falls within Zone 2; this area is interspersed with areas that fall within Zone 1, corresponding to the areas surrounding the lakes of Gora, Gonella, Mesca and Monte Acuto. Zone 1 primarily comprises grasslands and ridges of the Monte Alto, Monte Succiso and Monte Casarola chain.

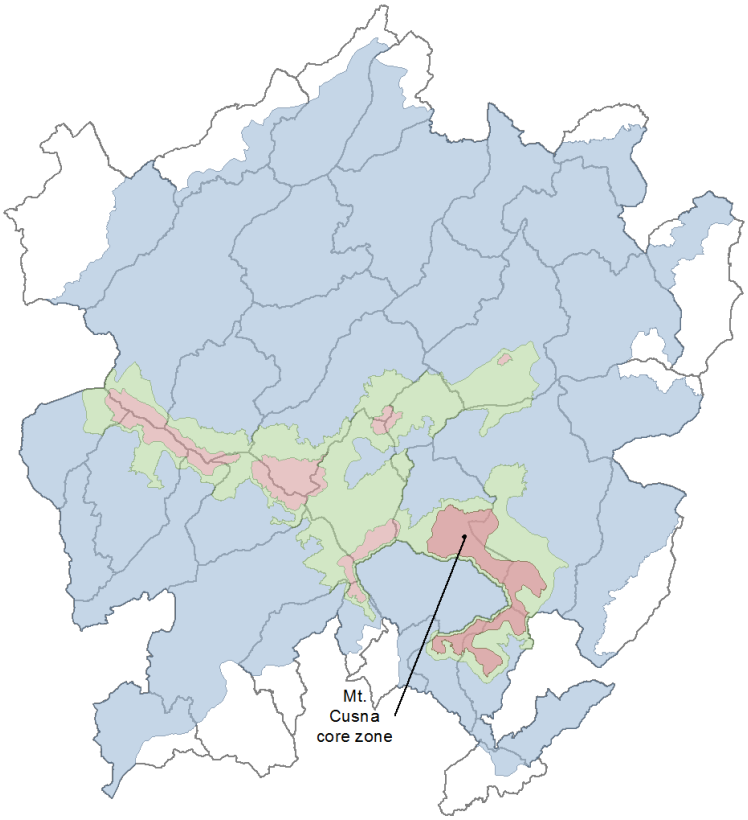
Nine habitats of Community interest cover almost half the surface of this core area, of which one is priority: Alpine and subalpine calcicole grasslands; Siliceous rocky slopes with chasmophytic vegetation; European dry heaths; Alpine and Boreal heaths; Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsetalia ladani); Western Mediterranean and thermophilous scree; Species-rich Nardus grasslands, on siliceous substrates in mountain areas (priority); Alpine rivers and their ligneous vegetation with Salix elaeagnos.




The area extends along the ridge of the Tuscan-Emilian Apennines, upwards of Passo del Cerreto to Passo di Pradarena and includes the slopes of Monte Tondo (1781 m), Cima Belfiore (1810 m) and the spur of Monte Cavalbianco (1855 m). Towards the valley, the site is bordered by the River Secchia, which, to the north of Cerreto dell'Alpi, flows between overhangs (Schiocchi del Secchia) created by the deeply carved out Arenarie del Monte Cervarola. The area is traversed by the Riarbero stream that winds through spectacular outcrops of sandstone, until the valley becomes a deep ravine, with cliffs of over 300 m. The predominant species is coppiced beech. The other types of forests (chestnut groves, Turkey oaks, conifer reforestations, residual fir forests of white fir and red fir and hygrophilous forests) cover a marginal area. Extensive alpine grasslands and bilberry scrub extend along the ridge.


Figure 7-3 The Belfiore Core Area

There are 9 habitats of Community interest covering most of the area's surface, one of which priority one, and two habitats of natural importance at the local level: Siliceous rock with pioneer vegetation of the Sedo-Scleranthion or of the Sedo albi-Veronicion dillenii; Siliceous rocky slopes with chasmophytic vegetation; Alpine and Boreal heaths; Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsetalia ladani); Siliceous alpine and boreal grasslands; Species-rich Nardus grasslands, on siliceous substrates in mountain areas (priority); Alpine and subalpine calcicole grasslands; European dry heaths; Western Mediterranean and thermophilous scree.




The site extends across the Tuscan-Emilian Apennine ridge, from Passo Pradarena to Passo delle Forbici, extending south-east to Pania di Corfino and bordered on the south-west by the ridge that is dominated by Monte Sillano (1874 m) and the imposing massif of Monte Cusna (2120 m) to the north. The alpine grasslands and bilberry scrub, interspersed with cliffs, rocky crags and scree, cover significant areas and house rare and relict arctic-alpine flora. The area is famous amongst botanists. At lower altitudes there are coppiced beech forests and beech forests under conversion. The water that collects in the open glacial cirque on the north-west slope of Monte Prado forms Lake Bargetana. The beech forests dominate and are occasionally interspersed with white and red fir, some of which are exceptionally tall. Chestnut groves, oak forests and uncultivated land can also be found, in addition to hydric-type thickets along the adjoining narrow valley of the Dolo stream. Streams, marshes and pools fed by meltwater are particularly in abundance. At the Pania di Corfino, there is an area of great significance for the nesting of bird species associated with the marsh environment (*Aquila chrysaetos*), in stable, protected ecosystems, which are only moderately disturbed by hiking.

**Figure 7-4 The Pania di Corfino from the Orecchiella Natural State Reserve**

Figure 7-5 Bargetana lake

Eighteen habitats of Community interest cover part of the area's surface: Mountain hay meadows; Siliceous rocky slopes with chasmophytic vegetation; European dry heaths; Alpine and Boreal heaths; Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsetalia ladani); Western Mediterranean and thermophilous scree; Species-rich Nardus grasslands, on siliceous substrates in mountain areas (priority); Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) (priority); Luzulo-Fagetum beech forests; Apennine beech forests with Abies alba and beech forests with Abies nebrodensis (priority); Medio-European limestone beech forests of the Cephalanthero-Fagion; Alpine and subalpine calcicole grasslands; Molinia meadows on calcicole, peaty or clayey-siltladen soils (Molinion caeruleae); Caves not open to the public; Transition mires and quaking bogs; Alkaline fens; Calcicole rocky slopes with chasmophytic vegetation; Semi-natural dry grasslands and scrubland facies on calcicole substrates (Festuco-Brometalia) (important orchid sites).

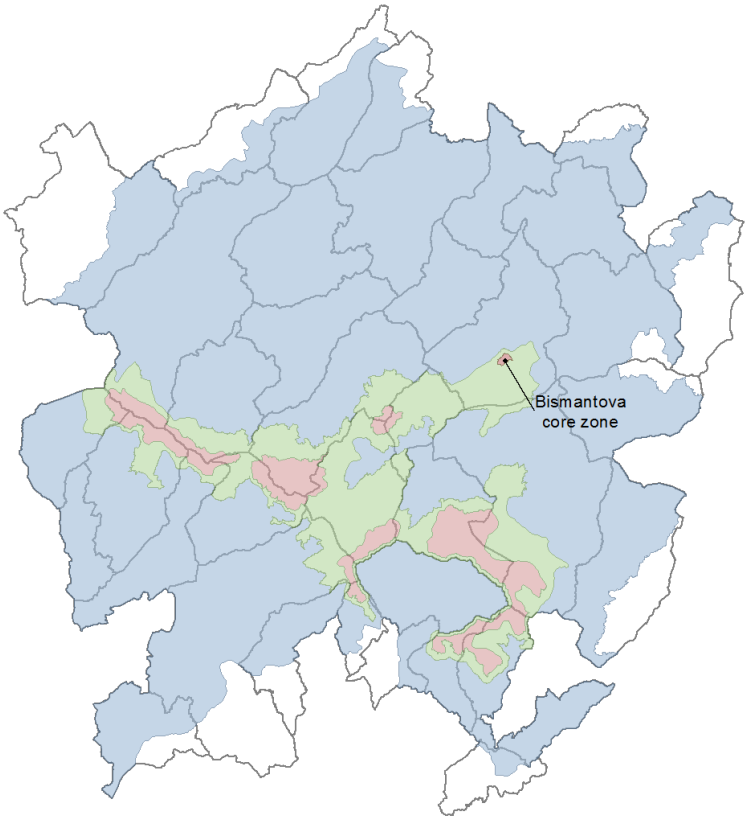

Monte Ventasso (1727 m) is a high massif, isolated from the peaks alongside the ridge, located between the Enza and Secchia valleys. The Beech forests, alternating with chestnut groves, flank the sides of the mountain, almost up to its summit, where the alpine grassland and bilberry scrub are interspersed with the rocky outcrops of sandstone of Monte Modino, which houses rare, rupicolous vegetation. On the southern side, pastures and uncultivated land dominate, while on the north-west, in a valley shaped by glaciers, lies Lake Calamone, which preserves an area of peat bog of significant natural importance.

The core area is important for the habitats located within it (10 habitats of Community interest) or in its vicinity, which are clearly visible within the landscape that surrounds the higher altitudes: Rupicolous calcareous or basophilic Alysso-Sedion albi formations, orchid-rich, semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia), species-rich, Nardus grassland formations on siliceous substrates in the alpine and subalpine areas of continental Europe, central European calcareous scree, limestone pavements, alluvial forests of Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae), Apennine beech forests of Abies alba and Abies nebrodensis, natural, eutrophic lakes with Mag-

Figure 7-6 Monte Ventasso

nopotamion or Hydrocharition vegetation, European dry heaths, alpine boreal heaths , Juniperus communis formations on heaths or calcareous grasslands, Alpine and subalpine calcareous grassland, Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae), hydrophilous tall herb fringe communities of plains and of the montane to alpine levels, lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis), mountain hay meadows, transitional and variable peat bogs, siliceous screes of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani), western Mediterranean and thermophilous scree, siliceous rock faces with chasmophytic vegetation, meadow pioneer formations on rocky peaks and Castanea sativa forests.

**Figure 7-7 Lago Calamone (Calamone Lake)**




The Pietra di Bismantova is an isolated spectacular block of yellowish sandstone, which appears to be floating on a sea of clay sediments., which makes a great impact on the landscape. The spur, which, due to its height of 1,047 m above sea level and its isolation, is visible from most of the Reggio Emilia Apennines.

It is an emblematic geological formation, as well as an important geological site. The Pietra is made up of a biocalcarenite rock formed by the accumulation of ancient sands along with fragments of mollusc shells, echinoidea (sea urchins), coralline algae, foraminiferida and fish teeth. These sediments were deposited during the Miocene, on a shallow and temperate seabed that was abundant with life.

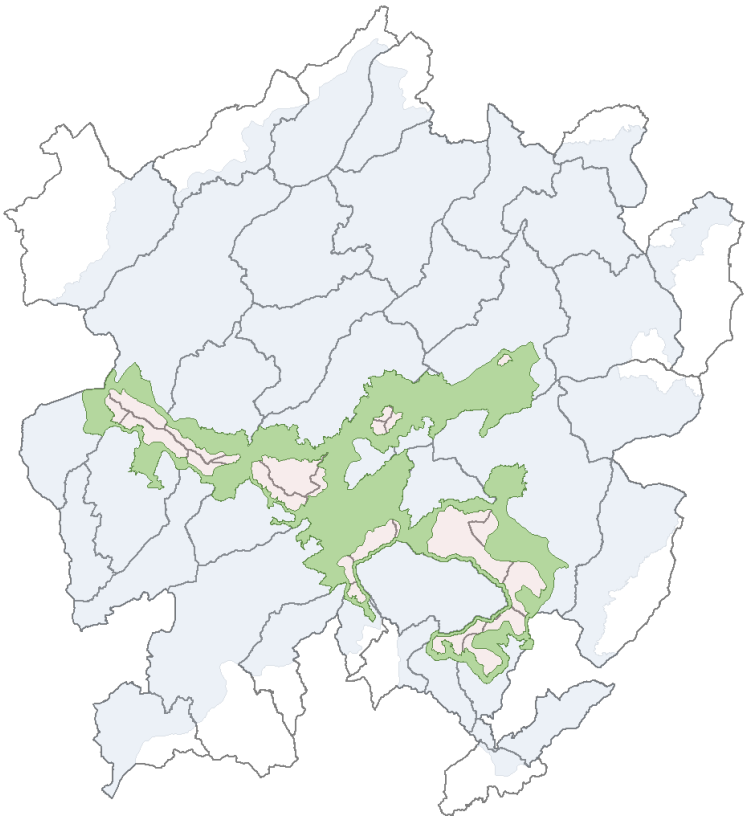
Its square outline and rocky walls measuring up to 150 m are a result of the high resistance to erosion of the sandstone forming its bulk, which is in relief due to the fact that it rests on rocks that are softer and less resistant to erosion, such as marlstone and clay. It is an example of selective erosion, with a distinctive shape that can be identified from miles around, which stands out, away from the Apennine ridge.

This *differential erosion*, which acts mainly by wearing away the basement, is accompanied by a lateral ductile deformation, which affects the basement rocks as the weight of the overlying mass causes tensional stresses. This results in the opening of fractures parallel to the rock surface (*stress release*) of the rigid calcarenites. The resulting fractures cause the rocky slopes to progressively fall away, through a process of collapse and overturning, giving the relief its current form. As the Pietra di Bismantova is the remains of a much more extensive sandstone plate, which has been progressively broken down by the aforementioned processes, it is classified, from a morphological viewpoint, as a *butte* (erosion remnant). A steep stretch extends from the base of the Pietra di Bismantova, made up of scree of varying ages, which drops vertically down to the gentler forms of the argillitic basement, which, in turn, is affected by paleo-, active and dormant landslides.

Deciduous oak forests, cultivated fields and hay meadows, hedgerows and shrubby arid grasslands dominated by the common juniper surround the massif in a typical, subalpine landscape. Here, there are at least 9 habitats of Community interest, covering a large part of the site's surface area, and of which 3, Rupicolous calcicole or basophilic grasslands of the Alysso-Sedion albi, Semi-natural dry grasslands and scrubland facies on calcicole substrates, Tilio-Acerion forests of slopes, screes and ravines habitats, are defined as priority.

**Figura 7-8 The unique morphology of the Pietra di Bismantova (on the right)**

## BUFFER ZONE



A single *Buffer* zone, measuring 25,834 ha, surrounds all six *Core* areas, thus serving not only as a "protective buffer", but also forming a natural corridor between them. The buffer zone was also defined by identifying mainly areas that are already subject to a level of protection, as National Park, Emilia Regional Parks and the network of Natura 2000 sites and through provincial territorial coordination plans.

The perimeter of the buffer zone was defined using several criteria:

- **Serving as a link between the core areas**: the adjacent core areas are often only separated by small stretches at the main crossing points and passes, which feature historical evidence of human passage. These crossings points do not, however, form a natural break, as studies on the area demonstrate, but are genuine, natural corridors that are protected by the relevant regulations;
- **Protecting the core areas**: by definition, the uninterrupted stretch of buffer, which encircles the core areas, supports this protective function. In some areas, the buffer zone narrows, but only where there are steep slopes and the shape of the territory itself offers sufficient protection. An example of this is where the buffer zone narrows around the Core area of the Pietra di Bismantova, following the protective perimeter of the National Park in which this important spur is contained. This is a result of the shape and features of the Pietra di Bismantova itself (a sandstone rock rising above the surrounding, mudstone rocks), which effectively means it is isolated, difficult to access and protected by its surroundings.

The conservation and protection of species and ecosystems is also guaranteed in the buffer zone. In fact, the area goes to include entirely areas 2 and 3 of the Park, where the regime of protection and conservation is widely described in paragraph 14.1.3.

The boundary of the buffer zone is made to encounter the rare traditional human activities, which aim to the maintenance, with the integral conservation regimen that characterizes the core area. However, all human activities are regulated upon specific Authorization from the Park Authority.

The Buffer area extends beyond the boundary of the Park only in some specific mountainous areas that have peculiar natural features and landscapes, certified by the presence of zones of protection, SCI and SPA at high altitudes, in areas that are not reachable by strongly incisive human activities, but mainly to visit and transit (Cedra and Parma Valleys Regional Park; SCI-SPA IT4030001 Monte Acuto, Alpe di Succiso; IT4030004 Val d'Ozola, Monte Cusna; IT4030005 Abetina Reale, Alta Val Dolo; IT4030002 Monte Ventasso; IT4030009 Gessi Triassici) .

In the areas of Buffer zone, there are some environments that, due to their unique geographical situation, house valuable biodiversity and represent the starting point for undertaking functions relating to development, which will be fulfilled in the direction of the transition areas.

The difference in accessibility that characterize much of the Buffer Zone compared to the Core one, in continuity of habitats and environments, distinguishes the first from the latter because of the natural conformation that calls for greater attendance and knowledge of places, environments and species of conservation interest, despite being a sparsely populated area.

The Buffer Zone at lower altitudes, instead, includes the Secchia Valley (Val Secchia) along which the river has profoundly affected an extensive formation of Triassic gypsum (Gessi Triassici) that currently make up the steep and white sides of the valley. Due to the high solubility of gypsum rock there are widespread surface (sinkholes, ravines and other forms of erosion) and underground (caves, sinkholes and resurgent) karst features, which characterize morphologically a large area. The gypsums are white, sometimes light grey, orange and pink, and incorporate different rock masses including dark dolomite, with high content in organic matter. Rocks, shrubs and herbaceous formations are the most salient aspects of the landscape of the Triassic gypsum always rugged, varied and full of contrasts. Of the different species of bats that lives in the caves of the Triassic gypsum area, is now reported with certainty the bat Rhinolophus ferrumequinum.

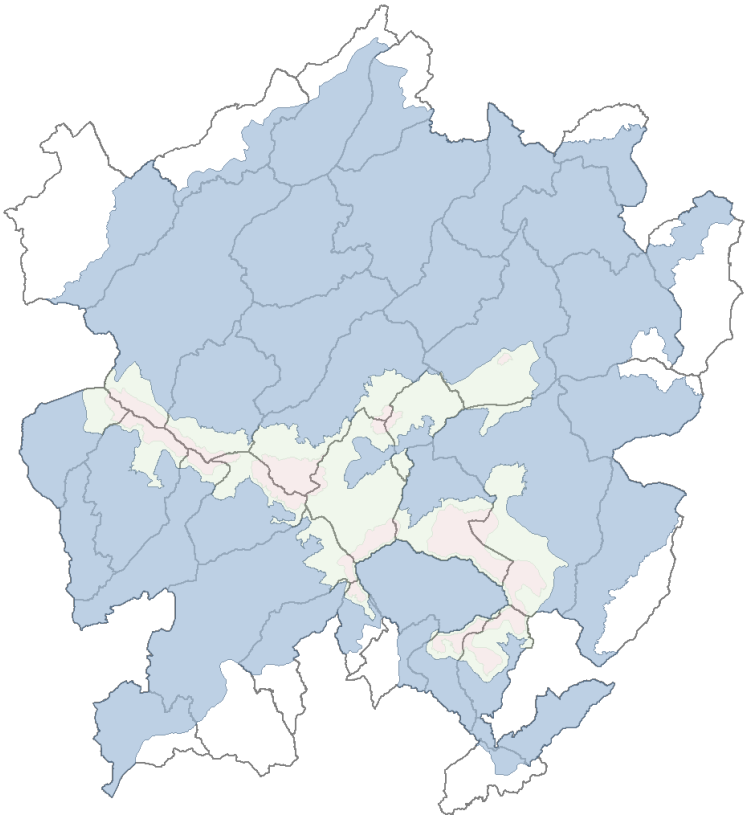
Another particular and large area that is included in the Buffer Zone of lakes systems “Laghi Cerretani”, characterized by wetlands and peatlands with different degrees of progressive burial, aroused thanks to the

glacial morphology. The site is important for reservoir rocks, which are important drinking water reservoir for the procurement of the vast territory, and for that reason it is protected in the Park area.

Together, all of the sections contribute to a sense of unity of the ridge, which, from an ecological point of view, is relatively uniform, dominated by a mountainous mosaic with a high degree of naturalness comprising high-altitude beech and grassland.

Figure 7-9 Group of bats hanging from a Triassic gypsum cave ceiling

## TRANSITION ZONE



The main logic behind the definition of the Transition Area was to include the territories that can claim to have an environmental, social and economic link with the Euro-Mediterranean Tuscan-Emilian Apennine

ridge, i.e. from Passo della Cisa to Passo delle Forbici. Furthermore, consideration was given to depopulation and ageing, which affects the municipalities of the upper ridge. The downward expansion of the Transition Area demonstrates a desire to involve the human resources of the Apennines in the protection of this region's special features, mainly by striving for and fostering understanding, thereby inspiring its enhancement through sustainable, socio-economic development measures. In particular, the involvement of the municipalities where are located the main high schools of the territory [Castelnuovo ne 'Monti (RE), Langhirano (PR), Castelnuovo in Garfagnana (LU), Bagnone (MS), Villafranca in Lunigiana (MS)] allow to develop environmental education programs and training to compatible environmental economic activities, especially involving young people living in the MaB Reserve.

Therefore, for the Appennino Tosco Emilaino Mab Reserve, the transition areas include:

- the extensive agricultural and rural areas, which are those most suited to the development and dissemination of a sustainable development model to support, protect and enhance the core areas and buffer zones. On the whole transition area, agriculture is mainly suited to the production of high quality food products, wich rappresent the identity of the territory and have awards such as the PDO (Protected Designation Origin PDO) and PGI (Protected Geographical Indication) (eg Parmigiano Reggiano, Prosciutto di Parma, Farro di Garfagnana, Lunigiana Honey ... )
- about a hundred settlements (whose residents range from a few tens up to a little over 10,000), for a total of approximately 100,000 residents within the Reserve who will be the first subjects to be actively involved in the Reserve protection and management and in the development of sustainable activities.
- artisan and industrial areas mainly related to the production of pottery (on the Reggio Emilia side, historically associated with the presence of clay quarries), to food processing (particularly in the Emilia side where there are dairies for the production of Parmigiano Reggiano cheese and Prosciutto di Parma and Salumi factories)
- tourism-based areas particularly related to hiking and historical-cultural heritage expecially the Matilde di Cannossa's castles and the fortress, castles and archaeological sites scattered all over the territory, especially on the Tuscan side.

Due to this, the Transition Area has, in principle, been increased to include all of the Municipalities that expressed an interest in the UNESCO MaB Reserve candidature, thus reaching a total of 187,413 ha, and excludes the following territories:

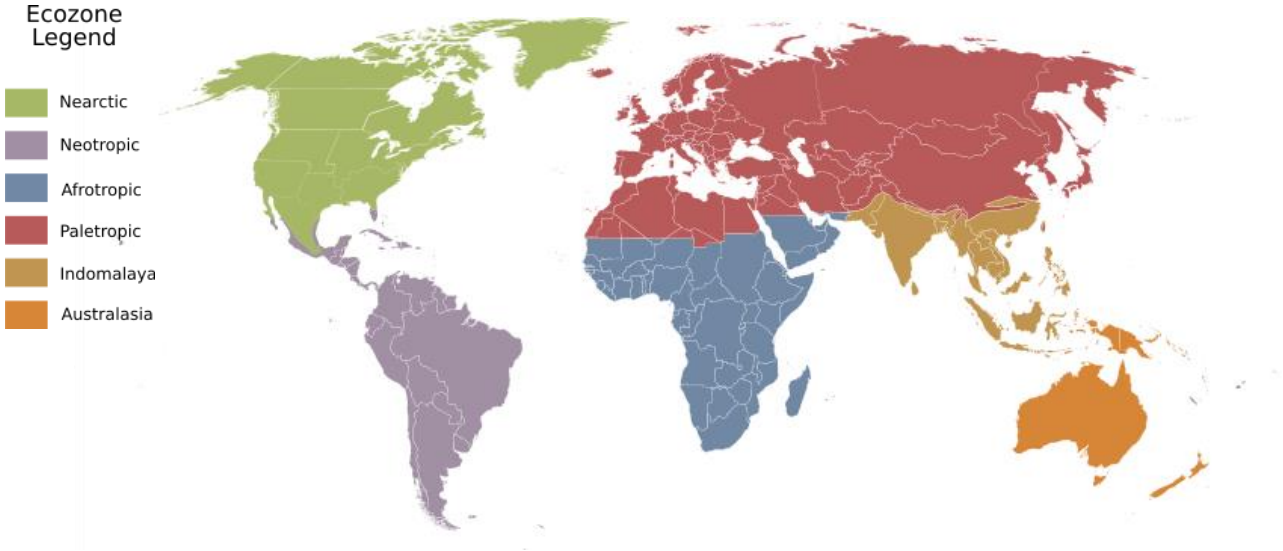
- the Apuan Alps (in Lunigiana and Garfagnana), featuring a clearly distinct geological unit;
- those in which the relationship with the Apennine ridge is less defined in favour of a closer economic and social link with the industrial district of the Po Valley (hillside Municipalities of Parma and Reggio Emilia);
- those in which the presence of infrastructure (the Parma-La Spezia A15 motorway and the Cisa SS62 State Road) forms an ecological and social barrier (Municipality of Berceto and municipalities of the "low" Lunigiana);
- beyond the Passo delle Forbici and the SS486 State Road (in the Municipality of Frassinoro), as beyond this "border" it is no longer correct to say that the Apennine ridge coincides with the climatic and geographical Euro-Mediterranean boundary, and towards the Monte Cimone ski resort, which,

from an economic and social viewpoint, is clearly distinct from the area nominated to become a MaB Reserve;

- it was considered appropriate not to include the Municipalities of Piazza al Serchio (Lucca) and Giuncugnano (Lucca) in their entirety for reasons of geographical continuity.

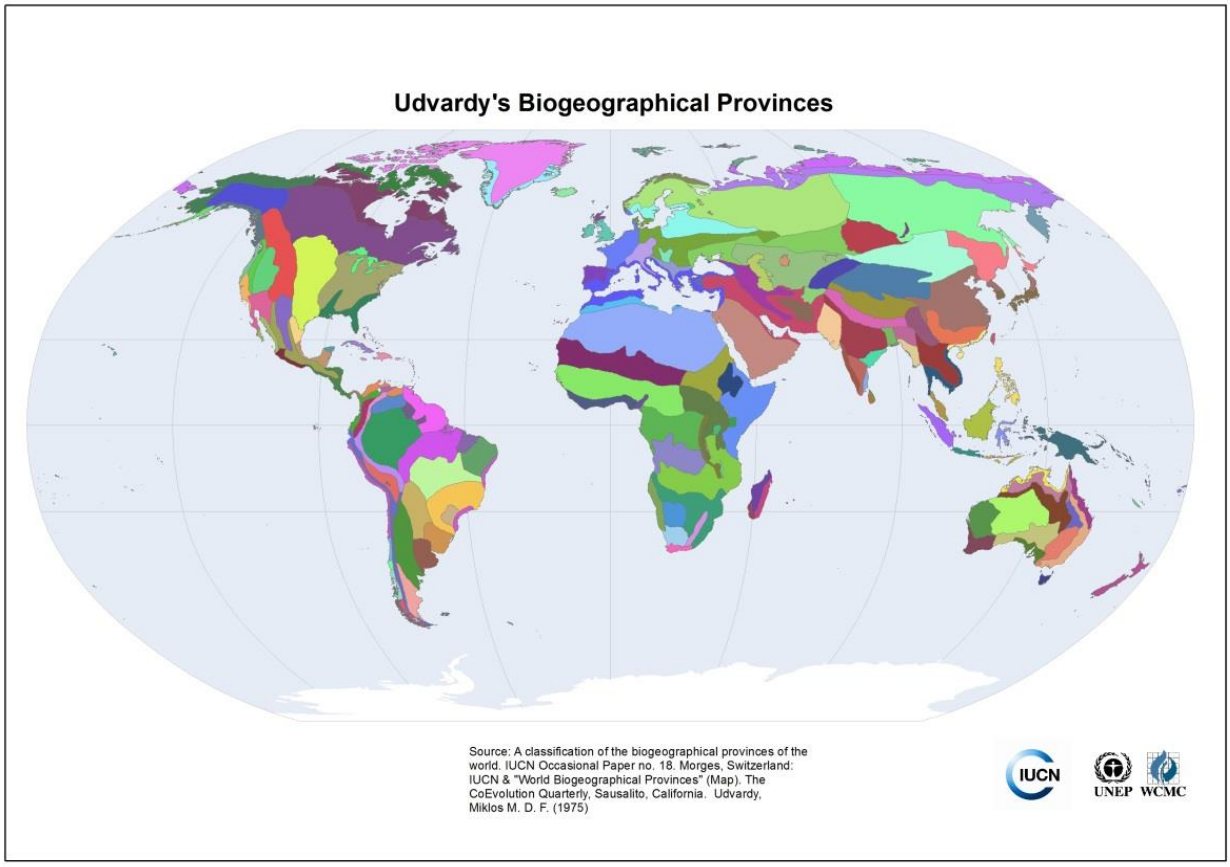
## 8. BIOGEOGRAPHICAL REGION

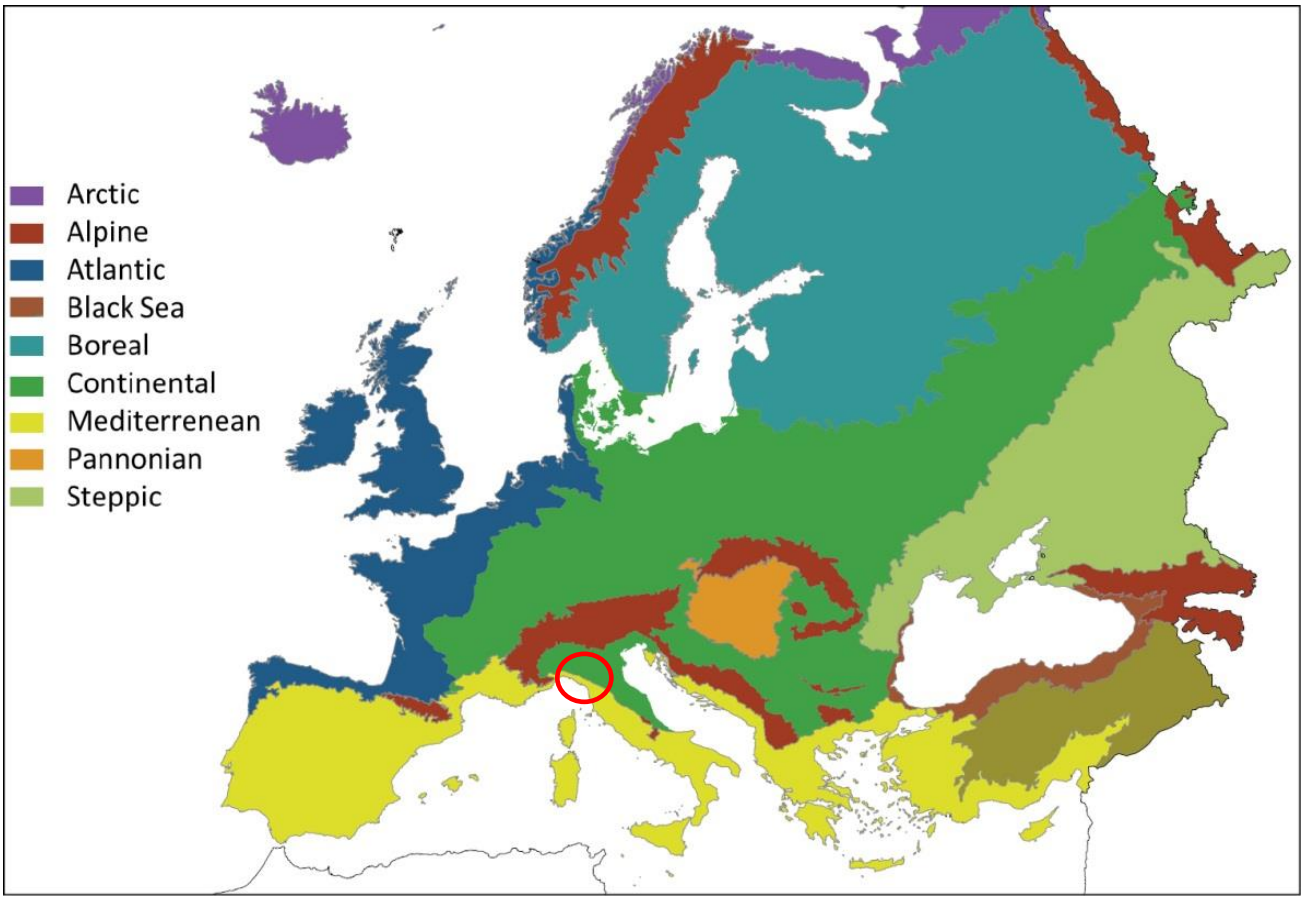
According to Udvardy's classification (1975), the designated area falls into the terrestrial biogeographic region known as "the Palearctic ecozone" (non-tropical Eurasia and northern Africa).




The BIOGEOGRAPHICAL PROVINCES related to the designated area can be outlined as follows:

- to the south of the Apennine ridge: Mediterranean Sclerophyll (Mediterranean)
- to the north of the Apennine ridge: *Middle European Forest* (*Continental*)






The area of the Appennino Tosco-Emiliano biosphere reserve is situated in the Palaearctic ecozone (non-tropical Eurasia and North Africa) and is affected by the presence of a climatic border between two biogeographic regions (Continental – Mediterranean).

A morphostructural ridge acts as a separator, characterising this stretch of the Apennines: mountains raised up by tectonic plates, which, through their shape and orientation, enable the creation of natural environments, as well as striking and unique landscapes. The Apennine ridge determines the Mediterranean climate to the south and the continental climate to the north. The climatic boundary also corresponds to a geographical (between the regions of Emilia Romagna to the north and Tuscany to the south) and cultural boundary.

# 9. LAND USE

## 9.1. HISTORICAL: (IF KNOWN, GIVE A BRIEF SUMMARY OF PAST/HISTORICAL LAND USE(S), RESOURCE USES AND LANDSCAPE DYNAMICS OF EACH ZONE OF THE PROPOSED BIOSPHERE RESERVE).

For a correct understanding of the area, it is important to be aware of the various changes that have taken place over time in terms of the physical features, the environment, manufacturing, infrastructure and settlements and the order in which they took place, verified by the features, works and artefacts that make up the existing system.

The Core areas have acted as transport routes since antiquity but have remained uninhabited. The Buffer and Transition Zones, both to the north and south of the Apennine mountain range, include regions that share cultural and historical vicissitudes: inner Lunigiana (the Upper and Middle Valley of the River Magra) and the Garfagnana (Upper Valley of the Serchio) on the Tuscan side, as well as the Upper Valley of Enza and Upper Valley of Secchia on the Emilian side, were inhabited by ancient Ligurian tribes (the Apuan and the Friniati) and blended subsequently with the Celts, who had moved down from the North. They were then gradually colonised by the might of the Romans, who built an agrarian economy divided into small, medium and large estates, created using the monoculture business model, which required products to be traded in the urban markets.

A defensive system of “Castra”, created to defend the conquered territories, ran along both sides of the entire Apennine mountain range, reaching as far north as the Castle of Canossa itself, where several finds suggest the presence of a Roman fort built to defend the new city of Luceria (in the current village of Ciano d'Enza).

Dating back to the early Middle Ages, and further consolidated during the time of Matilde di Canossa[2], a network of more extensive fortifications, including the defensive ramparts on the communication routes descending from the Apennines to the Po, were added to this ancient system of military structures.

It is the villages that have grown out of this network of fortifications, as well as the parish churches, convents and fortresses built during the middle Ages that convey a sense of homogeneity to the culture and landscape of the territories forming the buffer and transition areas.

[2] The Grand Countess Matilde of Canossa, or Mathilde, or Matilde of Tuscany (in Latin Mathildis, in German Mathilde von Tuszien; born in Mantova?, March 1046 – died in Bondeno di Roncore, the 24th of July 1115, was a medieval countess, duchess, marquise and queen. Matilde was a was a powerful feudal and an ardent supporter of the Papacy in the Investiture Controversy; she was a leader at a time when women were considered of lower rank, she was able to dominate all the Italic territories north of the Papal States. Between the 6th and 10th of May 1111, she was crowned with the title of Imperial Vicar Vice-Queen of Italy by Emperor Henry V, at the Castle of Bianello (Quattro castella, Reggio Emilia). In 1076 she had possession of a large territory that included the Regions of Lombardy, Emilia Romagna and Tuscany, and which had its center at Canossa, in Reggio Emilia Apennines. The Grand Countess Matilde is certainly one of the most important and interesting characters of the Italian Middle Ages: she lived in a period of constant battles, intrigue and excommunications, she was able to demonstrate extraordinary strength, even enduring great pain and humiliation, showing an innate ability to command. Her faith in the Church of that time earned her the admiration and the deep love of all her subjects.

The above led to the organisation of settlements which, in some respects, along with the current infrastructure, is not far off that which has been adapted over the years to meet the physical and economic demands, as well as those of the military and religious contingents, without replacing the preceding structure.

In the absence of large-scale turmoil, this gradual transformation has made it possible for reminders of successive eras to be handed down to the present day, both through the general layout and accompanying features. The most evident and widespread evidence of the various historical periods is represented in the religious and military architecture, manufacturing, settlements and infrastructure.

The military architecture as depicted by forts, fortresses, castles and walled settlements is an extremely interesting element; an irrefutable sign of the need to defend against expansionist goals or to consolidate political – territorial organisation.

The ancient inhabited settlements, evidenced by the current agrarian structure, are situated predominantly on hilly and rugged terrain. They respond to the dual need for defence, on the one hand, and, to "use up" the smallest possible land quota for agricultural use, on the other. They are located predominantly within the range of altitude from 400 m to 800 m above sea level. This range determines the threshold of permanent settlements, the zone below being allocated to forest and grazing and the one above to agriculture and sowing. The latter shows certain distinguishing features dating back to the dawn of the technique of producing seasoned cheeses, such as today's Parmigiano Reggiano cheese (probably after the year one thousand, in convents or social structures of a certain longevity). With a more recent emphasis on monoculture, the argillaceous slopes historically housed ample mountain and hillside grazing, interspersed with hedgerows and strips of forest, constituting a typical landscape. More recently, this "landscape" has tended to give way to forest at higher altitudes.

Centres used mainly for commercial purposes are located at the foot of the valley, along the busier transportation routes, while the mountain pastures used for grazing can be found at higher altitudes. These seasonal dwellings, linked directly to the phenomenon of transhumance, have a specific pastoral and agricultural use.

Elements, such as chestnut cultivation, that have endured within the production sector, bear witness to the passage of time in terms of the agricultural system to which they are linked, so much so that they can be viewed as historical-cultural phenomena necessitating conservation and promotion.

The territories to the south of the ridge are identified by the presence of a building heritage throughout the area: this feature relates to intense fragmentation of the land due largely to insufficient arable land in relation to the size of the settled population. This led to the utilisation of more marginal and morphologically challenging areas for the construction of artificial terraces.

As the villages grew, the forests suffered progressive losses to make way for crops. They were also burned by shepherds to encourage the growth of valuable pastures for grazing. The crops were essentially the same as those traditionally grown since antiquity, whereas pastoral farming continued to complement and supplement agriculture.

Chestnut cultivation has, for centuries, served as one of the most deep-rooted and popular livelihoods throughout the Apennines on both the Tuscan and Emilian sides. As a result, the chestnut grove has become a key feature of its cultural landscape, along with historically significant rural structures associated with it, such as the "metati", drying rooms used for drying the fruit, and the mills, for grinding and producing the flour. Although, generally speaking, the chestnut is no longer a key element of the mountain economy, the Appennino Tosco-Emiliano area, which has been nominated to become a MaB Reserve, the vast wealth of

knowledge and traditions associated with it as well as the PDO status of the "Farina di neccio della Garfagnana" and the "Farina di Castagna della Lunigiana" (chestnut flours), means it has remained part of the local culture and is the subject of growing interest and increased awareness, particularly in relation to sustainable tourism.

On another note, the cultivation of grapes and olives has, since antiquity, shaped the still prevalent terraced slopes on the Tyrrhenian side of the buffer zone (the DOC "Colli di Luni" Lunigiana is one of its noteworthy wines). Remarkable evidence also, however, exists to the north of the Apennines, in the municipality of Vetto, where a particularly favourable micro-climate has made it possible for these typically Mediterranean crops to grow since ancient times. Here, a newly launched, large-scale project has begun to recover and reclaim these terraces.

Landscapes dominated by forests, but also characterised by a broad diversity of spaces, have set the Apennines apart over the centuries despite the recent increase in the size of the forests, particularly at higher altitudes or on sloping land with unsuitable gradients for motorised farm vehicles. In the period between the unification of Italy and the years immediately preceding World War I, a significant reduction in the size of the forested area was seen, due largely to the expansion of agricultural and pastoral lands. The forest then began it inexorable growth and is now approximately three times larger than in the 1920s, which is a huge increase considering the relatively short time-frame. The assessment should bear in mind the fact that modern statistics have dramatically changed detection criteria: Inventario Nazionale, ISTAT and FAO in 1985, as well as the 2005 forest inventory compared to the Corine 2000 inventory. Consideration should be given to the fact that these differences are more or less equal to the potential errors of detection relating to the results from the second half of the nineteenth century and early twentieth century.

The area is an example of how the basis of Italy's natural landscape was altered long before the Roman Empire and is still apparent in the beliefs of its inhabitants who refer to the forest "as a garden" and as the forest as the focus of work, needing to be penetrated and cultivated throughout. Nowadays they are at times perceived to be inhospitable or outside the scope of the inhabitants' daily activities.

The evolution of the forest landscape is particularly significant, not only in terms of the actual area covered, but also in terms of the meaning attributed to it to this day. Despite a lesser focus on the forms of forest landscape compared to agricultural landscape, the influence of the forests is deeply rooted in the community, not only for their distinct relationship with agriculture and pastoralism, but also due to the wide use of wood for different purposes over the centuries. Compared to the enhanced diversity of the agricultural and pastoral landscapes, which arises from the associated range of uses of such land, the forest landscape tends to be more simple and homogeneous. In fact, diversity can be seen mainly within the species and their internal structure, as opposed to the variety of the species.

It is worth mentioning that it is not only agronomic factors, but also environmental factors such as the gradient, the geological substrate and the rainfall patterns that have played an important role during the formation of the Apennine landscape.

## 9.2. WHO ARE THE MAIN USERS OF THE BIOSPHERE RESERVE? (FOR EACH ZONE, AND MAIN RESOURCES USED

The main users of the land within the Reserve (Core, Buffer, Transition) are local people. The land is predominantly used for agriculture (fodder, pasture, chestnut groves, olive groves, vineyards, grain), but tree felling for the production of firewood is also widespread.

Traditional practices (hunting, fishing, mushroom picking), which were once a key part of the livelihoods of the local people and are now relevant predominantly in terms of cultural heritage and recreation, are widespread throughout the territory.

Descending the upper portions of the ridge towards the two slopes (from the Core areas to the Transition areas), land use intensifies, transitioning from spontaneous and collective to organised and private.

More specifically, throughout the Core areas, human use of the land is rather limited. It is sporadic and consists largely of human settlements in the form of isolated and scattered dwellings. This is mainly as a result of tree felling for the production of firewood, under the regulations imposed by the Appennino Tosco-Emiliano National Park, in the aggregate and collective form of rights of common (*usi civici*) for the benefit of the local people (rights of common means the community members' right to use municipally-owned land; it is not part of formal legislation but is rooted in collective practice). Under the regulations imposed by the Appennino Tosco-Emiliano National Park, the bilberry scrub in the highest areas is used for the gathering of berries by locals in particular, for both private and commercial use. Only subsequently is it used by local farms that use the areas for grazing or, less commonly, for the harvesting of fodder for the "Parmigiano-Reggiano cows".

While there is a higher number of human settlements in the Buffer zone, the use of land for human purposes remains limited with a continuing predominance of tree felling for firewood production (for both public and private consumption) in line with current conservation regulations. Meanwhile, its agricultural use by local businesses is increasing and the cultivation of fodder on the north side is increasing. Likewise, chestnut groves, used primarily for the production of chestnut flour, are starting to appear on the south side. On the north side, in small areas of the Buffer zone, the land is also used for "tourism" purposes, with ski runs for cross-country and downhill skiing.

The number and scale of human settlements in the Transition areas increases significantly as you descend towards the valley on both sides. As a result, the use of land for urban and residential purposes also increases. However, the main users of the land in the Transition areas are the local farms: on the northern side, the land is predominantly used for fodder to feed the "Parmigiano-Reggiano cows", while on the southern side, there is a strong presence of cultivated chestnut and olive groves, as well as vineyards (particularly in Lunigiana), spelt and other grains (particularly in Garfagnana).

Figure 9-1 Spelt bread from Garfagnana

The tradition of tree felling for the production of firewood continues, however, in these areas, those benefitting are

mostly private individuals (rights of common are much less widespread), who both sell and consume it personally.

Small but organised clusters of small businesses, focusing mainly on the processing of food products (Parmigiano-Reggiano cheese, Parma ham), can be found at lower altitudes. Small industrial installations producing ceramics, and their associated (mostly disused) clay pits, are chiefly found in the Reggiano area.

## 9.3. WHAT ARE THE RULES (INCLUDING CUSTOMARY OR TRADITIONAL) OF LAND USE IN AND ACCESS TO EACH ZONE OF THE BIOSPHERE RESERVE?

The traditional uses of natural resources that can be found on both sides of the mountains in the Reserve are mainly associated with agricultural and zootechnic activities, using the trees to produce firewood, tapping the water resources for irrigation and energy production (everywhere from mills to hydroelectric power stations), gathering products from the undergrowth, managing the chestnut groves and pastures, hunting and fishing.

Near the ridges, some of these activities were and continue to be regulated by Rights of Common. They are deemed assets for common use in accordance with ancient traditions. The rights were established to sustain the community by ensuring that everyone had access to all of the agricultural, woodland and pastoral resources. More recently, the above-mentioned activities have been joined by more modern tourism and production activities, particularly in the food and agriculture sector.

In the **core area**, a high level of protection is guaranteed because it is covered by Zone 1 (an area "of significant interest in terms of nature, landscape and environment, with little or no anthropisation") and part of Zone 2 of the National Park. In these zones, the majority of human activities are forbidden. Strict regulations – and in some cases complete bans – apply for fishing, chopping down trees for wood, camping, the construction of new buildings and technological facilities, new efforts to tap or divert water, access with motor vehicles, taking weapons into the area and flying over it.

In the **buffer zones**, a good level of protection is guaranteed because they are partially covered by the National Park and Sites from the Natura 2000 Network. Coordinated action is taken by the territorial bodies to regulate and plan any human activities, including limited conversion of land, use of the woods, grazing, gathering mushrooms and products of the undergrowth, hunting and fishing.

The majority of settlements and human activities are concentrated in the **transition areas**. The basic regulatory framework is provided by planning on and above the municipal level, as established by local structural and coordination plans that encompass protection for specific spheres and topics such as health, landscape, geology, culture, history and archaeology. A part is played in this by specific authorities, especially Cultural and Environmental Heritage Departments.

In the transition zones, there are also some areas with natural environments and landscapes of significant interest: Sites from the Natura 2000 Network and others from the Paesaggio Protetto della Collina Reggiana – Terre di Matilde (Protected Landscape of the Reggio Emilia Hill – Lands of Matilda) conservation scheme which was established in 2011.

They have the following aims, which closely match the MaB strategies:

- Preserving the equilibrium in the ecosystem which is based on alternating natural areas and zones used for agriculture, zootechnics and forestry.
- Making the most of the territory's history, culture and heritage.
- Supporting the competitiveness of the agricultural world and giving hillside agriculture a suitable role based on a multifunction approach involving activities such as environmental services, protecting the territory, providing accommodation, educational initiatives and craft schemes.
- Promoting environmental education.
- Consistently managing the existing stock of buildings by renovating and converting constructions of interest and historical importance and demolishing/reducing the impact of inappropriate/derelict ones.
- Redeveloping the residential system and curbing plans that are not compatible with the goal of making the most of the territory.

## 9.4 DESCRIBE WOMEN'S AND MEN'S DIFFERENT LEVELS OF ACCESS TO AND CONTROL OVER RESOURCES.

The genders have equal rights under Italian law.

## 10. HUMAN POPULATION OF PROPOSED BIOSPHERE RESERVE:

The numbers in the table below are approximate estimates, because at present no detailed censuses are available of the permanent and seasonal residents in the Core Areas, Buffer Zones and Transition Areas of the Reserve.

In the Core Areas, the "seasonal" inhabitants are the managers of mountain refuges and guesthouses, and the tourists staying in them (the arrivals data were used).

In the Buffer Zones and Transition Areas, the seasonal inhabitants include both tourists (the arrivals data were used) and the owners of "second homes", some of whom spend long periods of the year in the territory. There are no other climatic, cultural or economic circumstances that lead to a significant presence of seasonal inhabitants.

| | Permanently | Seasonally |
|---|---|---|
| **Core Area(s)** | 0 | 500 |
| **Buffer Zone(s)** | 1.300 | 8.000 |
| **Transition Area(s)** | 100.000 | 60.000 |
| **Total:** | 101.300 | 68.500 |

### 10.1. BRIEF DESCRIPTION OF LOCAL COMMUNITIES LIVING WITHIN OR NEAR THE PROPOSED BIOSPHERE RESERVE.

The territory in the Reserve takes in 38 municipalities that are spread over 5 provinces: Parma, Reggio Emilia and Modena in the Emilian part (with 9, 13 and 1 municipality respectively), and Lucca and Massa Carrara in Tuscany (with 7 and 8 municipalities in the Reserve respectively).

Uniform data are available for survey periods in each municipality in the five provinces, so it is possible to produce a reliable profile of the population composition and demographic trends.

The data for 2001 – 2011 show two contrasting demographic trends that balance each other out, giving an overall positive trend for the Reserve: while there was a fall in population in the municipalities in the ridge areas, there was growth in all of the territories in the transition areas except for the Garfagnana, with very significant increases in some cases. For example, in some municipalities in the province of Parma (Langhirano, Calestano and Lesignano de' Bagni), there was an 18.2% increase in the population, which counterbalanced the negative trend in the ridge territories.

The ridge municipalities are home to the majority of core areas and buffer zones. They are also most susceptible to falls in population. Between 2001 and 2011, there was a 2.7% drop in the Garfagnana ridge zone and a decrease of no less than 14.4% in the Parma ridge area.

The demographic indicators studied (ageing index, turnover of the economically active population and structure of the economically active population[3]) are very high everywhere due to the large proportion of

[3] **Turnover of the economically active population**: this is a percentage showing the ratio between the population nearing retirement age (55-64 years of age) and the population that is about to enter the world of work (15-24 years of age). The lower the indicator is below 100, the younger the economically active population will be.

older people, even among the economically active population. However, comparison of the 2001 – 2011 figures for individual municipalities seems to show an interesting population rejuvenation trend. In the last decade, this trend has been seen in territories at lower altitudes (such as Canossa, Vezzano sul Crostolo, Langhirano, Calestano and Villafranca in Lunigiana, where from 2002 to 2011 there was a fall in the turnover of the economically active population) and also in some ridge municipalities, such as Ramiseto, Collagna, Ligonchio, Villa Minozzo, Frassinoro, Corniglio and Comano.

This demonstrates that the Reserve can count on young, dynamic human resources that can play a strategic role in turning to account and protecting the outstanding qualities of the territory.

Generally speaking, the socio-economic structure of the reserve is based on agriculture and processing high-quality goods (such as Parmigiano Reggiano cheese, Prosciutto di Parma, oil, honey, and spelt from Lunigiana and Garfagnana) as well as craftsmanship and public and private services. The education and health services are located and coordinated around the municipalities that have taken on a more distinctly urban nature over time (Langhirano, Castelnovo ne' Monti, Castelnuovo di Garfagnana and Fivizzano), while companies involved in agricultural, zootechnic, forestry and pastoral activities can be found throughout the territory. The more traditional forms of tourism involving summer holidays and winter breaks in the snow are more concentrated in the higher areas. Commuting to neighbouring industrial districts and areas is a common phenomenon everywhere on both the north and the south side of the Apennines.

Throughout the reserve, integration between agriculture and tourism is growing, as demonstrated by the constantly increasing number of agritourism establishments. This would seem to present a new employment opportunity for young people which would allow them to remain in their homeland.

The fresh interest shown by the younger generation in agricultural employment opportunities is emphasised by the substantial increase in students enrolling at Agricultural Colleges (+12% in 2014). It can unquestionably help to reverse the trend of emigration from the local area. Significant proof of the changes in this respect is provided by the great interest in Measure 112 ("Settlement of young agriculturists") of the 2007-2013 Rural Development Plan, which targeted aspiring entrepreneurs aged under 40. By 31/12/2013, there had been more than 400 applications in the provinces of Parma and Reggio Emilia alone. A lot of the funding went to new farms based in the municipalities of the Reserve. There was a sizeable number of young women among the recipients of the funding.

The figures from the latest census show that on average the Italian farms run by young agriculturists are larger, rear more animals, often use organic methods and diversify by moving into agritourism. Therefore, generational turnover is of great strategic importance, especially for the territories in the MaB Reserve, which are prepared to try out innovative practices in many fields, including agriculture.

Finally, it is interesting to note the percentage of foreign people among the resident population. On 1 January 2011 it was as high as 9.7% in the municipalities of the province of Parma and it topped 7% in the municipalities of the provinces of Reggio Emilia and Massa Carrara (the national average is 7.5%), while it

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**Structure of the economically active population**: this reveals the level of ageing of the economically active population. It is a percentage showing the ratio between the older part of the economically active population (40-64 years of age) and the younger part (15-39 years of age).

**Ageing index**: this reveals the level of ageing of a population. It is a percentage showing the ratio between the number of people aged 65 and over and the number of young people aged 14 and under.

was below 5% in the municipalities of the Garfagnana area. The most numerous foreign communities in the territory of the reserve are Romanians and Moroccans.

## 10.2. NAME(S) OF THE MAJOR SETTLEMENT(S) WITHIN AND NEAR THE PROPOSED BIOSPHERE RESERVE WITH REFERENCE TO THE MAP (SECTION 6.2):

The candidate area covers land from two Regions of Italy: Emilia-Romagna (with the provinces of Reggio Emilia, Modena and Parma) and Tuscany (with the provinces of Massa Carrara and Lucca). In total, there are 38 municipalities in the territory, covering approximately 2,200 km². In the proposed Reserve area, there are four main settlements:

Castelnovo ne' Monti is the municipality with the largest resident population in the reserve (10,495 inhabitants were recorded in the 2011 Census). It is 44 km from Reggio Emilia and it lies at the foot of the Pietra di Bismantova, between the Secchia and Enza valleys. Castelnovo ne' Monti is the most important service centre (with high schools, a hospital, and commercial, social and recreational activities) and the economic hub of the mountains in the province of Reggio Emilia, thanks to its central location among the communication routes that connect the Reggio Emilia plain to the ridge and Tuscany, as well as the links running across to the mountain territories in the provinces of Modena and Parma. The whole of Castelnovo ne' Monti is included in the proposed MaB reserve area. Part of its territory is in a core area (Pietra di Bismantova) and the rest is in buffer zones and transition areas.

Langhirano is in the province of Parma and lies 22 km from the city. It has a resident population of 10,003 and it is considered the capital of P.D.O. Prosciutto di Parma (Parma Ham), an internationally renowned traditional Italian delicacy. Langhirano is home to the majority of the companies that cure the hams. It is a focal point for the Apennine reserve municipalities in the province of Parma because it is a service centre (with high schools and commercial, social and recreational activities) and the economic hub. The highest part of Langhirano's municipal territory has geological and cultural ties to the Apennines and is included as a transition area in the proposed MaB reserve.

Fivizzano is in the Lunigiana area, 57 km from Massa Carrara. It has always been an important settlement, as demonstrated by the large number of works of art and mansions dating back to the Medici period in particular. Jacopo da Fivizzano opened one of Italy's first printing offices in the town and it was here that the first typewriter was invented and used. Fivizzano is a key cultural centre for the Apennine part of Lunigiana, in part because of the falling population (8,249 inhabitants were recorded in the 2011 Census). The part of the Fivizzano municipal territory that is geologically and culturally linked to the Apennines is included in the candidate MaB reserve, with a core area (Cima Belfiore) and buffer zones and transition areas. The parts of the Municipality of Fivizzano that are geologically and culturally linked to the Apuan Alps have not been included in the Appennino Tosco-Emiliano MaB Reserve.

Castelnuovo di Garfagnana is the main settlement and the fulcrum of the Garfagnana area. It lies 50 km from Lucca and 6,057 inhabitants were recorded in the 2011 Census. It is located at the confluence of the River Serchio and the Turrite Secca, which is one of its main tributaries. It is the administration and business centre of the valley and it provides territorial services such as high schools, a hospital and a wide range of commercial activities. It is also home to the Garfagnana Union of Municipalities. Its beautiful old town centre and its role as a gateway to the Garfagnana have made it an important tourist destination. The part of the Castelnuovo di Garfagnana municipal territory that is geologically and culturally linked to the Apennines has been included in the proposed MaB reserve as a transition area.

## 10.3. CULTURAL SIGNIFICANCE:

An ongoing, age-old interrelationship between humans and the territory has produced the unique, distinctive cultural qualities of the area in the proposed UNESCO MaB Reserve.

The Tuscan-Emilian Apennines are the cornerstone supporting the entire territorial system. Ancient peoples such as the Ligurians, the Apuani and the Etruscans chose to settle here and it was a hard-fought battleground during the expansion of Rome. It was ruled by the Byzantines, the Lombards and the Carolingians. It was subsequently at the geographical heart of the Canossa possessions which provided the physical and emblematic setting and background for the conflict between the Empire and the Papacy (or in modern terms between political and religious powers) at the time of Matilda of Canossa (Countess of Tuscany). The seigneurial Malaspina, Medici and Este families fought over the territory and ruled significant parts of it at different times, leaving traces that are still clear today. Christianity has been the element that has left the most continuous, profound and widespread mark of spirituality, culture and civilisation in the last two millennia. The Pietra di Bismantova was mentioned by Dante Alighieri in the Divine Comedy – the poem that established the Italian language – and it is possible to see how its features served as the inspiration for the Mountain of Purgatory.

The Apennines were once impracticable for much of the year, but their woods, pastures and water supplies provided the communities that settled on their slopes with essential natural resources. The areas at lower altitudes have been inhabited since prehistoric times. Today, numerous archaeological finds help to reveal the history of the Apennine peoples. Below are details of some of the most significant discoveries:

- The Stele Statues of Lunigiana or Anthropomorphic Stelae, which are important relics of prehistoric and protohistoric societies that were present in the area from the 3rd millennium B.C. until the 6th century B.C. The purpose of the statues is not entirely clear, but they were used by worshippers in some way. They are often found in large valleys linking different areas and mountainous sites near important communication routes between vast regions of Europe. There is a Museum of Stele Statues in Pontremoli (Massa and Carrara).
- The Campo Pianelli archaeological area on the Pietra di Bismantova (Castelnovo ne' Monti), where there was a Copper Age settlement (3rd millennium B.C.). Terramare villages were later built on it and subsequently a sizeable necropolis was added, leaving important finds for archaeologists. Finally, Etruscans and Ligurians settled in the area.
- A prehistoric village on Monte Valestra (Carpineti).
- A Ligurian settlement dating back to the 4th century B.C. on Monte Pisone (San Romano in Garfagnana) and one in the "Castelliere di Fragno" area (Calestano).
- Traces of an Early Iron Age settlement and a Late Iron Age village founded by Romans and barbarians respectively in Codiponte and Luscignano (Casola in Lunigiana).
- The Lunigiana Park of Rock Engravings in the Municipality of Filattiera, where there are cup marks and engraved boulders, like those that can be seen in Bagnone (Macigno della Grande Madre di Jera), Corniglio and Alpe di Succiso in the Province of Reggio Emilia (Coppella della Sorgente).
- The Luceria area, an ancient settlement in the Val d'Enza (Canossa) where a long stretch of paved and partly porticoed road has been found. It has been identified as the main street which ran through the town parallel to the Val d'Enza and connected the Via Aemilia with the Roman colonies of Lucca and Luni.

- A necropolis from Roman times in San Bartolomeo, along the River Secchia (Villa Minozzo).
- Murella: a site in the Municipality of Castelnuovo di Garfagnana where traces have been found from Etruscan times (6th to 5th century B.C.).

The settlement patterns in the territory of the Reserve have crucial historical roots in the era of Matilda of Canossa. The powerful ruler with Lombard origins was part of the imperial family. She was very close to Pope Gregory VII and was named the "Imperial Vicar Vice-Queen of Italy". In 1076, she came into possession of a vast realm that included Lombardy, Emilia, Romagna and Tuscany. Canossa was its political centre. Matilda strengthened the existing defences and had fortresses, towers, fortified villages, parish churches and hospitals built, thus establishing a very prominent and formidable territorial control and defence system. The network of fortifications is still plain to see in the territory and it included the Canossa, Rossena, Carpineti, Sarzano and Bismantova castles (the last of which is now lost). Today it is a cultural and tourist attraction. The churches and hospitals also played a part in the management of the territory: they embodied the religious side of Matilda's power and helped to support and control communication routes. Significant examples include: Vallombrosana Abbey in San Michele Cavana (Lesignano de' Bagni), the churches of Sasso, Bazzano and Scurano (Neviano degli Arduini), San Vitale (Carpineti), and Toano and Paullo (Casina); the hospital in the Ospedalaccio Pass; and the Benedictine Abbey and the San Geminiano hospital in the legendary Romanesca Wood among the San Geminiano meadows, both of which were in Frassinoro on the Bibulca Way, which connected Modena and Lucca through the Passo delle Radici.

Chestnut cultivation underwent substantial development in Matilda's time. Chestnuts have long been an emblem of the cultural, rural and gastronomic traditions of the Apennines. They have been a primary foodstuff ever since the Middle Ages and the trees are an important part of the landscape in the proposed Reserve. Under the Countess of Tuscany, the number of trees was increased and they were planted in well-suited areas in accordance with the agronomic principles of a method that is still known today as the Matilda planting system. It allowed the grass in the undergrowth to be used to graze animals and made it easy to gather the leaves for use as food and bedding in sheds and stables.

Matilda played a leading role alongside Gregory VII, Henry IV and Henry V in the bitter conflict and the relations between the Holy Roman Empire and the Papacy, in what was essentially a clash between political and religious powers in Europe. The humiliation and absolution of the emperor in Canossa on 27 January 1077 is an extremely famous historical event. It is widely acknowledged that Matilda's rule played a fundamental part in the creation of the landscape and cultural identity of much of the territory in the proposed Reserve, between Lucca and the Po Valley. The heritage from that era can still be clearly seen today in the landscape of the hills and mountains, as well as in the architectural and cultural legacy.


Figure 10-1 Verrucole Fortress

There is still a great deal of interest in the fascinating events of the Middle Ages and the local people feel that the origins of their cultural identity partly lie in the intangible heritage of customs and habits (there are re-enactments and "Matilda weeks" in Canossa, Frassinoro, Quattro Castella, Palanzano and Vetto), recently developed and promoted

artistic craftsmanship (which is known as "Ars Canusina" and has its own public/private consortium in the Municipality of Casina), traditional gastronomic products, and unique, original forms of rural and folk art and theatre, as exemplified by the commemoration known as the "Maggio" which still takes place in the territory (see section 15.6.1).

The Late Middle Ages, the era of the Italian city-states and the Renaissance all made their mark on the territory. The frequent conflicts between the Malaspina, Este and Medici families led to the presence of strongholds, castles (including the Verrucola, Comano, Gragnola and Fosdinovo castles and Malaspina Castle in Filattiera), imposing fortifications (such as the Mont'Alfonso and Verrucole fortresses), the old town centres of Fivizzano (home of the first books to be printed with typed characters in 1470 and a commemorative museum) and Castelnuovo di Garfagnana with its Rocca Ariostesca (a castle named after Ludovico Ariosto, who was the governor of the Garfagnana when he wrote the final draft of "Orlando Furioso") and art (for example, the painter Pietro da Talada was a 15$^{th}$ century master from Borsigliana).

Traditional food is another varied but unifying element for the territory in the Reserve: many production systems with rural origins are well established on both sides of the Apennines (such as the chestnut industry and sheep's milk-based dairy production) and they are now protected and promoted. Culinary specialities with roots dating back to the Middle Ages are showcased in highly popular cultural and entertainment initiatives such as "La tavola di Bisanzio" near Baiso and Carpineti, where it is possible to sample mutton-based dishes. There are numerous culinary traditions, some of which vary with the climate. For example, butter tends to be favoured on one side of the Apennines and oil on the other.

The Parmigiano-Reggiano cheese that we know today was first made in the lower foothills on the northern side of the Apennines. It appeared in the Late Middle Ages and it was probably produced in civil/religious establishments of solid economic and cultural standing that were capable of providing sufficient production space and waiting the long periods required for the cheese to mature.

Another highly emblematic product is P.D.O. Prosciutto di Parma, whose origins lie in Roman times. The production zone is largely concentrated in Val Parma. Its boundaries are marked to the East by the River Enza and the West by the Stirone stream and it only extends 5 km to the South of the Via Aemilia, stopping below 900 metres in altitude. Nonetheless, the great focus on preserving the artisan qualities of the product (which have been threatened by modern industrialisation processes in the food and agriculture business) has made it a renowned Italian delicacy all over the world and it epitomises the propensity to evolve while staying true to tradition that can be found throughout the proposed Reserve. The ham is praised and described in the "Parma Cured Meat and Ham Museum" in Langhirano, which is part of the Parma Food Museums network.

Road networks played a key role in the historical development of settlements in the proposed MaB Reserve. Ever since prehistoric times, and especially with the terramare culture, people have tended to settle in naturally defended strategic locations along the travelling routes associated with the courses of rivers. The shape of the Apennines meant that these routes linked the basins of the Secchia, Enza and Taro Rivers to the North – through the Paradarena, Cerreto, Ospedalaccio and Lagastrello passes respectively – with the

trails along the river basins of the Garfagnana and Lunigiana areas to the South, as far as the mouths of the Serchio and the Magra in the sea. These routes were consolidated during the era of Etruscan colonisation, which penetrated as far as the minor valleys and boosted trade between the two different sides of the Apennines. They became even more established during Roman colonisation, because they provided relatively quick connections between the colonies in the Po Valley and the naval bases on the Tyrrhenian Sea. As they oversaw the communication routes, they were able to control the transit of people and goods.

The local people endured and played an active part in the era-defining events towards the end of the Second World War. After the Allies landed in Italy, the German army retreated north and consolidated its position on the "Gothic Line": a series of fortifications that ran from the Tyrrhenian Sea to the Adriatic Sea, right through the Apennines.

Consequently, the territories in the proposed Reserve were heavily involved in the liberation efforts by the British and American Allied forces on this front, which went through Castelnuovo di Garfagnana in its westernmost section. There was widespread participation in the Partisan Resistance, as demonstrated by the brave declaration of the "Republic of Montefiorino" and unfortunately also by the many reprisals against civilians by Nazis and Fascists in the Apennine territories included in the proposed Reserve, even in places far from the Gothic Line. They include the massacres of Regnano (Casola in Lunigiana, 13 victims), Cervarolo (Villa Minozzo, 24 victims) and Bettola (Vezzano sul Crostolo, 32 victims), the slaughters in Valla and San Terenzo Monti (Fivizzano), and the hundreds of victims who were rounded up during Operation Wallenstein in the summer of 1944 in the Parma area, including 33 civilians in Neviano degli Arduini, 15 in Monchio delle Corti and dozens of others in Palanzano, Corniglio, Tizzano Val Parma, Calestano and Langhirano.

Many municipalities and locations in the proposed Reserve were subsequently awarded Gold Resistance Medals and Medals for Military Valour or Civilian Merit in memory of the many innocent victims and the courage shown by the people. The profound involvement in this episode of Italian history that is still broadly felt by the people who live in the proposed Reserve is shown by the widespread presence of associations such as the local branches of the Italian National Partisan Association (ANPI) and institutes that are part of the INSMLI (National Institute for the History of the Italian Liberation Movement) network, such as the extremely active Historical Institutes of the Resistance and the Contemporary Era in Lucca, Reggio Emilia, Parma and Modena. There are monuments and exhibition facilities throughout the area, including Resistance Museums in Sasso (Neviano degli Arduini) and Fosdinovo.

## 10.4. SPECIFY THE NUMBER OF SPOKEN AND WRITTEN LANGUAGES (INCLUDING ETHNIC, MINORITY AND ENDANGERED LANGUAGES) IN THE BIOSPHERE RESERVE.

Emilian-Romagnol (native name: *Emiliàn-Rumagnòl*) is a Gallo-Italian language, within which it is possible to distinguish between the Emilian and Romagnol dialects. Only Emilian is spoken in the proposed MaB Reserve area. This group of dialects was recognised among the minority languages of Europe in 1981 and listed among the languages worthy of protection by UNESCO in the Red Book of Endangered Languages.

The Garfagnino dialect is part of the Garfagnino-Versiliese group. It is a transitional dialect that lies between Lucchese and Massese-Lunigianese, with strong Emilian and Ligurian elements.

Lunigiana has always been squeezed between the sea and the mountains. There are a number of strategic communication routes running through the area and it has had many rulers. The local dialect is known as Lunigianese or Lunense and it is part of the large Emilian dialect family. The nature of the territory and the geographical setting mean that Lunigianese is a fusion of the similarities noted and the influences on the

local dialect over the centuries. It contains Tuscan and Genoese expressions, but the core syntax and sound come from the main Emilian stock.

# 11. BIOPHYSICAL CHARACTERISTICS:

## 11.1. GENERAL DESCRIPTION OF SITE CHARACTERISTICS AND TOPOGRAPHY OF AREA:

The Appennino Tosco-Emiliano extends from Passo della Cisa to the Bocca Trabaria pass; the area nominated to become a MaB Reserve extends along this ridge from its far western extreme to Passo delle Forbici, connecting almost all the peaks over 2,000 metres in this part of the Apennines: Monte Cusna (2,121 m above sea level), Monte Prado (2,054 m above sea level, the only one over 2,000 m in Tuscany), Alpe di Succiso (2,017 m above sea level, the most northerly over 2,000 m of the entire Apennine chain). The area also extends from the ridge down to the adjacent valleys, extending towards the north and south, on both sides: towards the south, it descends steep gradients almost reaching sea level along the valley of the River Magra and reaching the foothills of the Apuan Alps. Heading north, it almost reaches the Po valley stretching as far as the alluvial fans of the Apennine foothills.

Physiographically, the areal distribution of the southern slope is smaller than the northern slope due to its steeper gradients. To the south, the slope is steep, precipitous and heavily carved out, while to the north it tends to fall away gently, becoming a rolling landscape. Two aspects have led to this morphological diversity: the varied geological heritage described in chapter 11.4 and the varied climatic conditions (see chap. 11.3). The elevation levels also reflect the asymmetry between the two slopes: while, on the one hand, the mean and median altitudes sit around 1,000 metres, the most frequently occurring altitude in these areas (the mode, in statistical terms) is lower, around 600 m above sea level.

## 11.2. ALTITUDINAL RANGE:

From an altimetric point of view, the highest elevation is Monte Cusna (2,121 m above sea level), the lowest elevations are the northern and southern extremes of the valley floor (20 m above sea level). The mean altitude of the candidate area is 1,058 metres above sea level.

**Highest elevation above sea level: 2,121 metres (MONTE CUSNA)**

**Lowest elevation above sea level: 20 metres**

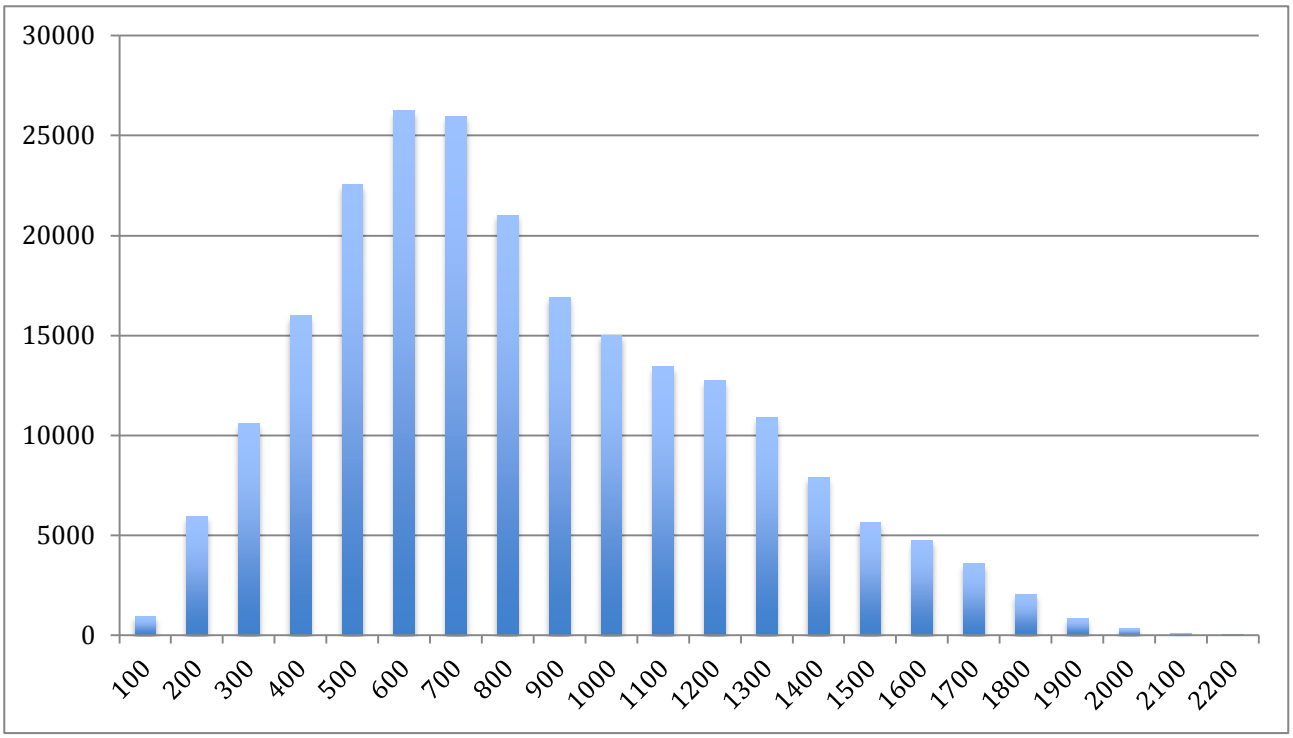



**Figure 11-1 altitudinal range (abscissa: quote in meters; ordinate: hectars of land at the given altitude)**

## 11.3. CLIMATE

The candidate area has an unusual climatic situation due to the fact that it is traversed by the euro-mediterranean climatic boundary, which coincides with the ridge in this section of the Apennines.

On the whole, the climate has subcontinental characteristics, with the altitude of the area proving more of a determining factor than its distance from the sea. The Tyrrhenian Sea has an impact on the southern part of the candidate area, meaning that mountainous climatic conditions (cold, snowy winters and cool summers) only exist in the high-altitude zones, while on the lower slopes the climatic conditions become progressively more like a Mediterranean climate, featuring hot, dry summers and mild winters.

In winter, temperatures across the majority of the candidate area are generally extremely cold, with local averages falling below 0°C on the highest ridges and at the heads of the valleys on the Po Valley side. There is heavy snowfall in the winter but the snow cover only remains in the areas higher than 1,000m in altitude.

The intermontane basins, which are less exposed to the sea, and the portion of land facing the Po Valley experience a climate with continental characteristics (cold winters and hot summers). The isotherms on the steep Tyrrhenian slope are denser, and the meteorological conditions are affected by the low pressure that is often experienced in the northern part of the Tyrrhenian Sea. There is heavy rainfall in the highest areas (over 1,500mm a year) but this becomes lighter as the altitude decreases. The areas that experience the most rainfall are on the Tyrrhenian slope, which sees extremely humid sea breezes blowing in from the south-west (libeccio) and sometimes from southern France (mistral), whereas the basins and the Po Valley slope experience much lighter rainfall. The area receives winds including the north-easterly wind (gregale) and the south-easterly wind (scirocco), which both blow in fairly frequently.

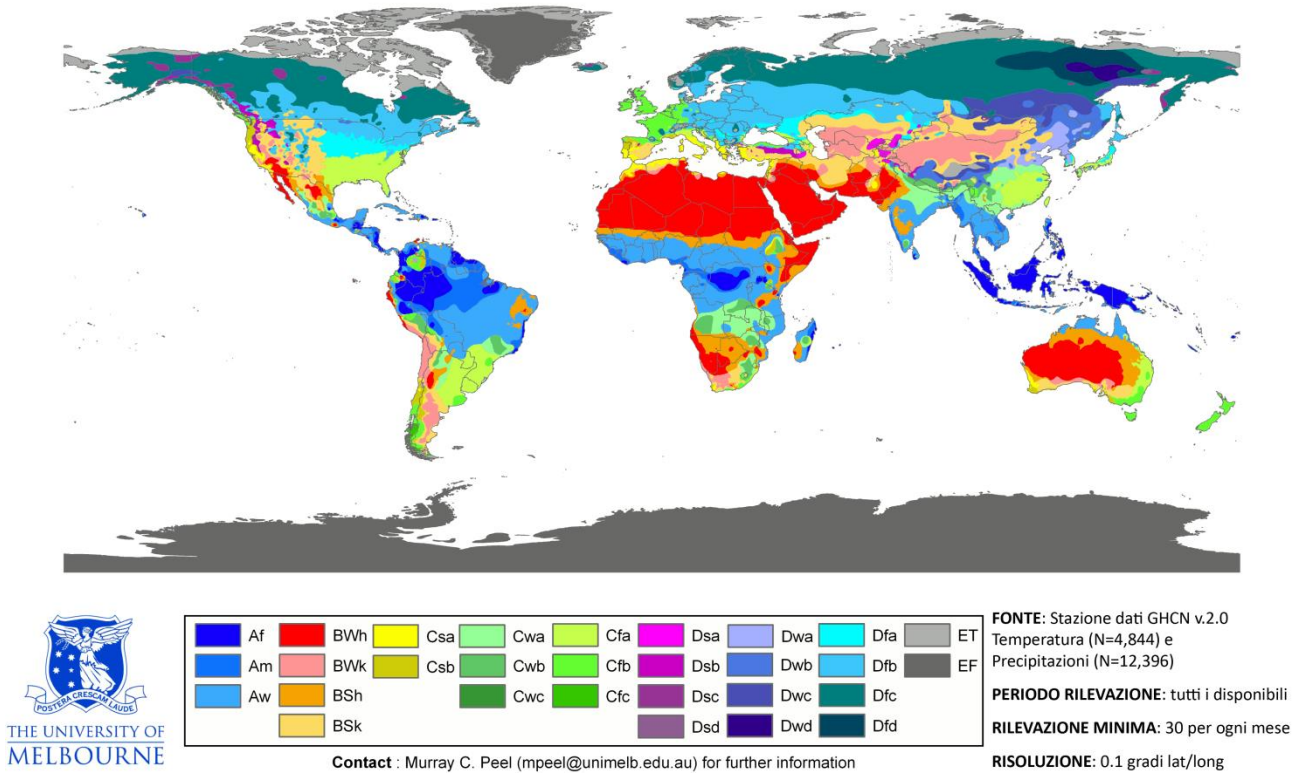



**Figure 11-2 – Global climatic classification according to Köppen and Geiger**

The candidate area belongs to the group of Temperate Middle-Latitude Climates (C) under the Köppen climate classification. However, the area also demonstrates features of the Csa and Cfa subgroups:

- Csa: temperate, humid climate with dry, very hot summers; the warmest month features temperatures above 22°C;
- Cfa: temperate, humid climate in all seasons with very hot summers; the warmest month features temperatures above 22°C.

The ridge marks the divide between subgroups “a” and “b”. It forms the boundary between the following climate zones:

- Mediterranean climate zone, which is characterised by a lengthy dry period during the summer and mild winters (Csa);
- Temperate, humid Continental climate zone, which is characterised by temperate, cool summers, cold, snowy winters in the highest areas and rainfall ranging from 700mm to 1,500mm a year (Cfa).

**Average temperature of the warmest month: 20.2 °C**

**Average temperature of the coldest month: 1.1 °C**

**Mean annual precipitation: 846.1 mm, recorded at an elevation of 730 metres**

### 11.3.1. IS THERE A METEOROLOGICAL STATION IN OR NEAR THE PROPOSED BIOSPHERE RESERVE? IF SO, WHAT IS ITS NAME AND LOCATION AND HOW LONG HAS IT BEEN OPERATING?

The Monte Cimone meteorological station is the main World Meteorological Organisation (WMO) and Italian air force meteorological station. The areas within its scope are the summit of Monte Cimone and the

corresponding Tuscan-Emilian Apennine mountain area. The meteorological station is situated in the north-east of Italy, in the Region of Emilia-Romagna, in the Province of Modena, in the Municipality of Sestola, at 2,173m above sea level and a few dozen metres down from the summit of the mountain. Its geographical coordinates are 44°11'36.98"N 10°41'54.58"E. The Monte Cimone meteorological station is one of the official Italian stations that are part of the WMO's GCOS (Global Climate Observation System) programme.

The first meteorological station was opened on Monte Cimone in 1882 and remained operative until 1928. In 1937 another Italian air force station began operation, housed in the building of the barracks that was completed the previous year. The station ceased activity in 1940 due to events linked to the second world war, during which the observatory was completely destroyed.

In 1945 a new station was established and began operation, measuring meteorological data as part of research into the climate on the highest summit of the northern Apennines, as well as assisting with aircraft navigation.

There are also a number of small, less important meteorological stations located in the main towns in the area of the Reserve.

## 11.4. GEOLOGY, GEOMORPHOLOGY, SOILS:

The geological history of the northern Apennines underlying the nominated area is complex and fascinating and warrants a treaty in its own right. In this section, we decided to restrict ourselves to summarising the geological mechanism that gave rise to the current landscape and the geological features that continue to affect the physical and chemical characteristics of the soils, the circulation of water and colonisation by plants and animals, including man.

As previously mentioned, the area that has been nominated to become a MaB reserve is made up of a ridge, an unbroken line, which unites two climatic zones, becoming a zone of admixture and transit in addition to an ecological corridor of considerable importance. In terms of geological criteria, the area that has been nominated to become a MaB reserve has also been found to be a "meeting ground" along the border, which is morphologically determined by the ridge. The ridge itself, however, exists as a function of the geological history of this area; it is therefore necessary to take a step back and analyse how the area has acquired its present form.

The shape and formation of the Appennino Emiliano-Romagnolo is linked to the same orogenetic process that shaped the entire Italian peninsula and is linked to the collision of the African and European plates during the late Mesozoic Era. This collision resulted in the piling up of numerous strata that were deformed, buckled and stacked upon one another by the slow pressure generated by the movements of the lithosphere.

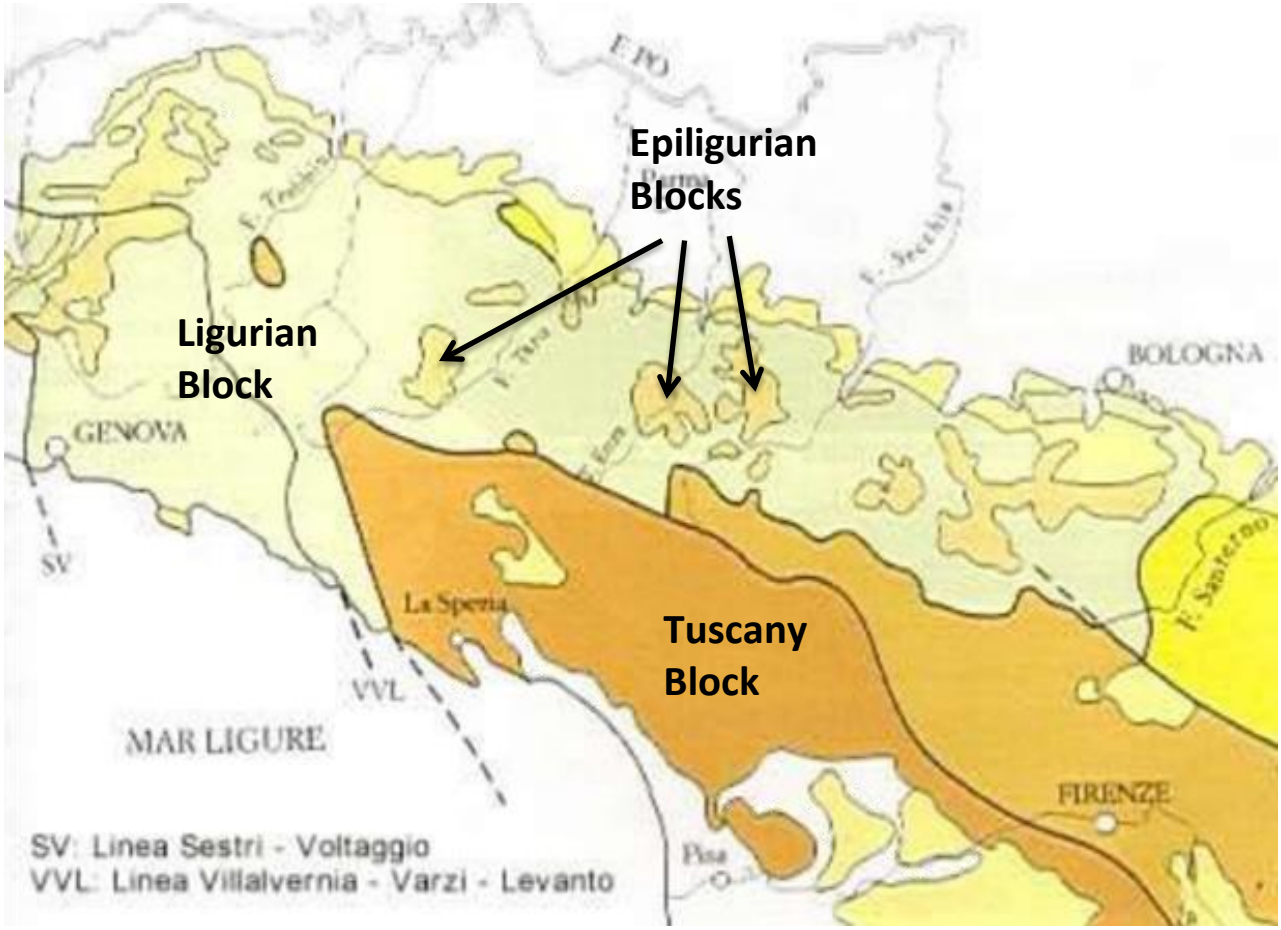



Figure 11-3 Palaeogeographic domains composing the Northern Apennines

Two paleogeographic blocks collided-converged in this area (Figure 11-3) and ended up a long way from each other (100-200 km), one being referred to as “allochthonous blocks” (Ligurian and Epiligurian blocks) and the others, “autochthonous blocks” (Tuscan block). The former blocks are composed of various kinds of rocks, which settled in the deep sea (Ligurian Basin) between present-day Corsica and the Tyrrhenian coast during the period between the Upper Jurassic and Middle Eocene, i.e. between 150 and 45 million years ago (Figure 11-4). The latter comprise a succession of rocks of exclusively sedimentary origin that are predominantly carbonate, deposited in a shallower environment with the precipitation of gypsum, anhydrite and chlorides resulting from the extensive process of evaporation of a vast sea.

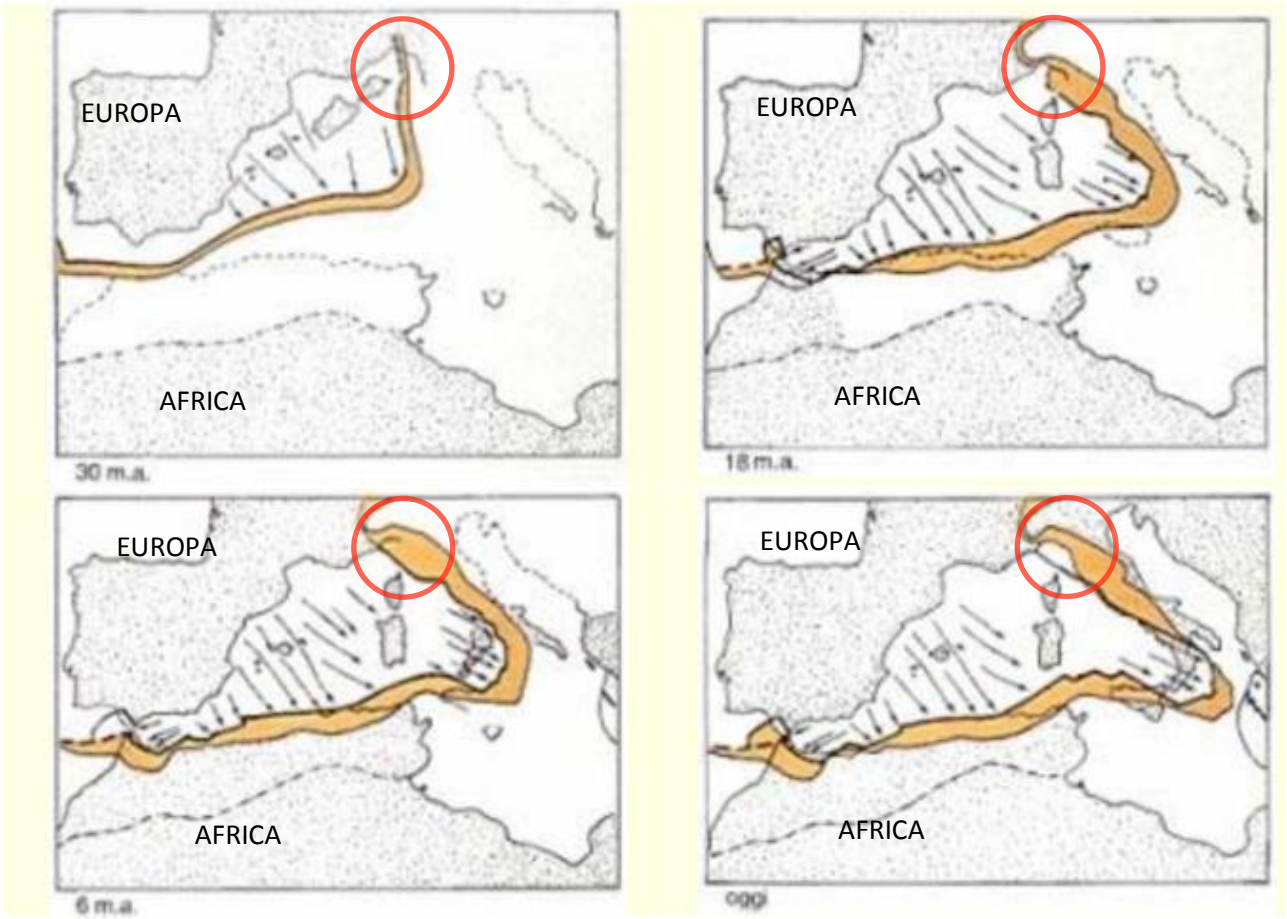



Figure 11-4 Spatial and temporal evolution of the counterclockwise rotation of the appenninic belt

The autochthonous blocks are those that are normally found at greater depths, as they are covered up by the Ligurian blocks. Orogenesis and erosion, however, have created folds and incisions that have brought these deeper blocks to the surface: the line of contact between these blocks and the strata that covers them forms the ridge itself! The varied nature of the rocks that make up the two slopes determine the different gradients, the direction and density of the hydrological lattice and the structure of the hydrogeological bodies (figure 11-5).

RIDGE

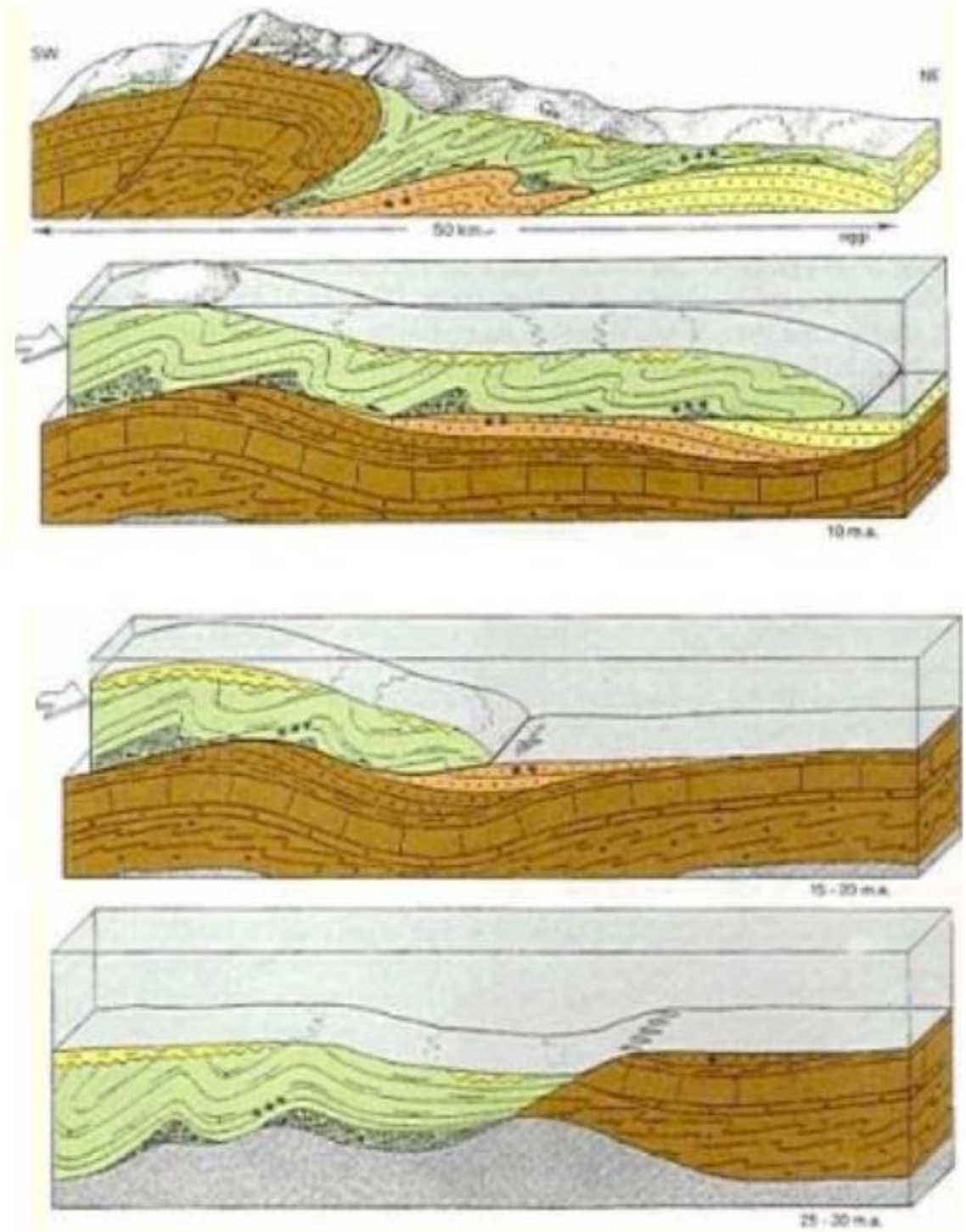



**Figure 11-5 Structural evolution of the western flank of the Adria plate during Caenozoc time**

### 11.4.1. GEOLOGICAL CHARACTERISTICS AND THEIR RELATIONSHIP WITH THE BIOSPHERE

As is to be expected, the majority of the rock units in the area originate from an oceanic basin during the closing phase, which was gradually filled up with sediment until the bay closed completely, surfaced and recently rose up. The rocks are composed of medium-fine sediments, with a strong presence of clays that have given rise to the varieties of soil present and resulted in gentle, rolling landscapes that adapt easily to the requirements of pastoral farming and breeding. These clays, in addition to being the main substrate for fodder, also offer a unique resource that has led to the development of a superior ceramic industry north of the candidate area. In addition to these sediments, called neoautoctonous due to their recent settling and their vicinity to the range under formation, there is evidence of the preceding turbulent geological history. This has led to distinctive features that are usually associated with specific endemic vegetation and wildlife: including, in order of age, Triassic evaporites, ophiolites, turbidite sequences, “Pietra di Bismantova” (rock) and glacial deposits. These are often recognised as geological sites because of their importance to understanding the area, which is necessary for both conservation and safeguarding policies and for mindful exploitation of the same.

**Figura 11-6 Pietra di Bismantova and Triassic Gypsmum outcropping along the Secchia river**

This chapter concludes with reference to the area’s hydrogeological instability and seismogenicity, which demonstrates that the orogenic process is still ongoing and has had a significant influence on the land’s inhabitation by man over the last 10,000 years.

#### THE TRIASSIC CHALKS (EVAPORITES)

The Triassic gypsum outcrops are among the Apennines’ oldest rocks: their origins date back over 200 million years. At that time, all of the land masses were joined to form a single, super-continent, Pangaea, bordered on the east by the large oceanic basin of the Tethys Ocean. The waters of this ancient sea, which evaporated into vast lagoons, deposited gypsum, limestone and salt. The presence of the latter, which is now only found at depth, is demonstrated by the salinity of the Fonti di Poiano (Reggio Emilia), the largest karst resurgence in the Northern Apennines.

These rocks, part of the Formation of the Anidridi di Burano, crop up in very few places, in just one part of the Northern Apennines within the candidate area, along a section of approximately 23 km that stretches from the River Secchia Valley in Emilia to Sassalbo on the Tuscan side.

Due to the solubility of these rocks, all of this area has a karst topography, with the presence of unusual formations such as caves, wells, sinkholes, underground streams, karren and dolines. These diverse environments, which have always been hard to access and utilise due to their bedrock, exposure and gradients,

have led to high levels of biodiversity: 21 habitats of community interest, unusual and slightly halophilic vegetation, with over 600 species of flora (some rare and some extremely rare) and as many as 17 species of Chiroptera.

## OPHIOLITES

A special feature of the Liguride units is the presence of igneous rocks consisting mainly of dark and reddish basaltic rocks (the cliffs and rocks inspiring the toponyms of Rossena and Rossenella); these are sections of oceanic crust that were located between the clays during the Apennine orogenesis until they caused distinctive features in the landscape: this is due to the fact that they are more resistant to erosion than the surrounding sediment. The numerous minerals, including the rare datolite and "pillow lavas" produced by the rapid cooling of lava in sea water, are worthy of note. The most iconic outcrops of these rocks, called ophiolites, are protected as a Regional Reserve and a SCI site. The harshness and selectivity of the rugged environments, geomorphological diversity, microclimate and the physical-chemical features of the substrate make them important places of refuge for rare plant species, for plants of the high Apennine ridges and, conversely, for the Mediterranean flora and endemic species. There are 7 habitats of Community interest, of which three are defined as priority.

## TURBIDITES

Turbidites, alternating laminates of sandstone and finer sediments, are a result of the deposit of sediments distributed on the seabed by a turbidity current, a very rapid flow of water and suspended mud caused by an underwater landslide, and can be very broad. The turbidites are also known as "Flysch", a term that stands for a sequence of sediments derived from a range that has surfaced and been broken up.

- There are two types of Flysch in the Northern Apennines, which can be differentiated by the type of substrate on which they have settled:
- the older Flysch (Cretaceous-Eocene) of the Ligurian Units have settled on the oceanic crust and are connected to the subduction phases of the oceanic crust of the Ligure-Piemontese basin
- the younger Flysch (Oligocene-Miocene) of the Tuscan and Umbria-Marche units have a continental substrate (Apulian plate) and are linked to the continental collision phase of Africa and Europe in which the Apulian plate was subducted under the European one.

These rocks are typical throughout the Apennines. They have always been one of the preferred lithotypes for carrying out stonemasonry, in addition to being a distinctive feature of the landscape for their characteristic alternating layers, which have been eroded by the atmospheric agents to different extents.

## PIETRA DI BISMANTOVA

The Pietra di Bismantova is a spectacular block of yellowish sandstone, which appears to be floating on a sea of clay sediments. It is an emblematic geological formation, as well as an important geological site. The Pietra is made up of a biocalcarenite rock formed by the accumulation of ancient sands along with fragments of mollusc shells, echinoidea (sea urchins), coralline algae, foraminiferida and fish teeth. These sediments were deposited during the Miocene, on a shallow and temperate seabed that was abundant with life.

Its square outline and rocky walls measuring up to 150 m are a result of the high resistance to erosion of the sandstone forming its bulk, which is in relief due to the fact that it rests on rocks that are softer and less resistant to erosion, such as marlstone and clay. It is an example of selective erosion, with a distinctive shape that can be identified from miles around, which stands out, away from the Apennine ridge.

The Pietra is a place of great importance: in terms of geology and literature, history and spirituality, mountaineering and Parmigiano-Reggiano cheese, tourism and farming, landscape and nature. There are at least eight habitats of Community interest, rupicolous and with pioneer herbaceous plants, of which 3 are defined as priority.

## GLACIAL DEPOSITS

The northern Apennines show diffuse visible signs from only the last glacial period, Wurm, between 70,000 and 10,000 years ago. Glacial-erosion cirque formations carved into the N and NE faces of the ridge, moraine deposits, lakes and wetlands testify to the presence of ancient glaciers, some of which were large, up to 7-8 km in length. Amongst them are the cirques of Monte Alto, from which the River Secchia originates, Monte Prado, Monte Cusna, Monte La Nuda, the numerous lakes in the province of Parma (L. Santo, L. Ballano, Lagdei, the Lagoni...), the lake system of Cerreto and L. Bargeana. The subsequent evolution of these bodies of water peppering the mountains, at the base of hollows (glacial-erosion cirque formations) carved out by ice, which are often dammed by glacial moraine bars, has meant that some of them have been converted into the same number of peat-bogs and wetlands. These are some of the most important and fragile ecosystems and are extremely important to existing biodiversity.

## SEISMICITY

The Apennino Tosco-Emiliano is affected by frequent earthquakes, although they rarely exceed 6 on the Richter Magnitude Scale. In Emilia, the areas of the provinces of Parma and Reggio Emilia have been affected by seismic events that have not historically produced effects above VIII on the Mercalli Intensity Scale, while in Lunigiana and Garfagnana, events with more serious effects, up to the tenth grade on the Mercalli Intensity Scale, have been recorded. The different extent of the damage can be explained by the different lithotypes present in the two areas, which vary the intensity of events releasing similar levels of energy.

| YEAR | DAMAGE (MERCALLI SCALE) | PLACE |
|---|---|---|
| 1740 | VII-VIII | Barga - Garfagnana. |
| 1767 | VII | Fivizzano - Lunigiana. |
| 1790 | VI-VII | Aulla. |
| 1834 | VIII-IX | Alta Lunigiana. |
| 1835 | VI-VII | Passo della Cisa. |
| 1837 | X | Ugliancaldo – Alpi Apuane. |
| 1849 | VI-VII | Val di Taro. |
| 1873 | VI-VII | Liguria Orientale. |
| 1878 | VI-VII | Bagnone - Lunigiana. |
| 1902 | VII | Fivizzano. |
| 1903 | VII-VIII | Filattiera - Lunigiana. |
| 1914 | VII | Media Garfagnana. |

| | | |
|---|---|---|
| 1920 | X | Lunigiana – Garfagnana. |
| 1921 | VII | Pontremoli. |
| 1939 | VII | Fivizzano - Garfagnana. |
| 1995 | VII | Bassa Lunigiana. |
| 2008 | 5,1 Richter | Appennino Parmense e Reggiano |
| 2012 | 5,4 Richter | Berceto Corniglio Monchio delle Corti |
| 2013 | 4,8 Richter | Garfagnana |
| 2013 | 5,2 Richter | Lunigiana |

**Table 11.1 Significant seismic events over the past three centuries in the candidate area.**

## HYDROGEOLOGY

The constant alternation of permeable rocks, some of which are permeable to a greater extent and others to a lesser extent, provides favourable conditions for water storage (reservoir rocks) and consequently for the formation of complex spring systems. Water serves as a rich resource, while also giving the area a subtle element of charm. This vast quantity of water returns an average flow of 65.4 $m^3/s$ to the River Po via the Secchia, Enza and Parma rivers. Moreover, at times of flooding, more than 3,500 $m^3/sec$ of water can be returned to the Po. For processes of water capturing and the development of the incisions in line with the uplift of the Apennine range, the hydrographic network is extremely intricate. The water system that runs through the candidate reserve is extremely dispersed and represents a highly influential resource for the accomplishment of high-quality manufacturing and the generation of sustainable energy, as well as for education and for the definition and conservation of many ecosystems.

## HYDROGEOLOGICAL INSTABILITY

The candidate area is one of the area's largest areas of hydrogeological instability in Italy with over 20% of its hillside and mountainous territory affected by accumulations of active and dormant landslides. Most of the landslide bodies, in particular the largest, demonstrate considerable persistence over time (up to approximately 13,000 years ago) and their current distribution is the result of an evolution of the slopes going back thousands of years, during which dormant periods alternated, in the presence of exceptional climatic events and earthquakes, with mass remobilisations to different extents. The territorial distribution of the landslides demonstrate their close dependence on predominantly clay-based and/or structurally complex lithology formations. This phenomenon produces changes to the land and environment that are sometimes rapid, often impacting negatively on human life and infrastructure and, as a result, has a great social and economic impact. The number and extent of the landslides in an area such as the northern Apennines is unusual and is attributable, in large part, to the natural evolution of the landscape. It is a given, therefore, that the costs borne by society resulting from hydrogeological instability are continually rising and this explains the focus on action, on the part of Institutions, relating to awareness, prediction, prevention and mitigation.

## 11.5. BIOCLIMATIC ZONE:

| Areas | Average annual rainfall/mm | Aridity index Penman | Aridity index (UNEP index) | Core area(s) | Buffer zone(s) | Transition area(s) |
|---|---|---|---|---|---|---|
| **Hyper-arid** | P<100 | <0.05 | <0.05 | | | |
| **Arid** | 100-400 | 0.05-0.28 | 0.05-0.20 | | | |
| **Semi-arid** | 400-600 | 0.28-0.43 | 0.21-0.50 | | | |
| **Dry Sub-humid** | 600-800 | 0.43-0.60 | 0.51-0.65 | | | |
| **Moist Sub-humid** | 800-1200 | 0.60-0.90 | >0.65 | | | |
| **Per-humid** | P>1200 | >0.90 | | 100% | 100% | 100% |

**Table 11.2: Aridity index resulting from the use of Mean annual precipitation (P)/mean annual potential evapotranspiration (ETP) ratio.**

## 11.6. BIOLOGICAL CHARACTERISTICS:

Within the Natura 2000 sites encompassed by the MaB Biosphere have beeen recognized 42 habitat of communitarian interest (The sign '*' indicates priority habitat types) and 3 habitat of regional interest. In the folowing table these habitats are equated.

| HABITAT | DESCRIPTION |
|---|---|
| 3130 | Mesotrophic waters of Central European and perialpine regions, with occasionally emergent shorelines; with amphibious/submerse shoreweed communities (Littorelletea) and/or annual dwarf rush communities (Isoëto-Nanojuncetea) |
| 3140 | Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. |
| 3160 | Natural dystrophic lakes and ponds |
| 3150 | Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation |
| 3220 | Alpine rivers and the herbaceous vegetation along their banks |
| 3230 | Alpine rivers and their ligneous vegetation with Myricaria germanica |
| 3240 | Alpine rivers and their ligneous vegetation with Salix elaeagnos |
| 3250 | Constantly flowing Mediterranean rivers with Glaucium flavum |

| HABITAT | DESCRIPTION |
|---|---|
| 3260 | Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation |
| 3270 | Rivers with muddy banks with Chenopodion rubri p.p. and Bidention p.p. vegetation |
| 4030 | European dry heaths |
| 4060 | Alpine and Boreal heaths |
| 5130 | Juniperus communis formations on heaths or calcicole grasslands |
| 6110* | Rupicolous calcicole or basophilic grasslands of the Alysso-Sedion albi |
| 6130 | Calaminarian grasslands of Violetalia calaminariae |
| 6150 | Siliceous alpine and boreal grasslands |
| 6170 | Alpine and subalpine calcicole grasslands |
| 6210 | Semi-natural dry grasslands and scrubland facies on calcicole substrates (Festuco-Brometalia) (*important orchid sites) |
| 6230* | Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) |
| 6410 | Molinia meadows on calcicole, peaty or clayey-siltladen soils (Molinion caeruleae) |
| 6430 | Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels |
| 6510 | Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) |
| 6520 | Mountain hay meadows |
| 7140 | Transition mires and quaking bogs |
| 7210* | Calcicole fens with Cladium mariscus and species of the Caricion davallianae |
| 7220* | Petrifying springs with tufa formation (Cratoneurion) |
| 7230 | Alkaline fens |
| 8110 | Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsetalia ladani) |

| HABITAT | DESCRIPTION |
|---|---|
| 8130 | Western Mediterranean and thermophilous scree |
| 8210 | Calcicole rocky slopes with chasmophytic vegetation |
| 8220 | Siliceous rocky slopes with chasmophytic vegetation |
| 8230 | Siliceous rock with pioneer vegetation of the Sedo-Scleranthion or of the Sedo albi-Veronicion dillenii |
| 8310 | Caves not open to the public |
| 9110 | Luzulo-Fagetum beech forests |
| 9130 | Asperulo-Fagetum beech forests |
| 9150 | Medio-European limestone beech forests of the Cephalanthero-Fagion |
| 9180* | Tilio-Acerion forests of slopes, screes and ravines |
| 91E0* | Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) |
| 9210* | Apennine beech forests with Taxus and Ilex |
| 9220* | Apennine beech forests with Abies alba and beech forests with Abies nebrodensis |
| 9260 | Chestnut woods |
| 92A0 | Foreste a galleria di Salix alba e Populus alba |
| Alp | Alpine primary acidophitic meadows |
| Cn | Montane subalpine acid fens (Caricetalia nigrae) |
| Psy | Apennine pine grove with Pinus sylvestris |

A detailed description of each habitat is available as an annex.

# 12. ECOSYSTEM SERVICES

## 12.1. IF POSSIBLE, IDENTIFY THE ECOSYSTEM SERVICES PROVIDED BY EACH ECOSYSTEM OF THE BIOSPHERE RESERVE AND THE BENEFICIARIES OF THESE SERVICES.

No assessment of ecosystem services has been carried out for the entirety of the area nominated to become a Biosphere Reserve.

Accurate data is only available in relation to the area covered by the National Park. A publication by Davide Marino ("Il Nostro Capitale" ed. Franco Angeli -2014) provides estimates of environmental accounts for the Italian national parks, including the Appennino Tosco-Emiliano. It demonstrates that benefits are provided to the population through the flow of ecosystem services, which can be divided into three main groups: provisioning services (water, food, energy...), regulation services (climate change mitigation, erosion...) and cultural services (recreation, tourism...). For the Appennino Tosco-Emiliano National Park, the assessment calculates the TEV (Total Economic Value) to be €509,122.95, which is an average level within the context of Italian National Parks, which range from a few tens of thousands of Euros to just over 4 million. The assessment also estimates the total and per hectare Carbon Stock and Carbon Sink (any process, activity or mechanism that removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere) of the Appennino Emiliano National Park.

| | Carbon Stock | | Carbon Sink | |
|---|---|---|---|---|
| | total | Per hectar | Total/year | Per hectar/year |
| Parco Nazionale dell'Appennino Tosco Emiliano | 1.759.313,43 | 105,68 | 53872,32 | 3,24 |

These data are significant when compared with the other National Parks: the Carbon stock per hectare is among the highest, while the absorption capacity of Carbon per hectare (Carbon Sink) comes in third place after the Aspromonte National Park (3.39) and the Sila National Park (3.34).

Other partial data are available on the small but significant area of Cerreto Laghi.

One of the actions envisaged by the "Eco-cluster" project LIFE09 ENV/IT/000188-Environmental Cooperation model for Cluster (www.ecocluster.it), was the verification of the conceived environmental management model (known as Eco-clu), through a cost-benefit analysis of applying the management model within the experimental cluster of Cerreto (Collagna-RE), which is located at the heart of the candidate MaB area. The altitude varies from a minimum of 960 m above sea level at Cerreto Alpi to a maximum of 1,895m above sea level at Monte la Nuda.

Different methods of assessing the biodiversity and ecological functions were analysed (TEEB, The Economics of Ecosystems and Biodiversity; COPI, Cost of Policy Inaction; IPBES, Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services; EEA/MA 2015 SENSOR), with a subsequent focus on which one would guarantee the greatest representation of the Cerreto cluster, namely the TEEB methodology.

The TEEB (2010) study looks at the ecosystem services produced by all of the possible ecosystems, dividing them into 11 categories. Categories corresponding to the Cerreto cluster include "rivers and lakes", which includes the freshwater hydrographic network, and "forests". The services identified are: water supply, natural sewage purification, opportunities for generating tourism, food supply and supply of raw materials (wood).

The values are expressed as a range between a minimum and a maximum value. It should be noted that for some of the services listed, there are still no estimates, such as for the provision of food for which the minimum and maximum amounts have actually been underestimated. Using the TEEB data estimation and given that the Cerreto cluster covers 1,690 ha and using a dollar/Euro exchange rate of 1 USD = 0.726612 EUR, the minimum, maximum and mean value of ecosystem services in the Cerreto cluster have been calculated:

| | Rivers and Lakes | No. of used Estimates | Minimum Value (Int$/ha/y) | Maximum Value (Int$/ha/y) | *No. of Single estimates* | *Single values (Int$/ha/y)* |
|---|---|---|---|---|---|---|
| | **TOTAL:** | **12** | **1,779** | **13,488** | ***4*** | ***812*** |
| | **PROVISIONING SERVICES** | **5** | **1,169** | **5,776** | ***1*** | ***3*** |
| 1 | Food | 3 | 27 | 196 | | |
| 2 | (Fresh) water supply | 2 | 1,141 | 5,580 | | |
| 3 | Raw materials | | | | *1* | *3* |
| 4 | Genetic resources | ? | | | | |
| 5 | Medicinal resources | ? | | | | |
| 6 | Ornamental resources | ? | | | | |
| | **REGULATING SERVICES** | **2** | **305** | **4,978** | ***2*** | ***129*** |
| 7 | Influence on air quality | ? | | | | |
| 8 | Climate regulation | | | | *1* | *126* |
| 9 | Moderation of extreme events | ? | | | | |
| 10 | Regulation of water flows | ? | | | | |
| 11 | Waste treatment / water purification | 2 | 305 | 4,978 | | |
| 13 | Nutrient cycling and maintenance of soil fertility | | | | *1* | *3* |
| 15 | Biological control | ? | | | | |
| | **HABITAT SERVICES** | **0** | **0** | **0** | ***1*** | ***681*** |
| 16 | Lifecycle maintenance (esp. nursery service) | | | | | |
| 17 | Gene pool protection (conservation) | | | | *1* | *681* |
| | **CULTURAL SERVICES** | **5** | **305** | **2,733** | ***0*** | ***0*** |
| 18 | Aesthetic information | ? | | | | |
| 19 | Opportunities for recreation and tourism | 5 | 305 | 2,733 | | |
| 20 | Inspiration for culture, art and design | ? | | | | |
| 21 | Spiritual experience | ? | | | | |
| 22 | cognitive information (education and science) | ? | | | | |

**Table 12.1 From the TEEB (2010) study: table showing the monetary value of the services provided annually by the rivers and lakes.**

| | Woodlands | No. of used Estimates | Minimum Value (US$/ha/y) | Maximum Value (US$/ha/y) | No. of Single estimates | Single values (US$/ha/y) |
|---|---|---|---|---|---|---|
| | **TOTAL:** | **18** | **16** | **1,950** | ***6*** | ***5,066*** |
| | **PROVISIONING SERVICES** | 12 | 7 | 862 | *1* | *25* |
| 1 | Food | 4 | 0 | 203 | | |
| 2 | (Fresh) water supply | | | | | |
| 3 | Raw materials | 8 | 7 | 659 | | |
| 4 | Genetic resources | ? | | | | |
| 5 | Medicinal resources | ? | | | | |
| 6 | Ornamental resources | | | | *1* | *25* |
| | **REGULATING SERVICES** | 6 | 9 | 1,088 | *2* | *130* |
| 7 | Influence on air quality | | | | *1* | *80* |
| 8 | Climate regulation | 2 | 9 | 387 | | |
| 9 | Moderation of extreme events | ? | | | | |
| 10 | Regulation of water flows | ? | | | | |
| 11 | Waste treatment / water purification | 4 | 0 | 701 | | |
| 12 | Erosion prevention | | | | *1* | *49* |
| 13 | Nutrient cycling and maintenance of soil fertility | ? | | | | |
| 14 | Pollination | ? | | | | |
| 15 | Biological control | ? | | | | |
| | **HABITAT SERVICES** | 0 | 0 | 0 | *2* | *1,005* |
| 16 | Lifecycle maintenance (esp. nursery service) | | | | *1* | *1,003* |
| 17 | Gene pool protection (conservation) | | | | *1* | *1* |
| | **CULTURAL SERVICES** | 0 | 0 | 0 | *1* | *3,907* |
| 18 | Aesthetic information | | | | *1* | *3,907* |
| 19 | Opportunities for recreation and tourism | ? | | | | |
| 20 | Inspiration for culture, art and design | ? | | | | |
| 21 | Spiritual experience | ? | | | | |
| 22 | Cognitive information (education and science) | ? | | | | |



**Table 12.2 From the TEEB (2010) study: table showing the monetary value of the services provided annually by the forests.**

The values are expressed as a range between a minimum and a maximum value. It should be noted that for some of the services listed, there are still no estimates, such as for the provision of food for which the minimum and maximum amounts have actually been underestimated. Using the TEEB data estimation and given that the Cerreto cluster covers 1,690 ha and using a dollar/Euro exchange rate of 1 USD = 0.726612 EUR, the minimum, maximum and mean value of ecosystem services in the Cerreto cluster have been calculated:

| Valore economico servizi ecosistemici (TEEB 2010) | Valore min €/ha | Valore max €/ha | Valore min Cerreto € | Valore max Cerreto € | Valore medio Cerreto € |
|---|---|---|---|---|---|
| Fornitura acqua | 829 | 4.054 | 1.401.119 | 6.852.098 | 4.126.609 |
| Depurazione naturale | 222 | 3.617 | 374.532 | 6.112.857 | 3.243.695 |
| Opportunità di generare turismo | 222 | 1.986 | **374.532** | **3.356.054** | **1.865.293** |
| Fornitura di cibo | 0 | 148 | 0 | 249.279 | 124.639 |
| Fornitura di materiale (legna) | 5 | 479 | 8.596 | 809.235 | 408.916 |
| Totale | **1.277** | **10.284** | **2.158.779** | **17.379.524** | **9.769.152** |

In this case, using the appropriate conversions as shown above in Euros and hectares, a value ranging from a minimum of €1,277/ha/year to a maximum of €10,284/ha/year is obtained. These values pertaining to the area of analysis express the annual production of services as a value that ranges from a minimum of €2,158,779/year to a maximum of €17,379,524/year.

The resulting values may appear very high or hard to attribute to real market values. A valid and tangible comparative tool has been used to understand whether these values correspond and adhere effectively to

the actual situation of the delta: data from the Chamber of Commerce, Industry and Handicraft on the values of production relating to overnight stays in 2010 (the year in which the TEEB values were calculated) in the municipality of Collagna. These amounted to €1,123,650, a value that is wholly comparable with the value of the "tourism" ecosystem service calculated by the TEEB (1,865,293).

## 12.2 SPECIFY WHETHER INDICATORS OF ECOSYSTEM SERVICES ARE USED TO EVALUATE THE THREE FUNCTIONS (CONSERVATION, DEVELOPMENT AND LOGISTIC) OF BIOSPHERE RESERVES. IF YES, WHICH ONES AND GIVE DETAILS.

The assessments on ecosystem services are not yet defined in this regard.

## 12.3 DESCRIBE BIODIVERSITY INVOLVED IN THE PROVISION OF ECOSYSTEMS SERVICES IN THE BIOSPHERE RESERVE (E.G. SPECIES OR GROUPS OF SPECIES INVOLVED).

The assessments on ecosystem services are not yet defined in this regard.

## 12.4 SPECIFY WHETHER ANY ECOSYSTEM SERVICES ASSESSMENT HAS BEEN DONE FOR THE PROPOSED BIOSPHERE RESERVE. IF YES, IS THIS ASSESSMENT USED TO DEVELOP THE MANAGEMENT PLAN?

An assessment of the ecosystem services in relation to the entire area is not expected before the proposal for nomination. However, study and research in this regard will be assessed and resumed in future years as the basis for ensuring that the intrinsic value and potential of these sites is correctly attributed.

## 13. MAIN OBJECTIVES FOR THE BIOSPHERE RESERVE'S DESIGNATION:

### 13.1. DESCRIBE THE MAIN OBJECTIVES OF THE PROPOSED BIOSPHERE RESERVE, INTEGRATING THE THREE FUNCTIONS (CONSERVATION, DEVELOPMENT AND LOGISTIC), PRESENTED BELOW (SECTIONS 14 TO 16), INCLUDING COMPONENTS OF BIOLOGICAL AND CULTURAL DIVERSITY. PLEASE SPECIFY THE INDIRECT PRESSURES AND/OR ORGANIZATIONAL ISSUES.

The specific objectives of the conservation function of the Appennino Tosco-Emiliano Biosphere Reserve are:

- To preserve and renew the historical balance between man and biosphere in the Tuscan-Emilian Apennines, which is nowadays progressively neglected by man and threatened by climate changes and cultural homologation, i.e. trends which the current naturalistic protection measures can only control in specific sectors and without a holistic approach.
- To protect biodiversity, ecosystem processes and green infrastructures and to control allochthonous species whose number tends to increase. These objectives are connected to the conservation of numerous habitats and species (in particular the habitats and the species of the Natura 2000 sites).
- The high social and climatic diversity of the area led to a fragmented production of numerous niche products (such as the 64 PDO, PGI products and the traditional products classified by the Ministry of Agriculture). In some cases they are real sociological archetypes, historically characterised by self-production and self-consumption, which are nowadays threatened by the depopulation of mountain areas and the homologation of food habits.
- To protect social and cultural diversity, i.e. the material culture and the set of values and traditions connected to an age-old deep relationship of the small Apennine communities with the land and seasons. This relationship has loosened over decades because of the growing economic, logistic and cultural subordination compared with the most populated, industrialised and urbanised areas in the North and the South of the MaB Area. In this case, protection means combating ignorance and disaffection (young people) and overcoming simple nostalgia for the past (elderly people) as well as knowledge, upgrading and giving new motivation to human resources for a future of high sustainability and quality of the relationship between man and territory (biosphere) in the Apennines.
- To combat hydrogeological instability, which is mainly a natural process, a dynamic component of the relationship between geosphere, biosphere and anthroposphere. However, the anthropic component (neglecting the use and widespread care of the land recorded in the last 50 years) has in some cases amplified the effects of these processes that negatively interfere not so much with biodiversity (which, on the contrary, benefits from these processes) but with man's activities and infrastructures.
- To monitor climate changes: in a territory such as the Tuscan-Emilian Apennines on the border between two different climate zones, which thus represent an area particularly sensitive to global warming effects which affect mountain plant species, this action is extremely important and meaningful for monitoring actions and for planning efficient mitigation actions, at least for the most significant phenomena and to start a parallel resilience process involving the entire community.

The specific objectives of the development function of the Appennino Tosco-Emiliano Biosphere Reserve are:

- To preserve and upgrade the landscapes linked to traditional agro-sylvi-pastoral activities, which are nowadays at risk of being reduced or neglected, for example the Parmigiano Reggiano hill pasture areas, ridge grazing land and terracing in Lunigiana and Garfagnana. "Cultural landscapes" that imply functioning ecosystems in harmony with quality human activities; good quality physical resources and processes that form the natural capital in which we have to invest for the future. Generating widespread income, through the upgrading of these elements, will allow the various objectives to be combined in the territory protected by the Appennino Tosco-Emiliano MaB Reserve.
- Extensive and quality mountain agriculture: in agriculture the recovery and protection of social and cultural diversity connected to the characteristics of the territory are elements able to combat well-known phenomena in marginal rural areas, such as unemployment, the disaffection of young people, population ageing, depopulation and the fragility of the territory. Hence, making the most of socio-economic diversities as a pool of expertise means: supporting endemic and quality productions (PDO, DOCG, PGI etc.), organic agriculture and sustainable forestry; promoting the multifunctional role of agriculture (in particular land conservation, the production of renewable energy and the rural tourism offer); encouraging a return to micro-farming also with "new-ancient" productions.
- Sustainable tourism: the awareness, based on the dictates of the European Charter for Sustainable Tourism, of the importance of reducing and managing the environmental impact of the tourist flow; the development of eco-tourism and naturalistic tourism (with relation to school tourism too); attention to territory accessibility for a correct use; support for forms of Community Responsible Tourism; an innovative offer throughout all seasons and all over the territory (Neve Natura, Autunno d'Appennino, Primavera nel Parco etc.); support for the relationship between tourism and the food and agriculture sector ("Menù a Km zero", visits to farms, tastings etc.).
- To foster culture and history: to underline the history of the intrinsic relationship between man and biosphere through the signs and the study of past ages, such as the stele statues of Lunigiana, the remains of the Ligurian settlements, the heritage of castles and parish churches dating back to the Matilda of Canossa period, the *palazzi* of the Malaspina, Este and Vallisneri families, the "Maggio", the modern age, from the Italian unification and resistance to contemporary history.

The specific objectives of the logistic support of the Appennino Tosco-Emiliano Biosphere Reserve are:

- to research and monitor biodiversity and abiotic factors by strengthening the network of collaboration and the memoranda of understanding, the qualified research laboratory of the neighbouring universities (and not only) in order to extend the cognitive basis and to set up a monitoring network that can provide clear input for the protection and development function of the MaB Area. It will be necessary to stimulate field research in order to improve, thanks to innovation, the paradigms used in this territory especially as regards infrastructure and the field of communication in the agriculture and tourism sectors. The Tuscan-Emilian Apennines are characterised by a complex mosaic of habitats and ecosystems, whose fragile balance is subject to multiple anthropic and natural pressures. It therefore seems important to examine these aspects in depth and to create scenarios on the effects that these pressures might have in the medium/long term through suitable monitoring plans. Those connected to the presence of rare species are the most relevant both as regards fauna and flora and the dynamics connected to forestry. Particular emphasis will be given to the monitoring of the economic aspects of the territory of the Tuscan-Emilian Apennines in particular as regards the monitor-

ing of energy production, the use of resources and land, the tourism load capacity, the ecological footprint and the environmental accounting aimed at defining ecosystem services.

- Education on sustainability, intended as education to respect nature as well as knowledge of the territory vocations and devotion to it projected towards the future, for the entire population, in particular for specific categories, that are very important for the area and the relevant activities, such as farmers, tour operators and traditional categories like teachers and students of all the Municipalities of the proposed Biosphere Reserve. Educational programmes will also be proposed outside the borders of the Reserve and will be addressed to its visitors.
- Governance strengthening and improvement: through an updated united vision that is authoritatively and widely shared, the recognition as a UNESCO MaB Area will significantly strengthen the coordination and the integration between planning and programming actions provided for in the different territorial plans and programmes in force, which are at present too fragmented and dispersive. The MaB reserve will be an important instrument of territorial cooperation (to create a network) between the two slopes and will allow the creation of wider and more global relationships and to more in-depth knowledge and expertise, starting from public authorities and local actors.

## 13.2 DESCRIBE THE SUSTAINABLE DEVELOPMENT OBJECTIVES OF THE BIOSPHERE RESERVE.

In submitting the proposal for candidature as a Unesco Biosphere Reserve, the local authorities and the bodies responsible for the management of local parks have reconfirmed their joint political commitment to guaranteeing the sustainable development of the area in the future, with reference to the viewpoints that emerged from the UN RIO+20 conference. For the Tuscan-Emilian Apennines, this predominantly means fostering significant cultural development, which involves promoting sustainability and encouraging in-depth, widespread understanding of local land use. Moreover, it means establishing a governance system based on collaborative models (for the governance of the MaB), which is able to promote and support the transition to an economy that is “greener” and more widely known (especially with regard to tourism and agriculture) in order to counter the neglect and defacement of the area and to provide local communities with business motivation as well as a sense of social satisfaction.

## 13.3 INDICATE THE MAIN STAKEHOLDERS INVOLVED IN THE MANAGEMENT OF THE BIOSPHERE RESERVE.

Following on from the expressions of interest and approval that the candidature received during the participative process that accompanied the drafting of the proposal, which included official letters of endorsement (in annex), the stakeholders involved in the management of the Biosphere Reserve will be (taking into account institutional authorities and other relevant public and private entities):

1. The Appennino Tosco-Emiliano National Park;
2. 2 Regions: Tuscany and Emilia-Romagna;
3. 2 Regional Bodies for the Management of Parks and Biodiversity (Central and West Emilia)
4. The Italian State Forestry Corps;
5. 38 Municipalities;
6. 8 Unions of Municipalities (Mountain Union of the East Parma Apennines, Union of the Hills of Canossa, Tresinaro Secchia Union, Union of the Municipalities of Val d'Enza, Mountain Union of the Municipalities of the Reggio Emilia Apennines, Union of the Mountain Municipalities of the

Dragone, Dolo and Secchia Valleys, Union of the Municipalities of Garfagnana, Mountain Union of the Municipalities of Lunigiana);

7. 5 Provinces;
8. The Fondazione Reggio Children (Reggio Children Foundation);
9. The Chambers of Commerce, Industry, Craft and Agriculture of Parma, Modena, Reggio Emilia, Lucca and Massa-Carrara (CCIAAs);
10. The University of Modena e Reggio Emilia;
11. The University of Parma;
12. Local secondary schools;
13. Local Action Groups;
14. Environmental and cultural associations;
15. Local consortium including the land reclamation consortium, chestnut growers' consortium and forest consortium;
16. Economic and business trade associations.

## 13.4 WHAT CONSULTATION PROCEDURE WAS USED FOR DESIGNING THE BIOSPHERE RESERVE?

Local involvement in the design of the Biosphere Reserve was obtained via a truly inclusive process that relied on the use of numerous instruments such as meetings, workshops, online forums and round tables in order to ensure that local stakeholders were consulted and able to contribute to the project in the best possible way.

The element that all the instruments used had in common was the idea that the stakeholders needed to tackle the same problems and negotiate different points of view – with the most significant values and contributions offered by the different stakeholders being taken into account – in order to form a basic consensus from which concrete actions can be implemented.

These discussions and meetings helped to uncover the main expectations of local stakeholders.

The following table lists the meetings that have taken place up to now.

| # | Date | Place | Targets | Participants |
|---|---|---|---|---|
| 1 | 21/06/13 | Casina (Reggio Emilia) | Administrators and experts | 4 |
| 2 | 03/07/2013 | Castelnovo ne' Monti (Reggio Emilia) | Municipalities of the Mountain Community (attendees: Vetto, Ligonchio, Villa Minozzo, Toano, Collagna, Carpineti, Castelnovo ne' Monti) | 9 |
| 3 | 12-13/09/13 | Cerreto Laghi (Reggio Emilia) | Teachers from all over the MaB area | 110 |
| 4 | 20/09/2013 | Fivizzano (Massa-Carrara) | Municipalities from the Lunigiana area, Tour operators, citizens | 14 |

| # | Date | Place | Targets | Participants |
|---|---|---|---|---|
| 5 | 29/09/2013 | Castelnovo ne' Monti (Reggio Emilia) | Municipalities and Authorities of the MAB area, Chambers of Commerce, Environmental Associations, schools, citizens | 100 |
| 6 | 22/10/2013 | Castelnuovo Garfagnana (Lucca) | Municipalities from the Garfagnana area (attendees: Castiglione Garfagnana, Pieve Fosciana, Castenuovo Garfagnana, San Romano in Garfagnana) | 4 |
| 7 | 06/11/2013 | Castelnovo ne' Monti (Reggio Emilia) | Members of the association Idea Natura, in charge of various tourism marketing projects related to the Reggio Emilia Apennines. | 3 |
| 8 | 10/12/2013 | Casina (Reggio Emilia) | The new councillor for the Environment and civil servant. | 2 |
| 9 | 13/12/2013 | Reggio Emilia | Local authorities, citizens | 55 |
| 10 | 12/01/2014 | Vezzano (Reggio Emilia) | Administrators and experts | 3 |
| 11 | 10/02/2014 | Langhirano (Parma) | Province, Municipalities, West Emilia Macroarea | 8 |
| 12 | 12/02/2014 | Castelnovo ne' Monti (Reggio Emilia) | Teaching staff of the Istituto di Istruzione Superiore (high school) in Castelnovo ne' Monti (Reggio Emilia) | 63 |
| 13 | 17/02/2014 | Langhirano (Parma) | Municipalities of the 100 Laghi Park and West Emilia Macroarea | 5 |
| 14 | 24/02/2014 | Ligonchio (Reggio Emilia) | Tour operators | 34 |
| 15 | 24/02/2014 | Ligonchio (Reggio Emilia) | Park Community of the Appennino Tosco-Emiliano National Park | 23 |
| 16 | 25/02/2014 | Reggio Emilia | Members of the 3 Rotary Clubs from the Province of Reggio Emilia (Reggio Emilia, Terre di Canossa, Valsecchia) | 30 |
| 17 | 06/03/2014 | Cerreto Laghi (Reggio Emilia) | Local authorities, tour operators | 43 |
| 18 | 07/03/2014 | Vezzano (Reggio Emilia) | Local administrators | 3 |
| 19 | 07/03/2014 | Gombio (Reggio Emilia) | Associations and citizens | 13 |
| 20 | 20/03/2014 | Casina (Reggio Emi- | Members of the Ecomuseo Val Secchia | 13 |

| # | Date | Place | Targets | Participants |
|---|---|---|---|---|
| | | lia) | | |
| 21 | 02/04/2014 | Carpineti (Reggio Emilia) | Administrators and experts | 2 |
| 22 | 04/04/2014 | Canossa (Reggio Emilia) | Administrative authorities and cultural/trekking associations | 7 |
| 23 | 09/05/2014 | Castelnovo ne' Monti (Reggio Emilia) | Teaching staff of the Istituto di Istruzione Superiore Cattaneo-Dall'Aglio (high school) in Castelnovo ne' Monti (Reggio Emilia) | 71 |
| 24 | 10/05/2014 | Reggio Emilia | Attendees at the conference organised by the Province on "Values in the Matilde di Canossa Area" | 120 |
| 25 | 16/05/2014 | Vezzano (Reggio Emilia) | Administrators and experts | 5 |
| 26 | 24/06/2014 | Parma | Provincial Executive of the Parma Italian Alpine Club | 9 |
| 27 | 24/06/2014 | Castelnovo ne' Monti (Reggio Emilia) | Regional Executive of the Emilia Romagna Italian Alpine Club | 15 |
| 28 | 28/06/2014 | Villa Minozzo (Reggio Emilia) | Administrators and experts | 6 |
| 29 | 06/07/2014 | Casina (Reggio Emilia) | Mayors and Councillors of Ligonchio, Vetto, Castelnovo ne Monti, Carpineti, Canossa, Ramiseto, Busana, Baiso, Casina; Councillors of the Emilia-Romagna Region | 11 |
| 30 | 08/07/2014 | Aulla (Massa-Carrara) | Mayors of Filattiera, Bagnone, Fivizzano; Regional Councillors from Tuscany, economic operators, local action groups | 11 |
| 31 | 09/07/2014 | Toano (Reggio Emilia) | Administrators and experts | 5 |
| 32 | 09/07/2014 | Villa Minozzo (Reggio Emilia) | Administrators and experts | 4 |
| 33 | 12/07/2014 | Palanzano (Parma) | Administrators and experts | 3 |
| 34 | 12/07/2014 | Monchio (Parma) | Administrators and experts from the municipalities of Monchio and Corniglio | 6 |
| 35 | 12/09/2014 | Ligonchio (Reggio Emilia) | Teachers of school present in the Mab area | 112 |

In addition to the above-mentioned meetings, the National Park also organised 3 public meetings entitled "Ideas and Projects for the Apennines within the UNESCO Network"

| no | Title | Targets | Date | Place | Participants |
|---|---|---|---|---|---|
| 1 | Presentation and sharing of the UNESCO MaB candidature procedure for the Tuscan-Emilian Apennines | Local authorities (public and private), private citizens | 05/04/2014 | Marola, Carpineti (Reggio Emilia) | 39 |
| 2 | | | 30/04/2014 | Castelnuovo Garfagnana (Lucca) | 18 |
| 3 | | | 25/05/2014 | Parma | 15 |

A deeper description of the consulteation process, along with further details, can be found in Chapter 17.3 and in the accompanying data provided in the annexes.

## 13.5 HOW WILL STAKEHOLDER INVOLVEMENT IN IMPLEMENTING AND MANAGING THE BIOSPHERE RESERVE BE FOSTERED?

The contribution of stakeholders to the management of the Reserve will be guaranteed by the proposed governance model and specifically by the “Permanent Consultative Assembly”, whose functions and operating modes are described in paragraph 17.1.7.

In addition to this key forum for participation, local communities and, more generally, all of the stakeholders involved in the successful operation of the Reserve will be able to consult the website http://www.parcoappennino.it/uomo.biosfera, which is designed to facilitate stakeholder participation and contribution during the candidature (it should be noted that this has, in fact, been achieved). This site will be maintained and expanded, with a social media presence also being established, in order provide all local and non-local stakeholders with information about the steps taken to protect, develop and support the Biosphere Reserve, as well as enabling them to express opinions, make contributions and voice criticisms.

## 13.6 WHAT ARE THE EXPECTED MAIN SOURCES OF RESOURCES (FINANCIAL, MATERIAL AND HUMAN) TO IMPLEMENT THE OBJECTIVES OF THE BIOSPHERE RESERVE AND PROJECTS WITHIN IT?

The Appennino Tosco-Emiliano National Park will guarantee the resources required for the day-to-day operation of the Reserve’s governance (cf. Chapter 17.1.7) and communication systems.

For each action taken, the task of implementing the Management Programme will be delegated to the ordinary resources of the Bodies responsible for implementation. This is an essential condition for the inclusion of these actions in the Programme (for further details, see paragraph 17.4).

The human and financial resources of the public and private entities operating in the area are both qualitatively and quantitatively sufficient to support an adequate implementation of the objectives of the Reserve.

It will, therefore, be essential to raise stakeholder awareness and promote involvement in order to ensure that these entities undertake the mission of the Reserve, implementing the projects contained in the Management Programme to the best of their ability, whether this be in co-operation with others, or by assuming responsibility for specific topics or areas.

Further significant financial resources will be sought actively via the main funding channels, notably the 2014-2020 Rural Development Programmes run by the Regions of Tuscany and Emilia-Romagna and the EU's LIFE 2014-2020 scheme (http://ec.europa.eu/environment/life/funding/lifeplus.htm), as well as project financing opportunities in the private sector.

The social capital that is already present in the area has the potential to represent the majority of the human and material resources required, although these will need to be properly implemented in future.

# 14. CONSERVATION FUNCTION

## 14.1. AT THE LEVEL OF LANDSCAPES AND ECOSYSTEMS (INCLUDING SOILS, WATER AND CLIMATE):

The commitment to conserving the landscapes, habitats and ecosystems is supported and demonstrated by the presence of 37 habitats of community interest, 6 of which have priority status.

Territories protected under a range of schemes are distributed almost evenly throughout the candidate area (see section 14.1.3). The requirement for conservation within the area of the Appennino Tosco-Emiliano National Park is established by protection regulations annexed to the founding decree of the Park (Protection Regulations for the Appennino Tosco-Emiliano National Park) and the Park Plan. In the framework established by the General Law for Protected Areas (Law 394/91), the Park Plan is given a central role in the control functions that the Park must perform when carrying out its legally designated duties of protecting the environmental resources and promoting and organising their use.

In the territories outside the perimeter of the Appennino Tosco-Emiliano National Park, there is a good level of coverage of Special Areas of Conservation (Sites of Community Importance) and Special Protection Areas.

Reference was made to the following national and regional regulations in order to ensure that the contents of the Park Plan were in keeping with the objectives of the Natura 2000 Network:

- Presidential Decree 357/1997, implementing Council Directive 79/409/EEC (“Birds”).
- Presidential Decree 120/2003, implementing Council Directive 92/43/EEC (“Habitats”).
- Emilia-Romagna Regional Law no. 7/04 – “Environmental provisions. Amending and integrating Regional Laws”.
- Emilia-Romagna Regional Law no. 6/05 (as amended) – “Regulations for the formation and management of the regional network of Nature Reserves and sites from the Natura 2000 Network”.
- Tuscany Regional Law no. 56 of 6 April 2000 – “Regulations for the conservation and protection of natural and semi-natural habitats and wild flora and fauna (...)”
- Report on the Assessment of the Environmental Impact of the Park Plan.

With regard to the descriptions of SCIs and SPAs (which can be read online), reference was made to the contents of the Natura 2000 Network’s Standard Data Forms in order to ensure that the status was maintained.

Additional regulatory support for the conservation of landscapes and ecosystems is provided by instruments such as:

- The Regional Territorial Plan (PTR) and Landscape Plan (PTPR) in Emilia-Romagna and the Territorial Utilisation Plan (PTI) in Tuscany.
- The Territorial Coordination Plans (PTCs) in the provinces of Reggio Emilia, Parma, Modena, Massa-Carrara and Lucca.
- The Local and Municipal Strategic Town Planning (PRG, PSC and PS) Schemes of all of the municipalities involved.

The notion of a park as a wild area for exclusively naturalistic protection and conservation is a thing of the past. In Europe, this model has never been widely adopted due to the close human connections to the territory.

The first model to be put forward involved use of the Park for recreational activities, while starting to open up to human activities. It then progressed to initial approaches based on the protection of nature and economic activities in parallel with each other. The classic goal of conservation was joined by the objective of economic and social development for local communities, in an effort to find a fresh balance between the ecosystem of the park and the economic processes of the communities in the surrounding territorial settings.

It was acknowledged that the communities themselves play an irreplaceable role in the upkeep of locations. They are responsible for the delicate equilibrium between environmental conservation requirements and the everyday economic activities which serve as the direct means of supporting the local communities.

In addition to the habitats discussed in section 11.6, other examples that should be mentioned include the large number of outstanding certified production processes in the area. In the Italian food and agricultural production system, there is a special space for products made with exceptional ingredients in distinctive production processes and restricted production zones. They have nationally and internationally recognised labelling, such as PDO (Protected Designation of Origin), DOC (Controlled Designation of Origin), DOCG (Controlled and Guaranteed Designation of Origin), IGT (Regional Geographical Indication) and PGI (Protected Geographical Indication). They can be found in both Emilia-Romagna and Tuscany. They play an important role in the conservation and maintenance of the territory and landscape units by setting out established, traditional practices, working processes and supply chains.

Products with protected status due to their origins and production techniques undergo a series of checks. Together, they ensure that the products meet specific quality requirements. In addition, a fundamental part is played by the combination of natural, environmental and human elements resulting from the profound relationships that have developed over time between agricultural systems and product processing.

These relationships have permeated and evolved with the history of the people and places that started them. Therefore, historical, cultural and legislative descriptions of the creation and development of food products are undoubtedly the best – and perhaps the only – way to outline their distinctive qualities.

Below are descriptions of flagship products that are renowned all over the world: Prosciutto di Parma (1) and Parmigiano Reggiano (2). They are perfect examples of the combination between humans, the environment and upkeep, as set out in the strict regulations for branded product manufacturing:

- The Prosciutto di Parma production zone is in the Province of Parma. It stretches for no less than 5 km to the South of the Via Aemilia, up to an altitude of no more than 900 metres. The boundary is marked by the River Enza to the East and the Stirone Stream to the West. The zone has exceptional ecological, climatic and environmental conditions. It is the only area where it is possible to find the invaluable, unique wind that was historically used to dry Prosciutto di Parma, thus making it sweet and exclusive. The wind comes in from the sea on the Versilia coast, becomes calmer among the olive and pine trees in the Val Magra, dries out in the Cisa, Lagastrello and Cirone passes in the Apennines and is enriched by the fragrance of chestnut trees before blowing between the hams in the valleys near Parma. In order to make the most of the breeze, the production plants are positioned crosswise to the air flow and they have a lot of large windows so that the ventilation can make its decisive contribution to the distinctive enzymatic and biochemical transformation processes of Pro-

sciutto di Parma. The biochemical transformations that take place during the long maturing period go through a specific process thanks to the optimum ecological conditions in the Parma valleys, which cannot be matched in any other location. In the areas at higher altitudes of the Prosciutto di Parma production zone, there are no production sites that pollute the environment with liquid and/or gas emissions. Protection Law no. 26 of 13/02/1990 ensures that this remains the case, stating that: "In order to preserve the typical conditions in the production environment that are responsible for the sensory profile and commercial properties of Prosciutto di Parma, prior approval from the regional committee for atmospheric pollution for the relevant territory must be given before category 1 unhealthy businesses – as legally defined by article 216 of the Health Law Consolidation Act, approved by Royal Decree no. 1265 of 27 July 1934 – and any other businesses that may endanger the ongoing equilibrium in the environmental conditions can move into the zone." Deep-rooted awareness of the objective need to protect and preserve the environment is required in order to justify the introduction of such strict regulations (in the above-mentioned national legislation, the term "category 1 unhealthy businesses" covers practically all manufacturing businesses and even cattle sheds). The current national legal framework is an integral part of the production regulations. Essentially, it is nothing more than a formal way of consolidating and subsequently codifying the procedures that were historically established by human and production factors in singular geographical and environmental settings, within precisely identified and defined areas that are respectively ideally suited to the production of the ingredients used in Prosciutto di Parma and the processing of Prosciutto di Parma itself.

- The quality of Parmigiano Reggiano is based on a combination of factors associated with the production techniques, but the environment plays the biggest part. Parmigiano Reggiano from the Apennines is made in environmental conditions where human activities have a lower impact and the drier, cooler climate is more favourable than on the plain. In addition, the quality of the forage is higher due to the greater variety of plant species that grow in the permanent grassland and meadows of the mountains, while the milk produced is better because mountain cattle are less productive but their milk has a higher protein and fat content. The production regulations drawn up by the Parmigiano Reggiano Consortium contain two crucial clauses regarding dairy cows that significantly influence the rural landscape: at least 50% of the fodder used must be made on the producer's land, which in turn must be located within the Parmigiano Reggiano cheese production area, and at least 75% of the fodder must be made in the Parmigiano Reggiano cheese production area.

In accordance with its goal of conserving the natural heritage, the territory in the Biosphere Reserve works to protect water by preserving hydraulic, hydrogeological and ecological equilibrium and defending and re-establishing hydraulic and hydrogeological equilibrium. It operates in compliance with Council Directive 98/83/EC and in particular:

- It aims to promote rational, sustainable use of water resources based on long-term protection of the resources available. Part of the reason for this is to prevent further deterioration, protect and improve the state of the aquatic and terrestrial ecosystems and the wetlands that are directly dependent on the aquatic ecosystems due to their water requirements.
- In terms of protecting the land and managing water, it aims to achieve its goals by seeking to form partnerships with Regions, Provinces, Mountain Unions, Municipalities and the relevant River Basin Authorities in order to carry out the actions in specific water management plans.

- It strives to ensure that the territory is managed in such a way as to preserve its hydrogeological equilibrium and the safety and stability of the mountainsides. To this end, the Park works in conjunction with other Administrative Bodies in support of action to restore the natural equilibrium. For example, it promotes efforts to reintroduce methods for regulating water associated with traditional agricultural and pastoral activities. Throughout the territory in general, and in particular in locations whose morphology makes them especially vulnerable, efforts are made to encourage the introduction of suitable precautions and measures to contain erosion. Whenever hydraulic and hydrogeological work is carried out, bioengineering techniques and methods that allow continuity in the ecosystem are favoured.
- In order to restrict the damage and risks resulting from improper use of the land and water resources in the protected area of the National Park, the Body uses its Regulations to control and rationalise the utilisation of water resources by listing compatible uses.
- In agreement with the relevant River Basin Authorities, the Park aims to guarantee environmental flows from watercourses by determining appropriate levels – which may vary with the seasons – for the existing diversion systems in order to safeguard the bodies of water in the protected area. Action will also be promoted to improve the management of reservoirs by resolving issues with transportation of solid materials and deposition.
- In addition, the sites that have been made part of the Natura 2000 Network in accordance with Council Directive 92/43/EEC and Council Directive 79/409/EEC have been classified as areas where it is particularly important to maintain or improve the state of the water in order to protect them. Therefore, in order to safeguard and increase biodiversity and enhance the functionality and natural connectivity of the ecological network, measures will be promoted to improve the quality of water and maintain a satisfactory state of conservation for the wetlands and the animal and plant species present on the site.

### 14.1.1. DESCRIBE AND GIVE THE LOCATION OF ECOSYSTEMS AND/OR LAND COVER TYPES OF THE BIOSPHERE RESERVE.

The land cover in the territory varies significantly due to its singular form and its status as a boundary area between two climate zones. The most standardised database available with details of the spatial distribution of plant ecosystems and land use in the territory is the CORINE Land Cover database, which was last updated and revised in 2006.

The CORINE (COoRdination of INformation on the Environment) project was launched by the European Commission in 1985. Its main goal is to keep a dynamic check on the state of the environment in the European Union, in order to steer joint policies, monitor their effects and propose corrective measures if necessary. The Corine Land Cover (CLC) project was introduced across Europe with the specific aim of surveying and monitoring land use and cover in the territory, with a particular focus on environmental protection needs. It has produced a European mosaic based on SPOT-4 HRVIR, SPOT-5 HRG and/or IRS-P6 LISS-III satellite pictures, which have been used to create digital maps of land use/coverage and changes thereof. For the Italian territory alone, the decision was made to extend the descriptions to level 4 for forests and semi-natural areas. This gives a clearer depiction of the blend of ecosystems in the territory.

In the candidate area, 40 types of level 4 land cover were identified altogether (see the annex about land use). They are:

| CLC CODE | Description | Area (ha) | | |
|---|---|---|---|---|
| | | CORE | BUFFER | TRANSITION |
| 111 | ARTIFICIAL SURFACES - Urban fabric/Continuous urban fabric | 0,0 | 0,0 | 25,2 |
| 112 | ARTIFICIAL SURFACES - Urban fabric/Discontinuous urban fabric | 0,0 | 81,1 | 2264,7 |
| 121 | ARTIFICIAL SURFACES - Industrial, commercial and transport units/Industrial or commercial units | 0,0 | 0,0 | 361,8 |
| 131 | ARTIFICIAL SURFACES - Mines, dump and construction sites/Mineral extraction sites | 0,0 | 0,0 | 272,1 |
| 142 | ARTIFICIAL SURFACES - Artificial non-agricultural vegetated areas/Sport and leisure facilities | 0,0 | 3,8 | 23,4 |
| 2111 | AGRICULTURAL AREAS - Arable land/Non-irrigated arable land/Intensive agriculture | 0,0 | 68,1 | 7468,0 |
| 2112 | AGRICULTURAL AREAS - Arable land/Non-irrigated arable land/Extensive agriculture | 0,0 | 331,3 | 10004,9 |
| 223 | AGRICULTURAL AREAS - Permanent crops/Olive groves | 0,0 | 0,0 | 929,3 |
| 231 | AGRICULTURAL AREAS - Pastures/Pastures | 62,5 | 62,3 | 441,1 |
| 241 | AGRICULTURAL AREAS - Heterogeneous agricultural areas/Annual crops associated with permanent crops | 0,0 | 0,0 | 737,7 |
| 242 | AGRICULTURAL AREAS - Heterogeneous agricultural areas/Complex cultivation patterns | 0,0 | 0,0 | 3309,0 |
| 243 | AGRICULTURAL AREAS - Heterogeneous agricultural areas/Land principally occupied by agriculture, with significant areas of natural vegetation | 43,6 | 2064,8 | 47438,9 |
| 244 | AGRICULTURAL AREAS - Heterogeneous agricultural areas/Agro-forestry areas - Annual crops or grazing land under the wooded cover of forestry species | 0,0 | 0,8 | 32,8 |
| 3111 | FORESTS AND SEMI-NATURAL AREAS - Forests/Broad-leaved forests/Forests predominantly of oaks and other broad-leaved | 0,0 | 97,5 | 891,4 |

| CLC CODE | Description | Area (ha) | | |
|---|---|---|---|---|
| | | CORE | BUFFER | TRANSITION |
| | evergreen trees (such as holm oak and cork oak trees) | | | |
| 3112 | FORESTS AND SEMI-NATURAL AREAS - Forests/Broad-leaved forests/Forests predominantly of deciduous oaks (such as Turkey, downy, Italian, Durmast and English oak trees) | 152,5 | 2807,8 | 46368,9 |
| 3113 | FORESTS AND SEMI-NATURAL AREAS - Forests/Broad-leaved forests/Mixed forests predominantly of other native broad-leaved trees (mesophilic and meso-thermophilic broad-leaved trees such as maple, ash, Hop Hornbeam and manna ash trees) | 0,0 | 1061,6 | 7197,9 |
| 3114 | FORESTS AND SEMI-NATURAL AREAS - Forests/Broad-leaved forests/Predominantly chestnut forests | 97,9 | 1397,1 | 14862,4 |
| 3115 | FORESTS AND SEMI-NATURAL AREAS - Forests/Broad-leaved forests/Predominantly beech forests | 5861,0 | 13432,3 | 25220,4 |
| 3116 | FORESTS AND SEMI-NATURAL AREAS - Forests/Broad-leaved forests/Forests of predominantly hygrophytic trees (such as willow, poplar and alder trees) | 0,0 | 0,0 | 493,4 |
| 3117 | FORESTS AND SEMI-NATURAL AREAS - Forests/Broad-leaved forests/Forests and former plantations of predominantly exotic broad-leaved trees (such as robinia and ailanthus trees) | 0,0 | 0,0 | 638,7 |
| 3121 | FORESTS AND SEMI-NATURAL AREAS - Forests/Coniferous forests/Forests predominantly of Mediterranean pine and cypress trees (such as stone pine, maritime pine and Aleppo pine trees) | 0,0 | 0,0 | 99,3 |
| 3122 | FORESTS AND SEMI-NATURAL AREAS - Forests/Coniferous forests/Forests predominantly of Oro-Mediterranean and mountain pines (such as Corsican Pine, Scots pine and Bosnian pine trees) | 0,0 | 132,1 | 1014,1 |

| CLC CODE | Description | Area (ha) | | |
|---|---|---|---|---|
| | | CORE | BUFFER | TRANSITION |
| 3123 | FORESTS AND SEMI-NATURAL AREAS - Forests/Coniferous forests/Predominantly fir forests (such as silver fir and European spruce trees) | 174,5 | 190,5 | 106,4 |
| 3125 | FORESTS AND SEMI-NATURAL AREAS - Forests/Coniferous forests/Forests and former plantations of predominantly exotic conifers (such as Douglas fir, Monterey pine and Weymouth pine trees) | 0,0 | 1,2 | 40,1 |
| 31312 | FORESTS AND SEMI-NATURAL AREAS - Forests/Mixed forests/Mixed broad-leaved and coniferous forests (predominantly broad-leaved)/Forests of predominantly deciduous oaks (such as Turkey, downy, Italian, Durmast and English oaks) | 0,0 | 0,0 | 580,1 |
| 31313 | FORESTS AND SEMI-NATURAL AREAS - Forests/Mixed forests/Mixed broad-leaved and coniferous forests (predominantly broad-leaved)/Mixed forests predominantly of other native broad-leaved trees (mesophilic and meso-thermophilic broad-leaved trees such as maple, ash, Hop Hornbeam and manna ash trees) | 0,0 | 0,0 | 25,9 |
| 31314 | FORESTS AND SEMI-NATURAL AREAS - Forests/Mixed forests/Mixed broad-leaved and coniferous forests (predominantly broad-leaved)/Predominantly chestnut forests | 0,0 | 0,0 | 572,8 |
| 31315 | FORESTS AND SEMI-NATURAL AREAS - Forests/Mixed forests/Mixed broad-leaved and coniferous forests (predominantly broad-leaved)/Predominantly beech forests | 77,6 | 330,6 | 591,9 |
| 31317 | FORESTS AND SEMI-NATURAL AREAS - Forests/Mixed forests/Mixed broad-leaved and coniferous forests (predominantly broad-leaved)/Forests and former plantations of predominantly exotic broad-leaved trees (such as robinia and ailanthus trees) | 0,0 | 0,0 | 142,4 |

| CLC CODE | Description | Area (ha) | | |
|---|---|---|---|---|
| | | CORE | BUFFER | TRANSITION |
| 31321 | FORESTS AND SEMI-NATURAL AREAS - Forests/Mixed forests/Mixed coniferous and broad-leaved forests (predominantly coniferous)/Forests predominantly of Mediterranean pine and cypress trees (such as stone pine, maritime pine and Aleppo pine trees) | 0,0 | 0,0 | 554,1 |
| 31322 | FORESTS AND SEMI-NATURAL AREAS - Forests/Mixed forests/Mixed coniferous and broad-leaved forests (predominantly coniferous)/Forests predominantly of Oro-Mediterranean and mountain pines (such as Corsican Pine, Scots pine and Bosnian pine trees) | 139,5 | 137,8 | 1880,2 |
| 31323 | FORESTS AND SEMI-NATURAL AREAS - Forests/Mixed forests/Mixed coniferous and broad-leaved forests (predominantly coniferous)/Predominantly fir forests (such as silver fir and European spruce trees) | 0,0 | 124,9 | 213,6 |
| 31325 | FORESTS AND SEMI-NATURAL AREAS - Forests/Mixed forests/Mixed coniferous and broad-leaved forests (predominantly coniferous)/Forests and former plantations of predominantly exotic conifers (such as Douglas fir, Monterey pine and Weymouth pine trees) | 0,0 | 50,9 | 375,0 |
| 3211 | FORESTS AND SEMI-NATURAL AREAS - Shrub and/or herbaceous vegetation association/High altitude natural grassland/Continuous grassland | 2568,6 | 2014,6 | 1643,6 |
| 3212 | FORESTS AND SEMI-NATURAL AREAS - Shrub and/or herbaceous vegetation association/High altitude natural grassland/Discontinuous grassland | 396,8 | 166,1 | 401,4 |
| 324 | FORESTS AND SEMI-NATURAL AREAS - Shrub and/or herbaceous vegetation association/Transitional woodland shrub | 508,2 | 897,3 | 7768,7 |
| 331 | FORESTS AND SEMI-NATURAL AREAS - Open spaces with little or no vegetation/Beaches, | 0,0 | 275,5 | 1265,7 |

| CLC CODE | Description | Area (ha) | | |
|---|---|---|---|---|
| | | CORE | BUFFER | TRANSITION |
| | dunes, sand plains and exposed gravel river bars. | | | |
| 332 | FORESTS AND SEMI-NATURAL AREAS - Open spaces with little or no vegetation/Bare rocks, cliffs and outcrops | 0,0 | 37,8 | 77,9 |
| 333 | FORESTS AND SEMI-NATURAL AREAS - Open spaces with little or no vegetation/Sparsely vegetated areas | 310,4 | 32,0 | 633,1 |
| 512 | WATER BODIES - Inland waters/Water bodies | 0,0 | 34,1 | 31,9 |

The most commonly found type of land coverage in all of the areas is 311 (FORESTS AND SEMI-NATURAL AREAS - Forests/Broad-leaved forests), and more specifically "Predominantly beech forests" (code 3115), which can be found almost everywhere along the main ridge and the secondary ridges (see fig. 14.1.1.1). Similarly, all along the ridge there are areas of "Shrub and/or herbaceous vegetation association/High altitude natural grassland/Continuous grassland" (3211). Moving away from it there are "Forests predominantly of deciduous oaks (such as Turkey, downy, Italian, Durmast and English oak trees)" (code 3112), whose growth is restricted by the altitude, and then "Heterogeneous agricultural areas/Land principally occupied by agriculture, with significant areas of natural vegetation" (code 243), which are kept under control by humans.

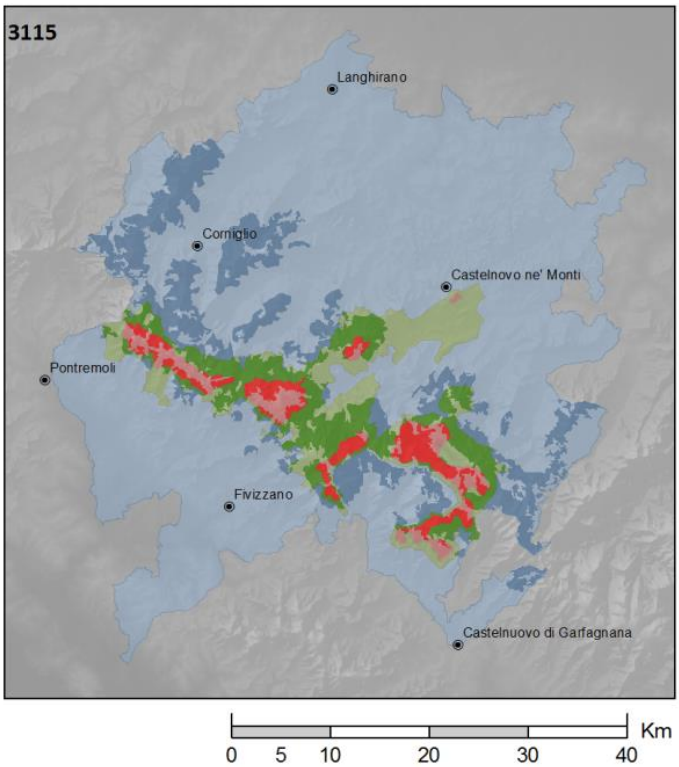



Figure 14-1 Common features across the area: area covered by Fagus woods

The local differences in the distribution of the ecosystems due to climate, the underlying geology and the traditions in the territory become apparent when certain specific types of land cover are examined: analysis reveals that some land uses can only be found on the Tuscan side: olive groves (code 223), forests predominantly of oaks and other broad-leaved evergreen trees (such as holm oak and cork oak trees, code 3111), forests of predominantly hygrophytic trees (such as willow, poplar and alder trees, code 3116) and forests predominantly of Mediterranean pine and cypress trees (such as stone pine, maritime pine and Aleppo pine trees, code 3121). These types of land cover are all indicators of a milder climate influenced by the Tyrrhenian Sea (Mediterranean climate).

Predominantly chestnut forests (code 3114) appear mostly but not exclusively on the Tuscan side, while the distinctive features of the Emilian side are extensive agriculture (code 2112, largely due

to the different gradients of the slope) and mixed broad-leaved and coniferous forests made up predominantly of beech trees (code 31315) or silver fir and European spruce trees (code 31323).

The river morphology varies due to the lithology and the gradients of the slopes, so large exposed gravel stream and river bars can only be found on the Emilian side (code 331).

The land cover map in the annex reveals that there are no signs of human activity in the Core Areas except for a few dozen hectares that are classified as "Heterogeneous agricultural areas/Land principally occupied by agriculture, with significant areas of natural vegetation" (code 243). The predominant land cover in Core Areas consists of shrub and herbaceous vegetation association and broad-leaved forests (with a very significant presence of high altitude natural grassland). Further down the ridge, in the Buffer Zones the agriculture mentioned above is more substantial and covers approximately a tenth of the territory, with a first appearance being made by arable land (211) and pastures (231). However, mixed coniferous and broad-leaved forests still cover more than 80% of the territory and the urban fabric is discontinuous even where it is present. In the Transition Areas, there is greater agricultural land use, taking up a third of the territory. However, as shown by the map in the annex to the dossier below, the landscape clearly forms a mosaic of ecosystems, with arborescent shapes and small average dimensions.

### 14.1.2. DESCRIBE THE STATE AND TRENDS OF THE ECOSYSTEMS AND/OR LAND COVER TYPES DESCRIBED ABOVE AND THE NATURAL AND HUMAN DRIVERS OF THE TRENDS.

The habitats and land cover types found in the proposed MaB Reserve are listed and described in sections 14.1 and 14.1.1 and in the annexed tables. The survey was carried out reasonably recently, so the information can be considered up to date.

The lack of specific studies means that changes to habitats and land cover can only be monitored on a macroscopic scale. It is possible to partially compensate for this by noting the "threats" to habitats and species that are identified in management plans and conservation measures for Natura 2000 Areas. In addition, aerial and satellite pictures can be used to keep check on changes to land cover. Furthermore, the National Park is using special funds provided by the Italian Ministry of the Environment ("Chapter 1551" funds) to carry out a number of schemes to monitor changes in habitats and species.

The general trends that have a huge impact on the area can be summed up as follows:

- The amount of woodland is increasing and taking the place of pastures, agricultural land, high altitude natural grassland and exposed gravelly stream and river beds. As in the rest of Italy and Europe, zones classified as forests are continuously growing throughout the area. This expansion process started approximately 60 years ago and it is continuing at a rapid pace. The forests in the highest part of the ridge cover more than 80% of the territory and they have expanded into land that was previously used for crops and grazing. The main reasons for this lie in socio-economic development and the mass use of fossil fuels, as well as the woodland protection rules that came into force at the start of the last century. At a rough estimate, in the last 60 years the land covered by forests has more or less doubled in the proposed Reserve. In addition, the forest structures have aged overall and become complex entities. The areas of woodland are often part of estates that have been broken up, so many of them are insufficiently managed and left to develop naturally. It is important to note that the tree line is getting higher: in this stretch of the Apennines it is at approximately 1,600 metres. The expansion of the woodland is much slower in this case, but it is still clearly moving upwards. The causes lie in the gradual reduction in pasture land and the associated practice of burning pastures, as well as the increasing temperature at altitude, which enables grass-

land to be colonised by woody plants. The numerous measures in the Rural Development Plan have had an impact on the trend due to both forest management activities and conservation initiatives for pastures. The expansion of forests into open areas leads to a loss of biodiversity and natural dynamics which must be managed because in some cases they can restrict or reduce the quality of the landscape if they are left to themselves. In order to gain a better understanding of these processes, in 2008 the National Park started a "*Landscape Project*" in association with Diproval: the Department of Food and Agriculture Protection and Promotion from the Faculty of Economics at the University of Bologna. It began a "Study into the changes in the agricultural and forest landscape in the Appennino Tosco-Emiliano National Park". Specific sample areas were used to represent different situations in the analytical study, which was carried out in preparation for the selection of concrete, active territorial management strategies. The study revealed that the loss of the original functions of rural areas and the natural colonisation and growth dynamics of forests in areas that are no longer managed by humans cause structural variations to elements of the landscape on a limited time scale. In many cases, active management is needed in order to preserve the perception of the asset and the biodiversity of the areas. Once the National Park was aware of these issues, it was able to engage in open debates about sensitive topics for all citizens. Drawing on the above-mentioned project, priorities were established and specific active management strategies were launched for the upkeep and restoration of open spaces, using National Park funds and the Regional Rural Development Plan (PRSR). The schemes focused on areas with significant or outstanding landscapes where changes to the elements in the landscapes – and in particular the proportion of space occupied by grassland, arable land and forests – are altering the perception of the asset itself among the more aware and interested citizens. A lively debate has begun about "what to do/how to do it" and efforts are being made to inform and involve (through initiatives such as a seminar entitled "Forests and the Landscape: relationships, dynamics, values and choices", university theses and various public meetings) local people, associations and authorities in an attempt to set shared landscape quality objectives and carry out pilot schemes in sample areas such as the Pietra di Bismantova.

- A reduction in trees and shrubs in individual and linear formations (hedges): agricultural mechanisation in mountain and hill zones has brought about profound organisational changes. Animals and their sheds now tend to be concentrated in small areas. This has led to the removal of linear arrangements of individual trees and hedges inside pastures and meadows, thus simplifying the forage/forest mosaic, reducing the ecotones between one ecosystem and the next, and reducing biodiversity. The Rural Development Plan has made reasonably successful attempts to counter the eradication of trees in individual and linear formations.

- A decrease in chestnut groves for harvesting: the chestnut groves that were once widespread throughout the proposed area of the MaB Reserve (especially near towns and villages) are gradually turning into mixed forests with fewer and fewer chestnut trees. This is partly due to emigration from the higher areas of the Apennines and the fact that chestnut groves for harvesting no longer benefit from the agricultural care required for their upkeep. Although there are a few exceptions, the majority of the chestnut groves in the reserve have gradually been abandoned and they are turning into other types of forest. The Rural Development Plan and other financial instruments have been widely used to counter this trend, not always successfully. However, in the last 5 years there have been marginal signs of interest in chestnut growing, so it is possible that there will be a decrease in the rate of reduction in the area covered by chestnut groves for harvesting.

- An increase in the urban fabric in the lower altitude areas of the Reserve: in the municipalities at lower altitudes in the Reserve, urban areas of residential and industrial complexes are expanding into land that was previously used for agriculture. The newly urbanised areas only account for a small proportion of the surface area of the proposed Reserve, but the municipalities have still introduced land conservation measures in their most recent plans.

### 14.1.3 WHAT KIND OF PROTECTION REGIMES (INCLUDING CUSTOMARY AND TRADITIONAL) EXIST FOR THE CORE AREA(S) AND THE BUFFER ZONE(S)?

Throughout the area, there is a strong identity-based bond between the community and the territory, especially in the areas with rights of common, where the residents have the right to use goods from rural areas for their own sustenance. They usually have the right to graze animals and gather items such as firewood and mushrooms. Over the centuries, these collective rights to joint property have reinforced the resident communities' ties with the territory.

All of the territory in the Core Areas and part of the land in the Buffer Zones is inside the Appennino Tosco-Emiliano National Park, which was established on 21 May 2001 by a Decree from the President of the Italian Republic as a "Non-economic Public Body". Its actions are regulated by the General Law for Protected Areas (Law 394 of 1991) and it operates under the supervision of the Italian Ministry of the Environment. In addition, a good proportion of the remaining territory is included in Sites of Community Importance (SCIs), Special Protection Areas (SPAs) from the Natura 2000 Network and other Protected Areas such as the Parma and Cedra Valleys Regional Park (also known as the 100 Lakes Park) and the Frignano Regional Park, which are regulated by Regional Law no. 24 of 23/12/2011 ("Reorganisation of the Regional System of Protected Areas and Natura 2000 Network Sites and Founding of the Stirone and Piacenziano Regional Park"), which came into force on 1 January 2012.

Throughout all the Italian National Parks areas, it is forbidden:

- capturing, killing, harming, disturbing the animal species ;
- collecting and damaging the spontaneous flora and the forest products;
- the introduction into the natural environment of foreign animal species that may alter the natural balance;
- collecting of geological and palaeontological material;
- opening and the operation of quarries, mines and landfills, as well as the removal of minerals;
- the introduction, by private individuals, of weapons, explosives, or any destructive or catching means. Prior authorisation from the Park Authority is required to fly over or take weapons into the territory of the Park;
- camping, that is only permitted in specially equipped campsites, although in zone 2 and 3 areas overnight camping is permitted as long as the tent is pitched at sunset and removed at dawn;
- modifying the water system, except for works of soil defense and those necessary for the safety of the population.

Moreover, fishing is forbidden in the Zone 1 areas of the Park. Cutting down trees for wood in the forests is forbidden in Zone 1 areas and prior authorisation from the Park Authority is required in Zone 2 areas, while it is permitted in accordance with the rules in force in Zone 3 areas of the Park.

Transport in motor vehicles is only permitted in the Park on state, provincial and municipal roads and vicinal roads with easements. In any case, specific authorisation from the Park Authority is required to access Zone 1 areas in motor vehicles.

Below is a list of all of the protected areas with territory that is partly covered by Core Areas. This shows their outstanding natural value (the annexed map shows the extent to which the high protection areas of the Appennino Tosco-Emiliano National Park cover the Core Areas as a whole):

### MONTE MARMAGNA, MONTE SILLARA AND MONTE BOCCO CORE AREA:

- Appennino Tosco-Emiliano National Park - Zone 1
- Appennino Tosco-Emiliano National Park - Zone 2
- Appennino Tosco-Emiliano National Park - Zone 3
- Appennino Tosco-Emiliano National Park - State Nature Reserve Zone (RNS)
- Bodies for the Management of Parks and Biodiversity in West Emilia - Parma and Cedra Valleys Regional Park (Founded on 23/12/2011 by Regional Law no. 24)
- SCI-SPA zones: IT4020020 PARMA APENNINE RIDGE and 100 Lakes Park

### MONTE ACUTO, ALPE DI SUCCISO AND MONTE ALTO CORE AREA:

- Appennino Tosco-Emiliano National Park - Zone 1
- Appennino Tosco-Emiliano National Park - Zone 2
- SCI-SPA zones: IT4030001 MONTE ACUTO, ALPE DI SUCCISO

### MONTE VENTASSO CORE AREA:

- Appennino Tosco-Emiliano National Park - Zone 1
- Appennino Tosco-Emiliano National Park - Zone 2
- SCI-SPA zones: IT4030002 MONTE VENTASSO

### PIETRA DI BISMANTOVA CORE AREA:

- Appennino Tosco-Emiliano National Park - Zone 2
- SCI zones: IT4030008 PIETRA DI BISMANTOVA

### MONTE CAVALBIANCO, CIMA BELFIORE AND MONTE TONDO CORE AREA:

- Appennino Tosco-Emiliano National Park - Zone 2
- Appennino Tosco-Emiliano National Park - Zone 3
- SCI-SPA zones: IT4030003 Monte La Nuda, Cima Belfiore, Passo del Cerreto

### MONTE CUSNA, PASSO DELLE FORBICI AND MONTE BOCCA DI SCALA CORE AREA:

- Appennino Tosco-Emiliano National Park - Zone 1
- Appennino Tosco-Emiliano National Park - Zone 2

- Appennino Tosco-Emiliano National Park - Zone 3
- Appennino Tosco-Emiliano National Park - State Nature Reserve Zone (RNS)
- SCI-SPA zones: IT5120004 PANIA DI CORFINO; IT4030005 ABETINA REALE, ALTA VAL DOLO; IT4030006 MONTE PRADO; IT4030004 VAL D'OZOLA, MONTE CUSNA

BUFFER ZONES:

- Appennino Tosco-Emiliano National Park - Zone 2
- Appennino Tosco-Emiliano National Park - Zone 3
- Appennino Tosco-Emiliano National Park - State Nature Reserve Zone (RNS)
- Bodies for the Management of Parks and Biodiversity in West Emilia - Parma and Cedra Valleys Regional Park (Founded on 23/12/2011 by Regional Law no. 24)
- SCI-SPA zones: IT4030005 ABETINA REALE, ALTA VAL DOLO; IT4030006 MONTE PRADO; IT4030004 VAL D'OZOLA, MONTE CUSNA; IT4030003 MONTE LA NUDA, CIMA BELFIORE, PASSO DEL CERRETO; IT4030002 MONTE VENTASSO; IT4030001 MONTE ACUTO, ALPE DI SUCCISO; IT4020020 PARMA APENNINE RIDGE
- SCI zones: IT4030009 TRIASSIC GYPSUM OUTCROPS; IT4030008 PIETRA DI BISMANTOVA

### 14.1.4 WHICH INDICATORS OR DATA ARE USED TO ASSESS THE EFFICIENCY OF THE ACTIONS/STRATEGY USED?

At present, in the territory of the candidate MaB reserve, only for the area covered by the National Park actions and indicators are selected annually and the level of achievement of targets is measured as part of the Performance Plan, so that the effectiveness and efficiency of the Body's policies can be assessed. Specifically in terms of natural conservation, special funding from the Ministry of the Environment was used recently to start a monitoring campaign for the species and habitats in the Park. Throughout the proposed area of the Reserve, a range of institutions and private companies are carrying out numerous programmes and projects funded by the EU to select suitable objectives, indicators and targets for the future management strategy of the Reserve. These actions can be considered preparations for the establishment of the Reserve.

The Reserve management plan will allow coordination and optimisation on an appropriate scale of the data monitoring activities and the selection of effectiveness indicators for the actions and strategies used in the field of landscape and ecosystem conservation.

It may be useful to refer to information about: the number of farms that use environmentally friendly approaches and organic methods; the introduction of agricultural and environmental measures to preserve open spaces and restore meadows and associated salvaged areas; the upkeep, conservation and restoration of crucial elements of the agricultural ecosystem and the rural landscape; the introduction of sustainable forestry management systems; the area covered by certified woodland and forests; and the number of informative/training measures/initiatives for farmers, breeders and forestry associations.

## 14.2. AT THE LEVEL OF SPECIES AND ECOSYSTEM DIVERSITY:

### 14.2.1. IDENTIFY MAIN GROUPS OF SPECIES OR SPECIES OF PARTICULAR INTEREST FOR THE CONSERVATION OBJECTIVES, ESPECIALLY THOSE THAT ARE ENDEMIC TO THIS BIOSPHERE RESERVE, AND PROVIDE A BRIEF DESCRIPTION OF THE COMMUNITIES IN WHICH THEY OCCUR.

The species of particular interest for EU or regional conservation objectives are listed in the annex entitled "Species Table A – Identification Profile". The table provides details of: taxa identification codes; scientific species names; their priority status; the relative size of the population; the population trends in the area and information about how they were assessed; the level of awareness about the species in the area and the state of conservation.

Associations of significant species and the living environments are outlined in the annex entitled "Description of habitats".

Animal species of high particular conservation interest are:

- the Jersey Tiger, Euplagia quadripunctaria, is a day-flying moth of the family Arctiidae; the caterpillars are polyphagous, feeding from September to May on nettles and raspberries, dandelion, white deadnettle, ground ivy, groundsel, plantain, borage, lettuce and hemp-agrimony;
- Osmoderma eremita, the hermit beetle, is a species of European beetle in the Scarabaeidae family, listed as Near Threatened in the IUCN Red List because it is entirely dependent upon veteran trees as it inhabits decaying heartwood. This is a very specific habitat type which is already highly fragmented and subject to continuing significant decline;
- the Wolfes, Canis lupus, and the Golden Eagles, Aquila chrysaetos, both descripted in chapter 4.2;

Vegetal species of high particular conservation interest is the Primula apennina, endemic to the Apennine mountain range in Italy where its area of occupancy is less than 500 km². The total population size counts less than 1,000 mature individuals but the population is stable. This species is therefore classed as Vulnerable D1 for the IUCN Red List.

### 14.2.2. WHAT ARE THE PRESSURES ON KEY SPECIES? IN OTHER WORDS: WHAT ARE THE THREATS (EXAMPLE UNSUSTAINABLE MANAGEMENT OF FOREST), THEIR IMMEDIATE CAUSES (DRIVERS OF CHANGE LIKE FOREST CHANGE OR HABITAT CHANGE), THEIR UNDERLYING CAUSES (EXAMPLE OVERGRAZING, FIRE, POLLUTION), AND THE MAIN DRIVING FORCES (EXAMPLE: ECONOMIC, POLITICAL, SOCIAL, EXTERNAL, ETC.) AND THE AREA(S) CONCERNED?

Details of the specific threats for animal and plants species, habitats and environments are provided in the annex entitled "Species Table B – Management Measures". The table provides an identification code for each specific threat, with an accompanying general overview and analytical description. For each threat, there is information about the elements under threat (habitats, animal and plant species, and environments) and an assessment of the impact of the threat.

In particular, for the species of high particular interest listed above, the main threats are:

- the specie Osmoderma eremita is restricted to veteran trees, so any activities which destroy these trees (e.g. cutting down avenues) is strongly detrimental to the species. The main overall threat is likely to be degradation or loss of habitat quality, involving structural changes in the tree populations arising from changing land use – affecting age structures and tree density. Exploitation from forestry is often a key immediate issue, but equally damaging can be long-term changes towards canopy closure and loss of ancient trees as a result of non- or minimum-intervention management systems which all too often exclude grazing by large herbivores. Fragmentation and increasing isolation of beetle populations are also key factors. Encroachment of open forest and park habitats by development is also a threat to this species (P.F. Thomsen pers. comm. 2009).
- continued threats for Wolfes include competition with humans for livestock, exaggerated concern by the public concerning the threat and danger of wolves, and fragmentation of habitat, with resulting areas becoming too small for populations with long-term viability.
- the Golden Eagles, Aquila chrysaetos, species was heavily persecuted in the 19th Century, and although this threat has diminished significantly with populations now generally stable, the species is still deliberately poisoned, shot and trapped, and it is generally declining in Europe. In the past the species was affected by the use of organochlorine pesticides although this is not a significant problem today. There are records of mortality as a result of electrocution when perching on power lines, but no data to suggest any substantial demographic impact. Wind energy developments could be a source of direct mortality for the species In addition, afforestation, long term changes in food supply, including reduced livestock carrion through changing management practices and climate change, may threaten the species in future.
- the main threats to the Primula apennina species are collection of the plant, grazing activities, and tourism impacts (Commission of the European Communities 2009).

### 14.2.3. WHAT KIND OF MEASURES AND INDICATORS ARE CURRENTLY USED, OR PLANNED TO BE USED TO ASSESS BOTH SPECIES GROUPS AND THE PRESSURES ON THEM? WHO UNDERTAKES THIS WORK, OR WILL DO SO IN THE FUTURE?

The Biosphere Reserve management team will be responsible for identifying and monitoring appropriate indicators for the objectives. With the assistance of the relevant Networks, it will be able to draw up the most suitable plan.

The Appennino Tosco-Emiliano National Park Conservation Service department, which is promoting the Biosphere Reserve candidature, will be able to select the best possible plans in the future by drawing on its pool of expertise and professional skills.

#### 14.2.4. WHAT ACTIONS ARE CURRENTLY UNDERTAKEN TO REDUCE THESE PRESSURES?

Details of the actions taken to reduce pressures on species and habitats are provided in the annex entitled "Species Table B – Management Measures" under the following headings: management instructions; activities to be regulated; actions to perform; information/education activities.

The main actions undertaken to reduce the pressures on the species of particular interest for conservation are:

- monitoring;
- providing didactic and informative materials for the population and the turists;
- actions aimed at the maintenance of the rural area (rules for grazing; fences; promoting eco-tourism activity etc.);
- definition of guide lines for the release of dead standing and on the ground wood in forest exploitation;
- consultation with proprietary/managers of woods;
- the institution of the Wolf Apennine Centre (WAC) (details on chapter 17.2.1).

#### 14.2.5. WHAT ACTIONS DO YOU INTEND TO TAKE TO REDUCE THESE PRESSURES?

As stated in section 14.2.2, details of the actions taken to reduce pressures on species and habitats are provided in the annex entitled "Species Table B – Management Measures". Information about realisation times and costs are provided where possible, along with an assessment of the proposed measures. The Appennino Tosco-Emiliano National Park Conservation Service department, which is promoting the Biosphere Reserve candidature, will be able to select the best possible plans in the future by drawing on its pool of expertise and professional skills.

General measures to reduce the pressures (such as climate change) on habitats and species will be continued and supplemented. These initiatives include efforts to raise awareness about sustainability, renewable energy, reducing consumption and sustainable access.

In any case, in the future the Biosphere Reserve management team will be responsible for establishing appropriate actions and timeframes. With the assistance of the relevant Networks and management figures, it will be able to draw up the most suitable and consistent plan.

### 14.3. AT THE LEVEL OF GENETIC DIVERSITY:

#### 14.3.1. INDICATE SPECIES OR VARIETIES THAT ARE OF IMPORTANCE (E.G. FOR CONSERVATION, MEDICINE, FOOD PRODUCTION, AGROBIODIVERSITY, CULTURAL PRACTICES ETC).

A number of species that are important for the conservation of genetic diversity in the candidate Biosphere Reserve have been examined in specific studies, especially as part of Life projects. They include:

| SPECIES OR VARIETIES | MEANS OF IMPORTANCE |
|---|---|

| | | |
|---|---|---|
| **1** | Italian Wolf | For conservation |
| **2** | Silver Fur | For conservation |
| **3** | The herbaceous ridge species | For climate changes studies |
| **4** | The genetic variety in the typical crops and animals, some examples:<br><br>Cornigliese Sheep; Apennine Horse; Reggiana Cow; Treschietto Onions; the traditional chestnut cultivation. | For agrobiodiversity, strongly connected to cultural practices |

- The Italian wolf. The Italian wolf population has undergone a breathtaking expansion process in recent decades. At one stage, the animals were at risk of extinction in Italy and only survived in small populations in isolated parts of the central and southern Apennines, but now they once again occupy vast areas of the entire Apennine Range and the Italian and French Maritime Alps. The return of the wolf is an unquestionable success for the conservation efforts involving the species, which is very well protected by Italian and EU regulations as a whole. However, it is a large predator that has an impact not only on populations of wild ungulates (its natural prey), but also on domesticated cattle in some cases. The wolf is a protected yet problematic species. This means that it is of primary interest for scientific institutions which are responsible for studying its biology and monitoring its presence in the territory. It is also a species of great interest for the Italian authorities charged with promoting legal and administrative action that seeks to minimise conflict and encourage wolves and zootechnic activities to exist side by side.
- The silver fur, European spruce, beech and yew. These important species for the conservation of genetic heritage have been studied in two LIFE-NATURA projects: “Misure di salvaguardia delle popolazioni relitte di Abies alba Miller, Picea excelsa Lam., Taxus baccata L. e dei loro habitat naturali sull’Appennino Emiliano” (“Protection measures for the relict populations of Abies alba Miller, Picea excelsa Lam., Taxus baccata L. and their natural habitats in the Emilian Apennines”) and “Conservazione delle abetaie e faggete appenniniche in Emilia-Romagna” (“Conservation of Apennine fir and beech woods in Emilia-Romagna”). In particular, the projects examined silver fur and European spruce forests and beech and yew forests in the northern Apennines. The specific objectives were: eliminating factors that have a negative impact on the relict populations of conifers; restoring natural habitats with silver fur and European spruce trees; spreading local stocks of silver fur and European spruce trees; and raising public awareness about conservation of genetic heritage. During the spring and summer of 1996, materials (needles) were collected from a random sample group of plants from each of the populations of Abies alba in order to obtain information about their genetic characteristics. The number of individual plants in the samples ranged from a minimum of 50 to a maximum of 100, depending on the size of the population being analysed. In the two areas studied, fewer European spruce samples were taken because the size of both populations examined was very small. Phylogenetic analysis revealed that the populations of European spruce trees in Abetone (Campolino, Pistoia) and the Cerreto pass (Reggio Emilia) have distinctive genetic features that set them apart from the Alpine populations. The authentic genetic array in the mixed woodland of the Apennines plays a significant role in the landscape of mountainous areas and helps to maintain and preserve the stability of the mountainsides.

Figure 14-2 Cornigliese sheeps

- The herbaceous ridge species. These species have been studied within the GLORIA network, which has the objective of setting up and maintaining a site-based monitoring network for high altitude plants. The network was put together approximately ten years ago, when the study sites on the Apennine ridge were selected. More than 100 groups of researchers have now used the GLORIA monitoring system in more than 100 mountain regions on six continents. The researchers are required to continue to monitor the sites at variable intervals of between 5 and 10 years. The results of the study are described in section 14.1.2, which lists species that offer proof of the climate change that is occurring. The genetic variety in the typical crops and animals farmed in the territory is clearly reflected in the quality of the local products. In addition to the traditionally recognised varieties, some have documented genetic characteristics:

- The Cornigliese sheep (also known as the Corniglio sheep) comes from the upper Parma Apennines in Emilia-Romagna. It was created in the mid-18$^{th}$ century by the Bourbons, who ruled Parma. They crossed local sheep with the prized Spanish Merino breed in order to enhance the quality of their wool. In the early 20$^{th}$ century, a change in production direction led to the decision to improve the meat yield of the sheep through crossbreeding with Bergamasca rams. FAO research carried out in 1994 only managed to find 50 registered Cornigliese sheep. According to figures from the Parma Provincial Breeders Association (APA), at present there are approximately 700 of the animals in the Province of Parma. Nonetheless, the FAO classifies them as “at risk of extinction”. Cornigliese sheep were originally only found in the Corniglio area at 1,500 metres above sea level in the Parma Apennines, but they have now spread to the ravines of the Bologna Apennines (thanks to a conservation scheme run privately by a group of breeders). They can also be found in the provinces of Reggio Emilia and Ravenna, albeit in smaller numbers. The Cornigliese is a large breed that is also known as the “Cow Sheep” (“Pecora Mucca”) in Italy because of its high milk yield and sizeable dewlap. It is a triple-purpose breed that tends to be used mainly for meat production at present. Its wool also has impressive textile qualities.

- The Apennine Horse is a recently recognised breed resulting from "crossbreeding" between local medium-heavy horse populations and Franches-Montagnes horses with extremely impressive characteristics in terms of temperament and frugality. The horses were first introduced in the 1960s at medium and high altitudes on the Reggio Emilia hills between Scandiano, Viano and Albinea by the entrepreneur Vittorio Ortalli. In order to prevent dangerous levels of inbreeding, stallions and brood-mares from different lines of the Franches-Montagnes breed were brought into the stud farms from Switzerland on a regular basis. With their genetic heritage, they helped to consolidate and improve the distinctive characteristics of the local population. The horses have subsequently spread to the territories of the Provinces of Parma and Massa-Carrara, as well as to Liguria, Lazio, Lombardy, Friuli and hilly and mountainous areas almost all over Italy. Thanks to the subsequent crossbreeding processes, the original group from the Reggio Emilia hills has changed and adapted to the environment where it was reared, resulting in horses that can make the most of the range of marginal terrains in the Apennine hills and mountains. The "Apennine Horse" has been included in the Italian National Register of Horse Breeds and Populations of Limited Distribution. Its inclusion in the register was ratified by a ministerial decree. It came about thanks to the proactive efforts of the Agriculture Department of the Emilia-Romagna Region and active collaboration with the Tuscany Region, the Italian Ministry of Agriculture and the Italian Breeders Association (AIA). All horses that meet the approved breed standards can be included in the register. There are currently 777 animals in the register, almost all of which come from Emilia-Romagna and Tuscany. Apennine Horses also have the additional, crucial quality of adapting well to difficult outdoor conditions all year round, in ravines and on tough, barren land. The breed is an asset that should be protected due to its ability to promote biodiversity and support fragile territories in danger of depopulation by presenting them with economic and productive opportunities. There is substantial zoo-economic interest in the animals from breeders, because they are outstanding working horses and they are also suitable for riding and other activities, such as driving and equestrian tourism. Breeding Apennine Horses can act as a bulwark in efforts to prevent emigration from the mountains. The animals use land that would otherwise be neglected and therefore suffer from deterioration. They can perform many tasks, including transporting wood and other loads for forestry purposes.

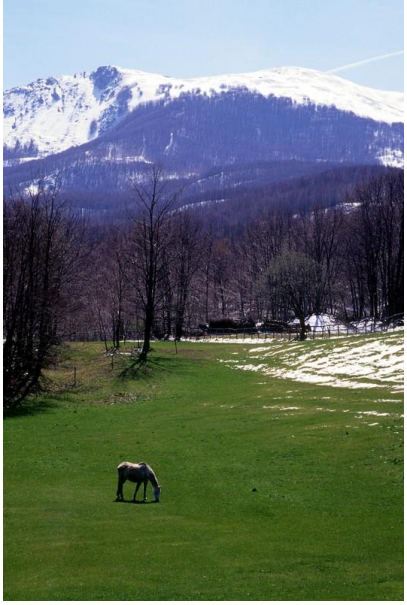


Figure 14-3 Apennine Horse

- The Reggiana Cow is classified among the cattle populations descended from the Bos brachyceros and it is thought that it has the same origins as other native breeds such as the Ottonese and the Modenese. According to reliable historical sources, the origins of the Reggiana breed lie in the invasion of Italy by the Lombards. They moved into Friuli in the year 568 and when they settled in the Po Valley, they brought with them herds plundered from the large Pannonian Plain. Many of the animals were from Podolic stock and they had coats that were a golden colour like wheat kernels. This is a dominant characteristic that has been inherited from the old breeds of red cows from the steppes that can still be found today in Ukraine and Central Russia. A number of authors have studied the milk of Reggiana cows in great depth. Their research has shown that the milk has all of the ideal physical and chemical characteristics for Parmigiano Reggiano production. It has a higher pro-

tein, casein, calcium and phosphorus content than other, cosmopolitan breeds, it is more acidic and it has lower chloride levels. More recent studies have confirmed that Reggiana milk's superior quality is partly thanks to genetic factors associated with the different types of casein (such as α, β, γ and κ) and variants thereof (such as A and B) in the milk. Reggiana cows have very high allele frequencies for the B variant of k-casein and β-casein. This has a positive impact on the technological quality of milk, which means that there is a greater cheese yield, less waste, and the cheese produced is more suited to maturing. Reggiana cows have very interesting zootechnic characteristics but their productivity in quantitative terms is lower than that of more widespread breeds. Consequently, they can only compete if the economic value of their milk is highlighted and appreciated. The use of pure Reggiana milk to make Parmigiano Reggiano cheese has played a decisive role in the revival of the breed. Its dairy qualities have helped to provide tangible proof that Reggiana cattle can offer farmers good prospective income because it can be used to make superior quality cheese that can be sold for higher prices than the market average for Parmigiano Reggiano.

Figure 14-4 Reggiana Cows

- Treschietto onions are part of the species Allium Cepa L. and they have always been grown in the town of Treschietto. In 2004, they were named a native local variety by the Tuscan Regional Agency for the Development and Innovation of the Agricultural and Forestry Sector (ARSIA). In addition to its flat shape, ruby red exterior and white interior with red stripes, the Treschietto onion's unique qualities include its soft, plump bulbs with a high water content and above all its pronounced aroma and sweet, mild taste that appeals to even the most delicate of palates. Treschietto is located on the southern side of the Tuscan-Emilian Apennines. The first access roads that were practicable for vehicles were not built until after 1950, so Treschietto was rather isolated. This helped to keep its environment intact and free from pollution and it is unquestionably one of the reasons why the distinctive qualities of Treschietto onions can only be found if they are grown in a restricted area around the centre of Treschietto. Here, a large number of small-scale growers and a select group of seed guardians, who were appointed after a recovery, characterisation and conservation project, oversee the entire production cycle from the reproduction of the seeds to the production of salad onions and mature onions. They employ traditional cultivation methods and do not use chemical fertilisers, weedkillers or plant protection products. Thanks to all of its qualities, the Treschietto onion has been included in the Regional Inventory of Native Tuscan Genetic Resources.
- For centuries, chestnut cultivation has been one of the most deep-rooted and widespread forms of sustenance for the Apennine territory. Chestnut trees are an integral part of the typical landscape in the Biosphere Reserve area.

### 14.3.2. WHAT ECOLOGICAL, ECONOMIC OR SOCIAL PRESSURES OR CHANGES MAY THREATEN THESE SPECIES OR VARIETIES?

The reappearance of wolves where they had been absent for many decades has led to renewed conflicts with groups of stakeholders, mainly in the shape of farmers and hunters. In order to find out more about the presence, size and dynamics of the wolf populations that had recently settled in the Northern Apennines, in 2002 the regional and provincial authorities of Emilia-Romagna started a monitoring project based on genetic identification of non-invasive biological samples (faeces, urine and traces of blood) collected in the field. Non-invasive genetic sampling makes it possible to identify the genotype, gender and species (wolf, dog or wolf-dog hybrid) of every individual sample, in what is known as *DNA fingerprinting*. Genetic DNA testing was carried out on 4,006 faecal samples gathered between 2002 and 2008 in vast areas of the Apennines in Tuscany and Emilia. The results were used to carry out a genetic identification process and create a computerised database that is accessible by the park bodies and the regional and provincial authorities. It contains details of the genotypes of the individuals in the territory and can be used to map out the areas with a stable wolf presence, keep check on hybridisation with dogs (which threatens the survival of this priority species) and estimate the size of the population. Genetic analyses using a standard protocol were used to pick out 345 genotypes that were acknowledged to be part of the Italian wolf population, as well as 95 genotypes that were identified as dogs and 7 hybrids.

Figure 14-5 dried chestnut

Disease and neglect mean that chestnut groves are among the resources in the Apennine cultural landscape that are at greatest risk of deterioration and loss. While chestnut growing is no longer a core part of the mountain economy, its huge heritage of traditions and knowledge lives on in the culture of the local people. There is growing interest and increasingly widespread awareness about it, not so much from a strictly production-based point of view (although **PDO chestnut flour** is made on the Tuscan side of the Area) as in terms of eco-friendly tourism. For example, the old buildings that were once used for drying chestnuts have now been converted for accommodation purposes (as is the case in the **Val Bratica** near Casarola, Parma) and chestnut groves serve as a destination for students and young people on educational and cultural breaks.

Increasing temperatures are resulting in migration to higher altitudes by the herbaceous species that are currently found in the summit meadows. This is leading to clashes and continual erosion of the habitats available. The amount of open space is decreasing and the altitude of the tree line is increasing. There is less and less space where herbaceous species can grow.

In the last 50 years, the forest in the MaB area has grown significantly in terms of both mass and range. However, coppicing for firewood tends to limit species diversity because it allows the species with the greatest suckering capacity to prevail over others, such as the relict conifers from the LIFE projects.

### 14.3.3. WHAT INDICATORS, AT THE LEVEL OF THE SPECIES, ARE USED, OR WILL BE USED, TO ASSESS THE EVOLUTION OF POPULATION STATUS AND ASSOCIATED USE?

The Biosphere Reserve management team will be responsible for identifying and monitoring appropriate indicators for the objectives. With the assistance of the relevant Networks, it will be able to draw up the most suitable plan.

### 14.3.4. WHAT MEASURES WILL BE USED TO CONSERVE GENETIC DIVERSITY AND PRACTICES ASSOCIATED WITH THEIR CONSERVATION?

The management strategy for the study and conservation of genetic diversity and associated practices will be decided systematically and methodically once the management team has been formed. At present, there are some outstanding examples of *in situ* and *ex situ* conservation and management throughout the candidate territory. First of all, there are numerous Life projects and sites from the Natura 2000 Network, which have been successfully established in the territory and described in detail in this dossier.

In addition, outstanding conservation work for the wild and cultivated genetic heritage is carried out by the Millennium Seed Bank at Kew Gardens (London), the Regional Seed Bank ("Banca del Germoplasma della Garfagnana") and the "Coltivatori Custodi" project.

#### THE REGIONAL SEED BANK

Regional law 64/2004 ratified the creation of:

1. *A Regional Seed Bank (art. 6)* to protect genetic resources through ex situ conservation. The Seed Bank takes all necessary measures to protect the materials that it stores from all forms of contamination, alteration and destruction. The Bank collects all of the officially listed genetic resources.
2. *Coltivatore Custode (art. 9),* a project to conserve the officially listed genetic resources at risk of extinction. This is done in the original collection areas, which are considered their traditional locations. Under the "Coltivatore Custode" ("Cultivator Custodian") scheme, farmers ensure that individual genetic resources are secure by protecting and safeguarding them from all forms of contamination, alteration and destruction, while also raising awareness and spreading cultivation of the genetic resources under their care and replenishing the seeds of herbaceous species that are stored in the Regional Seed Bank. People can apply to participate in the scheme by joining a list kept by the relevant body of the Regional Council.
3. *The Regional Register of Varieties for Conservation (art. 10)*, which is kept by the relevant body of the Regional Council. Varieties that are already officially listed and at risk of extinction can be included in the register at the request of private parties interested in relaunching their production.

In 2004, the Garfagnana Mountain Community (which has now been transformed into the Garfagnana Union of Municipalities) launched the "**Home Gardens**" project to carry out widespread research into ancient vegetable and fruit varieties of agricultural interest that are still present in the area. Schools of all levels (from pre-schools to secondary schools) took part in the project in order to ensure that the research was conducted throughout the territory and the local people were involved. This led to widespread approval and the collection of seeds and reports of mother plants at the "La Piana" centre in Camporgiano, which is run by the Union of Municipalities. The varieties were reproduced in the centre and at the same time an identification and characterisation process was started in partnership with the universities of Pisa (for vegetable varieties) and Florence (for fruit varieties).

The crowning glory of the *in situ* conservation efforts for the ancient varieties came in 2008, with the founding of one of the branches of the **Regional Seed Bank**: a "place" where native genetic plant resources of agricultural and forestry interest are stored in the form of seeds or plants in order to protect them. The Seed Bank is a biological laboratory where measures are taken to safeguard the genetic materials stored from contamination, alteration and dispersion.

Dozens of ancient varieties of vegetables are stored at the "La Piana" Centre, along with a selection of more than 200 mother plants for fruits such as apples, pears, plums, cherries, figs and mulberries.

The characterisation work has enabled around 30 ancient varieties to be included in the Regional Register that the Region of Tuscany established with **Regional Law 64/2004**.

In 2009, an experimental vine field was also created at the Centre, with more than 2,000 plants of around 50 local ancient vine species. The genetic characterisation work done with the University of Pisa revealed that no fewer than 25 of the vine species are not present in any European databases, meaning that they are exclusive to the area.

The accurate, in-depth research has made it possible to preserve a high level of rural biodiversity and prevent the disappearance of the wealth of knowledge about customs, farming methods, local culture associated with distinctive dishes, curing illnesses, know-how and age-old traditions.

While the research was being conducted, a group of "**cultivator custodians**" was selected from people who live in the territory. They cultivate and safeguard the cultivars under their care by replenishing their seed stocks of herbaceous species to reuse in the next sowing season and taking small quantities for storage in the local branch of the Seed Bank.

In Garfagnana, there are **35 cultivator custodians**. They make up almost **30%** of the cultivator custodians in the entire Region of Tuscany and this underlines the cultural significance of the sense of belonging and territorial identity that it has been possible to develop in the Garfagnana area. Some of the varieties that have been salvaged and reproduced have entered local commercial circles, although only very low quantities are produced.

In the last year, the Garfagnana Union of Municipalities has launched another project called "Ri-dare valore alla terra" ("Restore the value of the earth"). It operates in areas that are well suited to the production of certain ancient varieties (especially beans and potatoes) in order to revitalise a number of aspects, including the landscape. Its aim is to highlight the many benefits of the ancient varieties, such as the positive impact on the landscape.

In addition to the premises of the Seed Bank, at the "La Piana" Centre in Camporgiano there are also research and communication facilities that regularly host activities associated with preservation of genetic materials.

## STUDY OF THE POPULATIONS OF RARE AND/OR THREATENED PLANT SPECIES IN THE NORTHERN APENNINES

The rarity of plant species can be correlated with a range of factors, such as ties to singular habitats or distributive and geographical aspects. The taxa in question, or at least some local populations of them, can therefore easily be in danger of disappearing due to the natural dynamics of vegetation or the impact of humans. In part of the candidate area, a research project was carried out to assess the state of conservation of habitats and species and plan protection activities. The long-term monitoring programme highlighted a decrease in number and loss of vitality in the populations over time. From a methodological point of view,

numerical estimates were made by counting the individuals of each species or – when this was not possible – examining parameters relating to the plants such as the percentage of the ground surface covered and the number of scapes with flowers or fruits. This was largely done in standard sample areas. The research project started in 1999 and ended in spring 2002. It took place in the Alto Appennino Reggiano Regional Park and its aim was to assess the conservation status of very limited populations of certain species that are considered to be rare locally, in order to obtain precise information about the risk of them disappearing locally.

15 species were covered:

- Alopecurus gerardi Vill.
- Linum capitatum Kit.
- Juncus jacquinii L. (Jacquin's rush)
- Leucanthemopsis alpina (L.) Heyw.
- Lychnis alpina L.
- Salix herbacea L. (dwarf willow)
- Salix hastata L. (halberd willow)
- Salix breviserrata Fold.
- Rhododendron ferrugineum L. (alpenrose)
- Cerastium cerastioides (L.) Britton (starwort chickweed)
- Carex foetida All.
- Ranunculus küpferi Greuter & Burdet
- Senecio incanus L.
- Vicia cusnae Foggi & Ricceri
- Primula apennina Widmer

They are high altitude plants that are rare in the local area. Many of them have connections with Central European or Arctic regions. Each species only grows in one place or just a few separate sites. This is partly because they tend to be rather dispersed near the edges of their ranges (this is often a sign of a climatic boundary) and partly due to the low altitude of the specific study area in the Reggio Emilia Apennines (approximately 2,000 metres above sea level), which probably means that the growing conditions are not ideal. Indeed, the majority of the species thrive in places where there is snow cover for extended periods. Frequent decreases in the periods of time with snow on the ground could cause serious damage to them.

The information about the plant species studied was gathered in several sample areas of the local populations. The areas of the sample sites were chosen in proportion with the sizes of the individual species and the local density and coverage, while the number of sites was based on the size of the local population. The sample sites were located randomly within the local ranges of each species. Data collected in the sample areas were used to assess the status of the plant populations and comparisons were made of data from different years. For Salix herbacea and Juncus jacquinii, comparisons were also made with populations of the same taxa growing in Alpine environments.

The results of the research can be found in the Department of Territorial Ecology at the University of Pavia. The following points are worth noting in particular:

- There is an ongoing presence of all of the species that were investigated because past botanical literature claimed that they were rare locally.
- At the time of the study, Juncus jacquinii no longer appeared to be present in some locations where it was known to be found until 30 years ago.
- New areas of growth on Monte Cusna and Alpe di Succiso were noted for some species (Salix hastata, Salix breviserrata and Linum capitatum).
- The species studied were mapped using geographic information systems (GIS), thus providing an objective basis for future monitoring and research.
- Given the small surface areas covered, it is possible to confirm the rarity of the species studied that were considered to be locally rare. However, at the time that the project ended, none of them could be deemed truly threatened.
- Nonetheless, the health of the species is hindered by certain factors, especially trampling by tourists (Monte Prado) and overgrazing of some of the species studied (Monte Cusna and Monte Prado). The climate change that is underway also has an impact, especially because the annual duration of the local snow cover is tending to get shorter.
- A study was carried out of the population and vitality of nine species. In particular, it was revealed that the populations studied had lower infructescence production than comparable Alpine populations, meaning that they had a low capacity to support themselves. The situation is worse in areas affected by anthropic disturbance. Unlike in the Alps, the local populations are isolated relicts. They live in ecological circumstances that are unsuitable or at the very least not optimum. Their survival so far is thanks in part to the good vegetative reproduction typical of high altitude species.

The seeds of some of the species studied have been sent to “The Millennium Seed Bank Project” at Kew Gardens in Great Britain as part of an agreement between Kew Gardens and the Regional Park. This will act as a form of preventive protection for these species if they disappear locally. The project enables viable seeds to be stored for at least 100 years and they can be used in the event of disappearance. In the final years of the project, a reintroduction scheme was set up for one species (Juncus jacquinii) in areas where it had recently disappeared.

Below is a list of the species that have been collected and sent to the Millennium Seed Bank at Kew Gardens:

- Gentiana verna L.
- Draba aizoides L.
- Eriophorum latifolium Hoppe
- Carex davalliana Sm.
- Carex nigra (L.) Reichard
- Bistorta officinalis Delarbre
- Deschampsia cespitosa (L.) P. Beauv.
- Festuca riccerii Foggi & Gr. Rossi
- Trifolium thalii Vill.

- Saxifraga paniculata Mill.
- Luzula lutea (All.) DC.
- Gentiana purpurea L.
- Scabiosa lucida Vill. ssp. lucida
- Phleum alpinum L.
- Rumex scutatus L.
- Hypericum richeri Vill.
- Sempervivum montanum L.
- Saxifraga exarata Vill. ssp. moschata (Wulfen) Cavill.
- Eriophorum latifolium Hoppe
- Eriophorum angustifolium Honck.
- Nardus stricta L.
- Luzula sieberi Tausch
- Vaccinum myrtillus L.
- Sanguisorba officinalis L.
- Pulsatilla alpina (L.) Delarbre
- Anemonastrum narcissiflorum (L.) Holub
- Deschampsia cespitosa (L.) P. Beauv.
- Juncus filiformis L.
- Silene nutans L.
- Juncus alpinusarticulatus Chaix
- Aster alpinus L.
- Juncus alpinusarticulatus Chaix
- Lotus corniculatus L.
- Luzula alpinopilosa (Chaix) Breistr.
- Aster alpinus L.
- Armeria marginata (Levier) Bianchini
- Hypericum richeri Vill.
- Luzula alpinopilosa (Chaix) Breistr.
- Juncus trifidus L.
- Lilium martagon L.
- Genista radiata (L.) Scop.
- Swertia perennis L.
- Gentiana purpurea L.
- Gentiana purpurea L.
- Carex frigida All.

- Juncus alpinusarticulatus Chaix
- Parnassia palustris L.
- Luzula lutea (All.) DC. ssp. lutea
- Silene suecica (Lodd.) Greuter & Burdet
- Silene excapa All.
- Empetrum hermaphroditum Hagerup
- Swertia perennis L.
- Trifolium alpinum L.

# 15. DEVELOPMENT FUNCTION:

## 15.1. POTENTIAL FOR FOSTERING ECONOMIC AND HUMAN DEVELOPMENT WHICH IS SOCIO-CULTURALLY AND ECOLOGICALLY SUSTAINABLE:

### 15.1.1. DESCRIBE HOW AND WHY THE AREA HAS POTENTIAL TO SERVE AS A SITE OF EXCELLENCE/MODEL REGION FOR PROMOTING SUSTAINABLE DEVELOPMENT.

The territory that is a candidate to become a MaB Area can be considered as a model of sustainable development for the entire Apennine chain and, more in general and with the necessary variations, for all the mountain areas where there is a significant presence of man up to the ridges.

In this territory the following factors occurred at the same time in the last decades: a) a strong return to nature (increased forest cover, return of wild animal species, such as wolves and eagles and other similar factors); b) a shift – that can also be marked by conflict – to a new vision of its identity, potentialities and vocations (after a period of peripheral and cultural subordination to the industrial and manufacturing models in the neighbouring areas on the plain and coast); c) the launch of new economic networks more oriented to environmental quality. In other words, this territory is once again becoming a place of coexistence and is reaching a new balance between biosphere and anthroposphere.

Thanks, in particular, to the actions undertaken by the Appennino Tosco-Emiliano National Park (that is concretely acting as a research and sustainable development agency with its 105 ongoing projects), it has been possible to develop researches on the coexistence between man and nature and original education experiences on sustainability and the teaching of natural sciences (see the following chapters). Moreover, thanks to the fundamental collaboration with the Local Authorities and the LAGs (local action groups) and with the concerted management of the Rural Development Plans, many agricultural and tourist enterprises – mostly cooperatives – were motivated and involved in the creation of networks. The latter fostered relations between the naturalistic and cultural tourism that is taking hold and the agricultural, zootechnical and sylvi-pastoral activities, high quality, extensive and traditional, which historically characterised this territory. Moreover, in the candidate area proposed as a MaB Reserve, the activities connected to agriculture and tourism are not only the prerogative of the business fabric but also represent an important element that increasingly integrates the income of families employed in other sectors.

The integration of training, quality agriculture and eco-tourism can represent the means to involve the communities and the local economic fabric in the protection and promotion of the ecosystemic and cultural mosaic boasted by this territory, while providing them with prospects for a satisfying and sustainable economic and social development.

### 15.1.2. HOW DO YOU ASSESS CHANGES AND SUCCESSES (WHICH OBJECTIVES AND BY WHICH INDICATOR)?

The indicators which will allow an assessment as to whether the workshop on the sustainable development of the Tuscan-Emilian Apennines is working effectively will be connected to the tourist and agricultural function of the territory.

As regards tourism, we will use the set of indicators defined by the Appennino Tosco-Emiliano National Park during the signing of the European Charter for Sustainable Tourism in Protected Areas (these indicators will be extended to the entire territory of the Reserve).

As regards agriculture, we will use the indicators that monitor the trends of the Utilised Agricultural Area and the forest resources, the development of organic agriculture and the PDO and PGI productions, and the creation of new agricultural enterprises (especially those run by young people).

More generally, we will monitor the demographic trend and the employees per sector in the MaB Area and, in particular, in the ridge municipalities, since the presence of man on the territory represents one of the fundamental elements for the perpetuation of the balance between man and biosphere.

## 15.2. IF TOURISM IS A MAJOR ACTIVITY:

Especially in the medium-high zone of the candidate area, tourism has always represented an important activity for short summer periods and, in some equipped areas, also in winter. Tourism still represents a minor and supplementary economic sector compared to other fundamental and predominant activities such as agriculture, farming, agricultural and food production, craft and services. The return of families and people to their birthplace for holidays is a relevant contribution to traditional tourism. Nevertheless, traditional holiday tourism as well as winter tourism in ski resorts are clearly declining. However new forms of tourism are growing, such as those linked to nature, sport, education and wine and food. These new types of tourism concern shorter periods of time, sometimes just a weekend, but are more distributed throughout the different seasons.

### 15.2.1. DESCRIBE THE TYPE(S) OF TOURISM AND THE TOURISTIC FACILITIES AVAILABLE. SUMMARIZE THE MAIN TOURISTIC ATTRACTIONS IN THE PROPOSED BIOSPHERE RESERVE AND THEIR LOCATION(S).

The area that has been nominated to become a UNESCO MaB reserve presents a rich and varied tourism offer. The various tourism forms, some modern and some rooted in the territory's tradition and culture, are able to meet very different needs in different periods of the year.

http://www.parcoappennino.it/carteguide.php

The tourist activities which, due to their importance and success, represent reference points for the area will be described in the following sections.

#### MULTI-PURPOSE TREKKING TOURISM

It includes different forms of tourism such as activities on foot, by bike, on horseback, with snowshoes, and so on. A list of the most important initiatives/places related to trekking tourism is presented below:

- **Alta Via dei Parchi**. This trekking route follows the whole Emilia-Romagna Apennine ridge, linking all the protected (regional and national) areas in this territory. Basically the route retraces the Emilia-Romagna stretch of the most important **00 Italy Path** (Sentiero Italia 00) **of the CAI** (Italian Alpine Club), which connects the entire peninsula with the Alpine chain. The section between the Passo della Cisa and that of the Forbici of the Alta Via dei Parchi (and of the 00 Italy Path) which runs along the Apennine ridge (the boundary between the continental climate and the Mediterranean climate) represents the key area of the Appennino Tosco-Emiliano Biosphere Reserve, passing through the main Core Areas. It is accessible throughout the year although, due to the altitude, it requires quite different equipment in winter.

- **Lunigiana Trekking**. The Lunigiana area offers excellent conditions for trekking, mountain biking and horse riding. The Lunigiana Trekking circuit consists of 250 km of paths and 14 stages. The trekking trail starts in Aulla, goes up to the Val di Magra as far as Pontremoli and finally goes down to Fosdinovo. Besides the Lunigiana Trekking, there is the Lunigiana Trekking Tourist System (Sistema Turistico Escursionistico Lunigiana - S.T.E.L.), a trekking trail which diagonally crosses the area and joins up with the Lunigiana Trekking circuit. The trail reaches the various castles in this area, starting from the Terrarossa Castle, where two paths follow the River Magra banks before reaching the historical Lunigiana passes with Liguria and Emilia.

Figure 15-1 Passo dell'Ospedalaccio - Alta Via dei Parchi

- **Garfagnana Trekking**. The Garfagnana area offers various trekking activities suitable for every season. There are different routes suitable for trekking with a circular path made up of nine stages, which follows the Apuan and Apennine ridge. There are also other trails suitable for climbing, hiking, mountain biking, and so on.

- **Spallanzani Trail (CAI)**. The MaB candidate Area boasts an extended path system with more than 183 footpaths on its area. Among these, the Spallanzani one runs through all the vegetation sections of the Reggio Emilia Apennines. It starts from Ventoso di Scandiano (130 m) as far as S. Pellegrino in Alpe (1,500 m) on the Tuscan-Emilian ridge. The route is 115 km long with a total elevation difference of 5,000 metres. The whole path can be traversed in one week or it can be divided into sections. The Spallanzani path is like an open-air geological museum; it consists of seven stages, and calls at many sites which were once visited by Lazzaro Spallanzani for his scientific research.

- **Appennino Reale** (Royal Apennines). Appennino Reale is both the name of an area project and a winter event. The event expresses the agreement between the National Park and the Frignano Regional Park to value new forms of sport and sustainable tourism in the ridge area between Monte Cusna and Monte Cimone, along the numerous scenic forest routes for trekking, mountain biking, cross-country skiing or horse riding between Emilia and Garfagnana. The central place of all these trails, which are located within the National Park or very close to its boundaries, is the Abetina Reale. In fact the Abetina Reale is about 10 km from any starting point reachable by car: Case Cattalini - Civago (Reggio Emilia), Prati Fiorentini Refuge - Piandelagotti (Modena), Casone di Profecchia (Lucca), Pianvallese - Febbio (Reggio Emilia).

- The **Grande Ippovia** (the Great Horse Trail). Its long and complex route goes from the province of Piacenza to the province of Rimini and, with a network of paths, allows one to go from the most in-

land areas to the coastal ones. It alternates routes that touch the Appennino Tosco-Emiliano, the strip of land preceding the hills, the luxuriant inland flat lands and the rich and varied coastal area. Thanks to the wide choice of different routes, the Grande Ippovia offers solutions that are suitable for different levels and ages. Along the trail, there are many accommodation opportunities to meet various needs. The Grande Ippovia is a chance to combine sport and rest, holiday and fun, for an unforgettable experience for everyone to relate.

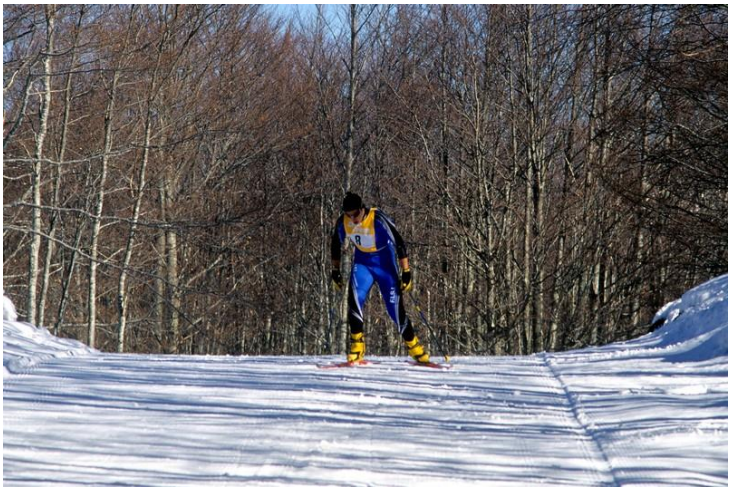
- **The mountain refuge network**. Within the candidate area to become an Appennino Tosco-Emiliano MaB Reserve there are 19 mountain refuges, linked together by an excellent trail network, which can accommodate trekkers during their stay in the area.

## WINTER TOURISM

Winter tourism concerns any event/place linked to the typical activities of the winter period.

Over the last 60 years, some ski resorts for downhill skiing have been established and developed on the northern side of the ridge, although they have been recently influenced by frequent market and "model" crises.

First of all, the Cerreto Laghi ski slopes, now a multi-season tourist resort. Cerreto Laghi is close to the Passo del Cerreto, a crossroads for Tuscany, Liguria and Emilia. Cerreto Laghi boasts all those natural features and leisure and sport facilities (chairlift, ice rink, etc.) able to satisfy diversified winter tourism requests, such as downhill skiing, cross-country skiing, snowshoeing and snow paths, together with good hotel and restaurant services. The tourist operators in Cerreto have recently taken part in the Eclo Cluster European project for the good environmental management of uniform business areas.



It is also possible to practice downhill skiing at Febbio Rescadore, on the Monte Cusna slopes. Both Monte Cusna and Monte Prado are good for ski touring and backcountry skiing until late spring. Downhill skiing is also possible at Ventasso Laghi, Prato Spilla, Ospitaletto and Schia, while Boscoreale-San Gimignano (Piandelagotti), Pratizzano and Pian Vallese are excellent resorts to practice cross-country skiing.

Thanks to the Neve Natura[4] project, which has been in operation since 2007, winter trekking is not a niche activity anymore but is growing all over the northern side of the Tuscan-Emilian ridge, particularly as regards the use of snowshoes and guided excursions along the forestry roads and on the

[4] The Neve Natura project was created by the Appennino Tosco-Emiliano National Park and involves students from the cities, bringing them into contact with the Apennine environment, population and traditions. Neve Natura is not a school trip or a form of winter tourism, but a physical and educational experience. In fact, young students have the chance to live the environment in an intense and sometimes tiring way, but full of excitement and experience, totally immersed in the depths of a genuine Apennine winter. Students can acquire practical and theoretical knowledge about the Apennines and learn how to identify places, orientate themselves and move with or without equipment.

most accessible summits. For these kinds of activities, the reference points are not only the traditional ski resorts but also the villages at high altitudes and the passes.

## RELIGIOUS TOURISM

Among the great routes which ran through Europe in the Middle Ages, one of the most important was the via Francigena which linked Great Britain, France and Rome and was described in Sigerico's famous travel journal in 991. The itinerary concerns the candidate area right in the crucial passage of the Apennine passes, in particular from the Passo Cisa, to Berceto (Medieval cathedral), then down to Lunigiana as far as the Pieve di Sorano (Filattiera) and down again towards Lucca and Rome. The main route can be varied by passing through Via del Volto Santo (between Lunigiana and Garfagnana) and Bibulca (between upper Frignano and Garfagnana). The road itinerary, marked by tourist signs, is also a trekking trail. The Madonna dell'Argegna Sanctuary (between Casola and Giuncugnano), the Madonna della Pietra Sanctuary and above all S. Pellegrino in Alpe with its church, Saint's relics and museum are still local places of pilgrimage and religious tourism today.

Figure 15-2 A stretch of the "Via Francigena"

Agritourism

Agritourism is already well consolidated, with around 130 facilities distributed throughout the Tuscan-Emilian Apennine area (although it has only been recently developed on the northern side). These facilities offer accommodation and restaurant services and sometimes activities concerning environmental education and sustainable production.

The data regarding agritourism are taken from the following sources:

www.agriturismo.emilia-romangna.it

www.turismo.intoscana.it

The following diagram shows the percentage of agritourism establishments located in the four provinces which have been nominated to become UNESCO MaB Reserve.

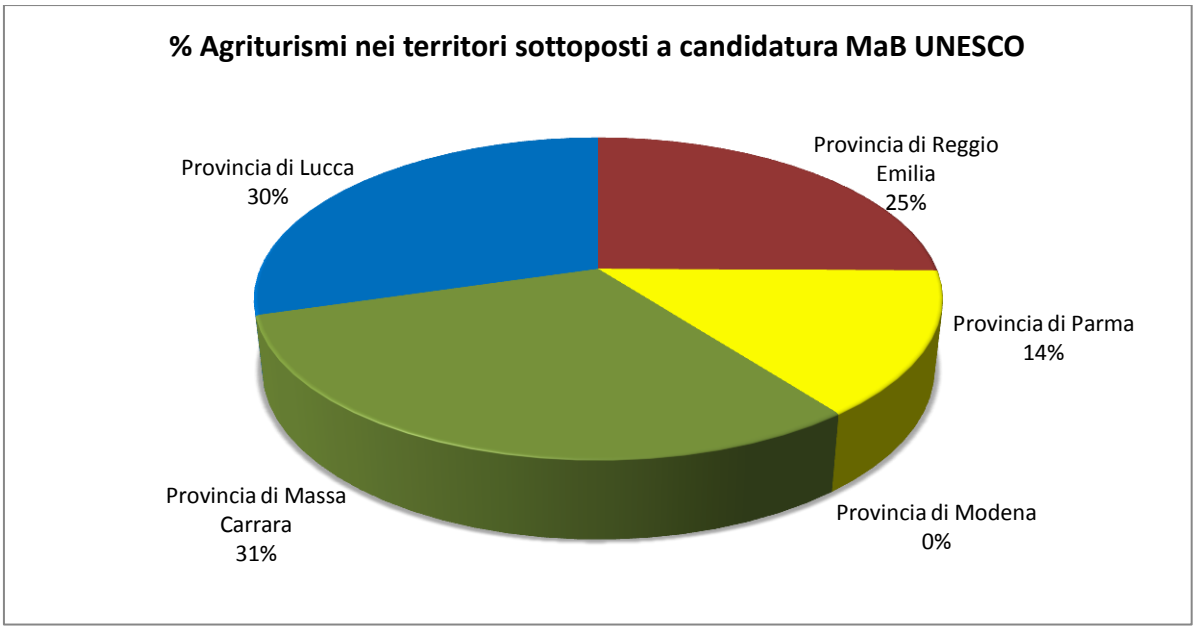



**Figure 15-3. The percentage distribution of agritourism establishments in the area concerning the 4 provinces which have been nominated to become a UNESCO MaB Reserve..**

The following diagram shows the number of agritourism establishments located in each of the municipalities which have been nominated to become a UNESCO MaB Reserve.

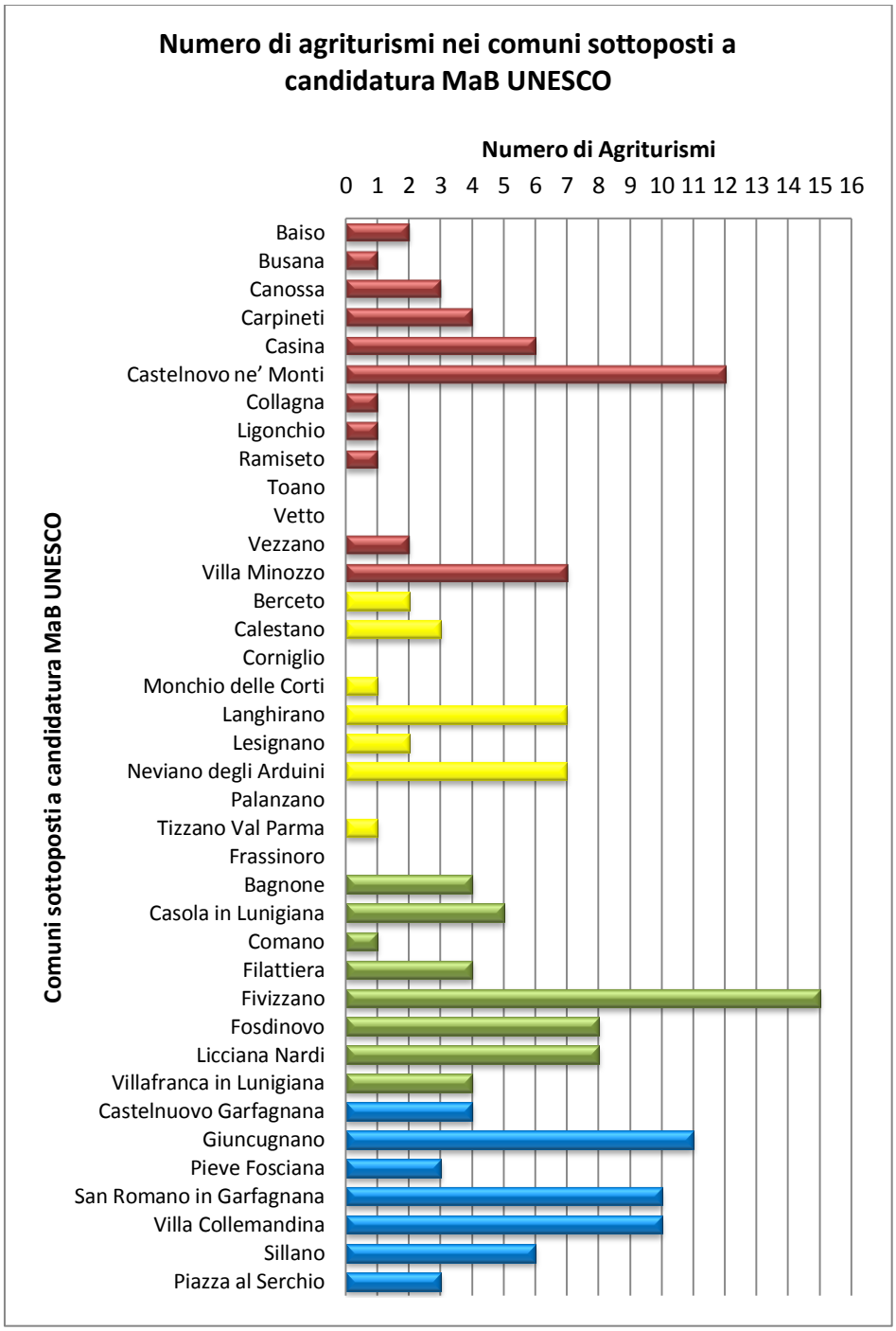



**Figure 15-4. Number of agritourisms for each municipality (the color refers to the Province).**

## ECOTOURISM

A form of ecotourism developed in the territories of the candidate area, with a particular focus on the social and environmental responsibility. This was made possible thanks to 7 protected areas (Appennino Tosco-Emiliano National Park, 100 Laghi Regional Park, Frignano Regional Park, Stato dell'Orecchiella Natural Reserve, Stato di Lamarossa Natural Reserve, Stato della Pania di Corfino Natural Reserve and Guadine Pradaccio State Reserve) whose boundaries extend to various MaB Reserve municipalities and thanks to the numerous nature and walking tour guides who accompany tourists inside or outside the protected areas and to the many watercourses which provide opportunities to practise activities such as sport fishing.

Excursions with nature guides. Nature and walking tour guides have a relevant role in the area. The guide explains the environmental and naturalistic aspects of the territory to individuals or groups, guiding the visitors through mountain and hill environments, populated areas, parks and protected areas, as well as exhibition facilities concerning nature and ecology. The guide helps people discover the secrets of nature and the cultural traditions, without pursuing sport records, but teaching them how to observe and understand the natural environment and the area surrounding us. On foot, on horseback, by mountain bike or with snowshoes, an excursion with a professional nature and walking tour guide adds value, expertise and safety to this experience.

Fishing and activities along the watercourses. The abundant and frequent rains characterising the Apennines and above all the Garfagnana area guarantee enough watercourses for sport fishing. Moreover, rivers, streams and lakes created by the construction of dams make the entire area suitable for this kind of activity. The area is furrowed by numerous streams and brooks whose water, cold and full of oxygen, represents the ideal habitat for many fish species. The management of fish fauna and sport fishing is carried out in collaboration with local fishing clubs, as is the management of the downstream hatcheries in order to get local species back, such as the brown trout and the Arctic char. Especially in spring, some of the Tuscan-Emilian Apennine streams (traditionally the Enza) are suitable for canyoning. Local experts help beginners with the descent of some watercourses in an adventure combining fun and thrills.

## MUSHROOMS AND CHESTNUTS

Autumn in the candidate area is a season rich in cultural and folkloristic initiatives and events. In this period many activities can be still carried on outdoors, such as mushroom and chestnut picking, and these can be tasted at festivals and in restaurants both in the Emilian and Tuscan areas.

In order to make the most of this activity, the Appennino Tosco-Emiliano National Park, together with other local bodies (municipalities, the Mountain Community of the Reggio Emilia Apennines, the Appennino Reggiano and Antico Frignano Local Action Group, the Province of Parma), thought up a strategy called “Autunno di Appennino”, which includes a series of actions/projects with various aims:

- promotion of environmental education projects (student weeks organised in the area, e.g. Castagneto School Project);
- promotion of naturalistic, innovative and seasonally adjusted tourism (Castagneto Hotel and Castagneto Garden Project);
- recovery of biodiversity in danger (the chestnut wood is rapidly losing its productive capacity and autochthonous, distinguishing features due to diseases and the state of neglect which are turning it into an ordinary wood);
- cultural and identity recovery of the villages (the chestnut tree seen as the “bread tree” and its recovery as a sign of territorial recovery);
- promotion of a common programme of cultural, artistic, wine and food events (congresses, exhibitions or painting and photo contests) which can really promote the Apennines in Autumn as a new tourist season, by creating a network and optimising the synergies between public resources and private local companies.

## COMMUNITY RESPONSIBLE TOURISM

Community Responsible Tourism is a new form of tourist reception which developed in the Apennines. It addresses those tourists who are attracted by the authenticity of the places, the genuineness of human relations and the singularity of the culture and local traditions. These tourists are looking for a closer connection with the territory they want to visit and its people.

Community Tourism aims at involving the community in any possible way (organised, public and private) in order to synergically and collectively promote sustainable tourist development in the area. The novelty of this form of tourist reception lies in the participation of all those people, inhabitants of a village or valley, who are willing to improve and enrich the reception and hospitality of their territory. They can do this by offering experience, expertise and practical knowledge of the real local culture: old trades, traditions, typical food, local quality products and traditional handicraft.

Many projects have been developed in the Apennines and among the most relevant ones it is worth mentioning those carried out by Briganti del Cerreto (a cooperative located in Cerreto Alpi, one of the first to launch a successful pilot project regarding community tourism) and by the Valle dei Cavalieri community cooperative in the Alpe di Succiso area. The latter represents a study model at an international and academic level (Japan) as an example to keep small villages and mountain communities alive.

## SPORT TOURISM

Within the UNESCO MaB Biosphere Reserve it is possible to practice sport activities thanks to natural or equipped areas:

- **Climbing**. The Pietra di Bismantova, located in the medium-altitude Reggio Emilia Apennines, offers various exciting long routes and can be considered the most interesting and complete “rock gym” in the entire Emilia-Romagna region. The climb to the summit plateau is rewarded on arrival by an unforgettable view of the Apennine chain. Bouldering and sport climbing can be practised all year round.
- **Cycling and Mountain Biking.** The Appennino Tosco-Emiliano area which has been nominated to become a UNESCO MaB Reserve boasts ideal territory both for practise cycling tourism on the road (with a large number of minor roads which are little or almost not concerned by motor traffic and therefore ideal for bikes) and mountain biking (which can count on an extensive network of forest roads). Numerous itineraries with various levels of difficulty meander through the area, representing important reference points for road cycling and mountain bike lovers. The Parco Bike project, created with the aim of promoting sustainable tourism within the candidate MaB Area thanks to the use of electric bikes, has identified 26 routes reaching a total of 1,300 km.

- **Adventure Parks.** The Adventure Parks offer a series of rope courses, with passages, handholds and ropes which exploit the natural support of trees or a platform system made up of walkways, nets and Tibetan and Tyrolean bridges. These theme parks have a very low environmental impact and offer a safe,

recreational sport attraction in close contact with nature. These rope courses stimulate people's coordination, balance, concentration and, to some extent, physical fitness. Both in the Tuscan and Emilian area there are some adventure parks, among which the first park in the Emilia-Romagna region: the Cerwood Adventure Park. Cerwood offers a wood full of excitement where the "Dedalus" project was launched. The latter is an educational workshop to experience the Apennine nature.

### CULTURAL TOURISM

Another important aspect of the tourist offer is represented by cultural tourism, associated with the historically important sites located throughout the Tuscan-Emilian Apennine area:

- **Canossa Sites**. Matilda of Canossa's lands, between Canossa and Frassinoro, characterised by the outlines of castles (see 15.6) and by the presence of ancient parish churches, tower houses (84 just in the Municipality of Carpineti) and historical villages, represent a vast area of the territory where the medieval civilisation is still manifest. The fortified lines (particularly visible in the Reggio Emilia Apennines) followed one upon another from West to East, along different altitude levels. Many castles of Canossa were destroyed by the free Communes of the time and during the fights among seigniories. In part, the old castles have been converted into palaces and civil residences. Nevertheless, the castles of Canossa network is still visible on the territory and represents an important tourist and cultural attraction. The castles are accessible by car but it is possible to go through the area on foot, by bike and on horseback, thanks to the marked and georeferenced Route of Matilde di Canossa.
- **Lunigiana Castles**. In the Middle Ages the castles in the Lunigiana lands were the background for battles and events regarding the great seigneurial families, such as the Malaspina. These families alternated and followed one after the other in the domination of feudal estates. Still more than 100 today, the castles are the most important guardians of the history and traditions of an entire territory.
- **Garfagnana Fortresses.** History left a deep mark on Garfagnana, an area sought by many populations because of its strategic position bordering with the area disputed by Lucca, Pisa, Florence, Genoa and the Estensi family in the part further north. This is shown today by the presence of fortresses, castles and fortified villages, perfectly integrated in the typically rural landscape of this area. The settlements, which developed mainly on the floodplains, were specially built with defence and attack purposes. Today, having lost their military and defensive functions, they remain "alert" on the highest hills where they attract tourism and cultural and study activities. The most important ones are the Montalfonso Fortress in a dominant position in Castelnuovo di Garfagnana and the imposing Verrucole Fortress in San Romano.

### WINE AND FOOD TOURISM

The Tuscan-Emilian Apennine area promotes various activities with the aim of protecting the typical local productions and enhancing traditions.

- **Menù a Km Zero Contest.** The Tuscan-Emilian Apennine area boasts an extraordinary wealth of high-quality agricultural and food products and a great wine and food culture. The "Appennino Gastronomico - Menu a Km zero" contest offers a taste tour in order to discover these excellent products and their connection with the production zones, recovering and defining the Apennine agricultural and food characteristics. Every year the contest proposes menus made with local and

seasonal products coming from the surrounding countryside; this guarantees not only quality, fresh and traditional food but also a lower level of pollution caused by transport. A people's jury and a technical jury, made up of experts from the ALMA International School of Italian Cuisine, award a prize for the menus which best use and combine the local products, thus encouraging the rediscovery of traditional recipes.

- **Strade dei Vini e dei Sapori** (Wine and Flavour Routes). The Tuscan-Emilian Apennine area is historically rich in high-quality food products, which have helped to spread an excellent wine and food culture. Wine and Flavour Routes were created in order to allow people to taste and try these excellent products. They include an integrated system of tourist offers located along an itinerary, characterised by places associated with wine and open to the public (vineyards, wineries, cellars) and related business activities (restaurants, hotels, agritourism establishments and wine bars). The area includes the following roads: the Ham Road (Parma), the Mushroom Road (Parma), the Road of Wines and Tastes of the Scandiano and Canossa Hills (Reggio Emilia), the High Apennines Road (Reggio Emilia), Wine Road of the Candia and Lunigiana Hills (Massa-Carrara).
- **Park Hamper**. The "Paniere dei Parchi dell'Appennino Emiliano" gathers and connects the agricultural and food products and the tourist services which express a close and rooted relation with their land of origin and which are, from a quality point of view, in line with the values of environmental protection pursued by the Parks and Protected Areas of the Emilian Apennines. Over 100 products and services are divided into categories and listed in an online catalogue, but the user can search for geographical areas using a geo-referenced map. Among the agricultural and food products included in the hamper there are: vinegars; jams, fruit juices, nectars and syrups; food preserved in oil and vinegar, dressings and pasta sauces; bread, cakes and bakery products; medicinal herbs; cereal flours; bilberries from the Modena Apennines, raspberries, blackberries, currants, strawberries and other small fruits; honey; fruit, vegetables and garden products; PDO Parmigiano Reggiano cheese, pecorino (sheep's milk cheese), other types of cheese and yogurts; cold cuts, salami and pork products; the "Savurett" (a typical pear compote) and the cake, "Spongata di Corniglio"; meat cuts; various types of fresh pasta such as tortelli, tortellini, anolini and gnocchi; wines, liquors and distilled spirits.

## GARFAGNANA AND LUNIGIANA

Garfagnana and Lunigiana are characterised by typical, well-known activities and facilities which attract many tourists:

- **Aulla-Lucca Railway**. The Aulla-Lucca railway, between the parks of the Apuan Alps and the Apennines, links the valley of Lunigiana and Garfagnana and connects the rural villages of the two valleys with the neighbouring urban areas, through bridges, tunnels and striking landscapes. Today this historical sustainable route is an attraction for tourists too. More and more foreigners, English, Germans, Americans and Australians, but also many Italians, decide to enter the Apennine and Apuan parks by means of this railway.
- **Equi Spa**. The spa is located at the edges of the MaB candidate area, but for centuries the rainwaters of the Equi Spa area (Fivizzano) have been collected by the impressive Apuan Alps, filtered by the subsoil,

enriched with mineral salts, precious for your health, and then driven back to the surface where, not far from the medieval village, the waters are collected and exploited. The marble heart of the Apuan Alps gives birth to the healing waters which have been used in this spa for centuries. Thanks to these peculiarities, at Equi the tourist can combine the healthy effects of the Apuan waters with a stay in the unspoilt area of Lunigiana, a land full of ancient evidence.

### 15.2.2. HOW MANY VISITORS COME TO THE PROPOSED BIOSPHERE RESERVE EACH YEAR?. IS THERE AN UPWARD OR DOWNWARD TREND, OR A PARTICULAR TARGET?

Tourism is an important but not predominant activity in the area (see introduction under 15.2). The different trends and targets have been previously described under 15.2.1.

Over the last 6 years (2008-2013), the entire territory, made up of 38 municipalities and their relative areas which are part of the Appennino Tosco-Emiliano MaB Reserve, recorded 77,543 arrivals per year (number of tourists who spent at least one night in the area) together with 319,179 tourist presence per year (the overall number of nights spent by tourists in the area) with an average stay of 4,12 days[5]. It is possible to infer that the tourist presence corresponds to that of 874 residents (total number of tourist presence/365 days), a number which is not particularly significant in an area that counts around 102,500 residents in total. A "soft" tourism, with no negative impact on the territory and which could potentially grow in number and quality. The diagrams shown on the following pages were elaborated using data gathered from the following websites:

- www.provincia.re.it
- www.statistica.parma.it
- www.provincia.modena.it
- www.regione.toscana.it
- www.turismo.provincia.lucca.it

[5] The average regarding the last 3 years (2011-2013) is slightly decreasing but in line with the national trend. The arrivals were around 73,000 and the tourist presence of around 248,000 nights.

The following diagram shows the 2012 tourist presence in all municipalities concerned with the Appennino Tosco-Emiliano UNESCO MaB candidature (for 2013 it was not possible to obtain a complete set of data regarding all the relevant municipalities).

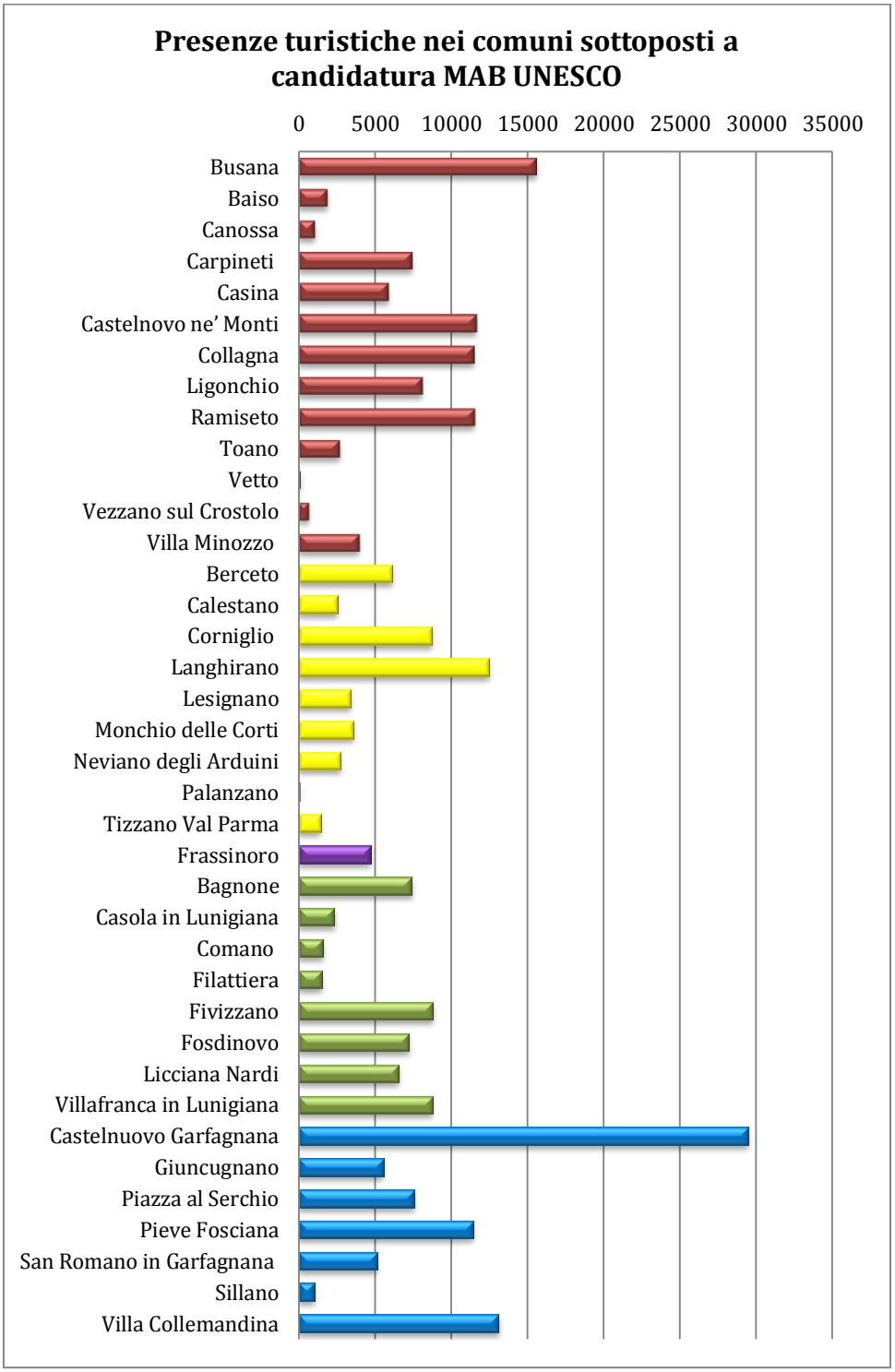



**Figure 15-5. Tourist presence in the municipalities which have been nominated to become a UNESCO MaB. The colours indicate the various provinces (blue – Lucca; green – Massa-Carrara; purple – Modena; yellow – Parma; red – Reggio Emilia).**

By analysing the trend over the years, it is possible to observe that in the 5 reference provinces the tourist flow remained almost constant, except for the province of Reggio Emilia, which over the years showed a decrease both in arrivals and tourist presence per year. The years taken into consideration are 2011, 2012

and 2013. However, for 2013 it was not possible to collect data concerning the municipalities of Toano (Reggio Emilia), Calestano and Lesignano (Parma) and Frassinoro (Modena).

The following diagrams show a time trend concerning arrivals and presence.

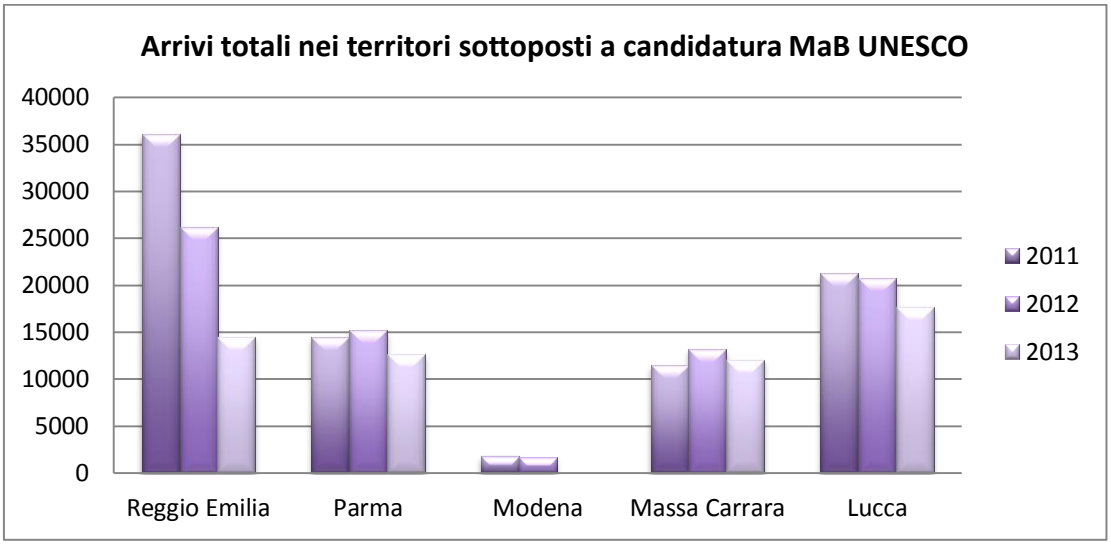



Figure 15-6. Arrival time trend.

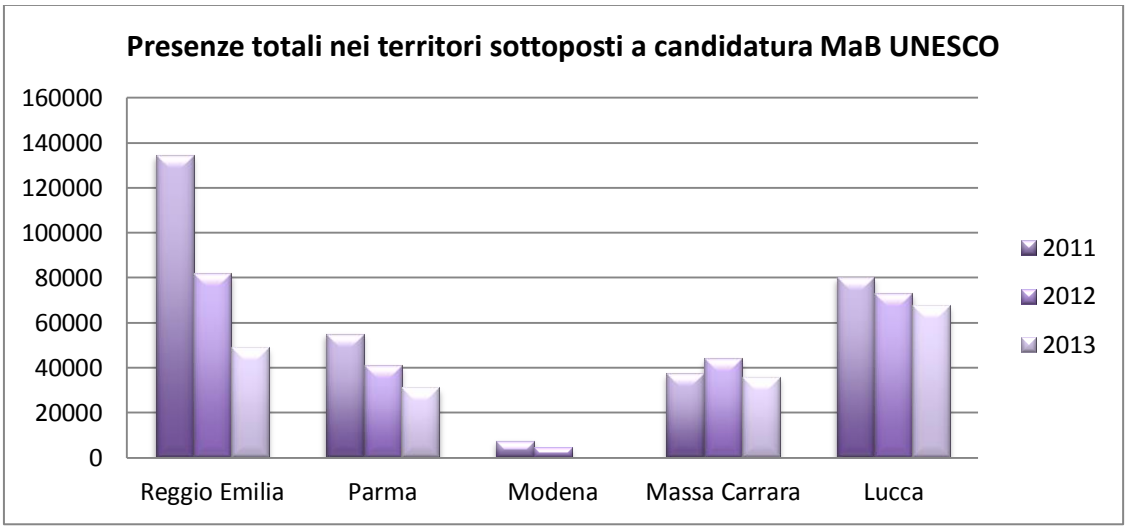



Figure 15-7. Presence time trend.

The following diagrams show the presence of Italian and foreign tourists, which appears completely unbalanced by an order of magnitude in favour of the first category.

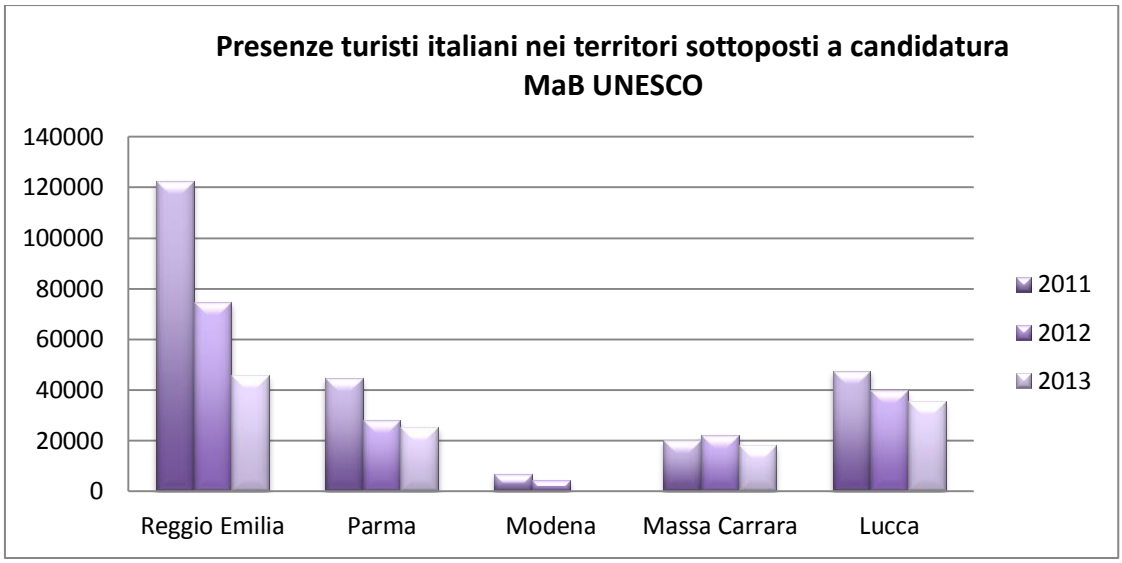



Figure 15-8. Italian tourist presence trend.

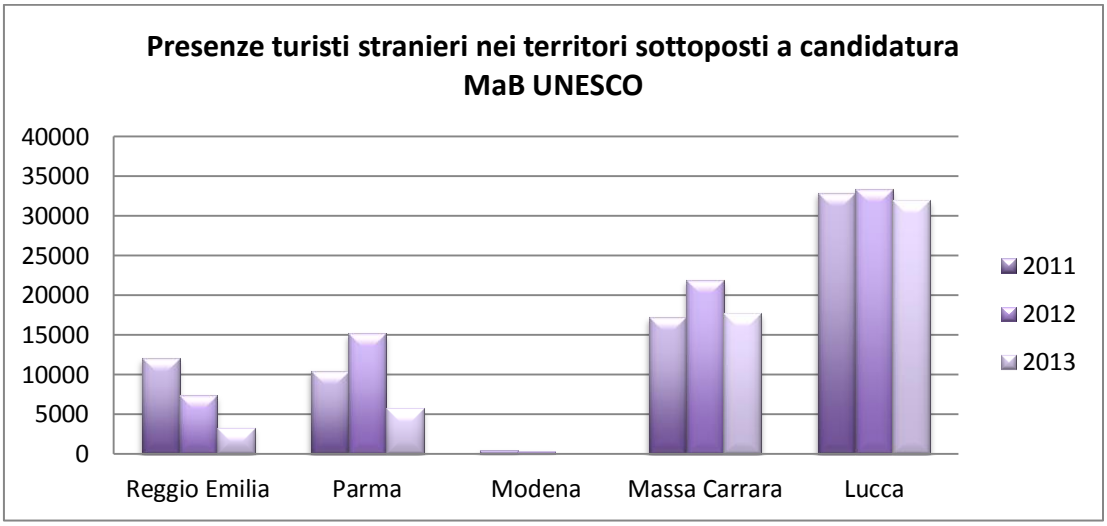



Figure 15-9. Foreign tourist presence trend.

The following diagram shows the relation between the 2012 tourist presence and the number of residents in each municipality involved in the Appennino Tosco-Emiliano UNESCO MaB candidature.

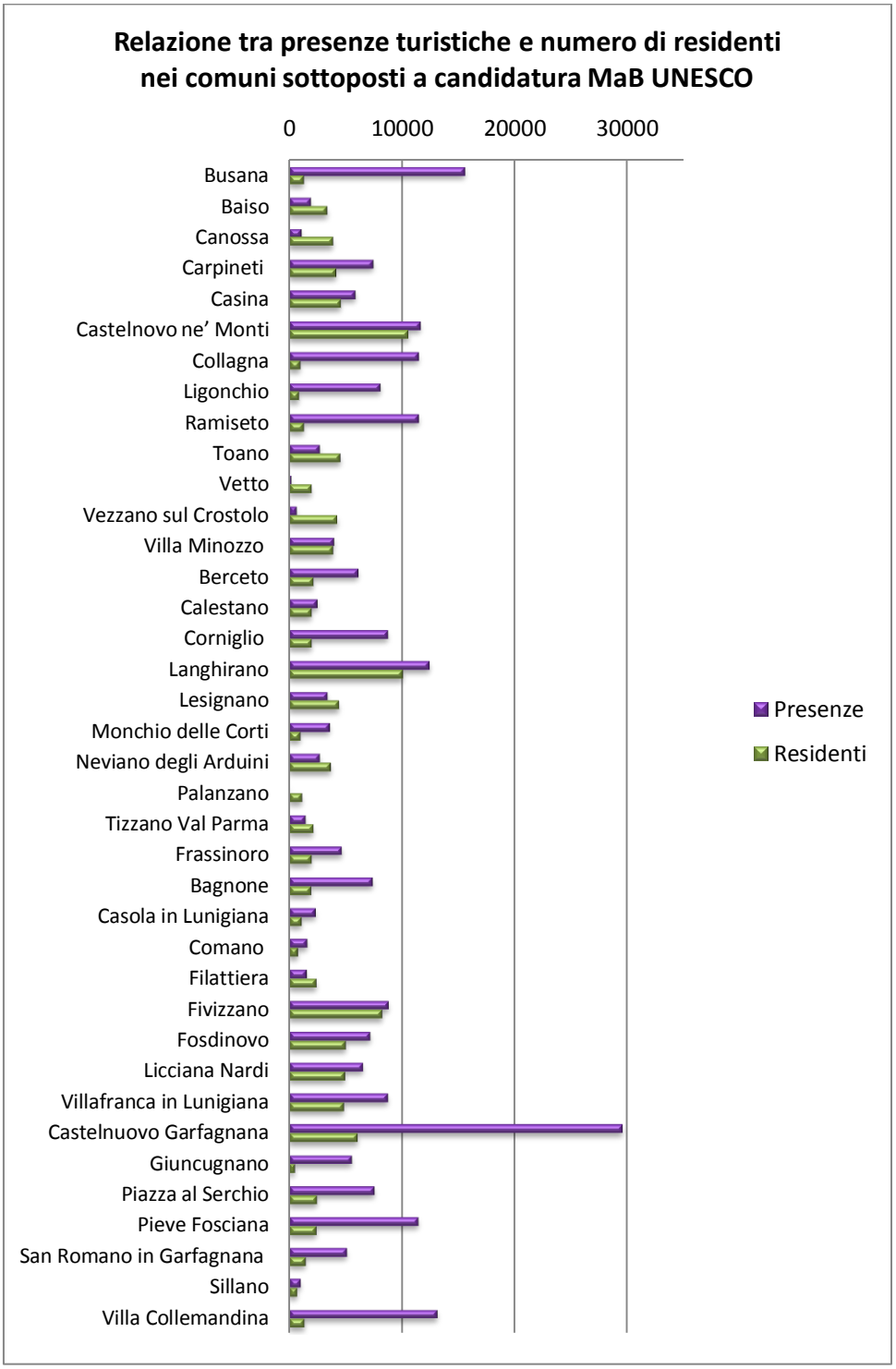



**Figure 15-10 Relation between the tourist presence in 2012 and the number of residents of each municipality involved in the Appennino Tosco-Emiliano UNESCO MaB candidature.**

The following diagram shows the number of days of average stay in the municipalities involved in the UNESCO MaB candidature.

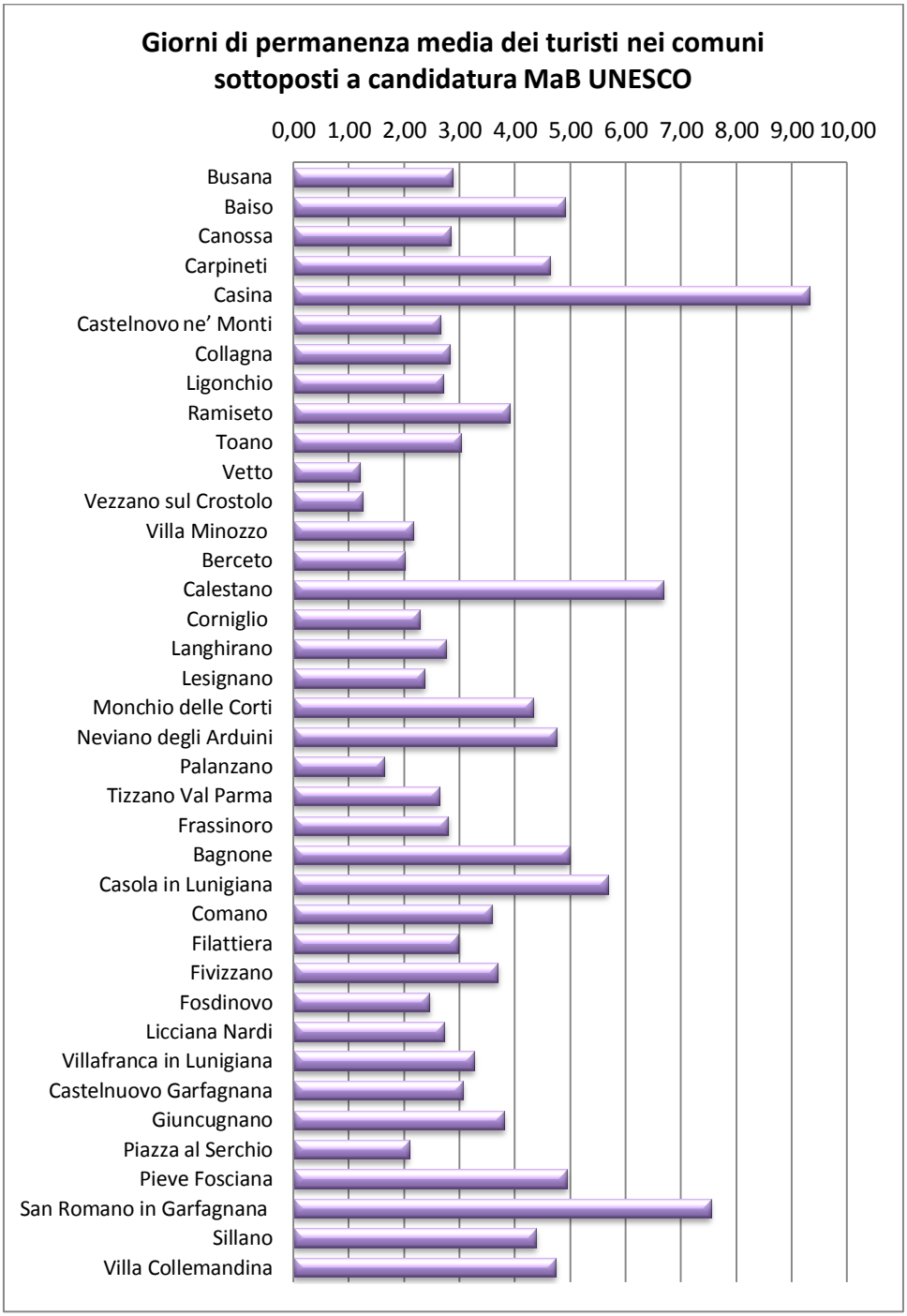



**Figure 15-11 Days of tourists' average stay in the municipalities involved in the UNESCO MaB candidature (for 2012).**

### 15.2.3. HOW ARE TOURISM ACTIVITIES CURRENTLY MANAGED?

Tourism activities in the candidate area are mainly run by family businesses and owners of agritourism establishments, hotels, restaurants and properties (rented homes).

There is a significant number of "returning" tourists (people and families originally from the local area who come back for their holidays and normally stay in properties owned by their families). There are also slightly more substantial facilities such as campsites (especially those in Cervarezza, Cerreto Laghi and Febbio), hostels (such as those in Sologno, the centre of Fivizzano, Terrarossa and Corniglio) and holiday homes that are run by small businesses, cooperatives, environmental associations and parishes. In addition, there is a growing and increasingly patronised network of refuges that are subject to rights of common or owned by the public or associations. They tend to be run by private managers.

The ski resorts are run by businesses supported by public funding. Public bodies also own a number of establishments, which tend to be run by private managers. The two regions work in their respective territories to promote and support tourism activities with their own laws, initiatives and promotion bodies.

Groups of operators are starting to form in the candidate territory, such as the Associazione Operatori Turistici della Lunigiana, Parco Appennino Turismo (Reggio Emilia) and Appennino Reale (between the Modena and Reggio Emilia Apennines). They are taking responsibility for organising promotion, development and training initiatives, using Web 2.0 tools, and creating and selling environmental and/or cultural packages for tourists. In addition, individuals, groups and companies have recently started offering professional environmental education, guide and accompaniment services.

In the summer months in particular, entertainment activities are often organised by the local authorities in partnership with voluntary organisations and associations for the promotion of the surrounding area. They normally bring together tourists and residents of all of the settlements in the territory, even very small ones.

Furthermore, people from other countries (especially the UK and the Netherlands) buy abandoned properties and use them for holiday homes in a form of "semi-permanent international tourism".

The National Park has worked reasonably effectively on schemes to make tourism more of a year-round affair. It has innovated and expanded the methods and locations for traditional winter tourism (with initiatives such as "Neve Natura", snowshoeing and snow trails) on the northern side of the mountains, while doing the same for autumn visits with projects such as "Autunno d'Appennino" and efforts to highlight the tourist and cultural appeal of the picturesque foliage and traditional identity-based and folklore events, including the numerous chestnut and mushroom picking festivals. It has also started a project ("Parco Bike") to put together cycle tourism packages and routes (especially between Parma and Lucca) and it supplies some operators with electric bicycle hire.

The National Park has also created a network of visitor centres. There are 9 at present and there will soon be 12. It has done this by making agreements in opportune parts of the territory with private operators and cooperatives that run accommodation facilities. It ensures that the centres are suitably furnished and supplied with interactive, multilingual tourism and cultural tools and equipment.

In terms of general Tourism management strategies, it should be noted that the Appennino Tosco-Emiliano National Park has recently begun to prepare for the introduction of the "**European Charter for Sustainable Tourism**" (ECST), which is a tool to safeguard and promote Protected Areas. All protected areas that sign up to the Charter must implement a local strategy for tourism activities, planning or development that guarantees long-term respect and preservation of natural, cultural and social resources while making a fair, positive contribution to economic development and the achievement of the full potential of the people who

live, work and stay in protected areas. In this sense, it presents an important opportunity to join together and select effective new forms of sustainable development for the territory and improve its ability to attract tourists.

In addition to the plans for the Park Authority to sign up for the European Charter for Sustainable Tourism, a number of environmental management schemes have been started in the territory. One of them is the European **Life + Ecocluster – Environmental Cooperation Model for Clusters** project, which aimed to develop a model for an environmental management system for "Clusters": territorial areas where there are a number of businesses of the same type and size. A pilot scheme was carried out in the Cerreto Laghi tourism cluster and the tourism operators in the area were invited to join a management committee.

### 15.2.4 INDICATE POSSIBLE POSITIVE AND/OR NEGATIVE IMPACTS OF TOURISM AT PRESENT OR FORESEEN AND HOW THEY WILL BE ASSESSED (LINKED TO SECTION 14)?

Tourism does not have any significant negative impacts, partly because of the low numbers of tourists in the territory at present. The only exceptions are a few areas on the north side of the Apennine ridge where ski resorts developed in the 1960s, 1970s and 1980s (Cerreto Laghi, Febbio, Schia, Prato Spilla, Ventasso, Ospitaletto, Civago and Pian de Lagotti). In recent years, some have closed and others struggle to open for the season due to the lack of snow. In some of the locations (especially Cerreto Laghi in the Municipality of Collagna), the built-up areas grew in a disorderly manner or in accordance with obsolete rules from past decades. Management of the ski runs and the production of artificial snow also have an impact, as do the large number of cars and coaches that travel to the areas on a few Sundays each year. In any case, the ski resorts are all small or very small and their negative impacts are in proportion with their limited size. This is especially true when it comes to waste production and management, the quality of the waste water, motor vehicle traffic, and the impact on wild flora and fauna of the rare busy periods in certain parts of the territory.

Meanwhile, it is already possible to note some positive impacts of the recent development of ecotourism, which is partly spontaneous and partly promoted by the National Park and the other protected areas in the territory (the Orecchiella Park, State Conservation Areas, the 100 Laghi Regional Park, the Frignano Regional Park, SCIs and SPAs).

The tourism model promoted by the Parks either implicitly or explicitly involves an environmental awareness programme and it is also indirectly encouraging tourism operators in the territory to learn about its environmental and cultural values, then pass on this knowledge to tourists.

Promoting ecotourism is also a way of targeting and attracting to the area tourists who pay close attention to environmental matters and are very demanding about them, meaning that they have a positive impact on the outlooks and services of tourism operators.

The key factor at the heart of the initiatives promoted by the Parks is awareness of all of the aspects and values of the territory. The schemes (such as "Di Onda in Onda", "Autunno di Appennino" and the "Menù a km zero" competition, as described in section 16.2) are helping to attract tourists all year round and ensure that arrivals during the winter are more evenly spread throughout the entire ridge territory (thanks to the "Neve Natura" project described in section 16.2) and not just in the ski resorts. This is encouraging people to open new tourism businesses in places that were not thought to be attractive enough until just a few years ago and helping to promote tourist services that supplement family incomes, such as B&Bs and agritourism establishments. In some cases (such as in Succiso, Cerreto Alpi, Apella and other places to a lesser extent), the introduction of new forms of tourism has played a decisive role in the survival of small villages in danger of being abandoned.

It is hoped that making the territory a UNESCO MaB Biosphere Reserve will allow these positive impacts to be strengthened and spread across a wider area.

### 15.2.5 HOW WILL THESE IMPACTS BE MANAGED, AND BY WHOM?

Dealing with the impacts of the development of tourism in the candidate MaB Reserve Area will be the responsibility of the Management Committee (see sections 17.1.8 and 17.4) and in particular the Appennino Tosco-Emiliano National Park and the Parma Chamber of Commerce, Industry, Agriculture and Small Business (CCIAA), which will be the members of the committee in charge of coordinating activities relating to environmental protection and promotion of economic development respectively.

The National Park is applying for the European Charter for Sustainable Tourism in Protected Areas (ECST) and it would like to extend its principles and objectives to the entire MaB Reserve area. They are:

- To involve all those associated with tourism in and around the protected area in its development and management.
- To prepare and implement a sustainable tourism strategy and action plan for the protected area.
- To protect and enhance the area's natural and cultural heritage, for and through tourism.
- To provide all visitors with a high quality experience in all aspects of their visit.
- To communicate effectively to visitors about the special qualities of the area.
- To encourage specific tourism products which enable discovery and understanding of the area.
- To increase knowledge of the protected area and sustainability issues amongst all those involved in tourism.
- To ensure that tourism supports and does not reduce the quality of life of local residents.
- To increase benefits from tourism to the local economy.
- To monitor and influence visitor flows to reduce negative impacts.

In order to extend the ECST principles throughout the Reserve area, it will be necessary to carry out a systematic campaign to raise awareness among the authorities, tourists and local people. The National Park will promote targeted learning initiatives to encourage the spread of good practices, including knowledge exchanges with other protected areas and territories that have significant experience in the field. It will support ongoing communication initiatives with the specific aim of establishing a growing sustainability culture among tourists and residents.

If the extension of the ECST principles throughout the Reserve area proves feasible and effective, it will be possible to integrate the ECST tourism strategy and the tourism sections of the Reserve Management Plan, resulting in synergies in their implementation.

In addition to the plans for the Park Authority to sign up for the European Charter for Sustainable Tourism, a number of environmental management schemes have been started in the territory. With regards to management of the environmental impacts of winter tourism in ski resorts, the European **Life** programme recently enabled the National Park to create the **Ecocluster – Environmental Cooperation Model for Clusters** project (http://www.ecocluster.it), which aimed to develop a model for an environmental management sys-

tem for "Clusters": territorial areas where there are a number of businesses of the same type and size. A pilot scheme was carried out in the Cerreto Laghi tourism cluster and the tourism operators in the area were invited to join a management committee.

The specific objectives of the Ecocluster project were:

- Developing and putting into practice an environmental management model for the implementation of the ECAP Action Plan (COM379/2007). The model seeks to encourage organisations that are part of a cluster (SMEs and Public Bodies) to utilise varied, accessible and tailored voluntary environmental management tools. These tools are:
- Varied because the implementation of an environmental policy may be based on one of the European Union's management schemes (such as EMAS, Ecolabels and Green Public Procurement) or a combination of them.
- Accessible because the cluster-based model helps to reduce consultancy, assessment and administration costs while ensuring that the results are still outstanding.
- Tailored because they cater to the characteristics of individual sectors and the complex features of organisations, as well as dealing with the typical environmental issues of clusters.
- In addition, the project aims to show that a cluster-based approach can effectively guide, support and improve the environmental competitiveness of SMEs.
- Creating a solid public-private partnership to develop an integrated environmental policy for clusters. In order to influence the environmental performances of clusters, it is essential to establish a public-private partnership. The Appennino Tosco-Emiliano National Park promotes the environmental management tools in its role as the Management Body for the territory covered by the model.
- Raising awareness among the organisations in the "Cerreto Laghi" cluster of the importance of complying with regulations and carrying out audits to check compliance with environmental regulations.

The long-term objective is to improve the environmental performance of the "Cerreto Laghi" tourism cluster. It is not possible to fully assess the attainment of this goal within the timeframe of the project, because an environmental programme normally runs for three years and the project timetable requires the environmental programme to be approved by the end of the third year of the project. More specifically, implementation of the model will improve the environmental performance of the "Cerreto Laghi" tourism cluster in the Appennino Tosco-Emiliano National Park. The model will promote greater energy savings and efficiency, thus helping to achieve the targets of the Kyoto Protocol for the reduction of greenhouse gas emissions.

Finally, it is crucial to ensure that the environmental impacts of visitors are kept to a minimum and within the territory's carrying capacity. One way of going about this is to take advantage of the incentives that are regularly offered by Chambers of Commerce, Industry, Agriculture and Small Business (CCIAAs) to boost the development of tourism organisation models and structures, with initiatives such as obtaining Ecolabel certification for the tourist establishments operating in the UNESCO MaB Reserve.

## 15.3. AGRICULTURAL (INCLUDING GRAZING) AND OTHER ACTIVITIES (INCLUDING TRADITIONAL AND CUSTOMARY):

### 15.3.1 DESCRIBE THE TYPE OF AGRICULTURAL (INCLUDING GRAZING) AND OTHER ACTIVITIES, AREA CONCERNED AND PEOPLE INVOLVED (INCLUDING MEN AND WOMEN).

The agricultural sector has historically been important for the mountainous area within the Reserve, due to the promotion of traditional products, which are plentiful on both the Emilian and Tuscan slopes, as well as the vital role this activity plays in stewarding and protecting the land, ensuring that it remains intact and stable, and preserving its natural and anthropic resources.

Data from the 6th Italian General Agriculture Census (2010) identify woodland as the most common use of the agricultural land within the area chosen for the Reserve, followed closely by arable land, and permanent meadows and pastures.

Despite this, the two Apennine slopes contribute in different ways to the composition of this complex agricultural framework. In terms of numbers, the most substantial contribution comes from the Emilian slope. Moreover, the amount of woodland on this slope has experienced a clear increase in recent decades, due to the gradual move away from agricultural and silvopastoral activities, which has facilitated the natural evolution of clearings and fields into woodland (these are not just areas that are environmentally disadvantaged due to their acclivity or altitude; indeed, many of these areas are suitable for agricultural use). While on the Tuscan slope the area covered by woodland, which is nevertheless an inferior amount, represents the main agricultural land use, arable land dominates the agricultural landscape on the Emilian side of the Reserve. This arable land is, however, mainly concentrated in the high-altitude sections of the hillside (Neviano degli Arduini and Langhirano in the Province of Parma, and Toano, Carpineti, Casina and Castelnovo ne'Monti in the Province of Reggio Emilia).

Permanent meadows and pastures also play an important role in the agricultural composition of the Reserve, mainly due to renewed interest in farming geared towards the production of high quality produce. In Emilia, this type of agriculture is centred on the rearing of dairy cows for the production of Parmigiano Reggiano cheese.

Figure 15-12 Permanent meadows dot the Pietra di Bismantova slopes

Key examples of land used for this purpose include the pastures and permanent meadows in the municipalities of Ramiseto, Villa Minozzo and Castelnovo ne'Monti, as well as in Tizzano Val Parma, Berceto and Corniglio.

Moreover, what has become known as the "landscape of Parmigiano Reggiano", an area made up of pastures interspersed with woodland, is one of the most emblematic scenes of this section of the Apennines. The continued practice of agriculture for the production of high-quality produce is, therefore, not only a vital asset for the local economy but something that helps to preserve the identity of the local landscape.

Furthermore, the entirety of the Reserve is impacted by renewed interest in the recovery and preservation of local animal breeds. For example, the animals reared in the municipalities of the Reggio Emilia Province are not just the red cows (the milk of which was probably used by monks to make the first Parmigiano Reggiano cheese around eight centuries ago) found in Baiso, Toano and Castelnovo ne' Monti – they also include Ventasso horses, Cornella Bianca sheep (which are at the centre of a project aimed at countering the gradual fall in sheep numbers) and Cornigliese sheep (which were originally only widespread in the Parma Apennines in the area of Corniglio). Other small-scale animal rearing activities on the Tuscan slope guarantee the conservation of local breeds of cow that are at risk of extinction, such as the Pontremolese and Garfagnina breeds, as well as traditional breeds of sheep such as the Massese (which are generally suited to the production of milk). This contributes to upholding biodiversity and local cultural traditions, which, in this area, are closely linked to rural life.

For example, in the Lunigiana area, the large amount of land given over to permanent meadows and pastures denotes the importance of livestock rearing (cows, sheep and goats), traditionally oriented towards the production of milk. Meanwhile, in hillside areas, wine production has historically played a key role in the agricultural economy, with vines stretching up until certain areas at the altitudinal limit for growing grapes (550m above sea level) within the production area. The importance of wine production is shown by the production of Val di Magra wines that are certified as IGT (Typical Geographical Indication). Another im-

portant production activity is that of honey. The first ever Italian honey with PDO (Protected Designation of Origin) status is from Lunigiana.

In the Lunigiana and Garfagnana areas, woodland and permanent meadows give way to an area of agricultural land that is small but nevertheless significant in proportional terms. This area is used for cultivating trees for wood. One of the main trees grown in the area is the chestnut tree, which accounts for over 94% of the trees grown in the Garfagnana area.

The entire area of the Reserve is affected by two widespread trends: a fall in the number of farms and a gradual increase in the size of the average business. The latter process, which has been under way for a number of decades, is at the same time accompanied by a progressive decrease in the utilised agricultural area. This has taken place due to less competitive businesses being pushed out of the market and their land being partially taken over by the surviving businesses or the businesses created out of mergers with the less competitive businesses. This phenomenon is particularly evident in the municipalities of the Apennine ridge and is also taking place in the dairy sector, leading to the creation of increasingly large companies that are better organised and more competitive.

In the mountain municipalities of Valle del Serchio, we can observe a structurally weaker agricultural economy made up of small and medium-sized companies that predominantly carry out farming on an extensive scale. It is chiefly the residential function of these companies that allows them to continue to operate, as does their ability to earn additional household income through other sectors. The importance of agriculture in these areas, therefore, lies in the fact that it reduces the risk of environmental deterioration by guaranteeing the presence of humans on the land. This role eclipses the productive function of agriculture.

In the Lunigiana area too, agriculture, which has always been one of the driving forces of the local economy, is predominantly a family-run business activity. The type of agriculture practised here is characterised in hillside areas by terraced slopes given over to the cultivation of grains, olives and grapevines, whereas in mountain areas it is made up of grain farming near to inhabited settlements and widespread chestnut groves that give way further up to a section of beech forests and then to seasonal alpine pastures.

However, the gradual consolidation of farming businesses can be observed in this area of the Reserve too. This is due to economic and practical reasons, as well as the progressive ageing of local farmers. While the quantities of produce generated have undergone very little variation on the whole, there has been a sharp decrease in the number of agricultural workers in absolute terms, as well as in percentage terms compared with workers in other sectors. This trend has not just taken place in the area of the Reserve but throughout Italy.

## SILVOPASTORAL FARMING ACTIVITY

A common feature of the high-altitude section (above 900m) is the presence of livestock farming. For communities in high-altitude areas, the rearing of sheep has historically taken precedence over the rearing of cows for reasons linked to the climate and orography of the area. The rearing of sheep, animals that are more rustic and less demanding than local breeds of cow, was the optimal way of sustainably exploiting the land and represented, along with chestnuts and firewood, the main source of livelihood for inhabitants of the area up until the 1960s.

Almost all of the families in the area had a herd, the size of which would range from a few dozen to over one or two hundred animals depending on the quality and acreage of the family's land, and the amount of human resources the family possessed. Families with larger-scale animal rearing operations would have to employ external help (farm hands).

In the high-altitude sections of the area, there was a lack of grassland that could be mowed for hay and the few pastures that existed were not very productive. As a result, transhumance took place virtually all across this area. The flows were mainly oriented towards the Versilia-Lucchesia plains, the Maremma region and, more recently, the Po Valley.

As well as being an economic phenomenon, transhumance had a cultural and interpersonal impact, and influenced local mores and customs. It is the reason for the wide range of linguistic, culinary and even behavioural influences present in the Emilian Apennines area of Tuscany. Several social phenomena originated from transhumance, such as the dramatic "Maggio" (the rural tradition of holding musical and dramatic rituals at planting time) and mixed marriages between people of the different regions. The practice also left a visible mark on the land by way of mountain passes and the historical road network, which, in this section of the Apennines, is also known as Via Maremmana.

Today virtually all of the livestock farms are sedentary and, as in the past, dairy sheep take precedence. The most common breed is the Massese sheep, which, given its medium-to-large size, is able to yield good quantities of meat. This breed has a very distinctive dark coat, which no other Italian breed of sheep possesses. Massese sheep currently make up around 70% of the total sheep in the area of the Reserve, which today stands at around 10,000 animals.

Produce obtained from local sheep rearing includes Pecorino cheese, which is produced widely both by family businesses and dairy factories.

Pecorino dell'Appenino Reggiano – the name for Pecorino cheese from this part of the Apennines – appears in the Official Journal of the Italian Republic (pursuant to Italian legislative decree 173/98 and ministerial decree 350/99) in the national annual list of traditional food and wine products. Meanwhile, the application process for obtaining PDO status for the cheese is under way. The variety of Pecorino cheese from the Reggio Emilia Apennines made with raw milk is already safeguarded by the Slow Food movement.

Higher up from the agricultural area made up of pastures for cows (mainly used in the production of Parmigiano Reggiano cheese on the Emilian side), the section of the Tuscan-Emilian Apennines included in the MaB candidate area is divided equally into woodland, pastures and meadows, and pastures (i.e. silvopastoral farming activity). The task of protecting biodiversity in this area is based on the modern-day interpretation of processes that are often inseparable from silvopastoral farming activity, which is multi-functional and gives the landscape its distinctive appearance: the alternation of woodland and pastures up to the point where arboreal vegetation ends (wooded areas are now starting to outnumber pastures due to the decline in animal rearing activity, which is putting at risk clearings, including the largest ones), riparian vegetation and hedges marking farm boundaries, the vast network of paths and tracks for use by shepherds and woodcutters, and the protection of springs to preserve the water resources that are vital during seasonal alpine grazing.

Across the whole of the MaB Reserve candidate area, we can note the presence of public assets for communal use (e.g. *usi civici* or rights of common). These assets, which have different denominations depending on the area, are closely linked to the silvopastoral agricultural economy, as well as originating from the need to guarantee families from the local mountain communities a common minimum level of revenue by allowing public access to the (wood) forests and pastures in the area. The existence and maintenance of this system has helped to efficiently uphold the historical use of the land over time. In addition, it is an example of sustainable development being adopted and managed directly, while involving the participation of the local communities affected.

## THE ROLE OF CHESTNUT TREE CULTIVATION

One of the most emblematic cases of this area of mountains and hills is the presence of chestnut groves. If any tree is to be considered as the symbol of the traditional Italian woodland landscape it is undoubtedly the chestnut tree, and this takes on particular significance in the Biosphere Reserve candidate area. For a long time, the areas covered in chestnut trees were considered as agricultural land, due to the fact that they yielded fruit. As a result, the idea that the sole purpose of trees was to produce firewood and timber did not apply to them. In actual fact, the wide range of products that can be obtained from chestnut trees – chestnuts for human and animal nutrition right up to ligneous products such as leaves – is, along with the plasticity of the species, one of the reasons why these trees occupy such a dominant position in the cultural landscape. The example of fruit-bearing chestnut trees is also emblematic of the scenic value of monumental plants found in the Italian countryside. Like in other cases, chestnut trees have for a long time enjoyed protected status within the natural landscape thanks to conversation activity, despite the fact that the oldest specimens are actually located within a number of fruit-bearing chestnut trees, which were undoubtedly planted by humans. Despite remaining a well-established activity in different parts of the candidate area, the cultivation and farming of chestnuts has undergone a period of decline. In addition to the neglect of this activity, another reason for the fall in the number of chestnut trees is disease, such as cortical cancer and ink disease. The trees have also declined due to destructive activities, such as the practice of extracting tannin from their bark following their neglect. In addition, more recently a non-native parasite known as the Chinese wasp (*Dryocosmus kuriphilus*) appeared in the area, causing damage to chestnut trees. For this reason, certain antagonist species have been introduced, although this has only taken place in the last few months and in certain areas of chestnut tree cultivation. Regarding ecological requirements, the extreme plasticity of chestnut trees means that it is difficult to introduce varieties which directly link their distribution to the altitudinal features of the area, since they are above all limited by their basic substrates.

The main reason for the important role played by chestnut trees in mountain areas was linked to chestnuts' greater nutritional yield per surface area unit compared with grains, given that their calorific yield per hectare was clearly higher than that of wheat (Pitte, 1986). Partly for this reason, chestnut trees used to be known as "bread trees".

The cultivation of chestnut trees required the presence of crop farming or pastures in order to keep the undergrowth clear, meaning the activity was closely entwined with agricultural activities. The leaves of the trees were used as either fodder or litter for animals, while coppices would produce a wide range of ligneous materials suitable for combustion at a time when coal was extremely sought after by blacksmiths. A number of artefacts were associated with the cultivation of chestnut trees, such as kilns for drying chestnuts and mills for producing flour. These items formed part of a complex system, which, combined with the use of leaves for animals, characterised the culture and landscape of a large part of the Apennines. The term "chestnut culture", used to describe all of the links between chestnut tree cultivation and society, perfectly expresses the richness of this web of traditional relationships.

After experiencing a period of neglect, the cultivation of chestnut trees has undergone a slow revival in recent years, which can be attributed to growing demand for chestnuts and timber, the abatement of the most devastating tree diseases and the acknowledgment of the important role the trees play within the landscape. Indeed, if managed correctly, the cultivation of chestnuts can serve a number of purposes, such as:

- generate income (including supplementary income, which is key to ensuring continued human mountain dwelling);

- protect forests in the area from hydrogeological instability;
- conserve the landscape;
- preserve the local area's historical and cultural heritage;
- maintain traditional agricultural and forestry systems;
- protect biodiversity.

### 15.3.2 INDICATE THE POSSIBLE POSITIVE AND/OR NEGATIVE IMPACTS OF THESE ACTIVITIES ON BIOSPHERE RESERVE OBJECTIVES (SECTION 14).

High-quality agriculture – an activity that is incentivised in the area – is beneficial to the Biosphere Reserve insofar as it represents and promotes within-farmland biodiversity (through cultivation and livestock rearing). In addition, this activity makes up a key part of the landscape, meaning that it needs to be conserved not just for production purposes but so that it can continue to enhance the scenic, historical, cultural and ecological values of the area.

The tradition of practising agricultural and forest activity together (please refer back to the example of chestnut trees, which are emblematic of the whole area of the Reserve) has, in itself, a positive impact on biodiversity conservation, development and logistics (both natural and within-farmland biodiversity), as well as on the diversity of the scenic mosaic that typifies the rural landscape. Moreover, although agricultural activity generally involves the use of fertilisers and pesticides, the fact that farming in the entire area of the Reserve is generally extensive minimises the impact of this activity on the environment. For example, in the production of Parmigiano Reggiano cheese, the pastures that produce fodder for the cows are not treated with any chemical substances and do not need to undergo many mechanical processes. Instead, the focus in this industry is on monitoring and maintaining high standards that aim to safeguard traditional techniques and practices relating to the pastures for the animals and the quality of animal feed.

It is important to highlight the role that the presence of humans plays in protecting the environment, particularly in the most rural, isolated areas. Maintenance and conservation activities, however minor, carried out by farmers have the potential to help to reduce the risks linked to hydrogeological instability and to prevent fires. These activities may include the maintenance of paths, terracing, dry stone walls and watercourses.

The widespread increase in the number of agritourism businesses in mountain areas between 2003 and 2012 – both on the Emilian and Tuscan slopes – reveals the renewed interest in the rural environment and in agriculture, as do the increasingly numerous promotional activities for local products with either PDO or PGI (Protected Geographical Indication) status. This fresh surge of interest has the potential to ensure sustainable development even in the most disadvantaged areas of the Reserve. The same observations can be made with regard to livestock. Although the maintenance of livestock requires a substantial amount of environmental resources – land and water – and involves the production of polluting substances (the use of sewage as fertiliser, occasionally to excess on the Emilian slope), the main characteristics of livestock rearing within the Reserve actually minimise the potential negative impact on the environment. As is the case for the cultivation of crops, livestock rearing activity is generally fairly extensive. On the whole, livestock farms in the area are small to medium-sized: data taken from the Italian livestock register as at 31/12/2010 show that the Tuscan slope, in particular, contains a large number of businesses that do not possess more than 10 animals each on average. Livestock rearing in peripheral areas, which would otherwise fall into decay or become unused, plays a vitally important role in protecting areas at risk of depopulation. The candidate area

has, therefore, a key example to set at national level, since it represents an area based on the understanding that humans make up an active part of a complex ecosystem – an ecosystem that can be studied by looking at the Biosphere Reserve. This observation is particularly evident in areas such as the Apennines, where the presence of human settlements brings with it both negative elements, such as the ruthless deforestation that took place in the past, and positive elements deriving from the forced cohabitation of humans and nature – a situation that has led to the creation of traditions, farming methods and processes involving the transformation of agricultural products, all of which have achieved harmony with nature over time.

### 15.3.3 WHICH INDICATORS ARE, OR WILL BE USED TO ASSESS THE STATE AND ITS TRENDS?

The number and size of local businesses, and the total number of workers employed in the sector are only three of the potential indicators for monitoring trends and developments in agricultural activity, and the positive impact of these on the area of the Reserve. A more useful method could be to gradually monitor trends affecting farms that are starting to offer accommodation and/or catering services, as well as companies that are choosing to focus – either exclusively or alongside other activities – on the production of high-quality produce (products certified as PDO, PGI or organic) or rearing native breeds of animal. In sensitive areas such as that of the Biosphere Reserve, an economy focused on quality rather than quantity, as well as on the protection and promotion of local produce, has the potential to provide added value to the Italian economy as a whole. In addition, another indicator that will be used is the number of farms that choose to take part in the forthcoming national Rural Development Programmes, the aims of which correspond to the development objectives that have been identified for the Biosphere Reserve.

### 15.3.4 WHAT ACTIONS ARE CURRENTLY UNDERTAKEN, AND WHICH MEASURES WILL BE APPLIED TO STRENGTHEN POSITIVE IMPACTS OR REDUCE NEGATIVE IMPACTS ON THE BIOSPHERE RESERVE OBJECTIVES?

The observations made in the previous sections lead us to view the history of agriculture in the area as the basis for a sustainable and replicable production system. For example, we should consider how local farmers have succeeded in reinventing themselves as entrepreneurs by maintaining the added value of their businesses through the transformation and marketing of their products, or the role that local businesses play in supporting the conservation of the area's environmental resources, including through the practice of traditional agricultural activities that are no longer sustainable in today's market economy.

With regard to livestock rearing, efforts are focused on keeping this activity extensive. The traditional method of rearing livestock that involved using pastures for at least six months of the year combines the proper management of grassland with the production of extremely high-quality products. The aim is for these products to be sold at competitive prices on the local and national market, precisely due to the production standards which they comply with, and their superior sensory and organoleptic qualities. The local authorities have carried out a large amount of work raising awareness among agricultural businesses in the area.

Initiatives that have been launched include:

- the introduction of natural antagonists against non-native chestnut parasites;
- the Paniere dei Parchi ("park hamper") project on the northen slope (see website: www.saporidiappennino.it);
- initiatives to promote crop and livestock farming, including for use in tourism;

- projects involving the Mountain Unions (former mountain communities);
- actions aimed at restoring within-farmland biodiversity in terms of crops and livestock (e.g. the recovery of ancient grains and products obtained in cultivars, such as Savuret, in the municipalities of Casina and Carpineti);
- actions undertaken by the associations and consortiums for the protection of traditional products certified as PDO, DOCG (Controlled and Guaranteed Designation of Origin) and PGI, and products safeguarded by the Slow Food movement.

Possible measures that still need to be applied include (NB: these will be implemented as part of the Reserve Management Programme; see paragraph 17.4):

- the provision of incentives and support for the cultivation of organic and biodynamic crops;
- initiatives focusing on integrated pest management and the promotion of this activity;
- maintenance of open spaces (meadows, pastures and clearings) by carrying out mowing and cutting on RN2000 sites with a view to conserving biodiversity;
- the application of a new regional law in Tuscany (the so-called "Rossetti" law) which will introduce a census of neglected agricultural areas and focus on ways of reusing these;
- the addition of new informative and demonstration-based events about local products via the National Park's visitor centres and via initiatives by the four Local Action Groups of the candidate area (these groups are responsible for implementing the Rural Development Programmes, Italian government schemes based on an existing EU model).

## 15.4. OTHER TYPES OF ACTIVITIES POSITIVELY OR NEGATIVELY CONTRIBUTING TO LOCAL SUSTAINABLE DEVELOPMENT, INCLUDING IMPACT/INFLUENCE OF THE BIOSPHERE RESERVE OUTSIDE ITS BOUNDARIES.

### 15.4.1. DESCRIBE THE TYPE OF ACTIVITIES, AREA CONCERNED AND PEOPLE INVOLVED (INCLUDING MEN AND WOMEN).

In addition to the above-mentioned food and agriculture sector associated with the production, curing and maturing of two outstanding products (Parmigiano Reggiano and Prosciutto di Parma), other production processing industries have developed both inside and outside the reserve using sales policies based on making the end products stand out from their rivals. For example, as well as supporting the production of Parmigiano Reggiano, the dairy supply chain provides both the local area and supermarket chains with a range of artisan quality products such as milk, yogurt, *panna cotta* and puddings. In addition, an ice cream parlour run by a social cooperative has been opened in Reggio Emilia. Other examples include companies that process products from the undergrowth and systems for trout breeding and marketing processed goods. Another business that has been expanding recently is cutting and selling firewood.

In addition to restaurants, ski resorts and tourism and accommodation services such as hotels, guest houses, bed and breakfasts, holiday homes, refuges, hostels and campsites, there is a growing number of innovative businesses that complement the range of tourist facilities all year round. They include Adventure Parks (such as Cerwood in Cervarezza near Busana, Forestavventura in Prato Spilla near Monchio delle Corti, Selva del Buffardello in San Romano in Garfagnana, and Parco Avventura Fosdinovo), organisations and associations that often offer alternatives to traditional sporting activities (such as canyoning, bouldering, mountain

biking, snow-shoeing and ski touring) and associations of Nature and Walking Tour Guides and Tourist Guides.

The staffing levels are good in the public school, health and social services. Pre-schools, primary and secondary schools and libraries can be found throughout the area. In addition, the vast size of the reserve means that it encompasses or is located near centres of a more urban nature (Langhirano, Castelnovo ne' Monti, Castelnuovo di Garfagnana and Fivizzano) where it is possible to find high schools, theatres, supermarkets, sports facilities and huge healthcare establishments, thus ensuring that it has a satisfactory supply of services of every kind and level. In some cases, they attain true excellence, such as in Castelnovo ne' Monti Hospital's Cardiac Rehabilitation Ward, which treats more than 400 patients every year, including some from other Provinces and Regions. Together with the National Park and the "Il cuore della montagna" association, in 2008 it opened a "cardio-friendly" path near the Pietra di Bismantova.

Although they are reasonably rare, there are also some industrial production businesses, such as hydroelectric power, agro-industry and – near the reserve – the ceramics industry, which has pits in the municipalities of Carpineti and Baiso. Stone quarrying and processing is another sector that can be found on both sides of the mountains in the reserve. It is a specialist field with historical origins that provides materials for construction and decorative products. There are still a few small quarries that supply sandstone for cutting, which plays an important role in the renovation and restoration of products and buildings. Cork is used to make stoppers in a historical activity that developed in Cervarezza when many shepherds brought the production techniques home after learning them in the Maremma area. There are still three or four companies remaining from the dozens of workshops that were founded in the 1950s. The cork production tradition was also exported by families of local craft workers, leading to the creation of two big industrial complexes: Eurosughero (which is based in the province of Parma) and Italsughero (which has factories in Reggio Emilia, Spain and Portugal).

Small businesses are widespread, with large numbers of service providers for the construction trade, subcontractors for nearby industrial districts, and retailers, even in the smallest villages.

In terms of business distribution, the community in the reserve is well balanced and rather vibrant.

Both men and women are employed in the spheres described above because there are no gender-based barriers when it comes to access to employment except for in the case of physically demanding jobs such as those that can be found in certain parts of the agricultural and manufacturing sectors.

The activities described above are concentrated in the transition areas.

In addition to the transition areas, tourist activities take place in the buffer zones, where people also cut wood and collect products from the undergrowth.

### 15.4.2. INDICATE THE POSSIBLE POSITIVE AND/OR NEGATIVE IMPACTS OF THESE ACTIVITIES ON BIOSPHERE RESERVE OBJECTIVES (SECTION 14). HAVE SOME RESULTS ALREADY BEEN ACHIEVED?

The above-mentioned activities are generally positive because they help to keep together the Apennine community, which plays a fundamental part in protecting the territory.

It should be noted that the hydroelectric power industry has a positive impact because it produces renewable energy, but it can also act as a negative force by creating critical situations in aquatic ecosystems.

All product processing and marketing activities are a means of promoting the territory and spreading knowledge and awareness about the value of their home territories, especially in terms of sustainable tourism and biodiversity in cultivation and breeding.

In recent years, there has been a considerable increase in forest growth, which can sometimes lower the quality of the landscape and even reduce biodiversity, so wood cutting is not considered to have a negative impact, especially as it is suitably regulated and a source of renewable energy.

#### 15.4.3. WHAT INDICATORS ARE, OR WILL BE USED TO ASSESS THE STATE AND ITS TRENDS?

The most effective indicators for monitoring the state of the activities are: the number of members of staff in each production sector, the employment rate (especially for young people and women), and public spending on the services provided.

#### 15.4.4. WHAT ACTIONS ARE CURRENTLY UNDERTAKEN, AND WHICH MEASURES WILL BE APPLIED TO STRENGTHEN POSITIVE IMPACTS OR REDUCING NEGATIVE ONES ON THE BIOSPHERE RESERVE OBJECTIVES?

Great care and more incisiveness must be shown when issuing and/or renewing permits for activities such as hydroelectric power production in order to reduce the risk of certain critical situations in river ecosystems.

### 15.5. BENEFITS OF ECONOMIC ACTIVITIES TO LOCAL PEOPLE:

The main benefits that the economic activities described in the preceding paragraphs bring to the local communities are: a fabric of small, fairly widespread businesses (albeit with some differences on the two sides) and acceptable employment rates (particularly when compared to the domestic Apennine situation or that of the European mountains). These are accompanied by the presence of public education, health and administrative services, which were historically extensive but are currently in decline due to a combination of budgetary constraints and a drop in users.

The income from existing public and private activities in the area is supplemented by revenue from pensions (which is significant due to the population's high median age, particularly in the zones on the ridge) and from the incomes of the many working men and women who "commute", i.e. that are employed in the surrounding industrial and urban areas. Economic activities, particularly those related to agriculture and tourism, bring further benefits to the active conservation of the landscape, opportunities for cultural exchange and community vitality, particularly on weekends and during public holidays, in addition to maintaining and creating a user base for the network of public and private services.

Unfortunately, specific data aggregation for the entire MaB candidate area to support these considerations is not currently available and is only available for parts of it or for provincial or regional aggregations (see section 15.5.2).

#### 15.5.1. FOR THE ACTIVITIES DESCRIBED ABOVE, WHAT INCOME OR BENEFITS DO LOCAL COMMUNITIES (INCLUDING MEN AND WOMEN) DERIVE DIRECTLY FROM THE SITE PROPOSED AS A BIOSPHERE RESERVE AND HOW?

As previously mentioned, it is not possible to accurately measure and separately quantify the benefits that the local communities derive directly from the territory nominated to become a MaB reserve. However, it should be highlighted that the aforementioned direct and indirect economic and employment benefits aris-

ing from agriculture and tourism, which represent two areas that are very important for the area's economic development, are directly related to the merits of the Tosco-Emiliano Apennines, which have been nominated to become a MaB Reserve. Without the underlying agrosilvopastoral systems and the processing and trading of such products, it is hard to imagine a raison d'être for the settlements spread over the area's small and medium towns, or them being economically sustainable. Without the environmental factor, it is not possible to imagine ecotourism developing, or even tourism full stop. The majority of agriculture-related businesses operate in the Transition Area, managing the territory in effect. With regard to Tourism, although most of the facilities fall in the Transition area (with the exception of the network of "Rifugi" (mountain refuges) partly in the Core area and partly in the Buffer zone and the tourist resorts of Cerreto Laghi (Reggio Emilia) and Cervarezza (Reggio Emilia), both in Buffer zone), tourists are drawn to this area mainly for the combination of nature and culture (the relationship between man and biosphere), which distinguishes the entire Reserve, the focus of which is, however, in the core areas. The recognition of the area as a Reserve could further increase income and intangible benefits, as it could bring about: a) cultural growth of the community: a mindful appreciation of the merits of the territory, cohesion, self-esteem, motivation in relation to studies, training, work, enterprise and an opening towards more wide-ranging exchanges; b) increased external recognition, with opportunities relating to tourism and the marketing of superior quality products.

### 15.5.2. WHAT INDICATORS ARE USED TO MEASURE SUCH INCOME OR OTHER BENEFITS?

At the moment there are none and there is no intention of adopting specific indicators.

With assistance from the Chambers of Commerce (primarily that of Parma, the Management Committee of which represents the stakeholders in relation to business, see section 17.1.8), the following factors are and shall be monitored with regards to the Municipalities:

- the ISTAT data and indicators where these can be separated out for the whole territory on demographic trends, GDP, employment and distribution of these data by sector, age group and sex, with a particular focus on the number of businesses and employees in the fields of agriculture and tourism, their turnover and youth and female entrepreneurship;
- the indicators and annual data of the Regional Environment Agencies (Agenzie Regionali per l'Ambiente) (Tuscany and Emilia), specifically in relation to biodiversity and factors relating to anthropogenic pressures.

## 15.6. SPIRITUAL AND CULTURAL VALUES AND CUSTOMARY PRACTICES:

### 15.6.1. DESCRIBE ANY CULTURAL AND SPIRITUAL VALUES AND CUSTOMARY PRACTICES INCLUDING LANGUAGES, RITUALS, AND TRADITIONAL LIVELIHOODS. ARE ANY OF THESE ENDANGERED OR DECLINING?

The territory of the reserve is steeped in rural culture and preserves the traditions and the spiritual, religious and cultural inheritance (see 10.3) shared by the peoples who live there.



**Figura** Errore. Per applicare 0 al testo da visualizzare in questo punto, utilizzare la scheda Home.**-1 Ospitale di San Leonardo**

In fact, since ancient times the ridge has never represented an obstacle to the exchanges between the two mountainsides and it still preserves nowadays the memory of ancient routes that were travelled for trade or religious reasons. These routes were known as the "Salt Routes" and were a network of paths that passed through the reserve - along the Val di Taro – and led to the sea, where goods were exchanged for salt, a precious product for food preservation. Other important routes were the transhumance routes, which passed from the Apennines through the Garfagnana and led to Maremma, and the Via Francigena, an ancient pilgrimage route that in the western area of the reserve passes through Berceto and continues towards the South in Lunigiana. The hospices for pilgrims represent a testimony to this important transit in the territories of the Reserve and were built in a symmetrical way on the two mountainsides to make the displacement of people and animals safer and easier. These hospices were present along the main track, such as the Ospedale di San Giacomo (Filattiera), as well as along the secondary trails, such as the ancient Ospitale di San Pellegrino in Alpe (Frassinoro) on the Via Bibulca (which now houses an ethnographic museum and still represents an important pilgrimage destination), the Ospizio di San Nicolao on the Valico di Tea (Giuncugnano) on the ancient route between Lunigiana and Garfagnaga, and the Ospizio di San Leonardo al Dolo (Villa Minozzo) along the Via delle Forbici, which has recently been renovated to host hikers once again. Oratories, sanctuaries, monasteries and wayside shrines were built along the itinerary and sometimes replaced the existing places of prayer, such as the rural church Pieve di Sorano (Filattiera) built on a site that has been a place of worship since prehistory (the stele statues and the tombs from the Iron Age bear witness to this) and the countless churches dedicated to the Saints worshipped by the pilgrims, that dot the Via Fracigena and its secondary trails.

In fact, the sacred and the transcendent are values that remained intact over the centuries and even over the millennia although their form, rituals and religious belief have changed. Some geological and naturalistic elements, considered sacred since prehistory, transmitted their fascinating power on peoples materialising afterwards in testimonial and architectural artefacts and preserving a symbolic value which is still recognised today and not only by the local communities. Suffice it to think about the magnificent Pietra di Bismantova (the "Mountain of Dante's Purgatory"), which was already a sacred mountain for the Etruscans and the Ligurians (the etymological hypotheses trace the name back to the Etrurian man, meaning carved stone, and tae, meaning altar for sacrifices); the Monte Valestra (Carpineti), inhabited by Ligurians from the IX until the VIII century B.C. and called

**Figure 15-13 Pieve di Sorano**

"sacred" because of the magical aura that surrounds it and generated from an interweaving of history and legends nourished by the presence of a tectonic cave known as the "Devil's Hole"; the Pania di Corfino (Villa Collemandina), whose toponym Pania probably has the same pre-Latin root of Apennines (for some researchers it even has a pre-Indoeuropean origin), in which pen means "summit, rise with sacred references".

The seventeenth-century Benedictine hermitage, erected on the site of a fifteenth-century church dedicated to the Most Holy Saviour, now stands at the foot of the Pietra. The oratory of San Michele dating back to the period before Matilda of Canossa and the seventeenth-century oratory of S. Maria Maddalena stand on the Monte Valestra, where the sacredness of this place has been handed down over the centuries through the construction of places of worship which are still a pilgrimage destination nowadays. The S. Maria Maddalena oratory was built on the remains of a fourteenth-century hermitage and it is one of the structures dedicated to the worship of this Saint on both slopes of the Apennines. This worship is still very common today in the popular awareness and was traditionally celebrated on the 22nd of July with big bonfires that could be seen from far away. A small oratory with a bivouac at the foot of Monte Ventasso (Busana) and the seventeenth-century oratory of Campanaia di Corfino (Villa Collemandina) are also dedicated to S. Maria Maddalena.

The "Maggio" is a meaningful, original and unique expression of the rural culture to be found on both slopes with its relevant peculiarities. It is a dramatic performance in sung verses played outdoors by singers in costumes which derives its origins from the ancient propitiatory rites of spring. This form of popular theatre was formerly widespread and nowadays has to be protected from the risk of extinction. It is also kept alive, renewed and cherished only and most of all in Garfagnana and in the Apennines of Reggio Emilia and Modena by several Maggio companies, a documentation centre in the Montalfonso fortress and a museum dedicated to Villa Minozzo.

THE DRAMATIC MAGGIO

It is one of the most interesting cultural and folkloric events of the Tuscan-Emilian Apennines, a traditional show of theatre and music. The dramatic Maggio is an authentic expression of the oral tradition of the communities that have handed it down until today and has its roots in the typical ritual expressions of the agro-sylvo-pastoral culture and in the propitiatory celebrations, from which it probably derived its name, i.e. "Feste di Maggio", "maggiolate", "maggio". The performances of the Canto del Maggio are held on summer afternoons in clearings (often chestnut groves), farmyards and squares. The spectators are arranged in a circle around the actors on the scene, who revive the stories of knights challenging each other to a duel in the eternal fight between good and evil. The texts, which are most of all inspired by the epic-chivalrous tradition, are written in aulic Italian (mainly quatrains of octosyllabic verses and octaves of hendecasyllables) and are sung by actors in costume accompanied by essential pieces of music played with traditional instruments (violin, accordion and guitar). The scenery is basic and handcrafted, the costumes are richly decorated and equipped with real armour. Every object in the scene (whether they are costumes, weapons or small buildings) is entrusted with a precise symbolic language, which accompanies the singing, the face mimicry, the movement of feet and the intense gestural code and together provide the interpretation to the whole show.

The Dramatic Maggio is popular in the entire Tuscan-Emilian Apennines and is spread nowadays by active companies in the Reggio Emilia and Lucca areas. The National Festival of Popular Theatre (Rassegna Nazionale di Teatro Popolare) celebrated the 36th edition this year and is held every summer gathering all shows in a single programme.

"La Galleria del Maggio" was set up in the regional capital of the Municipality of Minozzo. It is a museum on the Dramatic Maggio and a documentation centre where texts, costumes, drawings, pictures, videos, specialised magazines and scene objects are displayed to visitors in order to spread and preserve the memory of this ancient popular tradition.

Hence, the Tuscan-Emilian Apennines do not only host major historical events. In fact, they were mainly and are still nowadays a place of everyday life, sociability, cooperation and sharing of common spirituality and feeling. In brief, due to a decades-long loss of population and to signs of subordination and cultural decay deriving from the dynamics of industrialisation in the nearby districts on the plain and the coast, which prevailed and dominated until a few years ago, it is a place where people now tend to renew an awareness and a memory that has been lying dormant for centuries and to transmit to new generations a pride of identity that is positive, modern and open to the world.

Some contemporary musical bands and theatre companies, inspired by the cultural and environmental roots of the Tuscan-Emilian Apennines, sometimes use local dialects, such as: Lassociazione (Aforismi da castagneto, A strapiombo and Libere correnti dorsali are the meaningful titles of their albums), Anima Montanara (music based on the texts of local popular poetry), Corte Transumante di Nasseta (Saga, il canto dei Canti is an original form in Italy of the "Mountain barbaric equestrian theatre" and celebrates the thousand-year-old relation between men and horses).

The Apennines slopes are also linked by some traditional craft activities: a museum (Cervarezza – Reggio Emilia) is dedicated to cork manufacturing, an historical record of the bonds between the transhumant shepherds of the Emilian slope and the Tuscan world from which the raw material came. This tradition took root in the 19th century and is still common thanks to the qualified activity of some companies.

It is also worth mentioning the ancient crafts, some of which are in decline or have disappeared (the lumberjack, the coalman, the "picciarìn" – who worked and carved stone – the shepherd, the "cavallaro" and

the farmer) and some traditional food products which bring together all the territories of the reserve, such as sheep's milk cheese.

The most representative means of sustenance of the rural culture of the reserve is undoubtedly chestnuts, which are playing an important role again with the training and promotion of an extensive product chain.

The forest resource and its prevailing coppice use are regulated in the Emilian mountain area and in Garfagnana by the rights of common, i.e. plots owned collectively on which the members of the community exercised cultivation, grazing and forestry rights. Moreover, rights of common represent a real element of social organisation and cohesion.

These ancient crafts mixed with traditions and folklore, in their simple and ritual reoccurrence, represented the binding agent between people and the territory. The use of dialect is very widespread in all the territories of the reserve, especially among the older population. The dialects of Reggio Emilia and Parma are spoken on the Emilian slope and represent idiomatic varieties of the Emiliano-Romagnolo language that was recognised as a European minority language by the Council of Europe and was listed by UNESCO among the "Definitely in danger" languages in the "Atlas of the world's languages in danger".

In the Reggio Emilia Apennines and especially in the Vetto-Baiso line towards the high ridge, a combination of dialects is spoken, whose characteristics change even from one village to another. A dialect similar to the Emiliano-Romagnolo dialects is also spoken on the Tuscan slope, in the Lunigiana area.

The dialects of Alta Garfagnaga are also widely influenced by the dialects of Northern Italy, whereas the influences of the dialect of the Lucca area (a Tuscan form) become gradually less frequent as we go up the River Serchio and especially in the villages on the ridges. A dictionary of Garfagnino (Dizionario garfagnino) was recently published by the Bank of Identity and Memory of Garfagnana (Banca dell'identità e della memoria della Garfagnana).

### 15.6.2. INDICATE ACTIVITIES AIMED AT IDENTIFYING, SAFEGUARDING, PROMOTING AND/OR REVITALISING SUCH VALUES AND PRACTICES.

L The reserve extensively pays great attention to its history, traditions and cultural values which are recalled and told by means of initiatives, events, projects and exhibitions.

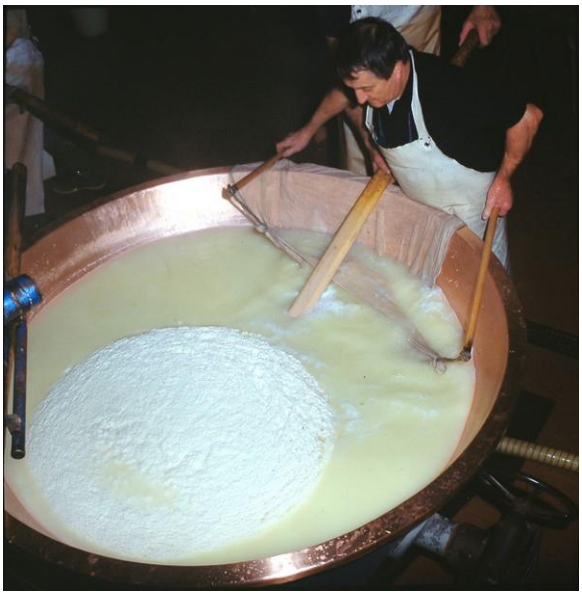
The use of dialect is still so alive in much of the reserve that it is the subject of studies, investigations, theatre performances (there is a large number of companies acting in dialect) and even publications, such as the "Dizionario garfagnino" (available on-line on the website of the Bank of Identity and Memory of Garfagnana, which is a centre that collects documentation and multimedia material on the history, culture and traditions of Garfagnana) and the newspaper, "Gazzetta di Parma", which also publishes articles in dialect in its website version.

Municipal tourist offices and the associations are very active everywhere and perform functions of social gathering and promotion of local identities. For example, the VillaCultura association in Villa Minozzo organises themed excursions, music courses, concerts, readings and events for children.

The associations are sometimes also in charge of collecting the rural cultural heritage in order to tell it to a wider audience. For example, this is the case of exhibition facilities such as the "Museo Uomo-Ambiente" of Bazzano (Neviano degli Arduini), that belongs to the network "I musei del mondo rurale" in Emilia-Romagna and was created by the cultural association, "Il camino", which is in charge of the management and cultural and research activity.

The museums of rural culture, scattered on the territory of the reserve and present in the five provinces, help to keep the memory of the different lifestyles alive by storing tools and recalling ancient rural practices. Among the many museums it is also worth mentioning the Provincial Ethnographic Museum of San Pellegrino in Alpe, the Museum of Rural Culture of Castelnovo ne' Monti (for which the Agriculture Institute Motti is the overseer and is responsible for running) and the Ethnographic Museum of Lunigiana in Villafranca in Lunigiana.

The museum of cork in Cervarezza has the specific task of narrating and protecting the traditional cultural heritage and also houses the mountain department of the tourist information office of Reggio Emilia, thus managing to attract a larger number of potential visitors.



The museum of Villa Minozzo celebrates the Maggio tradition permanently with a remarkable quantity of texts, theatrical costumes, charters of groups and associations, drawings, pictures, videos, specialised magazines and objects. The National Festival of Popular Theatre, which celebrated its 36th edition in 2014, also helps to preserve this traditional form of art and organises a schedule of road shows that take place between June and August in several places in Garfagnana and in the provinces of Reggio-Emilia and Modena, thus reuniting the villages of the Tuscan-Emilian Apennines with the celebration of a common tradition.

Another important action of promotion is represented by the numerous cultural and wine-and-food events, such as festivals and local fairs organised all over the reserve and based on the excellent products of this area, such as, to mention only a few: the Fair of Parmigiano Reggiano in Casina, the Festival of Parma Ham (that also involves the municipalities of Calestano, Corniglio, Langhirano, Lesignano de' Bagni, Neviano degli Arduini and Tizzano Val Parma), the Fair of the Apennine Horse in Comano, the Fair of the PGI spelt of Garfagnana in Piazza al Serchio, the Fair "Sapori" in Fivizzano dedicated to the typical Lunigiana products and the numerous festivals of chestnuts, mushrooms and wild berries. In addition to these events, there are also interesting marketing and promotion events connected for example to dairies and cheese factories, such as "I concerti della Via Lattea". The first edition of this festival was held in 2003 and since 2011 it has also included the concerts of "I Suoni DiVini". This festival aims to bring live music to unusual places such as cheese factories, gatehouse, cellars, vinegar cellars and other buildings related to the typical production activities of the Emilian territory.

The transhumance is another ancient cultural phenomenon that is recalled and celebrated with many initiatives, such as theatre and music events and hikes to retrace the ancient routes of the Apennines towards the Maremma passing through the Garfagnana. The entire ancient Via Francigena has been promoted for more than ten years thanks to the European Association of the Vie Francigene.

Among the effective actions put in place to preserve ancient traditions and customs, it is worth mentioning the functional architectural renovation work with an educational aim of the "metato", i.e. the place where chestnuts are dried before they are ground to flour. Even in the production of the renewed quality products, the ancient, original drying and grinding techniques are used again, and the use of ancient cultivars from the area is reintroduced. The presence of the Consortiums of chestnut growers, who are actively in-

volved in solving the problems connected with chestnut groves (Chinese wasp), contributes to give a new and further impetus to this plantation and to keep the chestnut culture alive, at the same time preserving the landscape of the chestnut groves, which was widespread and is now in decline in the entire Reserve.

Figure 15-14 woodcutters' huts in the Orecchiella area

Finally, it is worth mentioning that the National Park has recovered abandoned pastures in Logarghena and Orecchiella with projects connected to the promotion of local breeds such as the Corniglio sheep, the Massa sheep and the Garfagnina sheep. Moreover, the pastures of Ramiseto were also recovered and are now used by the Ventasso horse.

### 15.6.3. HOW SHOULD CULTURAL VALUES BE INTEGRATED IN THE DEVELOPMENT PROCESS: ELEMENTS OF IDENTITY, TRADITIONAL KNOWLEDGE, SOCIAL ORGANIZATIONS, ETC.?

By extending the *modus operandi* of the National Park to the entire MaB Reserve. Particular attention should be given to the economic, social and identity aspects involving relevant associations, Chambers of Commerce, schools and local associations.

### 15.6.4. SPECIFY WHETHER ANY INDICATORS ARE USED TO EVALUATE THESE ACTIVITIES. IF YES, WHICH ONES AND GIVE DETAILS.

The following elements will be efficient indicators:

- the quantification of the initiatives aiming to promote and enhance culture, to which the public as well as enterprises and associations subscribed;
- the number of tourists in visitors centres and museums (of Maggio, cork, rural culture, Italian resistance movement, etc.) and educational facilities (eg. "metati");
- the number of educational and teaching programmes in primary and secondary schools and universities.

More detailed indicators will be included in the Management Programme (see chapter 17.4).

# 16. LOGISTIC SUPPORT FUNCTION:

## 16.1. RESEARCH AND MONITORING:

### 16.1.1. DESCRIBE EXISTING AND PLANNED RESEARCH PROGRAMMES AND PROJECTS AS WELL AS MONITORING ACTIVITIES AND THE AREA(S) IN WHICH THEY ARE (WILL BE) UNDERTAKEN IN ORDER TO ADDRESS SPECIFIC QUESTIONS RELATED TO BIOSPHERE RESERVE MANAGEMENT AND FOR THE IMPLEMENTATION OF THE MANAGEMENT PLAN (PLEASE REFER TO VARIABLES IN ANNEX I).

The research and monitoring activities currently carried out in the Reserve territory are many and varied. They are mainly concentrated in the Core Areas and the Buffer Zones, which are more interesting from a scientific point of view because of the presence of the National Park and the Rete Natura 2000 sites.

In the MaB Reserve candidature procedure, we noticed the need to further promote research on the subjects that encourage the presence of man in an area of the Apennine ridge characterised by high biodiversity. This research should be carried out in an interdisciplinary way including the conservation of biological diversity, the development of compatible economic activities and the maintenance of existing cultural values. The strategy followed by the institutions is to stress the importance of interdisciplinary research more than has been done until now.

The National Park has dealt with research programmes and activities more than any other institution and has had valuable experience through its participation in important European and transnational projects.

The most important ongoing projects and programmes, that can be linked to the management programme of the reserve, are:

1) LIFE08 NAT/IT/000369 GYPSUM (www.lifegypsum.it): protection and management of habitats connected to gypsum formations of Emilia-Romagna (2010-2015). This project carried out many actions concentrated in a particularly important area, such as the Triassic gypsum outcrops (Buffer Zone and Transition Area). It also monitored habitats and *Chiroptera*, analysed the still existing threats and proposed intervention and action aimed at managing these fragile ecosystems in the medium and long term.

More specifically:

- monitoring habits, bat colonies and karstic aquifers;
- drawing up educational and information material (boards, leaflets etc.);
- educational activities in schools and information activities for the public (bat nights);
- drafting a management plan specifically for this karstic area;
- naturalistic restoration consisting in re-establishing the hydraulic and morphological system in the Fonti di Poiano area in order to protect habitats partially jeopardised, with the aim of strengthening biodiversity, which was richer in the past and has been considerably reduced by human actions. In this field, there are plans to reintroduce two species which had died out (Triglochin palustre e Carex Davalliana) in collaboration with the Veneto Agricoltura – Centro Biodiversità Vegetale e Fuori Foresta of the Veneto Region;

- setting up of an information area on the Triassic gypsum outcrops to explain its characteristic aspects: geology, geomorphology, speleology, underground system, the presence of habitats and species of community importance and natural features of this Site of Community Importance (SCI);

2) Following the important intervention of naturalistic restoration carried out on the Fonti di Poiano springs, a specific Ph.D programme (2014-2017) was started with the University of Modena and Reggio-Emilia (M3ES Models and Methods for Material and Environmental Sciences - Department of Life Sciences – "Census of Emilia Romagna's (Italy) ponds: location and ecological characterisation of different typologies for their management and conservation"). The objective of this PhD programme is to research, monitor and conduct an ecological characterisation in particular with reference to the natural restoration area of the LIFE GYPSUM, in the post-intervention phase. These actions will be useful for future management.

3) LIFE14NAT/IT/001129 BARBIE – Conservation and management of Barbus meridionalis and Barbus plebejus in the Emilian tributaries of the River Po. This project aims to preserve and recover the population of two native species of *Barbus* by repopulating the Emilian tributaries of the River Po in 14 sites of the RN2000 with *in situ* and *ex situ* interventions and the drafting of guidelines. (2014-2017). More specifically, the rivers of the Reserve involved in the conservation and management project of this fish population are the Rivers Enza and Secchia and the Parma stream.

4) LIFE 13 NAT IT 728 MIRCO – wolf "Reducing the impact of stray dog phenomenon on wolf conservation in Italy" (Minimizzare l'impatto del randagismo canino sulla Conservazione del lupo in Italia). Following the intense and fruitful research and management activity carried out by the National Park on the wolf, this project will give a further important contribution to science. This project has just started and aims to improve the conditions of wolf conservation by tackling the problem of anthropogenic threats connected to the presence of stray dogs, which have significant repercussions on the management of the entire MaB reserve.

5) "Definition of the geological and technical analysis on the state of instability of the Pietra di Bismantova (Castelnovo ne' Monti – Reggio Emilia)" (Definizione del Quadro conoscitivo geologico-tecnico inerente le condizioni di instabilità della Pietra di Bismantova (Castelnovo ne' Monti – RE)). Following an agreement with the Department of Chemical and Geological Sciences of the University of Modena and Reggio Emilia, this project aims to carry out a preliminary assessment of the state of instability connected to the geology and the geomorphology of the Pietra di Bismantova, an analysis of the risk deriving from tourism and the use of this area, and any possible mitigation interventions. This project focuses on the Core Area and Buffer Zone of the Pietra di Bismantova.

6) Moreover, the research and monitoring activities carried out recently on the habitats and species proved to be important in drawing up the Specific Conservation Measures and Management Plans of SCIs and SPAs present in the Reserve. The tools designed with the Rural Development Regional Plan by professionals, experts and university departments, whose approval process is in its final stage, update knowledge and provide precise instructions on the continuation of the monitoring and management activities in the Rete Natura 2000 sites present in the entire reserve and will be taken into consideration in the Management Programme of the Reserve.

7) The results of the study carried out in the framework of the project already completed, LIFE-NATURA "Conservation of Apennine fir and beech woods in Emilia-Romagna" on the target species of white fir, red fir, beech and yew, which are important for the conservation of the genetic heritage, led to management actions that can still be repeated and are to be included in the Management Programme of the Reserve. These actions are: the elimination of disturbance factors for relict coniferous populations; the recovery of

natural habitats with silver fir and red fir; the propagation of local specimens of silver fir and red fir; and activities to raise public awareness on the conservation of the genetic heritage.

8) Many municipalities and mountain groups of the candidate area that signed the Covenant of Mayors are about to conclude the SEAPs (Sustainable Energy Action Plans), which will also be able to provide management directions and instructions for the implementation of policies in the field of sustainable energy to be included in the Management Programme of the Reserve.

9) A fruitful collaboration with the University of Parma, with which there are some existing agreements aimed at:

- studying plant biodiversity in the sites of community interest on the Tuscan slope of the Appennino Tosco-Emiliano National Park;
- gaining knowledge on open and forest habitats that are evolving towards subsequent ecological stages.

### 16.1.2. SUMMARIZE PAST RESEARCH AND MONITORING ACTIVITIES RELATED TO BIOSPHERE RESERVE MANAGEMENT (PLEASE REFER TO VARIABLES IN ANNEX I).

The research and monitoring activities carried out in the Reserve territory were numerous and multidisciplinary. At the time it was established, the Appennino Tosco-Emiliano National Park included the Alto Appennino Reggiano Regional Park and part of the Parma and Cedra Valleys Regional Park, which represented the most important promoters and attractors of this kind of action.

Since its foundation, the National Park has carried out projects aimed to preserve wild species and landscapes and to promote educational and training activities and recreational activities with low environmental impact. Moreover, the Appennino Tosco-Emilioano National Park has promoted the conservation and enhancement of traditional activities as the expression of the cultural identity of the local communities.

The Reserve territory, in particular with regard to Core Areas and Buffer Zones which represent the most suitable conservation areas thanks to their biotic and abiotic components, took part in important European and transnational projects. In this context, it is important to mention LIFE Projects, whose structure allows research and monitoring activities to be included as well as concrete management actions, educational actions and actions to divulge results at frequent time intervals. In particular, the Reserve territory benefited from and was partner in the following projects that have now been completed:

1) LIFE09/ENV/IT//000188 Enviromental Cooperation model for cluster - ECO-CLUSTER: this project developed a model of environmental management system for small and medium-sized enterprises and experimented it in a tourism cluster (2010-2014). It is comprehensively described in the dossier and can represent a model to be repeated and proposed to other areas of the Reserve. Hence, this model should be taken into account in the drafting of the Management Programme.

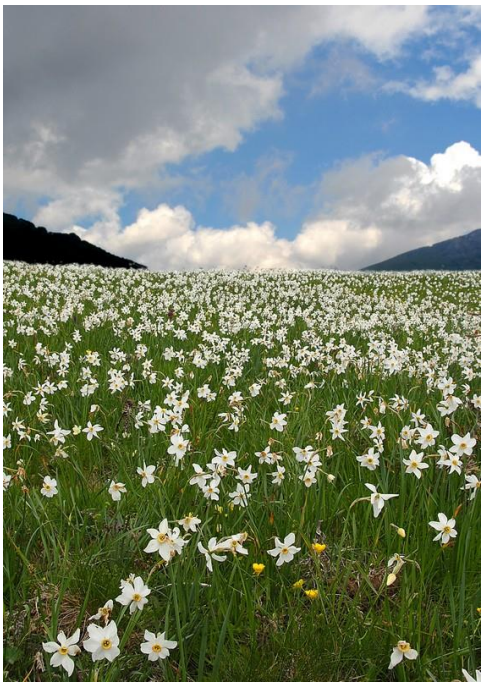
2) LIFE07/NAT/000502 EXTRA (www.lifextra.it): this project monitored wolves, bears, ungulates and the damage to livestock and provided assistance for agricultural enterprises (2009-2013). In the candidate area, particular attention was given to one of the most serious hindrances to wolf conservation, i.e. the conflict with the interests of local populations. Hence, since the presence in the territory of wolves continues to be considered a menace to human activities (and sometimes to man), people continue to display a negative attitude towards these large carnivores. In this context, the objective of the Life EX-TRA project was to promote the competence of the actors involved in conservation with reference to crucial topics, such as biolog-

ical and ecological aspects, interaction with other species, management of conflict and involvement of interest groups.

3) Co.R.E.M. – Sub-project C Establishment of a MARITIME observatory (www.projectcorem.eu). Cooperation of the ecological Networks in the Mediterranean (Italy-France) with actions aimed at recovering and protecting endangered sites, identifying and exchanging good practices and devolving responsibility to stakeholders involved in its management. This project was carried out in collaboration with the University of Parma (2010-2013).

Moreover, even the Alto Appennino Reggiano Ragional Park and part of the Parma and Cedra Valleys Regional Park benefited from 5 LIFE projects:

1. LIFE: LIFE95NAT/IT/000610 Conservation measures of relic populations of Abies alba Miller, Picea excelsa Lam., Taxus baccata L. and of their natural habitats in the Emilia Apennine



2. LIFE96NAT/IT/003115 Preservation and conservation of Canis Lupus populations through biological surveys and non-poaching

3. LIFE97NAT/IT/004163 Conservation actions for Apennine Abies alba and Picea excelsa forests and Apennine beech forests with Abies alba.

4. LIFE00NAT/IT/007214 Wolf conservation actions in 10 SCIs in three parks of the Emilia-Romagna region

5. LIFE00NAT/CP/IT/000046 Carnivores and zootechnics: tools for damage prevention

These protected areas carried out important studies and research and supported many degree and PhD theses (**see the list in annex**), which dealt with some significant and useful topics for the management of the reserve, such as: biological-ecological approach in the management processes to define the minimal vital water flow of some mountain streams; many studies on the wolf and the effects of its presence; analysis of management and conservation interventions on some lakes; protection of springs; solutions for hydrogeological construction works on some streams; use of the habitat of wolves, wild boar and roe deer; environmental quality assessment of streams in relation to tourist flow and socio-economic assessment of the Apennine territory.

Moreover, the park of the Reggio Emilia Apennines started with the Department of Ecology of the University of Pavia the “Study of populations of rare and endangered flower species” (Studio delle popolazioni delle specie floristiche rare e minacciate) in order to detect suitable conservation techniques by sending the seeds of some species to the laboratories of Kew Gardens (United Kingdom). Together with the university department, the territory took part in the European project “GLORIA” aimed at determining the effects of global warming on mountain plant species. Two of the 4 Italian sites are within the Reserve (Alpe di Mommio and Monte Casarola).

We also would like to mention the following concluded projects of the National Park:

“Landscape Project” (Progetto Paesaggio – in collaboration with Diproval, the Department of Food and Agriculture Protection and Enhancement of the University of Bologna) – “Study on the evolution of the agricul-

tural and forestry landscape in the Appennino Tosco-Emiliano National Park" (Studio dell'evoluzione del paesaggio agro-forestale nel Parco Nazionale dell'Appennino Tosco-Emiliano) (2008-2009);

"Knowledge and Enhancement of geological heritage" (Conoscenza e Valorizzazione del patrimonio geologico, in collaboration with the Department of Earth Sciences of the University of Modena and Reggio Emilia). This project involved universities and the Italian Speleological Society in research activities (which also included initiating degree theses and providing scholarships) which allowed information on the main geosites of the Park (Pietra di Bismantova and Triassic gypsum outcrops) to be developed;

"TRIAS I e II", (in collaboration with the Italian Speleological Society and the Department of Earth Sciences of the University of Bologna). This project monitored the Fonti di Poiano area (in the Triassic gypsum outcrops), which represent one of the most important karstic aquifers of the Northern Apennines with a subsequent improved definition of its intrinsic vulnerability. The project also carried out a speleological research in the Sassalbo area (Fivizzano, Massa-Carrara, Triassic evaporites) and detected the main hydrogeological characteristics of the karstic springs present in the area.

"Mobility between the Po Plain and the Tyrrhenian Sea: archaeology and history between Canossa and Luni" (Viabilità tra pianura padana e tirreno: archeologia e storia tra Canossa e Luni, in collaboration with the Department of Archeology of the University of Pisa): research projects with archaeological excavations in Emilia and Tuscany;

"Research and study action to classify the plasters and the bedding mortars produced using gypsum to carry out the restoration works of historical buildings and monuments set in different places of the National Park, characterised by their proximity to Triassic gypsum outcrops" (Azioni di ricerca e studio per la caratterizzazione degli intonaci e malte di allettamento realizzati con l'utilizzo del gesso, per la realizzazione degli interventi di recupero dell'edilizia storica e monumentale situati in diverse località del Parco Nazionale, caratterizzati dalla vicinanza di affioramenti di Gessi Triassici – Institute of Diagnostics and Experimentation for the Restoration of Cultural Assets, Bologna). This study also proved to be useful in the choice of restoration typology for some buildings of architectural and cultural importance.

"La Valle del Tassobbio". This study was carried out by various authors in 2011 and analysed all the aspects (naturalistic, historical, archaeological and geological-geomorphological) of an important valley of the candidate area which extends over 5 municipalities and has been included in the Protected Landscape of the Reggio Emilia Hill – Lands of Matilde (Paesaggio Protetto della Collina Reggiana - Terre di Matilde). This study has been published and represents a useful tool to upgrade this area by raising awareness and motivating the local community.

### 16.1.3. INDICATE WHAT RESEARCH INFRASTRUCTURE IS AVAILABLE IN THE PROPOSED BIOSPHERE RESERVE, AND WHAT ROLE THE BIOSPHERE RESERVE WILL PLAY IN SUPPORTING SUCH INFRASTRUCTURE.

The Biosphere Reserve can encourage the implementation of a system for collecting and monitoring data about ecology, socio-cultural aspects and training and educational activities. Thanks to research structures, it will be able to plan and carry out multidisciplinary study and analysis programmes on the themes of biodiversity, innovative models able to promote a sustainable socio-economic development of local populations, climate changes and the teaching of science. Its aim will be to spread knowledge and awareness in order to guarantee the protection of ecosystems by making experimentation and demonstration instruments available.

The University of Modena and Reggio Emilia will mainly have research and monitoring functions and offers itself as advisor for scientific activities within the Management Committee of the MaB Reserve. It will also work closely with other universities (especially those of Bologna, Parma, Pisa and Florence which are already active in the Reserve territory, as well as with foreign universities) and research institutes (the National Research Council (CNR) and the Higher Institute for Environmental Protection and Research (ISPRA)) on the key themes of the candidature to the MaB programme of the Tuscan-Emilian Apennines.

Even other structures and services, institutional and not, such as Observatories of the Chambers of Commerce, Regional Agencies for the Protection of the Environment (ARPA), Regional Services (Geological and Seismic, Waters, Nature, Basin Technical Services), the Foundation Reggio Children, the International School of Italian Cuisine of Parma (ALMA), the Bank of Identity and Memory of Garfagnana, the network of municipality libraries, civic museums of the 5 county town's provinces, the National Park with its scientific technical staff and the WAC (Wolf Apennine Center).

All these structures with existing tools such as university laboratories and museums, monitoring stations data (meteorological, air, water, hydrogeological instability), astronomical observatories, the atelier of Water and Energy, the lab on the nature of the Apennines (Dedalus) together with universities and research institutes can give their own important contribution upon request of the Management Committee of the Reserve by activating degree and PhD theses on relevant subjects, such as the registration of climate change.

## 16.2. EDUCATION FOR SUSTAINABLE DEVELOPMENT AND PUBLIC AWARENESS:

Environmental education is one of the fundamental tasks directly entrusted to National and Regional Parks by the framework law No. 394.

In the Appenino Tosco-Emiliano, activities of environmental education as "a value in its own right" and as a support to the promotion of the territory have increased in terms of quantity, quality and complexity with many different contents, forms, time schedules and partnerships with public and private actors.

The environmental education proposed by the Parks did not have an academic approach and aimed to combine the proposals connected to environmental problems and values with the knowledge and the identity of the territory. One fundamental choice has already been tested and proved to be positive. It consists in proposing disciplinary and educational contents together with the physical, sensory and relational experience by immersing oneself in the territory and staying there for at least 24 hours. Thanks to this choice, it was possible to achieve more or less directly a complementary investment on the promotion of the territory in the medium and long term.

The initiatives on environmental education focused on:

a) the allocation of an annual budget to state schools in the territory, which is combined every year with a training workshop addressed to head teachers and teachers on micro research projects on the environment and/or the parks. These projects are carried out and managed autonomously by schools and teachers in the framework of their ordinary curriculum (in 2014 the workshop will be held on 11 and 12 September and will deal with the themes proposed for the candidature process to the UNESCO MaB programme described in this document).

b) events/stays/courses directly organised by the Park. These events are currently represented by Neve Natura and Autunno d'Appennino, which already have a set format and aim to show seasons, places and specific opportunities in different parts of the territory to advantage. They are organised in cultural modules of a similar type but in a flexible way depending on weather, place and the public's requirements. For each event, organisers use the services (courses, guided tours and logistics) and the places that are the most suited to the features of the programme.

c) the realisation and management of the “Atelier of Water and Energy from Wave to Wave” (Atelier delle Acque e delle Energie di Onda in Onda), in collaboration with ENEL and according to the educational approach of Reggio Children. This Atelier is a CEAS centre (Centre of Sustainable Education) recognised by the Emilia-Romagna region and is located at one of the entrances to the Park. Moreover, it is one of the three strategic projects identified by the PPES (Multi-Year Economic and Social Plan) thanks to the fact that it is an excellent centre for educational research based on the Reggio Approach. It represents an intangible Made in Italy whose value is recognised internationally (for example Reggio Children is designing the Children's Park for the Expo Milano 2015). The Atelier of Ligonchio represents a unique educational proposal which can be combined with other kinds of offer and should be available to school groups and families for at least the whole solar year.

d) the realisation and management of Dedalus (laboratory of protected nature) in collaboration with the Province of Reggio. The structures and the management have, to all intents and purposes, been entrusted to a private operator (the Cerwood Adventure Park) according to a specific agreement.

e) the realisation and management of projects with specific targets, such as “WAC – life ex-tra” and “Life Gypsum”, which used the facilities of the Park (Pala lupo). The tourist information centres and info points of the Park collaborate in different ways and provide logistical support.

In line with its institutional aims, the Appennino Tosco-Emiliano National Park organises environmental education projects, the art of teaching science and awareness-raising on topics connected to sustainable development that have been studied to involve a public made up of people of different ages and experience. The activities carried out in the National Park focus on a direct approach with the environment, science and art. It is an approach based on problems, is not ideological and neither is it *a priori* affirmative. Direct experience and the search for answers by everyone are part of a programme in which the environment, with its values, logics and contradictions, naturally encounters the “wonder of knowing” the basic elements of the physical and natural world.

The specific objectives of the different activities, the working approach and the languages and the methodologies used depend on the audience. The aim is to create together the critical instruments necessary in order to understand, from a modern point of view, the importance of the conservation of natural resources, the exploration of ecosystems and the interpretation of historical and anthropological aspects of the landscape.

Hence, the candidature as a "Biosphere Reserve" represents the chance for Appennino Tosco Emiliano to integrate the "classic" themes of environmental education with a more in-depth analysis of the territory and by supporting the perpetuation of the extensive mountain agricultural supply chains and sustainable eco-tourism.

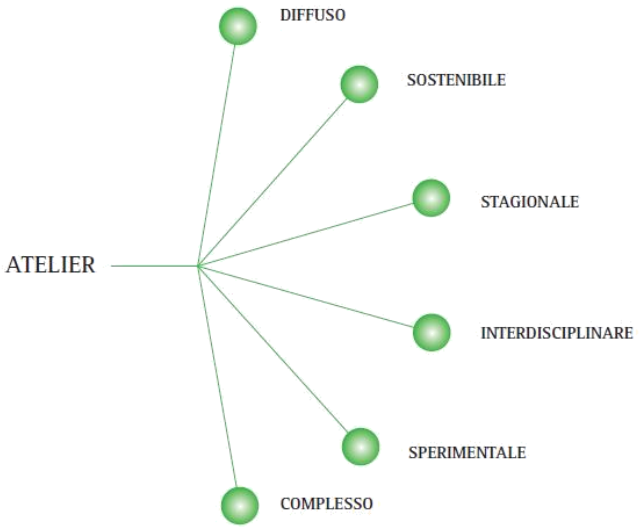
Environmental education in the MaB Area of the Tuscan-Emilian Apennines aims to become a laboratory of sustainable development, able to spread knowledge and awareness so as to guarantee the protection of ecosystems and at the same time to experiment innovative models that can instil a modern culture of sustainability and territory in young people and, in general, in local people.

It will also, and most of all, be thanks to environmental education that the conservation and development functions of the MaB area of the Tuscan-Emilian Apennines will be closely linked. In fact, conservation action can only be successful through a process of increased awareness, involvement and training of local people, who will have the chance to benefit from the social and economic rebirth only by understanding the singularities of their territory.

Furthermore, as mentioned above in point c), the National Park aims to place at the heart of the environmental education programmes a new educational approach to scientific subjects, which has been proposed by the Atelier of Ligonchio in order to promote a firm idea of childhood and education and to improve the quality of life of the children and the families in the communities.

This experience, the approach on which it is based and its elaboration, together with the collaboration with local schools, is also meant to play a crucial role both in the candidature and management of the Biosphere Reserve. The educational approach of the indoor and outdoor ateliers (workshops organised not only inside but also outside, using nature as a "classroom") experimented in Ligonchio aims to become an important educational and cultural reference for the entire Apennine area which has applied to become a MaB reserve.

The Atelier of Ligonchio has been created with a "vision" that puts water and energy together. A greater awareness of the relationships between water and energy is also the first objective declared by the United Nations for the World Water Day. The "Atelier di Onda in Onda" is a place where it is possible to explore both the physical phenomena and the matter and expressive qualities of water and energy through experimentation and exploration in specifically designed settings which offer plenty of materials and opportunities. The cognitive approach proposed by this project encourages children, young people and adults to look at things in an unusual way, to be curious and to raise questions on what is apparently impossible to explain, to research and try again, to formulate hypotheses and theories and to try to confirm them through experimentation.




The characteristics of the Ligonchio Atelier.

The characteristics of the Atelier are described below due to the peculiarity of its educational experience and approach.

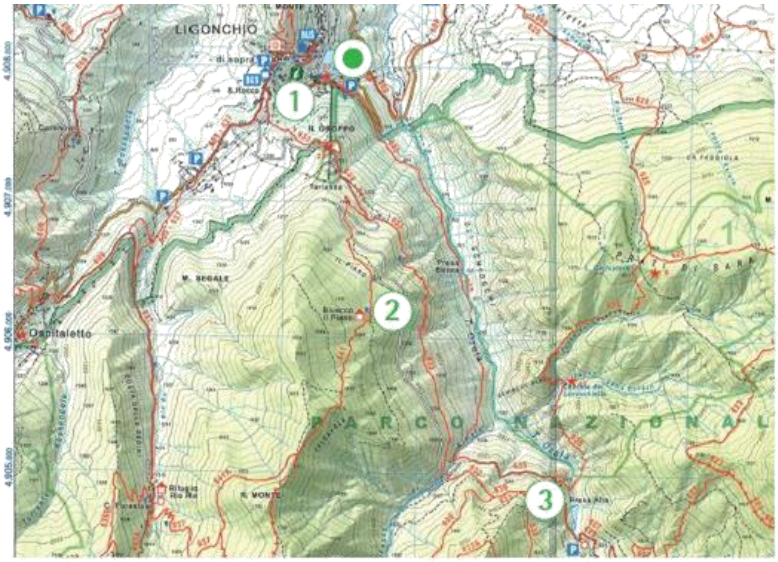
“Di Onda in Onda” is an indoor and outdoor atelier, i.e. multiple, differentiated and comprising several experimentation places, called “camps”, located in the territory. There are external spaces, considered suitable and located within the area of the Park, and internal spaces, located within the Enel hydroelectric power plant and in the headquarters of National Park in Ligonchio, so as to ensure the presence of a single big workshop where exploration and external and internal experimentation mingle and stimulate one another. This allows children and young people to explore some phenomena of nature in the external spaces by delving into the environment and the seasons in a perceptive and emotional way which makes experimentation more comprehensive and allows them to join in more easily. In order to have a quality learning process, it is necessary for pleasure and effort to be present at the same time: a participatory motivation to learn is a fundamental element that adults should always consider when planning and arranging environments for children to work in individually or in groups. All the spaces in the workshop are designed taking into account the relationship one with the other and the seasonal changes, without a linear progression but with possible processes and combinatory explorations, whose main point of reference is the theme of sustainable development.

More in general, the atelier culture, which originated in the framework of the educational experience in day nurseries and kindergartens in the Municipality of Reggio Emilia, means keeping creativity and rationality, theory and practice together. It also means gaining experience, creating connections and “thinking with your hands”. In this sense, the ateliers represent unusual experiential contexts in which to train creative thinking, learn in groups and experiment with different "languages".

It is also worth underlining the continuous efforts of the National Park to extend this collaboration to other parks, bodies and all the institutions that can potentially offer and receive know-how from the National Park in terms of sustainable development, conservation and environmental education.

In this context of “exchanging knowledge”, collaboration with the University of Parma is particularly active, with which the National Park has stipulated agreements (see paragraph 16.1) aimed at:

- the study of plant biodiversity in sites of community interest on the Tuscan slope of the Appennino Tosco-Emiliano National Park;
- the acquisition of knowledge on open and forest habitats that are evolving towards subsequent ecological stages;
- scientific collaboration within the framework of the project “Cooperation of Ecological Networks in the Mediterranean - CoREM” (Cooperazione delle Reti Ecologiche nel Mediterraneo – CoREM), sub-project C




The different “camps” of the Ligonchio Indoor and Outdoor Atelier.

"Establishment of a MARITIME observatory" (Istituzione di un Osservatorio MARITIME) for activities regarding the monitoring of habitats and plant species protected by the Habitats Directive, the experimentation of monitoring methods on sample areas of the Ecological Network and data representation (University of Parma).

Finally, it is worth mentioning the memoranda of understanding with several Universities, the Cinque Terre National Park, the Montemarcello-Magra Regional Natural Park, the 100 Laghi Regional Park, the Frignano Park and the Alpi Apuane Park.

### 16.2.1. DESCRIBE EXISTING AND PLANNED ACTIVITIES, INDICATING THE TARGET GROUP(S) AND NUMBERS OF PEOPLE INVOLVED (AS "TEACHERS" AND "STUDENTS") AND THE AREA CONCERNED.

The activities, projects and initiatives of environmental education that have been promoted over the last few years by public and private actors, and whose reference targets are students, teachers, local communities, tourists and visitors, have been mentioned in the previous point and are further described in the reference annex. This annex describes more precisely the main initiatives carried out especially by the Appennino Tosco-Emiliano National Park, the 100 Laghi Regional Park and other organisations active in the territory of the Reserve. For every initiative there is a description of its educational aim, its reference target (teachers, students, tour operators, families, tourists etc.) and the number of users that it has reached.

However, throughout the territory which has applied to become a MaB Reserve there is widespread awareness of the importance of environmental education and sustainability. In fact, there are other "organisations" with well-structured activities and offers, such as the Orecchiella State Natural Reserve, the Rossena and Campotrera Regional Reserve, the ECOPARCO of Pinetina di Vezzano sul Crostolo, the Central Emilia Land Reclamation Consortium (Consorzio di Bonifica dell'Emilia Centrale) and many operators (tourist information centres of the Park, cooperatives and nature and walking tour guides) which carry out activities addressed to schools and, in general, to the public.

Moreover, it is worth mentioning the specific actions which involved the reserve territory with the support of the National Park and various institutional actors:

- the archaeological excavation campaigns on both slopes, that are scheduled or have already been carried out and directly involve university students, teachers and museums. As usual these campaigns are combined with educational visits to excavations and exhibitions of the most important findings for the general public;
- international exchange projects: (a) the participation in the LLP (Lifelong Learning Programme) Comenius programme; (b) the cooperation with the Jiuzhaigou National Park in China, in the Sichuan province which is a World Heritage Site and was also recognised as a MaB Reserve in 1997. Geological and naturalistic studies will be initiated and will include student exchanges between the University of Modena and Reggio Emilia (Department of Chemical and Geological Sciences) and the Sichuan University, whose professors have already visited the Appennino Tosco-Emiliano National Park; (c) training programmes on sustainable development have been initiated with the Paul Smith's College of New York, one of the most prestigious institutions in the USA, located within the Adirondack Park.

| Environmental education and sustainability projects | Proposer authority/organization | period | target and participation | aims | n. of users |
|---|---|---|---|---|---|
| **Di Onda in Onda – Atelier delle Acque e delle Energie (From wave to wave – water and energy workshop)** | Appennino Tosco Emiliano National Reggio Children | since 2010 | Children, kids and families, teachers, pedagogists, searchers | new educational approaches to scientific themes such as water and energy | 14.500 (students, teachers…) |
| **La Scuola nel Parco (School in the Park)** | Appennino Tosco Emiliano National and Coordination center for scholastic qualification (CCQS) | since 2008 | Students, families, teachers, school heads of every level schools from municipalities inside and nearby the Park, educators, pedagogists, Park technicians and collaborators | Training activities and annual teaching projects achieved in synergy with local schools | over 470 teachers over 80 projects with schools (for over 10.300 students involved) |
| **Wolf Apennine Center – W.A.C.** | Appennino Tosco Emiliano National | since 2010 | Children, kids and families | Wolf conservation and management | over 5.000 participants in awareness activities (2010-2014) |
| **Life EX-TRA** | Appennino Tosco Emiliano National Parco Nazionale dei Gran Sasso e Monti della Laga, Parco Nazionale dei Monti Sibillini, Facoltà di Selvicoltura e Ingegneria Forestale (Brasov, Romania), Balkani Wildlife Society (Bulgaria), Ministero dell'Ambiente e dell'Acqua (Bulgaria), Callisto ONG (Grecia) | 2009-2013 | Children, kids and families | Wolf conservation and management | over 4.000 participants in awareness activities (2010-2014) |
| **Progetto CoREM** | Regione Toscana, Regione Liguria, Regione Sardegna, Corsica | 2007-2013 | Children, kids and families | Enhancement of naturalistic heritage | over 360 users in training courses, events at Park visit centers, fairs and educational tours |
| **Dedalus** | Appennino Tosco Emiliano National | 2014 | Children and kids | Knowing the Park: its biodiversity and services, by the means of playing games and informations given by pictures | partial fact (activity started in 2014): 1500 users |
| **Estate Nel Parco (Summer in the Park)** | Appennino Tosco Emiliano National – Regione Toscana | 2010-2014 | Children and kids (8-13 years old) | Environmental education | 1368 users |
| **Neve Natura e Cultura d'Appennino (Snow, Nature and Culture of Apennine)** | Appennino Tosco Emiliano National | 2007-2014 | Children and kids | Environmental education | 6149 users (2007-2013) |

| Environmental education and sustainability projects | Proposer authority/organization | period | target and participation | aims | n. of users |
|---|---|---|---|---|---|
| **Autunno nel Parco – Castagneto Scuola** **(Autumn in the Park-chestnut grove school)** | Appennino Tosco Emiliano National | 2009-2013 | Children and kids | Environmental education | Around 350 users (with 912 overnights) |
| **Fare per capire in Appennino** **(Doing to appreciate in Apennine)** | Appennino Tosco Emiliano National – Provincia di Reggio Emilia | 2006-2008 | Kids from high-schools | study-work stays, with accomodation at the community, doing practical activities aimed at increasing knowledge of territory. Purpose: to promote exchange between inhabitants and young students, to let grow new opportunities for Apennine territory | Around 200 users (with 1900 overnights) |
| **Life Gypsum** | Appennino Tosco Emiliano National – Parco dei Gessi Bolognesi, Parco della Vena del Gesso Romagnolo, Province di Reggio Emilia e Rimini | 2010-2014 | Children and kids | Environmental education: to gain knowledge of the value of gypsum formation and of its biodiversity | 1800 users |
| **Con Demetra** | Municipality of Casina (RE) | 2008-2014 | Inhabitants and schools | education to sustainability through witnesses | 2200 users |
| **Programmi di Ed. Ambientale nella Riserva Regionale Orientata Rupe di Campotrera** **(Environmental education programs in Regional Reserve Rupe di Campotrera)** | Riserva Regionale Rupe di Campotrera – Municipality of Canossa (RE) | 2000 -2014 | schools-families-inhabitants-tourists | Activities for schools, concerning biodiversity, geology and ways of using Ophiolites rock of the Reserve | 600 users per year |
| **ECOPARCO Pinetina di Vezzano sul Crostolo (Little Pinewood in Vezzano sul Crostolo)** | Provincia di Reggio Emilia, Municipality of Vezzano sul Crostolo | since 2007 in structured way | schools-families-inhabitants-tourists | activities of environmental education for schools, families and inhabitants | 15000 users per year |
| **Parco nel Mondo** **(Park around the world)** | Appennino Tosco Emiliano National | 2008 -2014 | inhabitants and emigrants of Apennine ridge | Enhancement and promotion of cultural heritage | 360 emigrants associations reached, 116 institutions involved (2009-2013) |
| **Aquila reale** **(Golden eagle)** | Appennino Tosco Emiliano National | 2008 – 2010 | schools-families-inhabitants-tourists | activities of environmental education and to biodiversity | 160 users per year; conventions and open events |

| Environmental education and sustainability projects | Proposer authority/organization | period | target and participation | aims | n. of users |
|---|---|---|---|---|---|
| **Orizzonti Circolare - Ambasciatori del terzo millennio (Circular Horizons- messengers of 3rd Millenium)** | Appennino Tosco Emiliano National | 2008 -2014 | inhabitants and emigrants of Apennine ridge | Enhancement and promotion of cultural heritage | 225 requests received |
| **P.A.R.C.O. Paesaggio Agricolo Rurale Culturale Ospitale (Agricultural Rural Cultural Cosy Landscape)** | Parco regionale dei Cento Laghi | 2009 – 2010 | children/kids 3-16 years old | activities of environmental education and to rural culture | around 800 children/kids from local schools |
| **La Percezione della Biodiversità (Perception of biodiversity)** | Parco regionale dei Cento Laghi | 2013-2014 | nursery schools, elementary and middle schools | Discovering biodiversity in school garden, by the means of playful activities | 210 students from local schools and extra-territory |
| **Il Parco come bene comune (Park as a common asset)** | Parco regionale dei Cento Laghi | 2013 – 2014 | nursery schools, elementary and middle schools | Environmental education activities to schools and inhabitants | 60 children/kids from local schools |
| **La Montagna incantata (Enchanted mountain)** | Consorzio di Bonifica dell'Emilia Centrale | 2012-2014 | inhabitants, visitors, tourists | cultural project for school | 2000 users (2012-2013 edition) |

Besides those described in the annex, many initiatives and activities have been carried out by public and private actors in the territory of the Tuscan-Emilian Apennines.

In order to carry out a census of these activities, a survey was produced through the Web tool, Google Drive. It can be quickly filled in and has been sent to all the public and private actors of the UNESCO MaB programme candidate territory.

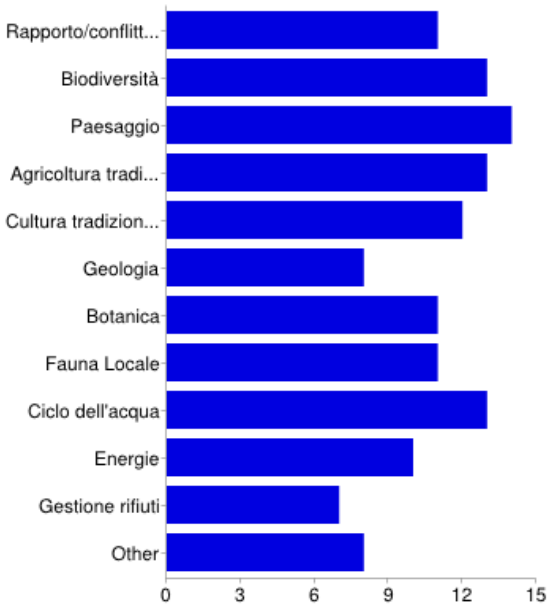
The results of the questionnaire are described hereinafter. The copious data show that the approach of education on sustainability, knowledge and protection of the biosphere and conservation of traditional habits and customs of local communities is widely spread and consolidated.

From the sheets contained in the previous pages and the data given below, it is possible to observe that over the last few years environmental education activity in the Biosphere Reserve candidate territory has been able to deal with very different subjects by targeting various categories, from education for kindergarten and primary school children to university students as well as professional training for teachers and operators from the tourism and agriculture sectors.

The organisations surveyed, including enterprises, associations, tour operators and self-employed professionals etc., were 20, located in the UNESCO MaB programme candidate territory in the provinces of Reggio Emilia, Parma, Modena, Massa-Carrara and Lucca. The results of the survey carried out between March and June 2014 are described hereafter.

The diagram below shows the topics dealt with by the organisations during the environmental education activities. It is possible to deduce that the main topics dealt with are the landscape, biodiversity, traditional agriculture and typical products, and the water cycle.

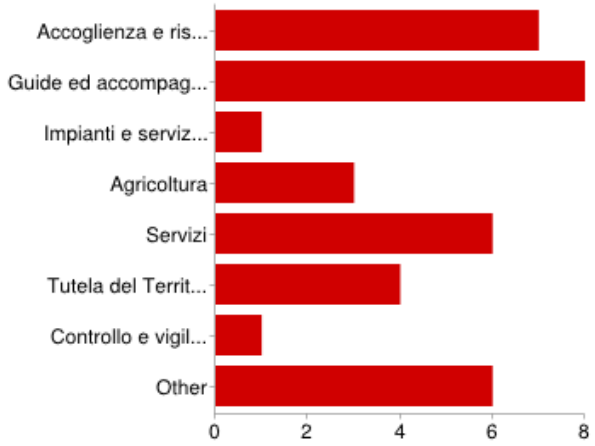
**Principali temi affrontati nelle attività di educazione ambientale**




| | | |
|---|---|---|
| Rapporto/conflitto uomo-biodiversità | 11 | 8% |
| Biodiversità | 13 | 10% |
| Paesaggio | 14 | 11% |
| Agricoltura tradizionale e prodotti tipici | 13 | 10% |
| Cultura tradizionale, archeologia e storia in Appennino | 12 | 9% |
| Geologia | 8 | 6% |
| Botanica | 11 | 8% |
| Fauna Locale | 11 | 8% |
| Ciclo dell'acqua | 13 | 10% |
| Energie | 10 | 8% |
| Gestione rifiuti | 7 | 5% |
| Other | 8 | 6% |

In all the cases (100% of the interviewees), it was possible to notice that the environmental education activity does not represent the only activity carried out by the organisations which, in most cases, deal mainly with "Guides and tours" and "Hospitality and catering".

**L'attività di educazione ambientale rappresenta l'unica attività svolta dall'organizzazione?**



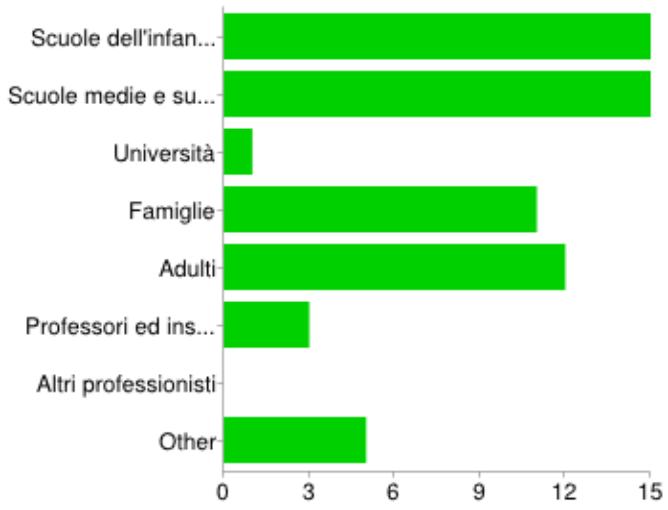

| | | |
|---|---|---|
| Accoglienza e ristorazione | 7 | 19% |
| Guide ed accompagnamento | 8 | 22% |
| Impianti e servizi sportivi | 1 | 3% |
| Agricoltura | 3 | 8% |
| Servizi | 6 | 17% |
| Tutela del Territorio e della biodiversità | 4 | 11% |
| Controllo e vigilanza del territorio | 1 | 3% |
| Other | 6 | 17% |

The organisations surveyed carry out environmental education activities in the territory of the Appennino Tosco-Emiliano. To be more precise, the territories that have been at the centre of the environmental education activities until today are the following:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Baiso | 0 | 0% | Berceto | 2 | 2% | Filattiera | 0 | 0% |
| Busana | 7 | 7% | Calestano | 0 | 0% | Fivizzano | 0 | 0% |
| Canossa | 3 | 3% | Corniglio | 6 | 6% | Fosdinovo | 0 | 0% |
| Carpineti | 1 | 1% | Langhirano | 4 | 4% | Licciana Nardi | 2 | 2% |
| Casina | 2 | 2% | Lesignano | 0 | 0% | Villafranca | 0 | 0% |
| Castelnovo ne' Monti | 6 | 6% | Monchio delle Corti | 5 | 5% | Castelnuovo Garfagnana | 3 | 3% |
| Collagna | 6 | 6% | Neviano degli Arduini | 3 | 3% | Giuncugnano | 1 | 1% |
| Ligonchio | 6 | 6% | Palanzano | 3 | 3% | Piazza al Serchio | 3 | 3% |
| Ramiseto | 6 | 6% | Tizzano | 4 | 4% | Pieve Fosciana | 2 | 2% |
| Toano | 0 | 0% | Frassinoro | 0 | 0% | San Romano in Garfagnana | 3 | 3% |
| Vetto | 1 | 1% | Bagnone | 0 | 0% | Sillano | 3 | 3% |
| Vezzano | 2 | 2% | Casola Lunigiana | 0 | 0% | Villa Collemandina | 1 | 1% |
| Villa Minozzo | 4 | 4% | Comano | 0 | 0% | Altro | 6 | 6% |

The diagram below shows the targets of the environmental education activities surveyed. To date, schools are the main target:

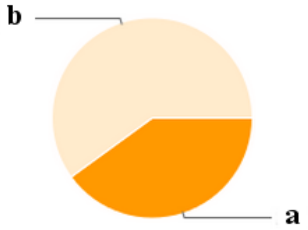
**Quali sono i target principali dell'attività di educazione ambientale?**




| | | |
|---|---|---|
| Scuole dell'infanzia e primarie | 15 | 24% |
| Scuole medie e superiori | 15 | 24% |
| Università | 1 | 2% |
| Famiglie | 11 | 18% |
| Adulti | 12 | 19% |
| Professori ed insegnanti | 3 | 5% |
| Altri professionisti | 0 | 0% |
| Other | 5 | 8% |

Moreover, the survey showed that, in 67% of the cases, the environmental education activities are carried out by organisations supported by external actors, such as cooperatives working in the territory, nature guides, associations, parks etc.

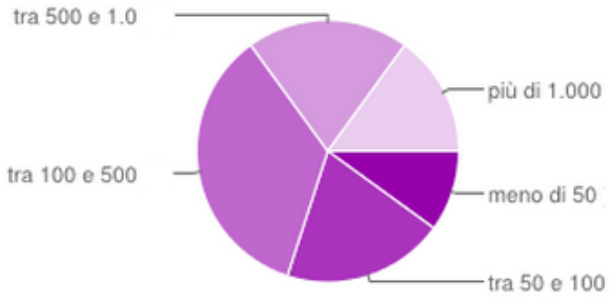
**L'attività di educazione ambientale viene svolta in autonomia o con il supporto di altri soggetti?**




| | | |
|---|---|---|
| a | L'attività viene svolta prevalentemente in autonomia | 40% |
| b | L'attività viene svolta prevalentemente con il supporto di altri soggetti | 60% |

Furthermore, the organisations surveyed are able to involve a large number of users during the environmental education activities. In fact, it emerged that most of them involve a number of users that ranges from 100 to 500 persons/year.

**Qual è il numero di partecipanti alle attività di educazione ambientale (numero/anno)?**




| | |
|---|---|
| meno di 50 | 10% |
| tra 50 e 100 | 20% |
| tra 100 e 500 | 35% |
| tra 500 e 1.000 | 20% |
| più di 1.000 | 15% |

### 16.2.2. WHAT FACILITIES AND FINANCIAL RESOURCES ARE (OR WILL BE) AVAILABLE FOR THESE ACTIVITIES?

In the last few years the pursuit of environmental education activities and scientific research carried out in the Biosphere Reserve candidate territory was made possible thanks to the Parks and the public actors appointed for this activity (Centres for Sustainable Education, State Reserves, Schools) which can count on qualified personnel and specific economic resources.

On the other hand, the private actors providing environmental education services were able to carry out their activities thanks to self-financing based on the provision of fee-paying services.

Activities, whether public or private, reached a significant approval among users also thanks to the several facilities supporting initiatives, that are attending all over the Reserve territory: many libraries; a network of trails sustained by audio guides, well-maintained and equipped with mountain lodges and bivouacs for hikers; Nature Trails and guided itineraries of many types and difficulty; visitors centres and info points of the National Park (even those outside its boundaries), where in addition to traditional services (documentation, information, thematic examinations, souvenirs) are available food services, accommodation, selling of typical products, training activities, hike or holiday planning; museums (of the “Maggio”, of cork, of country life, of mangers, of printing, the “Madoi – outdoor museum”); ecomuseum of Lunigiana mountains, ecomuseum of Enza and Secchia valleys; botanical gardens “Pania di Corfino” and “Frignoli”; little restored buildings with historical value (mills, chestnut dry kilns) now used as educational or accommodation facilities; “Atelier of water and energy” inside Ligonchio hydroelectric power station and “Dedalus”, workshop about Apennine’s nature, dedicated to biodiversity.

Both the public and private actors working in the territory in the environmental education sector proved skilful in attracting higher-level funds to support their initiatives (community, ministerial, regional, provincial financing channels or banking foundations and private actors).

Despite the economic situation of Italy, there is no reason to believe that this widespread heritage of competencies and economic resources available for the development of environmental education in the territory of the Tuscan-Emilian Apennines will stop in the years to come. On the contrary, it will continue its activity by supporting the specific needs that the Biosphere Reserve status will require of the territory and this recognition will further strengthen the desire for coordination and collaboration that already characterises the *modus operandi* of the involved actors.

## 16.3. CONTRIBUTION TO THE WORLD NETWORK OF BIOSPHERE RESERVES:

### 16.3.1. HOW WILL THE PROPOSED BIOSPHERE RESERVE CONTRIBUTE TO THE WORLD NETWORK OF BIOSPHERE RESERVES, ITS REGIONAL AND THEMATIC NETWORKS?

The possible recognition of the Tuscan-Emilian Apennines as a Biosphere Reserve can make two major contributions to the worldwide network of the MaB Reserves:

- The contribution of the "Reggio Approach", i.e. the know-how and the educational approach promoted by Reggio Children, that expresses itself through the atelier culture and has already been tested by the Park with the project "Atelier di Onda in Onda" in Ligonchio. This approach encourages children, young people and adults to observe things in an unusual way, to arouse their curiosity and to raise questions on what is apparently impossible to explain, to research and to try again, and to create hypotheses and theories trying them out through experimentation;
- The contribution of the agricultural and food sector: the relationship between biosphere conservation and the pursuit of a quality agriculture, which aims to produce quality products according to ancient and strict production rules (Parmigiano Reggiano cheese, Parma ham and other PDO and IGP products).

#### THE CONTRIBUTION OF THE REGGIO EMILIA EDUCATIONAL APPROACH

The project "Atelier di Onda in Onda" was started in 2010 and allowed a relationship to be created, nowadays very well-established, between the Appennino Tosco-Emiliano National Park, Reggio Children S.r.l. and Reggio Children Foundation – Loris Malaguzzi International Centre.

Reggio Children S.r.l. was created in 1994 as an international centre for the promotion and the defence of children's rights to manage educational and cultural exchanges that had been started up a few decades before among the childhood institutions in the Municipality of Reggio Emilia and teachers, professors, researchers and scholars from all over the world. This centre maintains active relationships with educationalists and institutions from more than 120 countries in the world and, as a publishing house, it publishes books that are translated into 20 languages. (www.reggiochildren.it).

Reggio Children, both locally and nationally, organises training initiatives, promotes research projects, provides advisory services in the field of education, participates in initiatives of cooperation with childhood institutions in several countries, manages the touring exhibitions "The Hundred Languages of Children" (I cento linguaggi dei bambini) and "The Wonder of Learning" (Lo stupore del conoscere), in collaboration with other promoters, and manages and coordinates the activities and projects of the Loris Malaguzzi International Centre.

The Reggio Children Foundation is a national and international research centre that acts in situations generating new knowledge and innovations with the aim of improving the quality of life of the children and families from the communities. It spreads the values of the "Reggio Emilia Approach" all over the world through comparison with other countries and educational experiences, by promoting, developing and supporting projects of social and socio-educational interest and of cultural integration on a national and international level. This is also done through the management and development of initiatives in the sectors of solidarity and international cooperation. (http://reggiochildrenfoundation.org).

The International Network was created with the representatives of the countries with which Reggio Children has been in contact for a long time and on a more regular basis and it represents the several reference points of Reggio Children in many countries of the world.

It is a kind of transnational project of the educational community of Reggio Emilia which supports international dialogue and the sharing of responsibility with the aim of promoting the identity and the activity of Reggio Children and the International Centre Loris Malaguzzi. Every country has a unique identity and represents in its turn different realities, within which the International Network commits itself to maintaining the centrality of the Reggio Emilia Approach.

"… it would be really interesting to see the map of the entire world: and those who belong to it feel tied to something that is by now symbolic rather than a geographical reality. This is a new cultural geography, made up of people who agree to share values. A geography that goes beyond the traditional geographical boundaries and creates a network between people who have the same sensibility and common ideals…" Carla Rinaldi, President of the Reggio Children Foundation.


Within the framework of the MaB UNESCO candidature of the Tuscan-Emilian Apennines, Reggio Children offers from an operational point of view:

- an effective contribution in determining the educational strategies of the MaB area by extending and spreading the experience of the "indoor and outdoor atelier" tested in Ligonchio;
- a contribution to the creation of the governance model for the MaB together with the Appennino Tosco-Emiliano National Park and other local socio-economic agents;
- a proactive role in the development of relationships and exchange of experiences with the MaB World Network. It also organises, together with the Appennino Tosco-Emiliano National Park at the

"Atelier di Onda in Onda" in Ligonchio and other places, training activities and conferences specifically addressed to the contact persons of the world MaB areas. During these events it will be possible to examine in depth the knowledge acquired on the learning processes used by children in their encounters with scientific phenomena, taking the experience of the indoor and outdoor atelier of Ligonchio as a reference.

### THE CONTRIBUTION OF THE AGRICULTURAL AND FOOD SECTOR

The contribution of the agricultural and food sector developed in this border area between Europe and the Mediterranean is based on the great wealth and originality of its food products, mingled with stories and cultures and deriving from short agricultural supply chains that can combine technological innovation with traditional rearing and farming methods. Moreover, the territories of the Tuscan-Emilian Apennines boast an enviable record that guarantees and certifies the quality of the agricultural and food sector: more than 60 products coming from little more than 20 thousand hectares have been certified with the Slow Food label and the European PDO and PGI labels.

In an area where the conservation of natural resources and biosphere represents the most important element, which is intrinsic to the UNESCO MaB Biosphere Reserves, it is particularly important to have products that are certified according to the PDO and PGI specifications of the European Union. In fact, these specifications represent an instrument to safeguard consumers as regards the quality of products and a valid way of protecting the typical characteristics of the production methods and, indirectly, the landscape which has a duty to maintain its qualitative characteristics assiduously.

To this end, the Appennino Tosco-Emiliano National Park has always stood out for its commitment to research and environmental education activities aiming to improve the quality of the techniques of mountain agriculture, typical of the Apennine territories, and to spread them in the local communities. From this point of view, recognition as a UNESCO MaB Reserve can only serve to further boost the commitment of the Park from the perspective of research and improving the agricultural and food sector. This is due to the fact that, besides giving a strong impulse in pursuing sustainable development, it also represents a great opportunity for exchanging information with other protagonists of the World Network of Biosphere Reserves which can consider the Tuscan-Emilian Apennines as a model to emulate in which quality agriculture and protection of the environment coexist and are closely linked.

## 16.3.2. WHAT ARE THE EXPECTED BENEFITS OF INTERNATIONAL COOPERATION FOR THE BIOSPHERE RESERVE?

All those supporting the candidature of the Tuscan-Emilian Apennines are well aware of the benefits that this territory would have with the creation of relationships and the implementation of actions of international cooperation within the framework of the world network of the UNESCO MaB Reserves.

The aim is not "only" to gain better visibility and higher prestige for the Reserve territory on a national and international level and, consequently, to ensure a better implementation and promotion of the sustainable development of the territory (in particular of eco-tourism). The aim is also and, most of all, the opportunity to have a valuable and continuous exchange of information and best practices with international institutions, that are similar even though quite different, on the protection of biodiversity, environmental monitoring, scientific research and experimentation, environmental education and professional training according to the paradigms of sustainable development and the opportunities for compatible economic development and social cohesion.

The Appennino Tosco-Emiliano Reserve considers the UNESCO MaB network as a group of potential partners with which it can launch international projects (which this territory is already used to carrying out) aimed at innovation, the pursuit of sustainable development and the maintenance of the fragile relationship between man and biosphere. For these reasons, in 2013 relationships with other Italian and foreign territories that have already been recognised as MaB Reserves were already underway, with the aim of starting up common projects and of being supported in the drafting of the candidature.

In particular, we would like to mention the following representatives of the foreign MaB Reserves that visited the candidate area:

- the National Park of Jiuzhaigou in China, in the province of Sichuan, that is a World Heritage Site and was recognised as a MaB Reserve in 1997 [in the framework of the Comenius LLP (Lifelong Learning Programme) programme]. The two parks will carry out some geological and naturalistic studies with an exchange between the students of the University of Modena and Reggio Emilia (Department of Chemical and Geological Sciences) and the Sichuan University, whose lecturers visited the Appennino Tosco-Emiliano National Park in 2013;
- the Paul Smith's College of New York, which is one of the most prestigious institutions in the USA and is set in the Champlain Adirondack MaB Reserve, established in 1989. In 2013 the Paul Smith's College organised a summer school on sustainable development in the territory of the Tuscan-Emilian Apennines;
- Slobodan Puzovic, Councillor for town-planning, building and ecology of the Autonomous Province of Vojivodina (Serbia), took part in one of the participatory meetings organised within the framework of the candidature of the Tuscan-Emilian Apennines (30 April 2014 Castelnuovo Garfagnana – see paragraph 17.3) and spoke about the experience of his territory in the candidature process and the recognition as a Unesco MaB Reserve.

Moreover, thanks to the collaboration with the Unesco network, we hope to strengthen and improve the international initiatives and activities that have already been carried out during the "Atelier of Waters and Energies of Ligonchio" (Atelier delle acque e delle energie di Ligonchio, see chapter 16), such as:

- the seminar "The hundred languages in a dialogue with natural environment" (I cento linguaggi in dialogo con l'ambiente naturale) carried out in the summer of 2011 within the framework of the Summer School "International meetings with the Atelier culture" (Incontri internazionali con la cultura dell'Atelier), which was organised by the Reggio Children Foundation in Reggio Emilia and Ligonchio (Reggio Emilia) and in which 80 educationalists from different nations participated (Saudi Arabia, Australia, Brazil, Canada, Chile, China, Colombia, Japan, Lebanon, Malaysia, Mexico, New Zealand, United Kingdom, Singapore, Spain, Switzerland, Thailand, USA and Vietnam);
- the seminar "The dimension of Research and the hundred languages of children" carried out in the summer of 2012 within the framework of the "SECOND INTERNATIONAL SUMMER SCHOOL", which was organised by the Reggio Children Foundation in Reggio Emilia and Ligonchio (Reggio Emilia) and in which 42 educationalists from different nations participated (Australia, Brazil, Canada, Colombia, Germany, Japan, England, Israel, Italy, New Zealand, Russia, Singapore, USA, Turkey and Uganda).

We also expect an increase in the number of study visits. The Atelier of Waters and Energies of Ligonchio is visited several times every year by international delegations:

| Year | Type of group | Participants |
|---|---|---|

| Year | Type of group | Participants |
|---|---|---|
| 2010 | Stockholm institute | 40 |
| 2011 | Study group from Canada | 40 |
| 2011 | International study group | 30 |
| 2011 | Junior high school from Berlin | 20 |
| 2012 | Group of German teachers | 10 |
| 2012 | International group of Swedish teachers | 16 |
| 2012 | International group of Swedish administrators | 25 |
| 2013 | Group of students from Japan and Korea, Alma | 20 |
| 2013 | Group of teachers and educationalists from Japan | 23 |
| 2013 | Group of teachers from China | 16 |
| 2013 | International group | 52 |
| 2014 | International group from Latin America | 22 |
| 2014 | Group of teachers from Brazil | 40 |
| 2014 | Group of researchers from Japan | 18 |
| 2014 | International group | 40 |
| 2014 | Teachers from Freiburg – presentation meeting | 2 |
| 2014 | International group – Movimento Cooperazione Educativa | 80 |

Finally, another important advantage that we expect from the international cooperation within the framework of the MaB Reserve Network is the "surveillance" that Unesco will guarantee by strengthening its control and monitoring functions on the possible future activities that could "threaten" the fragile balance between man and nature in the Reserve.

## 16.4. INTERNAL AND EXTERNAL COMMUNICATION CHANNELS AND MEDIA USED BY THE BIOSPHERE RESERVE:

The procedure for candidature to the UNESCO MaB programme represents a great opportunity for the Tuscan-Emilian Apennines to enhance its natural and historical-cultural heritage. Hence, communication represents a means for the Reserve of communicating its commitment in terms of sustainable development as well as a useful resource for spreading and conveying an updated awareness of the values of its territory to the outside and to local communities.

For this reason, the Park Authority already has several communication channels, which are useful for reaching the most different categories of stakeholders in the territory and for sharing and updating its projects and initiatives. These channels, which are currently already in use and completely available to the MaB Reserve project will be even more useful once the Reserve is recognised by UNESCO. By means of simple and well-arranged links to websites and other tools of the authorities and stakeholders attending the consultative assembly, the communication on the contents, programmes and activities of the Biosphere reserve, guaranteed by the national park and developed with the contribution of the partners, will be more effective.

One of these means of communication is the official website of the Appennino Tosco-Emiliano National Park www.parcoappennino.it, which is very visited (according to analytical data, in 2013 the Park website was

visited by 174,727 people with a total of 961,189 visited pages, whereas in the first quarter of 2014 the website was visited by 35,167 people with a total of 175,275 visited pages). In the center of the home page of this website, has been createde a very evident link to the section dedicatede to the MaB candidature (www.parcoappennino.it/uomo.biosfera), we can suppose a huge percentage of user of the Appennino Tosco-Emiliano National Park website visited also to the Mab section.

### 16.4.1. IS (WILL) THERE (BE) A BIOSPHERE RESERVE WEBSITE? IF YES, WHAT IS ITS URL?

In March 2014, with a view to the candidature to the UNESCO MaB programme, the Park created a blog exclusively dedicated to this candidature process. This blog is available via the link www.parcoappennino.it/uomo.biosfera and originates from the desire to share the candidature procedure to the UNESCO MaB programme with local communities, institutions and socio-economic partners of the territories concerned and to collect the opinions and suggestions for improvement of all those willing to give their contribution.

On 20 August 2014, 30 articles had been published on the blog, with an average of one article every 3-4 days.

While visiting the pages of the website, users can examine the UNESCO MaB programme in depth, find all updates regarding the candidature procedure and the participation activities organised by the Park and, above all, share the documents that have been written and published on the way, thus providing their point of view and possible suggestions for improvement and further analysis.

The section **Dì la tua!** (Tell us your opinion), available via the link http://www.parcoAppennino.it/uomo.biosfera/?page_id=21, is particularly interesting since residents, farmers, businessmen, tourists and all those living in the Tuscan-Emilian Apennines are invited to leave their opinion and point of view, indicating the symbol that best represents the relation between man and nature in the Apennines. Up to now 28 interventions have been collected from different users. To strengthen this initiative the Park is organising a photo contest to gather the images that best represent the relation between man and biosphere in the Tuscan-Emilian Apennines.

Finally, on the site dedicated to the candidature, a press review was made available (http://www.parcoappennino.it/uomo.biosfera/?page_id=225), which allows users to browse the articles of newspapers and magazines (both printed and on the web) and to watch reports broadcast by local TV channels, that dealt with and analysed in depth the candidature procedure of the Tuscan-Emilian Apennines to the UNESCO's MaB programme. To date 34 articles have been gathered in this section of the blog (unfortunately the press review has been carried out carefully only since 2014 and, although some previous articles have been retrieved, many articles dating back to 2013 and 2012 are missing).

If the Reserve is recognised by UNESCO, the possibility of creating a website for the Reserve, managed and updated with the resources of the National Park's website and the other local partners, should immediately be taken into account.

### 16.4.2. IS (WILL) THERE (BE) AN ELECTRONIC NEWSLETTER? IF YES, HOW OFTEN WILL IT BE PUBLISHED?

The news on the candidature procedure of the Tuscan-Emilian Apennines to the UNESCO's MaB programme is sent to all users registered to the newsletter on the Park's website (www.parcoAppennino.it). The newsletter counts more than 1,100 registered users, who represent a much larger number compared to the users that it would have been possible to gather by creating a mailing list from scratch on the website dedicated

to the candidature procedure of the Tuscan-Emilian Apennines to the UNESCO's MaB programme (www.parcoAppennino.it/uomo.biosfera). However, on the homepage of this website, the Park has prepared a tool (*Vuoi rimanere aggiornato sulla candidatura a MaB UNESCO?* – "Do you want to be updated on the candidature procedure to the UNESCO's MaB programme?" which is on the homepage under the section "Ultime News"), through which users can express their desire to get more information on the candidature by directly contacting the Park. To date, thanks to this tool and together with the addresses gathered in the section "Dì la tua!", more than **200 addresses** have been collected, to which a newsletter is periodically sent, containing updates on the above-mentioned candidature procedure.

### 16.4.3. DOES (WILL) THE BIOSPHERE RESERVE BELONG TO A SOCIAL NETWORK (FACEBOOK, TWITTER, ETC.)?

In addition to the websites, the Park is also present on the social networks:

- Facebook (www.facebook.com/parcoAppenninotoscoemiliano): it numbers more than 19,000 "like", i.e. people who receive updates every day, thus proving to be very successful;
- Twitter (twitter.com/parcoAppennino): on this social network the Park has more than 3,000 "followers", i.e. people who follow its updates, thus proving to be very successful in this case too.

Moreover, many municipalities and institutions present and involved in the Reserve currently use the social networks to communicate. As for the website, so on the social networks it will also be possible to create an autonomous presence of the reserve, in operative connection and with the links of the National Park and the other local partners.

# 17. GOVERNANCE, BIOSPHERE RESERVE MANAGEMENT AND COORDINATION:

## 17.1. MANAGEMENT AND COORDINATION STRUCTURE

### 17.1.1. WHAT IS THE LEGAL STATUS OF THE BIOSPHERE RESERVE?

The biosphere reserve does not yet hold its own legal status and is not a legal entity. It is an entity *de facto* defined by UNESCO recognition and by agreements and cooperation among the various areas and bodies composing the reserve (Appennino Tosco Emiliano National Park, Emilia Romagna Regions, Toscana Regions, Emilia-Romagna Regional Parks, Parma Province, Reggio Emilia Province, Modena Province, Lucca Province, Massa Carrara Province, 38 Municipalities).

### 17.1.2. WHAT IS THE LEGAL STATUS OF THE CORE AREA(S) AND THE BUFFER ZONE(S)?

The core areas hold the status of National Park areas outright. The buffer zones do not hold a specific legal status. Most of them hold the status of National Park territory; the others have statuses connected with levels of protection of a regional nature (Emilia-Romagna Regional Parks, SCIs and SPAs) and with the regional and provincial Territorial Coordination Plans (Piani di Coordinamento Territoriali). Clarify the respective competence of each of these authorities. Make a distinction between each zone if necessary and mention any decentralized authority.

### 17.1.3. . WHICH ADMINISTRATIVE AUTHORITIES HAVE COMPETENCE FOR EACH ZONE OF THE BIOSPHERE RESERVE (CORE AREA(S), BUFFER ZONE(S), TRANSITION AREA(S))?

There is no direct relationship between the perimeter of the core areas, buffer zones and transition areas and the boundaries of the local and regional administrative authorities. The Italian State has competence over the whole Reserve; subsequently, each Region (Emilia-Romagna for the Northern side of the Apennine Ridge, Tuscany for the Southern side) and each of the 5 Provinces (Parma, Reggio Emilia, Modena, Lucca, Massa-Carrara) have competence over their own portions of territory.

The Appennino Tosco-Emiliano National Park and the Municipalities on which the core areas are located have competence over the latter, that is to say:

- As regards the Monte Sillara Core Area: the Municipalities of Comano (Massa-Carrara), Licciana Nardi (Massa-Carrara), Bagnone (Massa-Carrara), Monchio delle Corti (Parma), Corniglio (Parma)
- As regards the Alpe di Succiso Core Area: the Municipalities of Collagna (Reggio Emilia), Comano (Massa-Carrara), Ramiseto (Reggio Emilia)
- As regards the Cima Belfiore Core Area: the Municipalities of Giuncugnano (Lucca), Fivizzano (Massa-Carrara), Collagna (Reggio Emilia), Ligonchio (Reggio Emilia)
- As regards the Monte Cusna Core Area: the Municipalities of Lingonchio (Reggio Emilia), Villa Minozzo (Reggio Emilia), Villacollamendina (Lucca), San Romano in Garfagnana (Lucca)
- As regards the Monte Ventasso Core Area: the Municipalities of Collagna (Reggio Emilia), Ramiseto (Reggio Emilia), Busana (Reggio Emilia)
- As regards the Pietra di Bismantova Core Area: the Municipality of Castelnovo ne' Monti (Reggio Emilia)

The Appennino Tosco-Emiliano National Park, the "Bodies for the Management of Parks and Biodiversity in Central and West Emilia" (Enti di gestione dei Parchi e della Biodiversità Emilia Centrale ed Ovest), i.e. entities set up by the Region, and the Municipalities on which the Buffer Zone is located have competence over the latter, that is to say:

- As regards the Province of Reggio Emilia: Municipalities of Busana, Castelnovo ne' Monti, Collagna, Ligonchio, Ramiseto, Villa Minozzo
- As regards the Province of Parma: Municipalities of Corniglio, Monchio delle Corti
- As regards the Province of Massa-Carrara: Municipalities of Bagnone, Casola Lunigiana, Comano, Filattiera, Fivizzano, Licciana Nardi, Villa Collemandina
- As regards the Province of Lucca: Municipalities of Giuncugnano, Piazza al Serchio, San Romano in Garfagnana

The Appennino Tosco-Emiliano National Park, the "Bodies for the Management of Parks and Biodiversity in Central and West Emilia" (entities set up by the Region) and all the Municipalities concerned by the Reserve have competence over the Transition Area.

### 17.1.4. CLARIFY THE RESPECTIVE COMPETENCE OF EACH OF THESE AUTHORITIES. MAKE A DISTINCTION BETWEEN EACH ZONE IF NECESSARY AND MENTION ANY DECENTRALIZED AUTHORITY.

| Reserve Zone | Authorities | Plan |
|---|---|---|
| ***Core Areas*** | Appennino Tosco Emiliano National Park | Plan for the Park<br>Plan for the economic and social development of sustainable activities |
| ***Buffer Area*** | Appennino Tosco Emiliano National Park | Plan for the Park<br>Plan for the economic and social development of sustainable activities |
| | Bodies for the Management of Parks and Biodiversity in Central Emilia | Environmental protection and biodiversity conservation Plans |
| | Bodies for the Management of Parks and Biodiversity in West Emilia | Environmental protection and biodiversity conservation Plans |
| ***All the areas of the Reserve*** | Emilia Romagna Region | Regional Territorial Plan |
| | Toscana Region | Territorial Guideline Plan |
| | Emilia Romagna Region | Regional Landscape Territorial Plan |
| | Provinces of Modena, Reggio Emilia and Parma | Provincial Coordination Territorial Plan |
| | Provinces of Massa-Carrara and Lucca | Coordination Territorial Plan |

The two Regions of Tuscany and Emilia-Romagna and, by proxy, the five provinces (Parma, Reggio Emilia, Modena, Lucca, Massa-Carrara) have competence over the whole Reserve, each of them for their own territory, as regards the definition of policies and general guidelines through planning and legislative require-

ments. The main plans and programmes on a regional and provincial level, in force on the territory of the Appennino Tosco-Emiliano MaB Reserve, are:

- the Regional Territorial Plan (Piano Territoriale Regionale) of the Regions of Emilia-Romagna and Tuscany
- the Regional Landscape Territorial Plan (Piano Territoriale Paesistico Regionale) of the Region of Emilia-Romagna
- the Territorial Guideline Plan (Piano di Indirizzo Territoriale) – acting as Landscape Plan – of the Region of Tuscany
- the Provincial Coordination Territorial Plan (Piano Territoriale di Coordinamento Provinciale) of the Provinces of Modena, Reggio Emilia and Parma
- the Coordination Territorial Plan (Piano Territoriale di Coordinamento) of the Provinces of Massa-Carrara and Lucca

The Municipalities are competent for the implementation of general rules and guidelines of a higher level, and for the definition of urban and development scenarios within the municipality boundaries. Each municipality has its own town development plan.

The National Park is fully competent for environmental protection and biodiversity conservation, which are regulated by the protection measurements in force and by the "Plan for the Park" (Piano Per il Parco), which is in the process of being approved; it is also competent for sustainable development policies, which are regulated by the "Plan for the economic and social development of sustainable activities" (Piano per lo sviluppo economico e sociale per le attività compatibili), also in the process of being approved. As far as the Appennino Tosco-Emiliano MaB Reserve is concerned, the National Park performs conservation functions, in particular in the Core Areas (all in the National Park territory) and the Buffer Zones (mainly in the National Park territory), and development functions, mainly in the Transition Areas.

The Bodies for the Management of Parks and Biodiversity in Central and West Emilia (set up by the Emilia-Romagna Region) are competent within their own boundaries, in particular as far as the environmental protection and biodiversity conservation aspects are concerned; they are also in charge of managing the Natura 2000 sites. As regards the MaB Reserve, these Bodies exercise such competence mainly in the Transition Areas and only to a limited extent in the Buffer Zones.

### 17.1.5. INDICATE THE MAIN LAND TENURE (OWNERSHIP) FOR EACH ZONE.

There is no complete mapping of the area defining public and private ownership. However, it is possible to make a satisfactory rough assessment.

In the Core Areas most territories are State-owned or characterised by "rights of common" ("usi civici")[6] and only to a limited extent private. In the Buffer Zones, and even more so in the Transition Areas, this ratio is inverted and, as you move down towards the valley, private areas outnumber public areas and areas characterised by "rights of common", which are nevertheless present in the entire territory.

[6] The term "rights of common" ("usi civici") defines a right of enjoyment of immovables under various forms (hunting, pasture, estovers, sowing) to which the members of a community are entitled, on land which is owned by the municipality or by a third party. This right does not derive from a formal law but is rooted in common practice.

### 17.1.6. IS THERE A SINGLE MANAGER/COORDINATOR OF THE BIOSPHERE RESERVE OR ARE SEVERAL PEOPLE IN CHARGE OF MANAGING IT? IF ONE MANAGER/COORDINATOR, WHO DESIGNATES AND EMPLOYS HIM/HER (NATIONAL AUTHORITIES, ENVIRONMENTAL ADMINISTRATIVE AGENCY, LOCAL AUTHORITIES)?

The Appennino Tosco-Emiliano Biosphere Reserve will have a single coordinator: the Chairperson of the Appennino Tosco-Emiliano National Park Authority (the promoter of the candidature). The Chairperson of the Park is appointed by the Ministry of the Environment, after consulting the regional and local authorities, in accordance with the provisions of the general policy law on Italian protected areas (Law 394/91 and subsequent updates).

The Chairperson of the National Park holds the legal and administrative responsibility for this candidature and, once the reserve status is recognised, he/she will be responsible for correctly drawing up the activity reports to be sent to the Ministry of the Environment, the MAB National Committee and the UNESCO MAB Secretariat in Paris for the whole 10-year period, in the event that UNESCO accepts the proposal.

The choice of the Appennino Tosco-Emiliano National Park, through its Chairperson, as coordinator of the MaB Reserve is the result of several observations:

- All the Core Areas of the Appennino Tosco-Emiliano MaB Reserve are part of the National Park.
- The Appennino Tosco-Emiliano National Park stretches over the Apennine Ridge, whose distinguishing feature is the fact that it is a Euro-Mediterranean climatic boundary, i.e. the pivot on which the MaB Reserve candidature is based. The Park has been working on this theme for several years from various perspectives (monitoring, conservation, education, development).
- The National Park stretches over both Regions connected with the MaB Reserve and, thanks to its status of national entity, is easily able to communicate with both Regions.
- The Appennino Tosco-Emiliano National Park has been active for years, mainly implementing the project databank contained in its Long-term Economic and Social Plan for the Development of Sustainable Activities (Piano Pluriennale Economico e Sociale per lo sviluppo delle attività compatibili), cooperating with authorities and stakeholders inside and outside its boundaries or the territory of the 16 Municipalities that are included in the Park. Thus it has become a sustainable development workshop recognised and valued all over this area of the Apennines. Indeed, many projects are being carried out by the National Park in partnership with neighbouring territorial entities which do not belong to its territory but would now be included in the MaB Reserve.
- The Appennino Tosco-Emiliano National Park is a definite entity, whose life is guaranteed by the State and by Italian Laws, provided with facilities, staff and an independent budget which ensure the administration and operating management of the reserve.

The Chairperson of the Appennino Tosco-Emiliano National Park, coordinator of the Biosphere Reserve, is the head of both the "Permanent Consultative Assembly" (the body through which all the local stakeholders of the whole Reserve can take part in the choices and decisions concerning the Reserve, whose functions and operating modes are described in par. 17.1.7) and the "Management Committee" (the body for the coordination and operating management of the Reserve, whose functions and operating modes are described in par. 17.1.8). The Chairperson also represents the link between these two bodies.

The Chairperson of the Park will be supported in his/her responsibilities concerning the MaB Reserve by the "**Appennino Tosco-Emiliano MaB Office**", composed of staff from the Park and specifically appointed pro-

fessionals (who will take on the main roles in the Reserve) and coordinated by the Manager of the Appennino Tosco-Emiliano National Park. The MaB Office's main tasks will be:

- supporting the Coordinator of the Reserve (the Chairperson of the Appennino Tosco-Emiliano National Park) in the management of the relations with and between the Permanent Consultative Assembly and the Management Committee, for which he/she will be in charge of the administration and of the minutes of the meetings;
- dealing with communication and information concerning the Reserve, addressing both local communities and the outside world;
- supporting the implementation of the Management Programme (see par. 17.4) and its monitoring.

The official headquarters of the Appennino Tosco-Emiliano Biosphere Reserve, to which we will refer, correspond to the headquarters of the Appennino Tosco-Emiliano National Park, located at 23 via Comunale, 54010 Sassalbo di Fivizzano (Massa-Carrara), Italy.

The Appennino Tosco-Emiliano Biosphere Reserve will have one single coordinator: the Chairperson of the Appennino Tosco-Emiliano National Park Authority (the promoter of the candidature), within the exercise of his/her functions, thus with the mandate of the body's managing organs.

The Chairperson of the National Park, in his/her capacity as body and legal representative of the promoter, holds the legal and administrative responsibility for this candidature and, once the MaB Reserve status is recognised, he/she will be responsible for correctly drawing up the activity reports to be regularly sent to the Ministry of the Environment, the MAB National Committee and the UNESCO MAB Secretariat in Paris for the whole 10-year period, in the event that UNESCO accepts the proposal.

The Chairperson of the Park is appointed by the Ministry of the Environment, after consulting the regional and local authorities, in accordance with the provisions of the general policy law on Italian protected areas (Law 394/91 and subsequent updates).

The choice of the Appennino Tosco-Emiliano National Park, through its Chairperson (i.e. the person holding the office at the time or the person temporarily standing in for the Chairperson), as coordinator of the MaB Reserve, is the result of several observations:

- All the Core Areas of the Appennino Tosco-Emiliano MaB Reserve are part of the National Park.
- The Appennino Tosco-Emiliano National Park stretches over the Apennine Ridge, whose distinguishing feature is the fact that it is a Euro-Mediterranean climatic boundary, i.e. the main pivot on which the MaB Reserve candidature is based. The Park has been working on this theme for several years from various perspectives (monitoring, conservation, education, development).
- The National Park stretches over both Regions connected with the MaB Reserve and, thanks to its status of national entity, is easily able to communicate with both Regions.
- The Appennino Tosco-Emiliano National Park has been active for years, mainly implementing the project databank contained in its Long-term Economic and Social Plan for the Development of Sustainable Activities, cooperating with authorities and stakeholders inside and outside its boundaries or the territory of the 16 Municipalities that are included in the Park. Thus it has become a sustainable development workshop recognised and valued all over this area of the Apennines. Indeed, many projects are being carried out by the National Park in partnership with neighbouring territorial entities which do not belong to its territory but would now be included in the MaB Reserve.

- The Appennino Tosco-Emiliano National Park is a definite entity, whose life is guaranteed by the State and by Italian Laws, supervised by the Ministry of the Environment, provided with deliberative and controlling collective bodies (managing council and park community) and with facilities, staff and an independent budget which ensure the administration and operating management of the reserve.

The Chairperson of the Appennino Tosco-Emiliano National Park, coordinator of the Biosphere Reserve, is the head of both the "Permanent Consultative Assembly" (the body through which all the local stakeholders of the Reserve can take part in the choices and decisions concerning the Reserve, whose functions and operating modes are described in par. 17.1.7) and the "Management Committee" (the body for the coordination and operating management of the Reserve, whose functions and operating modes are described in par. 17.1.8). The Chairperson also represents the link between these two bodies.

The Chairperson of the Park will be supported in his/her responsibilities concerning the MaB Reserve by the managing council of the National Park and by the "Appennino Tosco-Emiliano MaB Office", composed of staff from the Park and specifically appointed professionals (who will take on the main roles in the Reserve) and coordinated by the Manager of the Appennino Tosco-Emiliano National Park. The MaB Office's main tasks will be:

- supporting the Coordinator of the Reserve (the Chairperson of the Appennino Tosco-Emiliano National Park) in the management of the relations with and between the Permanent Consultative Assembly and the Management Committee, for which he/she will be in charge of the administration and of the minutes of the meetings;
- managing communication and information concerning the Reserve, addressing both local communities and the outside world;
- supporting the implementation of the Management Programme (see par. 17.4) and its monitoring.

The official headquarters of the Appennino Tosco-Emiliano Biosphere Reserve, to which we will refer, correspond to the headquarters of the Appennino Tosco-Emiliano National Park, located at 23 via Comunale, 54010 Sassalbo di Fivizzano (Massa-Carrara), Italy.

## Coordinator of the Appennino Tosco-Emiliano Biosphere Reserve

(*President of the Parco Appennino Tosco Emiliano National Park*)

- Responsible for relations with the Italian Ministry of Environment, the Italian National Committee for MAB, the MAB UNESCO headquarters in Paris and the preparation and submission of periodic report on the Reserve ststus
- Chair and coordinates "Permanent Consultative Assembly" and "Management Committee"

## MaB Office

(*established at the Appennino Tosco Emiliano National Park )*

-supports the Reserve Coordinator to manage relationships with the Consultative Assembly and the Management Committee
- Is responsible for the communication and information regarding the Reserve
- Suport the implementation and monitoring of the Management Program.

## Permanent Consultative Assembly

(local *stakeholders of the whole Reserve*)

- Ensure the participation and involvement of local communities
- Stimulates the Management Committee to draft a Management Program
- Approve and monitor the effectiveness of the Programme Management

## Management Comittee

*(rappresentative bodies of the 3 Reserve functions)*

- Draw up draft Management Program
- Supports and monitors the implementation of the Management Plan approved by the Permanent Consultative Assembly

### 17.1.7. ARE THERE CONSULTATIVE ADVISORY OR DECISION-MAKING BODIES (E.G., SCIENTIFIC COUNCIL, GENERAL ASSEMBLY OF INHABITANTS OF THE RESERVE) FOR EACH ZONE OR FOR THE WHOLE BIOSPHERE RESERVE?

## Permanent Consultative Assembly

(single boy *for the whole Reserve*)

Ensure the participation and involvement of local communities
Stimulates the Management Committee to draft a Management Program
Approve and monitor the effectiveness of the Programme Management

The "Permanent Consultative Assembly" will be composed (on a voluntary, unpaid basis) by the following localstakholders present and active on of the Appennino Tosco-Emiliano MaB Reserve:

- all members of the Management Committee
- representatives of the Municipalities, Unions of Municipalities, Provinces and Regions;
- representatives of the entities managing all the protected areas;
- representatives of all Chambers of Commerce, Industry, Crafts and Agriculture;
- representatives of the State Forestry Corps;
- representatives of the Reclamation Consortiums;
- representatives of Local Action Groups;
- representatives of all Universities and Research Institutes;
- the heads of primary and secondary schools;
- representatives of the main business and cooperative associations;
- representatives of the main environmental, cultural, youth and recreational associations

A single body, called the "**Permanent Consultative Assembly**" will be set up for the whole Appennino Tosco-Emiliano Biosphere Reserve (Core Areas, Buffer Zones and Transition Areas). This body will have a consultative, participatory and representational functions for the Reserve's Local Communities and stakeholders. The Permanent Consultative Assembly has been specifically designed for the Biosphere Reserve and will be set up only after, and if, recognition is granted. It will serve as an incentive for the Management Committee (the body for the coordination and operating management of the Reserve, whose functions and operating modes are described in par. 17.1.8), providing instructions on how to draw up the Reserve Management Programme, defining the "Conservation, Management and Development Policy for the Appennino Tosco-Emiliano MaB Reserve" (see chapter 17.4), approving (by majority vote) the Management Programme, encouraging and promoting its implementation, checking and assessing its results and requesting its regular update (see par. 17.4.1). It is also required to carry out an annual assessment of the management of the Reserve by the Management Committee.

The "Permanent Consultative Assembly" will be chaired by the Chairperson of the Appennino Tosco-Emiliano National Park who, supported by the "MaB Office" (see par. 17.1.6), will convene the Assembly, as

a general rule at the headquarters of the Appennino Tosco-Emiliano National Park, at least once a year or whenever at least 1/4 of the people entitled to take part in it request it. The instructions and decisions of the "Permanent Consultative Assembly" will be minuted, made public and supplied to the "Management Committee".

The "Permanent Consultative Assembly" of the Appennino Tosco-Emiliano MaB Reserve will be composed as follows (on a voluntary, unpaid basis):

- all members of the Management Committee (the body for the coordination and operating management of the Reserve, whose functions and operating modes are described in par. 17.1.8);
- representatives of the Municipalities, Unions of Municipalities, Provinces and Regions whose territories are included in the area of the Appennino Tosco-Emiliano MaB Reserve;
- representatives of the entities managing all the protected areas, SCIs and SPAs whose territories are included in the area of the Appennino Tosco-Emiliano MaB Reserve;
- representatives of all Chambers of Commerce, Industry, Crafts and Agriculture operating in the area of the Appennino Tosco-Emiliano MaB Reserve;
- representatives of the State Forestry Corps having jurisdiction over the area of the Appennino Tosco-Emiliano MaB Reserve;
- representatives of the Reclamation Consortiums whose territories are included in the area of the Appennino Tosco-Emiliano MaB Reserve;
- representatives of Local Action Groups, i.e. the entities managing the European Funds for Rural Development having jurisdiction over the area of the Appennino Tosco-Emiliano MaB Reserve;
- representatives of all Universities and Research Institutes operating in the area of the Appennino Tosco-Emiliano MaB Reserve;
- the heads of primary and secondary schools present in the area of the Appennino Tosco-Emiliano MaB Reserve;
- representatives of the main business and cooperative associations (Professional Associations, PDO and PGI Protection Consortiums, Tourist Consortiums, etc.) operating in the area of the Appennino Tosco-Emiliano MaB Reserve;
- representatives of the main environmental, cultural, youth and recreational associations (WWF, Legambiente, Lipu, CAI, UISP, ARCI, CSI, etc.) and citizens' committees present and operating in the area of the Appennino Tosco-Emiliano MaB Reserve;

The "Permanent Consultative Assembly" is to be considered a body with relative autonomy since its members will be subject to the mandates and prerogatives of the authorities and entities they represent within the Assembly. All the members taking part in the "Permanent Consultative Assembly" of the Appennino Tosco-Emiliano MaB Reserve will have to sign a "**Memorandum of Intent**", whose first signatory is the Appennino Tosco-Emiliano National Park, as coordinator of the body. By means of said Memorandum, the members agree to share and accept the function of the body and the rules regulating its activity, undertaking to actively take part in all the meetings called and constructively contributing to the effective management of the Reserve.

### 17.1.8. HAS A COORDINATION STRUCTURE BEEN ESTABLISHED SPECIFICALLY FOR THE BIOSPHERE RESERVE?

- If yes, describe in detail its functioning, composition and the relative proportion of each group in this structure, its role and competence.

- Is this coordination structure autonomous or is it under the authority of local or central government, or of the manager/coordinator of the biosphere reserve?

**Management Comittee**

*(a single body for alle the Reserve Areas)*

- Draw up draft Management Program at the instigation of the Consultative Assembly Standing
- Supports and monitors the implementation of the Management Plan approved

The Managemente Comittee is composede by 13 bodies rappresentative of the 3 main function of the Reserve:

- Appennino Tosco-Emiliano National Park (signatory of the Appennino Tosco-Emiliano MaB candidature). It will be competent for environmental protection.

- Reggio Children Non-profit Foundation it will be in charge of offering and supporting quality educational programmes.

- Parma Chamber of Commerce, Industry, Crafts and Agriculture (CCIAA), it will mainly operate in order to support measures in favour of sustainable development.

- University of Modena and Reggio Emilia it will mainly perform research and monitoring.

- Local Action Group Consorzio Sviluppo Lunigiana Leader it will mainly operate supporting rural development

- "Bank" of Identity and the Memory of the Garfagnana it will operate to valorize the traditional culture

- 7 representatives of local authorities (Municipalities, Regions, Provinces, Unions of Municipalities) from the MaB Reserve territories, at least three from Tuscany and three from Emilia-Romagna Region. They will be representing the local needs.

The coordination and operating management of the whole Appennino Tosco-Emiliano MaB Reserve (Core Areas, Buffer Zones and Transition Areas) is assigned to the **Management Committee**, a body which has been specifically conceived for the Biosphere Reserve and which will be set up only after, and if, recognition is granted.

The Management Committee, supported by the MaB Office (see par. 1.7.1.6), is in charge of drafting the Management Programme in line with the guidelines given by the Permanent Consultative Assembly (see par. 17.1.7) and specified in the "Conservation, Management and Development Policy of the Appennino Tosco-Emiliano MaB Reserve" (see par. 17.4.1). Once the Management Programme has been approved by the Permanent Consultative Assembly, the Management Committee will support its implementation and regularly (once a year) inform the Assembly on the status of its implementation and its effectiveness. The Assembly will assess the effectiveness of the results (see par. 17.4.1).

The Management Committee will meet at the headquarters of the Appennino Tosco-Emiliano National Park, which will be in charge of the coordination (through its Chairperson, as for the "Permanent Consultative Assembly", cf. 17.1.7) and the administration (entrusted to the MaB Office, cf. 17.1.6). Such meetings will take place at least once every three months, or more often if at least 1/3 of its members request it. The frequency of the meetings of the Management Committee will increase during the drafting of the Management Programme (see par. 17.4.1).

The "Management Committee" will consist of 13 representatives of the authorities and bodies which are important in the Reserve territory and have competences and functional requirements able to ensure the guidance, coordination and management of the main functions (conservation, monitoring, development, education, support) of the MaB Reserve as a whole (without specifically distinguishing among Core Areas, Buffer Zones and Transition Areas). The Management Committee is to be considered a body with relative autonomy since its members will be subject to the mandates and prerogatives of the bodies of the authorities they represent.

The following entities will take part, on a voluntary, unpaid basis, in the "Management Committee", which will self-define its operating procedures:

- The Appennino Tosco-Emiliano National Park (signatory of the Appennino Tosco-Emiliano MaB candidature) through its Chairperson. The National Park, as well as coordinating the Management Committee, will above all be competent for environmental protection and will operate within the Management Committee, in close connection with the other entities managing the protected areas inside the Appennino Tosco-Emiliano MaB area.
- Fondazione no profit Reggio Children (Reggio Children Non-profit Foundation)[7]: an entity whose role is to spread and develop the Reggio Emilia Approach (an educational project for children aged 0-6, but also an approach which could be applied to the whole town and to any town in the world for the community's well-being and growth); the Foundation supported the MaB candidature with an official letter of endorsement (in Annex) addressed to the Appennino Tosco-Emiliano National Park. Within the Management Committee, it will above all be in charge of offering and supporting quality educational programmes, working in cooperation with all the schools and educational institutes in the Appennino Tosco-Emiliano MaB territory and the wide international network with which it is connected.
- The Parma Chamber of Commerce, Industry, Crafts and Agriculture (CCIAA), an independent body of public law with functions of general interest for the business network; it manages the latter's development within the local economy and is especially active in the agricultural and food sector. It endorsed the MaB candidature with an official resolution (in Annex). The Parma CCIAA will operate within the Management Committee, mainly with a view to supporting measures in favour of sustainable development, in close cooperation with the other CCIAAs in the territory and representing

[7] It is a participatory foundation, derived from the transformation of the Associazione Internazionale Amici di Reggio Children (International Association Friends of Reggio Children), whose aim is to further boost the participation of citizens (of Reggio Emilia but also of other countries) and the development of voluntary work which has characterised the Association in recent years. Among its founders and promoters it is worth mentioning: the Municipality of Reggio Emilia, Narea (North America Reggio Emilia Alliance), Reggio Emilia Institutet (Sweden) and Red Solare Argentina, Effe 2005 - Holding Feltrinelli, Reggio Children s.r.l. “international centre for the protection and promotion of the rights and potentialities of boys and girls”

all the professional and company associations operating in the Appennino Tosco-Emiliano MaB area.

- The University of Modena and Reggio Emilia endorsed the creation of the MaB with an official letter of endorsement (in Annex) addressed to the Appennino Tosco-Emiliano National Park. Within the Management Committee, the University of Modena and Reggio Emilia will mainly perform research and monitoring functions and will work in close cooperation with other universities and research bodies operating in the territory and dealing with the main themes of the Appennino Tosco-Emiliano MaB candidature.
- Local Action Group "Consorzio Sviluppo Lunigiana Leader" is made up of public and private partners from the rural territory of Lunigiana, and includes representatives from different socio-economic sectors. They receive financial assistance (including EU founds for Rural Development - FESR) to implement local development strategies, by awarding grants to local projects. The role of "Consorzio Sviluppo Lunigiana Leader" LAG in the Management Committee is to coordinate and promote the efforts focused on rural development of the area.
- "Bank" of Identity and the Memory of the Garfagnana The "Bank of identity and memory of the Garfagnana" is a documentation center which realizes, collects and diffuses publications, studies and other material, including multimedia, on the history, culture and traditions of the Garfagnana. The "Bank" promotes culture through the organization of public meetings that they see the dynamic cooperation with the territory and is a center for studies and research on topics of significant local interest that are disclosed by the same name necklace Editorial. The "Bank of identity and memory of theGarfagnana" has supported the Appennino Tosco Emiliano MAB candidature with an official letter of endorsement, and will operate within the Management Committee valorizing traditional and popolar culture in close relationship with all the other cultural and historicalinstitutions and associations operating in the whole Reserve territory.
- 7 representatives of local authorities (Municipalities, Regions, Provinces, Unions of Municipalities) from the MaB Reserve territories, appointed by the authorities themselves so as to fairly represent the main territorial subdivisions and at least three of them will be from Tuscany and three from Emilia-Romagna Region. Within the Management Committee, these 7 representatives will be in charge of representing local needs and will work in close cooperation with all the local bodies delegating them.

However, this list is not intended to be exhaustive. In fact, the Management Committee will not be a closed conclave and will self-regulate itself by defining the most suitable ways to increase or decrease the number of parties comprising it (for example by excluding defaulting parties); its driving force will be the will to involve in the MaB *governance* representative entities which are able to constructively and effectively contribute to the pursuit of the MaB Area objectives of conservation, monitoring, research, development and education.

All the members of the "Management Committee" of the Appennino Tosco-Emiliano MaB Reserve must sign a "**Memorandum of Intent**", whose first signatory is the Appennino Tosco-Emiliano National Park as coordinator of the body. By means of said Memorandum, the members agree to share and accept the function of the body and the rules regulating its activity, undertaking to actively take part in all the meetings called and constructively contributing to the effective definition of the Management Programme and to the governance of the Reserve.

### 17.1.9. HOW IS THE MANAGEMENT/COORDINATION ADAPTED TO THE LOCAL SITUATION?

The Appennino Tosco-Emiliano Biosphere Reserve has been defined as a mosaic of diversity, characterised by a level of competences and representativeness which is as varied as it is complex. In order to guarantee that the coordination and management system of the MaB Reserve represents this multiplicity of authorities, bodies and associations present and active in the territory, and at the same time is effective and functional, two bodies will be set up: a wide "Permanent Consultative Assembly", through which all the local stakeholders of the Reserve can take part in the choices and decisions concerning the Reserve (whose functions and operating modes are described in par. 17.1.7), and a "Management Committee", streamlined and extremely competent, in charge of the coordination and operating management of the Reserve (whose functions and operating modes are described in par. 17.1.8). The "Management Committee" and the "Permanent Consultative Assembly" will be coordinated by the Chairperson of the Appennino Tosco-Emiliano National Park, which can serve as a link and coordination body since it has national status and at the same time consists of and is managed by bodies and territories from both sides and from the two main administrative divisions of the area, i.e. the regions of Emilia-Romagna and Tuscany.

### 17.1.10. IS THERE A PROCEDURE FOR EVALUATING AND MONITORING THE EFFECTIVENESS OF THE MANAGEMENT?

One of the tasks of the "Permanent Consultative Assembly" (cf. 17.1.7) will be to regularly monitor and assess the effectiveness of the management of the Reserve by the Management Committee (cf. 17.1.8). At least once a year the "Management Committee" (cf. 17.1.8) will submit a report to the "Permanent Consultative Assembly" on the results achieved by the Reserve management activity, with specific reference to the monitoring and performance indicators related to the implementation of the Management Programme, as described in chapter 17.4.4. The Assembly will then make an assessment and fill in a specific form with suggestions, promptings and binding requests aimed at the Management Committee.

Should the Assembly express (by majority vote) great dissatisfaction with the Management of the Reserve, it will be entitled to request that the Chairperson of the Appennino Tosco-Emiliano National Park (who coordinates both the "Permanent Consultative Assembly" and the "Management Committee") propose a new composition and/or new operating modes for the "Management Committee" in order to make it more effective.

## 17.2. CONFLICTS WITHIN THE BIOSPHERE RESERVE:

Within the boundaries of the proposed Biosphere Reserve, conflicts typical of Italian rural and mountainous areas can be found. Once again, the territory can be considered a workshop of good practices for consultation, mediation and the pacification of such conflicts.

Among the issues generating conflicts it is worth mentioning:

The Apennine area of the Reserve is one of the Italian areas with the highest hydrogeological instability, with over 20% of hill and mountain areas affected by active or dormant landslides on the Northern side, characterised mainly by clayey formations, and with problems resulting from extremely intense rain events on the Southern side. The reduction in the agricultural activity and in the energy introduced into natural systems by man causes slopes to be weaker and, in some cases, changes (including radical ones) in the landscape.

New requests for exploitation and concession of water resources for energy purposes (mainly small hydro). Dealing with requests for concession for the use of wind energy near ridges and passes, as well as requests for the installation of photovoltaic systems on farmland, is also a problem.

The renewed presence of wolves has raised significant management problems, mainly connected with the predation of domestic cattle and the widespread perception of this species as dangerous, which often derives from "non-educated/non-informed" popular hearsay.

The generalised and significant increase in wildlife damages agriculture and makes it difficult to have successful, quality crops.

Climate change has caused critical events, up to now localised, such as those connected with an increased intensity of phenomena (intensity of precipitation, prolonged dry spells, etc.) with subsequent changes in natural and anthropic systems.

The MAB area is characterised by opposite demographic trends: density decrease in the higher municipalities and density increase in the lower ones.

Another conflict which has emerged among the population is the fact that some tourist and hiking areas of great environmental value are being accessed by off-road vehicles (motorbikes, quads, cars), the use of which is growing continuously.

### 17.2.1. DESCRIBE ANY IMPORTANT CONFLICTS REGARDING THE ACCESS OR THE USE OF NATURAL RESOURCES IN THE AREA CONSIDERED (AND PRECISE PERIOD IF ACCURATE). IF THE BIOSPHERE RESERVE HAS CONTRIBUTED TO PREVENTING OR RESOLVING SOME OF THESE CONFLICTS, EXPLAIN WHAT HAS BEEN RESOLVED OR PREVENTED, AND HOW THIS WAS ACHIEVED FOR EACH ZONE.

Natural/Cultural resources and energy production: the area included in the Biosphere Reserve proposal comprises several hydroelectric plants which were built at the beginning of the 20th century and supply approximately 50,000 families with electricity for domestic use. In the last 10 years there has been a significant increase in the demand for new plants for the production of electricity from renewable sources: hydroelectric, wind and photovoltaic energy on watercourses, ridges and farmland, which could have a potentially high impact on natural elements, landscape and cultural and historical aspects. New requests are subject to specific policies, complex procedures and an ever more structured debate. In particular, the many requests for new hydroelectric plants (small and medium hydro), often multiple and competing over the same river sections, as well as the possibility of irrigation reservoirs, have given rise to a heated debate among the local population, environmental associations and various stakeholders. Multidisciplinary, technical tables composed of bodies which are competent in the subject, supported by regional and provincial guidelines, are currently trying to improve the management of the requests for concession: thanks to the Reserve's recognition, such operational tools will have greater coordination and effectiveness.

Possible coexistence of anthropic activities and wildlife: the intensification of social conflict, the analysis of local dynamics and the call for attention by authorities and interest groups, as well as the awareness of the need to appropriately manage issues connected with the presence of wolves on a local level and the opportunities which might derive from this presence, have led to the establishment of a permanent reference centre for the management of wolves on an interregional level within the National Park, called Wolf Apennine Centre (hereinafter referred to as WAC). On a local level, competences in wolf preservation and management are currently fragmented, and this often results in generally inconsistent operational strategies;

the establishment of the WAC as an official permanent reference centre for the management of wolves on an interregional level (Northern Apennines) aims at obviating this fragmentation by implementing the existing cooperation among the National Park, Provinces and Veterinary Services, which is currently regulated by specific agreements. Among the tangible actions which have been put into place up to now, it is worth mentioning: the supply of watchdogs to protect flocks from attacks by wolves, the building of electric fences, technical assistance in dealing with claims for damages (including damages registered outside the Park territory).

### 17.2.2. IF THERE ARE ANY CONFLICTS IN COMPETENCE AMONG THE DIFFERENT ADMINISTRATIVE AUTHORITIES IN THE MANAGEMENT OF THE BIOSPHERE RESERVE, DESCRIBE THESE.

The administrative authorities which have the necessary competences in the territory of the reserve are: the Appennino Tosco-Emiliano National Park; the Region of Emilia-Romagna; the Region of Tuscany; Macroareas for Parks and Biodiversity; Municipalities and their Unions.

The presence of the Reserve, with its own governance system, which will require the involvement of territorial representations in management, development and conservation instruments, will allow the management of the issues that are currently giving rise to conflict in administrative competences in an efficient and more appropriate way, and on a larger scale (in particular as regards the preliminary, decision-making and control stages of authorisation procedures or specific issues, such as managing the conflict between the presence of ungulates and hunting and agriculture, and between the presence of wolves and livestock activity, which cannot be limited to the administrative boundaries of each body). This will allow frontier issues to be managed better, procedures to be simplified and a more effective decision-making action on the part of the bodies to be achieved.

In order to overcome interferences due to cases of partial overlapping in administrative competences (which are currently being amended as far as national regulations are concerned), within the Reserve Management Committee it will be possible to implement a connection and simplification action on issues involving various bodies and adjacent administrative areas. The tested establishment of the WAC within the Appennino Tosco-Emiliano National Park is a perfect example.

### 17.2.3. EXPLAIN THE MEANS USED TO RESOLVE THESE CONFLICTS, AND THEIR EFFECTIVENESS.

The series of instruments used to solve/reduce/manage the conflicts described in par. 17.2 may be summarised as follows:

- training, especially environmental education;

- regulating activities by means of laws and regulations;
- financial incentives aimed at promoting good practices;
- voluntary protocols between bodies and stakeholders;
- direct actions aimed at minimising the impact of crises.

The proposed Reserve area widely uses all the aforementioned instruments to deal with existing conflicts. In particular, the most important towns have been included since they host the institutes dealing with training and have relevant connections with leaders in the field like Reggiochildren. In addition to this, a complex system of rules exists in the area allowing the effects of inappropriate activities on natural and cultural systems to be reduced. The network of public authorities and companies uses the incentive instruments offered by the European Union, such as funds deriving from the Rural Development Plan and the Regional Operational Programme for the European Regional Development Fund (ERDF), as well as opportunities offered by the four local action groups present in the territory, thereby tackling the most critical issues. Policies in favour of quality agricultural and food production are significant both for the positive impact on the economy and on the quality of the territory; these policies allow the upkeep of landscape, the protection of hydrogeological fragility, the preservation of a high biodiversity rate and of traditional local skills, and are implemented through a system of rules, voluntary agreements and incentives in favour of good practices. Several protocols and agreements have been signed by the various parties inside and outside the area in order to deal with conflicts, thereby showing a strong networking capacity. Sometimes the authorities belonging to the area, in some cases in cooperation with external entities, took direct measures aimed at minimising conflicts deriving from extraordinary events. In this case the resources used came from their own budgetary funds or from the sharing of European Union funds.

## 17.3. REPRESENTATION, PARTICIPATION AND CONSULTATION OF LOCAL COMMUNITIES

### 17.3.1. AT WHAT STAGES IN THE EXISTENCE OF A BIOSPHERE RESERVE HAVE LOCAL PEOPLE BEEN INVOLVED: DESIGN OF THE BIOSPHERE RESERVE, DRAWING UP OF THE MANAGEMENT/COOPERATION PLAN, IMPLEMENTATION OF THE PLAN, DAY TO DAY MANAGEMENT OF THE BIOSPHERE RESERVE? GIVE SOME SPECIFIC EXAMPLES.

The UNESCO MaB Reserve candidature for the Tuscan-Emilian Apennines and most of the content of this dossier are the result of a long process started by the Appennino Tosco-Emiliano National Park in 2012 in which local communities and all the stakeholders were involved and took part.

#### PETITION

In 2012 the Appennino Tosco-Emiliano National Park, before making its intention official, carried out an information and awareness campaign about UNESCO MaB Biosphere Reserves aimed at both residents and tourists. It then presented a preliminary informal evaluation (30/11/2012) to the Park Community (the representative and consultative body composed of the Municipalities, Provinces and Regions involved, which is in charge of the National Park's Long-term Economic and Social Plan). The issue met with interest and appreciation which is why, during the main events in which the National Park took part in the Tuscan-Emilian Apennine area, a petition was organised to collect signatures in favour of the MaB candidature. During this preliminary stage, almost 900 signatures were collected (in annex), among which those belonging to representatives of many local public authorities, companies and associations; for this reason, the National Park

felt entitled to make its intention official, and in the next stage the Park Community was given permission to start the procedure.

## MEETINGS TO PRESENT, TAKE PART IN AND SHARE THE CANDIDATURE

Having ascertained that the ambition to become a UNESCO MaB Reserve was strong and widespread, the Appennino Tosco-Emiliano National Park went on to the second stage of involvement and participation, organising meetings all over the area involved (meetings which will continue to be held after the dossier is submitted), aimed at presenting the mission and strategic objectives of the MaB Reserve candidature.

These meetings, partly open to the public and partly aimed at small groups of stakeholders, at first helped to motivate and achieve consensus, as well as to gain the local communities and stakeholders' will to actively participate in the candidature process , and to dispel doubts and fears – especially with respect to the dreaded bureaucratisation – concerning such a significant "novelty". They also helped to share the mission and strategic objectives which will be pursued by the Reserve, to agree on its perimeter and zoning and define the governance model on which its management will be based. The results of the meetings were therefore essential in order to draw up this dossier.

During almost every meeting, the National Park wrote a report and collected the attendees' signatures (these documents can be found in annex).

The following table lists the meetings that have taken place up to now.

| # | Date | Place | Targets | Participants |
|---|---|---|---|---|
| 1 | 21/06/13 | Casina (Reggio Emilia) | Administrators and experts | 4 |
| 2 | 03/07/2013 | Castelnovo ne' Monti (Reggio Emilia) | Municipalities of the Mountain Community (attendees: Vetto, Ligonchio, Villa Minozzo, Toano, Collagna, Carpineti, Castelnovo ne' Monti) | 9 |
| 3 | 12-13/09/13 | Cerreto Laghi (Reggio Emilia) | Teachers from all over the MaB area | 110 |
| 4 | 20/09/2013 | Fivizzano (Massa-Carrara) | Municipalities from the Lunigiana area, Tour operators, citizens | 14 |
| 5 | 29/09/2013 | Castelnovo ne' Monti (Reggio Emilia) | Municipalities and Authorities of the MAB area, Chambers of Commerce, Environmental Associations, schools, citizens | 100 |
| 6 | 22/10/2013 | Castelnuovo Garfagnana (Lucca) | Municipalities from the Garfagnana area (attendees: Castiglione Garfagnana, Pieve Fosciana, Castenuovo Garfagnana, San Romano in Garfagnana) | 4 |
| 7 | 06/11/2013 | Castelnovo ne' Monti (Reggio Emilia) | Members of the association Idea Natura, in charge of various tourism marketing projects related to the Reggio Emilia Apennines. | 3 |
| 8 | 10/12/2013 | Casina (Reggio Emilia) | The new councillor for the Environment and civil servant. | 2 |
| 9 | 13/12/2013 | Reggio Emilia | Local authorities, citizens | 55 |
| 10 | 12/01/2014 | Vezzano (Reggio Emilia) | Administrators and experts | 3 |
| 11 | 10/02/2014 | Langhirano (Parma) | Province, Municipalities, West Emilia Macroarea | 8 |
| 12 | 12/02/2014 | Castelnovo ne' Monti (Reggio Emilia) | Teaching staff of the Istituto di Istruzione Superiore (high school) in Castelnovo ne' Monti (Reggio Emilia) | 63 |
| 13 | 17/02/2014 | Langhirano (Parma) | Municipalities of the 100 Laghi Park and West Emilia Macroarea | 5 |
| 14 | 24/02/2014 | Ligonchio (Reggio Emilia) | Tour operators | 34 |
| 15 | 24/02/2014 | Ligonchio (Reggio Emilia) | Park Community of the Appennino Tosco-Emiliano National Park | 23 |

| # | Date | Place | Targets | Participants |
|---|---|---|---|---|
| 16 | 25/02/2014 | Reggio Emilia | Members of the 3 Rotary Clubs from the Province of Reggio Emilia (Reggio Emilia, Terre di Canossa, Valsecchia) | 30 |
| 17 | 06/03/2014 | Cerreto Laghi (Reggio Emilia) | Local authorities, tour operators | 43 |
| 18 | 07/03/2014 | Vezzano (Reggio Emilia) | Local administrators | 3 |
| 19 | 07/03/2014 | Gombio (Reggio Emilia) | Associations and citizens | 13 |
| 20 | 20/03/2014 | Casina (Reggio Emilia) | Members of the Ecomuseo Val Secchia | 13 |
| 21 | 02/04/2014 | Carpineti (Reggio Emilia) | Administrators and experts | 2 |
| 22 | 04/04/2014 | Canossa (Reggio Emilia) | Administrative authorities and cultural/trekking associations | 7 |
| 23 | 09/05/2014 | Castelnovo ne' Monti (Reggio Emilia) | Teaching staff of the Istituto di Istruzione Superiore Cattaneo-Dall'Aglio (high school) in Castelnovo ne' Monti (Reggio Emilia) | 71 |
| 24 | 10/05/2014 | Reggio Emilia | Attendees at the conference organised by the Province on "Values in the Matilde di Canossa Area" | 120 |
| 25 | 16/05/2014 | Vezzano (Reggio Emilia) | Administrators and experts | 5 |
| 26 | 24/06/2014 | Parma | Provincial Executive of the Parma Italian Alpine Club | 9 |
| 27 | 24/06/2014 | Castelnovo ne' Monti (Reggio Emilia) | Regional Executive of the Emilia Romagna Italian Alpine Club | 15 |
| 28 | 28/06/2014 | Villa Minozzo (Reggio Emilia) | Administrators and experts | 6 |
| 29 | 06/07/2014 | Casina (Reggio Emilia) | Mayors and Councillors of Ligonchio, Vetto, Castelnovo ne Monti, Carpineti, Canossa, Ramiseto, Busana, Baiso, Casina; Councillors of the Emilia-Romagna Region | 11 |
| 30 | 08/07/2014 | Aulla (Massa-Carrara) | Mayors of Filattiera, Bagnone, Fivizzano; Regional Councillors from Tuscany, economic operators, local action groups | 11 |
| 31 | 09/07/2014 | Toano (Reggio | Administrators and experts | 5 |

| # | Date | Place | Targets | Participants |
|---|---|---|---|---|
| | | Emilia) | | |
| 32 | 09/07/2014 | Villa Minozzo (Reggio Emilia) | Administrators and experts | 4 |
| 33 | 12/07/2014 | Palanzano (Parma) | Administrators and experts | 3 |
| 34 | 12/07/2014 | Monchio (Parma) | Administrators and experts from the municipalities of Monchio and Corniglio | 6 |

In addition to the above-mentioned meetings, the National Park also organised 3 public meetings entitled "Ideas and Projects for the Apennines within the UNESCO Network"

| no | Title | Targets | Date | Place | Participants |
|---|---|---|---|---|---|
| 1 | Presentation and sharing of the UNESCO MaB candidature procedure for the Tuscan-Emilian Apennines | Local authorities (public and private), private citizens | 05/04/2014 | Marola, Carpineti (Reggio Emilia) | 39 |
| 2 | | | 30/04/2014 | Castelnuovo Garfagnana (Lucca) | 18 |
| 3 | | | 25/05/2014 | Parma | 15 |

These meetings were held on the basis of a predefined format divided into three parts:

- during the first part the National Park presented the ongoing candidature draft;
- during the second part several stakeholders expressed their points of view to support and implement the candidature process;
- during the third part all participants, thanks to the formation of work groups, had the chance to have a say in the candidature issue, in particular as regards three main themes:
    - conservation and upgrading of natural heritage;
    - sustainable tourism;
    - rural development.

After each meeting, reports were written and attendance sheets were initialled by participants (in annex).

It is worth pointing out that Slobodan Puzovic, councillor for town planning, construction and environment for the Autonomous Province of Vojivodina (Serbia), took part in the meeting held in Castelnuovo in Garfagnana and shared his territory's experience in relation to the candidature process and UNESCO MaB Reserve recognition.

The meeting that took place in Parma was organised as part of the "Festambiente" programme by Legambiente.

## RESOLUTIONS IN FAVOUR OF THE CANDIDATURE PROCESS

Thanks to the meetings described above, between the end of 2013 and the beginning of 2014, 17 Municipalities out of the 38 included in the Reserve decided to make their intention official by passing Committee or Council resolutions (in annex) in order to initiate the candidature process for their territories. These documents turned out to be very important: firstly because they spread the debate concerning the strategic choice of applying to become a MaB Reserve around the territory, and secondly because they showed that the candidature process did not only involve the National Park area and was not endorsed only by the Park itself or by the relevant Municipalities. The resolutions passed by these Municipalities, although generic (no reference to perimeters or to a draft copy of the dossier was made yet), certainly supported the candidature process and encouraged other Municipalities to apply, thereby reaching the final figure of 38. Later resolutions passed by all 38 Town Councils between July and August 2014 (in annex) endorsed the final decision to include their territories in the Appennino Tosco-Emiliano MaB Reserve and approved the perimeter, zoning and candidature dossier.

## LETTERS OF ENDORSEMENT

At the same time, following the presentation meetings organised by the National Park, other important authorities, bodies and associations operating in the area decided to show their support in favour of the MaB candidature by means of letters of endorsement (in annex). Thanks to these letters, they made their willingness to actively support the management official or, in other cases, they presented projects aimed at achieving and strengthening the Reserve's conservation, monitoring and development objectives.

| Body | Type of Document | Date |
|---|---|---|
| CCIAA Parma | Resolution of the Board of Governors | 11/26/2013 |
| Municipality of Reggio Emilia | Letter of endorsement | 05/22/2014 |
| CCIAA Reggio Emilia | Letter of endorsement | 06/09/2014 |
| Consortium of Chestnut-growers from the Reggio Emilia Apennines | Letter of endorsement | 07/11/2014 |
| Reggio Children Foundation | Letter of endorsement | 07/14/2014 |
| I.T.C.G "Cattaneo Dall'Aglio", Castelnovo ne' Monti (high school) | Letter of endorsement | 07/29/2014 |
| Andrea Borri Foundation | Letter of endorsement | 07/30/2014 |
| Italian Alpine Club – Parma section | Letter of endorsement | 07/31/2014 |
| Istituto di Istruzione Tecnico Professionale, Castelnovo ne' Monti (high school) | Letter of endorsement | 08/01/2014 |
| Garfagnana Ambiente e Sviluppo (Local Action Group) | Letter of endorsement | 08/05/2014 |
| Body for the Management of Parks and Biodiversity in West Emilia | Letter of endorsement | 08/05/2014 |
| Region of Tuscany – General Directorate for Environmental, Energy and Climate Change Policies | Letter of endorsement | 08/07/2014 |
| Consorzio Sviluppo Lunigiana Leader (Local Action Group) | Letter of endorsement | 08/07/2014 |
| Garfagnana Identity and Memory Bank | Letter of endorsement | 08/07/2014 |
| National Italian Alpine Club | Letter of endorsement | 08/08/2014 |
| Local Action Group Antico Frignano Appennino Reggiano | Letter of endorsement | 08/22/2014 |
| University of Modena and Reggio Emilia | Letter of endorsement | 09/16/2014 |
| Land Reclamation authority for Central Emilia (Consorzio di Bonifica dell'Emilia Centrale) | Letter of endorsement | 09/17/2014 |

## SHARING THE CANDIDATURE PROCESS THROUGH A SPECIAL WEBSITE

During the first few months of 2014, the Park developed a special website for the UNESCO MaB candidature of the Appennino Tosco-Emiliano National Park which can be found at the following link: www.parcoAppennino.it/uomo.biosfera. This web space, advertised through the Park's official website, thematic media and social networks, was created with the aim of sharing the candidature process with local communities, authorities and all the social and economic entities of the area and of gathering observations

and suggestions from anyone wishing to contribute. The website was also created as a point of reference for those wishing to gather further information about UNESCO MaB issues, and to receive feedback on the documentation presented by the Park during the candidature process, as well as to increase the visibility of the meetings organised in the area. The following sections are particularly important for the Park: **Dì la tua! (Tell us your opinion)** (http://www.parcoAppennino.it/uomo.biosfera/?page_id=21), where residents, farmers, entrepreneurs, tourists and all users in general are invited to talk about what they think is the symbol of the relationship between man and nature in the Tuscan-Emilian Apennines, and **Posso aiutare? (Can I help?)** (http://www.parcoAppennino.it/uomo.biosfera/?page_id=19), where the Park wants to gather local authorities' and citizens' interests, offer possible hints for cooperation opportunities for each of the following categories (schools, training institutes, companies, residents, etc.) and encourage active participation and involvement in the upgrading, development and environmental education activities in the area in question.

### 17.3.2. DESCRIBE HOW THE LOCAL PEOPLE (INCLUDING WOMEN AND INDIGENOUS COMMUNITIES) HAVE BEEN, AND/OR ARE REPRESENTED IN THE PLANNING AND MANAGEMENT OF THE BIOSPHERE RESERVE (E.G., ASSEMBLY OF REPRESENTATIVES, CONSULTATIVE GROUPS).

All local communities, without any distinction whatsoever, were involved in the drafting of this candidature dossier for the Appennino Tosco-Emiliano MaB Reserve: they took part in the meetings on the presentation, participation and sharing in the candidature organised by the Appennino Tosco-Emiliano National Park (see par. 17.3.1.) both in their capacity as representational bodies (local authorities, associations, committees) and as individual citizens or local companies. Their contribution was taken into account in drafting this dossier; this is proved by the many letters of endorsement received by the National Park in favour of its candidature from various local stakeholders, in which they confirm their will to take part in activities connected with the management and upgrading of the Appennino Tosco-Emiliano Biosphere Reserve.

The governance model for the management of the Appennino Tosco-Emiliano MaB Reserve is based on a specific, large-scale body aimed at representing and involving local communities, without any distinction whatsoever, in the planning and management of the Reserve. This body is the "Permanent Consultative Assembly" (whose functions and prerogatives are described in par. 17.1.7), in which all local stakeholders, as well as the representatives of committees, associations and other groups of residents, are invited to take part.

### 17.3.3. DESCRIBE THE SPECIFIC SITUATION OF YOUNG PEOPLE IN THE PROPOSED BIOSPHERE RESERVE (E.G., POTENTIAL IMPACTS OF THE BIOSPHERE RESERVE ON YOUTH, CONSIDERATION OF THEIR INTERESTS AND NEEDS, INCENTIVES TO ENCOURAGE THEM TO PARTICIPATE ACTIVELY IN THE GOVERNANCE SYSTEM OF THE BIOSPHERE RESERVE).

An in-depth study called "Ri-conoscere l'Appennino" (Recognising the Apennines) was carried out over the last 4 years by the Economic Observatory for the Reggio Emilia Apennines (Osservatorio Economico sull'Appennino Reggiano). This study, promoted by the Reggio Emilia CCIAA and involving students aged 16-19, teachers, families, public administrators, entrepreneurs and cooperatives, dealt with the values, interests and expectations of young people and revealed, on the one hand, a sense of affection (52%) with regard to living in the Apennines (quality of the environment) and, on the other hand, a sense of alienation (48% with an increasing trend) as well as a desire to move elsewhere (lack of work opportunities and relations). The Appennino Tosco-Emiliano National Park subsequently organised two presentation,

participation and sharing meetings concerning the candidature (see par. 1.7.3.1) with the teaching staff of two important high schools with the aim of analysing the possible repercussions of MaB Reserve recognition on educational programmes and work opportunities for local young people.

Indeed, it is clear that the fall in population affecting the higher area of the Apennine Ridge (where the Biosphere Reserve Core Areas and Buffer Zones are concentrated) in favour of the lower, hill areas (where the Reserve's Transition Areas can be found) and the towns on the plain, is mainly due to the fact that young people are progressively leaving the area. In fact, in these "extreme" areas it is difficult for them to find suitable answers to their working needs (the area is characterised by a high educational level) and to their social (lack of nursery schools and primary schools) and recreational needs.

For this reason this candidature dossier revolves around a crucial issue, i.e. motivating young people living in the entire Appennino Tosco-Emiliano MaB Reserve area and surrounding areas to rediscover the values of their own territory, thanks to coherent educational programmes, and to convert them into employment opportunities in innovative sectors like ecotourism and traditional and quality rurality. This can be done, among other things, by means of consistent educational projects. The aim is to ensure that young people from the local area but also from "outside" play an important role in this sustainable development workshop which, by protecting and making the most of the natural and cultural heritage for which the MaB Reserve was created, can at the same time guarantee income opportunities and a satisfying quality of life for local communities.

### 17.3.4. WHAT FORM DOES THIS REPRESENTATION TAKE (E.G., COMPANIES, ASSOCIATIONS, ENVIRONMENTAL ASSOCIATIONS, TRADE UNIONS)?

All the main local schools and universities, as well as economic, environmental, cultural and recreational associations specifically addressed to young people, are invited to take part and have a rilevant role in the "Permanent Consultative Assembly" (whose functions and prerogatives with regard to the management of the Reserve are described in par. 17.1.7).

### 17.3.5. ARE THERE PROCEDURES FOR INTEGRATING THE REPRESENTATIVE BODY OF LOCAL COMMUNITIES (E.G., FINANCIAL, ELECTION OF REPRESENTATIVES, TRADITIONAL AUTHORITIES)?

Representatives of Local Authorities, and Municipalities in particular, will be included both in the "Permanent Consultative Assembly" (see par. 17.1.7) and the "Management Committee" (see par. 17.1.8), the two bodies in charge of governing the Appennino Tosco-Emiliano MaB Reserve. Municipalities represent the main democratic form of representation established by the Italian Constitution for local communities who regularly elect their administrators, usually every 5 years. Chambers of Commerce (CCIAAs) are also represented, i.e. traditional, long-standing bodies representing industrial, agricultural, craft and commercial businesses.

Representatives of the main entrepreneurial, environmental, cultural and recreational associations operating in the MaB Reserve also take part in the "Permanent Consultative Assembly". These associations also appoint their representatives in a democratic way.

Local communities can also be represented in the "Permanent Consultative Assembly" in the form of committees or free associations of residents, provided that they make a written request of participation to the Appennino Tosco-Emiliano National Park.

### 17.3.6. HOW LONG-LIVED ARE CONSULTATION MECHANISMS (PERMANENT ASSEMBLY, CONSULTATION ON SPECIFIC PROJECTS)? MAKE A COMPLETE DESCRIPTION OF THIS CONSULTATION. WHAT ARE THE ROLES OF INVOLVED STAKEHOLDERS COMPARED TO THE ROLE OF THE BIOSPHERE RESERVE?

Within the governance of the MaB Reserve, the consultation, participation and representation function of local communities and stakeholders is assigned to the "Permanent Consultative Assembly" (cf. 17.1.7). This body will be set up only after, and if, recognition is granted; it will be permanent, i.e. it will have no fixed term and the parties composing it will not be renewed (authorities, bodies, associations, etc.). However, the latter must, by law, regularly renew their representational bodies, which means that the Reserve's Permanent Consultative Assembly will also renew its participants periodically.

The Permanent Consultative Assembly will not only be involved in specific projects but will also be entitled to give instructions relating to the overall management of the Appennino Tosco-Emiliano MaB Reserve. The "Permanent Consultative Assembly" will be coordinated by the Chairperson of the Appennino Tosco-Emiliano National Park who, supported by the "MaB Office", will convene the Assembly at least once a year, or whenever at least 1/4 of the parties entitled to take part in it request it.

The stakeholders involved in the Management Committee have different roles with regard to the main functions of the Biosphere Reserve but they all represent, in different ways, the local communities. Some of them are mainly competent for the management of the territory and the representation of local communities (Regions, Provinces, Unions and Municipalities), others for environmental and biodiversity conservation (Park Authorities, State Forestry Corps, Environmental Associations); others for educational/training functions (Universities, Educational Institutes, Research Bodies) and others for economic and social development issues (CCIAAs, Local Action Groups, Professional Associations, Consortiums, Cultural/Recreational Associations).

As widely described in par. 17.1.7, the "Permanent Consultative Assembly" is made up of all the main local stakeholders, who participate in this body on a permanent basis and renew their participants as their internal representatives are democratically renewed.

The role of the Assembly is crucial within the governance model developed for the Appennino Tosco-Emiliano MaB Reserve and is not limited to informing local communities. It will above all have an incentive function for the Management Committee (the body for the coordination and operating management of the Reserve, whose functions and operating modes are described in par. 17.1.8), providing instructions on how to draw up the Reserve Management Programme (see chapter 17.4), prompting and promoting its implementation, checking and assessing its results and requesting its regular updating.

It is also required to carry out an annual assessment of the management of the Reserve by the Management Committee. The Assembly's guidelines and decisions will be minuted by the MaB Office (see par. 17.1.6) and will be made public and supplied to the "Management Committee".

### 17.3.7. WHAT CONSULTATION MECHANISMS HAVE BEEN USED, AND WHO HAS BEEN INVOLVED? ARE THEY FOR SPECIFIC PURPOSES OR LONG-TERM? WHAT IMPACTS HAVE THEY HAD ON DECISION-MAKING PROCESSES (DECISIONAL, CONSULTATIVE OR MERELY TO INFORM THE POPULATION)?

Before of the consultation mechanism implemented in the last years for the MaB candidature (see chapter 17.3.1) no one was ever made involving the whole area. At local level some municipalities and/or Provinces have established, in the beginning of the century, a Local Agenda 21 Forum to stimulate the participation of

citizen and stakeholders in the planning of sustainable development. At that time many “Action Plans” have been defined but few of them have been fully realized.

The Appennino Tosco Emiliano National Park, organized a participation mechanism in 2008 during the definition of the “Plan for the economic and social development of sustainable activities”. Many public meetings and workshops have been realized since then in all the 16 municipality composing the Park (all in the Mab Reserve). Suggestions and project ideas issued during these meetings have been inserted in the Plan and many of them have been already realized.

#### 17.3.8. DO WOMEN PARTICIPATE IN COMMUNITY ORGANIZATIONS AND DECISION-MAKING PROCESSES? ARE THEIR INTERESTS AND NEEDS GIVEN EQUAL CONSIDERATION? WHAT INCENTIVES OR PROGRAMMES ARE IN PLACE TO ENCOURAGE THEIR REPRESENTATION AND PARTICIPATION (E.G.: WAS(WERE) A “GENDER IMPACT ASSESSMENT(S)” CARRIED OUT)?

Women's participation in the governance bodies of the Reserve is not guaranteed through specific programmes (see par. 17.1.7 and 17.1.8) because in Italy there is no evidence of a different level of involvement of men and women in the institutional and association world.

### 17.4. THE MANAGEMENT/COOPERATION PLAN/POLICY:

#### 17.4.1. IS THERE A MANAGEMENT/COOPERATION PLAN/POLICY FOR THE BIOSPHERE RESERVE AS A WHOLE?

At the time of candidature, the Appennino Tosco-Emiliano MaB Reserve "Management Programme" was not developed; however, a "Guideline Document for the Management Programme" (Documento di indirizzo al Programma di Gestione) was produced (in annex), presented and unanimously approved on 24 February 2014 by the Park Community of the Appennino Tosco-Emiliano National Park. This body's existence is established by the Park's founding decree and includes all local and regional administrative authorities connected to the Park area. On that occasion the Park Community was extended to all the Mayors of the Municipalities that are located outside the Park but are interested in being part of the MaB Reserve and to all the main local stakeholders. The "Guideline Document" highlights the Appennino Tosco-Emiliano MaB Reserve focus and outlines the main objectives to be pursued with respect to the three main functions; it also defines a governance model for the Reserve based on wide cooperation networks which are able to involve public and private stakeholders and whose operational and coordination reference centre is the National Park .

This Document was made public through the special website developed for the candidature (http://www.parcoappennino.it/uomo.biosfera) and its content was the subject of debate during most of the meetings held after its publication (see par. 17.3.1); it was therefore slightly amended and integrated before being inserted in this dossier.

Furthermore, a procedure for the drafting of the Management Programme was developed and shared with local authorities and the main local stakeholders, and the parties which will be in charge of implementing and monitoring the Programme were identified and engaged.

- Within 2 months of the actual recognition of the Appennino Tosco-Emiliano MaB Reserve, the "Permanent Consultative Assembly" (see par. 17.1.7) and the "Management Committee" (see par. 17.1.8) will be jointly convened by the Appennino Tosco-Emiliano National Park at its headquarters. During this meeting, when the two bodies will be officially set up, the "Guideline Document" approved on 24 February 2014 by the extended Park Community (in annex) will be discussed, updated

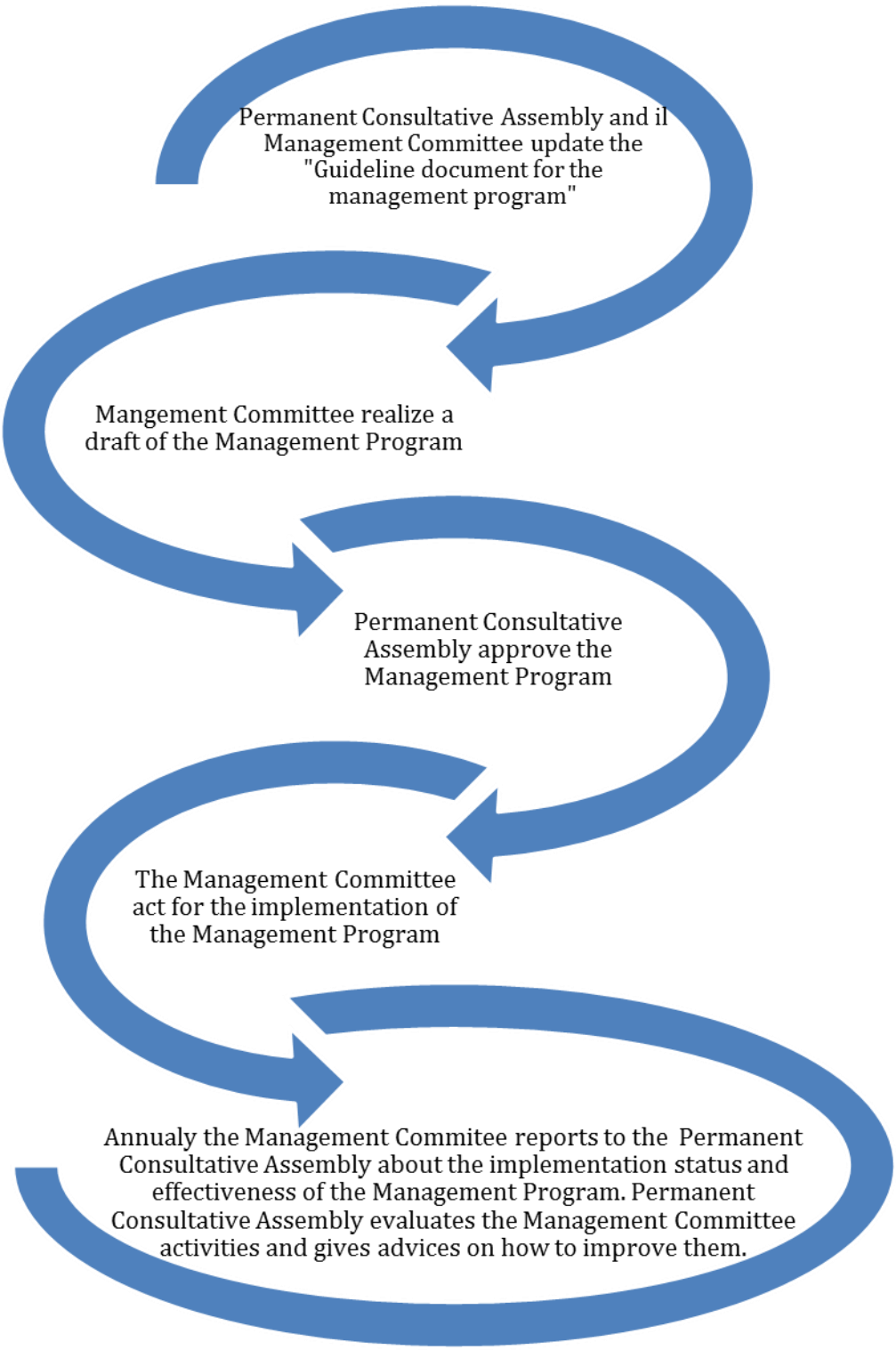
and approved with the support of the "Appennino Tosco-Emiliano MaB Office" (see par. 17.1.6). This Document will serve as a model to draw up the Reserve Management Programme.

- Within 4 months following the approval of the "Guideline Document", the "Management Committee" will draft the **Management Programme** (see par. 17.4.5) during a series of meetings which will be called by the National Park and will take place at its headquarters at least every month. This draft will be then submitted to the Permanent Consultative Assembly for approval. For this activity the "Management Committee" will be supported by the "Appennino Tosco-Emiliano MaB Office" which will be in charge of drafting the "Management Programme of the Appennino Tosco-Emiliano MaB Reserve" and of minuting the meetings.
- Within one month following the drawing up of the Management Programme Draft, the "Permanent Consultative Assembly" will be convened by the Appennino Tosco-Emiliano National Park. The Assembly will approve (by majority vote) the Management Programme (if necessary, asking the Management Committee to make small changes and updates) or reject it and ask the Management Committee to submit a new version within 2 months, giving instructions for an overall review and update. If necessary, this can be done during more than one meeting but in any case no later than two months following the drawing up of the Management Programme Draft.
- Once the "Management Programme" has been approved, the "Management Committee", supported by the MaB Office, will undertake to implement it and will update the "Permanent Consultative Assembly" at least once a year (see par. 17.4.4) on the implementation status and the effectiveness of the Programme. The Assembly will offer promptings and suggestions concerning the implementation of the Programme and assess the effectiveness of the Management Committee's work (see par. 17.1.7).

**Timing for the definition and approval of the Management Programme**

| WHEN | WHO | WHAT |
|---|---|---|
| **Month 0** | UNESCO MaB Committee | Recognition of the Tuscan-Emilian Apennines as a MaB Reserve |
| **Month 2** | Appennino Tosco-Emiliano National Park | Convenes the first joint meeting between the "Permanent Consultative Assembly" and the "Management Committee", which approve the "Guideline Document" updating |
| **Month 6** | "Management Committee" | Draws up a draft of the "Management Programme" |
| **Month 7** | "Permanent Consultative Assembly" | Approves (or postpones) the "Management Programme" |
| **Months 19, 31, 43** | "Management Committee" | Submits a report on the implementation and effectiveness of the "Management Programme" to the "Permanent Consultative Assembly" |

**Decision-making flow for the definition of the Management Programme**




### 17.4.2. WHICH ACTORS ARE INVOLVED IN PREPARING THE MANAGEMENT/COOPERATION PLAN? HOW ARE THEY INVOLVED?

The Management Programme for the Appennino Tosco-Emiliano MaB Reserve will be drawn up by the members of the Management Committee (whose members and prerogatives are described in par. 17.1.8)

upon input from the "Permanent Consultative Assembly" (whose members and prerogatives are described in par. 17.1.7) according to the procedure described in par. 17.4.1.

Many of the authorities, bodies and associations composing the two bodies which were created for the governance of the Appennino Tosco-Emiliano MaB Reserve supported its candidature as a MaB Reserve with letters of endorsement, and at that stage already expressed their commitment in the future management. Furthermore, members of the Management Committee as well as members of the Permanent Consultative Assembly must sign a "Memorandum of Understanding", whose first signatory is the Appennino Tosco-Emiliano National Park as the coordinator of both bodies. By means of said Memorandum, members agree upon the function of the body and the rules regulating its activity, undertaking to actively take part in all the meetings called and constructively contributing to the effective management of the Reserve.

### 17.4.3. DO LOCAL AUTHORITIES FORMALLY ADOPT THE MANAGEMENT/COOPERATION PLAN? ARE LOCAL AUTHORITIES MAKING REFERENCE TO IT IN OTHER POLICIES AND/OR PLANS? IF SO, PLEASE PROVIDE DETAILS.

The Management Programme will not be formally adopted by local authorities, and the latter will not be obliged to refer to it as far as their planning instruments are concerned. However, Local Bodies will be widely involved and committed in the definition and implementation of the Management Programme. The latter will be drawn up by the Management Committee (see par. 17.1.8), which will consist of 7 members representing the Reserve's Local Bodies, and will be approved by the Permanent Consultative Assembly (see par. 17.1.7), which all local authorities linked with the Reserve are part of.

### 17.4.4. WHAT IS THE DURATION OF THE MANAGEMENT/COOPERATION PLAN? HOW OFTEN IS IT REVISED OR RENEGOTIATED?

The Management Programme for the Appennino Tosco-Emiliano MaB Reserve will last 4 years, at the end of which it will undergo profound revision/updating following the same procedure as its first edition (see par. 17.4.1). This revision will be the result of updates which take into account the new needs of the MaB Area, as well as assessments deriving from the periodic monitoring of the Management Programme implementation by means of fixed indicators (see par. 17.4.5). More frequent revisions of the Management Programme will be possible upon request of the majority of the Permanent Consultative Assembly (see par. 17.1.7).

### 17.4.5. DESCRIBE THE CONTENTS OF THE MANAGEMENT/COOPERATION PLAN. DOES IT CONSIST OF DETAILED MEASURES OR DETAILED GUIDELINES? GIVE SOME EXAMPLES OF MEASURES OR GUIDELINES ADVOCATED BY THE PLAN?

As stated in par. 17.4.1 the Management Programme has not yet been drawn up. However a "Guideline Document" (in annex) defining the main objectives to be pursued in the Management Programme with respect to the three functions (see par. 17.4.6) has been prepared. This Document will be supplemented, updated and approved during the joint founding meeting between the Permanent Consultative Assembly and the Management Committee (see par. 17.4.1); it will represent the driving force for and an integral part of the Management Programme, and will define the Reserve's conservation, monitoring and development strategies and objectives.

The Management Programme will be divided into **4 operational programmes**:

- one for the conservation and preservation of the MaB Reserve, with specific Focuses for each Core Area;

- one for the monitoring and scientific research in the MaB Area, with specific Focuses for the Core Areas and Buffer Zones;
- one to support sustainable development in the MaB Area, mainly focused on sustainable tourism and quality agriculture;
- one for education to sustainability and for professional training on the values and merits of the MaB Area.

Operational programmes will exclusively consist of practical measures and actions. For each measure/action, the people in charge of their implementation will be defined (if possible chosen among the members of the Permanent Consultative Assembly), as well as at least one indicator for the monitoring of the implementation and at least one performance indicator linked to one or more deadlines. Based on these indicators the Management Committee (see par. 17.1.8) will prepare a report, at least once a year, on the status of implementation of the Management Programme for the Permanent Consultative Assembly, following the procedure described in par. 17.4.1.

### 17.4.6. INDICATE HOW THIS MANAGEMENT/COOPERATION ADDRESSES THE OBJECTIVES OF THE PROPOSED BIOSPHERE RESERVE (AS DESCRIBED IN SECTION 13.1).

Both the composition of the "Management Committee" (see par. 17.1.8) and the proposed structure for the Management Programme (see par. 17.4.5) have been defined to meet the objectives for the Appennino Tosco-Emiliano MaB Reserve (described in par. 13.1). In particular, the Management Committee includes, in addition to 7 representatives of Local Bodies, 6 extremely competent and authoritative entities with regard to the preservation, development, research and environmental education of the Reserve:

- The Appennino Tosco-Emiliano National Park (which coordinates the Committee through its Chairperson) will be the point of reference for the pursuit of conservation and preservation objectives and will work within the Management Committee in close cooperation with other bodies in charge of managing protected areas inside the Appennino Tosco-Emiliano MaB Area.
- The Parma Chamber of Commerce, Industry, Crafts and Agriculture (CCIAA) and the Local Action Group “Consorzio Sviluppo Lunigiana Leader” will serve as points of reference for the pursuit of social and economic sustainable development objectives and will work within the Management Committee in close cooperation with other local CCIAAs, other LAGs and with all professional associations and businesses active in the Appennino Tosco-Emiliano MaB Area.
- The Reggio Children Non-profit Foundation, whose function is to spread and develop the Reggio Emilia Approach, and the University of Modena and Reggio Emilia that will be a point of reference as far as logistic support objectives are concerned. In particular, the Reggio Children Foundation will mainly be in charge of spreading quality education and training, operating within the Management Committee in close cooperation with all the schools and educational institutes of the Appennino Tosco-Emiliano MaB Area and with its worldwide network of connections. The University of Modena and Reggio Emilia will mainly perform research and monitoring functions and will work in close cooperation with other universities and research bodies operating in the area and dealing with the main themes of the Appennino Tosco-Emiliano MaB candidature.
- The “Bank” of Identity and the Memory of the Garfagnana will serve as point of reference for the pursuit of local and traditional culture preservation and will work within the Management Committee in close cooperation with other cultural associations in the Candidate MaB reserve.

Within the Management Committee, these six entities will therefore be in charge of drawing up the first draft of each of the **four Operational Programmes** which make up the Management Programme and are also connected with the Reserve's objectives described in par. 13.1., i.e.:

- one for the conservation and preservation of the MaB Reserve, with specific Focuses for each Core Area (to be carried out by the Appennino Tosco-Emiliano National Park);
- one for monitoring and scientific research in the MaB Area, with a specific Focus for each Core Area and Buffer Zone (to be carried out by the University of Modena and Reggio Emilia);
- one to support sustainable development in the MaB Area, mainly focused on sustainable tourism, quality agriculture and local traditions preservation (to be carried out respectively by the Parma CCIAA, the LAG "Consorzio Sviluppo Lunigiana Leader" and by the "Bank" of Identity and the Memory of the Garfagnana);
- one for education to sustainability and for professional training on the values and merits of the MaB Area (to be carried out by the Reggio Children Foundation).

In any case, the operational programmes making up the Management Programme will be jointly discussed and defined by all members of the Management Committee.

### 17.4.7. IS THE PLAN BINDING? IS IT BASED ON A CONSENSUS?

The Appennino Tosco-Emiliano MaB Reserve Management Programme will not be binding and will have "cultural reference" and "moral suasion" functions. By taking part in the Permanent Consultative Assembly (see par. 17.1.7) and in the Management Committee (see par. 17.1.8), the Authorities, Bodies and Associations included in these two bodies sign a Memorandum of Understanding which binds them, within their possibilities and resources, to implement (or favour the implementation of) the Management Programme.

The Management Programme, prompted and approved by majority vote by the Permanent Consultative Assembly (see par. 17.4.1), a large-scale body which well represents social and economic entities from the local area (see par. 17.1.7), will be based on a wide consensus.

### 17.4.8. WHICH AUTHORITIES ARE IN CHARGE OF THE IMPLEMENTATION OF THE PLAN, ESPECIALLY IN THE BUFFER ZONE(S) AND THE TRANSITION AREA(S)? PLEASE PROVIDE EVIDENCE OF THE ROLE OF THESE AUTHORITIES.

The members of the Management Committee are the main persons in charge of the implementation of the Management Programme (see par. 17.1.8).

The Management Programme, without any particular distinction among Core Areas, Buffer Zones and Transition Areas, will consist of practical measures and actions. Responsibility for the individual implementation of the latter, both from the point of view of the main competences and of the necessary resources for implementation, will fall upon one or several members of the Management Committee, i.e. the body in charge of drawing up the Management Programme (see par. 17.1.8), or upon parties with which the members of the Management Committee will have signed agreements and partnerships with regard to specific areas and/or themes (above all members of the Permanent Consultative Assembly which approves the Management Programme – see par. 17.1.7).

Three out of four of the operational programmes refer to Buffer Zones and Transition Areas in particular (see par. 17.4.5 and 17.4.6): the one for monitoring and scientific research in the MaB Area, carried out by

the University of Modena and Reggio Emilia; the one supporting sustainable development in the MaB Area, mainly focused on sustainable tourism and quality agriculture, carried out by the Parma CCIAA; and the one for education for sustainability and professional training in the values and merits of the MaB Area, carried out by the Reggio Children Foundation.

### 17.4.9. WHICH FACTORS IMPEDE OR HELP ITS IMPLEMENTATION (E.G.: RELUCTANCE OF LOCAL PEOPLE, CONFLICTS BETWEEN DIFFERENT LEVELS OF DECISION-MAKING).

Even though the Management Programme has not yet been defined, at the moment there seem to be no factors which might prevent or slow down its implementation. This statement is supported by the fact that, on a general level, the Appennino Tosco-Emiliano MaB Reserve candidature, despite reaching a wide audience both in local media and political debates, did not meet with any significant opposition among the local population. On the contrary, local stakeholders (through letters of endorsement – see par. 17.3.1) and general citizens (through the forum "Dì la tua" – Tell us your opinion – on the candidature website – see par. 17.3.1) showed their support in many ways.

It is to be hoped that such widespread support for the MaB Reserve candidature can be turned into practical support for the implementation of the Management Programme. Furthermore, the proposed governance model, in which the coordination function is mainly assigned to the National Park but which involves a wide network of authorities, bodies and stakeholders, can be seen as the right solution to avoid conflicts between different levels of power and to favour the implementation of the Management Programme.

### 17.4.10. IS THE BIOSPHERE RESERVE INTEGRATED IN REGIONAL/NATIONAL STRATEGIES? VICE VERSA, HOW ARE THE LOCAL/MUNICIPAL PLANS INTEGRATED IN THE PLANNING OF THE BIOSPHERE RESERVE?

The choice of the Appennino Tosco-Emiliano National Park, through its Chairperson, as the coordinator of the MaB Reserve (see par. 17.1.6) makes sure that the management of the Reserve is integrated in national strategies, in particular as regards safeguarding biodiversity, monitoring and research on environmental issues and the promotion of sustainable development. This is due to the fact that the National Park is a body which is directly connected with the Italian Ministry of the Environment. At the same time the National Park also cooperates with Regions (Emilia-Romagna and Tuscany, which approve its programmes) and Local Bodies (Regions, Provinces and Municipalities belonging to the Park Community), as well as entities managing European resources (Local Action Groups) and entities for local economic planning (CCIAAs), agreeing on and integrating its strategies with these bodies.

### 17.4.11. INDICATE THE MAIN SOURCE OF THE FUNDING AND THE ESTIMATED YEARLY BUDGET.

At the moment it is not possible to make an estimate of the annual budget that is necessary for the Management of the Appennino Tosco-Emiliano Biosphere Reserve. The National Park will ensure the operating management with its own funds, putting its headquarters at the disposal of the Permanent Consultative Assembly and the Management Committee for meetings (see par. 17.1.7 and 17.1.8) and ensuring the administration together with the Appennino Tosco-Emiliano MaB Office (see par. 17.1.6), which will also deal with information and communication concerning the Reserve. The necessary resources for the management of the Reserve and for the implementation of the Management Programme, based on projects and programme agreements which will be specifically defined and approved, will be defined in ordinary budgets by

the members of the Permanent Consultative Assembly signing the agreements, as well as by presenting projects to apply for European funds (especially within the framework of LIFE+ programmes and the 2014-2020 RDP funds for rural development) and by means of private project financing. In recent years, the Appennino Tosco-Emiliano National Park has demonstrated great skill in raising external funds, and several of its projects have been financed. The authorities from the candidate area have also performed well in their use of European funds.

## 17.5. CONCLUSIONS:

### 17.5.1. IN YOUR OPINION, WHAT WILL ENSURE THAT BOTH THE FUNCTIONING OF THE BIOSPHERE RESERVE AND THE STRUCTURES IN PLACE WILL BE SATISFACTORY? EXPLAIN WHY AND HOW, ESPECIALLY REGARDING THE FULFILLMENT OF THE THREE FUNCTIONS OF BIOSPHERE RESERVES (CONSERVATION, DEVELOPMENT, LOGISTIC) AND THE PARTICIPATION OF LOCAL COMMUNITIES.

There are multiple reasons why we think that the functioning of the Appennino Tosco-Emiliano MaB Reserve and the structures used for its governance will be satisfactory.

First of all, the actor chosen to coordinate the managing of the Reserve, i.e. the Appennino Tosco-Emiliano National Park (see paragraph 17.1.6), is an institutional body endowed with a structure and personnel competent in all the three main functions of the Reserve: expert in managing the relationships with authorities, stakeholders and local communities (not only in its own territory but also from the neighbouring areas) and with national and international actors, whose area of authority is central compared to that of the Reserve not only from a geographical point of view (since it mainly lies on the ridge of the Tuscan-Emilian Apennines) but also as regards its value (all the core areas lie entirely within the National Park).

Secondly, we can expect local administrations, main stakeholders and resident communities to be keenly involved in the management phase of the MaB Reserve since they showed motivation and enthusiasm in welcoming the candidature. Apart from having already published and shared a “Guideline document” for the Management Programme (see paragraph 17.4.1), many actors showed great appreciation and sent many letters of endorsement, in which they declared that they are willing to participate and support the governance of the Reserve (see paragraph 17.3.1).

- Moreover, the structure designed for the governance provides for the establishment of two bodies [the “Permanent Consultative Assembly” (see paragraph 17.1.7), ample and open to guarantee involvement and participation, and the “Management Committee” (see paragraph 17.1.8), straightforward and operative], whose prerogatives in the definition and the implementation of the Management programme (see paragraph 17.4) are distinct and yet at the same time linked and interdependent. This structure will also guarantee a corporate and efficacy-oriented management of the Reserve, in which the actors will participate not only in the decision-making process but also in their implementation. In this context it is also necessary to mention the decision to define, within the “Management Programme”, 4 operative programmes (one for the protection and the conservation of the MaB Reserve, with specific focuses for each Core Area; one for monitoring and scientific research, with specific focus on the Core Areas and the Buffer Zones; one for the support to sustainable development, based in particular on sustainable tourism and quality agriculture; and one for education towards sustainability and professional training on the values and excellent products of the MaB Area). The definition and the implementation of these operative programmes was dele-

gated to an equal number of actors, who are competent and representative and belong to the Management Committee, i.e. the Appennino Tosco-Emiliano National Park, the University of Modena and Reggio Emilia, the Chamber of Commerce, Industry, Crafts and Agriculture of Parma, the Local Action Group "Consorzio Sviluppo Lunigiana Leader", the "Bank" of Identity and the Memory of the Garfagnana and the Reggio Children Foundation (see paragraph 17.4.5). Monitoring of the implementation and the efficacy of the Management Programme has been envisaged and described in paragraph 17.1.10.

The participation of the local communities, which was already ample during the definition phase of the candidature (see paragraph 17.3) thanks to a series of meetings on the territory and access to documents on the Web, will be guaranteed not only thanks to the establishment of the "Permanent Consultative Assembly" (see paragraph 17.1.7) but also by continuing the information, involvement and awareness-raising actions through meetings on the territory and activities on the Web.

## 18. SPECIAL DESIGNATIONS:

[Special designations recognize the importance of particular sites in carrying out the functions important in a biosphere reserve, such as conservation, monitoring, experimental research, and environmental education. These designations can help strengthen these functions where they exist or provide opportunities for developing them. Special designations may apply to an entire proposed biosphere reserve or to a site included within. They are therefore complementary and reinforcing of the designation as a biosphere reserve. Check each designation that applies to the proposed biosphere reserve and indicate its name]

Name:

( ) UNESCO World Heritage Site

( ) RAMSAR Wetland Convention Site

(X) Other international/regional conservation conventions/directives (specify)

1. Parco Nazionale dell'Appennino Tosco Emiliano
2. Ente di Gestione dei Parchi e della Biodiveristà Emilia Centrale
3. Ente di Gestione dei Parchi e della Biodiveristà Emilia Occidentale
4. Riserva Naturale dello Stato dell'Orecchiella
5. Riserva Naturale dello Stato Guadine Pradaccio
6. Riserva Naturale dello Stato di Lama Rossa
7. Riserva Naturale dello Stato di Lama Pania di Corfino
8. Siti facenti parte della rete "Natura 2000" compresi all'interno dell'area della Riserva MaB dell'Appennino Tosco Emiliano:
    - IT5110002 Monte Orsaro
    - IT5110003 Monte Matto - Monte Malpasso
    - IT5110004 Monte Acuto - Groppi di Camporaghera
    - IT5110005 Monte La Nuda - Monte Tondo
    - IT5120001 Monte Sillano - Passo Romecchio
    - IT5120002 Monte Castellino - Le Forbici
    - IT5120003 Parco dell'Orecchiella - Pania di Corfino - Lamarossa
    - IT4030017 Ca' del Vento, Ca' del Lupo, Gessi di Borzano
    - IT4020015 Monte Fuso
    - IT4020020 Crinale dell'Appennino parmense
    - IT4030001 Monte Acuto, Alpe di Succiso
    - IT4030002 Monte Ventasso
    - IT4030003 Monte la Nuda, Cima Belfiore, Passo del Cerreto
    - IT4030004 Val d'Ozola, Monte Cusna
    - IT4030005 Abetina Reale, Alta Val Dolo

- IT4030006 Monte Prado
- IT4030008 Pietra di Bismantova
- IT4030009 Gessi Triassici
- IT4030010 Monte Duro
- IT4030013 Fiume Enza da La Mora a Compiano
- IT4030014 Rupe di Campotrera, Rossena
- IT4030018 Media Val Tresinaro, Val Dorgola
- IT4030022 Rio Tassaro
- IT4040002 Monte Rondinaio, Monte Giovo

( ) Long term monitoring site (specify)

() Long Term Ecological Research (LTER site)

( ) Other (specify)

# 19. SUPPORTING DOCUMENTS (TO BE SUBMITTED WITH NOMINATION FORM):

## 19.1. LOCATION AND ZONATION MAP WITH COORDINATES

Within the annexed " Cartographic Atlas" are present:

- the general map of the Reserve referred to the standard geographic coordinates (WGS 84).
- the topographic map with the boundaries of the three zones of the Reserve

Copies of these maps are available on the website www.dolomitiproject.it/mab

Shapefiles (WGS 84) used for the production of cartography are annexed in the DVD.

## 19.2. LAND COVER MAP

The “Land Cover Map” of the Reserve is in the annexed “Cartographic Atlas”.

## 19.3. LIST OF LEGAL DOCUMENTS

The decree of the President of Appennino Tosco Emiliano National Park and the municipal councils resolutions of the 38 municipalities participating in the MAB Reserve are annexed in the DVD. The decree and the resolutions approve:

- the contents of this candidature dossier in its entirety
- the adhesion of part of its territory to the MaB Reserve, in accordance with the detailed perimeter and with the subdivision in Area Core, Buffer and Transition present in '"Atlas Cartographic"
- a commitment to ensure support for the conservation, management and development of the MAB Reserve
- the mandate to the Chairman / Mayor or his delegate to sign this dossier in Chapter 5.

## 19.4. LIST OF LAND USE AND MANAGEMENT/COOPERATION PLANS

Due to the large size of these plans (and their attachments) we just indicate the Web sites where they can download the updated version

- Plan for the Park (http://www.parcoappennino.it/pagina.php?id=5)
- Provincial Coordination Territorial Plan (PTCP - Piano Territoriale di Coordinamento Provinciale) of Parma http://ptcp.provincia.parma.it/page.asp?IdCategoria=1770&IDSezione=&IDOggetto=&Tipo=GENERICO)
- Provincial Coordination Territorial Plan (PTCP - Piano Territoriale di Coordinamento Provinciale) of Reggio Emilia (http://www.provincia.re.it/page.asp?IDCategoria=701&IDSezione=20680)
- Provincial Coordination Territorial Plan (PTCP - Piano Territoriale di Coordinamento Provinciale) of Modena http://www.territorio.provincia.modena.it/page.asp?IDCategoria=121&IDSezione=3920)
- Coordination Territorial Plan (PTC - Piano Territoriale di Coordinamento) of the province of Lucca (http://www.provincia.lucca.it/pianificazione/index.php?id=31)
- Coordination Territorial Plan (PTC - Piano Territoriale di Coordinamento) of the province of Massa Carrara (http://portale.provincia.ms.it/page.asp?IDCategoria=2102&IDSezione=9988)

## 19.5. SPECIES LIST

The "Species List" is annexed as an excel file in the DVD, with information on the status of priority, the entity and the trend of the population, the state of knowledge and state of conservation, threats, conservation measures and an evaluation of proposals management measures.

## 19.6. LIST OF MAIN BIBLIOGRAPHIC REFERENCES

Annexed

## 19.7. ORIGINAL ENDORSEMENT LETTERS ACCORDING TO PARAGRAPH 5

In addition to the decree of the President of Appennino Tosco Emiliano National Park and the municipal councils resolutions of the 38 Municipalities participating in the MAB Reserve, you can find annexed in the DVD the following letters of endorsement:

- Chamber of Commerce Industry, Craft, and Agriculture of Parma
- Municipality of Reggio Emilia
- Chamber of Commerce Industry, Craft, and Agriculture of Reggio Emilia
- Consortium of Reggio Emilia Apennines chestnut growers
- Andrea Borri Foundation
- Reggio Children Foundation
- State High School “Cattaneo Dall’Aglio” of Castelnovo ne’ Monti
- Italian Alpine Club of Parma
- State Technical High School of Castelnovo ne’ Monti
- Local Action Group (GAL) “Garfagnana Ambiente e Sviluppo”
- Bodies for the Management of Parks and Biodiversity in West Emilia
- Toscana Region – Directorate General for Environmental Policy, Energy and Climate Change
- Local Action Group (GAL) “Consorzio Sviluppo Lunigiana Leader”
- “Bank” of Identity and the Memory of the Garfagnana
- Italian Alpine Club
- Local Action Group (GAL) “Antico Frignano Appennino Reggiano”
- University of Modena and Reggio Emilia
- Land Reclamation authority for Central Emilia (Consorzio di Bonifica dell’Emilia Centrale)

## 19.8. FURTHER SUPPORTING DOCUMENTS.

You can also find annexed:

- Within the “Cartographic atlas”, besides those already mentioned, there are the following maps:
    - Main settlements map
    - Geologic map

  - Slope map
  - Thirty topographic map at scale 1:50.000
  - Six detailed map, one for each Core area
- Detailed list of major environmental education activities carried out in recent years on the territory of the Reserve
- A detailed description of the habitat in the Reserve
- List of scientific studies carried out on the territory
- Five statistic table with demographic and socio-economic information:
  - Demographic Indicators
  - Population change
  - Foreign citizens
  - Farmland
  - Livestock
- "Guideline document for the Reserve management Program" (only in electronic format, in the DVD)
- Sheets signatures, reports and communication materials for awareness, information, participation meetings realized during the preparation of the candidature dossier (only in electronic format, in the DVD)
- municipal resolutions in support of the candidature process of the MAB Reserve (only in electronic format, in the DVD)

## 20. ADDRESSES:

### 20.1. CONTACT ADDRESS OF THE PROPOSED BIOSPHERE RESERVE:

[Government agency, organization, or other entity (entities) to serve as the main contact and to whom all correspondence within the World Network of Biosphere Reserves should be addressed.]

Name: Parco Nazionale dell'Appennino Tosco-Emiliano

Street or P.O. Box: Via Nazionale 23

City with postal code: 54010 Sassalbo di Fivizzano (MS)

Country: Italy

Telephone: 0039 0585-947200

E-mail: info@parcoappennino.it

Web site: www.parcoappennino.it

### 20.2. ADMINISTERING ENTITY OF THE CORE AREA(S):

Name: Parco Nazionale dell'Appennino Tosco-Emiliano

Street or P.O. Box: Via Nazionale 23

City with postal code: 54010 Sassalbo di Fivizzano (MS)

Country: Italy

Telephone: 0039 0585-947200

E-mail: info@parcoappennino.it

Web site: www.parcoappennino.it

### 20.3. ADMINISTERING ENTITY OF THE BUFFER ZONE(S):

Name: Parco Nazionale dell'Appennino Tosco-Emiliano

Street or P.O. Box: Via Nazionale 23

City with postal code: 54010 Sassalbo di Fivizzano (MS)

Country: Italy

Telephone: 0039 0585-947200

E-mail: info@parcoappennino.it

Web site: www.parcoappennino.it

### 20.4. ADMINISTERING ENTITY OF THE TRANSITION AREA(S):

Name: Parco Nazionale dell'Appennino Tosco-Emiliano

Street or P.O. Box: Via Nazionale 23

City with postal code: 54010 Sassalbo di Fivizzano (MS)

Country: Italy

Telephone: 0039 0585-947200

E-mail: info@parcoappennino.it

Web site: www.parcoappennino.it