





Application Dossier

Nomination Form

September 2017

CREDITS

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Parco Lombardo della Valle del Ticino Ente di gestione delle aree protette del Ticino e del Lago Maggiore Parco Nazionale della Val Grande

Application supported by:

Ministero dell'Ambiente e della Tutela del Territorio e del Mare

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PART I: SUMMARY



1. PROPOSED NAME OF THE BIOSPHERE RESERVE:

The candidate reserve constitutes an extension of the "Valle del Ticino" Biosphere Reserve, which was recognized in 2002 and reconfirmed in 2014 under the periodic review process.

Due to the new territorial and environmental configuration of the projected enlargement presented in this candidature, the bodies involved are evaluating a proposal to modify the name of the reserve in order to identify the main territorial zones included in the new MAB area:

Ticino Val Grande Verbano

The identitying logo of the Valle del Ticino Reserve has been adapted with the new name of the reserve so as to be representative of the environmental, territorial and anthropic features of the candidate reserve:



The reserve's logo was created through a participatory process. As the reserve is a 360° territorial laboratory and the involvement of local schools and educational institutes was considered important, the new logo was created and conceived by students of a graphic workshop course in 2017 on the basis of a free, unpaid collaboration. Through its graphic design and colours, it represents, as a whole, the natural and geographic elements characterizing the reserve, which together combine to form a human shape referencing the close relationship between MAN and the BIOSPHERE. The logo has been registered and deposited at the Chamber of Commerce of Novara, as a collective logo, and can be released free of charge by the reserve for those requesting patronage for public and private projects (cultural, educational, scientific, promotional) in line with the principles of the UNESCO MAB Programme.

2. NAME OF THE COUNTRY:

Italy

- Fig. 1 Location of the MAB Reserve candidate
- O Location of the MAB Reserve candidate

3. FULFILLMENT OF THE THREE FUNCTIONS OF BIOSPHERE RESERVES:

The candidate territory constitutes an extension of the Valle del Ticino Biosphere Reserve recognized in 2002 and reconfirmed in the course of a ten-year periodic review (as established by the Seville Conference), launched in 2012 and concluded with the 26th session of the ICC (International Coordination Council) of the MAB Program, which took place in Sweden in 2014. During the conference the MAB Valle Ticino Reserve as a whole was considered to fully satisfy the requirements of the MAB / UNESCO Programmes's World Network (of Bioreserves).

The territory of the Reserve covered by this application presents both wide biodiversity, primarily identified by a rich and varied mosaic of conservation programs consisting of 19 parks and reserves (national and regional), as well as 48 sites of the Natura 2000 network, as well as a socio-economic fabric strongly interconnected with both the metropolitan area of Milan and the dual-coexisting realities of the agricultural system, one the one hand, intensive exploitation of the plains and on the other extensive, but fragile cultivation of the hills and mountain regions.

A network of parks and territorial connectivity for integrated sustainable development is the first geo-environmental hypothesis bringing together the three functions of the Biosphere Reserve candidate: preserve the rich biodiverse mosaic, the ecosystems, ecological connections and the landscape; practice sustainable development to be exported outside protected areas and support cultural, educational, and sustainable conservation research projects.

Large-scale bioregional interconnection is the proposal's second hypothesis, namely the creation of an extensive and continuous Biosphere Reserve capable of interconnecting the Alpine Bioregion, the Continental Bioregion and the Mediterranean Bioregion, by extending the existing reserve, including the entire catchment area of the Ticino River and Lake Maggiore, in view of the future Italian-Swiss cross-border reserve. (see box Chapter. 3.3)

The proposed expansion, in addition to the strategic assumptions mentioned above, structurally correlates the new reserve according to the territorial and geodiverse elements reported in the following table:

	MAB 2017		MAB 2012		Absolute change
	ha	% of total	ha	% of total	ha
URBAN-BUILT-UP AREAS	40.299	12,1%	23.026	15,3%	+17.273
AGRICULTURAL LAND USE	114.483	34,5%	88.795	59,0%	+25.688
SEMI-NATURAL & WOODED TERRITORY	154.887	46,6%	36.497	24,3%	+118.390
WETLANDS	524	0,16%	43	0,03%	+481
BODIES OF WATER-RIVERS & LAKES	21.970	6,6%	2.091	1,4%	+19.879
TOTAL	332.163	100,0%	150.452	100,0%	+181.711
	n.		n.		n.
POPUL ATION	1.082.196		679.210		+402.986

Tab. 1Values and variations of territorial components

As can be seen from the quantitative values reported, the candidate reserve is characterized by a different and more marked balance between natural and anthropic components of the territory involved. It can be observed that the weighting of the wooded and semi-natural areas, ranging from 36,497 hectares to 154,887 of the new reserve, reaches 46.6% of the reserve area as a whole, compared to 24.3 % of the existing area. The other two natural components, wetlands and water bodies assume a higher percentage than they cover at present (0.16% and 6.6% respectively for wetlands and bodies of water).

On the other hand, the proportion of built-up areas falls from 15.3% to 12.1%, and agricultural land from 59.0% to 34.5%.

The new reserve will therefore have a more balanced configuration, with some specificities such as the increased percentage of water bodies with the presence of large the sub-alpine lakes of Insubria including Lakes Maggiore and Varese, and the articulation of the relevant components (anthropic and natural) increasing the importance of the reserve's role in the predisposition of sustainable actions in relation to the interaction between urban areas and the local ecosystem.

Such comparisons are of a quantitative nature; at the qualitative level it can be said that, regardless of the total occupied area with respect to the overall extension of the reserve, anthropic or agricultural areas high in historical-cultural importance, unique (eg. water marshes) and of notable attractiveness, are also included in the MAB.

Along with the modified configuration of the regional plan, the proposal for enlargement also envisages a substantial change in the socio-economic structure, in particular due to the significant weighting that the new reserve will bring to the tourist sector, as it includes important tourist attractions and facilities that can rely on an already developed network of itineraries, accommodation and promotion as well as incentives to encourage sustainable forms of tourism. With over 3.5 million visitors per year (2016), over 70% foreigners, the area of the Distretto Turistico dei Laghi (covering the Piedmont shore of Lake Maggiore) is the most important international tourist destination in Piedmont, the third in Italy, after Trentino Alto Adige and Valle d'Aosta. Added to this, is the share of visitors to the ATV of Novara (392,781 in 2015), to the Lombard side of the lake and to the province of Varese (2,226,192 in 2016).

Finally, it should taken into consideration that the proposed area is covered by the Multi-Internationally Designated Areas (MIDAs, 2016 International Union for Conservation of Nature), one of the 3,331 IDAs (2015), which constitute a number of areas designated and recognized by international instruments such as The World Heritage Convention (the Sacri Monti and pile dwelling areas), UNESCO Man and the Biosphere (MAB) Programme (MAB of Ticino), and UNESCO Global Geoparks, International Geoscience and Geoparks Program (IGGP) with the Sesia Val Grande Geopark.

This is an area within which the plurality of international designations will require the integration of management and programming in accordance with the principles outlined by the IUCN in the handbook "Managing MIDAs: Harmonizing the Management of Multi-Internationally Designated Areas: Ramsar Sites, World Heritage Sites, Biosphere Reserves and UNESCO Global Geoparks "(2016).

Additionally, the Ticino Valley Reserve has been designated as an IBA - Important Bird Area by BirdLife International, and is likely to receive further recognition at international level, once it has successfully concluded the process to obtain a Wetlands of International Importance designation, according to the Ramsar Convention, presented in 2014 and currently being evaluated (note that a favorable opinion by the Ministry of the Environment was obtained in 2016).

3.1."Conservation - contribute to the conservation of landscapes, ecosystems, species and genetic variation".

The strategic factor in the proposed conservation of landscapes, ecosystems and species of the Biosphere Reserve consists of the possible environmental and landscape contiguity and connectivity on a wide scale of the existing network of parks and reserves, as well as in the declination of core, buffer and transition areas.

The candidate territory is a large area that, starting from the Po Valley, follows the course of the Ticino River, and takes in the hills between the Ticino, Sesia, and Olona Rivers, the pre-alpine lakes (Lake Maggiore and the Lake of Varese) and the Varesine Prealps and Lepontine Alps.

Part of this vast area including plains, hills and mountainous areas, namely the Ticino Valley, is currently a MAB Reserve, which subscribes to the three functions of conservation (genetic resources, species, ecosystems, landscapes), socio-sustainable economic development and logistical support (to encourage and support research, surveillance, training and environmental education activities).

The Ticino Valley is the largest and most extensive of the remaining natural areas of the entire Padana Plain, an area of ancient anthropization and of great urban and industrial development in recent times. The site, one of the largest river parks in Europe, features a mosaic of natural ecosystems typical of the great waterways and constitutes an extraordinary biological corridor through the urbanized plain between the two mountainous systems of the Alps and Apennines.

The current Biosphere Reserve includes, more specifically, the Ticino sublacustrine valley (under the protection of the two eponymous Lombardy and Piedmontese Regional Parks) and other natural environments within in the vast Ticino basin and protected as Parks and Nature Reserves: the Lagoni Natural Park of Mercurago, the Dormelletto Canneti Reserve, Bosco Solivo Nature Reserve and the Fondo Toce Natural Reserve. And during 2014 review procedures, the Reserve was extended to include the Novarese Hills as well as the Natural Park of Monte Fenera and the Baragge Natural Reserve.

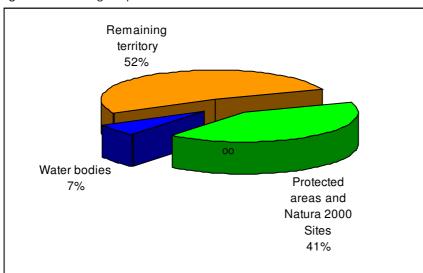
In the current proposal to enlarge the Reserve, the following protected areas will be added to the territory of the Ticino catchment basin: the Val Grande National Park, the Campo dei Fiori Regional Nature Park, the Monte Mesa Natural Reserve, the Colle di Buccione Natural Reserve, the Special Reserves of the Sacri Monti (Sacred Mountains) of Orta, Ghiffa, and Domodossola, the Lake Ganna and Lake Biandronno Natural Reserves, the Natural Reserve of the Palude Brabbia (Swamp), as well as 48 sites of the Natura 2000 Network, including 28 Special Conservation Zones (SAC), 11 Special Protection Zones (SPAs), 5 Community Interest Points (SCI), and 4 overlapping SPAs and SCIs.

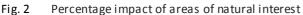
The current request for enlargement aims at eventually creating a cross-border Biosphere Reserve with Switzerland, beginning with this first stage of inclusion of the Verbano areas that will connect the reserve's Italian territory with the Swiss canton of Ticino and with its protected areas (Reserve of the Bolle di Magadino and the future Locarnese Park). To this end negotiations between the Italian Ministry of the Environment and the Federal Office of the Swiss Environment were launched on 1 February 2017, to reach an agreement for the creation and management of a cross-border area between the Locarno Park and Valli dei Bagni; this agreement was the first step necessary to start the process of creating the Cross-border Reserve, expected to occur in 2019/2020. In this context, mention must be made of the synergy between the two systems of the protected areas and the Natura 2000 network.

As these are distinct areas that are in some cases overlapping and in others not physically continuous but nonethless territorially conncted, they become, due to the high density of biodiversity as well as historical-cultural value therein, the cornerstones to be joined via corridors of naturalistic, ecosystemic, landscape, cultural and socio-economic value.

In accordance with the IUCN definition of protected areas in its most recent Guidelines (IUCN, 2008), i.e. "a clearly defined, recognized, dedicated and managed geographical area to achieve long-term conservation associated with ecosystem services and cultural values ", the conservation framework within the scope of the MAB emerges as a multifunctional ecological net, not only as a conservation framework for connecting biodiversity, but also as a network of ecosystem services for human activities.

Overall, 41% of the candidate territory is defined by protected areas or Natura 2000 network sites, as shown in the following graph:





The great wealth of protected areas and sites of the Natura 2000 network is testimony to the importance of the candidate MAB Reserve in terms of environmental, natural and biodiversity resources. The conservation of these resources in a highly anthropized area such as the Padana Plain is guaranteed by the presence of parks and reserves of which a brief description follows.

The **Ticino Valley Parks** guarantee the protection of this natural capital within a highly anthropic territory like the Po Valley, in which the Ticino, Lombard and Piedmont Parks together constitute the largest river park in Europe. In the river valley, the diversity of habitats is extremely high and includes the main river, pioneer phytocenosis of pebbly banks, woodlands of hardwoods, conifers (*Pino silvestre*) and mixed species, hygrophilous stands, oxbow lakes and wetlands, moors, meadows, stable, arable fields, hedges and ecotones, uncultivated land, paddy fields, irrigation ditches and a significant secondary water network.



Fig. 3 Ticino River

It is of great interest for the maintenance of biodiversity in the Po Plain Ecoregion and in the contiguous ecoregions (Alpine and Apennine-Mediterranean), the fact that the Ticino Valley represents the only element of continuity between the Prealps and the River Po and, through the latter, with the Apennines. An absolutely unique aspect of the Ticino Valley within the Padana area as well, is the influence of the river dynamics on significant areas of the geomorphological processes. The Ticino Valley is one of the main priority areas for the biodiversity of the Po Valley, due to the number and and variability of environments and the quantity of preserved nature, as evidenced by its great wealth of fauna and flora. In addition to the 100 km of natural riverbed, the Ticino Valley also boasts, in the area of the Po Valley, the largest and best preserved system of lateral wetlands (oxbow lakes, watermaeadows, ancient irrigation channels in disuse); among the best and largest examples on a continental bio-geographic scale of rice paddies, a key habitat for the conservation of many species of waterfowl (nesting and migratory), amphibians and odonates, many of which are threatened on a continental scale; the largest and best preserved temporarily flooded Alnus alutinous (alder) forests; the largest and best preserved temporarily flooded hay meadows known locally as "marcites"; the largest reed beds in the Italian sector of Lake Maggiore, located

along a migratory line of international importance, along with the reed beds of the "Bolle di Magadino" in Swiss territory, already a designated Ramsar site; and finally one of the few planar bogs present in Northern Italy, at its southern limit, together with the "Palude Brabbia" swamp (Lombardy), designated as a Ramsar site.

From a faunistic point of view, the Ticino Valley is one of the main wintering areas of aquatic birds in Italy; 320 bird species have been sighted here: 60.8% of the 526 species known in Italy, of which 135 probable or definitely nesting. Of these species, 93 are of Community interest, and included in Attachment I of the Bird Directive 2009/147 / EC. This justified the candidature (ongoing) of the Ticino Valley to be designated a Ramsar site. The fauna of the river environment is also of considerable importance, populated with valued species of fish; forest fauna are equally relevant; for example, among others, the sizeable presence of two species of amphibians of Community interest, the Italian agile frog (*Rana latastei*) and the spadefoot toad (Pelobate fosco).



Fig. 4 Pelobate fosco

Thanks to this wealth and variety of animal and plant species, and ecosystems, 17 Natura 2000 sites have been recognized within the Ticino Valley.

The importance of this area as an ecological corridor has recently beern reconfirmed by sightings of a wolf in the Ticino Valley, the species having returned to the Padana Plain after an absence of 200 years and finding here sufficient natural areas to permit its wider distribution.

On the morainic hills surrounding Lake Maggiore on the Piedmont side, the Biosphere Reserve includes the Natural Park of the Lagoni of Mercurago, a pureblood horse breeding, and nurmerous parcels of woodland.

Along the shores of Lake Maggiore between Arona and Castelletto Ticino, is the **Canneti di** Dormelletto Reserve of reed beds, extending for approximately four kilometers and covering an area of 157 hectares. This is one of the last examples in the Novarese area, along with the Fondo Toce Reserve, a transition zone between land and water, of predominantly of spontaneous vegetation, consisting of reed beds.

Other natural elements of interest in the Biosphere Reserve are the **Bosco Solivo Nature Reserve**, an area of "particular landscape importance" between the morenic terraces of the lower Verbano, which contains some interesting testimony of ancient areas of human activity, and the **Natural Reserve of Fondo Toce** that protects the last stretch of the Toce River, and is part of the alluvial plain of Fondotoce - a typical relict wetland in a densely populated area, which is among the richest and most precious environments, from a natural point of view, as they have been drastically reduced due to land reclamation.

The most characteristic environment at Fondotoce is the reed bed, consisting almost exclusively of common reeds (*Phragmites australis*). Despite the significant anthropic disturbance along its periphery, a high degree of biodiversity is maintained, the area being frequented by animals of every class and species. Among the vegetal species that distinguishes the mouth of the Toce river, is *Trapa natans var. Verbanensis*: an endemic variety of " water chestnut ", which exists only in this area.

At the eastern border of the Ticino Reserve is the territory of Mount Fenera, which became part of the regional system of protected areas in 1987 with the establishment of the Natural Park of Monte Fenera, covering an area of 3,378 hectares. The Park takes its name from the single mountain that towers, imposing and soliatry, over the lower Valsesia area and easily recognizable from the nearby Novarese and Vercelli plains. It boasts interesting geological aspects, and there are numerous caves on its western slopes, some of which are of great archaeological and paleontological interest. Mount Fenera is a true microcosm, and attracts an impressive number of bird species including the rare black stork, a frequent visitor here now for a number of years, wallcreepers, and peregrine falcons. There are also rarities in park's flora including the alpine *daphne alpina* (Mezereon), wild vines, hart's tongue and royal fern.

Finally, the **Baraggia del Piano Rosa**, a protected area since 1992, as a Nature Reserve and a unique environment, is included in the MAB Reserve.Located on the fluvial-glacial terraces between the Sesia and Agogna rivers, its characteristic vegetation is due to the clayey soil typical of this area. Oaks and birch trees dot large expanses of mulberry grass (a tall grass that grows as high as two meters) in a landscape conditioned by the ancient practice of burning brushwood, which gives the area the look of the wooded savannahs of Africa, the snows of Monte Rosa in the background in place of those of Kilimanjaro or Kenya. In winter, the

resemblance is impressive and gives the impression that at any moment, a lion or some other exotic animal might appear on the high prairie.



Fig. 5 Baraggia of Piano Rosa

The expanded territory also includes the **Special Reserves of the "Sacri Monti" of Orta San Giulio**, **Ghiffa**, **Domodossola and Varese**: these are groups of chapels and other architectural features erected between the sixteenth and seventeenth centuries and dedicated to different aspects of the Christian faith. In addition to their symbolic and spiritual meaning, they possess remarkable beauty and atmosphere, and have been integrated into a natural and landscaped environment of hills, forests and lakes. They also contain very important artistic elements (frescoes and statues), and were added to the UNESCO World Heritage List in 2003.

This prestigious recognition attributes a universal value to the "Sacri Monti" of Piedmont and Lombardy, highlighting the extraordinary wealth, quality and values of these unique gems of history, art and nature.

Each series of chapels illustrates episodes and mysteries of sacred life, through statues, paintings and frescoes, and blends into the environmental context, defining the specific features of each monumental complex. Invaluable examples of landscape architecture, they are equally appreciated by the faithful and art lovers alike.

From the western Alps, where the phenomenon originated more than five hundred years ago, the Sacri Monti then inspired similar models throughout much of Catholic Europe. Those of Piedmont are included in the Protected Areas of the Piedmont Region, which provides for their historical-artistic conservation, maintenance as well as the protection of the surrounding environment.

The areas natural and cultural jewels also include the **Riserva Naturale del Colle di** Buccione, situated within the municipal areas of Gozzano and Orta San Giulio that represents a particularly significant expanse of wooded lacustrain landscapeand the **Riserva Naturale del Monte Mesma**, with a splendid view of Lake Orta. The hilly slopes are rich in vegetation, in particular, chestnut and oak woods, which require intervention to improve their productive purposes and landscaping.

The **Val Grande National Park**, originally included in the Framework Law on Protected Areas no. 394 of 1991, was officially established in 1992 (DM March 2, 1992) extending, as declared by the Decree of 24 June 1998, to a total area of 14,598 hectares and including 13 municipalities in the Verbano - Cusio - Ossola province, which are all adherents, covering the entire municipal territory, to the MAB application proposal.

Val Grande National Park is a mountain park comprising Val d'Ossola, Val Vigezzo, Val Cannobina and the Intrasca Valley, but its boundaries are almost all at an elevated altitude, along the watershed that delimits a large natural basin known as Val Grande. In the past, the area was heavily used by man for grazing, forestry and the extraction of building material. With the gradual abandonment of these activities, it became less and less frequented by humans, and is today a vast area dominated by a returning wilderness: it is therefore predominantantly characterised by the "wildness" of its landscapes and environments. This is an area best suited to be identified as a <u>core area</u>, due to its size and relationship to the progressive anthropization of the surrounding territory.

Val Grande occupies an important area in the geographical context of the Alpine chain: it connects the western and central-eastern Alps, and its links with the western slopes of the M. Rosa and M. Bianco chain, as well as with the Swiss alpine areas, make it a fundamental element in the continuity of Alpine environments, an essential corridor in the development of alpine biogeographical continuity. On the other hand, its vicinity to the Lake Maggiore basin makes it an essential connection and corridor to the pre-Alpine environment, and particularly the Insubrica region.

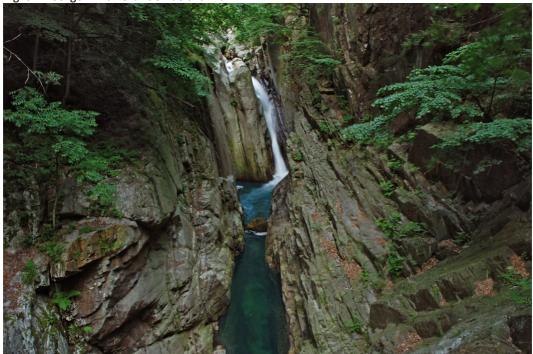


Fig. 6 Gorge in Val Grande National Park

The area is part of one of the eight Pilot Regions for the Ecological Connectivity of the Alps Convention, identified within the ECONNECT project, with the aim of preserving, restoring or recreating ecological connectivity in the Alpine region.

Its geographic location also coincides geologically with the so-called Lakes Massif, a geo-structured area of great importance in alpine orogenesis and in the implications of geostructural features with significant geotopes of international interest, which earned it official recognition in 2013, along with the territories of Valsesia, Val Cannobina and Val Strona, as the "Sesia-Val Grande Geopark". The Geopark was added to the UNESCO Global Geopark Network in November 2015.

The **Campo del Fiori Regional Park**, established in 1984 and expanded in 2009, extends over 6,300 hectares within the territory of 17 municipalities and 2 Comunità Montane in the Province of Varese. It dominates the Varese hillsides and is bordered to the northwest by the Valcuvia, to the east by the Valganna and to the south by the city of Varese. The Park includes two massifs: the Campo dei Fiori and the Martica-Chiusarella. The first occupies the western area of the Park and overlooks its southern slopes and Lake Varese. The highest peak is Punta Paradiso (1227 m.). The Campo dei Fiori Massif is made up of carbonic rocks, where the incessant erosive work of water has given rise to 130 caves, covering over 30 km. The second massif embraces the eastern border of the Park, with two peaks that run in succession from south to north: Mount Chiusarella (912 m) and Mount Martica (1025 m). The two main masses are separated by the Rasa Valley, which joins the Valcuvia with the Olona Valley, named after the river of the same name that originates in the Rasa di Varese.

Within the Park's confines are 6 Nature Reserves, which enclose its most

important and characteristic environments: the Lago di Ganna and Lago di Brinzio Nature Reserves, the Pau Majur and Carecc Torbiere peat bogs with the main wetlands of the Park; Monte Campo dei Fiori Reserve, with its articulated karstic hypogeum system; and the Martica-Chiusarella Reserve, with the last belts of lean meadows, rich in rare species of flora and invertebrates. There are also fifteen sites of geological and natural interest scattered throughout the Park, gems of particular environmental importance such as ravines, erratic boulders, springs, waterfalls and small wetlands.

Five Sites of Community Interest established in the Campo dei Fiori Regional Park, are now designated as Special Conservation Areas and cover a total area of about 3,600 ha and the SPA IT2010401 Regional Park Campo dei Fiori been superimposed on the boundaries of the SAC.

These areas are of particular importance within the overall structure of the Ecological Network as they are recognized as Areas of Priority Interest for Biodiversity, thanks to the presence of numerous habitats of shared interest, which are also subject to particular attention from the point of view of planning, with interventions aimed at management and conservation.

Thanks to the area's particular geographic location and geological characteristics, there is a great variety of vegetation, with chestnut and beech woods, rupestral flora and wetlands, rich in fauna.

Fig. 7 Wetland in Parco Campo dei Fiori



In particular, the area is of great importance for chiropteran fauna, with at least 12 existing species largely linked to the hypogean environments that characterize

the area.

From a floristic point of view, the rupestral species are of particular value, with rare species typical of Lombardy limestone precipices, lean meadows (with numerous species of orchids, especially on Mount Chiusarella) and wetlands.

Many species of wild orchids are found in the meadows.

This is also an important connecting area between the morainic hills and the pre-Alpine area.

Other important areas for biodiversity and the ecological network have been identified on a regional and interregional scale within the territory of the candidate reserve.

Along the border with Switzerland is the Val Veddasca: a mountainous area characterized mainly by metamorphic acid substrates, with vast forests of hardwoods, alpine pastures gradually turning to brushland, and rocky environments. In the forested areas, chestnut woods dominate the hillsides, while beech and mixed forests are found at higher altitudes.

The highest peaks, of around 1,600 meters are Mount Paglione (1,594 m asl), Mount Magino (1,569 m), Mount Lema (1,621 m), all along the Swiss border. The area also includes the "Val Veddasca" Natura 2000 site.

From a faunistic point of view, the area is particularly important for forest birdlife and numerous species of diurnal nesting birds of prey. It is also characterized by the presence of well-conserved streams and torrents populated with crayfish, bullhead, and brown trout. Rock partridge and mountain grouse nest here and lynx have been reported. Of particular interest is the wealth of flora in relation to the vastness of the site, the altitude and the remarkable diversification of habitats.

The area of the **Monti della Valcuvia** SAC, also included in the Candidate Reserve, contains habitats of great importance, such as grasslands on limestone soil, which here are extremely localized and particularly consistent; limestone walls; caves; vast broadleaf forests on the right-hand slope of rhe Valcuvia, with a prevalence of ash; and extensive beech woods on the northern side.

Also of great interest are the fungi, herpetofauna and diurnal nesting birds of prey (eg sparrow hawk, goshawk, black kite, pellegrine hawk, honey buzzard, common buzzard). The best-preserved and structured population of *Austropotamobius pallipes*, or freshwater crayfish in the province of Varese is found here thanks to the quality of the water. North of Laveno is a wide, uninterrupted stretch of wooded area running down to the shores of Lake Maggiore, which is also significant.

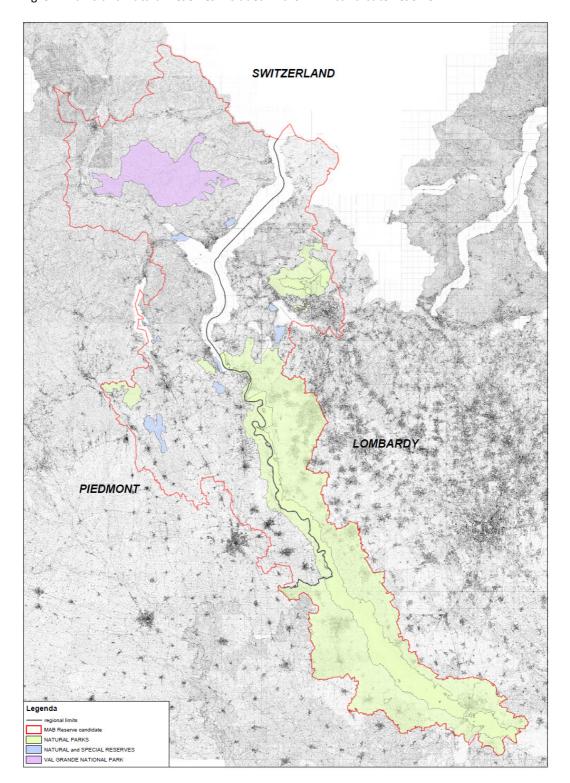
The territory of the Candidate Reserve also includes **Lake Maggiore**, the importance of which, especially at the international level, is mainly linked to the

presence of wetlands and reed beds (protected Natura 2000 sites such as the Lake Maggiore reed beeds and the Bruschera Marsh) and avifauna (wintering and nesting waterfowl, a regular wintering site for loons and grebes, and one of the few Italian nesting sites of the merganser), and its rich deepwater fish communities at different trophic levels. Along the shores there are wetlands of conservation importance.

7

DENOMINAZIONE	REGIONE
Parco lombardo della Valle del Ticino	Lombardia
Parco Naturale Regionale Campo dei Fiori – Sacro Monte di Varese	Lombardia
Riserva naturale integrale Siro Negri	Lombardia
Riserva Naturale del Lago di Ganna	Lombardia
Riserva Naturale del Lago di Biandronno	Lombardia
Riserva Naturale Palude Brabbia	Lombardia
Parco naturale del Ticino	Piemonte
Parco Nazionale della Val Grande	Piemonte
Parco naturale del Monte Fenera	Piemonte
Parco Naturale dei Lagoni di Mercurago	Piemonte
Riserva dei Canneti di Dormelletto	Piemonte
Riserva Naturale Bosco Solivo	Piemonte
Riserva Naturale di Fondo Toce	Piemonte
Riserva naturale delle Baragge	Piemonte
Riserva naturale del Monte Mesma	Piemonte
Riserve naturale del Colle di Buccione	Piemonte
Riserva speciale del Sacro Monte di Orta	Piemonte
Riserva speciale del Sacro Monte di Ghiffa	Piemonte
Riserva speciale del Sacro Monte di Domodossola	Piemonte

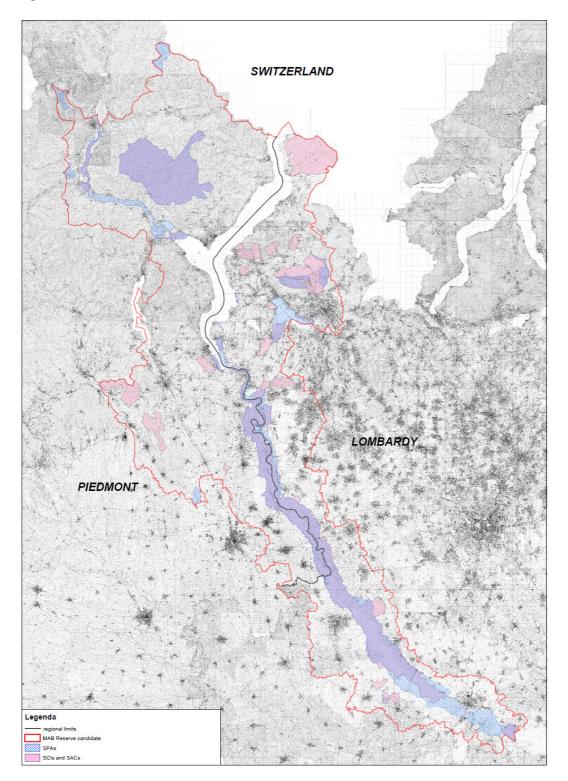
Tab. 2 Parks and Natural Reserves included in the MAB candidate reserve

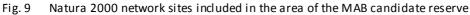




CODICE	DENOMINAZIONE	REGIONE BIOGEOGRAFICA	TIPOLOGIA
IT1120003	Monte Fenera	Alpina	SCI
IT1140001	Fondo Toce	Continentale	SPA e SCI coincidenti
IT1100000	Greto T.te Toce tra Domodossola e		
IT1140006	Villadossola	Alpina	SCI
IT1140011	Parco Nazionale Val Grande	Alpina	SPA e SCI coincidenti
IT1140013	Lago di Mergozzo e Mont'Orfano	Continentale	SPA
IT1140017	Fiume Toce	Alpina	SPA
IT1140018	Alte Valli Anzasca, Antrona, Bognanco	Alpina	SPA
IT1140020	Alta Val Strona e Val Segnara	Alpina	SPA
IT1140021	Val Formazza	Alpina	SPA
IT1150001	Valle del Ticino	Continentale	SPA e SCI coincidenti
IT1150002	Lagoni di Mercurago	Continentale	SCI
IT1150004	Canneti di Dormelletto	Continentale	SPA e SCI coincidenti
IT1150007	Baraggia di Pian del Rosa	Continentale	SCI
IT1150008	Baraggia di Bellinzago	Continentale	SCI
IT1150010	Garzaie novaresi	Continentale	SPA
IT2010001	Lago di Ganna	Alpina	SAC
IT2010002	Monte Legnone e Chiusa rella	Alpina	SAC
IT2010003	Versante Nord del Campo dei Fiori	Alpina	SAC
IT2010004	Grotte del Campo dei Fiori	Alpina	SAC
IT2010005	Monte Martica	Alpina	SAC
IT2010006	Lago di Biandronno	Continentale	SAC
IT2010007	Palude Brabbia	Continentale	SAC
IT2010008	Lago di Comabbio	Continentale	SAC
IT2010009	Sorgenti del Rio Capricciosa	Continentale	SAC
IT2010010	Brughiera del Vigano	Continentale	SAC
IT2010011	Paludi di Arsago	Continentale	SAC
IT2010012	Brughiera del Dosso	Continentale	SAC
IT2010013	Ansa di Castelnovate	Continentale	SAC
IT2010014	Turbigaccio, Boschi di Castelletto e Lanca di Bemate	Continentale	SAC
IT2010015	Palude Bruschera	Continentale	SAC
IT2010016	Val Veddasca	Alpina	SAC
IT2010017	Palude Bozza-Monvallina	Continentale	SAC
IT2010018	Monte Sangiano	Alpina	SAC
IT2010019	Monti della Valcuvia	Alpina	SAC
IT2010021	Sabbie d'oro	Continentale	SAC
IT2010022	Alnete del Lago di Varese	Continentale	SAC
IT2010401	Parco Regionale Campo dei Fiori	Alpina	SPA in parziale sovrapp. con siti SAC
IT2010501	Lago di Varese	Alpina	SPA
IT2010502	Canneti del Lago Maggiore	Alpina	SPA che contiene un sito SAC
IT2050005	Boschi della Fagiana	Continentale	SAC
IT2080002	Basso Corso e Sponde del Ticino	Continentale	SAC
IT2080013	Garzaia della Cascina Portalupa	Continentale	SAC
IT2080014	Boschi Siro Negri e Moria no	Continentale	SAC
IT2080011	San Massimo	Continentale	SAC
IT2080015	Boschi del Vignolo	Continentale	SAC
IT2080010	Boschi di Vaccarizza	Continentale	SAC
IT2080301	Boschi del Ticino	Continentale	SPA in parziale sovrapp. con sito SAC
IT2080701	Po da Albaredo Arnaboldi ad Arena Po	Continentale	SPA senza relazioni con un altro sito NATURA 2000

Tab. 3 Natura 2000 Network sites included within the area of the MAB candidate reserve





In the southern part of the Candidate Reserve, perifluvial sites and habitats in a lowland environment predominate, while mountain-alpine sites and habitats prevail in the north. The multiplicity of environments, ranging from plains to hills and mountain ranges; the presence of important waterways (the Ticino Toce, and Olona Rivers), numerous water basins (Lakes Maggiore, Orta, Mergozzo, Varese, Comabbio, and Monate), and the different climatic and microclimate zones, together present a high degree of natural diversity and a variety of landscapes, with an elevated number of habitats and species of shared interest that are found here and make the territory of the reserve a fundamental and irreplaceable area for ecological corridots between the Alps and the Apennines.

3.2."Development - foster economic and human development which is socio-culturally and ecologically sustainable".

The paradigm of the multipurpose ecological network is an integrated designation of the territory of the Candidate Biosphere Reserve, focusing on a system of zoning divided into core, buffer and transition areas. This paradigm, which defines the infrastructure of the Reserve's territory, requires the combination of natural aspects (ecological, biodiversity, ecosystems, genetics, etc.) with social and economic aspects in such a way that natural needs and ecosystem services are effectively integrated with those of the territory and human populations that live there.

The "institutional mandate" of the UNESCO Biosphere Reserve defines the perimeter within which managers of the same can and must operate, according to standards and functional requirements. Within the framework defined by the three functions of the Reserve (conservation, development and support), the *vision* is able to combine the following: the Reserve as a single area of environmental wealth, an internationally important biocultural landscape that plans to operate as a laboratory of the future, becoming an incubator of entrepreneurial actions that give value to the territory's ecological resources and natural capital, for its conscious and sustainable fruition.

Considered as the territory's infrastructure, the multi-purpose ecological network functions as the hub of the relationships and the impact of human activities, taking into account their eventual impact on and/or interference with ecosystem services and the environment.

The candidate territory and its multi-faceted network are therefore a complex area for experimenting and implementing sustainable management practices of natural and cultural resources.

This dense network of protected areas and a superordinate territorial organization, including the bottom-up voluntary Union of Municipalities, participation in European programs, Agenda 21 and/or the European Charter for Sustainable Development, other UNESCO recognitions (Geoparks, World Heritage Site WHL), all bring to the fore widespread experience of activity and planning quality, strongly characterized by a keen focus on the principles of sustainable development involving dynamic and interested stakeholders.

The geo-environmental features of the candidate Reserve and its location between the Italy's two most important metropolitan areas (Milan and Turin), give rise to buffer and transition areas of a diversified articulation and plurality of activities that cross all of the most important sectors of human action (and related issues), from intensive to marginal agriculture, from artisan/industrial to communications infrastructures, and from mass, to slow and pervasive tourism within internal and/or marginal areas. Included among these are activities with a stronger environmental impact, such as industries, communication networks, energy production and transport, as well as large infrastructures, such as airports, which characterize the region, as one of the most industrialized in Europe.

All of this in a connective, material and immaterial context, with a strong historical-cultural footprint; of recognizable communities and recognizable local identities; of projects, cultural productions and multidisciplinary events that call for local and large-scale traffic; networks and relationships in the field of education, training as well as research of national and international importance.

Particular attention should be drawn to the increasing attention paid to integrated projects involving local communities in plans for the territory with proposals for sustainable forms of tourism aimed at the integration of lake-hill, river-plain, hill-mountain environments, that is, places and systems of landscape that diversely qualify diversified the "Ticino Val Grande and Lake Maggiore Man and Biosphere Reserve".

In recent years, the territory's institutional and participatory articulation has increasingly worked to create network projects able to attract new, sustainable and "green" forms of tourism, and give value to local products (including branding through the use of the Ticino Park logo or the Ticino Valley brand – which attest to approved agricultural and environmental management techniques), as well as local traditions (eg traditional farming practices, like water meadows; grazing, raising Varzesi breeds in the Ticino Valley; and forestry practices, such as chestnutwoods in the Campo dei Fiori) representing a flywheel for the recovery of ancient agricultural and forestry practices that couple proper management of the territory and new economies, and give voice to the various stakeholders involved.

To this end, the individual Parks have developed initiatives and forms of collaboration with local actors for promotion within their own territory: for example, guided and marked hiking routes (eg the Vie Verdi or Green Roads in Ticino) that, on the one hand, allow the territory and its values to be discovered and appreciated, while at the same time avoid uncontolled traffic, especially in the most sensitive areas; Park centers, info points; web sites dedicated to tourist promotion, like "Il Germoglio del Ticino".

By way of example, in terms of projects concerning a vast area and involving the main territorial actors for the promotion of the land and its products, we would cite the Association "Strada dei Tori della Valle dei Valle Varesine", (which includes the Campo dei Fiori Park, the Comunità Montana "Valleys of the Verbano", local municipalities and Agenda 21 Lakes). Covering the northern part of the Province of Varese, north of the city to the Swiss border, with 150 kilometers running through 50 municipalities, it offers the opportunity to discover and appreciate typical products and the beauty of the valleys and lakes,

rich in art and culture (reference site: http://www.stradasaporivallivaresine.it).

Again in relation to the participatory management of the development of sustainable tourism, it is worth mentioning the experience of the Val Grande National Park, which was recognized by the European Charter for Sustainable Tourism (CETS) in 2013 with an Action Plan that contained a concrete program of actions linked to the principles of ecotourism and environmental sustainability. The CETS is an easily assimilated tool for a series of certification that allows better management of protected areas for the development of sustainable tourism. The central element of the CETS is the collaboration between all stakeholders to develop a common strategy and a plan of action for tourism development, based on an in-depth analysis of the local situation. Specifically, the Val Grande CETS saw the participation of a variety of actors (public bodies, associations, private operators, producers, etc.): 61 in total, with more than 90 proposed actions.

Lastly, as already mentioned, the proposed territory calls for a significant copresence/ team of internationally designated sites (World Heritage, Man and Biosphere Program, Unesco Global Geopark) that qualify it, according to IUCN (2016) as MIDAs, or Multi-Internationally Designated Areas, that apply the principles and recommendations of management harmonization defined in the "Managing MIDAs Harmonizing the Management of Multi-Internationally Designated Areas: Ramsar Sites, World Heritage Sites, Biosphere Reserves and UNESCO Global Geoparks" (2016).

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".

Areas of knowledge and research, and areas of action through pilot and experimental projects, are the strength of having a multitude of institutions, bodies, and associations present and active in the area of the proposed Reserve.

Environmental education, training, environmental promotion, enhancement of and giving value to the Reserve's image and the characteristics of its natural features, as well as support for scientific research and monitoring, are the main aspects of the many national and regional protected areas impacting the candidate territory. Also involved are public and private research, training, education and institutions, along with territorial promotion agencies, that expand and diversify the range of offers able to support the roles and actions of the candidate reserve

The activities of the reserve, now on-going for over 10 years have created a wealth of experience at diverse levels and aimed at local targets in order to: Le attività della Riserva ormai più che decennali, portano in carico esperienze svolte a più livelli e su più target locali volte a:

• Increase awareness within the local popluation as well as among visitors, by reinforcing and creating diverse and innovative information services

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- Educate regarding sustainability
- Educate regarding the material and immaterial cultural heritage
- Ensure adequate information / communication to communities
- Promote scientific research
- Monitor actions and changes

• Streamline systems, modes and communication channels, especially those aimed beyond the territory

Other institutions, such as the Ministry of Culture and Landscape, the Ministry of the Environment, the Ministry of the Environment and the Sea, the Ministry of Agriculture and Forestry, the Piedmont and Lombardy regions and research institutes such as the CNR-ISE of Verbania, the ENEA Research Laboratories in Ispra (in the province of Varese) within the European Commission's Research Center (JRC), focus on activities of supervision, and monitoring at a national level, networking with universities, some with bases within the territory of the Reserve (Pavia, Varese, etc), engaged in scientific research and research activities in many local projects, a network of schools and training centers carrying out environmental education projects.

The planning and management of innumerable European and non-European projects, still rests on the potential for logistical support and experience.

The approach of best practices, benchmarking and pilot projects, make many institutions (and protected areas in particular), true workshops and laboratories of the future that, in recent years, especially through European projects (LIFE, Interreg, Alpine Space, etc.), have allowed experimentation and dissemination of innovative and sustainable interventions in the many fields of nature conservation and development.

Finally, participative and collaborative experiences among all stakeholders to develop a common strategy, based on analyses the local situation, such as the CETS process, may become a strategy for the development of sustainable tourism of the Unesco MAB.

... towards a cross-border Biosphere Reserve ... water management, coordinated planning, slow and gentle mobility ... territorial enhancement

The expansion of the Ticino Valley Reserve is aimed at the future establishment of an Italy-Switzerland Biosphere Reserve that can manage and coordinate common actions, which, in past years, each territory has tended to carry out in a composite and not always coordinated way; the decision to cooperate is sanctioned by the many projects launched through European planning.

The start of cross-border co-operation of the Reserve and Protected Areas, entities and linstitutions included in the proposed territory for the extension of the Reserve, dates back to the establishment of the Regio Insubrica (1995) and, subsequently, with the launch of the Interreg IIIA Italy-Switzerland Community Initiative through which it was proposed to launch projects to strengthen cooperation between the two countries.

In this context, the Reserve and Protected Areas included in the expansion of the Italian territory have cooperated with Swiss partners on projects covering several themes, both natural and cultural, and for territorial enhancement. By way of example some of them are listed here below:

Interreg III A 2000-2006 and operative program ITALIA-SVIZZERA 2007- 2013

- Training, management and preservation of forest and landscape typologies - impact of anthropic systems and naturalistic geosystems; Soggetti coinvolti: Parco Nat. Valle del Ticino, Ente Parchi Lago Maggiore, Parco Nat. Lame del Sesia, Parco Baragge-Bessa-Brich, Parco nazionale Val Grande, Istituto federale di ricerca WSL

- Coordinated and joint action along the Ticino River for the long-term preservation of **Biodiversity**; subjects involved: Parco del Ticino Lombardo, Parco nat. Valle del Ticino, Ente Parchi Lago Maggiore, Naturcoop s.c., Associazione Fauna Viva, Fondazione Parco delle Bolle di Magadino.

- Conservation and restocking of marbled trout in the river basin of the river Ticino; subjects involved: Province di Varese, Como, VCO e Novara, Ente Parchi Lago Maggiore, Parco del Ticino Lombardo, Parco nat. Valle del Ticino, Canton Ticino, Canton Grigioni.

- Cross-border landscape concept to be promoted and valued; subjects involved: Parco Nazionale Val Grande; Parco naturale della valle del ticino, Canton Ticino, Università di Milano, Università di Torino, Università di Friburgo.

- **Ornithological monitoring and studies**; subjects involved: I.N.F.S. – Ozzano Emilia (BO)Centro Ricerche in Ecologia Applicata, Torino.

- Old man's footprints in the Alpine valleys; subjects involved: Province di Varese, Como, VCO e Novara, Parco del Ticino Lombardo, Parco nat. Valle del Ticino, Canton Ticino, Canton Grigioni.

- Training, management and preservation of forest and landscape typologies - impact of anthropic systems subjects involved (Parco Naturale della Valle de Ticino (per parte italiana) e la Sottostazione Sud delle Alpi (per la parte svizzera) ; i partners associati sono: Parco Naturale Val Grande, Parco naturale Lame del Sesia, Parco e Riserve Naturali Lago Maggiore, Parco delle Baragge – Bessa – Brich.

- **Biodiversity: a wealth to be preserved** (capofila Provincia del VCO; partner: A.R.P.A., P.N. Val Grande, Parchi Lago Maggiore, Landschaftspark Binntal, Riserva Bolle di Magadino,)

- Naturalistic environmental variability study; subjects involved: Ente Parchi Lago Maggiore, Regione Piemonte, Parco Veglia-Devero, Parco Nat. Valle del Ticino, Parco nat. Alta Valsesia, Parco Burcina, Fondazione Parco delle Bolle di Magadino, Fondazione Parco delle Gole delle Breggia.

- SITINET: Censimento, messa in rete e valorizzazione di siti geologici e archeologici; subjects involved: Provincia VCO e Museo Cantonale di Storia naturale (Capifila), Canton Ticino, Provincia di Novara, Comunità Montana Antigorio Divedro Formazza, Parco Nazionale Valgrande, Parco Veglia-Devero, Parco Nat. Valle del Ticino, Ente Parchi Lago Maggiore, Ente di gestione sacro Monte calvario Domodossola, Malcantone Turismo, Università degli Studi Insubria, Vallemaggia Turismo

- THE CASTAGNE CITY. subjects involved Parco regionale Campo dei Fiori, Regione Malcantone.

Currently being prepared/under consideration

2014-2020 INTERREG ALPINE SPACE "RUBICON -Rivers and UNESCO Biosphere reserves Connectivity". Ente Aree protette del Ticino e del Lago Maggiore (Capofila), Parco Lombardo della Valle del Ticino, FLA – Fondazione Lombardia Ambiente, Ente di gestione delle aree protette del Monviso, Parco della Val Grande, Parco del Delta del Po, Parc du Queyras, Progetto di Parco Nazionale del Locarnese PNN, Ente Regionale per lo sviluppo del locarnese e Vallemaggia, Fondazione Bolle di Magadino, DOPPS – BirdLife Slovenia for Drava River. Sostenittore UNESCO Regional Bureau for Science and Culture in Europe - Venice

2014-2020 Lake Maggiore, Sub-Region of Ticino and protected natural areas: Verification and testing of sustainable and shared management scenarios. subjects involved Ente di gestione delle aree protette del Ticino e del Lago Maggiore (Capofila), Parco Lombardo della Valle del Ticino, Consorzio del Ticino, Università dell'Insubria, ISE-CNR, Riserva Naturale Pian di Spagna, Fondazione Bolle di Magadino.

2014-2020 – Slowmove. Bridges of water to the future. The development of transport along Lake Maggiore, Ticino and the channel system according to a perspective of environmental respect and the increase of green tourism - Provincia di Novara (Capofila), Consorzio di Bonifica Est Ticino Villoresi, Regione Lombardia, Regione Piemonte, Ente di gestione delle aree protette del Ticino e del Lago Maggiore, Parco Lombardo della Valle del Ticino, Associazione Locarno Milano Venezia

2014-2020- In a water bike. ATL Agenzia per il Turismo di Novara, Regione Piemonte, Distretto Turismo dei Laghi, Provincia di Novara, Camera di Commercio di Novara, Università della Svizzera italiana, HES-SO Valais-Wallis.

2014 – 2020 INSUBRIPARK – subjects involved: Parco regionale Campo dei Fiori, Parco regionale Spina Verde, Parco regionale Pineta di Appiano Gentile e Tradate, Parco delle Gole della Breggia (CH), Parco del Penz (Comune di Chiasso - CH), Politecnico, SUPSI (CH), Ticino Turismo (CH), Associazione ProValmulini.

2014 – 2020 INSUBRIA.TREATMENT OF CASTAGNI – subjects involved: Consorzio forestale lariointelvese, consorzio forestale lario, Ceresio Consorzio forestale Lecchese, Contatti Consorzio Forestale di Prata Camportaccio, Comunita Montana Valle Seriana, Comune di Serle – Monumento, Naturale Altopiano di Cariadeghe, Parco regionale Campo dei Fiori, Comunita Montana della Valchiavenna, Comunità Montana Valli del Verbano, Comunità Montana Lario Intelvese, Comunità Montana Valsassina, Valvarrone Val d'Esino e Riviera, Comunità Montana del Lario e del Ceresio, Comunità Montana di Valle Trompia, Val Brembana, valle Imagna, Consorzio Castanicoltori di Brinzio, Orino e Castello Cabiaglio – Società, Cooperativa Agricola.

Finally, on 1 Febbraio 2017 negotiations were launched regarding an agreement between the Ministry for the Environment and theSwiss Federal Department for the Environment for the creation and managment of a transfrontier areabetween the Parco Locarnese and the Valli dei Bagni, this agreement represents the first step necessary for the launch of the process for the creation of the Transfrontier Reserve which it is thought should take place around 2019/2020.

4. CRITERIA FOR DESIGNATION AS A BIOSPHERE RESERVE:

The definition of the expanded area of the MAB "Ticino Valley" Reserve, is based on a conceptual framework that features a large-scale territorial project covering and connecting the extensive Italian - Swiss catchment basin of the Ticino, with the rich and composite mosaic of protected areas, through the establishment of virtuous and sustainable relationships with anthropic structures, both urban and metropolitan, as well as intensive and qualitative farming.

This rich and articulated biotic / abiotic, natural / artificial, ecological / anthropological synergy, seen in its systemic and regional (and bioregional) reciprocity, allows the MAB (core, buffer and transition) tripartite zoning to consider a set of binomials linked to the governance of human activities:

- Ecological networks and nature conservation
- Ecological networks and water governance
- Ecological networks and agro-forestry system
- Ecological networks and fauna management
- Ecological networks and built-up areas

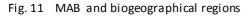
Binomials that through the three MAB zones will allow for the development of models and projects of sustainable actions in terms of eco-territorial networks (or multivalent ecological networks, see 3.2).

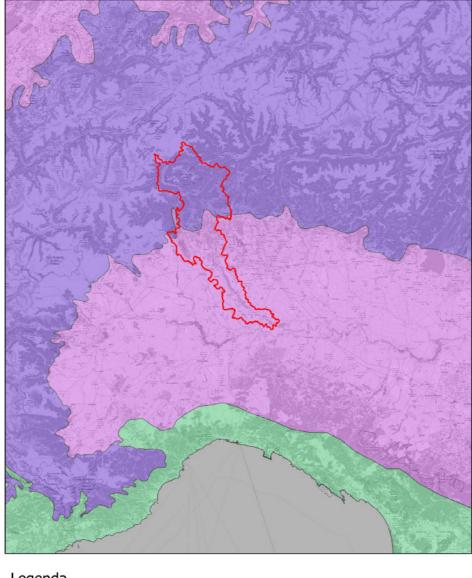
4.1."Encompass a mosaic of ecological systems representative of major biogeographic region(s), including a gradation of human interventions".

The candidate reserve is included in two main biogeographical regions: continental (the existing Reserve) - and alpine, thus ensuring high biological, landscape, environmental and cultural diversity; at the same time its southern extension towards the Oltrepo Pavese, functions as a bridge with the northern slopes of the Apennine chain, creating a great ecological corridor between the Alps and Appennines.



Fig. 10 From continental biogeographical region to the alpine one





Legenda

🔲 limite MAB

Alpine Bio-geographical Region

- Continental Bio-geographical Region
- Mediterranean Bio-geographical Region

The Ticino valley includes forest ecosystems, characterized by *Quercion roboripetraeae* with aspects of degradation on the morainic hills to the north and *Fraxino-Carpinion* in the central-southern part of the valley, where consistent nuclei of well-preserved primary forest, typical of the Po valley plains.

Moorland (*Calluno-Genistion*) occupies the plains of the northernmost alluvial terraces, while the middle and lower portion of the valley along the river bed, hosts typical ecosystems of wetland, river and riparian areas: willow groves (Salicion albae) and alder woods (Alnion glutinosae), wetlands of perennial grasses (*Phragmition*) and *Carex* sedges, (*Magnocarition*) and xeric pratelli with typical steppe plants.

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The fertile soils of the plain, irrigated by a dense network of canals derived from natural springs and rivers, were cultivated in Roman times and through the medieval period, and host a wide range of semi-natural ecosystems. The agrarian landscape is dominated by highly productive maize and rice paddies, as well as hybrid poplar groves, but also by stable and historical water meadows that, rich in natural vegetation, are specialized habitats for many animal species.

The areas of expansion of the existing Reserve, located around the Prealpine lakes, the Toce River and the mountainous area of the Varesine precipices and the Lepontine Alps, include large areas in a good natural state, with an anthropic presence that is almost nonexistent in the Val Grande National Park, an extensive site characterized by a "relapsed wilderness".

The environments comprising these areas are highly diversified: wetlands, fluviale and riparian ecosystems with willow groves (*Salicion albae*) and alder woods (*Alnion glutinosae*), wooded ravines like the *Tilio-Acerion* forests, woody riparian vegetation of *Salix eleagnos*, phragmite wetlands, recognized internationally under the Ramsar Convention (the Palude Brabbia marsh); thermophilous habitats, including oakwoods of *Quercus pubescens*, thermophilic beech woods of the *Cephalantero-Fagion* type, in the forests and arid plains on calcareous substrates (*Festuco-Brometalia*).

There are also karstic springs, petrified springs with travertine formation and habitats associated with the presence of karcification, both at the epigean level, with furrowed, doline fields, as well as the hypogean, having numerous caves, with an interesting presence of various species of troglobian fauna, among which numerous bat species (in particular, *Rhinolophus ferrumequinum*) along with some invertebrates, including the stenendemic species *Duvalius ghidinii*; environments of carbonate and volcanic massifs host characteristic flora with rare species typical of Lombard limestone precipices.

Sites in wetlands or with bodies of water represent areas of great importance for the ichthyofauna and the avifauna, especially for wintering aquatic fowl and migratory birdlife in general.

Rupestrian ecosystems create ideal nesting conditions for diurnal and nocturnal predatory species.

Finally, there are anthropic, managed wildlife habitats for both flora and fauna such as hay meadows and grasslands o (*Nardus*), transition habitats including European moorlands, alpine and boreal heaths, and deciduous forests with species typical of a range of altitudes: chestnuts, beech (*Luzulo-Fagetum*), woods of common oak or hornbeam (*Carpinion betuli*)

The proposal for the extension of the Reserve allows the introduction of two important core areas: the Integral Reserve of the Val Grande National Park and the partial Monte Campo dei Fiori natural reserve - located within the boundaries of the Campo dei Fiori natural park - particularly suitable for long-term conservation of its natural wealth, while the core areas of the Reserve

The expansion allows for adequate buffer areas surrounding the new cores, as well as extend the transition areas which protect the buffer and core areas.

It is in the transition areas that the main industrial, agricultural and tourist activities are concentrated, but there are also numerous and extensive Natura 2000 network sites with important natural features and characteristics of conservation valuable for the aims and purpose of the MAB Reserve.

The enlargement, which will cover many new municipalities and the relative population, will enable, thanks to the involvement of a greater number of representatives of local communities, along with the support of very active local realities (eg Agenda 21 Lakes), the implementation of more sustainable activities and monitoring and conservation projects, as well as raise greater awareness in the local population with regards to sustainable development and the stewardship and management of the protected area.

4.2."Be of significance for biological diversity conservation".

The candidate reserve embraces a wide latitudinal belt of land extending from the Po River to the Swiss border, and covers altitudes ranging from the Padana Plain to the heights of the Lepontine Alps.

A stretch of the River Po, the entire course of the Ticino River from Lake Maggiore to the Po, the Toce River, and many other water courses, such as the Olona, as well as the prealpine lakes, characterize the candidate reserve, with an abundance and variety of water sources and their associated environments.

There are also mesophilic and xerofile formations, and geological and climatic diversity contribute to the richness of the territory's great biodiversity.

The conservation of the latter is guaranteed by the presence of 19 protected areas and 48 sites of the Natura 2000 network, within which are 42 habitats of Community interest.

Of these, eight are priority habitats, with a prevalence of forests, in terms of surface area.

Alluvial forests of *Alnus glutinosa* and *Fraxinus excelsior*, typical riparian and marshy formations, are the most extensive in the Ticino Valley, but also along the course of the Toce River. Tilio-Acerion forests of slopes, screes and ravines are well represented in the proposed expansion, namely in the Campo dei Fiori Park, the Val Grande National Park and in some Natura 2000 sites.

Two small stands of scrub containing *Pinus Mugo* and *Rhododendron hirsutum* are located in the Val Grande National Park, while extensive Eastern white oak woods are found in the Campo dei Fiori park and the Monti della Valcuvia site in Lombardy.

Interesting limestone marshes with *Cladium mariscus* and species of *Caricion davallianae*, and petrifying springs with tufa formation (*Cratoneurion*) appear in some Lombard sites.

Among the grasslands, mention must be made of the Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia, the latter characterised by their rich orchid flora and species-rich Nardus grasslands on siliceous substrates in mountain areas.

The conservation of these last pastures is closely linked to the grazing of domestic herbivores and hence to anthropic activity, like the hay meadows as well which, in order to preserve their specific flora and fauna related characteristics, require ongoing traditional cultivation practices to be carried out by local farms.

Among the priority habitats, with distinctive and particular characteristics are the local caves, which have not yet been proposed as tourist attractions, and the limestone rocky walls with chasmophytic vegetation found at Campo dei Fiori and the Valcuvia mountains.

These are karst phenomena of great importance thanks to their particular features and size: at present, more than 130 caves have been found, for a tunnel network of approximately thirty kilometers.

The importance of protecting the karst phenomenon is emphasized in the Act establishing the Park and in its main planning instrument, the Territorial Coordination Plan, which calls for the adoption of a regulation for speleological activity, prepared thanks to the collaboration and after a long process of consultation with Speleological Associations.

In summary, it states how to protect the caves and access: it favours-advocates collaborating with local speleological associations, which have provided most of the information on the karst phenomenon in the Campo dei Fiori so far

There are 17 floral species of Community interest including Asplenium adulterinum, Carniolus Eleocharis, Gladiolus palustris, Dicranum viride, Liparis loeselii, Isoetes malinvernia, Marsilea quadrifolia, Spiranthes aestivalis, to which are added numerous species of natural interest included in the IUCN Red List, rare or endemic species such as Ruscus aculeatus, Hippuris vulgaris, Trapa natans, Prunus padus, Arnica montana, and various species of the genus Sphagnum, and Juncus tenageja.

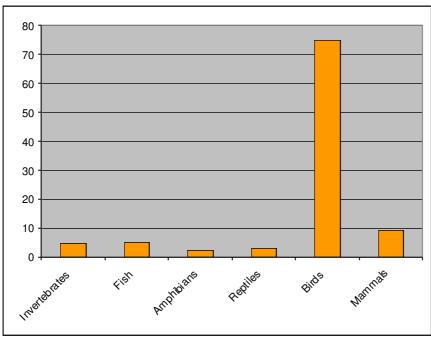
342 wildlife species are of Community interest, including invertebrates, fish, amphibians, reptiles, birds and mammals, listed in Directive 2009/147 / EC, att. I and Directive 92/43 / EEC Att. II, IV, V. The main fauna component is represented by bird species, which make up 75% of the whole.

Fig. 12 (Circaetus gallicus)



Among the species noted a number are of particular value, endemics such as *Rana latastei, Pelobates fuscus insubricus, Austropotamobius pallipes,* others in "critical" conservation status according to the IUCN Red List and include, for example, as *Salmo marmoratus, Gyps fulvus, Gypaetus barbatus.*

Fig. 13 Faunal components of shared interest



Among the other species there are endemisms such as *Carabus lepontinus* native to the Lepontine Alps and diffused in the eastern sector of the Val Grande Park; *Carduelis citrinella* native of the mountains of Central-Southern Europe, found in the Val Grande Park, and *Microtus savii* in the Ticino Valley.

The Ticino River, the Phragmites australis reed beds at Fondotoce, the Toce River

and the Lake Maggiore reed beds are the most important environments for nesting ornithic and migratory species; in particular the two rivers with the immediate surrounding habitats form an extraordinary biological corridor through the urbanized plain, between the two mountain systems of the Alps and the Apennines.

A number of species of fish and amphibians are endemic to the Po Valley, however the most abundant populations and those with significant genetic pools for the conservation of the species, are limited to the Ticino area; to preserve and restore biodiversity, in addition to the protection and recovery of habitats, some recently disappeared species have been successfully reintroduced (eg *Capreolus capreolus*) and others (*Lutra lutra*) are in the course of being reintroduced.

The protection of traditional forms of agriculture, such as working watermeadows, along with incentives and technical assistance for compatible agriculture through the maintenance or restoration of hedges and bocage landscapes, and the natural conversion of derelict forests, are all measures that have been activated for years and have proved to be priority strategies for the defense and expansion of natural habitats and biotic communities.

To the above must be added the numerous studies, monitoring and interventions implemented, or in the process of being so, for the developmentestablishment / reconstruction of ecological corridors both through the creation and improvement of natural areas by creating bands of permeability and / or stepping stones (hedges, rows, buffer zones, wetlands, restoration of dry walls, positioning of artificial nests) as well as through the construction of infrastructures aimed at defragmentation, or mitigating the effects of anthropic fragmentation (fauna underpasses, green bridges), within the territory of the candidate Reserve. It is worth noting that with regards to the present candidacy, both the Lombardy Park of Ticino and the Campo dei Fiori Park, have been subject to a series of actions outlined in the recent project, LifeTIB Trans Insubria Bionet, to connect and requalify habitats along the ecological corridor running from the Insubrico Alps to the Ticino Valley; within the framework of this project, a "network contract" was also signed between all the local authorities concerned (not just the two Park entities), to safeguard and maintain the still existing ecological connections within a highly fragmented context.

In the higher altitudes of the territory in question, in Val Grande, monitoring projects have been set up in pastures and in areas that are have been left to evolve naturally in order to monitor the effects of grazing in the short and long term, to counteract the effects of abandonment and the consequent loss of biodiversity. Reclaiming grasslands is carried out through herding flocks in turn and in some cases with mechanical mowing and removal of shrubs and vegetation.

4.3."Provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale".

The rich and composite picture of the activities developed over time, in addition to those ongoing, in major European programs covering-promoting sustainable development, enhancement of natural and cultural heritage, integrated mobility, business competitiveness, governance processes, etc, constitute the cultural and strategic background of local communities able to grasp and undertake with opportunities inherent in an integrated approach to sustainable development of a higher scale and variable geometries.

The practice of "network contracts", the European Charter for Sustainable Tourism (CETS), Community Maps, Agenda 21, and so on are also useful participatory models to finalize an informed and participatory approach to sustainability by the various and composite territorial and economic realities present in the Reserve.

At present, the Ticino Valley Reserve, through Enti Parco Ticino, is applying for funding from the EC INTERREG Alpine Space. Also involved is a network of alpine MAB BRss and the Cariplo Banking Foundation, who are planning exchanges of experience in the best agro-environmental, natural and forestry management practices carried out and studied over the years, to be implemented and exported to the expanded areas of the Reserve. These are biodiversity-rich, innovative projects aimed at enhancing the value and appreciation of the territory, and extending and reinforcing the ecological connection from the Ticino Valley westwards to the province of Novara and the shores of Lake Maggiore: the BR, as sources of biodiversity and experience, go beyond the boundaries of their territory, involving public and private actors in the ecological upgrading of neighboring territories.

The UNESCO MAB area, that encompasses geographic areas and institutional bodies, is where good ecological practices can be expanded which, thanks to a program of communication and involvement of local populations and public bodies, will foster a wider perception and awareness of the significance and value of the "Biosphere Reserve".

Similarly, the Campo dei Fiori Park is applying to qualify for Interreg V Italy -Switzerland Cooperation Programs, in order to activate virtuous processes to address the economic, social and territorial disparities existing in the Alpine region, stimulating a model of innovative and sustainable development, able to reconcile the promotion of growth and employment, with the safeguarding of the natural and cultural resources in the area.

The park areas and the buffer zones have a proven track record of management skills and abilites and establishing themselves as a body of excellence in managing the environment and promoting the territory and eco-friendly cultural and sports attractions and activities. Another on-going project that involves the northern area of the Reserve is the Caripiplo Foundation's Natural Capital Ecological Connections And Ecosistemic Services For The Safeguarding Of Biodiversity, for promoting the conservation of the natural capital and the functionality of the ecosystems in the areas of the Natura 2000 network and of the natural areas of great importance for the maintenance of biodiversity in the territory.

The term "natural capital" includes the entire stock of natural resources and related eco-systems that make life possible on our planet.

Ecosystem services are identified as those multiple benefits people obtain from ecosystems (Millennium Ecosystem Assessment, 2005).

In addition to promoting the protection of the biodiversity of the ecological network's "core areas", it is necessary to continue to work for the upgrading and restoration of ecological corridors, linkages that work to preserve the functioning of ecosystems and hence the services they provide.

The value of such services, however, is often overlooked and rarely calculated as it is considered disposible, and is therefore outside the realm of market logic. Assigning a proper economic value to such services, for example through PES schemes (Payments for Ecosystem Services), constitutes a useful step to better managing and maintaining ecosystems through participatory governance mechanisms.

Therefore, for the protection of the natural capital, it is necessary to integrate different forms of biodiversity conservation, and optimize the ecological connections between natural areas, to enhance the ecosystem services that they provide.

As a member of the Biosphere Reserve, each Park Authority's plans and projects designed for its own territorial and managerial needs, find a qualifying and unifying element that allows for"networking" and thus enjoy a leverage effect on the diffusion and application of good practices and models of sustainable management within, but especially outside, the territory of the individual protected areas.

4.4."Have an appropriate size to serve the three functions of biosphere reserves"

The candidate reserve has a total area of 332,163 hectares (183,465 in Piedmont and 148,698 in Lombardy); of these, 4.6% are core, 15.5% are buffer, and 79.1% are transition areas.

The proposed enlargement has led to the identification of further areas which will increase the natural wealth of the MAB Reserve; with a gain of wooded and semi-natural areas from 24.3% to 46.6%, and of wetlands from 0.03% to 0.16% of the total area. Overall, however, the new Reserve's geo-environmental and

anthropogenic components are well-balanced between wooded, semi-industrial areas, wetlands and built-up or agricultural areas, allowing for a better distribution and quantification of the three MAB zoning allocations.

With respect to the zoning of the MAB Valle del Ticino Reserve, in which the fluvial section was classified as "water" and were not zoned according to the criteria of the programme in order to distinguish it physically from the teresstrial areas, with the new zoning proposal of the candiate reserve, which includes as well as the Ticino extensive new bodies of waterr, it was decided to zone the qater areas too so as not to leave "holes" in the zoning, making a distinction on the basis of the degree of existing protection and the presence of any buffer zones. This decision also led to the inclusion the Ticino River in core areas that on the basis of the current planning of the two parks brings with it an analogous if not superior degreee of proetction with respect to the other central zones of the reserve, while Lake Maggiore, the Toce, the Lake of Varese and other bodies of water included but not entirely falling within protected areas (parks and reserves) and therefore not adequately protetced by limitations on anthropic activities are classified as transition zones.

Core areas are those highly protected areas that have been identified to ensure the preservation and conservation of the natural habitats and communities therein. Included in this category are the Natural Peri-fluvial Zones of the Lombard sector of the Ticino Valley Natural Park, with the Natural Fluvial Zones and the Partial Natural Zone of the Regional Park, the Special Nature Reserve Areas of the Piedmont sector of the Ticino Natural Park, Val Grande National Park and the Monte Campo dei Fiori Partial Natural Reserve.

Surrounding buffer zones have been identified to ensure the full protection of the core areas, through wildlife/nature management and control of permitted activities.

The candidate reserve encompasses 217 municipalities (105 in Piedmont and 112 in Lombardy), with a population of 1,082,019 inhabitants, of which approximately 700 within the core areas.

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".

Core areas are territories protected under laws designed for long-term safeguarding, in accordance with the conservation objectives of the Biosphere Reserve, large enough to meet those targets and where the only activities permitted are those involving scientific research or those having zero-impact on the environment.

The core areas of the candidate biosphere reserve have been identified within the Regional Parks and the Val Grande National Park, as those areas where the current planning tools have imposed more stringent rules on permitted activities, and where priority is given to the conservation and restoration of the terrritory's maximum natural expression.

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The following is a brief description of the core areas identified within the Reserve, subdivided by Reference Park; even though the rules for protection of these areas are under different planning instruments (each Park has its own plan), the degree of protection guaranteed and aimed for is nearly equivalent

The core areas (totalling 15,253 ha) include:

Lombardy Park core areas in the Ticino Valley:

The Ticino River zone with its principal and secondary courses (zone T), with the exception of the stretches in which the water course flows in correspondence with urban areas, the Natural Peri-fluvial Zones (codes A, B1, B2) identified by the Territorial Plan of Coordination (PTC) of the Ticino Valley Natural Park (Institutive Law of the Natural Park L.R. 31/2002, PTC approved by D.G.R. 919/2003) and the Natural Fluvial Zones (B3 zones) located between the above-mentioned zones and the F belt of fluvial divagation, included in the PTC landscape zone, described as "located in the immediate vicinity of the river". Herein are also included the Partial Natural Zone identified in the Territorial Plan of Coordination of the Regional Park (Institutive Law of the Regional Park L.R. n, 2 of 9 January 1974, Variante Generale al PTC approved by D.G.R. 5983/2001).

In detail, the core areas include:

- the principal course of the river and its branches; the river waters, the oxbows, swamps and gravel beds.
- residual woodland units of primary plain forest (*Fraxino-Carpinion*), which are protected as complete naturalistic zones (zone A) where the natural environment is preserved in its integrity, or as managed naturalistic zones (zone B1) in which complex ecosystems of high naturalistic value are located.
- woodland units of botanic-forestry interest (B2), in which there are natural structures of high botanic-forestry interest. The purpose here is to regenerate the primary plain forest and preserve its habitat. All activities are forbidden in these areas except for scientific research and those activities necessary for the restoration of natural environments.
- areas of significant natural value that fulfill a functional role in areas A, B1 and B2 (zone B3), included within the F zone; where every activity must aim at preserving and improving the natural, environmental, and landscape features of the area, and also take into consideration elements that historically characterize the territory.
- the Ticino River divagation area (F zone) includes all of those territories that are affected by the meandering of the River and its main and secondary tributaries, and by oxbow lakes, pondage lands and shingles. Its goal is the absolute safeguarding of the natural evolution of the river bed and wetlands habitats, whose dimensions are proportionate to the survival of the resident

and migratory fauna population. Activities that make changes to the soil are forbidden; only interventions aimed at the conservation of ecosystems located along the river, the recovery of degraded areas, and the transformation of cultivated areas into areas of natural evolution, are allowed.

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- the areas defined by the PTC of the Regional Park as "Partial Naturalistic Zones" (*Zone Naturalistiche Parziali* - ZNP), are those of remarkable thematic value: botanic-forestry, mycological, zoological-biogenetic, and geological-hydrological.

Some core areas at the edge of the Lombardy Ticino Park are not entirely protected by a buffer zone but directly border, in part, on a transition area. This situation already exised at the time of the MAB recognition in 2002.

It should be noted, however, that the transition zones adjacent to the core areas are under regulatory constraints provided for in the Territorial Managnment Plans and therefore have maintained their natural values and characteristics over recent decades.

Juridical Statute: L.R. 2/74, L.R. 31/2002, General Revision to PTC D.G.R. 5938/2001, PTC of the Natural Park D.C.R.

For the territory of the Campo dei Fiori Regional Park:

The Monte Campo dei Fiori Natural Reserve covers the complex comprised of the most valuable natural and landscape areas of the mountain which, being characterized by the presence of many elements of geological, botanical, forestry, zoological and landscaping interest, need to be subjected to a single, uniform management with implementation planning coordinated on an interdisciplinary basis.

Monte Campo dei Fiori Natural Reserve has received partial nature reserve classification given the specific elements of interest identified. The area was also included within the boundaries of the Campo dei Fiori Park Natural Park, established under Article 2 of Law No 394 of 6 December 1991 "Framework Law on Protected Areas", which included those agro-forest, or abandoned, areas, characterized by the highest levels of naturalness within the regional park.

The aims of the Territorial Park Coordination Plan are as follows

- protection of the rupestral flora, with particular reference to the northern rocky

slopes of Campo dei Fiori, Monte Pizzelle, karstic systems of the summits, faunistic potentialities and landscape worth;

- conservation and restoration of the natural and landscape features of the environment centering on paths/trails ensuring the presence of proper signage and the recognition of panoramic views;

- programming of forestry interventions necessary for recovery and protection of the ecological complexity of woodlands, taking into account, where necessary, the most important fauna and the stability of the slopes, and the conservation and regeneration of the landscape;

- protection and upgrading of the fauna heritage, ensuring the preservation of endemisms and providing for the enhancement of the vocational characteristics of the territory through the completion of present zoocenosis and environmental improvement;

- promotion and discipline of compatible recreational didactic use.

The Environmental Recovery Zone (RA), identified as such in the Park Plan, is the area once affected by the presence of an active quarry (Soffiantini quarry), including its access and extraction facilities. For the last 15/20 years the area is no longer affected by quarry activities and has been excluded from planning instruments as an extractive facility. For this area, the Park Plan requires appropriate actions to restore the environmental and landscape values of the park, with priority for naturalistic purposes.

Juridical statute

• Regional Law of 19 March 1984, No.17 "Institution of the Campo dei Fiori Park", then merged with the Regional Law of 16 July 2007, no. 16 'Unique text of the regional laws on the establishment of parks';

• Regional Law of 9 April 1994, No.13 "Territorial Plan Coordination of the Park of Campo dei Fiori" and subsequent variants;

• Regional Law of 14 November 2005 No.17 "Establishment of the Campo dei Fiori Natural Park";

• D.g.r. of 26 September 2016 - n. X / 5622 approval of the VARIANT OF THE TERRITORIAL PLAN for coordinating the Parco del Campo Campo Fiori following the enlargement of its boundaries approved by l.r. 26/2009

For the Piedmont Parco Ticino territory:

In accordance with the current Area Plan (1985), of the Special Nature Reserve Zones of the Park Plan for the conservation of notable environmental and natural features, specific conservation tasks are involved as the zones are characterized by vegetation of particular scientific interest and zones of exceptional value along the banks of the river. These are characterized by woods of particular botanic-vegetation importance, wetlands (oxbow lakes, pondage lands, Ticino shingles, natural perifluvial areas, and resurgences) where typical natural structures are preserved; and by areas hosting fauna of special interest.All are of particular interest for scientific research aimed at a better understanding of the present ecosystems.

A number of core areas on the margins of the Parco Ticino are not entirely protected by a buffer zone but at least in part directly border transition areas. This situation was already present at the time of the MAB recognition in 2002. However, it should be noted that the transition zones directly bordering the core areas correspond to a territory with regulatory constraints envisaged in the Municipal Regulatory Plans and therefore have maintained their valences throughout the decade And natural features.

Juridical Statute: currently the Area Plan of the Ticino Valley Natural Park -

Piedmont is in force. It was approved by the D.C.R. n.839-C.R. -2194 of 21 February 1985; a new Area Plan is now in the course of being drafted and focuses on local activism and additional belts of protection in core areas.

For the terriory of the Parco Nazionale Val Grande.

The core area of the Val Grande is centered on the Integral Reserve, Zone A of the Park, which coincides with the "Val Grande", Botanical R.I.N., one of the five integral Natural Reserves created in 1966, and instituted on July 26, 1971, with a D.M. (Ministerial Decree) that also established the "Monte Mottac" Nature Reserve. The institutional D.M. recognized the importance of the area as it is "rich in water, with natural forests of conifers and deciduous trees, including many pluri-secular, all surrounded by rocky hillsides and towering peaks that offer ideal conditions for sheltering chamois and for nesting eagles".

The idea of placing protectionist constraints in Val Grande and Val Pogallo, was sparked by the continued deforestation of the area up until the end of the postwar period, along with the abandonment of the last mountain pastures in the 1960s. Eventually the Azienda di Stato per le Foreste Demaniali (ASFD) (State Forestry Corps) acquired a large part of the territory, in order to create a vast state-owned forest.

The Val Grande Integral Nature Reserve is known as the "Pedum Reserve," thanks to the name of the mountain, whose western and northern slopes define the territory. It covers 973,46.20 ha in the Commune of Cossogno and its height ranges from about 550 meters (circa 1 km north of the Ponte di Velina bridge) up to the 2111 meters of the Pedum summit.

Article 2 of the DM, published in the Official Gazette of 18/09/1971 for the "establishment of the Val Grande natural reserves" in the province of Novara, states:" Access to the area within the perimeter of the Reserve, is solely ganted for purposes of study and education, and for administrative and supervisory tasks; any other human activity is prohibited.

The contents of the Integral Reserve are then resumed by DM 2 March 1992, establishing the National Park Val Grande, where art. 5 "Integral Reserve Regime" states that: "the natural environment is protected in its ecological integrity, access is limited to persons authorized by park administration for study, scientific research and surveillance purposes."

Juridical statute: The park plan adopted by the Authority has not yet been approved by the Region, therefore, for the Integral Reserve, the regulations of the DM published in the Official Gazette of 18/09/1971 for the "establishment of the Val Grande natural reserves" " and those set out in the integral reserve regime referred to in Article 5 of DM 2 March 1992, apply.

Core area targets: safeguard and long-term preservation of natural habitats and communities.



"(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".

Buffer zones are areas surrounding or bordering the central areas where only activities compatible with conservation objectives are permitted, for example: environmental education, ecotourism, monitoring and scientific research, and agriculture if conducted with eco-compatible methodologies.

As with core areas, a description of the buffer areas in relation to the protected reference field follows below.

Buffer areas (with a total area of 51,356 ha) correspond to:

For the Lombardy territory

Buffer areas correspond to B3 zones (for those not included in the core area), C1 of the Park Plan (Natural Park PTC) and C2 zones of the Park Plan (PTC of the Regional Park in regards to the Nature Zones along the River).

These areas surround or border the core areas and include:

• Naturalistic Zones Located along the River (B3 zones) of the Park Plan that have a functional connection (true buffer zones) to the areas of the greatest natural significance and worth, of which they can represent

expansion belts, thanks to their strong natural characteristics. In these areas only agricultural and forestry activities using environmentally-friendly methodologies are allowed.

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- Areas that the Park Plan defines "Agricultural and Forestry Zones of Prevalent Faunal Interest" (C1) that protect the Natural Perifluviali Reserves located along the River. In these zones, attention is focused on the protection and conservation of fauna. Every anthropic action is subordinated to the assessment of its compatibility with the conservation of the faunal and agronomic features and of elements characterising the landscape, espeecially unique traditional cultivation (*watermeadows*) and use of the soil.
- Areas that the Park Plan defines "Agricultural and Forestry Zones of Prevalent Landscape Interest" (C2) which are landscape units along the main River valley, and a confluent valley and of sub-lake hills, which are occupied by chestnut woods mixed with pedunculateo, Scots pine, European birch and robinia. In these areas, agricultural and forestry activities prevail and all the interventions are oriented to the maintenance and improvement of the landscape, and to the ecological restoration of the river course. In these areas controlled urbanisation activities are allowed as long as owners or sponsors then carry out environmental compensation through forestation.
- Degraded areas to be recovered by the Plan Park (R areas according to PTC definition) in which the recovery action, depending on the area characteristics, aims at the natural forestation or reconstruction of wetlands, at a productive agronomic destination or recreational and tourist function. The Park fosters these projects itself, but delegates the intervention to public administrations or private subjects that can propose projects comprehensive of forecasts and financial sources. The Park studies their compatibility and involves all the appropriate administrations and those interested.

Juridical Statute: L.R. 2/74, L.R. 31/2002, General Revision of Regional Park PTC, D.G.R. 5983/2001, and Natural Park PTC D.C.R. 919/2003.

For the territory of the Campo dei Fiori Regional Park:

The following areas of the Campo dei Fiori Regional Park are covered

 Wetlands are areas of significant natural value; these include: Lake Ganna in the municipality of Valganna (RO 2.1) - Lake Brinzio in the municipality of Brinzio and Varese (RO 2.2) - "Torbiera Pau Majur" in the municipality of Brinzio (RO 2.3) - "Carecc Torbiera" in the commune of Castello Cabiaglio and Cuvio (RO 2.4). For each Reserve the Park has drawn up a Management Plan on interdisciplinary studies based on the analysis of the components of the ecosystem, with a view to establishing its history, current situation and evolutionary trends; To this end, the hydrogeological, limnological, vegetational, zoological and, in particular, ornithological, landscape, and for the environment

• Forest Park Area (PF): In this area, management is primarily aimed at the valorisation and protection of native forests, considering their alboreal, floristic and faunistic components as a whole

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- Forest-agricultural park area (PFA): are areas of the Park area classified as forest-agricultural park, currently destined for agricultural or forestry activities, where these activities must be maintained and valued in a manner compatible with the environmental/landscape
- Identified with a specific graphic signs and the PSF acronym, are those areas of the park area classified as River Fluvial solcus, characterized by the presence of watercourses, rushing springs, river terraces, morphological slopes, springs and areas that make up the ecosystem of the Tinella and Valle Luna streams. Environmental and landscape conservation are the objectives, pursued, along with the protection of the ecological aspects of the various ecosystems, the sustainable use of the land, the promotion of studies and scientific insights on the analysis of hydrogeological and water resources with particular reference to sampling, drainage and water quality, in order to ensure biological and ecological equilibrium
- Those areas identified as "PAT" are classified as an " equipped park ", in which the functional destination of the area is primarily aimed at respecting the plan for the realization of equipped public green spaces, the maintenance of garden and sport equipment in use, including owned or subcontracted, to the maintenance or realization of public spaces or those of cultural, social or functional aimed at the fruition of the park. These equipped areas, are also included in the tourist sector plan for intervention and use in accordance with the permissible destinations for each area, as well as the requirements contained in the geological studies of the municipalities areas in which the areas are located
- Areas of Historical Environmental Interest (SA). These areas are those within the park's territory that are classified as areas of historical interest, in which the territorial regulations are aimed at safeguarding the historical, architectural and environmental values of the urban settlements, both for the value of the buildings as well as for the connective spaces. Included among these is the UNESCO World Heritage Site Monte del Rosario di Varese, added to the World Heritage List, along with 8 other Sascri Monti (Sacred Mountains) in Piedmont and Lombardy on July 5, 2003. The preservation and enhancement of the landscape context of the UNESCO site and its buffer areas is promoted in order to define guidelines for the protection, awareness and cultural and educational enjoyment of said site
- Zones of Landscape Value (VP). These are areas valued for the landscape, not only for the typical nature of the relationship between the natural environment and the architectonic elements, as well as for the particular conditions of accessibility and the provision of valuable panoramic views. In the areas covered by this "VP" area, interventions regarding vegetation should aim at preserving and enhancing the main characteristics of existing wooded complexes as well as arboreal subjects of significant

natural and landscape interest, and aim at maintaining the natural variety of the environments and the biological diversity of plant cover. Farming is allowed only for the cultivation practices typical of existing fields, as well as the recovery of areas of abandonment or forest invasion, with a view to protecting the traditional landscape and recreational use.

Juridical Statute:

D.g.r. 26 September 2016 - n. X/5622 approval of the variant to the Piano Territoriale di coordinamento del Campo Dei Fiori Regional Park following the expansion of its confines, approval with l.r. 26/2009.

For the Piedmont territory of the Ticino Park:

According to the current Area Plan (1985), covering "the Special agricultural zone for the safeguarding of *Pelobates Fuscus*", which is an agricultural zone needing special requirements for the carrying out of agricultural activities aimed at preserving the Pelobates Fuscus species; "Other Areas", which are prevalently woodlands, whose resources are allocated to wise management through interventions laid down by forestry management regulations; to the safeguard and the conservation of environment and landscape values; and to the defence of the hydrogeological assets of the territory. Included within the perimeter of these areas are built-up zones with permanent or temporary residential buildings, industrial facilities, commercial/tourist/recreational activities. technical facilities, roads, open spaces and equipment for rest and recreation, and beaches equipped for bathing; "Zones for agriculture conservation", which are agriculture-oriented areas still under cultivation. These have a production and economic function, as well as the function of safeguarding the hydrological system, agrarian landscape and the ecological and natural equilibrium; "Equipped and Influx Areas" which are areas that may be moderately or intensely equipped for leisure and recreational activities in the Park.

Juridical statute: currently the Area Plan of the Ticino Valley Natural Park – Piedmont is in force. It was approved by the D.C.R. n.839-C.R. -2194 of 21 February 1985 and its related D.C.R. Revision 388-30951; considered outdated; a new Area Plan is now under revision, and is focused on local activism and an extension of core areas.The drafting of the Area Plan is being carried out under the research contract signed in October 2002 between the Dipartimento di Scienza e Tecnologie dell'Ambiente Costruito B.E.S.T. (Building Environment Science & Technology) of Politecnico di Milano and the Park Authority.

The new area plan was adopted with D.C.D. n. 17/2010 and is based on the MAB zoning criteria and therefore focuses on local activism and the realisation of integrate area projects ro be implemented via the master plan.

For the territory of the Val Grande National Park

The buffer zones for the territory of the Val Grande National Park are defined by the two legislative decrees, the first for the Park (D.M. March 2, 1992), and the other regarding its extension (DPR 24 June 1998). These zonations refer to areas

B and C. In particular, those concerning areas B are general reserved areas, C are areas of protection. Each category is subject to a special protection scheme in relation to the natural, ecological and landscape values of the respective areas as well as to the uses thereof by local populations.

Juridical Statute: The Park Plan has not yet been approved by the Region, therefore the general safeguard clauses in Art. 4 of DM 2 March 1992, establishing the Val Grande National Park and D.P.R. Of 24 June 1998 for the extension, are currently in effect.

Buffer zones aims: ensuring the overall safeguarding of core areas and creating areas for their possible expansion through the management of the natural environment and control of the allowed activities.

"(c) an outer transition area where sustainable resource management practices are promoted and developed".

Transition areas are those that surround or confine with buffer zones, where the sustainable use of resources is encouraged and developed; they are the part of

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the reserve where more activities are permitted, allowing economic and human, socio-cultural and ecologically sustainable development.

They are in fact the areas where man's presence is greatest, through the exercise of common economic activities: agricultural, forestry, pastoral; Industrial and artesan, touristic; along with research and, in general, all socio-economic activities. Many urban centers and built-up areas are contained therein, with corresponding infrastructures (such as highways, state and provincial roads, railways). However, it is important to emphasize the widespresd existence of numerous areas of natural interest (parks, reserves, Natura 2000 sites), which thus guarantee the presence and protection of the natural and environmental wealth in the transition areas as well.

The transition areas of the Candidate Reserve include the territories of the Ticino Parks, the Val Grande and Campo dei Fiori National Parks, the Monte Mesma and Colle della Torre di Buccione Reserves and the Special Reserves of the Sacri Monti that are not classified as core or buffer areas, in addition to the areas outside these protected areas.

Transition areas (for a total of di 262.747 ha) include:

For the Lombardy Park territory of the Ticino Valley:

The Ticino Park and the surrounding region have characteristics which are particularly favourable for planning and implementation. Not only thanks to their geographic configuration and the soil-use of the territory adjacent to or bordering the buffer zones, but also for the years of experience in negotiations and conventions that the Park has developed with administrators, businessmen, farmers, and land owners for the sharing of responsibilities and for ensuring that all the activities and infrastructures are as consistent as possible to the environmental significance of the Ticino Valley.

The transition area includes:

- Dry Plain G1 Zones of the Agricultural and Forestry Environment, as defined by the Park Plan (PTC of the Regional Park), occupy the main plains level, with indigenous and exotic tree species, destined to forestry and/or reconversion. In these areas, urbanization projects and plans for agronomic use conforming to urban planning laws and the general safeguard of landscape, are allowed.

- Irrigation Plain G2 Zones of the Agricultural and Forestry Environment, as defined by the Park Plan (PTC of the Regional Park), are dedicted to cultivation (maize, rice, poplar plantations) and aim for improved production. In these areas, works of improvement and reclamation, which conform to the criteria imposed by the Park and respect the Park's or the competent Municipality's views, are allowed. Environmental compensations for works carried out are foreseen.

- Degraded Areas to be Recovered (R areas as defined by the Park Plan - PTC of the Regional Park) in which the recovery intervention, according to the area's characteristics, aims at the natural forestation or reconstruction of wetlands; at a

productive agronomic destination or recreational and tourist functions. The Park fosters these projects on its own but delegates the intervention to public administrations or private subjects that can propose projects comprehensive of forecasts and financial sources. The Park studies their compatibility and involves all the appropriate administrations and those interested parties. (*pro-parte* among the buffer zones);

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– Municipal Initiative Zones - IC as defined by the Park Plan (PTC del Parco regionale), are municipal built-up areas, including areas of functional development. The Park establishes the guidelines for urban planning which, under the Municipality's responsibility, guarantees that construction, green areas, structures and buildings, are in harmony with the Park's aims. The Park also provides an opinion of competence.

For the territory of the Campo dei Fiori Regional Park

Campo dei Fiori ICO Zones

Identified as "ICO" zones are those areas of the Park comprising urban aggregates of individual municipalities, their *frazioni* and areas that are under municipal authority urban planning, in compliance with the criteria and provisions of this article. Interventions within ICO areas are subject to municipal and PTC provisions, as well as legal procedures. General, as well as implementational municipal urban projectss must conform to the aesthetic-building norms provided by the Landscape Safeguards Regulations in order to conserve the architectural and formal characteristics of existing buildings.

Also included in the transition area are the areas linking the two Parks and Swiss territoryas up to the Val Veddasca, including the perilacual ambit of Lake Maggiore as far as the shores of Lake Varese. None of this territory has been defined as a Park under the National or Regional Law of Protected Areas, but the main natural characteristics are protected as Reserves, Oasis, Local Parks of inter-municipal interest, as well as Natura 2000 Sites. The management plans of these, as well as procedures to assess impact, allow for control and regulation of activities therein. Within the area, Agenda 21 Lakes and Comunità Montana Valli del Verbano community are identified as Aggregate Subjects; In particular Agenda 21 Lakes, which is very active in the area, is essentially a strategic process to encourage and control sustainable development. The preparation, management and implementation of this process require all the capabilities and tools that a local authority and its community have available. Its primary objectives are:

- The quality of the main environmental components: water, air and soil;
- enhancing the territory's potential in terms of protection and sustainability;
- raising awareness regarding individual and collective behavior and conduct oriented towards sustainability

The 16 municipalities that have joined **Agenda 21 Lakes** are characterized by homogeneous territorial and environmental features that fully justify their

adherence to the project and are: Angera, Besozzo, Brebbia, Bregano, Cadrezzate, Caravate, Comabbio, Gemonio, Ispra, Laveno Mombello, Leggiuno, Monvalle, Osmate, Ranco, Taino, Vergiate. The list has yet to be completed.

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For the Piedmont territory:

The transition areas correspond to the external territory bordering the Natural Park of the Ticino Valley which was established with the Regional Law 19/2009 e.smi.

The transition area corresponds to:

- to the territory of the municipalities in which the Park falls excluded clearly the area bound by it,

- Protected areas whose planning does not allow you to identify buffer areas for core core protection.

- to the territory of the other municipalities, which are not part of the protected area community but which are characterized by the socio-economic activities of the agricultural, tourist and enogastronomic areas, some of which have already been carried out with eco-sustainable use of the territory (Eg agreement of 13 municipalities for the defense and plant protection service of viticultural production).

- Municipalities interested in foreign tourism such as the municipalities of Lake Orta and Lake Maggiore.

The list of Park Entities involved in the transition area is as follows:

Lagoni di Mercurago Natural Park – Piedmont

The Park is located in a regional area of high natural-environmental value and is protected on different levels in accordance with this great variety. Currently, the Lagoni di Mercurago Park is regulated at the urban level by the present Area Plan, approved by D.C.R. n. 839-C.R.-2194 of 21 February 1985. Revision is planned by the Park in order to designate the Protected Area a core area safeguarded by a buffer zone.

Canneti di Dormelletto Reserve - Piedmont

Currently, the Protected Area lacks its own planning instrument, therefore it is regulated by the General Regulating Plan (Piano Regolatore Generale-P.G.R) of Dormelletto and by the provisions of the Regional Territorial Plan, Provincial Territorial Plan and Regional Landscape Plan for the territory's management. The drafting of a Management Plan for the area is planned in order to designate the Protected Area a core area safeguarded by a buffer zone.

Bosco Solivo Natural Reserve Piedmont Region

Currently, the Bosco Solivo Reserve lacks its own planning instrument, therefore

it is regulated by the Borgo Ticino PGR and by the provisions of the PTR Provincial Territorial Plan and Regional Landscape Plan.for the territory's management. The drafting of a Management Plan for the area is planned in order to designate the Protected Area a core area safeguarded by a buffer zone.

Fondo Toce Natural Reserve Piedemont Region

Currently, the Fondo Toce Special Natural Reserve is regulated by the Nature Plan as well as by the Management Plan of a Site of Community Importance and by the "Fondo Toce" Special Protection Zone approved by DCR 239-8808 of 24 February 2009. The Plan has been effective for three years and appropriate changes will be made so as to render the Protected Area a core area safeguarded by a buffer zone.

Val Grande National Park

Included in the transition zone are areas D of the Park, regulated by the DM of 2 March 1992, in the absence of definitive approval of the park plan. The D zones are those for the promotion of residential areas and natural surroundings, alpine pastures and other structures.

Maintained and favored within the protected areas are traditional agro-silvopastoral activities, as well as those agritourism facilities authorized by the Park's administration, considerd compatible with the environmental equilibrium and presenting no danger of overloading the capacity of the natural systems within the area. Artisanal manufacturingand its strictly necessary relative infrastructures are permitted as well as ordinary and extra maintenance, preservation and restoration as stated in the technical norms and regualtions for the implementation of existing urban planning, if they are compatible with the aims of the Park. And finally, the Areas classified as areas of "economic and social promotion" are those "inhabited" spaces, where historical settlements may be restored using traditional materials, techniques and architectonic elements, to promote community life in close harmony and coexistence with the activities of the Park. Recreational and recreational activities aimed at a proper use of the Park, as well as variances of land-use, are also permitted and regulated, in compliance with the provisions found in point d) paragraph 2 of art. 12 of the law no. 394 of 6 December 1991.

In those inhabited centers located within this natural context, only interventions conforming to the existing urban planning instruments and current building codes are allowed and areas equipped for tourism purposes may be realized.

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In the alpine pastures and other structures that fall within the above areas approved of the Park Plan, the norms established by existing urban planning apply. Expansion of the area is also allowed through the amalgamation or joining of several or more existing structures in strict compliance with local typologies and materials.

Special Reserves of the Sacro Monte of Ghiffa, Orta, Domodossola-Piedmont Region

The Reserve possesses an existing Action Plan. The Regional Landscape Plan for Sacred Mountains, Unesco Heritage, provides the following planning guidelines at the provincial and local level:

a. Provincial territorial plans ensure the preservation of systems concerning visual relations that link the sacred buildings to the devotional paths, favoring the protection or restoration of historical views from and towards the sanctuaries and the Sacred Mountains, and establishing criteria for local plans in order to impose appropriate limitations of constructiong and height of buildings, in the areas affected by such visuals.Furthermore, they define the visual area of the centers of attracton where the localization of the following should be avoided: activities at high risk of major accident or potentially hazardous, new waste treatment facilities, quarries or operations for the processing of inerts.

b. Local plans provide for the maintenance or restoration of vegetation, guaranteeing the philological respect of the historic layout, as well as the borders and margins of the sacred areas, while also ensuring the visibility and emergence of the apical crown of buildings from the underlying urban or wooded context; locate service activities and facilities (accessibility, reception, parking, lighting, signs and amenities) so as to avoid any negative impact.

These proposals, not yet implemented by the current planning schedule, do not at present, guarantee a protected area so that a buffer zone can be identified.

Colle di Buccione Natural Reserve

Currently the Reserve does not have its own urban planning tool, but the Ameno Municipal Council's Strategic Plan, was drawn up under a co-planning regime in agreement with the Managing Authority and is in the process of being approved.

Monte Mesma Nature Reserve

Currently the Reserve does not have its own urban planning tool, but the Ameno Municipal Council's Strategic Plan, was drawn up under a co-planning regime in agreement with the Managing Authority and is in the process of being approved.

Further important areas are: the Protected Areas of Baraggia del Piano Rosa that are part of Ghemme, Romagnano Sesia, Fontaneto d'Agogna, Cavaglio d'Agogna, Cavallirio, Cureggio; part of Monte Fenera Natural Park in relation to Boca, Cavallirio, Grignasco and Prato Sesia; the centuries-old agricultural estate of

Piana del Muggiano in Gattico.

All of the above municipalities are involved in the enlargement:

Agra, Ameno, Anzola d'Ossola, Arizzano, Armeno, Aurano, Azzio, Barasso, Bardello, Bedero Valcuvia, Bee, Belgirate, Besozzo, Beura-Cardezza, Biandronno, Bolzano Novarese, Brebbia, Bregano, Brenta, Brezzo di Bedero, Brissago-Valtravaglia, Brovello-Carpugnino, Cadrezzate, Cambiasca, Cannero Riviera, Cannobio, Caprezzo, Caravate, Casalzuigno, Casciago, Cassano Valcuvia, Castello Cabiaglio, Castelveccana, Cavaglio-Spoccia, Cazzago Brabbia, Cittiglio, Cocquio-Trevisago, Colazza, Comerio, Cossogno, Craveggia, Cunardo, Curiglia con Monteviasco, Cursolo-Orasso, Cuveglio, Cuvio, Domodossola, Druogno, Dumenza, Duno, Falmenta, Ferrera di Varese, Gavirate, Gemonio, Germignaga, Ghiffa, Gignese, Grantola, Gurro, Inarzo, Induno Olona, Intragna, Ispra, Laveno-Mombello, Leggiuno, Lesa, Luino, Luvinate, Maccagno con Pino e Veddasca, Malesco, Malgesso, Masciago Primo, Massino Visconti, Mesenzana, Miasino, Miazzina, Montegrino Valtravaglia, Monvalle, Nebbiuno, Oggebbio, Orino, Ornavasso, Orta San Giulio, Pallanzeno, Pettenasco, Piedimulera, Pieve Vergonte, Pisano, Porto Valtravaglia, Premeno, Premosello-Chiovenda, Rancio Valcuvia, Ranco, Re, San Bernardino Verbano, Sangiano, Santa Maria Maggiore, Ternate, Toceno, Travedona-Monate, Trontano, Tronzano Lago Maggiore, Valganna, Varese, Vignone, Villadossola, Villette, Vogogna.

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Transition area targets: to implement forms of social bargaining and participated management in order to identify the economic assets that are compatible with the Reserve's core areas and buffer zones, and to carry out an integrated territorial model.

(d) Please provide some additional information about the interaction between the three areas.

In addition to the integrated approaches to analysis, research and sustainable planning related to the level of programming and development that can be implemented with European, national and private funding (banking foundations, etc.), or belonging to the MAB Reserve itself, the system of interaction between the three Areas is variations of safeguarding and programming through the higher levels of planning: in particular that of the Plans for Provincial-Territorial Coordination (PTCP) and regional landscape planning.

The institute of the Comunità del Parco (Park Community) is also covered by the framework of the management of Protected Areas, to which the individual administrations (Region, Province and Municipalities) participate, to determine the scope of the comparison and opinion on the direction, actions and projects of the Parks themselves that may have interaction, effects and synergies with the rest of the communal territories not included in the protected area.

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".

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4.6.1. Describe arrangements in place or foreseen.

The Reserve has engaged in participation, consultation and awareness-raising processes related to the goals and principles of the UNESCO Program and the sharing of its activities

The proposal to expand the Biosphere Reserve Valley of Ticino has increased the implementation of further stakeholder engagement through events, presentations and promotional initiatives.

The subjects involved can be summarized as:

- Institutions (Ministry, Regions, Provinces, Municipalities, schools),
- Local societies,
- trade associations (environmental, agricultural, hunting, trade, industry),
- stakeholders

• exchanges with foreign RBs: Wienerwald (Austria) and Biósfera Andino Norpatagonica (Argentina)



Fig. 14 During consultations



Consultation, participation, awareness-raising 2014

January 2014 Abbiategrasso (MI): MAB Assembly: involvement and participation of the mayors

July 2014: Expanded enhancement of typical products

September 2014: Experimenting, territorial marketing initiative, water mobility from RB Ticino Valley to RB Delta del Po.

October 2014: MINIEXPLORANDO ACQUA-1° Water and land tour E (x) by plowing the protected areas of Lake Maggiore and Ticino

November 2014 Cameri(NO): MAB Assembly: involvement and participation of the mayors

2015

May 2015: presentation enlargement community of the Val Grande National Park

May 2015: presentation extension Board of Directors National Park Authority Val Grande

June 2015: partecipazione al convegno EXPO 2015 il 'Parco della Biodiversita''.

July 2015: EXPO Swiss Pavilion

July 2015: Experimentando: from Locarno to Milan, sailing

September 2015: Castelletto Ticino-Magenta: Castelletto Ticino-Magenta: MAB meeting in videoconferencing

2016

March-April 2016 Enlarged consultation for INTERREG ALPINE SPACE project including Swiss partners

June 2016: Common consultation VCO Province

July 2016: Consultation with the Ministry of the Environment on the proposed extension of the Reserve to the Swiss border.

Agosto 2016: Information meeting city of Domodossola

September 2016: Participation at the Round Table UNESCO PiedmonteseOctober 2016: Rassegna Montagna e d'intorni, Vogogna

2017

January 2017: Participation in the submission of the RB MAB nomination proposal Unesco CR-PR-RE-MN

Participation in the Seminar "RURAL DEVELOPMENT 2014/2020 AND UN PROGRAM" MAN AND BIOSPHERE "Experiences, Good Practices and Opportunities - January 19, 2017

February 2017: Launch negotiated Italy-Switzerland, Rome7

March 2017: Awareness raising meeting in San Nazzaro Sesia (NO)

March 2017: Informative meeting Municipalities of Arizzano, Bée, Vignone, Premeno

April 2017: Castelletto Ticino-Magenta: MAB Assembly in videoconference with the involvement of the Municipalities already attached to the proposed enlargement

May 2017: Consultation meeting Fontaneto d'Agogna (NO)

June 2017: Summer Solstice Festival Villa Annoni (MI)

June 2017: Consultation Campo dei Fiori Park and Montana Valley Verbano Mountains

July 2017: Big Jump in Ticino, sweet canoeing.

July 2017: Informative meeting Municipal Union Valle Vigezzo July 2017: Expansion Presentation Community of the Campo dei Fiori Park

The expansion involves a total of 148 communities.

Active participation and sharing will be enhanced through the activation of forums and thematic tables of comparison and through an awareness campaign regarding the MAB Program and the Reserve's lines of action.

4.6.2. Have any cultural and social impact assessments been conducted, or similar tools and guidelines been used?

A number of projects and actions regarding sustainability today allow for monitoring and evaluating the social and cultural impact of actions taken and / or to be undertaken.

With reference to local experience, the praxis of the European Charter for Sustainable Tourism, has allowed experience to be gained in preparing, sharing and associating performance-efficiency indicators in actions undertaken.

Likewise, the new programming of public bodies, in place for a number of years now, has been progressively introducing the practice of defining outcome and target indicators that can measure the policies and response actions associated with public spending through the use of performance plans. For example, the performance tree is intended to provide an "organizational diagram" (in graphic form) that highlights the links between the institutional mandate, the mission and the vision of an entity, as well as the consequent planning and control system. These ties relate to strategic areas and strategic goals that can also be assumed as expected outcomes, and consisting in a procedure of integrated programming.

Finally, the current European programming, in which the territory is participating with new projects, establishes approaches able to evaluate the actions proposed in terms of "measuring" social and cultural impacts on local communities.

Considering also that the United Nations Framework Convention on Climate Change is the central, international and intergovernmental forum for negotiations aimed at finding a comprehensive response to climate change, the Future Action Plan for the Reserve will pursue, as far as competence is concerned, the objectives of the 2030 agenda as they take a balanced account of the three dimensions of sustainable, economic, social and ecological development.

The Reserve will provide its contribution in addressing major world challenges. Switzerland is also required to implement these objectives at national level.

The Reserve is working to produce a social report of its main activities, to be updated periodically by issuing an identifying brand of the area and certifying the social value of the company, a enterprise or organization involved.

4.7. Mechanisms for implementation:

The implementation of an integrated policy regarding the management of the Reserve territory involves two levels of action: a more general one for the transposition and implementation of national and global sustainability policies; the other for coordinating and integrating the various levels of local government, of both a sectoral nature (parks and Natura 2000 network), as well as at a higher level of provincial and regional territorial plans. At the same time, the Reserve Action Plan can draw on and develop knowledge and operational guidance from complex projects and research activities carried out by various institutional and research subjects.

a) Management mechanisms for human uses and activities

In general, the entire territory of the Reserve is governed by high-level guideline planning comprising the Territorial Plans of the Parks, Regional Territorial Plans, Provincial Territorial Plans, Regional Landscape Plans and Territorial Plans of Local Authorities.

In particular, the planning tools for the Protected Areas included in the reserve (Ticino Regional Park Territorial Coordination Plan - DGR 5983/2001; Ticino Valley Natural Park Coordinating Plan - DCR 9119/2003, Plan 'Area of the Ticino Valley Natural Park approved by DCR No. 839-CR -2194 of 21.2.1985 General Review of the Ticino Valley Natural Park Area Plan adopted by Council Decision No. 5 of 16.02.2006 And revised, with modifications and additions, with DCD n 17 of 15.11.2010, Area Plan of the Natural Park of Lagoni di Mercurago valid approved with DCR No. 839-CR -2194 of 21.2.1985, Naturalistic Plan and Management Plan Of the Site of Community Importance and the Special Protection Zone "Toce Fund" approved by DCR 239-8808 of 24.02.2009) divide the territory of the reserve into areas of varying degree of protection and discipline the management and regulation of uses and human activities in line with the objectives of conservation and sustainable development.

The same planning principle also applies to the Campo dei Fiori Regional Park:

D.G.R. 26 of September 2016 - n. X / 5622 Approval of the Variation to the Territorial Plan for Coordination of the Campo Dei Fiori Regional Park following the expansion of the borders approved by I.r. 26/2009,
Regional Law 4 of December 2009 - n. 26 - Amendments and additions to the regional law of 16 July 2007, no. 16, approved the extension of the borders of the Campo dei Fiori Regional Park

• Regional Law No.17 of 2005 Natural Park of Campo dei Fiori

b) A Policy or Management Plan for the Reserve Area:

A management policy that will, on the one hand, be attentive to the various specificities and international designations that characterize the area as a whole

(MAB Reserve, Geopark and World Heritage), and on the other, to the requirements of a wide range of higher-level planning (territorial, landscape, etc.).

The proposed area, as mentioned above, is part of a number of areas designated and recognized by international instruments, such as the World Heritage Convention (Sacre Monti and pile-dwelling areas), the UNESCO Man and the Biosphere Program (MAB) (Ticino), UNESCO Global Geoparks as part of the UNESCO International Geoscience and Geoparks Program (IGGP) with the Sesia Val Grande Geopark, among the Multi-Internationally Designated Areas (MIDAs, 2016 International Union for Conservation of Nature), one of the 3,331 IDAs (2015). The multitude of international designations will require a harmonization of management and programming in accordance with the principles outlined by the IUCN in the "Managing MIDAs Harmonizing the Management of Multi-Internationally Designated Areas: Ramsar Sites, World Heritage Sites, Biosphere Reserves and UNESCO Global Geoparks" Manual (2016), shown in the following figure.

Recommendations for site managers at the local level

Improve staff capacity building

Training and capacity-building activities for site managers on the specificities, similarities and potential for synergies of the four international designating instruments should be institutionalised as part of regular in-service training for showcased in MIDAs, by site managers and responsible protected area staff, as well as for other local stakeholders.

* Create a joint coordination mechanism at site level for all international designations

To the extent possible, a joint coordination mechanism, with sufficient management and decision-making capacity, should be institutionalised at site level for all overlapping international designations. This mechanism developed and implemented in order to safeguard the would be in charge of harmonising the different objectives and requirements of a site's international designations.

Revise and update management plans

If an area has obtained multiple international designations, a new coherent and single management plan should be worked out (or updated if it already exists) to accommodate all the objectives and requirements of the respective The branding of a MIDA should successfully translate the international designations.

* Engage with and respect the rights of local communities and indigenous peoples

Local communities and indigenous peoples should be fully engaged and participate in the planning and management of MIDAs through various governance mechanisms, as well as receiving concrete benefits from site conservation. All MIDA processes should observe the principle of free, used to raise awareness amongst local communities, rights of indigenous peoples.

Promote communication, education and awareness raising

Communication, education and awareness-raising programmes regarding the environment should be national authorities, combining their resources and expertise to promote the multi-faceted recognition of the area.

* Manage tourism and visitor numbers

Visitor numbers should be adequately managed, and sustainable tourism strategies and plans should be conservation and environmental integrity of a MIDA. Tourism activities should be fully compatible with the conservation objectives of all the different designations that apply to the area.

* Develop and display branding that transmits the site's values

site's values into appropriate and sustainable tourism and information products and activities, which can transmit these values and educate visitors. Additionally, the logos and significance of each international designation should be visibly displayed and explained on site.

* Use visitor centres to raise awareness of international designations

Visitor centres and educational activities should be prior and informed consent (FPIC) when considering the the general public and decision makers, in an easily understandable manner, of the site's various forms of international recognition and the primary objectives of each designation.

In general, the entire territory of the Reserve is governed by higher-level planning comprised of Territorial Coordination Plans, Regional Territorial Plans, Provincial Territorial Plans, Regional Landscape Plans and Territorial Governance Plans of Local Authorities. Because of the over-regional connotation, reference will be made to regional planning, in particular to that regarding the landscape, in defining the reference coordinates for a more overarching integrated reading to optimize the action plan of the Reserve.

In particular:

The Biosphere Reserve posseses Territorial Plans and Sector Plans that, through the zoning of the protected area, enable the degree of protection of the areas to be defined and the activities allowed therein tobe regulated. Each protected area included in the Biosphere Reserve, with the exception of the Natural Reserve of Bosco Solivo and the Reed Beds of Dormelletto (*), has its own regional planning tool, which, in relation to the specific characteristics of the territory, identifies

the main management objectives, which can be summarized as follows:

 Protect-safeguard and promote the natural, environmental, archaeological and landscape features

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- manage the territory for the enjoyment of recreational, educational, scientific and cultural ends
- promote integration between the conservation objectives of protected areas and the development of the territory

In Piedmont, drafting of a multi-annual socio-economic development plan and management plans for SCI-SPA zones of the protected areas, which were lacking, is currently forecast. For the protected areas of the Dormelletto Reedbeds and the Bosco Solivo Reserve, the drafting of land management plans that can lead to a core / buffer configuration is anticipated.

For the Reserves of the Colle di Buccione and Monte Mesma, the governance plan of the territory will be agreed upon through a co-pianification legislative process. The Val Grande National Park has adopted a not yet approved park plan, while its site-specific conservation measures concerning the SCI and SPS areas have been approved, with favourable opinion, by the Piedmont Region.

(*)The Bosco Solivo Reserve, Reedbeds of Dormelletto and Baragge, Colle di Buccione and Monte Mesma, all currently are guided by the Municipal Regulatory Plan (which in any case transposes the governing guidelines of the territory defined in the Territorial Plan of the Regional Landscape Plan), as they do not have their own management policy for s.the protected areas.

The Lombard Natura 2000 sites included in the Reserve all have a specific management plan or, where not available, Site-specific Conservation Measures approved by Dgr n. 4429 of 30 November 2015.

c) An authority or mechanism designated to implement said policy or plan

The Managing Bodies of the Protected Areas included in the Reserve (Lombardy Park Authority of the Ticino Valley, Management Authority of the Protected Areas of Ticino and Lake Maggiore, with the extension Ente Parco Campo dei Fiori, and the National Park Authority of the Val Grande) figure as the authorities responsible for implementing the area's management plan.

At present, the Reserve is governed by the following:

- 1) **Consultative Assembly:** a body that has the task of scheduling annual activities. The Chairman and the Deputy Chairman of the Shareholders Group are elected by the mayors of the municipalities within the MAB area.
- <u>Executive Committee</u>: has the task of implementing the Reserve's programs and activities.

At the technical-operational level, a third such structure has also been established:

3) <u>The MAB office</u>, reference and secretariat of the Ticino Valley BR, consists of two coordinators / secretaries representing the Piedmontese and Lombardy areas, who are in close contact with the needs and opportunities of the entire Reserve, and constitute the core of the Reserve as well. They are also the recipient of proposals, initiatives and projects, for whose development they can call upon thematic working groups made up of technicians employed by the institutions involved.

d) Research, monitoring, education and training programs:

The National Strategy for Biodiversity assigns to protected areas identified as "fundamental and indispensable for conservation strategies to safeguard biodiversity and the ecological processes of the planet" as well as "privileged sites for the promotion, practice and dissemination of scientific research, the development of integrated planning and participatory processes for territorial management and sustainable development ".

On-going research, monitoring, education and training programs run by the Protected Areas managing bodies and / or universities and research centers in the Reserve, facilitate the increase of knowledge and understanding of the major environmental components (air, water, etc.) and of the area's rich pool of protected biodiversity. This information is a prerequisite for the implementation of the Reserve's management of its natural heritage-wealth and for the development of measures for environmental mitigation and compensation. At the same time, the Reserve is active in the organization of training courses and informatitive events (conferences, events...) aimed at professionals and local communities.

In particular, the Ministry of Environment Biodiversity Directive regarding research on biodiversity has allowed national alpine protected areas to operate with system activities concerning the natural and environmental specificities of the Alpine bioregion.

Within the framework of the Convention, the four National Alpine Parks are working in a coordinated and supportive manner for the following purposes:

- Implement and develop the cognitive objectives of the National Strategy on Biodiversity and the relevant Directives of the Ministry of the Environment;

- Promote and harmonize closely co-ordinated research and monitoring in national alpine protected areas to safeguard and defend the natural environment and landscape, along with animal and plant species, with particular attention to specific research and systems established in specific operative protocols;

- Develop joint or integrated programs for the monitoring, analysis and evaluation of ecosystems through joint participation in public and private calls

for proposals, with the aim of expanding scientifically validated knowledge to support the management of the same protected areas;

- Implement a common system of data collection and contribution so that the results of research and systematic observation at a national level are collected in a common system of permanent observation and information and made publicly available within the existing institutional framework.

- Consolidate long-term monitoring of biodiversity, in particularfor those environmental and taxa which are potentially vulnerable to climate change in the alpine environment;

- Facilitate and promote the exchange of information of a procedural, scientific, economic and technical nature that may result in more effective and cost-effectiveness of joint research activities.

In relation to what has been experienced and learned so far in the national alpine parks, the reserve's intention in the future is to continue to strengthen the systematic action between parks; on the one hand, by implementing joint monitoring that allows comparison and activation of the guidelines developed by ISPRA on behalf of the Ministry, aimed at monitoring the habitats and species in the Directive; and on the other, to project the cognitive framework now in place following the same national strategy regarding biodiversity, and the accounting of natural capital and ecosystem services in particular.

It should also be noted that the JRC of Ispra, one of the seven Joint Research Centers (JRCs) of the European Commission Directorate-General: DG-JRC (Directorate-General Joint Research Center) will be included in the expanded Reserve Area.

The Ispra site includes:

- Institute of Environment and Sustainability (IES)
- Institute for the Protection and Security of Citizens (IPSC)
- Institute for Health and Consumer Protection (IHCP).

The CCR plays a coordinating and research role in a number of Community networks involving national institutes of research, universities and advanced industries in Member States of the European Union, as well as carrying out extensive independent research in collaboration with the leading European scientists, who either work at the center or are there temporarily for research projects.

The Reserve 's projects will promote collaboration with this institute and also with the National Research Council (CNR) Institute for the Study of Ecosystems located in Verbania-Pallanza.

5. ENDORSEMENTS:

5.1.Signed by the authority/authorities in charge of the management of the core area(s):

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- 5.2.Signed by the authority/authorities in charge of the management of the buffer zone(s):
- 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):
- 5.4.Signed by the authority/authorities, elected local government recognized authority or spokesperson representative of the communities located in the transition area(s).
- 5.5.Signed on behalf of the MAB National Committee or focal point:

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PART II: DESCRIPTION



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

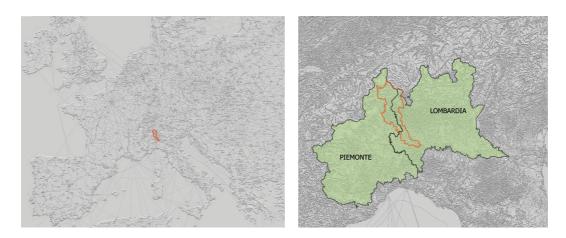
6.1.Provide the biosphere reserve's standard geographical coordinates (all projected under WGS 84):

The reserve is in Italy, in the regions of Piedmont and Lombardy.

The coordinates of the candidate reserve are shown in the table, in the Reference System WGS84UTM zone 32N.

Tab. 4The coordinates of the candidate reserve

Cardinal points:	Latitude (decimal degrees)	Longitude (decimal degrees)
Most central point:	45.73072	8.65439
Northemmost point:	46.24947	8.44428
Southern most point:	45.10614	9.21883
Westernmost point:	46.17831	8.19631
Easternmost point:	45.15816	9.28855



Cartographic basis: Openstreetmap

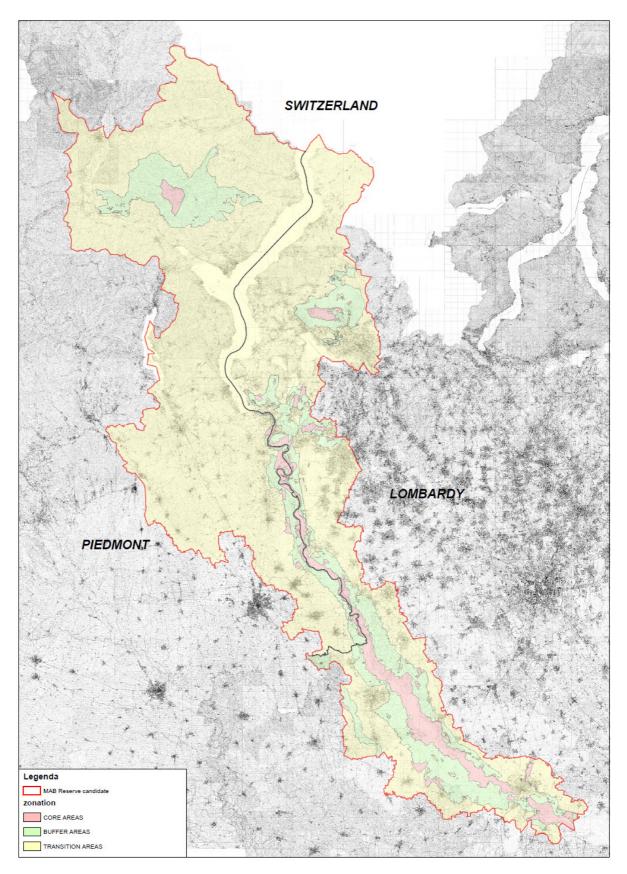
O MAB reserve candidate localization

6.2. Provide a map(s) on a topographic layer of the precise location and delimitation of the three zones of the biosphere reserve (Map(s) shall be provided in both paper and electronic copies). Shapefiles (also in WGS 84 projection system) used to produce the map must be attached to the electronic copy of the form.

The following map shows the location and boundaries of the three zones (Core, Buffer and Transition) of the biosphere reserve candidate.

The three core areas of the reserve are located in the Parchi del Ticino, the Parco Campo deiFiori and the Parco Nazionaledella Val Grande.

Fig. 15 MAB Reserve and zonation

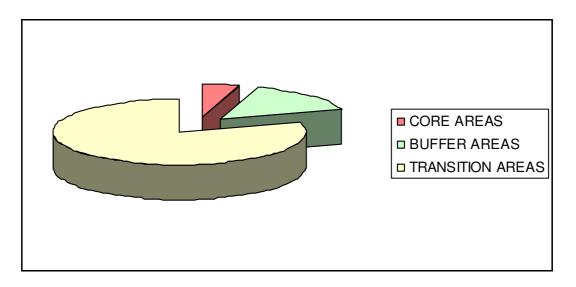


7. AREA (see map):

The total surface area of the candidate MAB reserve is 332,163 ha, divided as follows:

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	Terrestrial	Marine (if applicable)	Total
7.1 Area of Core Area(s):	17.964 ha	0 ha	17.964 ha
7.2 Area of Buffer Zone(s):	51.573 ha	0 ha	51.573 ha
7.3 Area of Transition Area(s):	262.626 ha	0 ha	262.626 ha
TOTAL:	332.163 ha	0 ha	332.163 ha



The core areas identified are the following

- Zone A, B1, B2, (part of) B3 of the Nature Park of the Ticino Valley/Lombardy (naturalperifluviali areas and botanical and forestry areas)
- Partial nature areas of the Regional Park of the TicinoValley
- Special natural reserve areas of the Nature Park of the Ticino Valley/Piedmont
- SCI-SPA IT 1150001 "Ticino Valley/Piedmont"
- SPAIT2080301 "Ticino Woods"
- SACIT2010008 "Lake Comabbio"
- SACIT2010009 "Rio Capricciosa Springs"
- SACIT2010010 "Dosso Moors"
- SACIT2010011 "Arsago Swamps"
- SACIT2010012 "Vigano Moors"
- SACIT2010013 "Castelnovate Bay"

- SACIT2010014 "Turbigaccio, CastellettoWoods and BernateOxobow Lake"
- SACIT2050005 "Fagiana Woods"
- SACIT2080002 "Lower reaches and banks of the Ticino"
- SACIT2080013 "CascinaPortalupa Heron Colony"
- SACIT2080015 "San Massimo"
- SACIT2080016 "Vignolo Woods"
- SACIT2080014 "SiroNegri and Moriano Woods"
- SACIT2080019 "Vaccarizza Woods"
- SPAIT2010502 "Lake MaggioreReedbeds
- Val GrandePark National Strict Reserve
- Monte Campo deiFiori Partial Nature Reserve
- SPA IT 2010401 "Campo deiFiori Regional Park"
- SAC IT 2010004 "Campo deiFiori Caves"
- SAC IT 2010003 "Campo deiFiori Northern Slope"

7.4 Brief rationale of this zonation in terms of the respective functions of the biosphere reserve. If a different type of zonation also exists indicate how it can coexist with the requirements of the biosphere reserve zonation.

The implementation of MAB zoning with the relative binding nature of safeguards and permitted functions requires, with respect to the territories involved, analysis and supervision of the respective roles of the various sectorial policies, in particular for the protected areas and the potential spatial pattern of the reserve as a whole, especially in view of the ecological functions and interaction between areas, and of the administration of sustainability conditions.

The proposed zoning, to be congruous with the current condition of the territory involved, requires on the one hand that the system as a whole be capable of fulfilling the three functions provided for in the MAB programme (conservation, sustainable development and logistics), and on the other hand that this can be implemented in accordance with an integrated approach between existing constraints and the potential of the territory.

In other words, the effectiveness and the rationality of the zoning proposal may not be consistent with the current administration of the use of natural resources at the different administrative levels, with different relevance for the purposes of core, buffer and transition zoning of concern here.

A first decisive chapter in this regard is that relative to the systems of protected areas in the candidate reserve's territory, including both the protected areas in a narrow sense and those of the Natura 2000 network. It should be pointed out that the two categories of protected areas have, in addition to extensive convergence zones, some specific aspects regarding prospects of administrating their own MAB zoning, in particular regarding links with the plans in force and the recommendations of the many management plans not yet concluded for the Natura 2000 areas.

The difficulty in zoning the core areas was the awareness of actual "islands" that the protection and safeguarding body – in its important conservationist role – identified through the relative regulations and plans.

As required by their own objectives – theprotection and safeguarding of nature – the criteria of the territory's constraints were used in the identification and drawing up of the boundaries of the core areas.

As a starting point the core area boundaries were defined firstly on the basis of the protected areas established under the national framework legislation on protected areas (Law 394/1991) and the Piedmont and Lombardy regional laws, respectively Regional Law 19/2009 and Regional Law 86/1983, in that the protected areas were established with the aim of "protecting, managing and developing natural and semi natural environments, which are habitats necessary for the conservation and enhancement of biodiversity", and this is the main objective of the MAB reserve.

The planning and management tools of established protected areas (see 3.1), which define levels of protection (including with regard to ecosystems) and management of eligible and/or supported activities, have been taken into consideration thereby allowing better identification of the buffer areas.

Therefore, areas with higher levels of protection were identified with the tools in force, and the function of "core" areas of the reserve were attributed in accordance with the MAB objectives, thus simultaneously guaranteeing the reserve's zoning characteristic and the linking of the territory's administrative tools.

Once the territory's reserves were identified, an analysis of the other objectives of the protected area plans was carried out. Insofar as the plans regulate protection and permitted activities they are related to the purpose of the MAB buffer areas. This allowed the drawing up of all the new concentric buffer areas around the core areas in a consistent and functional manner starting with the development in the plans of zoning, the subdivision of territory and nullifying of the role of "islands" in the core areas.

In fact, these plans are a result of the environmental objectives of the protected areas and reserves concerned, foreseen, respectively, by the national Framework Legislation (394/91) and by the two regional laws (Regional Law of Piedmont no. 19 of 29 June 2009, and Regional Law 86/1983 of Lombardy). The laws foresee the protection of the territory's natural resources through concerted sustainable management strategies of the institutions; the protection, management and reconstitution of environments and natural habitats, that is habitats necessary to the conservation and enhancement of biodiversity; the development of scientific research applied to the management of the natural environment and natural habitats subject to protection and the promotion and dissemination of the tested models and; the drawing up of references consistent with those of the guidelines for the MAB buffer areas.

The coordinated and complementary administration of reserve and/or strict reserve areas and related development, the plans and relative zoning and management of parks and the relative MAB core/buffer areas has found support in the territorial and spatial system of the regional ecological networks composed of the network of protected areas, special conservation zones, sites of importance to the EU and ecological corridors. The grid for the Piedmont part of the existing reserve finds support in the regional Nature Charter drawn up by ARPAPiemonte, in accordance with the national standard, based on a study area in the existing MAB reserve located in the Basso Novarese region.

To a more limited extent, the aim of zoning the parks with a more direct and explicit development goal designed to ensure, through a process of area planning, an urban-territorial balance and the reclaiming of landscapeenvironmental values, as well as promoting development initiatives compatible with the environment, favouring production activities andtheir usage and fruition which achieve a balanced integration of human activities with conservation of natural ecosystems. However, considering the aims and purpose of the MAB reserves, they were placed in transition areas together with the larger municipal territories considered.

In general, therefore, the buffer areas proposed coincide largely with the extension of the protected areas and reserves.

Lastly, the deliberately large transition area was defined primarily on the basis of shared and/or previous plans, starting from an area including the large Ticino-Lake Maggiore catchment basin, an important intersection for water resources (and management of the numerous ecosystem services offered), for ecological links between the alpine and continental bioregions (and the Apennines) within a heavily compromised context such as the Po Valley and due to the integrated historical and landscape characteristics and the already mentioned institutional and social planning – both volunteer and not – in the area.

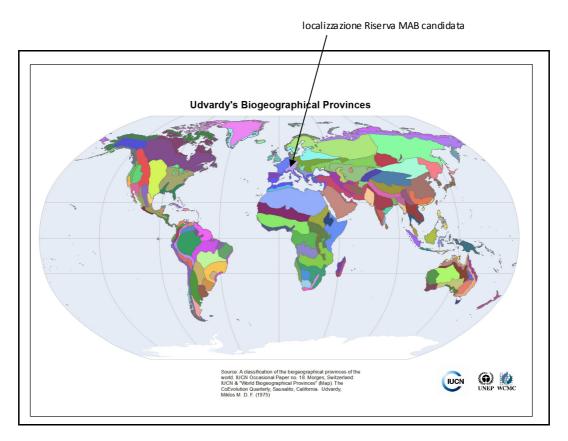
A new "geography" of this transition area has been defined for the purpose of wider ranging more homogeneous management of the reserve. UNESCO's idea, which has already been partly implemented in the area given the absence of constraints, testifies to the willingness of the administrations and local communities to work together for a common purpose in the name of sustainability.

8. **BIOGEOGRAPHICAL REGION:**

[Indicate the generally accepted name of the biogeographical region in which the proposed biosphere reserve is located.]

(The term "major biogeographic region" is not strictly defined but you may wish to refer to the Udvardy classification system (http://www.unep-wcmc.org/udvardys-biogeographical-provinces-1975_745.html)).

According to the Udvardy classification, the biosphere reserve candidate is in the *Palearctic* (2) region, in the *Central European Highlands* (32) province, *Mixed Mountain systems* (12) biome.

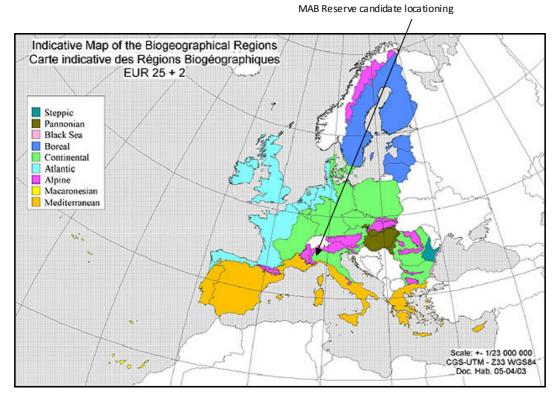


In this area there is both a temperate deciduous forest and a conifer forest on the plateau and subalpine area. Both types are represented in the biosphere reserve candidate, which from the Po Valley extends to the peaks of the Lepontine Alps.

The European Union is divided into 9 biogeographical regions with homogeneous ecological characteristics, independent of political/administrative borders.

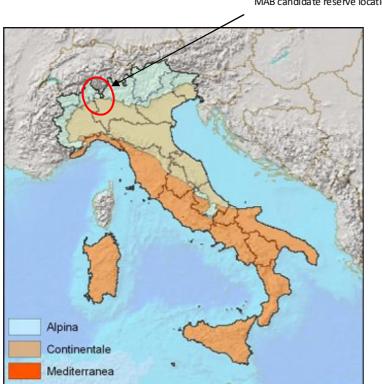
The 9 biogeographical regions are: Atlantic, Continental, Alpine, Mediterranean,

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The European biogeographical map is defined on the basis of the Habitats Directive and is employed in the implementation of the Directive.

In Italy three biogeographical areas are recognized: Alpine, Continental and Mediterranean.



MAB candidate reserve locationing

The biosphere reserve candidate is partly in the continental biogeographical region (the southernmost part of the territory in the Po Valley) and partly in the alpine region (the northernmost part of the territory, from Lago Maggiore to the Alpi Lepontine).

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).

Territorial heritage in terms of the local dynamics and landscape relative to land use, consists of a set of long-term factors and processes, both physical and cultural, knowledge of which is essential in defining development scenarios to evaluate the impact of expected changes and plan for a sustainable future in a number of areas of the biosphere reserve proposed.

The identification of territorial heritage as historically understood in terms of land use can, therefore, be taken as the cornerstone of a structural interpretation of landscape that includes the incisiveness of the impact of centuries-old changes and the consistency and quality of enduring territorial structures, identifying in the territory and in the landscape of the reserve the structuring, qualifying and critical factors for its sustainable management.

In more general policy terms structuring factors, which tend not to change, constitute the long-term backbone of the territory. Characterizing factors are part of the structure, determining the physiognomy typical of a particular territory. Generally four "landscape configurations" are referred to which correspond to the various themes and policies: geomorphological, agro-ecology, historical context of the territory, and landscape and identity.

Obviously the entire area of the reserve is defined and consists of all the factors mentioned to various extents. Here we will concentrate on land use, determined within the historical context of the territory in terms of their interaction with each of the other factors and, above all, agro-ecological land use.

The structuring factors of the latter – which can be found in the middle and northern belt of the reserve – established through land use over the centuries are: the steep slopes, a determining factor today as in the past for the configuration of vegetation types, both natural and due to agroforestry exploitation; stable plant formations such as historical beech and chestnut woods (other developing chestnut groves of more recent origin are to be considered more as characterizing elements); pastures, while in sharp decline, have determined a variety of habitats and ensure alternation between closed and open spaces, fundamental for biodiversity and wild ungulates; the formation of birch forests, the result of abandonment and invasion, in evolution (in general toward beech) and; still visible terraced areas and small vegetable gardens near the villages, evidence of subsistence agriculture.

The historical context of the territory and its main manifestations can be attributed to, focusing on the territories of the candidate reserve, cultivation of the land and of rice in particular on the plain, the prealpine Lombard foothills and the alpine and lakeside landscape.

Less specifically, and with reference to historical changes, we can still refer, re land use, to:

- established and cultivated landscapes
- contemporary landscapes

Starting from the south, and following the geography of the reserve candidate clockwise, we can identify schematically for each unit the main structuring factors, the use of resources and the dynamics of the landscape associated with land use.

a) Novara region plain and the Upper Ticino Valley

The area is the intersection of the cultural and administrative subalpine zone, where the Savoy and Lombardy influence is felt. It was the heart of the Visconti-Sforza duchy, followed by Spanish dominion and the dominant role of the archdiocese of Milan, especially in the age of the Counter-Reformation.

Thus, the necessary presence of the two river "hinges": to the east the Ticino toward Lombardy and to the west the Sesia toward the Vercelli plain. The necessary sense of continuity with these two neighbouring areas emerges with the similar fate of the swamplands, which were gradually reclaimed. The swamplands of the nature reserve Palude di Casalbeltrame remain.

Novara (outside the reserve), a main settlement since the Roman Empire, is an important business centre due to its strategic position. In the Middle Ages it was a municipality and ancient cathedral city, a promoter of active territorial policies, an early medieval parish of established villages and fortifications: in the 16th century it consolidated its role as a Milan-Spanish stronghold, with minor settlements undergoing, alternately, similar fates. It is an area where relationships are formed and disputes take place, characterized by a widespread network of shelters and fortresses. A transport hub (of growing importance with the development of the 18th century postal system, the advent of the motorway and today's high-speed railway line) which has lead to considerable development of star-shaped urban areas and the development of substantial hubs around the old centres of Cameri, Galliate, Trecate, Cerano, Vespolate. All the centers of the MAB area are located on main thoroughfares between Milan and Lomellina.

Characterizing elements of the territory are, on one hand: the regularity of the layout of agricultural activities; centuriation remains in the area between Novara and the Ticino; the role of some abbeys, and the intensive exploitation of water for the cultivation of rice (large network of canals and the regional importance of the Cavour Canal).

And on the other hand, in the Alta Valle del Ticino, there is the strong urban and industrial presence of Oleggio and Bellinzago, but above all there is the significant presence of agriculture and the apparently wild Ticino fluvial area.

Fig. 16 Ticino River



The north-south link and the "hinge" in the direction of Lake Maggiore are confirmed by the presence of the Novara-Arona railway line (from 1855), stopping at the lake harbour.

The Ticino fluvial belt in the park is characterized by the cultivation of the lawn, irrigated with water from the river and a dense network of canals.

Thanks to the presence the Simplon Pass the territory was established in ancient times. It was already known in Roman times when the pass was of secondary interest, but became well known in the Early Middle Ages as an important route to the other side of the Alps for Milan trade. There are archaeological areas of considerable interest, and ancient and mediaeval settlements that can be found, in particular, in the area of the Lake Maggiore "hinge".

The rural settlement, an extremity of the Novara agricultural plains, consists of clusters of inhabited centres and scattered farmsteads with their activities and service structures.

STRUCTURAL FACTORS	Exploitation and regulation of agricultural territory, with consequent consolidation of connected asset systems: large farmsteads updated in the eighteenth and nineteenth centuries and hydraulic engineering works.	
CHARACTERIZING FACTORS	The network of Romanesque parishes of the diocese of Novara	
	The network of shelters and collective fortifications of rural settlements	
	The network of historical farmhouses	
	Ri œ pad dies	
	Historical waterways: Visconti and Sforza hydraulic infrastructures	
	Cavour Canal, ConsorziolrriguoEstSesia canals and related historical and industrial-archaeological infrastructure (bridges, locks, etc.).	
	Network of Visconti and Sforza castles	
	Visconti and Sforza transport infrastructure	

The structural aspects and overall characterization is summarized in the following table.

b) Novara region highlands

The area consists of the plain crossed by the Agogna torrent between Briga, Borgomanero, Vaprio and Momo. The territory is mostly flat, but there are also large morainic areas toward the northeast, the municipalities of Agrate and Gattico, towards the south and the emergence of the easternmost ancient terraces, the municipalities of Cressa and Suno.

From north to south, beyond the morainicVerbano amphitheatre, it descends in a series of terraced highlands, spared fluvial erosion.

The network of settlements was historically established here thanks to the road (StradaSettimia, then Strada Francisca) going in the direction of Simplon Road, and along two of the three roads that, departing like spokes from Novara, go north. Along the main Novara-Borgomanero road residential, commercial and industrial urbanization has taken place that has led to a continuum of settlements. Other inhabited centres, farmsteads and hamlets lie along a network of roads of secondary importance.

The landscape has features of a predominantly agrarian nature, with a rural base that develops into inhabited centres and scattered farmsteads that characterize the territory, with activities and services and with a significant presence of wooded areas on sloping morainic terrain. Centres along the main Momo-Borgomanero-Briga thoroughfare constitute a significant urbanized hub and represent the highest level of anthropization in the southern part of the Lake Orta basin. Its growth has caused a loss of identity of the places and fragmentation of the ecological network.

The rest of the territory is characterized by small urban centres, spread uniformly on both the Agogna plain and on the hills, which exert little pressure on the rural territory because of the obvious marginality of the traditional agricultural activities and the lack of local secondary and tertiary industries.

c) South-west coast of Lake Maggiore

The landscape is a belt along the coast of Lake Maggiore on the stretch between Castellettosopra Ticino, Arona and Lesa, with areas to the northeast in the Lake Orta region, to the southeast in the Novara highlands, and to the south in Alta Valle del Ticino.

The area is historically linked to, and forms a single entity with, the Lombard region of the lake: in the Roman age it was part of the Verbanus region and in the Middle Ages part of the Visconti and Sforza dominion, when the Borromeo family took control. Only by the Treaty of Worms (1743) divided the Piedmont shore from the Lombard shore (the western part belonged to the King of Sardinia and the eastern part was under Austrian rule).

The Lombard influence remains, especially with regard to the development of road and rail transport: the Milano-Sempioneis more important than the Piedmont axis (Novara and Santhià in terms of rail links).

2

The centres of the coastal belt reflect the original linear settlement structure between the lake and the hills, with development in the higher area overlooking the lake which contrasts with the detachment of the more recent building developments in the greater urban agglomeration (Arona).

The centres along the mountainside road, a linear development, with parish churches and support structures evident, which with the structures further down and those on the opposite shore (Massino Visconti's castle, Rocca di Arona, Castellaccio di Lesa) complete the network.

Tourism took off in the area in the middle of the 19th century with the first steamboats. Grand historical villas were constructed for leisure purposes, underlining the close relationship and connection with the northern coast of Lake Maggiore, where land use alternates between woods and meadows, with few agricultural areas.

In the belt closest to the lake where human presence is more frequent (both local people and tourists) the cultivation of fruit and flowers is well developed, while the spontaneous vegetation – incorrectly defined as Insubrica flora – consists of typical Mediterranean plants and plants originating from Atlantic zones favoured by acid soil. Lemon trees, olive trees and laurel grow there as well as acidophiles such as camellias and azaleas, rhododendrons and magnolias thrive.

d) South-east shore of Lake Orta

The Orta Riviera still has one of the features that has distinguished it over the centuries; located between Lake Maggiore (east) and Valsesia (west), between Switzerland (north) and BassaLombarda (south), it has always been set back from the trade routes and, today, from mass tourism, by focusing on a more exclusive market. The road that connects the centres of Ameno, Miasino, Armeno is the ancient western road, which played its part until the realization of the coastal road in 1880. Some evidence and archaeological findings identify this route as that of the ancient Via Francisca, which was Via Settimia before that.

The fame of the villas of the Riviera, which characterize the eastern area especially near the Orta peninsula, and the uniqueness of the island of San Giulio cannot be considered the only elements of value in an area that includes different and heterogeneous features linked to the period of the type of settlement and the morphology of the site.

The gentler eastern slope provided space for villas with parks of various types and more substantial settlements that extend in a linear fashion along the

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connecting routes. Around the Romanesque churches large palaces with stucco façades were built, testifying to the use of this part of the lake by the Milanese nobility since the beginning of the seventeenth century, following the escape from the city due to the 1630 plague.

A number of factors have contributed to the dynamics of changing usage and the new valuable landscapes established today. These structural and characterizing factors are summarized in the table below.

STRUCTURAL FACTORS	Morphogenetic presence of the lake and the historical settlement	
	overlooking the shore, diversified between the eastern and the western	
	shores	
	Historical road network: route along the slopes on the eastern side	
	the lake; road that connects to the Colma pass; routes connecting the	
	Novara region – to the north – with the Simplon Pass.	
	The historical Novara-Domodossola railway line with bridges, viaducts,	
	tunnels and stations	
CHARACTERIZING FACTORS	The island of San GiulioOrta	
	The structure of the core settlements of Orta, dominated by Sacro	
	Monte, and its structural and visual relationship with the island of San	
	Giulio	
	The parks and edectic nineteenth century villas, characterizing the	
	shoreline and slopes of the eastern area	
	Compact settlements on the slopes, with alpine characteristics	
	The network of mountain pastures and meadows of Mount Mottarone	
	and the basin of the Agogna torrent, from Gignese to Gozzano, with the	
	related infrastructure, i.e. cabins for the storage of cheese, basins for	
	irrigation, rows of trees along paths and boundaries, wooden fences	
	with chestnut tree posts driven directly into the ground	
	Piana di Agrano meadows and cultivated fields	

e) North-west shore of Lake Maggiore belt

The proximity of the hills and foothills with "hinge" zones along ridges and noteworthy panoramic spots characterizes the shoreline of Lake Maggiore, with the exception of a small flat area south of Toce. The area is historically connected to the Lombard shore of Lake Maggiore, especially by virtue of the control imposed by the Borromeo family from the fifteenth century.

The shoreline settlements along the road that skirts the lake form a linear structure closed between the lake and the hills and foothills, with development in the higher area overlooking the lake. Verbania is an exception: municipality constituted in 1939 through the aggregation of a number of centres, and therefore characterized by a wide variety of urban styles, reflecting strong original identities, due to historical and orographic differences.

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Fig. 17 Lake Maggiore and the Borromeo Islands



The group of bordering municipalities constitutes a network for the opportune presence of medieval and counter-reformation religious structures culminating in the sacred mountains and including the emblematic Sacro Monte di Ghiffa, as well as the numerous historical holiday houses and historical villas and gardens.

The latter define a landscape marked by human intervention with traditional trees and trees imported in the nineteenth and twentieth centuries (closely connecting the area with the southernshoreline of Lake Maggiore) and demonstrating how the cultivation of fruit and flowers has developed mainly in the central lake area and in the hills.

In the modern era it has taken on a supranational importance, given that the northern end of the basin is in Switzerland and that road and rail links, especially from the late nineteenth century, were considerably developed with the roads that goes from Verbania to Locarno, and from Feriolo to the Simplon Pass.

STRUCTURAL FACTORS	The relevance of the villas and historical parks from a panoramic point	
	of view	
	Napoleon's road, the Simplon Pass, with related artefacts and works o	
	art	
	The Sempione railway line	
	Historical devotional itineraries Bee-Arizzano -Verbania-Vignone and the	
	monument San Martino a Vignone	
	Linea Cadorna and fortifications	
CHARACTERIZING FACTORS	The network of Romanesque buildings of the medieval parishes, also	
	connected to today's parishes in Switzerland	
	Network of counter-reformation buildings (sacred mountains)	

f) Valle Cannobina

There are small rural settlements long the winding road: this is the main thoroughfare of the valley, from which a network of secondary roads branch off, whose role is to connect the centres located higher up, in a an ancient comb-like network. The road is called Via Borromea after the pastoral visit of San Carlo Borromeo, Archbishop of Milan to these places on 28 June 1574. It runs the length of the valley historically linked to the town of Cannobio on the shore of Lake Maggiore, and traditionally linked to the Visconti and Lombard dominions.

The mountainside rural settlements characterize the valley, with an architectural style linked to local building traditions in which the skilful use of stone for the construction of walls and roofs prevails.

g) Val Grande

The Vallintrasche landscapes, the "middle lands", characterized today by landscape morphologies of clear anthropogenic origin, which were once cultivated, with mountainside settlements looking out over lakes and valleys, like "balconies". The network of "vertical" settlements is still visible and is made up of the established nucleus (Colloro, Cicogna, Intragna, Pogallo, Orfalecchio, Velina...) with cultivated land and, further up, woods and summer pastures. However, it is (was?) a functional unit with mountain landscapes, where rural and subsistence economies complete their cycle in the summer in the Alps, in the courtyards of the farmhouses, stables and other functional elements.

The centres, usually connected by mule tracks and bridges are still considered to be significant engineering works, organized into small "corti" (courtyards) as one climbs (Corte Bué, Corte Lorenzo, Corte del Bosco...). A certain visual integrity characterizes the settlements, although there is some diversion from traditional buildings in the use of plaster and full cover paint of different colours, in installing roofs of different types, colours and materials.

It was the most exploited territory in the past, because of the abundance of wood. There are evident signs of this activity in the ruins of the cableways, the "dikes" and pallets for the flotation of wood, but also in the remains of dairies, paper mills, peat bogs, mills, fullers and in numerous other works, mostly reduced to half hidden traces by vegetation, but often alive in the collective memory as recent past.

The transition belt (from the lake shore to the first foothills, like the mouth of Valle Intrasca) is a mixed landscape of villas, country houses with ornamental gardens, paths and leisure equipment, spas founded in the early twentieth century. It is fundamentally urban in character. From its location in the hills it is not at odds with being directly connected to the urban life of the capital of the province or its lakeside environment: industries, neighbourhoods that accommodated the workers from the hinterland, twentieth century villas, new suburbs, deteriorated in some cases, the visual integrity of natural panoramas (the slopes of Monte Rosso). Landscapes of the permanent settlement and

resorts connected to the lake where, in an urban fabric, stretches of scenic routes with outlooks emerge and on horseback between the mountain and the lake there is a natural background of mountains and hills at the mouth of Valle Intrasca.



h) Ossola

The area is structured around the course of the Toce, whose riverbed forms an alluvial plain bordered by steep slopes, often looming and often an obstacle to sun shine. The settlements are closely related to the valley morphology of the territory and the various main transport routes of development. The latter are grouped into two separate networks: the main one at the bottom of the valley, and the secondary one that ensures the connections between the smaller settlements located on the mountainside. The network of transport routes constitutes, in fact, the backbone of the entire Ossola Valley, in that it is here that the main routes to the lateral valleys, some of which play a crucial role in cross-border communications, respectively with the Rhone Valley – through the pass and the Sempione railway tunnel, whose railway line runs along the entire valley – and the Canton of Ticino.

The area includes the Toce valley, a large alluvial plain used for rural activities, and its mountain slopes between GravellonaToce and Domodossola. This is a transition area between the Novara plains, Lake Orta and the northernmost valleys, Antigorio and Divedro to the north.

The pedological conditions are not the best: the high rainfall and low temperatures considerably reduce the agronomic potential of the plain. In fact, pastures prevail and arable crops are mainly located toward the mouth of Lake Maggiore. The morphology is characterized by the alternation of small lateral conoids with a classical fan-shape in the extended flat valley, on coarse alluvial deposits (sand and gravel).

The historical centres of the main towns of the valley, often located at the mouths of the side valleys, are positioned on larger conoids, protected from the floods of the Toce. As in other alpine valleys the recent development of large transport routes and especially the expansion of settlements (in particular

i) Valle Vigezzo

The particular local tectonic context (the Canavese line) determined the formation of an unusual morphological setting, characterized in the central part by a valley that widens significantly to form a sort of central plateau. These areas have an accumulation of debris of glacial origin and consequently a more gentle form. They often host pasturelands that contrast chromatically and visually with the shape of the rock formations and the accumulations of rubble. At altitudes lower than the alpine grasslands areas there is forest cover that goes down to the valley floor in an almost continuous manner, starting with subalpine larch, often larch pastures, mixed with silver spruce and Norway spruce woods. These stands naturally tend to mix, especially after a period of abandonment of traditional management of anthropic selection of undesirable species.

The settlements lie mainly in the valley, along the railway line (Druogno, Santa Maria Maggiore and Malesco) and in part along a vast south facing terraced area (Craveggia, Vocogno, Toceno and Buttogno). The historical architecture, both rural and urban, is characteristic: almost entirely stone, with structural wooden parts hidden by the stone, and often plastered, exploiting the two most easily available construction materials on site.

The historical and administrative capital of the valley – located on the Vigezzo plain – is Santa Maria Maggiore, a holiday and winter tourism location, characterized by a valuable network of eighteenth and nineteenth century villas, the result of an architectural mix of influences from Ticino, Lombardy and Piedmont and of repatriated emigrants.

The Alta Val Vigezzo network that from the municipality of Re goes to the Swiss border, is characterized by the absence of large settlements – except for sporadic rural groupings – and by dense woodland coverage with open spaces for agriculture near the border area.

With reference to the more contemporary rural dynamics, the area of the reserve in the province of Novara has somewhat diversified agriculture, with the exception of the southern part which is characterized by the dominance of rice.

Several municipalities have a prevalence of vineyards, orchards, horticulture and livestock farming (dairy cattle and cattle breeding and fattening, pigs, poultry) or mixed activities.

Arable crops, especially rice, have the highest rates for the whole region, together with the irrigable area, an indicator closely related to rice. Novara is, in fact, the third rice province of Italy; the second is Piedmont after Vercelli. Total UAA for the area compared with the regional total is greater than the total number of farms. Therefore, the UAA farm average is higher than the average for Piedmont (24 hectares compared to 15 hectares).

Lastly, Novara livestock farming has suffered a considerable and constant decline in the last thirty years.

For the northwestern territory, in the province of VerbanoCusioOssola, the purely alpine character of the province makes it substantially different from the other provinces in Piedmont. In fact, in Verbano-Cusio-Ossola the municipalities with mainly sheep and goat farming are numerous, and together with cereal farming represent 80% of the total. There are, however, many municipalities on the shores of Lake Maggiore where horticulture or orchards prevail.

Cattle livestock or mixed farming represents the rest. The province of VCO has modest figures for all the indicators considered, except for permanent fodder crops that reach 12%. The very modest presence of arable and tree crops stands out. The trend over time of livestock farming shows the difficulties encountered by farmers in less-favoured areas.

j) East Verbano and the province of Varese

As regards the part of the reserve located in Lombardy, reference is made to the established historical use of land in the territory, through a structural interpretation of the landscape as proposed in the Lombardy Landscape Plan, where the province of Varese appears to be more characterized by its landscape.

An area of soft rolling hills or preapline foothills strewn with small ponds of water and with some very recognizable orographic features, like the Varese Sacro Monte and the nearby Campo deiFiori or the Sassodel Ferro above Laveno, both in the area proposed for the extension of the reserve and historical cornerstones for the development of the territory.

Morphologically well structured, the network of valleys and lateral valleys isolate the main mountainous peaks and provide rapidly changing and diverse panoramas. The most striking example is perhaps on the threshold of Ponte Tresa, where a narrow valley path leads to an unexpected vista of Ceresio, which opens out in front of one. This separation of spaces contributes to the formation of clearly recognizable territorial features like the Luino area and the Val Veddasca, the Valtravaglia and other contiguous valleys (Val Cuvia, Valganna, Valceresio, Val Marchirolo), the Anglante (sub-area that includes the hills and the morainic basins to the south-west of Varese), Valle Olona and the Arno Valley.

It is, however, the formation of the lakes due to the compression of materials and the blocking of ice-age glacier deposits that is the most important event of prealpine Lombardy, and of the province of Varese in particular. They render the landscape exceptional; the constraints that these basins impose on the penetration toward the high basins of the valley, the pleasantness of the scenery and the climatic conditions. The water bodies contribute to the local environment, and this contribution is manifested mainly in the vegetation. Botanists sealed the specificity of theplant covering bynamingit Insubriaafter the region of the Lombardy lakes. Between the furrows that penetrate the Alps, the lakes provide a net separation from an anthropic point of view too. Although on the mountain slopes there is an alpine order of things, not very different from that found in the valleys (high altitude organization based on the exploitation of forests and pastures). On the lakeshores there is also a very particular landscape. It has its own territorial cornerstones in the old villages located on the lakeside conoids or the terraces; in the past the population lived by using both the resources of the lake (fishing) and the resources of the mountain above (woods, pastures, etc.), but today the economy is based only on tourism. As a consequence of this there have been profound changes: residences, hotels, holiday homes have been built along the lakeside, around the old villages and the villas of the industrial landed gentry of

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The following are components of the agrarian landscape:

interference.

- rural dwellings in the province of Varese with porticoes and loggias ("lòbia"), and galleries in the Luino valleys;

the last century, and also at higher altitudes, on the slopes, there has been

- terraces, meadows and mixed-use cultivated hill fields; CazzagoBrabbia
 "iceboxes"; VeddascaDumentina Alps and mountains;
- particularly characteristic areas of agrarian landscape or settlements (meadows and cultivated fields of the Lenza valley, farms and ancient mills in the Acquanegra valley, terrace cultivations in the Valtravaglia valley, from Nasca to Bedero, Conca di Brinzio, Val Cuvia and Valganna wet grasslands, Campo deiFiori cultivated fields and woods...)

In the Alto Verbano territory the main factors of pressure and problematic relationships between settlements and natural and morphological elements coexist with a wide range of environmental, cultural and natural elements: the lake, Natura 2000 sites, parks, historic itineraries, many monuments, established urban areas and scattered settlements, different types of rural activities, urban areas with an industrial development typical of the late nineteenth and twentieth centuries, etc.

The landscape goes from alpine, where human presence is limited or absent, to the plains where high levels of human intervention dominate to the point of smothering the characteristics that define the landscape.

In more detail the places configuring the area are the following:

k) Valle del Ticino

The northern part of the Ticino valley, already a reserve, it has several longitudinal and transversal defining elements. The Ticino closes the area to the west; the Naviglio Grande and the Villoresi canal accompany the river creating a particular landscape.

The path of the river, much lowerthan the plain, and the total absence of visible

Natural defining structures are the River Arno, the plains, the morainic peninsulas and the woodlands.

Historical defining structures are the viability and the agrarian layout. The first includes various elements: Milan-Lake Maggiore, and the Novara network. The Roman roads leaving Milan and crossing the Gallarate area are the Mediolanum-Verbanus and the Verbano.

Given the territory's orographic and anthropogenic complexity of vegetation and water, the agrarian layout appears homogeneous and is clearly visible only in some parts. In fact, the morainic peninsulas, the moors and woods leave little room for usable flat areas.

The agrarian region of the plain is the largest among those considered here, although in recent decades there has been a decline in surface area used due to the high levels of pressure exerted by the considerable urban areas and by the development of transport infrastructure.

This reduction in surface area has involved in a significant way all the main uses, including the still prevalent cultivation of land. The strong point of this region is the cultivation of flowers; the weak point is the pressure on land use.

If this is true for the area to the north, agriculture plays a predominant role and still characterizes the Milan and Pavia areas of the Valle del Ticino.

Independent of considerations made regarding the current growth of the Milan metropolitan area, the limits of historical Milan include a wide belt to the west towards the Ticino area.

The presence of rather large centres with a strong municipal tradition or special environmental conditions lead to the recognition of "segments" or areas with an independent character: Abbiatense; Magentino; Alto Milanese, also known as SeprioMeridionale. The area is part of the vast territory that has always been under the direct influence of Milan, following the city's destiny and establishing the necessary economic relationships, based on traditional trade between city and countryside. Signs of city culture have invaded every part of its vast outskirts. Consider the noble residences of the Navigli, and the Navigli themselves: important routes of communication. And the strategic design of the Viscounti fortifications on the borders of the Milan territory, on the Ticino or the vast areas of land owned by religious bodies and Milan institutions.

And consider the vast infrastructure network (road and rail) on which late nineteenth-century Milan area industrial production was anchored, especially in the direction of the dry highlands.

The classic distinction between dry highlands and irrigated lowlands, and the position of Milan in the intermediate belt between these two important agrarian

regions, in the past determined the true layout of the landscape, and the shape of the settlements (centralized and linear on the dry highlands, dispersed and seemingly random on the irrigated lowlands), the cultivated and therefore economic areas. This distinguishing feature still retains today traces of the river

Part of the Lomellina region, a traditional agricultural region wedged between the Ticino and the Po, falls within the reserve. Identified in the Early Middle Ages as the County of Lomello, forming part of the Marca di Ivrea, Lomellina enters into the sphere of influence of Pavia from the 13th century until 1703, year in which it passes under the Savoy dominion, then returned to Lombardy after the Second War of Independence. Historical events, such as the constitution of the Contado of Vigevano in 1532, would lead to its recognition as a sub-area.

No other landscape has the changeable characteristics of Lomello, if the seasonal mutations are considered. The rice monoculture involves very different cultivation steps that strongly characterize the landscape. From the transparent waters flooding the paddy fields in the spring, the tender green seedlings sprouting in the summer, the flaxen colour of mature rice in autumn and the grey of the steppes in the winter.



Fig. 19 Rice paddies landscape

valley area.

The natural element is accentuated, as in all sub-areas of the plain along the river valley with the presence of woodland swamps, wetlands, oxbows etc. The Lomellina settlements have been located, since Roman times, on a geometric network of roads.

The southernmost part of the reserve includes the Ticino river valley and the Pavia region irrigated lowlands. Historically the Siccomario region is part of the Pavia "garden", on the other side of the Ticino. It is the part of the territory that, from the time of the Medieval communes onwards shared its destiny with the capital of the province, as can be seen in the convergence of the main roads and the network of canals towards it.



Pavia's economic hinterland; the region consists of a flat table on which the historical construction of the landscape took place from the medieval Cistercian and Benedictine reclamations to the noble and then the capitalist organization of the countryside today. The mutations of the landscape, defined by the "classical" set of square fields, farmhouses, country roads, irrigation systems and trees are accentuated and more dense in the vicinity of river banks, specially the Ticino between Besate and San Lanfranco. The Po terrace is less dense, more open and sinuous. The variations in the riverbed testify to a landscape in continuous, sometimes sudden, evolution. There are still areas of "historic" reclamation, the landscape of the fodder crops; water meadows; rice paddies; mills.

I) The Verbano lowlands, lakes Maggiore, Comabbio and Monate

This area marks the passage from the typical landscape of the dry lowlands, characterized by the mulberry treeto the typical prealpine and mountain landscape, with morainic peninsulas wedged into the plain.

The landscape is characterized by the presence of the lakes Maggiore, Comabbio and Monate. On this stretch the end of Lake Maggiore transforms into the Ticino, and changes the environment completely.

Historical structures that define the area are the Roman roads with the second part of the Mediolanum-Verbanus connecting Sesto Calende with Angera and Sesto Calende-Ponte Tresa, with Sesto Calendea possible hub for the Turin and Aosta Valley alpine passes.

The agricultural density (ratio between inhabitants and agricultural area) is very high, and clearly identifies its belonging to the agricultural system of the Lombard periurban areas. The agriculture of the area is also distinguished, on a social level, by the two prevailing autonomous activities (nurseries and livestock), with very different problems and potential for development.

m) The Valcuvia, Valtravaglia and Lake Maggiore area

Lake Maggiore delimits the west of the area, while the rivers Boesio and Margorabbia characterize the valley. The complex orography is outlined by different profiles: Monte del Ferro, Monte La Teggia, Monte Crocione, Monte Nudo, etc. The slopes are jagged and two small valleys go off in the direction of the two main rivers, and there is a more homogeneous slope on the Lake Maggiore side.The Campo deiFioriMassif is on the opposite side, while to the north Monte Sette Termini is visible.

The Roman road (Angera-Ponte Tresa with its various alternative routes) was one of the historical structures to defining the area.

The Rocca di Orino is an ancient fortress, situated to the northeast of the town of the same name, at 540 metres of altitude. It lies on a rocky spur that guarantees excellent visibility out over the Valcuvia valley. As for many similar structures in the Insubrica area it is assumed that the primitive fortification dates back to the Late Roman Empire, an observation and visual communication point in the defence of the borders of the Empire.

The characteristics of the area make it possible for it to be considered, with regard to most of its territory, to be part of the periurban agriculture system while maintaining, as regards production, the typical characteristics of a mountain and/or disadvantaged area. Agricultural land is 16.3% of the land surface of the agricultural region. The UAA (utilized agricultural area) is composed of approximately 70% pastures and permanent grassland and 24% arable land. Currently agriculture presents structural characteristics typical of less-favoured areas, but unlike these areas has a social fabric that is now definitively devoid of any rural character.

n) The Val Veddasca area

Lake Maggiore borders the west side; the Giona torrent crosses the whole area and with its tributaries constitutes the water system together with Lake Delio. The orographic system is very varied and divided into two parts by the Val Veddasca. The massif to the north is characterized by a profile of successive peaks.

It would seem that there were no high-altitude military or commercial crossings. Historically the local road network is certainly determined more by local settlements than by alpine pastures.

Regarding the uses of agricultural land this part of the territory shows distinct marginalization characters: 15% of the land area is destined for agricultural use. This causes the agricultural density (ratio between inhabitants and agricultural area), albeit lower than the average for the province, to seem to be rather high for a mountain area.



Fig. 20 Lake of Elio

o) The Valganna and Val Marchirolo area

Lake Lugano and the Tresa close the area to the north. The small lakes, Ghirla and Ganna, are the bodies of water that survived from the original marsh. The slopes of the mountain chains enclosed the two valleys. The road of the valley (the S.S.233) constitutes the second portion of the Milan-Varese-Ponte Tresa Roman road

At Ganna there is the Abbey of San Gemolo, which grew progressively from the 12th century onwards around the original centre, the Romanesque Church established by the martyr Gemolo. It is located in a territory where various valleys intersect and converge and was for the entire Middle Ages an important transport hub, a safe station of shelter for pilgrims, an efficient sovereign seat of government for relationships and communication between the north Lombard world and the neighbouring region of Ticino, and beyond with the Central European regions.

p) The Varese (and Campo deiFiori) area

Natural elements characterizing the landscape are the Lake of Varese and the orographic system centred on the Campo deiFiori massif.

The Sacro Monte and Campo deiFioriprealpine mountain group rises and closes the slope north of Varese giving shape to a natural terrace overlooking the Po Valley. Legend has it that Saint Ambrose consecrated the mountain to the Virgin in 389. The first religious building documented, the present-day crypt, could be Carolingian.

The main changes to the Varese territory in terms of land use are consequent to the decline in the role of production and employment in the farming sector and to the continuous phenomena of aggression, linked to the continually growing urbanization that the rural territory is subjected to. This has meant rapid consumption of land and growing fragmentation of agriculture, in addition to an the inevitable loss of efficiency of agricultural activities, the consequences of which, in the sectors of mountain farming, add to the dynamics of depopulation in the marginal areas.

In fact, province of Varese agriculture is characterized by limited agricultural uses of the territory and the presence of two main agricultural systems: mountain farming and periurban agriculture.



9.2.Who are the main users of the biosphere reserve? (for each zone, and main resources used). If applicable, describe the level of involvement of indigenous people taking into account the "United Nations Declaration on the Rights of Indigenous Peoples".

The main uses of the territory and economic activity in the core zones

In the Lombardy territory, in the entirely natural zones, activities are not allowed, with the exception of the following:

- scientific research
- supervised visits along authorized paths
- demolition of existing fences
- protective restoration of existing buildings

In the managed reserves limited activities are permitted:

- realization of the park's service structures (wildlife observatories, equipped educational paths, etc.)

- interventions to improve forests, cutting down of exotic trees

- supervised collection of fungi epigeal mushrooms

In the area of the River Ticino and its tributaries limited activities to control its flow and environmental redevelopment are allowed:

- river process management with bioengineering techniques

- works related to monitoring and decontamination of waters
- restoration of nature areas
- navigation with non-motorized means
- amateur collection of samples of pebbles, gold nuggets and fossil trunks
- conversion of poplar trees in naturally evolving woodlands
- public structures for crossing the river
- structures related to navigation
- defence structures for the inhabited centres
- infrastructure of public interest

In the Piedmont territory the core areas identified do not involve human activities except for some cultivation of land for agriculture because they are special reserve (Parco del Ticino) areas, that is complex ecosystems of high natural value, intended for the preservation of particular environmental values and involve specific conservation tasks. They are characterized by particularly important woods from a botanical and vegetation point of view and wetlands (oxbows, mortlakes, gravel from the Ticino, natural riverside areas, resurgences, springs) where some typical natural structures and areas with fauna of particular interestare conserved. They are of particular interest to scientific research aimed at better understanding the ecosystems present.

In the special natural reserves interventions of an exclusively didactic, technical and scientific nature are allowed with the prior authorization of the park authority.

The statutory aims of special natural reserve areas are:

- a) nature conservation and enhancement of the typical forest biocoenosis;
- b) maintenance and restoration of the surface hydrographic system and the related natural biocenosis;
- c) protection of the characteristic zoological elements and recovery of the maximum potential of the site's fauna;
- d) promotion and regulation of scientific research and didactic activities.

In the same way, the National Park Strict Reserve no longer has, and has not had for a number of decades, livestock and forestry activities around the outer limits. The nearly centuries-old state of wilderness of this part of the territory and the area formally part of the strict reserve only allow scientific research activities, while on the outer limits there are two through paths for hiking (without stopping) with very limited access as they are only suitable for expert hikers.

> The main uses of the territory and economic activity in the buffer zones

7

In the Lombardy territory in the nature area near the river and within the scope of its protection, agricultural and forestry activities are allowed, with supervision of their compatibility aimed at contributing to the conservation of the core areas:

- ordinary and extraordinary maintenance of existing buildings

- construction of new buildings to house and service agricultural activities

- introduction and controlled expansion of new farms

- conversion of buildings into structures for social, cultural and hospitality activities

- maintenance of bodies of water, levelling and flattening of the land

- maintenance of roads

- forestry production management or nature reconversion, encouraged by funding

- agricultural activities, also supported by incentives, if compatibility oriented

In Piedmont the prevailing activities in the buffer area concern farming, recreational activities and residential areas covered by the Park Area Plan and subject to the regulations on impact assessment, given that the entire Parco del Ticino Piemonteseis both a SCI and a SPA. The buffer zones have a "cushion" effect on the core areas and therefore mitigate and reduce the possible negative effects, encouraging protection and natural development.

The prevailing activity in the buffer zone is agriculture and the predominant form of management of the farms is direct management by the farmer with family labour only; hardly any directly managed farms use mainly salaried, non-family member workers. However, it should be underlined that this latter type of farm is, on average, larger. With respect to the breakdown of the farm's surface area according to land use, it should be noted that most of the Utilized Agricultural Area is used as arable land, meadows and pastures. The rearing of cattle is undertaken to various extents in all the municipalities of the park. The park municipalities still have well rooted agricultural activities; in fact 46.38% (equal to 13108.21 ha) of the vast area of the eleven administrations belonging to the park is UAA. This data confirms a strong vocation for agriculture and an orientation to agriculture in transition.

It should be noted that all farmland is primarily used as arable land (wheat and other autumn-winter cereals), rice, maize, rotational meadows and grasslands. Areas cultivated as meadows and pastures are an important agro-environmental indicator, as they are an indication of the presence of stable agriculture, for livestock for the production of consolidated milk. Also arboriculture is practised in these territories, where investment in alluvial land makes for easy industrial poplar cultivation. The short production cycle and the ability to rotate with rice and maize facilitate this type of cultivation, even if it is not very profitable. Woods occupy large areas; this reflects the future of the territory, which will have to increase forest cover, without penalizing the agricultural sector, and put in place better agricultural policies in order to impact the environment less.

In the last decade there has been an increasing awareness of the primary role that sustainable agriculture can have on the preservation and conservation of natural resources and biodiversity. In fact, the continued exploitation of agricultural land, due in particular to conventional tillage and monoculture, causes considerable harm to the fertility of the soil. EU regulations on organic production foresee that the fertility and the biological activity of the soil must be increased or at the least preserved, with multi-year crop rotation, green manure cultivation of crops, incorporation in the soil of farm organic materials such as manure, crop residues and compost. As regards the fight against parasites, weeds and diseases in general, the farmer should choose the appropriate species and varieties and employ mechanical weeding. Therefore, it should be noted that in the park there are farms specializing in organic farming.

An interesting fact is that concerning agricultural land not utilized but dedicated to various activities. In the eleven municipalities of the park this type of activity has a buffer effect on the core area.

In the buffer areas of the Val Grande National Park a twofold use can be seen: rural-pastoral activities, now marginal and numerically limited, and the use of the park for recreational purposes and hiking. The first are mainly seasonal livestock activities on the highlands both of cattle and sheep and goats, all in areas B and C of the park, or areas where the activities are foreseen and allowed by the plan for the purpose of maintaining the environment and biodiversity in the Alps; mostly subsistence and/or complementary activities to other economic undertakings. The second are hiking activities of a seasonal nature, with few participants and no impact on the natural environment and landscape of the park that the main routes pass through and with permanent activities mainly in the pre-existing facilities.

The main uses of the territory and economic activity in the transition zones

The Lombard territory transition zone includes both zones located within the boundaries of the Parco Regionale Valle del Ticino and contiguousareas external to the park, the park manages them with the following aims. The use of the land is diversified: mainly productive dry or irrigated agricultural-forest lands and the less productive areas near the river, zones of natural, aesthetic and landscape beauty are to be used for tourism and leisure. The carrying out of economic

activities in these areas is a major undertaking for the managers of the park; in fact, the protection of the entire territory of the park and the biosphere reserve proposed depends on the impact and compatibility of these activities.

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Activities permitted in these areas:

- agricultural reclamation interventions, including rising the water level

- introduction and controlled expansion of new farms
- construction of new rural and service buildings

- conversion of buildings into structures for social, cultural and hospitality activities

- maintenance of bodies of water, levelling and flattening of the land
- maintenance of roads

The Municipal Initiative Zones included in the transition zone, within the Regional Park, merit a mention. They encompass the inhabited centres of the municipalities forming part of the protected area and for which the municipalities are responsible for the planning and programming. The park intervenes at the planning stage, verifying the compatibility of their territorial coordination tools and the environmental sustainability of the plans, imposing limits on urban development and the development of the territory.

As regards the Piedmont territory the transition zone is mixed and has a different character. It is completely external to the Parco del Ticino and the Parco del Val Grande, but in the Verbano catchment area and includes some valleys of the hinterland, and some areas with permanent and/or seasonal pastures and mountain huts partially within the National Park.

The neighbouring territory of the Parco del Ticino is mainly characterized by agricultural activity. From a study carried out by the authority for the purpose of drawing up the Socio-Economic Development Consolidated Plan, it is possible to infer that agriculture in the transition area has a functional distribution by scale, technical efficiency and economic viability production units.

The food and wine products typical of the Piedmont Ticino territory are interesting and noteworthy: corn, rice, honey, milk, mozzarella, Gorgonzola, Taleggio, blue Toma, blue goat's cheese, cereals, soya, horse meat, mixed cattle, peas, fish, snails, salami, berries, flowers, fruit and vegetables, ostriches, etc.

Of note is the presence within the transition zone of some municipalities in the DisciplinaredelleCollineNovaresi Doc (Procedure for the Certification of Controlled Origin for the Novara Hills) (attached to this document - Annex 3) with the production of fine white and red wines; particular attention is given to the agreement signed by 13 municipalities for the safeguarding and protection of

wine production (attached to this document - Annex 4).

It is also possible to deduce that the main livestock activities consist of breeding poultry, rabbits, pigs (there are no sties) and cattle. There are also horse breeders of particular relevance.

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In the province of Novara activities related to the production of goods are present, not just small scale (the Novara chemicals centre). There have been changes on the organizational and dimensional level (as demonstrated by the restructuring of the book publishers linked to De Agostini), and through new forms of relationships between industry, services and the territories. Secondly, there have been specific structural changes to the tertiary sector in the territory, with specific models of development centred on creative activities and the provision of services. Finally, the characteristics of agricultural activities and their relationship with the territory and the secondary and tertiary sectors have radically changed. As regards the park municipalities, the town of Oleggio's participation in the Industrial District of Oleggio, specialized in the production textiles and clothing, should be noted. Other municipalities that are part of the park include: BellinzagoNovarese, Marano Ticino, Pombia, VaralloPombia. The municipalities of Cameri, Cerano, GalliateRomentino and Trecate are in the Novara Local System of Work (according to research conducted by ISTAT and IRPET (Tuscany Regional Institute Economic Programme) in collaboration with the University of Newcastle Upon Tyne).

The part of the territory adjacent to Lake Maggiore is occupied mainly with tourism, considering that the temporary population reaches very high levels, up to 3,393,976.00 presences for the entire Piedmont area of Lake Maggiore with camping sites, hotels, restaurants, tourist services, commercial activities, etc. and nurseries.

There are also sporting facilities such as golf in the municipalities of Bogogno, AgrateConturbia and BellinzagoNovarese and a sports centre at Cameri that serves a widerange of target users including foreigners.

Of note is the presence of Zoo Safari di Pombia and the wildlife park La Torbiera at AgrateConturbia, whose territory is protected by the Region.

In the transition area there are, as already mentioned in previous sections, the Lake Maggiore protected areas (part of the municipalities of Arona, Castelletto Ticino, Dormelletto, Borgo Ticino, OleggioCastello, Baveno, Comignago, GravellonaToce and Verbania) managed by the authority of the protected areas of Ticino and Lake Maggiore, which ensure continuity for the ecosystem's landscape.

Also noteworthy are the Piano Rosa protected areas of Baraggia which are part of the municipalities of Ghemme, RomagnanoSesia, Fontanetod'Agogna, Cavagliod'Agogna, Cavallirio, Cureggio and the Monte Fenera Nature Park relative to the municipalities of Boca, Cavallirio, Grignasco and Prato Sesia and finally the centuries old holding, Piana del Muggiano at Gattico. Lastly, again in the transition area, there are some of the areas of the Parco Nazionaledella Val Grande, in particular permanent settlements such as the historic centre of Vogogna, and the towns of Colloro and Cicogna, areas almost exclusively residential with, apart from hotels, limited tourist accommodation (farmhouses, bed and breakfasts, hostels, etc.) available, as well as some pockets of pastures with development opportunities linked to agroforestry activities governed by the regulations of the plan.

9.3.What are the rules (including customary or traditional) of land use in and access to each zone of the biosphere reserve?

The candidate territory is complex and diversified, being in part affected by a plurality of protected areas, but also in part by extended areas of urbanized territory with infrastructure and, obviously, nature.

The standard multi-purpose ecological network, which was introduced in Chapter 3.2, aims to draw up an integrated plan for the biosphere candidate reserve's territory, focusing on combining natural factors (ecology, biodiversity, the ecosystem, genetics, etc.) with social and economic factors, so that the natural requirements and ecosystem services combine effectively with the requirements of the territory and the people who live there.

To the extent that all of the many habitat fragmenting land uses are also related to the zoning of the reserve their role and access is determined by zoning thus posing the question of the relationship with administrative boundaries of the regulations in force for protected areas, or more in general, territorial planning.

The relationship between "boundaries" by definition determines "access" to the reserve, these being, obviously, open except for those that, because of specific regulations (for example nature park and the Natura 2000 network plans) deriving from an act of state of the authority and affecting the physical space in question.

The new regulations that govern the parks not as islands with only natural interests but in relation to the surroundings and the anthropic dynamics mean that the management of land use is perfectly aligned to the concept of a MAB reserve. This has allowed, in the specific case proposed here, the candidature of territories that have been modified by human intervention.

Precisely in this perspective, all the territory in question is not subject to any "access" restrictions. On the contrary very good accessibility to all areas reinforces the relationship between nature and man. A lack of restricted access does not mean that the protected areas do not protect their territory and species, but rather that the establishment of the protected area derives from the desire to improve an environment that is subjected to pressure from man.

The park, and in general the territory proposed for the reserve, is subject to special conditions of use, both in responding to questions of environmental

safety and to questions of "ownership" (consider state ownership of property which guarantees the protection of riverbanks or the collective use of natural resources such as woods and meadows).

Therefore, with respect to land use, there are guidelines for the planning of the area, which allow for the reorganization of various activities and the development of new ways for human activities and natural assets to coexist through supervision (security services); the raising of awareness and education proposed by the park, through the organization of events, meetings and guided tours; the promotion of sustainable development for the well-being of people, the economy and the environment and carefully balancing preservation with the various possible uses.

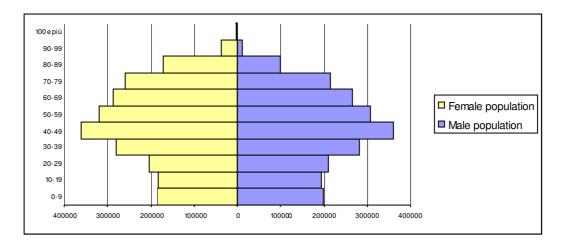
9.4.Describe women's and men's different levels of access to and control over resources.

From the legislative point of view the national law on equal opportunities aims to promote equal opportunities between women and men in all areas of society, by applying the directives of the European Union on equal opportunities and equal treatment in employment. On the basis of the European Gender Equality Index, Italy ranks among the EU countries with the lowest levels of gender equality.

The presence of women in decision-making positions is still very limited. Recently various measures to improve the situation have been successfully introduced.

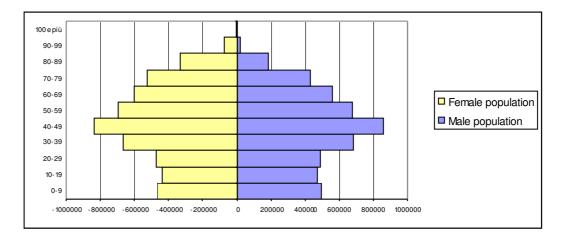
As a result of the 2007 economic crisis, women have demonstrated that they can contribute equally to the economic well-being of families and do not want to return to their traditional role. They continued looking for a job even after being made redundant and some of them have entered the labour market for the first time in order to contribute to the income of the family in a period of widespread unemployment among men. The number of women is higher than that of men in high schools and universities.

The employment of women and economic independence are affected both by the increasing difficulties of reconciling family life and working life, and by growing unemployment which has affected the services sector since 2010, within the context of the second wave of the crisis.



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Subdivision of the male and female population by age group in the Region of Piedmont (ISTAT source)



Subdivision of the male and female population by age group in the Region of Lombardy (ISTAT source)

The distribution is very similar for the two regions, showing slightly more females than males.

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10. HUMAN POPULATION OF PROPOSED BIOSPHERE RESERVE:

resident population in the biosphere reserve is equal to 1,082,196 people (source ISTAT <u>http://dati.istat.it/Index.aspx?DataSetCode=DCIS_POPRES1</u>).

In examining fig. 22 it can be seen that most of the municipalities in the reserve have a population of fewer than 5,000 inhabitants.

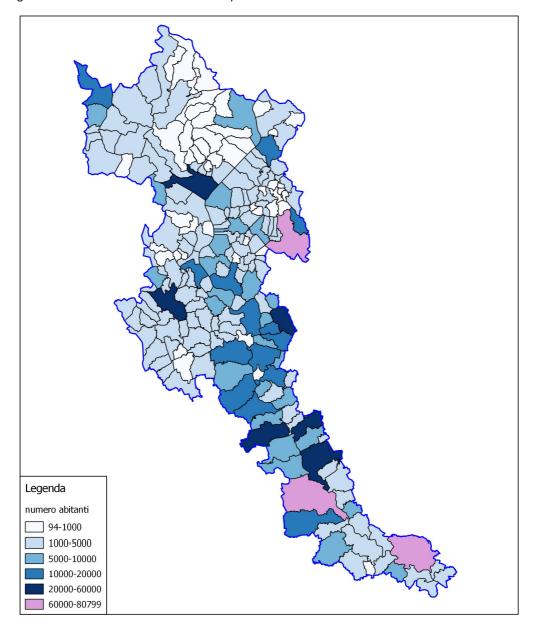
	Permanently	Seasonally
10.1. Core Area(s)	700	
10.2.Buffer Zone(s)	2.434	
10.3.Transition Area(s)	1.079.062	
Total:	1.082.196	

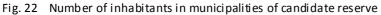
The biosphere reserve candidate includes 217 municipalities, of which 168 are small municipalities with fewer than 5,000 inhabitants, equal to 77% of the total. There are no particularly populous cities; the largest is Varese with slightly fewer than 81,000 inhabitants.

Eleven per cent of the municipalities have a population of greater than 10,000 inhabitants and overall represent 55% of the total population of the reserve.

Twenty-one per cent of the municipalities have fewer than 1,000 inhabitants, especially in the mountainous areas of the province of Verbano-Cusio-Ossola, where the municipalities of the Intrasca valley and Alta Cannobina have fewer than 500 inhabitants.

	MUNICIPALITIES		INHABITANTS	
	number	%	number	%
94÷1.000 inhabitants	47	21,7	26.916	2,5
1.000÷5.000 inhabitants	121	55,8	278502	25,7
5.000÷10.000 inhabitants	26	12,0	186260	17,2
10.000÷20.000 inhabitants	14	6,5	191165	17,7
20.000÷60.000 inhabitants	6	2,8	182668	16,9
60.000÷81.000 inhabitants	3	1,4	216685	20,0





10.4.Brief description of local communities living within or near the proposed biosphere reserve.

The network of local communities within the reserve is, on one hand, an established, urban multi-centred settlement which includes the urban systems within the wider network of the area between the metropolitan area and the alpine foothills, and on the other hand, it has micro-regional characteristics of a strong social and environmental nature, especially within the context of marginal internal areas.

In other words, local communities, like other territories with different historical development and social characteristics, establish social and urban

neighbourhood relations through actions and projects that coexist and interact in the same places. These reports concern the environment, landscape, cultural assets, primary resources, production activities, transport, central location, trade, tourism, local identity, demographic features, local cognitive and social "capital", institutional frameworks and anything else of relevance to the identity of a community.

The structure of a community and its territorial integration is based on a multicentred, large-scale matrix with four areas that make up and characterize the entire reserve:

- the alpine belt, characterized by a consolidated territorial, socioeconomic, production system of high environmental quality, with important cross-border and transnational relations;
- theprealpine area, including the hilly Insubria areas and lakes and the mouths of the main valleys, is very rich in natural and economic resources and characterized by its proximity to an urbanized metropolitan area with both its positive effects and negative impacts;
- a highly productive lowland agricultural area, between the Po River and the Turin-Milan axis (A4 motorway, ordinary railway and TAV), with a second area of predominantly agricultural terraced plains and highlands.
- the Lombard Metropolitan Territorial System (or Milan metropolitan area), does not exactly correspond to the geographical, morphological area. It affects the east-west axis between the foothills and the northernmost part of the lowlands, including, almost entirely, the dry plain.

Each area has special historical and social features that determine some of the dynamics and ways of being and identities of the local communities. Even if the phenomena of migration/immigration between the various parts of the area, the industrial development, communications network and transport infrastructure have, in fact, amalgamated the social framework and relationships into a more integrated urban and metropolitan area, in particular through the irreversible forming of relationships between the individual settlements and the Milan metropolitan area.

With reference to the geo-environmental grid and the established social system the following characteristics of local identity can be pin pointed.

In the alpine region of the reserve, in the Piedmont and Lombardy area, there is a saturated valley system with cross-border roads that characterize the settlements and relations within the community.

In the north-western part of the reserve the vast valley basin, which penetrates deeply into the alpine chain and has always been one of the main routes of north-south continental trade, has historically contributed to the economic and demographic development (about 63,500 inhabitants) of a largely peripheral

territory, even if equipped with considerable primary resources: water, mining (ornamental stones) forests and landscape. Its position on a main thoroughfare has allowed the territory to reach an urban-industrial mix that has strengthened its autonomy and identity, confirming a network of local communities and settlements organized around two conurbations: Domodossola, Villadossola and Pallanzeno, along the River Toce, and Val Vigezzo, which comprises the municipalities of Santa Maria Maggiore, Druogno and Craveggia.

It has greater integration with the Lombard area of gravitation (Varese, Milan) than with the Piedmont (Novara) area, confirmed by the numbers of university students studying in Milan.

In the alpine region of Piedmont theVerbano-Lake Maggiore area occupies almost the entire Piedmont side of Lake Maggiore. The settlement (approximately 102,200 inhabitants) comprises the basin of Lake Orta (only the southern part of the lake is in the reserve) and the basin of the Strona torrent, a tributary of the River Toce. The exceptional climate and landscape, the proximity to the urbanized Lombard and Novara foreland, the "hinge" position with the Canton of Ticino, the draw of the vast, populated internal basin of the Toce are the basis of its development, which for a long time was based on tourism, industry (the industrial district at Omega), services and, more recently, on the administrative functions of the capital of the Verbano-Cusio-Ossola province. Among the strengths of the local identity and community are the social, entrepreneurial and cognitive capital and institutional framework provided by the local household appliances industries and, in part, the tap manufacturers. The main structural elements to be taken into consideration, in terms of potential and criticality, are first and foremost the climatic and phytogeographical conditions and the scenic lake. They provide an exceptional setting and very important structure for tourism, which in turn has helped to create a culture of hospitality and an urban landscape of historic interest. But in recent decades there are increasing problems with the pressures to build, urban sprawl, traffic congestion, an excessive concentration of tourism and water pollution.

The two main centres are made up of the urban continuum between Lake Orta and Lake Maggiore (Omegna-GravellonaToce conurbation) and the Verbania-Intra area. In the two conurbations the settlements are widespread with a consequent loss of identity and community and high consumption of land, also due to the effect of periurban development which, especially close to the lakes, has vastly changed the configuration of transport, impacting significantly on the efficiency of the entire infrastructure.

With regard to the production structure the presence of advanced tertiary activities (a university, science and technology park, specialized hospital wards) should be noted. They are centres of potential local specializations with high added value.

Similarly the area northeast of the reserve includes the Lombard mountain and foothill area.

The Lombard mountains constitute a well-structured territorial system with high altitudes and very different climatic and environmental conditions. However, in general, all the different parts of the area interact with the rest of the territory of the reserve and with the region, making it an indistinguishable whole even if it is at times a dependent and conflicting relationship.

The socio-economic character and dynamics related to the size of the local community – a mix of inherently different territories – are often conflicting. There is a widespread tendency for the resident population to suffer from depopulation and ageing. However, in some areas these tendencies are inverting and transforming into commuting. The subdue economy has some strong points and good potential for development (wine, typical quality products, the tourism,...). There is a contradiction between the thrust to open up to global development and the tendency to closure, which maintains a more distinct socio-cultural identity. Environmental quality is on average very high, which corresponds to strong pressure on the valleys and accessibility problems. There is potential to establish relationships that go well beyond regional limits given that most of the territories border with other regions and countries.

The variety of situations arising within the alpine context of the reserve (internal and marginal areas are also in Piedmont) is clear. Alongside the ageing mountains of demographic decline and marginalization there are other realities that characterize this system; in particular, the "mountain as a resource", with high levels of productivity, especially with respect to tourism; the urban and industrial mountains made up of medium-sized municipalities with economic indicators and vitality comparable to those of non-mountain territories; the periurban mountain municipalities, adjacent to the main centres with which it weaves reciprocal relationships between the supply of services and the use and availability of accommodation and better environmental settings; the small rural mountain centres, where the agricultural sector remains significant and characteristics linked to tradition survive.

The foothills of the reserve encompass the territories of both Piedmont and Lombardy.

The Piedmont area is the northern part of the province of Novara and corresponds to the easternmost section of the Piedmont foothills. It extends from Lake Maggiore at the Valsesia mouth, comprising the lowlands and the highland region in between: the latter is not particularly fertile, but densely urbanized and industrialized and suitable for the production of high quality wines.

The most relevant structural components, from a natural point of view, are water (the River Ticino and the proximity of the two lakes), forests and landscape including some outstanding examples (the hills of the Parco del Fenera, the Ticino, the terraced highlands). The historical, architectural, monumental and archaeological heritage is a valuable asset too. Another excellence concerns infrastructure: it is crossed by the A26 motorway and the Sempione railway line; it has easy access to Malpensa airport (A8-A26 motorways) and the Novara TAV (high speed train) station; and excellent internet connections. Lastly, it has numerous businesses working in the engineering, textiles, and clothing and accessories sectors, with a long industrial heritage in terms of human, social and cognitive capital. In particular, it hosts the heart of a metallurgical district specializing in taps, electronic valves and other precision machining activities. The main critical points concern urban consumption of land, harm to the landscape, the presence of a large number of national and regional contaminated sites and the continuing innovative restructuring of the production system.

The web of settlements relative to the local community has three subsystems in part within the reserve. The conurbation, which winds along the southern shore of Lake Orta and includes Borgomanero, is characterized by a linear development of settlements along the main S.S. 229 road with a great mix of residential and industrial areas and very high traffic flows within the settlements. The second subsystem is in the Lake Maggiore area and is characterized by continuous urbanization along the main S.S. 33 road with the alternation of residential, tourist, commercial and service structures from Arona to Castelletto Ticino. The last subsystem is in the Valsesia foothills area. It has contained residential growth and is next to a high concentration of industrial zones (existing and planned) especially at RomagnanoSesia, near the tunnel motorway tollbooths.

There is strong and generalized expansion of settlements that on the one hand causes a "fraying" of local identities and on the other hand considerable consumption of land and high levels of congestion on the local road network.

The Lombard foothills and hill country belt is the most complex area as regards settlement structure and morphology. It includes the moraine hills surrounding the main basins and the mouths of the larger alpine valleys. It is a transition zone, through path and connection between the various regional systems that are united in a foothill territorial system.

Geographically the prealpine area is connected to the Po valley through the attractive and densely populated foothills, which constitute a sort of hinge between the two different geographic areas. The foothills area is a transition zone between the southern areas of the plains and the peaks of upland alpine areas. It connects the densely populated central Lombardy regions and the less built-up regions that characterize the uplands, through the mouths of the main alpine valleys, with valley floors that are highly and densely exploited by residential and industrial settlements. The foothills area is characterized by settlements separated from the continuous urbanization of the metropolitan area, where community identity and activities still exist, but which have a tendency to join up, compared with the mountain communities that have a recognizable separate identity. There are strong environmental contradictions

between the consumption of resources and attention to the safeguarding of natural features and landscape.

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In this context Varese can be identified as the "city in the middle" between the large metropolitan conurbation of the central zone and the alpine region.

The plains include the medium and low plains between the Ticino and Sesia rivers, with the main primary resources dedicated to the waters (the River Ticino and derived canals), the extraction of hydrocarbons (Agip oil field and San Martino di Trecate petrochemical centre) and the amount and quality of the agrarian land.

With respect to the role and characteristics of the settlements the geographical position and transport infrastructure is of particular value. The junction of the A4 and A26 motorways, the Sempione-Loetschberg railway line and the proximity to the Malpensa international airport are important logistical assets.

Agricultural and agro-industrial production activities (cereals, in particular rice and dairy products) have accumulated considerable specific knowledge and entrepreneurial capacity. The same can be said of the manufacturing sector. The rich cognitive capital of companies (particularly innovative businesses in the field of fine chemicals and materials) is linked, in particular, to industry and research centres, some of which, like the Donegani Institute and ITISFauser are a national resource in the education sector, and the University of Piemonte Orientale (Faculty of Economics, Chemistry and Pharmaceutical Technology, Medicine) in the healthcare sector.

The pattern of settlements is a particularly dense network – interrupted at certain points – along the north axis parallel to Ticino, along the road to Borgomanero and in the periurban expansion zone east of Novara, the result of the considerable dispersion of settlements between 1991 and 2001. In the other areas the traditional rural set up still prevails.

This is reflected in the configuration of the community. In the rural areas the biggest problem is the widespread underutilization and abandonment of residential rural properties, while the phenomena of dispersion of the settlement constitutes an open question for the identity of the places.

In the reserve's Lombard territory, the dry plain, has undergone perturbing processes, in many cases leading to the joining up of centres that once stood out as models of linear or widespread settlements. The centres too often pursue a functional logic divorced from the logic on which the territory was constructed historically and for which it has been characterized and valued.

Infrastructure developments tend to impose themselves on the territory, harming existing relational networks, unaware of the underlying principles and often without even attempting to propose other equally valid ones. Containment of urban development is now for many parts of the area one of the main priorities, also from the landscape and environmental legislation point of view, in order to ensure a balanced relationship between built-up areas and green belts. And to give space to the elements that structure the morphology of the territory, first and foremost surface hydrography, restore quality of life to the urban fringes and prevent loss of urban centrality and historical landmarks in an undifferentiated continuum of concrete.

This is, in fact, an area that is very interdependent with Lombardy and the Milan metropolitan area in particular, with all the implications for social and community dynamics and local development.

The historical metropolitan area, focused on the traditional industrial triangle Varese-Lecco-Milan, converges on the regional capital and is characterized by very high-density settlements, but also by large green spaces between the conurbations, including those of the reserve and the Parco del Ticino.

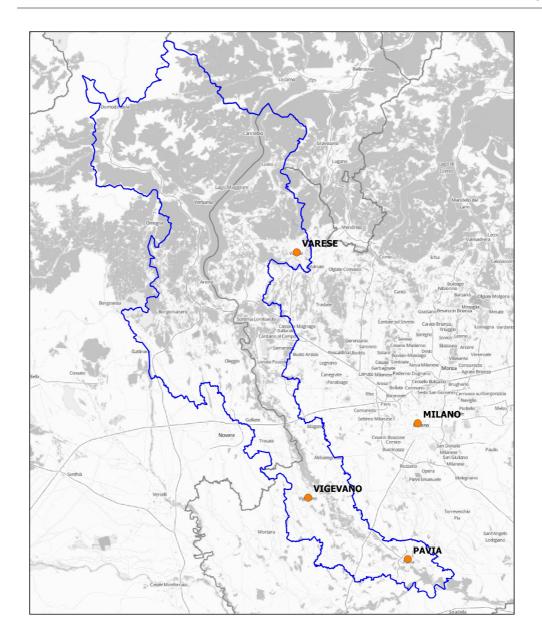
The metropolitan territorial system does not correspond to a specific geographical and morphological environment. The physical characteristics of the area were determined by its historical development. In fact, the flat territory facilitated settlements, relationships and exchanges that have allowed the emergence of a very important economic structure, which without other possibilities is encroaching on the eastern territories of the reserve.

10.5.Name(s) of the major settlement(s) within and near the proposed biosphere reserve with reference to the map (section 6.2):

The main settlements within the biosphere reserve are Varese, Pavia and Vigevano with more than 60,000 inhabitants; followed by Gallarate, Abbiategrasso and Verbania with more than 30,000 inhabitants.

With the exception of Varese and Verbania, which are located in the northernmost part of the reserve in the prealpine lakes region (Lake Maggiore and Lake Varese) included in the transition area of the proposed extension, the other settlements are located on the plains surrounding the Ticino which are already included in the transition area of the "Valle del Ticino" MAB reserve.

The largest city close to the biosphere reserve, but not part of it, is Milan, which with its 1,350,000 inhabitants is the second most populous city in Italy after Rome. Its centre is less than 20 kilometres from the boundary of the reserve.



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10.6.Cultural significance:

The territory of the reserve is of historical and cultural interest, as can be seen from the numerous testimonies of the various stages of the relationship between man and nature, and populations and environments in a territory that includes the Po Valley, the foothills and the Alps, with important cross-border connotations.

In fact, three different types of society have left their mark on the territorial and social environments of interest to the proposed new reserve.

 The archaic societies of primitive gatherers or, at best, forms of agriculture that were still little organized. These populations lived immersed in uncontaminated nature that was not subject to organized interventions, but where nature dictated the rhythms of life and modes of settlement to man.

- 2) Later societies distinguished themselves by controlling the territory, planning and structuring their settlements in accordance with their needs. The turning point arrived with the Romans, with a balanced use of resources interrupted by a crisis phase and nature's re-appropriation of the areas occupied by man (Early Middle Ages).
- 3) Post-industrial society, whose mark on the territory is now indelible, creating a landscape that is increasingly artificial and monotonous. Nature is confined to the margins of this society and undergoes anthropic activities that increasingly lead to irreversible environmental degradation.

The Val Grande territory has maintained a very natural, untouched state yet is not far from areas that have undergone high levels of anthropization and urban expansion. It is important to remember that this environmental characteristic is not unchangeable over time, but the historical product of the development process. As with all alpine regions Val Grande and the neighbouring areas and the territories of the Verbano Lombardo valleys have gone through different periods of change with significant fluctuations in the population and degree of anthropogenic pressure.

Human presence in the area reflects on a local level the important periods detectable in the whole alpine region. Exploitation of the mountains has long been practised by populations in the territory, with a network of widespread settlements concentrated in the valleys. In this part of the Alps the keeping of livestock has been practised since the Copper Age (3500-2200 BC), with seasonal grazing of cattle and goats. In the Bronze Age (2200-900 BC) the population of the region increased even in mountainous areas and in our area there have been sporadic metal archaeological findings. Later, in the first Iron Age, the Golasecca culture extended up to the area of Lake Maggiore, linked by alpine passes.

If for some sites, archaeological data provide information only related to the presence of Roman (Besnate, Boffalora, Cassolnovo, Cuggiono, Zerbolò, Carbonara, Linarolo) necropolises there is no shortage of documentation bearing witness to the presence of significant settlement areas such as ArsagoSeprio and Garlasco with important Lombard remains.

Celtic and then Roman necropolises testify to the Romanization of the Celtic peoples who occupied the area, while the remains of rustic villas, communication routes and economic structures bear witness the Roman Empire. In this period communications routes and commercial exchanges were further developed in this important thoroughfare between central Europe and the Mediterranean.

Later the Lombards, with Pavia as their capital, occupied the area. A necropolis at ArsagoSeprio and numerous other ruins testify to their presence.

The transalpine communications system both in the direction of the SimplonPass and over the lake and the surrounding Canton of Ticino is an infrastructure of historical and cultural importance in the proposed area. The route of the road that goes up to the Simplon Pass and the Swiss canton of Valais has been very stable over time, due to the orographic conditions and the presence of the River Toce. The Via Ossola was inserted into the system linking Lake Maggiore to the Ticino and then to the urban centres of the plain where Novara assumed the role of the main administrative centre.

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The population of the alpine region was based on the insertion of a series small settlements connected to thoroughfares.

Even the term "border" contributes to the historical and cultural definition of the area and of the populations who settled there.

The River Ticino has always been a natural border between civilizations, kingdoms, peoples and armies. For this reason the territories that the river passes through have over the centuries witnessed the construction of fortified buildings, sighting towers and castles. Some of these structures are still intact today and represent an inestimable cultural heritage, while others are little more than ruins or the only trace of them is in historical documents.

If little remains of the fortifications of the Roman period, it is much easier to identify the fortifications constructed in medieval times for the purposes of defence, even if often, between the eighteenth and the nineteenth centuries, they were modernized and transformed into dwellings.

From the point of view of historical evolution written documentation dates back to the 10th century, after which it becomes more significant. The first elements of proof are linked to monastic communities and noble properties. Various abbeys located in the Lake Maggiore region had peripheral land in mountainous areas, in particular between Ossola and Val Grande land ownership is documented for the San Graciniano di Arona Benedictine monastery. The "alpi" (summer settlements) are mentioned for the first time in monastic documents.

The exploitation of the highland pastures thus becomes an increasingly widespread practice, destined to intensify in the Late Middle Ages, scattering the inner valleys with a network of seasonal settlements. The woods that cover the mountain slopes are encroached on by logging activities for the clearing of areas suitable for animal husbandry practices. On the other hand the secular noble class affirmed its presence, extending feudal rights to woodlands, and summer and winter pastures.

For the central centuries of the Middle Ages, in the absence of systematic documentation, the most reliable method for assessing the degree of development of settlements is to examine the location of churches, which functioned as a reference point for growing communities.

Of the numerous castles and Romanesque buildings the importance of Morimondo Abbey should be noted for its role in the introduction of agronomic practices such as water meadows, still considered a production technique of surprising ecological value. The large hydraulic works of the Late Middle Ages and the canalization of the waters, starting from the Naviglio Grande in 1166, represented a momentous technological innovation noted throughout Europe.

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Thus, in the Middle Ages the relationship with the closest city of the plain – already of importance in ancient times – strengthens: the bishops of Novara owned land in the area and exerted direct control over the parishes, organized as a function of the development of the population in alpine areas.

Religious architecture plays a role of primary importance within the cultural and artistic production and craftsmanship of the territories of the reserve. The entire territory is sprinkled with sacred testimonies from the Middle Ages to the beginning of the 20th century. These architectural works represent a very important heritage to better understand the culture – not only religious – that for many centuries has permeated and characterized, and continues to characterize these places.

Throughout the territory there are basilicas, parish and votive churches, oratories, chapels and numerous devotional shrines. Many of these examples are simply testimonial structures to the place's history, but in other cases they of great architectural and artistic interest.

Devotional shrines and oratories make up the most widespread religious architectural features in the territory of the reserve creating a sort of "sacred landscape" consisting of a plurality of objects and devotional architectural spread around the rural parts of the plain, and up into the more strictly alpine areas. Small, very simple devotional shrines, often in very poor condition, can be found along the sides of thoroughfares (local and cross-border roads and footpaths) that cross the territory. Whereas the oratories are often part of rural complexes and farmsteads, evidence of how peasant culture was imbued with a strong sense of religion.

There are, of course, also more complex structures such as basilicas and shrines. The most interesting examples are generally attributable to Romanesque and Baroque architecture, even if there are some excellent nineteenth century buildings.

At the end of the middle ages there was considerable demographic expansion and territorial reorganization, thanks to the dynamism of the mountain communities. In this context there are two concurrent phenomena: the pastoral colonization of the more isolated areas able to absorb the growth in the population, and the beginnings of migration – initially seasonal – toward the Swiss cantons and the more distant regions of France and Germany, a phenomenon that lead in time to the cultural diversification related to styles and buildings and residential architecture. The conquest of new "high" lands and the increasing use of seasonal grazing became increasingly important and reached a peak toward the middle of the sixteenth century.

Dynamics that lead to the highest levels of demographic expansion in alpine

areas toward the middle of the nineteenth century followed. While the well documented demographic collapse that involved the entire alpine region of Piedmont and Lombardy started with the crisis of the upland economy and the activities of the industrial areas established in the post-war period in the plain areas.

In fact, the territory of the reserve, characterized by the presence of the two separate areas – uplands, plains and valleys – would witness the coexistence of two opposite dynamics with the abandonment of the internal areas and the conurbation of the valleys, the foothills and the plains.

The noteworthy cultural value and identity of the plains area include the typical farmhouses and the numerous watermills that testify to the order and rhythm of the rural world, the most characteristic and rooted culture in the Ticino area. The historic and beautiful CasinaSforzesca built at the end of the 15th century was the country residence of Beatrice d'Este, wife of Ludovicoil Moro. Leonardo da Vinci conceived and designed the irrigation system, adjusting the uptake and canalization of resurgence waters. The network of canals provided a means of transport for industry in the 18th century and since then has gradually adopted the latest irrigation and energy production systems.

Moreover, the usual ways of shaping an environment or an area to the demands of life (a household, a community) through the use of local materials are the most important (cultural) expressions of human activity in a given context.

There is still tangible evidence, especially in the mountainous areas and foothills of both Piedmont and Lombardy, of structural works, agricultural and pastoral colonization, and settlements constructed over centuries of adaptation to places by individuals, through coordinated and systematic action. For example, terracing and other land management models for agriculture, the types of coverings for buildings, pedestrian and vehicle networks (paths, mule tracks, ramps...), integrate with construction techniques and building technologies, giving rise to diversified demographic morphologies that characterize a particular environment in relation to the history and culture of the people who live there.

With regard to cultural effects one should not ignore the impact of changes related to the establishment and development of modern day tourism, which has developed mainly on the candidate territory's lakeshores, in particular Lake Maggiore. Already with the Grand Tour – for which Lake Maggiore was the first important stage, just cross the Alps and on the outskirts of Milan – the area was characterized by a culture of hospitality and openness toward new travellers, with the establishment and consolidation of new tourist activities connected to the romantic setting that brought tourists from central and northern Europe. Opportunities for the local people opened up in new professions connected not only to the nascent hotel and related activities, but also to the construction of the new villas with gardens that would take root on the shores of the lakes.

10.7.Specify the number of spoken and written languages (including ethnic, minority and endangered languages) in the biosphere reserve.

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The official language is Italian; in the biosphere reserve area there are none of the languages included in UNESCO Atlas of Endangered Languages.

English is widely used as a language of international communication and is taught starting in primary schools. Numerous languages are spoken by immigrants. In the provinces of the candidate reserve the number of immigrants is significant, ranging from a minimum of 6.1% of the population in Verbano-Cusio-Ossola to 13.9% in the province of Milan, with an average of 9.6% of the population in Piedmont and 11.5% in Lombardy.

The main countries of origin of immigrants are Romania, Morocco, Albania and China. Consequently the most widely spoken foreign languages are Romanian, Arabic, Albanian and Chinese, in addition to other Eastern European languages, and languages and dialects of various of Asian and African countries, as well as English, French and Spanish.

11. BIOPHYSICAL CHARACTERISTICS:

11.1.General description of site characteristics and topography of area:

The "Valle del Ticino" Regional Park is one of the largest river parks in Europe, and includes a mosaic of natural ecosystems typical of the great rivers, since it conserves substantial remains of the primary plains forest, which covered the whole plain of the Po before Roman colonization. The river shores are characterized by typical temperate climate and humid areas, with a diversity of species - animals and plants -, biotic communities and habitats. The area is also characterized by traditional agrarian landscapes that represent typical seminatural ecosystems and is scattered with architectural, artistic and landscape testimonies of great cultural and historical value for Italy and Europe.

From an ecological and biogeographic point of view, the Ticino River Valley is an extraordinary biological corridor, through the urbanized plain, between the two mountainous systems of the Alps and the Apennines.

On the morainic hills surrounding Lake Maggiore on the Piedmont side, the Biosphere Reserve includes the Mercurago Lagoon Natural Park, a natural area that includes the Mercurago peat bogs, some pastures dedicated to the raising of throughbred horses and a number of woodland parcels. Another part of the Piedmont shore of Lake Maggiore, between Arona and Castelletto Ticino, includes a reed bed about four kilometres long with an area of 157 hectares around the "Canneti di Dormelletto" Reserve The area is one of the last examples of reed beds in this area, together with those of Fondotoce.

Another natural element of interest is the Biosphere Reserve is the Bosco Solivo Nature Reserve, an area of characteristic landscapes located between the morainic terraces of Basso Verbano, which houses some interesting remains of ancient colonization. The Biosphere Reserve also includes the Fondotoce Natural Reserve, protecting the last stretch of the Toce River, part of the alluvial plain of Fondotoce, representing a relict of semi-natural wet area between intense human settlements. From a naturalistic point of view such environments are among the richest and most valuable, even after the drastic reduction they have suffered, due to remediation efforts taken for their recovery.

VAL GRANDE

The northwestern part of the Reserve is geographically centered on the Val Grande, now a National Park, and on the surrounding valleys of the Verbano and Ossola, as well as on the northwest coast of Lake Maggiore. It is the landscapes of the Valle Intrasche, the "middle earth", with landscape morphologies of clear anthropic origin, once cultivated, with mid-slope settlements overlooking lakes and valleys.

This is a large area, with mainly marginal agriculture, today returning to seminatural conditions as wooded environments are now developing on areas formerly used for agriculture and grazing. The Val Grande is now considered as the largest wilderness area of the entire Alpine arc.

The lake shore is characterized by a mixed landscape, villas with ornamental gardens, trails and recreational areas and horticulture dating back to the early twentieth century. This is a mainly urban area, with hilly the hinterland directly connected with the main towns, with its industries, workers' quarters, twentieth-century villas, new suburban areas.

The Lombard territory affected by the enlargement proposal includes the northern area of the present Ticino Valley Reserve, with the shores of Lake Maggiore and Lake Varese, the morainic hills of Varesotto, the Campo dei Fiori and Martica-Chiusarella massifs (with their karstic system) and, near the Swiss border, the first alpine reliefs and valleys: the Valcuvia, a wide, open valley, spotted with hidden habitats among beech and chestnut woods. It is traversed by the Boesio stream that flows in Lake Maggiore at Laveno. The mountains that surround it are on the South the Campo dei Fiori massif (1226 m), to the North the Sasso del Ferro (1062 m) and mounts Nudo (1295 m), Colonna (1203 m) and San Martino (m. 1087).

The Veddasca Valley is located in the northernmost part of the Varesotto region, and still appears as a lonely and wild valley, where the remains of pre-Alpine rural culture are notable. The Giona stream flows the length of the valley from Mount Tamaro down to Lake Maggiore.

11.2.Altitudinal range:

11.2.1. Highest elevation above sea level:

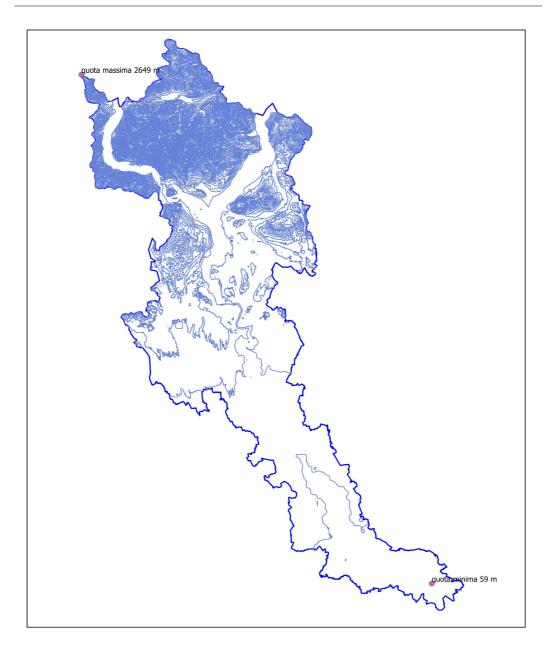
2.649 metres

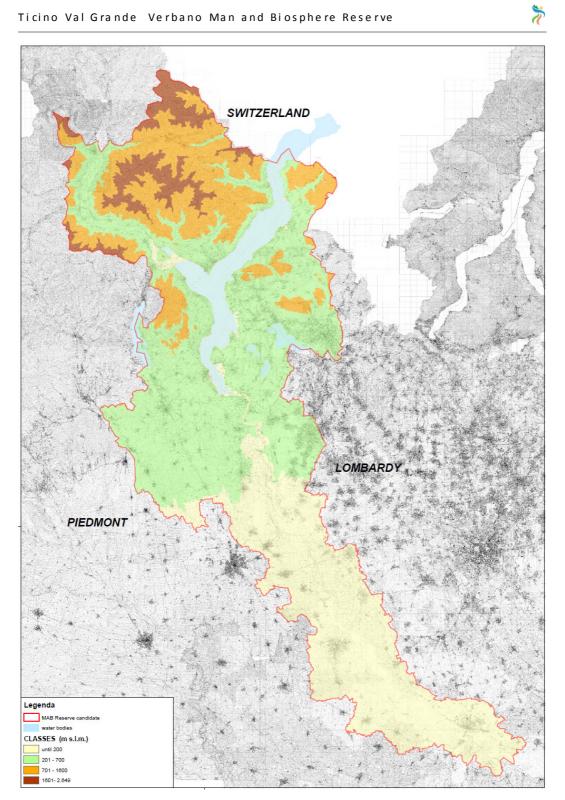
11.2.2. Lowest elevation above sea level:

59 metres

The highest and lowest elevations are located at the North-West and South-East limits of the Reserve. The highest elevation is found at Pizzo Giezza (in the Municipality of Domossola) while the lowest is on the Ticino River between Pavia and Travacò Siccomario.

This broad elevation range allows the presence in the Rserve of several elevation bands, contributing to the high diversity of landscapes, habitats and species.





11.2.3. For coastal/marine areas, maximum depth below mean sea level: metres

No coastal/marina areas.

11.3.Climate:

The climate in the Candidate Reserve is very variable, ranging from warm temperate to cold snowy, with strong precipitation and warm to cold summers according to Koppen's classification.

According to the classification of the Ministry of the Environment and the Protection of the Territory and Sea, the Reserve includes the following types of bioclimate: subcontinental moderate, semi-continental, subcontinental temperate, semi-continental temperate oceanic-semicontinental temperate oceanic temperate.

In particular, the climate ranges from the temperate subcontinental climate of the Padana Plain characterized by long, cold winters and long and hot summers with high air humidity and variable rainfall to the prealpine climate of the foothills, with winters less cold than those of the plain, especially in the Insubric region around Lakes Orta and Maggiore, with high precipitation. On the mountain summits of the northern part of the Reserve, the climate is mesalpic with high precipitation and smaller temperature differences between summer and winter.

11.3.1. Average temperature of the warmest month:

from 25.8 to 27.3 °C

11.3.2. Average temperature of the coldest month:

from – 2.4 to 1.5 °C

11.3.3. Mean annual precipitation:

from 1,000 a 1,844 mm, recorded at an elevation of 173 metres and 202 metres

11.3.4. 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?

There's a number of meteorological stations in the proposed BR Reserve situated in the following municipalities (Source: ARPA Piemonte and ARPA Lombardia): Borgomanero, Cameri, Cerano, Momo, Monte Mesma, Nebbiuno, Paruzzaro, Varallo Pombia, Candoglia, Cannobio, Cicogna, Corsolo, Domodossola, Druogno, Pieve Vergonte, Monte Carza, Mottac, Mottarone, Pallanza, Stresa, Verbania in Piedmont Region and Veddasca, Luino, Laveno-Mombello, Cuveglio, Varano Borghi, Angera, Somma Lombardo, Ferno, Lonate Pozzolo, Vigevano, Motta Visconti, Pavia in Lombardy Region.

The candidate reserve includes the Ticino Valley, from the river outlet from Lake Maggiore to its confluence in the Po, extending to the North including the surrounding areas of Lake Maggiore (part of Piedmont and Lombardy), part of the valley of the Toce River (medium-low Ossola), reliefs and valleys between Lake Maggiore and the Swiss border of the Canton Ticino.

The territorial extension and geographic configuration of the Reserve include and specify the geological, geomorphological and lithological features of two geological macro regions of Italy, the Po Valley and the Alps. The latter is divided into two domains: the Alpine arc and the Southern Alps, namely the Alpine and Southern Alpine domains, separated by the Insubric line, which in the Reserve area is called "Canavese Line" and determines a geostructural complexity that encapsulates the morphologies and landscapes of the Reserve.

The Biosphere Reserve can therefore be considered as divided into two major paleogeographic areas, the one south of Lake Maggiore, characterized by the plain of the Ticino valley, which runs about 110 kilometers from Lake Maggiore to the confluence with the Po River and corresponds essentially to the Current MAB Reserve. The northern part includes the proposed enlargement and the Fondotoce Reserve already included in the present MAB Reserve. This Nortehrn part extends from Lake Maggiore and surrounding areas to the border with Switzerland, featuring hilly and mountainous reliefs.

Emblematically linking the two geostructural fields, is the great longitudinal groove of Lake Maggiore, formed during the Messinian Era about 7 million years ago, when following the drastic drop in the level of the Mediterranean Sea, the rivers dug deep canyons. Then (about 3.5 million years ago) these canyons were invaded by the sea and, towards the end of Pliocene and up to about 19,000 years ago, occupied by a large glacier.

Primo settore

The first sector includes the areas belonging to the Po Valley and the first pre-Alpine reliefs.

The northern part of the Ticino Valley is shaped by the activity of the Quaternary glaciers and the valley is dug into morainic deposits forming hills covered with chestnut and pine woods.

The central and southern portions are basically composed of two topographic units: the alluvial terraces located at different levels and the true valley of the river. The tallest terraces are covered by termophilic vegetation, while the main unit corresponds to the level of the Po Valley, to which the whole area of the Ticino valley belongs.

On the fertile soils of the Po Plain the landscape is dominated by traditional or

extensive cultures of rice and corn and the characteristic native or exotic poplar plantations.

The river valley surface is articulated in different topographic elements such as paleosol, shores, bars, abandoned meanders and sandy islets that create a large number of micro-habitats and habitats.

The territory of the river valley is one of the most significant examples of fluvioglacial apparatus of the Quaternary Age. It is characterized by four geomorphologic units:

- a morenic amphitheater (datable to Wurm and the last stages of the Riss) consisting of a system of glacial and fluvial glacial systems: concentric morenic circles and intermorenic shelves, with stratigraphic successions of coarse materials, clay and silt;

- a system of terraced plains that includes two levels of plains corresponding to the glacial phases of Mindel and Riss. These deposits are heavily ferrallitic and form paleosulfides of the type Entic Haplumbretpts and Typic Haplumbretpts, while eolic deposits (loess) are common on most of the surface and covered by paleosoils of the Haplohumults type;

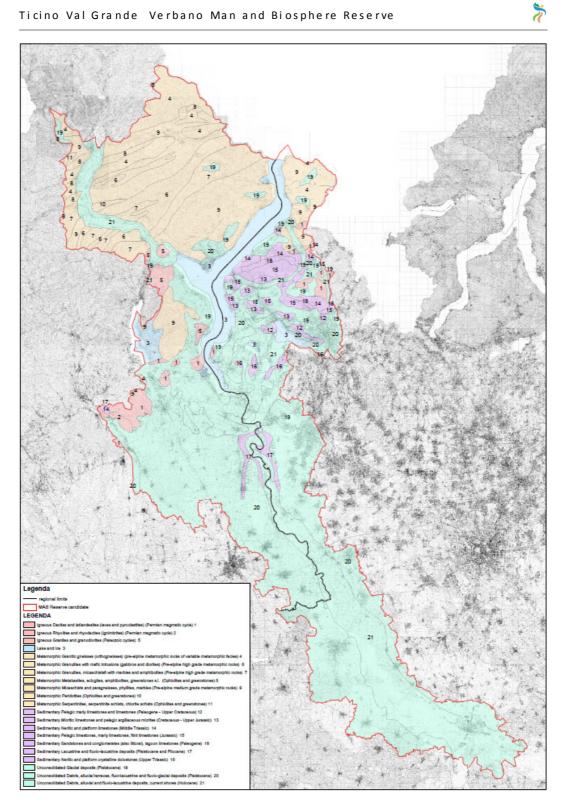
- the plain, called the Terraced General Plain of the Po Valley, occupies the central-southern portion of the area. Litologically it is made up of gravel and sand and a flood of sediment characterized by great fertility. Salient and typical morphological elements are the bumps of neotectonic origins, true wooded natural islands, many of which suffered anthropic intervention;

- the valley of the river have a typical flat-bottom, with deposits of old and present age, gravel and silt. Southward, the valley expands and is divided into meadows and braided streams, showing a typical and didactic example of active river dynamics.

The Lagoni di Mercurago are located in a sector on the southern margin of the alpine chain extending between the Sesia valley and Lake Maggiore. Their morphology is essentially determined by two main elements: two hills composed of morainic materials, part of the great morainic apparatus of Lake Maggiore, and a series of flat and depressed areas whose origin is linked to fluvioglacial influences. In this second element lakes and marshes are present, with aquatic vegetation and birds. Cryptic and circular morphology, from the overall form of amphitheater, is evident for the superficial morene of the last glaciations (Riss and Wurm).

The coastline, where the Canneti di Dormelletto (about 3.5 km west of Lake Maggiore) is located, has a predominantly flat area and consists of recent floods of the Quaternary, with soils predominantly formed by sand and silt, falling within the scope of the entisols and inceptisols.

The Bosco Solivo area is almost entirely affected by the Wurmian morainic deposits that make up the Verbano Amphitheater, giving shape to a gently undulating landscape.



Second sector

The central-northern sector of the Biosphere Reserve has a large variety of geological formations, largely due to the dynamics of the Alpine orogenesis and the geo-structural features of the Sudalpine area, as well as to the Alpine northwestern areas in the northernmost part (mid-Ossola and Vigezzo Valley) of the proposed extension.

In this area, the small portion included in the present MAB Reserve includes the last stretch of the Toce River, part of the alluvial plain of Fondotoce, and appears as a typical wet relict area surrounded by intense human settlement. From a naturalistic point of view such environments are among the richest and most valuable, even after the drastic reduction they have suffered. The area consists of 4 components that cannot be separated:

- The right orographic plain of the River Toce from Ornavasso to Gravellona with the remaining stable meadow structures.

- The Montorfano granitic relief complex (including the plain on the left of the Toce at its feet) emerging from the plain with its flattened flanks shaped by glacial rivers downstream from the Ossola valley.

- The Mergozzo Lake overshadowed by the Montorfano hill, once the northwestern part of Lake Maggiore, from which it was separated in the historical period (from X to XIII century) by the accumulation of alluvial debris carried by River Toce.

- The Toce plain, on the right of the river, the course of Toce, Strona and Stronetta, the glacial "verrou" of Motto Solarolo and the Fondotoce reed bed.

These morphological, hydrographic and naturalistic structures are the only ones that are currently protected by the establishment of the Fondotoce Special Nature Reserve.

In the rest of the expansion sector, the following main formations and geomorphological conformations can be recognized, starting from the current Reserve northwards and clockwise.

The Vergante relief, with its valleys and undulating slopes that feed the high catchment of the Agogna stream, is a chain of different and unique places, all linked by the imposing impression of the quaternary glaciers that molded peaks, ridges, impulses, terraces, rocky outcrops, scurries. Then there is a gentle, soft morphology, where the morainic and alluvial soils complete the geomorphology of the reliefs and valley on the surface.

The reliefs, structurally belonging to the base of the Southern Alps, are made up of varisic paraschists from the Lake District. Included in the micaschists are the metallic strata that explain the presence of ancient galenic mines and blends of Motto Piombino, those of Agogna, Alpe Feglio, Nocco and Brovello, which were most likely produced in conjunction with the formation of porphides (vulcanites of the Permian age) that are located just outside Arona, along with limestone limbs, aligned with the limestone of the Rocca di Angera, with which the Arona headland had to be united in the past.

To the North, in the mountains that form the watershed of Lake Maggiore, the Mottarone (1491 m) for its isolated position is undoubtedly provides the most panoramic viewpoint.

While the gentle and harmonious form of the relief can be traced back to at least 1,000 meters to the most marked effects of Pleistocene glacial modeling, its structure and lithological features are to be framed in the most complex tectonic and petrological phenomena at the origin of the same formation of the Southern

Alps, that of the Alps in the Douth of the so-called Insubria Line (the tectonic line that, by cutting the Val d'Ossola in the southwest / northeast direction, near Vogogna, then continues to Vigezzo Valley and in Switzerland), which allows the observation of the Southalpine bedrock consisting of lower Paleozoic sediments that have undergone metamorphisms before the Alpine Orogenesis, during the Ercinic Orogenesis.

To this period, concluded in the Lower Permiano (275-280 million years ago), we must sattribute the lake granites (of diverse varieties including the myarolytic pink granite of Baveno and the white granite of Montorfano), plutonic magmatic rocks, that is intruded and deeply solidified, emerging in the Micaschists of the Lakes, which in turn represent typical examples of pre-Alpine metamorphoses of the Paleozoic intermediate continental crust (311-325 million years).

The Mottarone area thus includes two main lithological formations: micaschisrs and paragneisses belonging to the Cliffs of the Lakes and granite rocks extending northwest of the area between Lake Maggiore and Lake Orta.

Towards the Verbano region, the effects of the Quaternary glacial action are clearly detectable in the longitudinal profile of the slope, which is articulated by a series of steps and gentle slopes, often crucial viewpoints over the lake and the Borromeo Gulf, with stretches which are often subdivided into numerous settlements (Loita, Roncaro, Romanico, Someraro, Levo, etc.), as well as the mountain pastures, in the direction of Mount Camoscio.

Continuing to the north the summit of Mount Massone links orographicly the catchments of Toce River and Lake Maggiore. It marks the right orographic slope of the Lower Ossola, in front of the long and tormented chain of the Corni di Nibbio that constitutes the opposite side.

Monte Massone is wholly situated within the unit known as "Zona Ivrea Verbano", a sedimentary volcano sequence of varisic age (estimated between 273 and 296 million years ago), belonging to the Sudalpine bedrock considered, from the paleogeographic point of view, as a fragment of the Paleo-African continent, lithologically constituted by highly metamorphic paragneiss associations, with a glossy texture that emerges with a brownish-violet color (Kinzigitica Unit), anfibolite of gray-greenish color (mainly along the Rio Val Buona and the Punta Fenore), limestone marbles (between Ornavasso and Boden), peridotites (emerging along the ridge between Poggio Croce and Monte Cerano).

Preglacial morphology is evident In the Val Grande area, which occupies an important part of the Piedmontese reliefs covered in the reserve, in particular in the gorges that characterize the majority of the streams.

In paleogeographical terms the area falls within the aforementioned Sudalpine domain; in this area, there are several geological units alternating northwest to southeast, in a transverse position to an ideal line drawn from the San Bernardino natural hydrographic basin and are interfaced with a tectonic discontinuity constituted by the Pogallo line with the Ivrea Verbano Area to the north and the lakes to the South.

Their diverse inclinations, distributions, and lithological discontinuities correspond to orography, valley trails, and exposed stretches that distinguish different forms of landscape.

Various glaciations of the Quaternary Era have shaped the paddles at a modest altitude, while morainic and alluvial deposits have given rise to terraces, occupied subsequently by villages and pasture. The most characteristic mountains of the Val Grande, such as Pedum, Proman, Corni di Nibbio, Cima Sasso and Cima della Laurasca, are made of very dark rocks (amphibolites, serpentinites, peridotites), green or blackish, with high specific weight, extremely tough and resistant to weathering. This area is also part of the "Ivrea-Verbano Zone", a portion of deep continental crust rising from the transition zone with the Earth Mantle (then from a depth of about 35-50 km). The geological history of the Park is also closely linked to that of the exploitation of the Pink Marble Cave of Candoglia, used since the end of the 14th century for the construction of the Milan Cathedral.

The territory of the Park and the surrounding areas toward Valsesia and the Canton Ticino are therefore included in an area of extraordinary geological interest, mainly centred on the "Ivrea Verbano complex", one of the most famous deep crust portions on a global scale.

These special features and the region's geological uniqueness have led to these territories becoming part of the UNESCO Global Geopark Network, as the Sesia-Val Grande Geopark in 2013.

The soils are for the most part young or undeveloped soils with medium or steep slopes, often subject to erosive phenomena (mountain inceptisols or entisols) or in flatter areas or near water coruses (plain inceptisols or entisols) and locally deeper soils on slight slopes, within the Alpine, pre-alpine and morainic reliefs that overlook the plain (mountain alfisols).

From the geomorphologic point of view, the western coast of the lake, the extreme northern part of the Reserve, begins to lose its softness, beconing increasingly harsh. The highest peaks dominate the lake, which gradually narrows, locked in between high shores.

In the background is first of all the geostructural configuration, which is again to be attributed to the paleogeographic pattern of the Sudalpine domain. The area of interest, between the summits of Sasso Corbé (m 1066) and Monte Cargiago (m 712) to the south, and that of the watershed line with the val Cannobina to the north, falls in particular in the metamorphic structures that make up the complex known as the "Lakes Series", divided into two sub units, the "Scisti dei Laghi" and the "Zona Strona Ceneri", separated from the Marginal Zone of Strona Ceneri made up of amphibolites and amphibious paragneiss; the entire field is then crossed by bodies of orthogneiss of variable form, extension and composition. In general, the slopes formed by micaschists are rounded, because they were almost all, except those over 1,200-1,300 metres, covered and then modeled by the quaternary glaciers of the Ticino.

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The result is that the morphology of the territory shows a clear structural and lithological control visible in the clear increase in slope between the lake schists and the orthogneiss that leads to a dual landscape configuration. On the one hand is the orographic shape and lithological nature of the lake shore, the subdiffuse rocks that characterize many of the peaks and ridges; on the other is the great landscape effect given instead by the quaternary glacial action, which through various stages of expansion and retreat of the glacial masses has contributed enormously to the morphological modeling of the territory.

The effects of glacial action can be traced mainly to the deposits scattered in the large basin of Trarego-Viggiona, at the head of the Cannero stream valley and along the watershed with the Cannobina valley, in the flat land between Premeno and Pollino where there is also an intramuralenic pond, the "Laghetto delle Streghe" below Mount Cargiago. The quaternary morphogenetic action is still visible in the stepping morphology, most notably in the orthogneiss portions, where there are small and medium terraces (such as those on which the majority of the villages are built where residual agro-pastoral activities are still carried out), of modest altitude delimited by the simultaneous formation of lateral morenic deposits, of certain pre-quaternary (Messinian) preglacial characteristics.

The structural features and the appearance of the southeastern coast of Lake Maggiore and its immediate hinterland are quite different for orography, altitude and conformation to the rest of the western territory of the Reserve. It is in fact the scale of the geological time to connote the low reliefs of the western Lombardy Precipices that emerge within a more gentle hilly landscape, mostly morenic, scattered with small lakes and recognizable orographic specificities.

In the hilly landscape modeled mainly through glacial forms from the quaternary age, there are some reliefs whose orogenesis dates to older geological eras, characterized not so much for altitudes, as for the lithological nature of the materials and for their orographic configuration. Examples of these orographic specificities are the dorsal elongated in the east-west direction of the Campo dei Fiori mountain (1,226 m) and the cliff where the Rocca di Angera (410 m) rises, respectively at the northern and southern extremities of this expansion area of the MAB Reserve.

The scale of the geological time of this pre-Alpine sector dates from the Permian (about 260 million years ago) when, as a result of imposing volcanic phenomena, porphyrites and tuff were formed, which we find in the summit of the San Quirico hill, south of Ranco, and in Mount Martica, northeast of Campo dei Fiori. The impressive rock formations of Campo dei Fiori massif, formed from successive sedimentary marine deposits, originated during the alpine orogenesis

(Mesozoic Era, 140 million years ago), as did the other carbonate rocks that characterize the sites of Santa Caterina del Sasso (dolomite in Conchodon), and those of Ispra, Angera and San Clemente (Main Dolomite unit). In fact, with the process that leaded to the emergence of the Alpine chain, about 90 million years ago, the sediments that had settled on the bottom of the sea were folded and crushed, flowed over one other and began to rise, forming the Campo dei Fiori and the Prealps.

The sedimentary origin of the Campo dei Fiori formations is highlighted by the abundance of marine fossils present in the rocks, as well as the development of karstic phenomena both on the surface (valleys, sloping fields, etc.) and underground in the limestone.

Up to five million years ago the sea still occupied the whole Po plain, and in this part of the territory the coastline was located just south of Lake Varese; the rivers then began to draw the current morphology of the landscape, and with the beginning of the Quaternary, about 1.6 million years ago, there was an increase of the climatic oscillations that leaded to the development of the Alpine glaciers down to the plain where they left the debris that had eroded and carried along their path from St. Gotthard and St. Bernardino Massifs.

From these carbonated orographic "hubs" and the hilly landscape arose the morenic morphology that assumes a precise individuality of form and structure with the set of lakes - the lower part of Lake Maggiore and the lakes of Varese, Biandronno, Comabbio and Monate - that constitute the dominant natural element of the landscape of the Insubric region.



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Fig. 23 Calcareous rocks in Parco Campo dei Fiori

In the carbonate massif of Campo dei Fiori, which represents a fold of sedimentary rocks of marine origin, following the erosive work of water, the effects of karstism can be observed; this phenomenon is an element of undoubted interest, because particular habitat types are related to its presence, both on the surface, with grooved and dolomitic fields, and below ground, with several caves (130 caves, for a total development of over 30 km). The limestone substrate, besides the already mentioned karst phenomenon, influences the vegetation, guaranteeing the presence of rare and particular plant and animal species, typical of Lombardy limestone reliefs within the protected areas of Campo dei Fiori.

Morphologically articulated, the system of Valtravaglia and Tresa valleys and Castelveccana and Brezzo of Bedero hills that was created through the quaternary deposits settled by numerous villages, isolated monuments and rural nuclei, isolates the major mountains and, sufficiently detached from the highest alpine chain, enlivens the landscape with changining and diversified views within a relatively restricted area and connated by the panormas of the Padana Plain and the entire southern Alpine arc.

Further north, the long and dorsal mountain chain that from Monte Lema reaches Monte Tamaro, rising from the 1550 meters of the former to the almost 1961 meters of the latter, is surrounded by the Veddasca valley with the depths of the canyon of the Giona stream and with the villages where time seems have stopped. There is a clear antinomy and at the same time a sort of complementarity between this part of the territory between and the most disturbed coast between Luino and Maccagno and the Ticino Gambarogno region.

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These different geographic characters also correspond to the geostructured ones, as along a line passing through the outlet of the Valcuvia valley in Luino we found the discontinuity between pre-permalite crystalline base and Jurassic, Cretaceous and Triassic sedimentary rocks that connotate differently lithologies and landscapes of the two areas. While in fact the former corresponds to features of compact rocks of the gneiss of the Lakes Series, the latter mainly belong to limestones and dolomites that characterize the landscape of the Lombardy shore such as Rocca di Caldé, the Pizzoni di Laveno and the promontories of Ispra and Angera. The "Serie dei Laghi", the lower basement of the geostructured structure, located along the Veddasca valley, is predominantly constituted by granite gneisses, and frequently covered by substantial morainic deposits. There are also numerous traces left by Quaternary glaciations: valleys of glacial origin, fluvio-glacial terraces in Val Veddasca, the rounded summits of relief features (Forcora, Monte Sirti, Paglione, Monte Borgna, Monte Lema), the presence of erratic boulders and the morainic groove of Lake Delio.

Finally, there is a significant morphological feature that characterizes the east coast, north of Laveno: the sudden slope that from the 326 meters of the promontory that closes to the south the Laveno Gulf reaches the 1,062 and 1,034 meters of the Sasso del Ferro and the Pizzoni di Laveno, respectively. This leap gives rise to a sudden mountain connotation of the lake coast, that to the south is characterized by a gentle hilly profile never more than a few hundred metres high.

The structural features of the area permit recognition of some of the most important tectonic elements, with the most significant rock formations set along the Pizzoni di Laveno and the Val Cuvia syncline, consisting of a limestone-dolomitic mesozoic sedimentary sediment (225 - 65 million years) stretching eastwards from the shores of Lake Maggiore between Porto Valtravaglia and Arolo, and representing the same geological structure of the Valcuvia, and of the mountain ranges up to Campo dei Fiori.

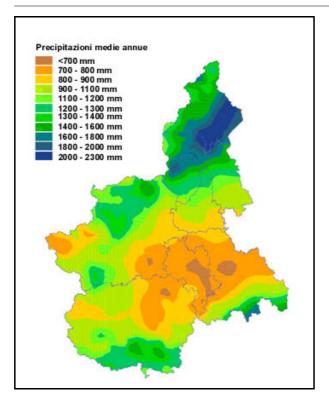
11.5.Bioclimatic zone:

The Candidate Biosphere Reserve falls within the humid-subhumid and perhumid areas.

		Aridity index			- <i>"</i>	
Areas	Average annual rainfall/mm	Penman	(UNEP index)	Core a rea (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	х	х	х
Per-humid	P>1200	>0.90		х	х	х

Tab. 5Aridity index resulting from the use of P/ETP

Mean annual precipitation (P)/mean annual potential evapotranspiration (ETP)



11.6.Biological characteristics:

The principal types of land cover (taken from the Goeportale Nazionale Land Use, Corine Land Cover vectorial data 2012) is reported in the following table referring to Level I.

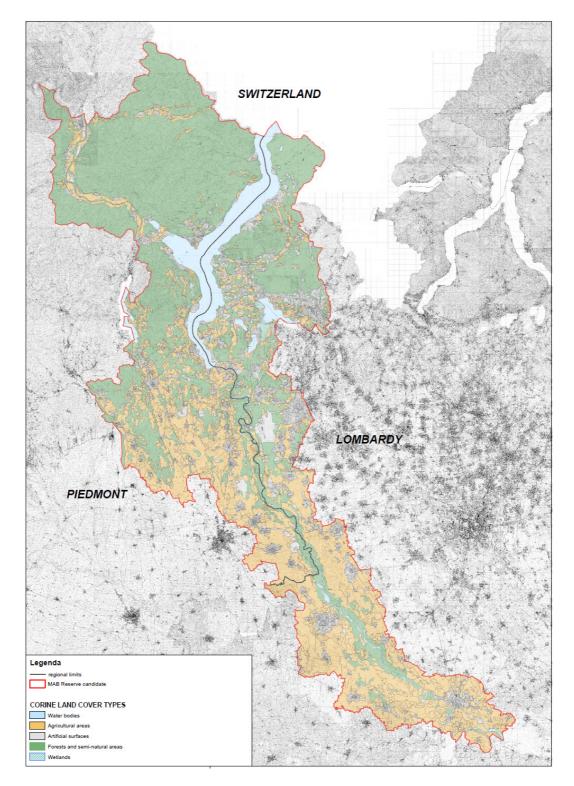
Tab. 6	Tipologie di copertura del suolo
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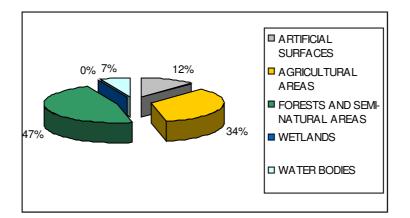
CORINE Land Cover	surface (ha)	percentage
Artificial Surfaces	40,299	12.1%
Agricutural areas	114,483	34.5%
Forests and semi-natural areas	154,887	46.6%
Wetland	524	0.2%
Water bodies	21,970	6.6%
Total	332,163	

It can be noted that the prevailing land cover is "Forests and semi-natural areas", followed by "Agricultural Areas", representing 81% of the total surface of the reserve.

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Fig. 24 Land cover types





With regard to the habitats of Community Importance as defined by Directive 92/43/CEE, their number is very high (42), confirming the high biodiversitiy of the areas that include habitats in a wide altitude range.

The following table lists the habitats included in the Biosphere Reserve.

CODE	NAME
2330	Inland dunes with open Corynephorus and Agrostis grasslands
3110	Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>)
	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae
3130	and/or of the Isoëto-Nanojuncetea
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.
3150	Natural euthrophic lakes with Magnopotamion or Hydrocharition-type vegetation
3160	Natural dystrophic lakes and ponds
3240	Alpine rivers and their ligneous vegetation with Salix eleagnos
	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-
3260	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
4070*	Bushes with Pinus mugo and Rhododendron hirsutum (Mugo-Rhododendretum hirsuti)
6150	Siliceous alpine and boreal grasslands
	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-
6210	Brometalia)
	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-
6210*	Brometalia) (*important orchid sites)
	Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and submountain
6230*	areas, in Continental Europe)
6410	Molinia meadows on calcareous, 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
7150	Depressions on peat substrates of the Rhynchosporion
7210*	Calcareous fens with Cladium mariscus and species of the Caricion davallianae
7220*	Petrifyingsprings with tufa formation (Cratoneurion)
7230	Alkaline fens
	Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsetalia
8110	ladani)
8210	Calcareous rocky slopes with chasmophytic vegetation
8220	Siliceous rocky slopes with chasmophytic vegetation
0000	Siliceous rock with pioneer vegetation of the Sedo-Scleranthion or of the Sedo albi-Veronicion
8230	dillenii
8310	Caves not open to the public
9110	Luzulo-Fagetum beech forests
9130	Asperulo-Fagetum beech forests
9160	Sub-Atlantic and medio-European oak or oakhornbeam forests of the <i>Carpinion betuli</i>
9180*	Tilio-Acerion forests of slopes, screes and ravines
9190	Old acidophilous oak woods with Quercus robur on sandy plains

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91AA*	Eastern white oak woods
	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae,
91E0*	Salicion albae)
	Riparian mixed forests of Quercus robur, Ulmus laevis and Ulmus minor, Fraxinus excelsior or
91F0	Fraxinus angustifolia, along the great rivers (UImenion minoris)
9260	Castanea sativa woods
92A0	Salix alba and Populus alba galleries
9410	Acidophilous Picea forests of the montane to alpine levels (Vaccinio-Piceetea)
9420	Alpine Larix decidua and/or Pinus cembra forests

MACROCATEGORY OF REFERENCE
Inland dunes, old and decalcified
Standing water
Running water - Sections of water courses with natural or semi-natural dynamics (minor,
average and major beds) where the water quality shows no significant deterioration
Temperate heath and scrub
Natural and semi-natural grass land formations
Se mi-na tural dry grasslands and scrubland facies
Semi-natural tall-herb humid meadows
Mesophile grasslands
Sphagnum acid bogs
Calca reous fens
Scree
Rockyslopes with chasmophytic vegetation
Other rocky habitats
Forests of temperate Europe
Mediterranean deciduous forests
Temperate mountainous coniferous forests

Brief general description of the Priority Habitats taken from the Italian Manual for the Interpretation of the Directive 92/43/CEE

4070* Bushes with *Pinus mugo* and *Rhododendron hirsutum* (*Mugo-Rhododendretum hirsuti*)

Thick, prostrate or ascending shrubs, 2-3 (5) m high, where the dominant species is *Pinus mugo* (*P. mugo subsp. mugo*), whose growth gives rise to monoplane formations with reduced undergrowth consisting of low Ericaceae shrubs (*Rhododendron spp.* Dwarf rhododendron, heather) and few herbaceous species.

They are generally characterized by a low internal dynamism, which affects the herbaceous layer rather than the shrubs. Increasing humus on the surface favours the invasion of herbaceous acidophilous species.

6210* Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important orchid sites)

Perennial polyspecific meadows with dominant hemycryptophytic gramineae, generally secondary, from arid to semi-mesophilous, included in the *Festuco-Brometea* class, sometimes rich in Orchids species and, in this case, considered as priority habitat (*).

The grasslands of the Habitat 6210, except for some sporadic cases, are typically secondary habitats, whose maintenance is due to livestock grazing, guaranteed by the persistence of traditional agro-pastoral activities. In the absence of such a management system, the natural dynamic processes of vegetation favor the invasion of grassy and shrubby species.

6230* Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe)

Mesophilic, perennial meadows, with dominant or prevailing *Nardus stricta*, located in flat or slightly sloping areas, from highlands to subalpine hills, in the Alps and the Appennines, developed on acidic soils, derived from silicic bedrocks, or even carbonate, but in this case affected by leaching. In the Alps and in the northern Apennines, *Nardus* communities represent aspects of the replacement of beech trees on silica soils. In the absence of agri-pastoral interventions, the *Nardus* grassland are destined to be invaded by shrubs and trees.



Fig. 25 Arnica montana, species of Nardus grasslands

7210* Calcareous fens with Cladium mariscus and species of the Caricion davallianae

Emerging formations dominated by *Cladium mariscus*, with predominant distribution in the Temperate Bioclimatic Region but also present in the territories of Mediterranean Bioclimate, generally developed along the banks of lakes and shrubs, often in contact with the vegetation of alliances *Caricion davallianae* or *Phragmition*.

7220* Petrifying springs with tufa formation (Cratoneurion)

Community dominated by bryophytes, that develop near sources and dripping walls and give rise to the formation of travertines or tuffs for deposition of

calcium carbonate on the fronds. They are therefore a very hygro-hydrophilic plant formations, attributed to the *Cratoneurion communion* alliance, preferring walls, cliffs, walls normally in shadow, predominantly calcareous, but which can also develop on vulcanites, shingles, tuffs and so on. This vegetation, which is widely spread in southern Europe, is made up of different associations which in Italy exhibit a considerable variability, depending on the latitude of the stations. Considered as durable communities, they are, however, affected by seasonal water variations.

9180* Tilio-Acerion forests of slopes, screes and ravines

Mixed woods of mesophilous fallow trees that develop along streams and in wet canyons with abundant surface rockiness and sometimes with abundant mosses, in the supratemperate bioclimatic plane and sometimes in the mesotemperated one. Frequent along the alpine slopes, especially external and prealpine. This habitat occupies sites with peculiar morphology and microclimate; therefore it does not have known replacement communities.

91AA* Eastern white oak woods

Mediterranean and sub-Mediterranean Adriatic and Tyrrhenian forests (area of *Carpinion orientalis* and *Teucrio siculi-Quercion cerris*) with dominance of *Quercus virgiliana*, *Q. dalechampii*, *Q. pubescens* and *Fraxinus ornus*, indifferent edaphic, thermophilic and often in xerofilic position typical of the Italian peninsula, but with affinity with the Balkanic ones, with prevalent distribution in coastal areas, subcostals and preappenins. The habitat is distributed throughout the Italian peninsula, from the northern to the southern regions.

91E0* Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)

Alluvial, riparian and marshy forests of *Alnus spp., Fraxinus excelsior* and *Salix spp.* present along the rivers and streams both in mountainous and hilltop areas as well as on the plain or on the banks of lakes and in areas with water stagnations not necessarily linked to river dynamics. They develop on flooded soils or where water table is close to the superface, predominantly in temperate macrobioclimate but also penetrating into the Mediterranean where soil moisture allows them to develop. The riparian and the swampy forests are by their very nature longitudinal and long lasting formations being conditioned by the level of the water table and the cyclical episodes of drying and floods. They are generally stable, unless the hydrological conditions of the stations on which they develop changes.



Brief description of the habits of community interest, taken from the Italian Manual for the Interpretation of Directive 92/43/CEE 92/43/CEE.

2330: Inland dunes with open Corynephorus and Agrostis grasslands

Lichen-rich dry acidophilic meadows on fluvial or glacial sandy deposits and / or deposits of the Western Padana Plain. It is a habitat with very localized distribution, present in a limited number of stations.

3110: Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*)

Perennial, aquatic or amphibian vegetation, of small size, referring to the *Littorelletalia uniflorae*, in the littoral area of shallow lakes and ponds with shallow, oligotrophic, poorly mineralized and poor in base cations, mainly linked to sandy plains, typical of the Supra- and Orotemperate bioclimatic Plans.

The vegetation types referring to the Habitat 3110 must be interpreted as biocenosis with blocked dynamism, which, in the absence of perturbations or habitat modifications, tend not to present substitution stages.

3130: Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*

Vegetation consisting of small-scale amphibian communities, perennial (referring to the *Littorelletalia uniflorae*) and annual pioneers (referring to the *Nanocyperetalia fusci* order), the coastline of lakes and ponds with stagnant water, oligotrophic mesotrophs, on substrates poor in nutrients, of Meso-, Supra-, and Oro-Temperate bioclimatic planes (also with the Sub-Mediterranean

Variance), with predominantly northern distribution; the two types can also be present individually. The pioneering annual aspects can also develop in the Mediterranean Macrobioclimate.

3140: Hard oligo-mesotrophic waters with benthic vegetation of *Chara spp.*

This habitat includes freshwater areas of various sizes and depths, large and small lakes, permanent or temporary, in the plain and in the mountain, where the Carophytes are exclusive populations, rarely blended with phanerogams. Waters are generally oligo-mesotrophic, calcareous, poor in phosphates (to which the Carophytes are generally very sensitive). Caropjytes tend to form dense grasslands on the shores as deep, larger species occupying the deeper parts and the smaller the border toward the shores.

These are communities with remarkable stability in medium to long periods. Dynamics are often affected by the variation in the nutrient content of the waters (triggering of eutrophication, development of communities of aquatic macrophytes and most tolerant marshes and / or microalgae) or the invasion of the surrounding hydrophilic / elophitic vegetation. This dynamic does not seem to be conditioned by the existence of limited periods of seasonal drainage of the affected water bodies.

3150: Natural euthrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation

Habitat of lakes, marshes and eutrophic stagnant water rich in bases with a freshwater submerged, rooting or floating vegetation, which relates to *Lemnetea* and *Potametea* classes. In principle, they are not subject to dynamic succession phenomena unless the environmental conditions and the water regime are altered. A strong threat to these freshwater ecosystems is represented by sediment accumulation on the seabed (or artificial alteration of the water regime), which, if marked, can cause irreversible alteration of the habitat and the establishment of other vegetation types.

3160: Natural dystrophic lakes and ponds

Naturally distrophic lakes and ponds with acidic waters, often brown for the presence of peat or humic acids, usually on peat substrates, predominantly of the Supra- and Oro-Temperate Bioclimatic Plans, with hydrohilic vegetation, poor in species, referable to the *Utricularietalia intermediate-minoris* order. They develop mainly in peat landscapes, in more or less large but generally shallow ponds, in mosaic with phytocenoses referring to the Habitat of Group 71 (Sphagnum acid bogs) for the typologies present in Italy, with which they set up cascading contacts. After land filling, this habitat can be replaced by communities of *Rhynchosporion* (Habitat 7150) and *Caricion lasiocarpae* (Habitat 7140) alliances.

Pioneer trees and shrubs of pebbly river bank that develop on rivers with significant variations in level during the year. These pioneering willows with several entities, among which *Salix eleagnos* is considered the indicator species, are always prevalent on other tree species that settle in more mature phases. Among shrubs, the sea buckthorn (*Hippophae rhamnoides*) is the most characteristic indicator of this habitat. The herbaceous layer is often poorly represented and rarely significant. These formations have the ability to withstand both periods of flooding and drought phenomena.

7

The bank willows are able to colonize the bare peat of the high and middle course of the rivers and to stabilize them; the ripening willow is in fact a primitive stage but long lasting, being conditioned by the occurrence of alluvial events delaying the establishment of a more mature hygrophilous forest.

3260 : Water courses of plain to mountain levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation

This habitat includes water courses, from the plains to the mountain range, characterized by perennial herbaceous vegetation, poor in species, formed by aquatic macrophytes, predominantly with underwater development and generally emerging flowers of the *Ranunculion fluitantis* and *Callitricho-Batrachion* and aquatic mosses. It is a habitat of high naturalistic value and high vulnerability.

The availability of light is a critical factor, and therefore this vegetation does not fit in watercourses shaded by external vegetation and where water transparency is affected by mineral turbidity. This vegetation is stable: if the hydrological regime of the water stream is constant, vegetation is controlled in its expansion and evolution from the action of the current itself.

3270: Rivers with muddy banks with Chenopodion rubri p.p. and Bidention p.p. vegetation

Plant communities that grow on muddy banks, periodically flooded and rich in nitrates of plain and submontane rivers, characterized by yearly pioneer nitrophile vegetation *Chenopodion rubri p.p.* and *Bidention p.p.*.. The substrate consists of sand, lime, or clay, also framed by a gravel skeleton. In the spring and early summer, these environments, long flooded, appear to be muddy, without vegetation, as this develops, if conditions are favorable, in the late summer-autumn period. These sites are subject to spatial changes caused by periodic floods over the years. This habitat includes the typical pioneering communities that are constantly re-emerging at the appropriate season, favored by great seed production.

4030: European dry heaths

Acidophilous shrub vegetation of small height, generally dominated by *Calluna vulgaris* (heath), often rich in genera *Vaccinium, Genista, Erica* and / or *Ulex europaeus*, present in the Padana Plain and in the central-northern regions of the western side of the Peninsula, from the plain to the mountains. It is a vegetation typical of areas with oceanic climatic conditions, i.e. with high precipitation and high atmospheric humidity.



Fig. 27 Heat in Ticino Valley

In Italy, in addition to certain subtypes indicated in the European Manual, this habitat also include heath formations of *Calluna vulgaris* dominated by one or more other shrub species such as *Cytisus scoparius, Ulex europaeus, Erica arborea* and / or *E. scoparia*, where it may be frequent the presence of *Pteridium aquilinum*. Generally, they are moorings connected to the lips and cloaks of several types of acidic woods and are often forms of degradation of these forests or recolonization of abandoned pastures. The recovery of the forest furtherly reduces the already unusual low diversity of these formations. Apart some special cases, the moorings evolve more or less rapidly to forest communities, conserving themselves only by the periodic passage of fire or pasture.

4060: Alpine and Boreal heaths

Shrubs of small height, dwarf or dwarf shrubs of alpine, subalpine and mountain ranges of the Eurasian mountain ranges, dominated in particular by Ericaceae and / or Juniper. In Italy, it is present in the Alps and Apennines. It usually develops in the altitude range between the forest boundary and the primary altitude grasslands, but in special situations it is also found at lower altitudes.



This habitat is certainly one of the most popular and well-represented in the Alps, since it includes both acidophilic *Rhodoro-vaccinietum* (*Rhododendron ferrugineum*, *Vaccinium sp.*) and basophils *Rhodoretum* (*Rhododendron hirsutum*, *Rhodothamnus chamaecistus*), carpets of dwarf azalea (*Loiseleuria procumbens*), *Juniper* formations (*Juniperus communis subsp. alpina*), stem-type broom (*Genista radiata*), beerberries (Arctostaphylos uva-ursi) on windy ridges and, finally, mountain avens (Dryas octopetala). They play an essential role in both the footprint that gives the plant landscape and the role of soil and slope protection. This habitat was heavily contracted to favor grazing, resulting in grasslands that, if abandoned, evolve spontaneously, albeit at variable speeds, towards forest.

6150: Siliceous alpine and boreal grasslands Formazioni erbose boreo-alpine silicicole

Acidophilic, sometimes discontinuous Alpine grassslands, located at high altitude and / or where snow lasts for a long period, developed on silicic or decalcified soils. They include formation dominated by *Carex curvula*, *Festuca*, *Nardus stricta* or *Salix herbacea*. This high-altitude grasslands, above the tree line, are considered climatogenic. In fact, the effects of pasture, both traditional bovine and ovine, as well as that of wild ungulates, or the presence of massive populations of marmots, determine changes in the original floristic component. This dynamic process is determined both by the progressive reduction of the grazing load and by the present climate change, with the possibility of evolution towards shrubbery.

6410: *Molinia* meadows on calcareous, peaty or clayey-siltladen soils (*Molinion caeruleae*)

Meadows poor in nutrients, with mowed or grazed, spread from the valleys to the upper bend, but below the treeline, characterized by the prevalence of *Molinia caerulea*, on peaty or clayey-siltladen soils, at constant humidity or even with significant seasonal variations, both from carbonate and siliceous substrates.

Meadows at *Molinia caerulea* in the absence of mowing, evolve in short times in woody communities.

6430: Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels

Community of tall hygrophilous and nitrophilous herbs with large leaves, mainly developing on the margins of watercourses and hygro-mesophilic forests, distributed from the valleys to the mountain range. In principle, they can result from the abandonment of mowed meadows, but are often the natural communities of wood borders or, at higher altitudes, are not related to the tree dynamics.

6510: Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)

Meadows with middle or high nutrient content, regularly mowed and fertilized in a non-intensive way, rich in species, distributed from the plains to the lower mountain range, referring to the *Arrhenatherion* alliance. They also include meadow and pastures with similar floristic composition. These are types of vegetation that can only be maintained through mowing as the potential vegetation is represented by tree formations. Fertilization is also important, as in its absence, while ensuring regular mowing, other types of prairie would develop, depending on the characteristics of different sites.



Fig. 29 Praterie magre da fieno nel SCI e SPA Greto del Toce



6520: Mountain hay meadows

Mesophilic meadows, more or less rich in nutrients, in the mountain and subalpine ranges, rich in species. Normally mowed, but sometimes even grazed in a non-intensive manner. *Poo-Trisetetalia* elements are prevalent, to which *Nardetalia, Seslerietalia* and / or *Festuco-Brometea* elements are sometimes associated. These are communities determined by anthropic use. Potential vegetation, both in the mountain range and in the subalpine area, is always represented by tree formation.

7140: Transition mires and quaking bogs

Plant communities that form peaty deposits and floating carpets in oligotrophic or mesotrophic waters, in which the ombrotrophic and minerotrophic components of the water table are mixed as the colonized surfaces are predominantly flat or wavy, rich in small depressions, with a variable degree of humidity. The vegetation is represented by dense assemblages of peat mosses (*Sphagnum*) and other briophytes, accompanied by more or less abundant vegetation of the *Rynchosporion* and *Caricion lasiocarpae* alliances. The habitat is predominantly distributed over the Alps.

7150: Depressions on peat substrates of the *Rhynchosporion*

Pioneer communities with *Rhynchospora alba, R. fusca, Drosera intermedia, D. rotundifolia,* and *Lycopodiella inundata* developed in the depressions on peaty or sandy substrate, in the presence of oligotrophic waters, referring to the *Rhynchosporion* alliance.

Interference phenomena can lead to invasion by the vegetation of the *Caricetalia davalianae* or the large censorships of the *Magnocaricion elatae* alliance.

7230: Alkaline fens

Low alkaline basins linked to wetland systems, wholly or mostly occupied by peaty communities dominated by small calciphilous *Carex* and brown mosses. They develop on permanently flooded by calcareous waters, rich in bases, with water table close to the surface (peat formation generally occurs in water). These are habitats typical of the Temperate Macrobioclima, found in Northern Italy, both in the Alps and in the Alpine foothills as the remains of an ancient periglacial vegetation. Neutral-alkaline fens communities are themselves perpetual or, to the limit, they can be invaded by shrubs

8110: Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsetalia ladani)

Comunità dei detriti silicei, dalla fascia montana al limite delle nevi (Androsacetalia alpinae).

Le comunità dei detriti sono stadi pionieri e spesso lungamente durevoli, nel caso

che l'attività crioclastica non subisca sensibili riduzioni o che intervengano fattori che modificano la morfologia dei siti.

8210: Calcareous rocky slopes with chasmophytic vegetation

Casmophytic communities of carbonate rocks, from the sea level in the Mediterranean to the cacuminal regions in the Alps. They are pioneering communities, but they have very little probability to evolve.

8220: Siliceous rocky slopes with chasmophytic vegetation

Casmophytic communities of silicic rocks poor in carbonates, from the plain, in the Mediterranean regions, to the highest altitudes in the Alps. Silicic rock fissures communities are by their very nature quite stable and with little prospective evolution.

8230: Siliceous rock with pioneer vegetation of the Sedo-Scleranthion or of the Sedo albi-Veronicion dillenii

Pioneering communities of *Sedo-Scleranthion* o *Arabidopsidion thalianae* (= *Sedo albi-Veronicion dillenii*), frequently rich in mosses and/or lichens, on sery thin soils on weathering silicic (*Rhizocarpetea geographici*).

They are very affected by weather, mainly by wind, so taht they difficultly evolve towards slightly deeper soils allowing herbs or shrubs to grow.

8310: Caves not open to the public

Caves not open to the public, including underground wtaer bodies, hosting very specialized and rare, frequently endemic, species. This habitat is very important for the preservation of some species listed in Annex II, such as bats and amphibians.

Photosynthethic plants, bryophytes and algae are only found at the cave mouth,

9110: Luzulo-Fagetum beech forests

Beech woodlands, sometimes inclusing other broadleaved of coniferous trees, on silicic or carbonate-poor soils, oligotrophic or oligo-mesotrophic, in the submontain or mountain range. They are the climax formation of their climatic range.

Fig. 30 Beech forest



9130: Asperulo-Fagetum beech forests

Beach woodlans, sometims including spruce or firs (these latter species may sometimes prevail), in the submuntain of mountain ranges, on neutral soils, meso-eutrophic with rich herbaceous communities.

They represent the climax formation and are very stable, but in the mountain range they are affected by secular cycles leading to conferous woodlands. Firs are prevalent in areas more affected by oceanic air masses, and it almost disapper in the more continental valleys.

9160: Sub-Atlantic and medio-European oak or oak-hornbeam forests of the *Carpinion betuli*

Oak forest of the western and central part of the Po Plain and of the lower part of the surrouning hills, developed on hydromorphic soils rich in silt and clay. The more characteristic species is the peduncolate oak (*Quercus robur*), esometimes together with the sessile oak (*Quercus petraea*), with large abundance of common hornbeam (*Carpinus betulus*) and many early-flowering herbs. They are

This habitat represents a late stage in wood succession.

9190: Old acidophilous oak woods with Quercus robur on sandy plains

Acidophilous woodland in the temperate-continental cliamteic area, dominated by peduncolate oak (*Quercus robur*) and birch (*Betula pendula*), with some sessile oak (*Quercus petraea*) on fluvio-glacial terraces dating back to Mindel glacial period, included between the prealpine morrains and the Po plain, on acidic soils poor in nutrients. Soil acidification is due to high rainfall and human activities leading to base leaching. In Italy, they are found in the Piedmont and Lombardy regions. 91F0: Riparian mixed forests of *Quercus robur*, *Ulmus laevis* and *Ulmus minor*, *Fraxinus excelsior* or *Fraxinus angustifolia*, along the great rivers (*Ulmenion minoris*)

Alluvial and riparian meso-hygrophilous mixed forests that develop along the banks of the large rivers in the mid-hilly and final stretches. They can be flooded during the major floods. In some cases they may also develop in depressions not related to the rivers. They develop on silty of fine sandy substrates. For their water regime they are dependent on the level of the groundwater. They represent the outer boundary of the area of riverine pertinence. They are stable formations that can evolve from amphibious *Carex* formation by landfill.

9260: *Castanea sativa* woods

Acidic and oligotropical woods dominated by chestnut trees. This habitat includes the mixed woods with abundant chestnut trees and planted chestnuts (for fruit and/or wood production) with undergrowth characterized by a certain naturalness. Therefore, it does not include the productive fruit plantations current in mesotemperate bioclimatic plans (or even submediterranean) and supratemperated on neutral to acidic substrates (rich in silica and silicates).

They are found both along the Alpine and prealpine chains and along the Apennines.

92A0: Salix alba and Populus alba galleries

Riparian willow and poplar forests along the watercourses of the Mediterranean basin, attributable to *Populion albae* and *Salicion albae* alliances. They are common in both the mesomediterranean bioclimatic plan and in the thermo-Mediterranean plan as well as in the temperate macrobioclimate, in the sub-Mediterranean variant.

The riparian forests are by their nature longitudinal and long-lasting formations being conditioned by the level of the water table and the cyclical episodes of high and low water level. They are generally stable until there are changes in the hydrological conditions of the site on which they develop.

9410: Acidophilous *Picea* forests of the montane to alpine levels (*Vaccinio-Piceetea*)

Forests dominated by spruce (*Picea abies*), whether or not mixed with other conifers, on carbonate or silicate substrates. In the Alps they are found in the mountain and subalpine range, mostly in the Eastern part. They can also be found in other altitudinal ranges, in particular microclimatic or soil conditions.

In their altitudinal range, they are late formations in the forest succession, even when they are located on more primitive soils, having spruce a remarkable colonizing ability in the climatic districts where it is prevalent. 9420: Alpine Larix decidua and/or Pinus cembra forests

Foreste subalpine, o talvolta altimontane, con prevalenza di *Larix decidua* e/o *Pinus cembra*, costituenti formazioni pure o miste, talvolta associate con *Picea abies* o *Pinus uncinata*.

Subalpine or sometimes high elevation forests with prevalence of *Larix decidua* and / or *Pinus cembra*, constituting pure or mixed formations, sometimes associated with *Picea abies* or *Pinus uncinata*.

Larch forests can assume a durable character, especially in the eastern Alps where the competition with red fir is relevant. Apart from the influence of grazing and anthropic activities, natural phenomena also occur, linked to snow and input of detritus, which, favoring the rejuvenation of the soils, increase the competitiveness of the larch. The presence of the Arolla pine (*Pinus cembra*), in some districts hampered to favour grazing, corresponds to situations closer to the natural ones.

HABITAT	L/R		
2330	L	Specific characteristics	Corynephorus canescens, Teesdalia nudicaulis, Cladonia, Cetraria , Rumex acetosella, Filago minima
Inland dunes with open <i>Corynephorus</i> and <i>Agrostis</i> grasslands		Important natural processes	Succession with compositional changes Eutrophication
		Human impacts	Diffusion of invasice alien species
3110 Oligotrophic waters containing very few minerals of sandy plains	L	Specific chara cteristics	Littorella uniflora, Isoëtes lacustris, I. echinospora, Juncus bulbosus, Pilularia globulifera, Potamogeton polygonifolius
(Littorelletalia uniflorae)		Important natural processes	Shore erosion, eutrophication
		Human impacts	Shore modification Poaching
3130	L	Specific chara cteristics	Juncus bufonius, Cyperus fuscus, C. flavescens, C. michelianus; Eleocharis ovata, E. acicularis, Juncus tenageja
Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto- Nanojuncetea		Important natural processes Human impacts	Sediemntation Eutrophication Invasion by brodering vegetation Diffusione dispecie esotiche invasive
3140 Hard oligo-mesotrophic waters	L	Specific characteristics	Chara
with benthic vegetation of <i>Chara</i> spp.		Important natural processes	Eutrophication Invasion by brodering vegetation

Tab. 7For each habitat, regional or local (R/L) distribution, characxteristic species, main natural
processes and anthropic pressures.

		Human impacts	
3150 Natural euthrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> -type vegetation	L	Specific chara cteristics	Lemna spp., Spirodela spp., Wolffia spp., Hydrocharis morsus-ranae, Utricularia australis, U. vulgaris, Potamogeton lucens, P. praelongus, P. perfoliatus, Azolla spp., Riccia spp., Ricciocarpus spp., Aldrovanda vesiculosa, Stratiotes aloides, Salvinia natans, Potamogeton alpinus, P. berchtoldii, P. coloratus, P. crispus, P. filiformis, P. gramineus, P. natans, P. nodosus, P. pectinatus, P. pusillus, P. trichoides, Persicaria amphibia, Trapa natans, Nymphoides peltata, Nuphar lutea, Nymphaea alba, Ceratophyllum demersum, C. submersum, Myriophyllum spicatum, M. verticillatum, Najas marina, N. minor, Hippuris vulgaris, Hottonia palustris, Zallisneria spiralis, Zannichellia palustris, Z. obtusifolia.
		Important natural processes	Sediment accumulation, reed bed advance
		Human impacts	Modifications of water flux, pollution, reed bed firing, drying, diffusion of invasive alien species
3160	L	Specific characteristics	Utricularia spp., Rhynchospora alba, R. fusca, Sparganium minimum (= S. natans), Sphagnum spp.
Natural dystrophic lakes and ponds		Important natural processes	Sediment accumulation
		Human impacts	Drying by use of water resources
3240 Alpine rivers and their ligneous vegetation with <i>Salix eleagnos</i>	L	Specific characteristics	Salix eleagnos, Hippophaë rhamnoides, Salix purpurea, S. daphnoides, S. nigricans (= S. myrsinifolia), S. triandra, Calamagrostis epigejos, Stipa calamagrostis, Epilobium dodonaei, E. fleischeri, Scrophularia canina, S. juratensis, Saponaria officinalis, Calamagrostis pseudophragmites, Petasites paradoxus, Hieracium piloselloides, Alnus incana, Pinus sylvestris, Equisetum arvense e Agrostis stolonifera.
		Important natural processes	Natural succession
		Human impacts	Channel digging, diffusion of invasive alien species
3260	L	Specific characteristics	Ranunculus trichophyllus, R. fluitans, R. aquatilis, R. circinatus, Potamogeton spp., Myriophyllum spp., Callitriche spp., Isoëtes malinvemiana, Fontinalis antipyretica.
Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation		Important natural processes	Changes in water flux
		Human impacts	Pollution, diffusion of invasive alien species



3270 Rivers with muddy banks with <i>Chenopodion rubri</i> p.p. and	L	Specific characteristics	Chenopodium rubrum, C. botrys, C. album, Bidens frondosa, B. tripartita, Xanthium sp., Polygonum lapathifolium, P. persicaria, Persicaria dubia, Echinochloa crus-galli, Alopecurus aequalis, Lepidium virginicum, Alisma plantago-aquatica, Lycopus europaeus, Cyperus fuscus, C. glomeratus, C. flavescens, C. michelanius.
Bidention p.p. vegetation		Important natural processes	Natural succession
		Human impacts	Hydraulic alteration, diffusion of invasive alien species
	R	Specific characteristics	Calluna vulgaris, Vaccinium myrtillus, V. vitis-idaea, V. gaultherioides, G. germanica, Cytisus scoparius.
4030 European dry heaths		Important natural processes	Growth of bushes and trees
		Human impacts	Fire, diffusion of invasive alien species
			Grass cutting and grazing helps to avoid duccession toward forests
4060	R	Specific characteristics	Loiseleuria procumbens, Rhododendron ferrugineum, Empetrum hermaphroditum, Arctostaphylos alpina, A. uva-ursi, Vaccinium myrtillus, Vaccinium uliginosum, Genista radiata.
Alpine and Boreal heaths		Important natural processes	Plantation of Larix or Picea
		Human impacts	Grazing
4070* Bushes with Pinus mugo and Rhododendron hirsutum (Mugo- Rhododendretum hirsuti)	L	Specific characteristics	Pinus mugo, Arctostaphylos uva-ursi, Aster bellidiastrum, Calamagrostis varia, Campanula scheuchzeri, Daphne mezereum, Dryas octopetala, Epipactis atrorubens, Erica camea (= E. herbacea), Hippocrepis comosa, Juniperus communis subsp. alpina, Luzula sieberi, Polygala chamaebuxus, Rhododendron hirsutum, R. ferrugineum
		Important natural processes	-
		Human impacts	-



7

6150 Siliceous alpine and boreal grasslands	R	Specific characteristics	Agrostis agrostiflora (= A. schraderiana), A. rupestris, Ajuga pyramidalis, Alchemilla pentaphyllea, Anthoxanthum alpinum, Avenella flexuosa, Avenula versicolor, Campanula barbata, Cardamine alpina, C. curvula subsp. curvula, C. sempervirens, Centaurea nervosa, Cerastium cerastioides, Dianthus superbus subsp. alpestris, Euphrasia minima, Festuca halleri, F. nigricans, F. paniculata subsp. paniculata, F. scabriculmis, F. varia, Gentiana bavarica, G. brachyphylla, G. punctata, Gentianella ramosa, Geum montanum, Gnaphalium supinum, Hieracium alpinum, Hypericum richeri, Hypochoeris uniflora, Juncus jacquinii, J. trifidus, Laserpitium halleri, Leontodon helveticus, Ligusticum mutellina, L. mutellinoides, Luzula alpinopilosa, Nardus stricta, Pedicularis kemeri, P. tuberosa, Phyteuma globulariifolium, P. hemisphaericum, Plantago serpentina, Sibbaldia procumbens, Soldanella pusilla, Trifolium alpinum, Veronica alpina, V. bellidioides, Carex foetida, Silene nutans, Silene rupestris, Centaurea uniflora, Valeriana celtica subsp. celtica, Senecio halleri.
		Human impacts	Grazing helps avoiding bushes growth
6210(*) Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>)	R	Specific characteristics	Bromus erectus, Brachypodium rupestre, Anthyllis vulneraria, Carlina vulgaris, Centaurea scabiosa, Dianthus carthusianorum, Koeleria pyramidata, Leontodon hispidus, Primula veris, Sanguisorba minor, Scabiosa columbaria, Hippocrepis comosa; Anacamptis pyramidalis*, Dactylorhiza sambucina*, Ophrys spp.*
(*important orchid sites)		Important natural processes	Growth of bushes and trees
		Human impacts	Grass cutting and grazing helps to avoid duccession toward forests
6230* Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe)	R	Specific characteristics	Agrostis capillaris, Amica montana, Botrychium lunaria, Calluna vulgaris, Campanula barbata, C. pallescens, Danthonia decumbens, Deschampsia flexuosa, F. nigrescens, G. kochiana, Gnaphalium sylvaticum, Hieracium lactucella, H. pilosella, Homogyne alpina, Hypericum maculatum, Hypochoeris maculata, H. uniflora, Lathyrus montanus, Leontodon helveticus, Leucorchis albida, Luzula sp. pl., Nardus stricta, Platanthera bifolia, Polygala vulgaris, Potentilla aurea, P. erecta.

		Important natural processes	Growth of bushes and trees
		Human impacts	Rational grazing helps to maintain biodiversity and floristic richness
6410 <i>Molinia</i> meadows on calcareous, peaty or clayey-siltladen soils (<i>Molinion caeruleae</i>)	L	Specific chara cteristics	Allium angulosum, Betonica officinalis, Deschampsia caespitosa (segnala degradazione), Equisetum palustre, Gentiana pneumonanthe, Gladiolus palustris, Inula salicina, Juncus acutiflorus, J. articulatus, J. conglomeratus, J. effusus, J. filiformis, J. subnodulosus, Molinia caerulea, Phragmites australis, Potentilla erecta, Prunella vulgaris, Ranunculus acris, Sanguisorba officinalis
		Important natural processes	Growth of bushes and trees Lowering of water table
		Human impacts	Grass cutting and grazing helps to avoid duccession toward forests
6430	R	Specific characteristics	A. napellus, Geranium sylvaticum, Trollius europaeus, Adenostyles alliariae, Peucedanum ostruthium, Cicerbita alpina, Digitalis grandiflora, Calamagrostis arundinacea.
Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels		Important natural processes	-
		Human impacts	-
6510	R	Specific chara cteristics	Arrhenatherum elatius, Trisetum flavescens, Pimpinella major, Centaurea jacea, Crepis biennis, Knautia arvensis, Tragopogon pratensis, Daucus carota, Leucanthemum vulgare, Alopecurus pratensis, Sanguisorba officinalis, Leontodon hispidus.
Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)		Important natural processes	Growth of trees
		Human impacts	Spreading of invasive a line species Agriculture practices allow habitat conservation
6520 Mountain hay meadows	R	Specific chara cteristics	Trisetum flavescens, Heracleum sphondylium, Astrantia major, Bistorta major (Polygonum bistorta), Silene dioica, S. vulgaris, Salvia pratensis, Anthoxanthum odoratum, Crocus albiflorus, G. sylvaticum, Narcissus poeticus, Trollius europaeus, Pimpinella major, Chaerophyllum hirsutum, Alchemilla spp. .



		Important natural	Tree growth
		processes	iiee giowai
		Human impacts	Agriculture practices allow habitat
		numan impacts	conservation
	L	Specific characteristics	C. lasiocarpa, C. rostrata, Scheuchzeria palustris, Rhynchospora alba, Menyanthes trifoliata, Comarum palustre (=Potentilla palustris), Sphagnum sp., Eriophorum angustifolium, E. vaginatum, Drosera rotundifolia
7140		Important natural processes	Evoluzione towards more acidophilic communtiies
Transition mires and quaking			
bogs		Human impacts	Eutrofication, draining, poaching
	L	Specific characteristics	Rhynchospora alba, R. fusca, Drosera intermedia, D. rotundifolia, Lycopodiella inondata.
		Important natural	Filling
7150		processes	Invasion by Carex
Depressions on peat substrates of the <i>Rhynchosporion</i>		Human impacts	Eutrofication, draining, poaching
	L	Specific characteristics	Cladium mariscus
7210* Calcareous fens with Cladium		Important natural processes	Filling, invasion by hydrophilic trees and bushes
mariscus and species of the Caricion davallianae		Human impacts	eutrophication
	L	Specific characteristics	Cratoneuron sp.
	L	Specific characteristics	
7220*		Important natural processes	Pietrification
Petrifying springs with tufa formation (Cratoneurion)		Human impacts	
ionna don (elaconcarion)			
	L	Specific chara cteristics	Schoenus nigricans, Carex spp., Eriophorum latifolium, Campylium sp., Drepanocladus sp., Carex davalliana, C. flava, C. hostiana, C. panicea, Juncus subnodulosus, Tofieldia calyculata, Pamassia palustris, Dactylorhiza incamata, Epipactis palustris, Pinguicula vulgaris, Primula farinosa, Spiranthes aestivalis
		Important natural processes	Acidification and evolution towards <i>Caricetalia fuscae</i> or hygrophilic meadows or forests
7230			
Alkaline fens		Human impacts	Eutrofication, draining, poaching
8110 Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsetalia ladani)	R	Specific characteristics	Achillea nana, A. erba-rotta, Oxyria digyna, Geum reptans, Ranunculus glacialis,Poa laxa, Luzula alpinopilosa,Cryptogramma crispa,Rumex scutatus,Leucanthemopsis alpina, Sedum alpestre, S. anacampseros.

		Important natural processes	At lower altitude, evolution towards other forest types
		Human impacts	-
	R	Specific chara cteristics	Androsace elvetica, Asplenium ruta- muraria, Campanula Raineri, Draba tormentosa Festuca alpina, Kernera saxatilis, Minuartia rupestris, Physoplexis comosa, Potentilla caulescens, Potentilla nitida, Primula glaucescens, Rhamnus pumilus, Saxifraga hostii, Silene saxifraga.
		Important natural processes	-
8210 Calcareous rocky slopes with chasmophytic vegetation		Human impacts	-
	R	Specific chara cteristics	Asplenium trichomanes, Bupleurum stellatum, Eritrichium nanum, Phyteuma scheuchzeri,Polypodium vulgare, Primula hirsuta, Primula pedemontana, Saxifraga aspera, S. bryoides, Sedum dasyphyllum, Sedum rupestre, Sempervivum tectorum, Silene rupestris
		Important natural processes	-
8220			
Siliceous rocky slopes with chasmophytic vegetation		Human impacts	-
	R	Specific chara cteristics	Sempervivum arachnoideum, Sempervivum montanum, S. Tectorum, Sedum annuum, Silene rupestris, Veronica fruticans, Allium montanum, Sedum acre, S. album, S. reflexum (= S. rupestre agg.), S. sexangulare, Scleranthus perennis, Rumex acetosella.
8230		Important natural	-
Siliceous rock with pioneer vegetation of the Sedo- Scleranthion or of the Sedo albi-		processes	
Veronicion dillenii		Human impacts	Poaching
	L	Specific chara cteristics	Ferns, mosses, and algae patina at the entrance to the caves
8310		Important natural processes	-
Caves not open to the public		Human impacts	Mining
	R	Specific chara cteristics	Fagus sylvatica, Abies alba, Picea abies, Luzula luzuloides, L. nivea, L. sylvatica agg., Deschampsia flexuosa, Calamagrostis villosa, Vaccinium myrtillus, Pteridium aquilinum.
0110		Important natural processes	-
9110 <i>Luzulo-Fage</i> tum beech forests		Human impacts	Sylvicoltural activities
		Tuman impacis	Symucolular activities

7

	-	-	-
	R	Specific characteristics	Fagus sylvatica, Abies alba, Picea abies, Anemone nemorosa, Lamiastrum (Lamium) galeobdolon, Galium odoratum, Melica uniflora, Dentaria spp.
		Important natural processes	-
9130			
Asperulo-Fagetum beech forests		Human impacts	Sylvicoltural activities
	R	Specific characteristics	Quercus robur, Carpinus betulus, Acer campestre, Tilia cordata, Stellaria holostea, Carex brizoides.
9160		Important natural processes	-
Sub-Atlantic and medio-			
European oak or oakhombeam forests of the Carpinion betuli		Human impacts	Sylvicoltural activities, diffusion of alien invasive species
	R	Specific characteristics	Acer pseudoplatanus, A. campestre, A. platanoides, Fraxinus excelsior, Tilia cordata, T. platyphyllos, Alnus glutinosa, Aruncus dioicus, Corylus avellana, Prunus avium, Populus tremula, Quercus robur, Taxus baccata, Ulmus glabra
		Important natural processes	-
9180*			
<i>Tilio-Acerion</i> forests of slopes, screes and ravines		Human impacts	Sylvicoltural activities, diffusion of alien invasive species
	L	Specific characteristics	Quercus robur, Betula pendula, Quercus petraea, Sorbus aucuparia, Pinus sylvestris, Populus tremula, Calluna vulgaris, Deschampsia flexuosa, Castanea sativa, Frangula alnus, Vaccinium myrtillus, Molinia arundinacea, Teucrium scorodonia.
		Important natural processes	-
9190			
Old acidophilous oak woods with Quercus robur on sandy plains		Human impacts	Sylvicoltural activities, diffusion of alien invasive species
	L	Specific characteristics	Quercus pubescens, Fraxinus omu s, Carpinus orientalis, C. betulus, Ostrya carpinifolia.
		Important natural processes	-
91AA*		Human impacts	Sylvicoltural activities, diffusion of alien
Eastern white oak woods			invasive species, fire
91E0*	R	Specific characteristics	Alnus glutinosa, A. incana, Fraxinus excelsior, Salix alba, Acer campestre, A. pseudoplatanus, Angelica sylvestris, Cardamine amara, C. pratensis, Carex acutiformis, C. pendula, C. remota, Equisetum spp., Filipendula ulmaria,
Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)			Geranium sylvaticum, Geum rivale, Leucojum aestivum, L. vernum, Lysimachia nemorum, Sambucus nigra, Stellaria nemorum, U. minor, Urtica dioica, Viburnum opulus.

Important natural

processes

serve 🎽
Natural evolution, depending on local hydrology
Sylvicoltural activities, diffusion of alien invasive species
Quercus robur, Ulmus minor, F. excelsior, Populus nigra, P. canescens, P. tremula, Alnus glutinosa, Prunus padus, Humulus

		Human impacts	Sylvicoltural activities, diffusion of alien invasive species
	R	Specific characteristics	Quercus robur, Ulmus minor, F. excelsior, Populus nigra, P. canescens, P. tremula, Alnus glutinosa, Prunus padus, Humulus Iupulus, Vitis vinifera ssp. sylvestris, Sambucus nigra, Urtica dioica, Salix cinerea, Parietaria officinalis, Hedera helix, Tamus communis, Typhoides arudinacea, Viburnum opulus.
91F0		Important natural	-
		processes	
Riparian mixed forests of Quercus robur, Ulmus laevis and			
Ulmus minor, Fraxinus excelsior or Fraxinus angustifolia, along the great rivers (Ulmenion minoris)		Human impacts	Sylvicoltural activities, diffusion of alien invasive species, construction of dams, alteration of the water tables, submersion during floods
	R	Specific characteristics	Castanea sativa, Fraxinus excelsior, Dryopteris affinis, Oxalis acetosella, Viola reichembachiana, Polygonatum multiflorum, Prunus avium, Tilia cordata, Vinca minor, Aruncus dioicus, Anemone nemorosa, Luzula nivea, Pteridium aquilinum, Vaccinium myrtillus, Molinia arundinacea, Corylus avellana, Phyteuma betonicifolium, Teucrium scorodonia.
		Important natural processes	-
9260			
<i>Castanea sativa</i> woods		Human impacts	Sylvicoltural activities, diffusion of alien invasive species
	R	Specific characteristics	Salix alba, Populus alba.
92.40		Important natural processes	Natural evolution, depending on local hydrology
Salix alba and Populus alba galleries		Human impacts	Sylvicoltural activities, diffusion of alien invasive species
	R	Specific chara cteristics	Picea abies, Vaccinium spp.
		Important natural	-
9410		processes	
Acidophilous <i>Picea</i> forests of the montane to alpine levels			
(Vaccinio-Piceetea)		Human impacts	Sylvicoltura la ctivities
	R	Specific characteristics	Larix decidua, Picea abies, Rhododendron ferrugineum, Vaccinium myrtillus.
		Important natural	-
9420		processes	
Alpine Larix decidua and/or Pinus cembra forests			Culvicoltural activition
		Human impacts	Sylvicoltural activities

The above table was compiled using the Italian Manual for the interpretation of the Habitat of the Directive 92/43/CEE, the "Guida al riconoscimento di ambienti e specie della Direttiva Habitat in Piemonte" and the "Atlante dei Siti di importanza comunitaria della Lombardia".

7

Tab. 8List of selected animal and plant species of special interest for biodiversity conservation
(included in the Annex of Habitat and Birds Directives, in Red Lists, International
Conventions, endemic, or other)

	ANIMA	ANIMAL SPECIES OF CONSERVATION INTEREST								
Species	Group	Art. 4 Directive 2009/147/CE and Annex II Directive 92/43/CEE	•	-	-	Internation al Conventions	Other reasons			
Abax continuus	I				x					
Accipiter gentilis	В	x								
Accipiter nisus	В	x								
Acipenser naccarii	F	x								
Acipenser sturio	F	x								
Acrocephalus arundinaceus	В	x								
Acrocephalus melanopogon	В	x								
Acrocephalus paludicola	В	x								
Acrocephalus palustris	В	x								
Acrocephalus schoenobaenus	В	x								
Acrocephalus scirpaceus	В	x								
Actitis hypoleucos	В	x								
Acupalpus dubius	I						x			
Aegithalos caudatus	В	x								
Aegolius funereus	В	x								
Aeshna affinis	-						x			
Aeshna cyanea							x			
Aeshna isosceles	I					x				
Aeshna mixta	1						x			
Agabus paludosus	1					x	~			
Aglais urticae	I						x			
Agonum livens	1						x			
Agonum lugens							x			
Agonum versutum	1						x			
Agriades glandon	1						x			
Aiolopus strepens						x	X			
Alauda arvensis	В	x								
Alburnus alburnus	F						x			
Alburnus alburnus alborella	F				x		X			
Alcedo atthis	В	x								
Alectoris graeca saxatilis	В	x								
Alosa fallax	F	x					1			
Amara aenea	1			1			x			
Anas acuta	В	x					~			
Anas clypeata	В	x								
Anas crecca	В	x								
Anas penelope	В	x								
Anas platyrhynchos	В	x								
Anas querquedula	В	x								
Anas strepera	В	x								
Anas strepera Anax imperator	В	Χ	1				x			
Anax parthenope	1									
	F						x			
Anguilla anguilla Anguis fragilis	R			x		x				

	_		_	_	_	_	
Anonchus mirabilis	Ι						x
Anser albifrons	В	x					
Anser anser	В	x					
Anser fabalis	В	x					
Anthocaris cardamine	I						x
Anthus campestris	В	x					
Anthus pratensis	В	х					
Anthus spinoletta	В	x					
Anthus trivialis	В	х					
Apatura ilia	I					х	
Apatura iris	I						x
, Apodemus agrarius	М						x
Apodemus sylvaticus	М						x
Aporia crataegi	I						x
Apus apus	В	x					
Apus melba	В	x					
Aquila chrysaetos	В	x					
Aquila clanga	В	x		1		h	
Ardea ciner ea	В	x				l	
Ardea purpurea	В	x					
Ardeola ralloides	В	x					
Arvicola ter restris	M	^					x
	В						^
Asio flammeus Asio otus	В	x					
	В						
Athene noctua		×					
Austropotamobius pallipes	B	x					
Aythya ferina	В						
Aythya fuligula		x					
Aythya marila	В	x					
Aythya nyroca	В	x					
Barbastella barbastellus	M	x					
Barbus meridionalis	F	x					
Barbus plebejus	F .	x					
Bidessus grossepunctatus				х			
Bidessus minutissimus						x	
Boloria napaea							x
Bonasa bonasia	В	x					
Botaurus stellaris	B .	x					
Brenthis daphne	<u> </u>						x
Brenthis hecate						x	
Bubo bubo	В	x					
Bubulcus ibis	В	x					
Bucephala clangula	В	x					
Bufo bufo	A					x	
Bufo viridis	A		х				
Burhinus oedicnemus	В	x				ļ	
Buteo buteo	В	x					
Calandrella brachydactyla	В	x			ļ	ļ	
Calidris alpina	В	x					
Calidris canutus	В	x				ļ	
Calidris ferruginea	В	x					
Calidris minuta	В	x					
Calidris temmincki i	В	x					
Callistus lunatus	I					ļ	x
Calopterix virgo padana	I					x	
Calopteryx splendens	I						x
Calopteryx virgo	I						x

	1	1		1	1	i	
Calosoma sycophanta	I						x
Canis lupus	М	x					
Capra ibex	М		x				
Capreolus capreolus	М					х	
Caprimulgus europaeus	В	x					
Carabus convexus	I						x
Carabus intricatus	I			x			
Carassius carassius	F						x
Carcharodus flocciferus	I					х	
Carduelis cannabina	В	x					
Carduelis carduelis	В	x					
Carduelis chloris	В	x					
Carduelis flammea	В					x	
Carduelis spinus	В	x					
Carpodacus erythrinus	В					х	
Carterocephalus palaemon	I					х	
Casmerodius albus	В	х					
Celastrina argiolus	I						x
Cerambyx cerdo	I	x					
Ceriagrion tenellu m	I					х	
Certhia brachydactyla	В	x					
Cervus dama	М						x
Cervus elaphus	M					x	
Cettia cetti	В	x				X	
Charadrius dubius	В	x					
Charadrius hiaticula	В	x					
Chlaenius sulcicollis	I	^		x			
Chlidonias hybridus	В	x		~			
Chlidonias leucopterus	В						
	В	x					
Chlidonias niger	F	x					
Chondrostoma genei	F	x					
Chondrostoma soetta Ciconia ciconia	B	x					
		x					
Ciconia nigra	В	x					
Cinclus cinclus	В	x					
Circaetus gallicus	В	x					
Circus aeruginosus	В	x					
Circus cyaneus	В	x					
Circus pygargus	В	x					
Cisticola juncidis	В	x					
Clethrionomys glareolus	М						x
Clossiana selene	I						x
Clossiana titania	I						x
Cobitis bilineata	F	x					
Cobitis taenia	F	x					
Coccothraustes coccothraustes	В	х					
Coenagrion puella	I						x
Coenonympha oedippus	I	x					
Coenonympha pamphilus	I						x
Colias alfacariensis	I						x
Colias crocea	I						x
Colias palaeno	I			x			
Colias phicomone	I						x
Coluber viridiflavus	R					х	
Columba oenas	В	x					
Columba palumbus	В	x					
Coracias garrulus	В	х					

	1		1	1	1	1	I
Cordulegaster boltonii	F						x
Coregonus lavaretus	F		x				
Coregonus oxyrhynchus			×				
Coronella austriaca	R		x				
Coronella girondica	R			х			
Corvus corax	В	x					
Corvus cornix	В	x					
Corvus corone	В	х					
Corvus frugilegus	В	x					
Corvus monedula	В	х					
Cottus gobio	F	x					
Coturnix coturnix	В	х					
Crex crex	В	x					
Crocidura leucodon	М					х	
Crocidura suaveolens	М					х	
Crocothemis erythraea	I						x
Cuculus canorus	В	x					
Cupido argiades	I						x
Cybister laterali marginalis	Ι					x	
Cychrus caraboides	Ι						x
Cygnus olor	В	x					
Cymindis axillaris	-						x
Cynthia cardui	Ι						x
Cyprinus carpio	F					х	
Dama dama	М					х	
Delichon urbica	В	x					
Demetrias imperialis	I					х	
Dendrocopos major	В	x					
Dendrocopos minor	В	x					
Dendrophilus punctatus	I						x
Dryocopus martius	В	x					
Dryops anglicanus	I			x			
Duvalius ghidinii	I				x		
Dytiscus marginalis	I					x	
Egretta alba	В	x					
Egretta garzetta	В	x					
Elaphe longissima	R		x				
Eliomys quercinus	М					x	
Emberiza cia	В	x				~	
Emberiza cirlus	В	x		1	1		
Emberiza citrinella	В	x					
Emberiza hortulana	В	×					
Emberiza schoeniclus	В	x					
Emys orbicularis	R	x					
Eptesicus serotinus	M	^	x				
Erebia christi		x	^				
Erebia epiphron		^					,
							x
Erebia gorge							X
Erinaceus europaeus	M					x	
Erithacus rubecula	B F	x					
Esox lucius				x			
Euphydryas aurinia		x					
Euphydryas cynthia	I						x
Euplagia quadripunctaria	1	x					
	I I B	x x					x

Falco peregrinus	В	x				
Falco subbuteo	В	х				
Falco tinnunculus	В	x				
Falco vespertinus	В	x				
Ficedula albicollis	В	x				
Ficedula hypoleuca	В	x				
Ficedula semitorquata	B	x				
	D					
Fringilla coelebs	B	x				
Fringilla montifringilla		x				
Fulica atra	В	x				
Galerida cristata	В	x				
Gallinago gallinago	В	x				
Gallinago media	В	x				
Gallinula chloropus	В	x				
Garrulus glandarius	В	x				
Gasterosteus aculeatus	F			х		
Gavia arctica	В	x				
Gavia immer	В	x				
Gavia stellata	В	x				
Glaucidium passerinum	В	x				
Glis glis	М				x	
Gnatonchus schmidtii	I					x
Gobio gobio	F			х		
Gomphus flavipes	Ι			x		
Gomphus vulgatissimus	I					x
Gonepteryx rhamni	I					х
Graphoderus bilineatus	I	x				
Graphoderus cinereus	I				x	
Graptodytes pictus	I				x	
Grus grus	В	x				
Gryllus campestris	I				x	
Gypaetus barbatus	В	x				
Haematopus ostralegus	В	x				
Halalaimus stammeri	I					х
Helix pomatia	I		х			
Heteropterus morpheus				x		
Hieraaetus pennatus	В	x				
Hierophis viridiflavus	R	^	x			
Himantopus himantopus	В	x	^			
	В					
Hippolais icterina		×				
Hippolais polyglotta	В	x				
Hirudo medicinalis	1		x			
Hirundo rustica	B	x				
Hydaticus trasversalis					х	
Hydroporus angustatus					x	
Hyla arborea	A		х			
Hyla intermedia	A			x		
Hyla meridionalis	A		x			
Hypsugo savii	М			x		
Hystrix cristata	М		x			
Inachis io	I					×
Iphiclides podalirium	I					x
Ischnura elegans						x
Ischnura pumilio	I				х	
Ithytrichia lamellaris	I					х
lxobrychus minutus	В	x				
Jynx torquilla	В	x	1	1	1	

		•	•	1		
Knipowitschia punctatissima	F			x		
Lacerta bilineata	R		x			
Lacerta viridis	R		x			
Lagopus mutus helveticus	В	x				
Lampetra zanandreai	F	x				
Lanius collurio	В	x				
Lanius excubitor	В	x				
Lanius minor	В	x				
Lanius senator	В	x				
Larus cachinnans	В	x				
Larus canus	В	x				
	В	x				
Larus fuscus						
Larus melanocephalus	В	x				
Larus michahellis	В	x				
Larus minutus	В	x				
Larus ridibundus	В	x				
Lasiommata achine	I				x	
Lepomis gibbosus	F					×
Leptophyes punctatissima	I				х	
Lepus europaeus	м				x	
Lepus timidus	М		x			
Lestes sponsa	I					x
Lestes virens vestalis	I				х	
Lestes viridis	I					x
Lethenteron zanandreai	F	x				
Leuciscus cephalus	F					x
Leuciscus souffia	F	x				
Libellula fulva	I					x
Limenitis camilla	I					x
Limosa lapponica	В	x				
Limosa limosa	В	x				
Lissotriton vulgaris	А				x	
Lissotriton vulgaris meridionalis	A				x	
Locustella luscinioides	В	x				
Locustella naevia	В	x				
Loxia curvirostra	В	x				
Lucanus cervus	I	x				
Lucanus tetraodon	1	x				
Lullula arborea	I B					X
Luscinia luscinia	1	x				
	В	x				
Luscinia megarhynchos	В	x				
Luscinia svecica	B	x				
Lutra lutra		x				
Lycaeides argyrognomon	I					x
Lycaeides idas	I		ļ			x
Lycaena dispar	I	x		ļ		
Lycaena phleas	I		ļ			×
Lymnocryptes minimus	В	x				
Lynx lynx	м	x		ļ		
Maculinea alcon	I					x
Maculinea arion	I		x			
Marmota marmota	м				x	
Martes foina	м				x	
Martes martes	м		х			
Masoreus wetterhallii	I					x
Melanitta fusca	В	х				
	В	х				

	I	1	1	I	1	1	
Meles meles	M					х	
Melitaea didyma	I					х	
Mellicta britomart is	I					х	
Mergus albellus	В	x					
Mergus merganser	В	x					
Mergus serrator	В	x					
Merops apiaster	В	x					
Micromys minutus	М			x			
Microtus arvalis	М						x
Microtus nivalis	М					х	
Microtus savii	м				x		
Microtus subterraneus	М						x
Miliaria calandra	В	x					
Milvus migrans	В	x					
Milvus milvus	В	x					
Miniopterus schreibersii	М	x					
Minois dryas	I						x
Misgurnus anguillicaudatus	F						х
Monticola saxatilis	В	x					-
Monticola solitarius	В	x					
Montifringilla nivalis	В					x	
Motacilla alba	В	x					
Motacilla alba alba	В					x	
Motacilla cinerea	В	x				~	
Motacilla flava	В	x					
Mus domesticus	м	^					x
Muscardinus avellanarius	M		x				^
	B	, v	^				
Muscicapa striata		x					
Mustela ermin ea	M					X	
Mustela nivalis	M					X	
Mustela putorius	М		x				
Myocastor coypus	M						x
Myotis bechsteinii	М	x					
Myotis blythii	М	x					
Myotis brandti	М		x				
Myotis capaccinii	М	x					
Myotis daubentoni	М		x				
Myotis emarginatus	М	x					
Myotis myotis	М	x					
Myotis mystacinus	М		х				
Myotis nattereri	М		x				
Myotis spp.	М					х	
Myoxus glis	М					x	
Natrix natrix	R					х	
Natrix tessellata	R		x				
Nehalennia speciosa	I					x	
Neomys anomalus	м					x	
Neomys fodiens	М					x	
Neptis rivularis	I						х
Netta rufina	В	х					
Numenius arquata	В	x					
	В	x					
Numenius phaeopus	M		x				
Numenius phaeopus Nyctalus leisleri			^				
Nyctalus leisleri			x				
Nyctalus leisleri Nyctalus noctula	м	×	x				
Nyctalus leisleri Nyctalus noctula Nycticorax nycticorax	M B	x	x				~
Nyctalus leisleri Nyctalus noctula	м	x	x				x

	ı .	1	I	1	1	1	
Oedipoda caerulescens	I					х	
Oenanthe oenanthe	В	x					
Oeneis glacialis	I				x		
Oiceoptoma thoracicum	I						x
Omocestus ventralis	I					х	
Onychogomphus forcipatus	I						x
Oodes helipioides	I					х	
Ophiogomphus cecilia	I	x					
Oriolus oriolus	В	x					
Orthetrum albistylum	I						x
Orthetrum cancellatu m	I						х
Orthetrum coerulescens	I						x
Oryctolagus cuniculus	М			x			
Osmoderma er emita	I	x					
Otus scops	В	x					
Oxygastra curtisii	I	x					
Padogobius martensii	F			x			
Pandion haliaetus	В	x	I				
Panurus biarmicus	В	x	1				
Papilio machaon	I	<u>^</u>					x
Parapleurus alliaceus	1					x	^
Pararge aegeria	1	1	1			^	x
Parnassius apollo	· ·		×				^
Parnassius apolio Parnassius mnemosyne	1		x				
	1		×				
Parnassius phoebus	1			х			
Parus ater	В	x					
Parus caeruleus	В	x					
Parus cristatus	В	x					
Parus major	В	x					
Parus montanus	В	x					
Parus palustris	В	x					
Passer domesticus	В	x					
Passer montanus	В	x					
Pelobates fuscus insubricus Pelophylax synklepton	A A	x					
esculentus	1					х	
Peltodytes caesus						х	
Perca fluviatilis	F			x			
Pernis apivorus	В	x					
Petromyzon marinus	F	x	 				
Phalacrocorax carbo	В	x	 				
Phalacrocorax carbo sinensis	В	x	 				
Phalaropus lobatus	В	x					
Phaneroptera nana	1					x	
Phasianus colchicus	В	x					
Philomachus pugnax	В	x	ļ				
Phoenicurus ochruros	В	x					
Phoenicurus phoenicurus	В	x					
Pholidoptera littoralis insubrica	I				x		
Phoxinus phoxinus	F			x			
Phylloscopus bonelli	В	x					
Phylloscopus collybita	В	x					
Phylloscopus sibilatrix	В	x					
Phylloscopus trochilus	В	x					
			1			1	1
	В	x					
Pica pica Picoides major	B	x				x	

		•	•	•		
Picus viridis	В	x				
Pieris brassicae	1					x
Pieris rapae	I					x
Pipistrellus kuhli	м		x			
Pipistrellus nathusii	М		х			
Pipistrellus pipistrellus	М		x			
Pipistrellus pygmaeus	М		x			
Pipistrellus savii	м		x			
, Platalea leucorodia	В	x				
Platycnemis pennipes	1					x
Plecotus auritus	м		x			
Plecotus austriacus	M		x			
Plecotus macrobullaris	м		x			
Plecotus sp.	м		~		x	
Pluvialis apricaria	B	x			^	
	В					
Pluvialis squatarola		×				
Podarcis muralis	R		x			
Podarcis sicula	R R		x			
Podarcis sicula campestris					ļ	
Podiceps auritus	В	x			ļ	
Podiceps cristatus	В	x				
Podiceps grisegena	В	x				
Podiceps nigricollis	В	x				
Poecilus cupreus	I					x
Polygonia c-album	I					x
Polyommatus icarus	I					x
Porzana parva	В	х				
Porzana porzana	В	x				
Porzana pusilla	В	x				
Procambarus clarkii	I					x
Proserpinus proserpina	I		x			
Protochondrostoma genei	F	х				
Prunella collaris	В				x	
Prunella modularis	В	x				
Pseudorasbora parva	F					x
Ptyonoprogne rupestris	В	x				
Pyronia tithonus	I				x	
Pyrrhocorax graculus	В				х	
Pyrrhocorax pyrrhocorax	В	x				
Pyrrhosoma nymphula	I					x
Pyrrhula pyrrhula	В	x				
Rallus aquaticus	В	x				
Rana dalmatina	А		x			
Rana latastei	A	x				
Rana lessonae	A		x			
Rana temporaria	A		x		l	
Rattus norvegicus	M		^			x
Regulus ignicapillus	B	x				Î Î
	В					
Regulus regulus		×			L	
Remiz pendulinus	В	x				
Rhinolophus euryale	M	×				
Rhinolophus ferrumequinum	M	x				
Rhinolophus hipposideros	M	x				
Riparia riparia	В	х				
Rodeus sericeus amarus	F					x
Rosalia alpina	I	х				
Rupicapra rupicapra	М		х			l

Quanalia nikidula	I		1	1		Ι.	
Ruspolia nitidula	r					x	
Rutilus aula	F				x		
Rutilus erythrophtalmus					x		
Rutilus pigus	F	x					
Sabanejewia larvata	F	x					
Salamandra salamandra	A					х	
Salaria fluviatilis	F					x	
Salmo gairdneri	F						x
Salmo marmoratus	F	x					
Salmo trutta	F			x			
Salmo trutta x marmoratus						х	
Satyrium pruni	I			x			
Saxicola rubetra	В	x					
Saxicola torquata	В	x					
Scardinius erythrophthalmus	F						x
Sciurus vulgaris	M			x			
Scolitantides orion	I					х	
Scolopax rusticola	В	x					
Serinus citrinella	В	x					
Serinus serinus	В	x					
Silurus glanis	F					x	
Sitta europaea	В	x					
Somatochlora flavomaculata	I			x			
Somatochlora metallica	I						x
Sorex araneus	М					x	
Sorex minutus	М					х	
Staphylinus erytropterus	I						x
Sterna albifrons	В	х					
Sterna hirundo	В	x					
Stethophyma grossum	I					х	
Stiziostedion lucioperca	F						x
Streptopelia decaocto	В	x					
Streptopelia turtur	В	x					
Strix aluco	В	x					
Strymonidia pruni	1			x			
Sturnus vulgaris	В	x		~			
Stylurus flavipes	-		x				
Sus scrofa	M		~				x
Sylvia atricapilla	B	x					^
Sylvia borin	В	×					
Sylvia cantillans	В	x					
Sylvia communis	В	x					
Sylvia curruca	В						
		x					
Sylvia hortensis	В	x					
Sylvia nisoria	В	x					
Sylvia undata	В	x			ļ		
Sylvilagus floridanus	M						х
Sympecma fusca	I				ļ		x
Sympecma paedisca	I					х	
Sympetru m depressiusculum	1						x
Sympetru m fonscolombii	I						х
Sympetru m pede montanum	I						x
Sympetru m sanguineum	I						x
Syntomus foveatus							x
	В	x					~
Tachybaptus ruficollis							

Tadarida teniotis	м		x				
Tadorna tadorna	В	x					
Talpa europaea	М					x	
Telestes muticellus	F	x					
Tetrao t etrix t etrix	В	x					
Thymallus thymallus	F		x				
Tichodroma muraria	В	x					
Tinca tinca	F						x
Tringa erythropus	В	x					
Tringa glareola	В	x					
Tringa nebularia	В	x					
Tringa ochropus	В	x					
Tringa stagnatilis	В	x					
Tringa totanus	В	x					
Triturus alpestris	А					x	
Triturus carnifex	А	x					
Triturus vulgaris	А			x			
Troglodytes troglodytes	В	x					
Turdus iliacus	В	x					
Turdus merula	В	x					
Turdus philomelos	В	x					
Turdus pilaris	В	x					
Turdus torquatus alpestris	В					x	
Turdus viscivorus	В	x					
Tyto alba	В	x					
Unio elongatulus	I		x				
Upupa epops	В	x					
Vacciniina optilete	I					x	
Vanellus vanellus	В	x					
Vanessa atalanta	I						x
Vertigo angustior	I	x					
Vertigo moulinsiana	I	x					
Vipera aspis	R				x		
Vulpes vulpes	М						x
Xiphidion discolor	I					x	
Xiphidion dorsalis	I					x	
Xystichus robustus	I						x
Zamenis longissimus	R					x	
Zerynthia polyxena	I		х				
Zootoca vivipara	R					x	
Zygaena exulans	I			x			

A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, R = Reptiles

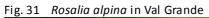




Fig. 32 Alcedo atthis



PLANT SPECIES OF CONSERVATION INTEREST								
Species	Group	Art. 4 Directive 2009/147/CE and Annex II Directive 92/43/CEE	Annex IV and V Directive 92/43/CE	National Red List	Endemics	Internation al Conventions	Other reasons	
Acorus calamus	Ρ						x	
Adiantum capillus-veneris	Р						x	
Alisma lanceolatum	Р						x	
Allium angulosum	Р			x				
Amaranthus cruentus	Р						x	
Anarrhinum bellidifolium	Р						x	
Androsace vandellii	Р			х				
Anemone narcissiflora narcissiflora	Р						x	
Anemone ne morosa	Р						x	
Anemone ranunculoides	Р						x	
Anthriscus nitida	Р						x	
Aphyllanthes monspeliensis	Р						х	
Apium nodiflorum nodiflorum	Р						х	
Aquilegia alpina	Р		x	L				
Aquilegia atrata	Р						x	
Aquilegia vulgaris	Р						x	
Armeria arenaria arenaria	Р						x	
Arnica montana	Р		x					
Artemisia genipi	Р		x					
Aruncus dioicus	Р						x	
Asarum europaeum	Р						x	
Asparagus tenuifolius	Р						x	
Asphodelus albus delphinensis	Р						x	
Asplenium adulterinum	Р	x						
Asplenium seelosii se elosii	Р						x	
Atropa bella-donna	Р						x	
Bidens cernua	Р						x	
Bryum rubens	Р			x				
, Bunias erucago	Р						x	
Butomus umbellatus	Р			x			+	
Calamagrostis canescens	P						x	
Callicladium haldanianum	Р			x			+	
Callitriche obtusangula	P						x	
Callitriche palustris	P						×	
Callitriche stagnalis	P						x	
Caltha palustris	P						×	
Campanula barbata	P						×	
Campanula glomerata	P						x	
Campanula latifolia	P						×	
Campanula persicifolia persicifolia	P						x	
Campanula persicijona persicijona Campanula ranunculoide							×	
rapunculoides							Â	
Campanula rapunculus	Р						x	
Campanula rotundifolia rotundifolia	Р						x	
Campanula scheuchzeri scheuchzeri	Р						х	
Campanula trachelium	Р						х	
Campanula trachelium trachelium	Р						х	
Campylopus oerstedianus	Р			x				
Cardamine kitaibeli i	Р						x	

Cardamine matthioli	Р					x
Carex appropinquata	Р					x
Carex brizoides	Р					x
Carex elata	Р					x
Carex elongata	Р					x
Carex ferruginea austroalpina	Р					х
Carex lasiocarpa	Р					x
Carex liparocarpos	Р					x
Carex pauciflora	Р			x		
Carex re mota	Р					x
Carex riparia	Р			x		
Carex vesicaria	Р					x
Centaurea deusta splendens	Р					x
Cephalanthera longifolia	Р				x	
Cephalanthera rubra	Р					x
Ceratophyllum demersum	P			x	 	
Chara gracilis	P			^	 	x
Cladium mariscus	P					x
	P				 	
Convallaria majalis						х
Corydalis cava cava	Р					x
Corynephorus canescens	Р			x		
Cyclamen purpurascens purpurascens	Р					x
Dactylorhiza incarnata incarnata	Р					x
Dactylorhiza maculata	Р					x
Daphne cneorum	Ρ					x
Daphne laureola	Р					x
Daphne mezereum	Р					x
Dianthus carthusianorum	Р					x
Dianthus monspessulanus	Р					x
Dianthus seguieri seguieri	Р					x
Dianthus superbus	Р					х
Dianthus sylvestris sylvestris	Р					х
Dicranodontium denudatum	Р			x		
Dicranum fulvum	Р			x		
Dicranum montanum	Р			x		
Dicranum tauricum	Р			x		
Dicranum viride	Р	x				
Didymodon cordatus	Р			x		
Diphasium tristachyum	Р		x			
Ditrichum cylindricum	P			x		
Ditrichum lineare	P			x		
Draba hoppeana Rchb.	P		ļ			x
Drosera anglica	P					×
Drosera anglica Drosera intermedia	P			x		X
	P					
Drosera intermedia Hayne				x	 	
Drosera rotundifolia	P				 	x
Drosera x obovata	Р					х
Dryopteris carthusiana	Р				 	Х
Elatine alsinastrum	Р					х
Eleocharis carniolica	Р	x				
Epipactis atropurpurea	Р				 x	
Epipactis palustris	Р				 х	
Equisetum fluviatil e	Р					x

<i></i> .	-						1
Equisetum hye male	Р						x
Eriophorum angustifolium	Р						x
Eriophorum latifolium	Р						x
Eriophorum vaginatum	Р						x
Erythronium dens-canis	Р						x
Euphorbia carniolica Jacq.	Р						x
Festuca acuminata	Р						x
Fissidens rivularis	Р			x			
Fossombronia wondraczekii	Р			х			
Fragaria vesca vesca	Р						x
Gagea pratensis (Pers.) Dumort.	Р						x
Galanthus nivalis	Р		х				
Galium tendae	Р			x			
Gentiana acaulis	Р						x
Gentiana asclepiadea	Р						x
Gentiana cruciata cruciata	Р						x
Gentiana lutea	Р		x				
Gentiana pneumonanthe	Р			x			
Gentiana punctata	Р						x
Gentiana purpurea	Р						x
Gentianella germanica	Р						x
Gentianopsis ciliata	Р						x
Gladiolus imbricatus	P						x
Gladiolus palustris	Р	x					
Globularia cordifolia	P	~					x
Glyceria maxima	P						×
Gratiola officinalis	P						x
Grimmia elatior	P			x			^
Groenlandia densa	P			x			x
Gymnadenia conopsea	P						
	P						x
Haplohymenium triste				х			
Helleborus niger	P						x
Hepatica nobilis	P						x
Homalia trichomanoides	P			x			
Hottonia palustris	Р			х			
Hydrocharis morsus-ranae	Р						x
Hygrohypnum luridum	Р			x			
Hypericum humifusum	Р						x
Hypericum tet rapterum	Р						х
Hypnum pallescens	Р			x			
llex aquifolium	Р						х
Iris pseudacorus	Р						х
Iris sibirica L.	Р			х			
lsoetes malinverniana	Р	x					
Juncus bulbosus	Р						х
Kobresia simpliciuscula (Wahlenb.) Mask	Р						x
Mack. Laserpitium krapfii gaudinii	Р						x
Lemna minor	Р					L	x
Lemna trisulca	P						x
Leontodon incanus tenuiflorus	P				x		
Leontopodium alpinum	P			x		ļ	
Leucobryum juniperoideum	P			×			
Leucojum aestivum aestivu m	P			^			x
Leacojum aestivum aestivum	Г						*

	-	-		-	 	
Leucojum vernum	Р					x
Lilium bulbiferum croceum	Р					x
Lilium martagon	Р					x
Limodorum abortivum	Р					x
Linaria angustissima	Р					x
Lindernia palustris	Р		x			
Lindernia procumbens	Р		x			
Liparis loeselii	Р	x				
Listera ovata	Р				x	
Lotus pedunculatus	Р					x
Ludwigia palustris	Р			x		
Lycopodium annotinum	Р		x			
Lycopodium clavatum	Р		x			
Mannia fragrans	Р			x		
Marsilea quadrifolia	Р	x				
Matteuccia struthiopteris	P					x
Metzgeria furcata	P			x		^
Molopospermum peloponnesiacum (L.)	P			Â		x
Koch						^
Muscari botryoides	Р					x
Myosotis scorpioides scorpioides	Р					х
Myricaria germanica	Р					x
Myriophyllum spicatum	Р					х
Myriophyllum verticillatum	Р					x
Najas marina marina	Р					x
Narcissus poeticus	Р					x
Nasturtium officinale officinale	Р					x
Nelumbo nucifera	Р					x
Nigritella rh ellicani	Р					x
Nuphar lutea	Р					x
Nymphaea alba	Р					x
Nymphoides peltata	Р					x
Ophrys apifera	Р				x	
Ophrys insectifera	Р				x	
Oplismenus hirtellus	Р				x	
Oplismenus undulatifolius	Р				x	
Orchis maculata	Р				 x	
Orchis mascula	Р				 x	
Orchis militaris	Р				x	
Orchis morio	Р				x	
Orchis sambucina	P				x	
Orchis tridentata	P				x	
Orchis ustulata	P				x	
Orthotrichum obtusifolium	P		ļ	x		
Osmunda regalis	P			^		x
Paeonia officinalis	P		ļ			x
Paraleucobryum longifolium	P			x		^
Peplis portula	P	l		^	 	x
Persicaria amphibia	P					×
	P					
Persicaria hydropiper	P					x
Peucedanum palustre						X
Phyllitis scolopendrium scolopendrium	P					x
Physcomitrium pyriforme	P			x		
Physospermum cornubiense	Р					x

	1 -	1					
Phyteuma humile	Р			x			
Phyteuma scheuchzeri	Р						x
Plagiothecium ruthei	Р			x			
Plagiothecium succulentum	Р			х			
Platanthera bifolia	Р			х			
Platanthera chlorantha	Р						x
Pleuridium acuminatum	Р			x			
Pohlia proligera	Р			х			
Polystichum braunii (Spenner) Fée	Р						x
Potamogeton crispus	Р						x
Potamogeton filiformis	Р			x			
Potamogeton lucens	Р						x
Potamogeton natans	Р						×
Potamogeton nodosus	Р			x			
Potamogeton obtusifolius	Р						x
Potentilla grammopetala	Р			x			
Potentilla palustris	P		ļ	×	ļ	ļ	
Pottia intermedia	P			×			
Primula auricula ciliata	P			^			x
Primula auricula cillata Primula hirsuta	P						x
	P						
Primula vulgaris							x
Pseudolysimachion spicatum	P						x
Pteris cretica	Р			x			
Ptycomitrium incurvum	Р			x			
Pulsatilla alpina apiifolia	Р						x
Pulsatilla montana montana	Р						x
Racomitrium aquaticum	Р			x			
Ranunculus flammula L.	Р			x			
Ranunculus fluitans	Р						×
Ranunculus lingua	Ρ						x
Ranunculus reptans	Р						x
Ranunculus serpens serpens	Р						x
Ranunculus trichophyllus	Р						x
Rhamnus saxatilis saxatilis	Р						x
Rhodobryum roseum	Р			х			
Rhynchospora alba	Р			x			
Rhynchospora fusca	Р			x			
Riccia beyrichiana	Р			x			
Riccia ciliata	Р						x
Riccia fluitans	Р			ļ		L	x
Riccia ligula	Р			x			
Rorippa amphibia	Р						x
Rosa gallica	Р						x
Rumex hydrolapathum	Р						x
Ruscus aculeatus	Р		x				
Saelenia glaucescens	Р			x			
Sagittaria sagittifolia	P			x			
Salvinia natans	Р						x
Saponaria lutea	P		ļ	x	ļ	ļ	
Saxifraga aspera	P		ļ		ļ	ļ	x
Saxifraga bulbifera	P						×
Saxifraga cotyledon	P						
	P						x
Saxifraga cuneifolia cuneifolia	r						x

		-		-	
Saxifraga exarata moschata	Р				x
Saxifraga rotundifolia rotundifolia	Р				x
Saxifraga seguieri	Р				x
Saxifraga tridactyles	Р				x
Saxifraga tridactylites	Р				x
Saxifraga vandellii	Р		х		
Scheuchzeria palustris	Р				x
Schistostega pennata	Р		x		
Schoenoplectus lacustris	Р				x
Schoenoplectus supinus	Р		x		
Schoenoplectus triqueter	Р				x
Schoenus nigricans	Р				x
Scutellaria galericulata	Р				x
Sematophyllum de missum	Р		x		
Sempervivum grandiflorum	Р			x	
Sempervivum montanum montanum	Р				x
Sempervivum tectorum	Р				x
Senecio halleri	Р			x	
Sparganium angustifolium	P		x		
Sparganium erectum	P				x
Sphagnum centrale	P		x		
Sphagnum denticulatum	P	x	^		
Sphagnum fimbriatum	P	×			
Sphagnum flexuosum	P	×			
	P				
Sphagnum palustre Sphagnum papillosum	P	x			
Spiranthes aestivalis	P	x			
-		x			
Spirodela polyrrhiza	P P				x
Stachys palustris					х
Stachys pradica	Р				x
Stellaria alsine	Р				x
Stellaria holostea holostea	Р				x
Stratiotes aloides	Р		x		
Streptopus amplexifolius	Р				x
Teesdalia nudicaulis	Р				x
Thalictrum aquilegifolium aquilegifolium	Р				х
Thelypteris palustris	Р		1		x
Thlaspi sylvium	Р		x		
Tofieldia pusilla	Р		x		
Trapa natans	Р	 	x		
Trapa natans L.	Р		x		
Tulipa australis Link	Р		x		ļ
' Typha angustifolia	Р		ļ		x
Typha latifolia	P	L	L	L	x
Utricularia australis	Р		x		
Utricularia intermedia	P				x
Utricularia minor L.	P		x		<u>^</u>
Vaccinium myrtillus	P				x
Vallisneria spiralis	P				 ×
Veronica scutellata	P				x
Vinca minor	P				
					 x
Viola palustris	P				 x
Viola thomasiana	Р				x

Woodsia alpina	Р				x
Woodsia ilvensis	Р				x
Agrostis gigantea Roth	Р				х
Alopecurus geniculatus L.	Р				х
Callitriche hamulata Kütz.	Р				х
Carex fusca All.	Р				х
Carex pendula Hudson	Р				х
Cyperus michelianus (L.) Delile	Р				х
Dicranum scoparium	Р			х	
Eleocharis palustris (L.) R. et S.	Р				х
Epilobium parviflorum Schreber	Р				x
Hippuris vulgaris	Р			x	
Juncus subnodulos us Schrank	Р				х
Juncus tenageja Ehrh.	Р				х
Myriophyllum alternifloru m DC	Р				х
Narcissus radiiflorus Salisb.	Р				х
Poa palustris L.	Р				х
Populus canescens (Aiton) Sm.	Р				х
Prunus padus L.	Р				х
Ranunculus sceleratus L.	Р				х
Salix cinerea L .	Р				х
Senecio paludosus	Р			x	
Sphagnum angustifolium	Р			x	
Sphagnum cuspidatum Ehrh. ex Hoffm.	Р	x			
Utricularia bremii Heer	Р				х
Valeriana dioica L.	Р				x
Viburnum opulus L.	Р				x

P = Plants

Fig. 33 Spiranthes aestivalis and Drosera rotundifolia Gladiolus palustris





7

12.1.If possible, identify the ecosystem services provided by each ecosystem of the biosphere reserve and the beneficiaries of these services.

The ecosystem is a dynamic complex of living and non-living living elements that interact with each other as a functional unit. Man is an integral part of many ecosystems.

Ecosystem services are the benefits that ecosystems provide to humans in terms of supplying food and water, regulation services (eg floods, illnesses, etc.), cultural-recreational services, support services (eg cycles of nutrients). Biodiversity is closely linked to provisioning ecosystem services.

According to the Millennium Ecosystem Assessment (MA), ecosystem services can be placed into the following four categories:

PROVISIONIN G SERVICES	REGULATING SERVICES	CULTURAL SERVICES
Products obtained from ecosystems	Benefits obtained from regulation of ecosystems processes	Non material benefits obtained from ecosystems
		 Spiritual and religious
		• Recreation and
• Food		ecotourism
 Fresh water 	Climate regulation	 Aesthetic
Fuelwood	Disease regulation	 Inspirational
• Fiber	Water regulation	Educational

SUPPORTING SERVICES

Services necessary for the production of all other ecosystem services

For the purposes of classification, the MA has identified 10 ecological system categories:

Millennium Ecosystem Assessment Reporting Categories					
Marine	Coastal	Inland water	Forest	Dryland	
Island	Mountain	Polar	Cultivated	Urban	

The following table shows the ecosystem services provided by the environments recognized above that are found in the reserve.

	Tab. 9	Ecosystemic services
--	--------	----------------------

	Forest	Cultivated	Urban
	Mountain		
	Inland water		
SUPPORTING SERVICES			
Soil formation	х	х	
Nutrient cycling	х	х	
Primary production	х	х	
PROVISIONIN G SERVICES			
Food	х	х	
Fresh water	х		
Fuelwood	х		
Fiber	х	х	
Biochemicals	х	х	
Genetic resources	х	х	
REGULATING SERVICES			
Climate regulation	х	х	х
Disease regulation	х		
Water regulation	х	х	x
Water purification	х	х	
Pollination	x	х	
CULTURAL SERVICES			
Spiritual and religious	х		x
Recreation and ecotourism	x	x	x
Aesthetic	x	x	
Inspirational	x	x	x
Educational	x	x	x
Sense of place	x	x	x
Cultural heritage	x	x	x

Forests, mountains and inland waters provide all sorts of ecosystem services, from the nutrient cycle, to climate regulation, to supplying primary product and water supplies, and to providing cultural services. As is evident, the territory of the Reserve candidate is extremely interesting in this regard, given the abundance of these types of environments, which together represent more than 50% of the territory. If cultivated areas, which also provide a variety of

ecosystem services, are taken into consideration as well, almost 90% of the territory of the Reserve can provide for the ecosystem services

In particular, forests produce not only goods such as timber, biomass, fruits, edible mushrooms, etc., but also services such as water regulation, water filtration, erosion reduction and hydrogeological risk, pollution, climate regulation, biodiversity protection (think of all the very diverse forestry environments, able to accommodate numerous animal and plant species). Cultural services include hiking, cycle tourism, sport fishing, didactic activities and, in general, all possible recreational and leisure activities. Water has a variety of functions and services, including irrigation, power generation, climate regulation, sport fishing, navigation, and biodiversity of freshwater species. In terms of biodiversity, an important contribution is provided by agricultural areas that host diverse fauna and spontaneous flora, as well as cultivated species and varieties, guaranteeing, inter alia, the conservation of genetic resources.



Fig. 34 Dry meadows in SCI and SPA Greto of Toce

Dalla tabella emerge in maniera evidente come un ambiente naturale, a differenza di quello urbano, porti in sé un maggior capitale di funzioni e assolva ad una pluralità di servizi ecosistemici. Prendiamo come esempio un bosco. Il suo valore economico complessivo è formato da due componenti principali: valore d'uso e valore d'esistenza.

The value of use is distinguished as:

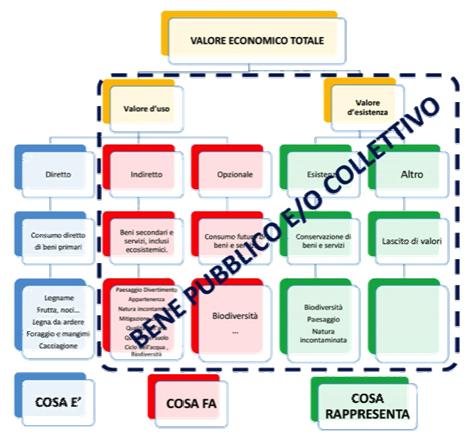
DIRECT VALUE, i.e. the direct consumption of primary goods (timber, fruit, wood, etc.).

INDIRECT VALUE, i.e. secondary goods and services, including ecosystems, that a forest offers (biodiversity, climate mitigation, water cycle, etc.).

7

ACCUMULATED VALUE, i.e. the opportunity that the forest offers to retain the possibility of offering goods and services in the future.

The <u>value of existence</u> consists of the benefit that people receive by knowing that a particular environmental resource exists, in terms of aesthetically enjoyable scenery and natural capital.



Also of great importance are the cultural services offered by the environments of the reserve as a whole: historical-cultural testimonies, opportunities for sustainable forms of tourism, through the promotion of hiking, biking, horse riding, etc. Added to this, is the maintenance, safeguarding and valorisation of activities historically linked to the territory (agriculture, fishing, gold panning in the river, boat navigation ...) and typical products of the territory (recovery and maintenance of traditional crops and practices, e.g. water meadows, and the experimental cultivation of vegetables and spontaneous herbs).

Within the candidate territory, the system of the first alpine reliefs, lakes and rivers, as well as the flat and hilly terrain dedicated to cultivation, co-exist and are well-integrated with the populated, built-up areas centers, most of which are small-medium size.

Thanks to the presence of protected areas (Parks, Reserves, Rete Natura 2000 sites), the Candidate Reserve is a privileged place for conducting studies, research activities and monitoring (monitoring of water quality, health status of forest ecosystems, bird-ringing, censuses of various biotechnical components, etc.) that have all provided, over the years, and still do, data on the natural ecosystem (in all of its components), and the present cultural and educational activities, as well as the intrinsic value of the ecosystems. From the systematic organization of the data collected by the management entities, as well as from universities, Agenda 21 locations, and wider-scale regional campaigns, a set of indicators will be identified, aimed at assessing the proper fulfillment of the development and trends of natural components, as well as the explication of ecosystem services, given that ongoing research is mainly focused on constructing, through monitoring data as well, indicators of knowledge and the status of those same components.

Due to the institutional structure of the Protected Areas in the reserve, operating references can be located at national level, such as the ability to define national environmental accounting consistent with the objectives of the National Strategy on Biodiversity; and at the Regional level with periodical environmental status reports more appropriate to a dynamic assessment model, such as DPSIR pressure-response status.

More specifically, the starting points will be based on the results obtained, on the one hand, with the systemic research (multiannual) carried out by the Val Grande National Park in accordance with the National Strategy on Biodiversity, in particular for all aspects related to comparative analyses with all the other national parks within the Alpine bioregion; on the other with the Ticino Park's State of the Environment Report.

From a methodological point of view, the National Park's range of actions can be considered under the "User's Guide for Environmental Accounting Indicators for National Parks", i.e. an environmental accounting tool for public bodies which, together with economic and financial reporting, allows monitoring of the state of the environment and the evaluation of the environmental (positive or negative) consequences of the main activities carried out. This accounting therefore clearly presents the environmental policies implemented, so as to communicate the results obtained to the community.

In addition, the data collected over the last four years on the various natural components (habitats and species), as well as the experimentation of the monitoring methods developed by ISPRA, with specific guidelines referring to the habitats and priority species of the European Directives, included within the

context of the Alpine bioregion research, is especially important for the management and measurement of the results of the Reserve's activities.

As regards the baseline pressure and response model, the first Report on the State of the Environment of the Ticino Park (Ticino 2007publication), in which the main anthropic activities present on the territory, and their relative impacts on the various environmental components (air, water, noise, waste, etc.) were analyzed, identifying ad hoc indicators to monitor their performance. This document focused mainly on the Lombard territory of the Reserve but, given the territorial contiguity, many of the considerations on the main environmental components (in particular air, water, ecosystems), and the effects induced by current human activities, can also be considered valid for the Piedmontese territory (as well as the fact that the data used derives from studies and research conducted on the Ticino River as a whole, and by the two Parks). The objective of the Reserve Candidate will be the preparation of a Park RSA, extended to the whole territory of the Reserve itself, which will assess the effectiveness and efficiency of any corrective measures implemented to contain / reduce human pressure, both in terms of management policies as well as incentives for the adoption of "good practices" aimed at the environmental sustainability of projects, activities and territorial planning. The Report on the State of the Environment and its periodic updates will also be the primary tool for monitoring the economic activities of the Reserve, with particular reference to the agricultural sector and the promotion of tourist-receptive activities.

12.3.Describe biodiversity involved in the provision of ecosystems services in the biosphere reserve (e.g. species or groups of species involved).

Biodiversity is a key element of ecosystems, and hence for the provision of ecosystem services; thus any changes in biodiversity may affect the provision of the services themselves.

The Biosphere Reserve has a high biodiversity, as evidenced by the presence of a large number of different habitats hosting an even greater number of flora and fauna species. See paragraph 11.6 regarding the biological characteristics of the site.

It is important to emphasize how species and habitats, as well as the complex of ecosystems that make up this biodiversity, are constantly evolving This is due to the ever-increasing degree of information and understanding of the natural resources available, which is constantly growing thanks to new studies and research, as well as to interventions on the territory aimed at improving, reinforcing and recreating said environments and habitats for species of interest. Adding to this is an increasingly effective, and widespread activities of awareness-raising and education, directed at local communities to foster knowledge of biodiversity and its worth.

The managing bodies of the Protected Areas therefore meet the national and international management objectives (European Strategy, National Strategy) for

Biodiversity, and through active and significant participation in territorial governance, together with other local authorities and various stakeholders, may also contribute to the objectives of water quality as set out in the Framework Directive (WFD). Consider, for example, the relationship between quantifiable water production and forestry management in terms of the environmental configuration and land use of the proposed reserve area.

7

Within this framework, for the implementation of Reserve management tools, these accounting and management schemes can be developed for the ecosystem services of green and water infrastructure services, thus facilitating the setting up programs of potential payment incentives for ecosystem services (PSEs) and environmental services (PSEAs). In this way, private resources could be found to recover and safeguard ecological systems and the services they provide, while helping to increase the effectiveness of management at the same time. Operationally, besides the various existing scientific methodological approaches, it is possible to count on the institutional procedures being defined in accordance with Article 70 of LAW 28 December 2015, no. 221 "Delegation to the Government for the introduction of Compensation Systems for Ecosystem and Environmental Services".

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?

Specific assessments of ecosystem services (SEs) have not yet been made with regard to the candidate reserve, but over the past few years there have been many timely evaluations of the habitats present and their role in sustainability, laying the groundwork for future insight and further research on the subject.

Testing and applying an innovative management scheme based on a shared environmental accounting methodology, which is functional in evaluating the effectiveness of the objectives of the Reserve, and more generally those of the National Biodiversity Strategy, can provide valuable support for the managing bodies for the compilation of the main mandatory or voluntary tools, such as the Performance Plan), the Environmental Report, the Sustainability Report, plus accountability, and documents provided by the different certification systems. Its application will ensure, on the one hand, useful administrative simplification, on other, will increase management effectiveness. Incorporating ecosystem services of green and water infrastructures into the accounting and management schemes, thus facilitating the implementation of potential PES and PSEA, so that private resources, useful to increase effectiveness of management, can be obtained.

Due to the environmental particularity of the Reserve, with its many and highly significant ecosystemic services related to the water cycle, it will be of strategic importance to improve the dialogue and collaboration between the managing entities of the PAs and those involved in the planning and management of resources. In this way, integrated actions that will help achieve mutual goals, and

foster local community participation through a deeper sharing of the management body's strategies, can be developed by adopting actions that have been already implemented by those local community / territories that are moving towards attaining conservation goals.

7

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 area of the reserve, with the stewardship and conservation activities that the parks have carried out for decades, has experience of effective territorial and landscape governance, that can be exported outside of its confines. Cultural capital that can be made available, and that can serve as an important basis for moving towards new models of participatory strategic planning designed to support social and economic environmental policies on sustainability, which are an improvement on the traditional models of large-area planning aimed at safeguarding generally adopted up to now.

Thanks to the expertise and experience of the parks, together with that of other active subjects on the territory (e.g. Agenda 21 Laghi), the Reserve area can be a testing laboratory for a number of innovative, sustainable activities and practices, functioning as a driving force of new economic and social models, with an active and proactive role as well, in territory situated outside the officially recognized Protected Areas.

This means offering and exporting knowledge, good practices, and management models to mostly urban populations, who know and recognize little, the value and significance of these Capitals, which are, the very basis on which urban life, and the growth development of cities and the economy exists.

In a reality where the quality of the landscape and the environment is increasingly compromised, the reserve wants to help meet the challenges of the new century, not only by preserving its natural capital, but above all by giving structural support to those technological systems which provide tangible and intangible services, most of which are irreplaceable.

The objectives that the Reserve plans to pursue can be summarized in the following three main actions:

- capitalize on past mistakes and experiences, focus on existing skills, invent new roles, improve communication, educate;
- experiment: make the Reserve a driving force of sustainability, able to bring new areas and research to agri-ecology, green economy, circular economies, mobility and sustainable tourism, sustainable urban water management, renewable energiesand to create a model of

sustainable development of its territory which can be exported;

- manage: network, and export its own models, become a point of reference for the territory's communities and actors.

13.2.Describe the sustainable development objectives of the biosphere reserve.

The proposed reserve is intended as a true sustainability laboratory, in which the three reference zones - core, buffer and transition - work together and interact, each with its own particular features and characteristics.

In accordance with the National Strategy, the sustainable use of biodiversity must take into account all of its functions (ecological, economic, social, cultural and ethical).

Sustainability is based on three pillars: environmental, economic and sociocultural. To ensure that the management of a resource is durable, all three areas need to be respected: the ability of life-sustaining ecosystems is the result of their intrinsic ecological capacity and the ecological and economic sustainability of policy choices made and their subsequent actions (ecological supportability = ecological carrying capacity + ecological sustainability).

The conservation of biological diversity therefore includes both protection and sustainable use, and ensures the proper functioning of ecosystems, and the supply of the services they provide, which are the essential basis of human life and the global economy.

The reserve's objectives for Sustainable Development therefore reiterate those of the National Strategy, together with those of the Agenda 2030s most recent sharing and strategic *vision*.

The three key themes of the national strategy have been borrowed from the international debate on biodiversity and sustainable development, and provide fundamental tools to eventually achieve the "vision" for biodiversity:

- a) biodiversity in relation to ecosystem services
- b) biodiversity and climate change
- c) biodiversity and economic policies

Current patterns of global production and consumption, and therefore those at the local level as well, are largely dependent on biodiversity and the resulting ecosystem services. Different development policies can affect the resistance of natural and semi-natural ecosystems: from transport to energy, and from agriculture to cultural well-being, actions taken may have many unanticipated negative consequences. Acknowledging this risk, the reserve has selected the objectives below from the Agenda 2030's new strategic elaboration program, as consonant with its management.

Objective 9: Build a resilient infrastructure and promote innovation and and equitable, responsible and sustainable industrialization

Objective 11: Make cities and human settlements inclusive, safe, lasting and sustainable

Objective 12: Guarantee sustainable models of production and consumption Objective 13: Promote action all levels to fight climate change

Objective 15: Protect, restore and encourage the sustainable use of the terrestrial ecosystem

Objective 17: Reinforce means of implementation and renew world partnerships for sustainable development

In particular, core areas are privileged sites, where the objectives of preservation and conservation of species and habitats, linked to both aquatic and terrestrial environments, are pursued. Even though this is the main function of the core areas, there are other outlying areas which fall into buffer or even transition zones that, because of their particular characteristics (e.g. residual moorlands, water meadows), also contribute to reaching those goals. Conservation cannot, however, be effective without an ever greater knowledge of what exactly needs to be protected; in this sense the Reserve can rely on research institutes, enthusiasts, and universities who find here an exceptional area for study and monitoring.

The coexistence of natural environments and highly developed anthropic realities within the Nature Reserve, means that among the main goals pursued are the contribution to and support of sustainable development practices, a balanced coexistence for the responsible use of resources.

In order to guarantee its future, the reserve must aim at educating and raising awareness, especially among younger generations. In this sense, the Ticino Valley Reserve fully shares the national claim "You are the Biosphere Reserve. Take care of it". Planning for actions regarding communication, dissemination and environmental education is therefore fundamental.

13.3.Indicate the main stakeholders involved in the management of the biosphere reserve.

The area of the reserve covers an extensive area and includes a large number of municipalities and associations that are all active in different ways and at different institutional levels. This makes it equally important to have a fair and balanced involvement of all stakeholders, giving voice to the various realities

present within the territory, in order to gain a broader consensus, share the main objectives pursued by the teserve, and to develop more adequate actions for sustainable development.

7

With such a broad spectrum of stakeholders operating in its territory, it is first necessary to define the main categories to which they relate to, and then identify those collective processes worth pursuing, with regard to the involvement of each of the different actors, and the shared elaboration and devopment of the actions.

The following is a list of categories of common interest/stakeholders that already partecipate in shared, collective actions:

- Protected Areas: Regional and National Parks, Reserves, Natura 2000 site managers, Sacri Monti, Geopark managers;
- Local administrators: reserve municipalities and their aggregates (Municipal Unions, Mountain Communities)
- Agenda 21 localities
- Relevant associations
- Cultural and sports associations
- Reclamation consortium
- Touristic activities reception
- Research bodies, universities, schools
- Local communities, people who work, live and study within the territory of the reserve

The following are initiatives concerning stakeholder participation and experiences:

- Paths to joining the "Carta Europea del Tursimo Sostenibile" (CETS)
- "Transparency Days"
- Shared predisposition for the development of local GAL sites
- Construction of the Community Maps
- Governance of the UNESCO Geopark

13.4.What consultation procedure was used for designing the biosphere reserve?

The Biosphere Reserve of the Ticino Valley already has an internal body, the Advisory Assembly, that guarantees extensive consultation with the local governments which are already involved. For the enlargement phase, tables and thematic meetings were held with the territory's main actors, in order to present the project, and request their support. A series of conferences and initiatives were also held, during which this application was presented. In addition, reference was also made to the already existing legal bodies for the parks such as the Park Community and / or the Protected Areas and the Thematic Municipal Commissions) as envisaged by each Statute (environment, agriculture, urban

planning, culture, etc).

13.5.How will stakeholder involvement in implementing and managing the biosphere reserve be fostered?

The reserve already boasts its own system of government that includes an Advisory Assembly, a Technical Committee and the MAB Office.

The present Ticino Valley Advisory Assembly, which includes the 83 municipalities and provinces whose territory is already included in the MAB area, will be extended to all Administrations concerned with the enlargement, in forms that will be considered most appropriate to enable maximum representation of the Communities while ensuring optimal management of the Assembly itself.

As for other stakeholders not directly involved in the management of the Reserve, plans for appropriate communication and involvement will be put in place through the organization of events, meetings, news releases on the main channels (websites, Facebook page of the reserve), and dissemination activities (brochures, leaflets, newsletters...).

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 Biosphere Reserve of the Ticino Valley can rely on a technical structure, the MAB Office, which, with the support (in terms of staff, knowledge, data, experience) of the other park offices, has the task of implementing objectives of the same, through communication activities (site updates, Facebook page, reserve newsletters); drafting and presentation of projects to banking and European foundations for the implementation of actions supporting the three functions of the Reserve; and coordination and support to other projects related to the themes of the MAB Program. At present, the Reserve has been able to rely on the funds of the Parks for the implementation of the above actions and for the preparation of the new application dossier. For this purpose, a Memorandum of Understanding was signed between the Parco del Ticino lombardo, the Ticino and Lake Maggiore Management Body and the Val Grande National Park.

With the extension of the territory of the Reserve, the current MAB Office will be integrated with technical staff of the other park bodies involved. New funds will also be sought from public and private entities through conventions or contributions for the activities of the reserve.

14. CONSERVATION FUNCTION:

14.1.At the level of landscapes and ecosystems (including soils, water and climate):

14.1.1. Describe and give the location of ecosystems and/or land cover types of the biosphere reserve.

Several ecosystems, landscapes and land cover co-exist in this Biosphere Reserve, including 42 habitats of Community interest, of which 8 are priority habitats, as specified in Chapter 11.

Per quanto riguarda le tipologie di copertura del territorio, si è utilizzata la classificazione di Corine Land Cover di secondo livello, derivata da Corine Land Cover anno 2012 - dati vettoriali del Geoportale nazionale, per una questione di uniformità di lettura, essendo l'area compresa in due diverse Regioni (Piemonte e Lombardia) e i dati regionali di CLC non confrontabili.

To classify the different types of land cover, the second level of the Corine Land Cover (CLC) classification was used, derived from CLC year 2012 - vector data, using the National CLC. In fact, being the area shared between two regions (Piedmont and Lombardy), it as not possible to use regional land cover data, being them not uniform between the two regions.

The CLC project was established at a European level specifically for tracking and monitoring land cover, with particular attention to the need for protection.

In the annexed maps, the first level of CLC was used, to simplify map reading.

CORINE Land Cover Legend	Surface area (ha)	percent
Artificial surfaces	40.299	12,1%
Agricultural areas	114.483	34,5%
Forest and semi natural areas	154.887	46,6%
Wetlands	524	0,2%
Water bodies	21.970	6,6%
Total	332.163	

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 state of the conservation of the Reserve ecosystems is influenced by various anthropic and natural factors, variable over time. In order to provide guidance on these aspects, the state of conservation for each habitat of the Directive is described, taken from the study "Species and Habitats of Community Interest in Italy: Distribution, Conservation and Trends" ISPRA, Reports Series, 194/2014.

CODICE	HABITAT	CONSERVATION STATUS	TREND
2330	Inland dunes with open <i>Corynephorus</i> and <i>Agrostis</i>		?
2330	grasslands		
	Oligotrophic waters containing very		?
3110	few minerals of sandy plains		
	(<i>Littorelletalia uniflorae</i>) Oligotrophic to mesotrophic		?
	standing waters with vegetation of		:
	the Littorelletea uniflorae and/or of		
	the Isoëto-Nanojuncetea		
3130	A		<u>.</u>
3130	с		Ы
	Hard oligo-mesotrophic waters with		\rightarrow
3140	benthic vegetation of Chara spp.		
	Natural euthrophic lakes with		Ы
3150	Magnopotamion or Hydrocharition- type vegetation		
3150	Natural dystrophic lakes and ponds		И
0100	Alpine rivers and their ligneous		<u>ا</u>
3240	vegetation with Salix eleagnos		
	Water courses of plain to montane		И
	levels with the Ranunculion fluitantis		
3260	and <i>Callitricho-Batrachion</i> vegetation		
5200	Rivers with muddy banks with		К
	Chenopodion rubri p.p. and		
3270	Bidention p.p. vegetation		
102.0	European dry heaths		\rightarrow
4030	A		<u></u>
4030	с		Ы
4060	Alpine and Boreal heaths		
	Bushes with Pinus mugo and		И
	Rhododendron hirsutum (Mugo-		
4070*	Rhododendretum hirsuti)		
6150	Siliceous alpine and boreal grasslands		
0100	Semi-natural dry grasslands and		И
	scrubland facies on calcareous		
6210	substrates (Festuco-Brometalia)		
	Semi-natural dry grasslands and scrubland facies on calcareous		Ы
	scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>)		
6210*	(*important orchid sites)		
	Species-rich Nardus grasslands, on		К
	siliceous substrates in mountain		
6330*	areas (and submountain areas, in		
6230*	Continental Europe) Molinia meadows on calcareous,		\rightarrow
	peaty or clayey-siltladen soils		
6410	(Molinion caeruleae)		
	Hydrophilous tall herb fringe		Ы
	communities of plains and of the		
6430	montane to alpine levels A		
0430			\rightarrow
6430	с		
	Lowland hay meadows (Alopecurus		Ы
6540	pratensis, Sanguisorba officinalis)		
6510	Α		\rightarrow
	с		7
6510			
6510 6520	Mountain hay meadows		Ы
			ע ע

	Calcareous fens with Cladium	К
	mariscus and species of the Caricion	
7210*	da vallia nae	
	Petrifying springs with tufa	К
7220*	formation (Cratoneurion)	
7230	Alkaline fens	И
	Siliceous scree of the montane to	
	snow levels (Androsacetalia alpinae	
8110	and Galeopsetalia ladani)	
	Calcareous rocky slopes with	
8210	chasmophytic vegetation	
	Siliceous rocky slopes with	
8220	chas mophytic vegetation	
	Siliceous rock with pioneer	ע
	vegetation of the Sedo-Scleranthion	
8230	or of the Sedo albi-Veronicion dillenii	
8310	Caves not open to the public	R
9110	Luzulo-Fagetum beech forests	ע
9130	Asperulo-Fagetum beech forests	K
	Sub-Atlantic and medio-European	ע
	oak or oakhornbeam forests of the	
9160	Carpinion betuli	
	Tilio-Acerion forests of slopes, screes	ע
9180*	and ravines	
	Old acidophilous oak woods with	ע
9190	Quercus robur on sandy plains	
91AA*	Eastern white oak woods	?
	Alluvial forests with Alnus glutinosa	R
	and Fraxinus excelsior (Alno-Padion,	
91E0*	Alnion incanae, Salicion albae)	
	Riparian mixed forests of Quercus	И
	robur, Ulmus laevis and Ulmus	
	minor, Fraxinus excelsior or Fraxinus	
	angustifolia, along the great rivers	
91F0	(Ulmenion minoris)	
91F1	INESISTENTE	
91F2	INESISTENTE	
9260	Castanea sativa woods	R
92A0	Salix alba and Populus alba galleries	И
	Acidophilous Picea forests of the	R
	montane to alpine levels (Vaccinio-	
9410	Piceetea)	
	Alpine Larix decidua and/or Pinus	
9420	cembra forests	

Favorable state of conservation	
Inadequate state of conservazion	
Unacceptable state of conservation	
Unknown state of conservation	

- ↗ trend improving
- \rightarrow trend stable
- レ trend worsening
- ? trend unknown

14.1.3. What kind of protection regimes (including customary and traditional) exist for the core area(s) and the buffer zone(s)?

In Lombardy, the core area is mostly within the Reserve integral, natural or of botanical interest of Park of the Ticino Valley and in the partial and oriented Natural Reserve of Campo dei Fiori Natural Reserve, which also represents Natura 2000 sites. The part of the core area within the Ticino Valley and outside the Natural Park includes areas classified as partial natural zones where only activities compatible with the aims (botanic-forestry, zoological-biogenetic, geological-hydrogeological) of such areas are allowed.

In the Ticino Valley, the buffer zones correspond to the buffer areas of the Park and to areas where agriculture and forestry is allowed, while for the Campo dei Fiori, the buffer zone includes areas of aimed at forest Park and agriculture, and areas of historical and landscape interest which are subject to regulatory rules and control of activities consistent with those specified for the MAB classification.

In Piedmont, the core areas correspond into the existing National and Regional parks, to Integral Reserve Areas and Special Nature Reserves, for the conservation of existing areas and elements of particular environmental and natural value, respectively. These involve specific conservation tasks as they are characterized by unique natural and vegetal features of Val Grande, along with vegetation of particular scientific interest and areas of prestige along the banks of the Ticino River

Buffer areas are also under conservation regimes according to the Park plans, and correspond to areas of the park, where allowed land use and conservation measures are consistent with those prescribed for buffer zones in MAB areas.

The buffer area around the core area of the Val Grande Integral Reserve is coincident with the B and C zoning of the Park plan, i.e., general orientated reserve areas and areas of protection in accordance with the Decree establishing the Park.

In the Piedmont part of the Ticino Valley, the buffer area corresponds in the current Area Plan (1985) to a "special agricultural area for the protection of the Pelobates Fuscus" having specific requirements regarding any agricultural activities that could impact this species; and to "Other Areas", mainly wooded, under proper management regulated by forest management rules, for the preservation and conservation of environmental and landscape values, and the defense of the hydrogeological structure of the territory. Within the perimeter of these areas are included small urban areas with permanent or temporary residential buildings, industrial facilities, commercial, tourist and recreational facilities, technical facilities, and roads.

In general, the core and buffer zones correspond to the entire Ticino Valley protected area, which corresponds to SCIs and SPAs.

14.1.4. Which indicators or data are used to assess the efficiency of the actions/strategy used?

The Reserve has activated and carried out a number of research and monitoring campaigns, often during several years, in collaboration with universities, research centers, other parks and public bodies, which undergo continual updating. To date, reporting is based on data and knowledge derived from surveying and monitoring activities and involves a complex procedure of data

collection, integration and processing.

The purpose of the research listed below gives an overview of the depth and detail of the indicators that can be have been and/or can be provided, even if not explicitly provided by each research, also considering the time series and the spatial cover of the research activities carried out and ongoing.

The main purposes for which most of the research activity has been undertaken, both within and outside the protected areas, are listed below:

- to increase the knowledge of the Reserve flora and fauna, in particular for the protected areas;
- to find ecological and habitat requirement of conservation target species, in order to develop better conservation measures;
- to find the major stress factors and impacts acting on the environmental elements, e.g., monitoring water, sewage and air quality;
- to evaluate the health status of tree species and of habitats, affected by human impact, such as pollution, water shortage, noise, alien species;
- to design action for reducing ecologic fragmentation, such as building passages for animals above or below roads, and building corridors for fishes, and to test their efficacy;
- to find adequate measures to reduce ecological impact of human activity;
- to develop durable tourism.

It is evident that these research goals not only concern the conservation of the natural heritage and resources, but also the interaction with and the impact of human activities, with more direct relationship with the ongoing strategies of implementation. Considering the whole set of research activities carried out (see chapter 16.1.2), they include all environmental aspects (air, water, soil, nature and biodiversity), and they allow to define the environmental factors concerning:

- air quality
- water quality and minimal outflow
- river functionality
- animal biodiversity
- ecological connectivity
- land use
- phytosociology
- phytopathology
- socio-economic aspects
- tourism impact

However, in a management perspective of the biosphere reserve, reporting of the related data sets and indicators used to date within the activities carried out in parks and other areas of the Reserve, cannot be dissociated from its meaning under the Habitats Directive, or on the basis of Article 11, must guarantee the Member States, the conservation status of species and habitats, defined as the effect of the sum of the factors which, by influencing the species concerned, may alter in the long-term their distribution and the importance of its populations.

As a consequence, the major parameters indicating the status of a given species are its territory, population and habitats, pressures and foreseen trend. On the other hand, it is necessary to assess the conservation status of each species of Community interest in both biogeographic regions of the Reserve (Alpine and Continental).

The more the monitoring data will be solid and collected with sound and standard procedures, the more the reporting will be reliable and the data will be comparable in long time series.

From this perspective, the multitude of activities carried out and being carried out in the Reserve will only be able to be oriented and structured on the fundamental parameters mentioned above, for each entity listed in the Annexes of the Directives, both inside and outside the Natura 2000 network.

Finally, research activities conducted in the drafting of management plans for the protected areas (parks and / or Natura 2000 network) have enabled specific conservation objectives to be set, to define whether to maintain / expand the current areas, to maintain / restore the appropriate habitat, to increase the size of the population, to increase reproductive success, to reduce loss / mortality, that is to define / redefine conservation objectives.

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.

A complete list of all the major groups of species of particular conservation interest in the Reserve is reported in chapter 11.6. Here below are listed the numerous habitats and species of particular conservation interest, i.e. eight priority habitats:

4070* Shrubs with Pinus mugo and Rhododendron hirsutum (Mugo-Rhododendretum hirsuti)

6210* Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important orchid sites)

6230* Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe)

7210* Calcareous fens with Cladium mariscus and species of the Caricion

davallianae

7220* Petrifying springs with tufa formation (Cratoneurion)

9180* *Tilio-Acerion* forests of slopes, screes and ravines

91AA* Eastern white oak woods

91E0* Alluvian forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)..

Flora of particular interest, includes the following species: *Trapa natans*, *Rhynchospora alba*, *Ludwigia palustris*, *Vallisneria spiralis*, *Myriophyllum alterniflorum*, *Isoetes malinverniana* (for which, along with the presence of *Accipenser naccarii*, the Boschi del Ticino have been recognized as a Key Biodiversity Area by the IUCN http://www.keybiodiversityareas.org), *Osmunda regalis*, *Marsilea quadrifolia*, *Gladiolus palustris*.

Fauna of particular interest, includes the following species: *Pelobates fuscus insubricus, Rana latastei, Carabus lepontinus, Osmoderma eremita, Acipenser naccarii, Austropotamobius pallipes, Aythya nyroca, Lanius collurio, Caprimulgus europaeus, Sterna hirundo, Himantopus himantopus, Coenonympha oedippus, Euplagia (Callimorpha) quadripunctaria, Lycaena dispar, as well as several bats, including Myotis emarginatus.*

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?

With reference to the habitats and main priority species of conservation interest identified in the Reserve and listed above, direct and indirect threats are listed below for ongoing and / or potential activities in the vicinity and / or within the Reserve area itself, as well as with interaction with the underlying ecological network of particular interest to the species considered.

In addition to direct interaction, the pervasiveness of many of the activities recalled here should also be considered, related to the spreading and extending of the socio-economic driving forces that characterize the territory of the Reserve as well as the neighboring areas.

In particular, the major human activities that may impact natural ecosystems, habitats and species of the Biosphere Reserve are listed below:

- expansion of urban areas and soil consumption
- intensive agricultural cultivation (including nurseries and garden centers)

- forestry practices, mainly based on monovarietal plantations and on populations of exotic tree species of
- uniform age
- forestry ractices
- introduction of allocthonous, non-native species
- facilities for gravel and sand processing
- infrastructure building (construction of new roads, highways, railway lines, technological lines, power lines,
- water barriers)
- aerial traffic around the Malpensa Airport
- road traffic
- water abstraction for irrigation and industrial purposes
- water level regulation of Lake Maggiore
- hunting, fishing and poaching
- tourism
- horse riding activities
- loss of traditional farming and pastoral activities

Regarding the indirect effects and pervasiveness of said actions, consider, for example, that since 1943 the water level Lake Maggiore has been regulated by the Miorina dam, located on the Ticino river. This artificial level control has consistently altered the natural hydrological regime of Lake Maggiore and the Ticino River, with direct interaction with and impact on the river and lake habitats involved.

Also tourisms within the Reserve is subject to regulations, especially for hiking, sports activities (such as cross-country running), bicycle tours and horseback riding. Water tourism (to which nautical yards are linked), is also present, in particular during Summer, thanks to public beaches along the river and the lake.

Summarizing, the direct and indirect actions resulting from the main driving forces active in the territory, and the main consequences of these activities can be summarized as follows:

• changes in land cover with a reduction of natural environments and soil impermeabilization

• Loss of biocultural environments, particularly for habitats 6210 and 6230.

• banalization of the landscape (loss of elements such as hedges and rows ...)

- pollution of water, soil and air
- noise pollution
- flooding of reed bed areas along Lake Maggiore
- water shortage (below the Minimal Discharge)
- phenomena of fragmentation or reduction of natural and semi-natural

habitats and their consequent isolation

- phenomena of bird electrocution and their collision with power lines
- genetic pollution of populations
- waste dispersal
- waste deposits resulting from lake floods

As mentioned, thanks to a level of planning able to lead the processes most directly interacting with the habitats concerned, in particular through the presence of parks and protected natural areas, it is mainly the effects of the more pervasive impacting actions and potential threats to the natural areas, and in particular on the priority habitats and species.

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 Parks have long been involved in monitoring the possible impacts and the conservation status of habitats and species of particular interest through various studies, research, and projects. These include the *Pelobates* Project in the Ticino Valley Natural Park; the monitoring of the chemical composition and the macrobenthic fauna of the small streams in Val Grande, and the CRAINat Project for the protection of the *Austropotamobius pallipes*.

In addition to the activities of the Parks, those conducted by Regional Agencies for the Protection of the Environment (ARPA), the Piedmont and Lombardy Regions, and the Institute of Ecosystem Study Institute on the National Research Council must also be mentioned.

Tentative indicators to be used for monitoring key species are listed below:

- changes in habitat surfaces
- changes in the presence of plant and animal species
- changes in plant cover
- chemical and physical quality of water
- presence of invertebrates

14.2.4. What actions are currently undertaken to reduce these pressures?

The Biosphere Reserve, is on the one hand, a source of biodiversity and at the same time a heavily anthropogenic territory. Then the management of the fauna is extremely complex due both to the presence of many animal species and the need to develop actions to protect and support endangered species, as well as to contain and minimize anthropic pressure on wildlife.

Years of experience have allowed issues to be addressed in the following areas

 Support to native fauna species with particular reference to the species in difficulty

- control of non-native species
- Eradication and / or containment of invasive species: containment of the coypu (*Myocastor coypus*) and wild boar (*Sus scrofa*)
- containment and monitoring of the harmful insect *Popilla japonica* for the protection of the natural, semi-natural and agricultural environment.
- Monitoring species of particular conservation interest and raising the awareness of particular animal groups
- Construction and / or maintenance of ecological corridors and gates to avoid fragmentation of habitats and isolation of populations (fauna subways, green bridges, climbing stairs for fishes)
- Development of teaching and awareness raising of the local population and associations
- Bird-ringing
- Bird census dedicated mainly to wintering species
- Surveys on flora, vegeatation, and fauna (fish, birds, bats, amphibians, reptiles, insects and spiders)
- Census of flora and of valuable trees
- Environmental education activities carried out by the Park's staff supervisors and technicians or by specialized external staff aimed mainly at schools (from nursery to university) and also at the users of the protected area, to promote the awareness of the environmental, naturalistic and historical sites values linked to the habitats in the reserve, from simple guided tours to didactic projects such as field-trips and in-depth meetings.
- Activities in the field of environmental education and territorial management in the broadest sense, carried out by the staff of the Park Authority or by specialized external staff and addressed to high school students, university students, enrolled in vocational training courses, volunteers and persons followed by Social Services of the territorial territories belonging to the reserve
- Diversifying the source of funding, with particular attention to the financial resources that projects can generate
- Intensification of relations with Entities, Associations and Stakeholders

The activities carried out in the field of fauna complement and complement the activities carried out in the field of vegetation for the protection and the reconstitution of habitats:

- Forestation and forestry improvements
- Crop thinning
- Recover of natural vegetation: planting of local native trees and shrubs (*Alnus glutinosa, Cornus sanguinea, Viburnum opulus*, etc.)
- Control of exotic species (Robinia pseudoacacia, Ailanthus altissima,

Prunus serotina, Acer negundo, Lonicera japonica, Parthenocissus quinquefolia, Buddleja davidii, Apios americana, Pueraria lobata, Bidens frondosa, ..)

- Recovery and realization of wetlands
- Monitoring health status of vegetation
- Realization of hedges and rows of trees
- Mowing of fields
- Regulation of cutting practices
- Valuation of forests as a source of greenhouse gas emissions (carbon sink)
- Maintenance of moorlands
- Seed collection of species of conservation interest (e.g., *Drosera intermedia* and *Rhynchospora alba*)

To these can be added:

- Chemical and biological monitoring of water and air quality
- Concerted action to improve the sewage treatment and to reduce the pollutant discharges into the Ticino
- Actions for the definition and implementation of the Minimum Vital Flow
- Realization of natural engineering interventions: restoration of banks or disordered erosion phenomena, mainly along the banks of the Toce and Ticino Rivers, using natural engineering techniques
- Activities to promote eco-sustainable tourism
- Creation of cycle and pedestrian paths: over the years, a network of cycle and pedestrian paths has been created within the Reserve to enhance the territory, given its high tourist fruition.
- Regulation of activities that can be carried out in the Reserve (core and buffer areas)
- Cleaning of small unauthorized dumping grounds
- Maintenance of water meadows and promoting organic forms of farming.

14.2.5. What actions do you intend to take to reduce these pressures?

The Reserve will perform concrete actions for the conservation and protection of core areas and a policy of media awareness on the common objectives of the MAB program and AGENDA 2030.

A series of training seminars are planned for teachers, local administrators, stakeholders, event organizer, and initiatives for sustainable use of the entire Reserve.

The Reserve will adopt an action plan that will consider it as a multi-thematic territorial laboratory able to create exhaustive three-dimensional networks for alliances across the territory, even outside its borders, with the goal of

overcoming the preservation-enhancement dichotomy. The lines of action will see the Reserve as a representative element, an active subject of sustainable growth, a promoter of a *green culture*, a system innovation promoter (infrastructure for ecological networks, agro-ecosystemic, etc) with an increasingly active role in the <u>governance</u> process of the planning system, the <u>infrastructural connection</u> between the Parks networks and ecological networks, giving <u>support to local authorities</u> on conservation and enhancement, on <u>ecosystem services</u>, as well as on sustainable and cultural fruition of the territory.

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).

Within the Candidate Reserve, several species are important for conservation, pharmaceuticals, food production, and agrobiodiversity. The biodiversity of cultivated and spontaneous species and varieties, and of particular breeds of livestock, is of fundamental importance for agriculture and farming, allowing for the production of food, fibers for textiles, timber, pharmaceuticals, etc. and enables the selection of new varieties and breeds suitable for changing environmental and climatic conditions.

From the point of view of the agriculture and food production and, specifically, its biodiversity and land use, there is a substantial geographic division in the Reserve between significant activities and production areas of the plains, and more marginal and niche activities in the hills and mountains.

The territory of the Reserve is still affected by well-rooted agricultural tradition, a strong, characterized by modern means and techniques, but in full transition to low impact and / or organic farming.

In the southern part of the Reserve, in the plain, agriculture is more intensive, with medium-to-large sized cultivated plots. Land use is mainly devoted to arable crops of wheat and other autumn-winter grains, rice and maize. Also widely used are grassy meadows and pasture, in particular in the form of permanent meadows and pastures that represent an important agri-environmental indicator, i.e. the presence of stable agriculture, dedicated to milk production or animal husbandry. Wood tree culture is also present in these territories, where the presence of alluvial soils makes it easy to invest mainly in industrial poplar plantations Short production cycles and the possibility of rotation with rice and corn facilitate this type of cultivation, even though it is not economically productive. Forests cover a vast area; this fact brings to light the future of this territory, which will have to increase its forest heritage without penalizing the agricultural sector, and to put policies into place for agriculture with less impact on the environment and of higher quality.

In the northern part of the Reserve, with a hilly and mountainous morphology, the arable land gradually yields to meadows, vineyards and forests, continuously

alternating, and creating a diverse and pleasing landscape. The size of the fields become smaller and smaller, encouraging natural areas to be included between cultivated plots, a fundamental element for an effective ecological network.

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At the end of the 1990s, the primary role of sustainable agriculture for the safeguarding and conservation of natural resources and biodiversity became more and more obvious. In fact, the continuous exploitation of cultivated land, especially the practice of deep plowing and monoculture crops, causes considerable damage to soil fertility. The Community regulations regarding organic and / or low-impact production provide that the fertility and biological activity of the soil must be increased or at least conserved, with multi-annual crop rotation, use of green manure, and the incorporation of organic materials, such as manure, crop residues, and compost in the soil. With regard to pest, weeds and disease control in general, it is necessary to reduce the use of chemicals or opt for more suitable species and varieties, to use mechanical disruption and/or other techniques of agronomic management. Over the past decade, awareness of the above concepts leaded to concrete initiatives and actions that have gradually increased the number of farms and agricultural companies that adopt organic farming and / or low impact practices. It is therefore worth noting that there are organic and / or low impact farms both within outside and the Parks.

It is important to point out how the role of agriculture in the Reserve is of fundamental importance for the survival of valuable animal and vegetable species, some very rare and symbol of the vast biodiversity existing therein. Cultivated land occupies the fertile soils of the plain irrigated by a dense network of minor channels derived from the natural springs and main derivation channels of the Ticino that guarantee the survival of agricultural and natural biodiversity. In this cultivated landscape, plantations of hybrid and non-native species of poplars alternate with highly productive cornfields and paddy fields, which are precious habitats of aquatic organisms (insect larvae, crustaceans, molluscs, amphibians), food for birds; permanent pastures and / or alternated meadows host particularly valuable herbaceous vegetation and are unique habitats for many animal species; water meadows and paddy fields are from a trophic point of view similar to natural wetlands, while fully, marginally and uncultivated fields, host messicol plants and, species of lepidotera, reptiles, and micromammals, as well as a variety of bird populations that inhabit and reproduce in the agricultural areas of the Reserve or utilize them every year as they migrate, from northeren to southern destinations and back again in spring.

The zoning of the Reserve designates this important area for agricultural and forestry as well as for its interest as landscape (assigned as buffer zones or transition zones), promoting conversion to compatible, environmentally-friendly agriculture through the maintenance of biological networks and corridors (hedges, wooded areas, rows of trees) and consequently long-term protection of the biodiversity of species and habitats.

The Reserve is a provider of ecosystem services:

 support for the development of organic farming practices and incentives for the maintenance of stable water meadows and pastures, for the reconstitution of hedges and rows, for the preservation of ancient agricultural varieties, for the creation of fauna habitats;

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- Forest management control of non-native, imported species (*Prunus serotina, Ailanthus, Robinia*)
- Conrol of harmful species (wild boar, nutria or coypu, Japanese beetle)

Since 'rural space' represents in the 3rd millennium, a continuity of system located between protected habitats and built-up urban areas, and is fundamental for food production and providing complementary areas of attractiveness to the city, the existing Reserve's brand makes the MAB area of the Ticino Valley, its typical products, the recovery of traditions, and ecologically friendly techniques immediately recognizable. The trademark for farms is not only a simple promotion of local products, but also a recognition of the multifunctional nature of businesses in the agriculture, food production and tourism, as well as the value that certain productive activities can have in maintaining the environmental equilibrium and contributing to the sustainable management of the territory; it is of a collective nature, as it distinguishes products and / or services belonging to a plurality of producers and / or suppliers.

The brand identifies companies whose actions and behaviour conform to the MAB Program and thus become suppliers of environmental quality.

The current Reserve, through the two Ticino Parks, has so far produced several local experimental development and awareness initiatives in agricultural areas. These have always been carried out with the direct and participatory involvement of local farms in their role as experimental sites and the implementation of the transition towards organic and / or low impact farming. The attached map illustrates the main projects, that have been realized so far in the 2000s, including the number of companies involved, in the agricultural areas of the two Parks. In the last few years, these initiatives proposing experimental actions have moved outside the boundaries of the Parks (in the logic of the MAB program guidelines that define the reserve as a laboratory of experiences and good practices to be exported). Among these are the recovery of peasant traditions and the experimental cultivation of spontaneous vegetables and herbs on 9 farms in the Ticino and Novara BioParks, and a project covering the entire MAB area being now presented toon the Cariplo Foundation "Natural Capital" project call.

Several agriculture and food products are supported by brands of quality (see paragraph 15.3.1).

In the proposed enlarged area of the Reserve, excluding the Novara plain,

already mentioned above, hilly and mountainous areas prevail, and the share of extensive forestry and agricultural land increases; arable land is restricted to river and interurban valleys (e.g. Toce Valley) with limited cultivation of maize for foraging, while meadow and pasture lands become important habitats of Community interest. Traditional farming operations here further the conservation of the biodiversity of herbaceous cows and related fauna.

The vastness of the forests here and the variability of the formations present, which are largely attributable to habitats of Community interest, are impressive. Just the chestnut woods alone forms a Natura 2000 habitat, thanks to the extensive presence of ancient cultivation and their natural environments

Attention to the recovery and conservation of agricultural biodiversity is demonstrated by the many activities of conservation and recovery projects dedicated to traditional cultivation.

In the viticulture sector, it is worth remembering the native grape variaty, locally known as Prunent, a traditional nebbiolo of the Ossola Valley, that has been cultivated on historic terraced vineyards for centuries. The vine-training system used is called "Topia", with the base for the vertical supports made of local stones.

In the fruit farming sector, efforts have been made in recent years to recover native apple varieties. Another important project, initiated by the Val Grande National Park (through the Interreg III A project "Cross-border Landscape Conservation Protected and Promoted Landscape"), was directed at the chestnut cultivation, passing from "tree of bread" (as it provided food for the peasant civilization), to resource to be valued not only for its biological and productive potential associated with fruit and wood, but also for its cultural and landscape significance. The aim of the study conducted on the seeds of the Val Grande Park by the Department of Arboreal Cultures at the University of Turin, was to highlight elements for the enhancement of the ecosystem of the chestnut woods (agroforestry system interested in production and hydrogeological defense, biodiversity and the signs of material culture), and the fruit itself (highlighting the characteristics that make it usable, for example, o be dried, or in pastry and flour), as well as the aesthetic significance of centuries-old specimens that can become the symbol and living testimony of a once-old life and culture in the territory of the Park. Biodiversity detected by cultivation census and morphological and genetic characterization is evidence of the history and life of the local populations. The cultivars found in the Park are different from those found in the main areas of Piedmontese cultivation.

Fig. 35 Vineyards at Trontano in Ossola Valley



In the cereals sector the municipality of Beura, has recently set up the "Polenta di Beura" project for the cultivation of maize for human consumption, ground in a local mill; this project is helping save ancient corn varieties, each year targeting certain fields for the experimentation of non-hybrid varieties for the formation of a germplasm bank, again aimed at safeguarding biodiversity.

With regard to the biodiversity of grasslands, thanks to both forage and natural interest, there is growing awareness that traditional farming activities are fundamental to the conservation of habitats; above all the alpine pastures, which are exclusively used for grazing and can only be managed with herds that are reared and properly conducted, in order to preserve into the future what has been determined by centuries-old pastoral practices. Val Grande National Park has been involved in projects aimed at enhancing the productive and conservative component of pastoral management (promoting the recovery of alpine grazing pastures, especially those where invasive scrub has encroached, through better pastoral management), at qualified tourist reception and the cultural formation of its users, in a multi-purpose area.

Within the Campo dei Fiori Regional Park, chestnut trees not only play an important role in the ecosystem, representing significant forestry and plant culture, but was also one of the main sources of livelihood for local populations that for centuries have made it a pivot of their economy, exploiting not only the fruit but the wood as well. At present, after a gradual decline due mainly to the changing socio-economic conditions of the area that led to the abandonment of the chestnut woods, the Park Authority has re-initiated a series of interventions aimed at the recovery of this ecosystem, re-evaluated in its environmental and economic importance (beyond fruit and wood, the woods have been re-valued for the production of secondary products such as honey, beer, mushrooms ...

which contribute to integrating the income of the local mountain economy). In particular, 5 traditional chestnut varieties are included in the inventory of chestnut varieties cataloged in the South of the Alps (WSL 2001) which represented a flywheel for the recovery of ancient agricultural and forestry practices that combine with the proper management of the territory and new economies.

Reclaimed chestnut plantations, or those in good agricultural condition, must be considered habitats of Community interest and therefore subject to relative protection. The presence of at least two species of Community interest is also associated with the Park's chestnut woods habitat: *Dicranum viride and Lucanus cervus*.

14.3.2. What ecological, economic or social pressures or changes may threaten these species or varieties?

The loss of biodiversity has important economic and social consequences because it reduces the availability of food, medicine and energy resources. There may be different and various pressures and threats that affect the genetic diversity of the species or varieties in the Reserve; among them, for examples is the spread of invasive non-native species, intensive forms of farming and breeding using high-yielding species and varieties, the use of chemicals that interfere with animals useful to agriculture (pollinators, predators, etc.), the destruction or degradation of natural habitats, the abandonment of traditional cultivation methods, the pollution of water, air and soil.

In general, uncoordinated land management can lead to risky consequences, already listed and described above, regarding soil loss and permeability, resulting in the loss of biodiversity and cultivated territory. Such a risk would also lead to the decrease in the number of farms that function as "environment multipliers".

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 indicators used to monitor the trend and conservation of agricultural biodiversity within the Candidate Reserve could be the following: the area of cropland, the number of invasive non-native species and where they have invaded (regional data, ARPA, and Park Entities data), the number of farms and crop areas under sustainable management (data provided by the Regions on Rural Development Plans), the number of products with quality certification, the number of production companies (regional data).

14.3.4. the number of production companies (regional data). What measures will be used to conserve genetic diversity and practices associated with their conservation?

National and regional interest in the conservation of biodiversity, indigenous species and genetic resources has been demonstrated by numerous initiatives, studies, projects and funding.

Rural Development Plans provide specific farming measures aimed at increasing environmental sustainability by promoting production and management techniques that are compatible with the protection of the ecosystem, natural resources and landscape (integrated production, biodiversity interventions in rice fields, eco-friendly farming systems, management of natural agro-ecosystem elements, raising/breeding of native breeds threatened by abandonment of pastures or restoration of native shrubs / shrubs, creation of wetlands, installation of wildlife facilities (nests, shelters, etc.).

In 1976 the Piedmont Region established the Germplasm Bank, at the DIVAPRA (Department of Valorization and Protection of Agricultural and Forestry Resources) of the Agrarian Genetics Institute, University of Turin, with the aim of long-term preservation of seed samples of ancient varieties and vegetable ecotypes, creating a 'genes' reservoir for the future application of genetic improvement programs. For years, the Piedmont Region has financed numerous studies aimed at safeguarding biodiversity and maintaining agricultural production strongly linked to the territory and its traditions. The Lombardy Region also had a Germplasm Bank of indigenous species since 2004, with its head office at the Monte Barro Park Authority within the Centro Flora Autoctona of the Lombardy Region (CFA), and operational headquarters at the University of Pavia's Botanical Garden (since 2015 all LSB functions and activities are carried out at the headquarters).

Finally, the Val Grande National Park supports the Alpine Plant Conservation & Research Program, which aims to ensure the survival of endangered plants and habitats in the European Alps.

The Alpine Seed Conservation and Research Network is part of the largest Millennium Seed Bank Partnership, initiated and managed by the Royal Botanic Gardens of Kew (United Kingdom). The network combines partners from five botanical institutes hosted in major universities and botanical gardens of the Alps, so as to provide an integrated conservation and research program for Alpine flora. The project began in December 2015 and the first phase will end by November 2018.

A seedbank for the propagation of local native forest plants has also been set up by the ERSAF (Regional Agency for Agricultural and Forestry Services) at the Parco Geraci Center, in the municipality of Motta Visconti (MI), an area included in the Parco del Ticino.

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.

Over the last few years, with the new regional legislative provisions relating to urban planning and with the reforms of Piedmontese and Lombard protected areas and ultimately the reform of parks currently being approved at national level, the principles, goals and objectives of the MAB Program are becoming increasingly concrete. Therefore, the challenge of the Candidate Reserve, proposed precisely because it includes all the above-mentioned realities, is the integration of sustainable socio-economic development together with promoting appreciation of the territory's value, as well as the restoration of traditions and environmental education for the creation of "green minds and jobs ".

Recognition of the area proposed in the Biosphere Reserve would bring into connection territorial realities that are already cobducting individual projects for environmental sustainability and territorial enhancement and would ensure coordinated and broad-based planning of joint, and thus more effective, actions to achieve objectives.

The expansion of the Ticino Valley Reserve would bring significant added value in terms of natural, landscaped, tourist and enogastronomic capital, as well as the Val Grande National Park, the Campo dei Fiori Regional Park, the Sacri Monti of Varese, Domodossola, Ghiffa and Orta, and all of the municipalities along Lake Maggiore to the Swiss border.

The Candidate Reserve is made up of 5.4% core area, 15.5% buffer zone and 79.1% transitional area, which includes primary, forestry, productive, fruition, tertiary, tourist, etc. sectors.

The candidate territory has all the potential to become a management model for other territories in order to export the best environmental, natural, forestry, tourism and ethical agri-environmental experience in areas outside the BR's borders, through interventions of high biodiversity interest that are innovative for these areas and which would increase the value of the territory while extending and strengthening the ecological connection of the Ticino Valley, in line with the provisions of the Lombard LR 28/2016 regarding the reorganization of protected areas and ideas gained from the "The Parks of the 21st Century" project.

The MAB Reserve has become an exporter of sustainable experiences involving public and private actors in the ecological valorisation of neighboring territories, including bottom-up experiences previously initiated by local authorities, such as the LIFE TIB project - Trans Insubria Bionet, a significant wide-scale environmentally friendly network project promoting important land

defragmentation interventions.

As a model of expanding good ecological practices, the Reserve will, thanks to targeted communication and community involvement, foster wider perception and awareness throughout the territory, of the meaning and value of the "Biosphere Reserve".

Among the actions to be undertaken within the framework of environmental sustainability, the following must be mentioned:

- planning (soil consumption, construction methods, typologies, etc)
- ecological network and defragmentation practices
- farming practices (watermeadows, unploughed grasslands, forest improvement)
- husbandry practices, pastures (animal welfare)
- sustainability, fruition and sustainable tourism (zero CO2, bikehostel, sustainable accommodation systems)
- agro-food (branded products for environmental certification, traditional recipes)
- energy saving and clean energy (hydroelectric, photovoltaic, geothermal)
- environmental education aimed at sustainable development (the Reserve as a territorial laboratory)
- consultation and involvement of stakeholders

BOX - The LIFE-TIB Trans Insubria Bionet Project

Restoring a territory that has been damaged and "broken-up" and rebuilding a natural bridge between the Alps and the Apennines was the goal of the LIFE TIB - Trans Insubria Bionet project. It was a project designed to intervene in a territory where urbanization rates are well beyond acceptable thresholds. The project was aimed at improving and safeguarding the green infrastructure of one of the sections of the main ecological corridor that crosses the Po Valley, which an element of primary importance the Natura 2000 network that extends at a European level, since it links the Pre-Alpine hills with the Continental bioregions. In particular, the portion affected by the LIFE TIB project extending from the first Alpine reliefs of the Campo dei Fiori (north of Varese) and the Ticino River vally. The project, which was completed in 2016, had the Province of Varese as the project leader, together with other partners including the Lombardy Region, Lipu-Birdlife Italia and Cariplo Foundation. Also participalities whose territory is traversed by the two ecological corridors

The project was an important bottom-up experience that combined the timely interventions of conservation and defragmentation in the interests of sustainable development, taking into account those elements of urban and infrastructural development needing to be improved and placed within a project of integrated sustainability. This entailed making the major decision of patiently restoring the natural fabric of the areas concerned. Far from being the solution to all the issues involved, the project showed that the assumption of multi-purpose ecological networks can be the "needle and thread", or an effective strategy for undertaking this tough but feasible operation

15.1.2. How do you assess changes and successes (which objectives and by which indicator)?

New governance tools and instruments for measuring for the effectiveness of public action are being implemented in the local authoritative bodies and in the parks in particular. These tools, with their methodological approaches, and indicators of outcome and results, can be a reference for the evaluation of changes made in the Reserve's scope of action.

The Reserve, starting from the performance records of the existing social budgets of the protected areas and the municipalities located therein, and plans and / or studies of socio-economic development, will prepare a Sustainability Report in order to communicate, with absolute transparency, exactly what and how much is done for the conservation of the biodiversity and the sustainable development of its territory.

This refers in particular to the plans and reports on performance, to time spent on transparency and the social budgets (BSS) applied by the reserve's parks that are involved (Ticino and Val Grande).

The BSS is the term of comparison used for the long-term evaluatation of the results obtained with the recognition of the reserve. It will be based on the measuring of the adoption of good practices and conduct as described in the previous paragraph:

- planning
- farming practices
- husbandry practices, pastures
- accommodation systems, fruition and sustainable tourism
- agro-food
- energy saving and clean energy
- environmental education aimed at sustainable development
- consultation and involvement of stakeholders

The definition of the budget will be based on the provisions of the Ministry of Public Order Directive.

15.2.If tourism is a major activity:

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).

In its new geographical configuration, the MAB Reserve is characterized by a strong tourist footprint on its territorial environments, in particular those of the Ticino valley, Lake Maggiore and the Lombardy Verbano district.

A dual connotation of target and role can be referred to schematically, and with reference to the two territories: on the one hand, tourism in the Ticino Valley

tends to be domestic or short-range arrivals, and year-round, thanks to to its proximity to the Lombard-Piedmont metropolitan areas; while tourism in the area of the pre-Alpine lakes and valleys has a strong national and international connotations, with visitors coming mainly in spring-summer.

Since its establishment, the Ticino Parks located the Biosphere Reserve have had to face the problem of mass tourism in the protected area.

The phenomenon has been and still is relevant, especially during the high season, when thousands of tourists from Milan descend upon the few beaches of the Ticino, especially those convenient to the main transportation routes. Alongside this flow, that generated by the presence of Malpensa Airport must also be considered. A complete picture of tourism within the Ticino Valley Reserve has been outlined thanks to a systematic study conducted by the Touring Club Italiano in 2005. Below are some of the key data collected.

Due to the presence of Malpensa Airport and the proximity to the lakes, the proportion of international visiors to the Ticino Parks increased by nearly 14% in arrivals and 10% in overnight stays between 1998 and 2005.

Certainly, the presence of the Malpensa airport facilities in municipalities neighboring the Park directly affects tourist provenance and the percentage composition of the national and international market.

The share of foreign tourism out of the total of each area showed very strong signs of growth in visitors to the Varese province (+15 %), less so to the Pavese region (+ 5%), while there was a marked a contraction of 8% to the Milanese municipalities.

The increase in international tourism today is an advantage for the Rreserve, as most foreign visitors tend to be more interested in nature, or eco-friendly vacation proposals.

During the period 1998-2005, the United States of America was consistantly the main souce of foreign tourists, followed at a distance by the traditional European basins, in particular the United Kingdom, France, Germany and Spain.

The domestic market too, like the foreign one, is strongly concentrated: the first five regions cover, in fact, two thirds of Italian arrivals and overnight stays.

The main Italian tourism market is regional: from 1998 to 2005, about 30% of arrivals and overnighters registered in the municipalities of the Park were generated by Lombard guests. From the arrivals data it emerges that the national tourism recorded in the municipalities of the Park is predominantly based on proximity, since the main regions represented in 2005 were Lombardy (31.9%), Piedmont (11.2%), Lazio (7.2%), Veneto (6.5%) and Emilia-Romagna (6.3%).

In order to evaluate the effectiveness of the current tourist offer, it is also

possible to analyze data referring to those visitors hiring accompanying guides, most of whom are school groups: middle-school students (43%), followed by elementary pupils (30%), high school students (9%) and nursery school children (7%). Adults represent 10% of the total, with 1% in the disabled category.

Currently, the present Biosphere Reserve is working in partnership with a cartography company to prepare, by the end of 2017 / beginning of 2018, thematic maps dedicated to the territory of the Ticino Valley highlighting the main tourist routes and points of interest, including natural sites and features.

Park Centers have also been set up to address this notable flow of visitors, with the attendance of schoolchildren and organized groups now regulated and motorized means of access to the riverbed and the Navigli towpaths prohibited.

The Ticino Park also has a web portal (II Germoglio del Ticino <u>http://parcoticino.eguide.it/</u>) for tourism promotion with the aim of increasing all the "gentle" forms of tourism compatible with the essence of the Park and able to significantly increase the number of tourists attracted to the territory thanks to a network system involving farmers, traders, craftsmen and all those active in the field of reception and hospitality, and the protection of nature.

In general, as far as protected areas are concerned, visitore are invited to explore the vast naturalistic context via specific guided routes, avoiding the violation of the most fragile and vulnerable areas that have deliberately been left unmarked. The parks have encouraged and supported recreational activities such as canoeing, bicycling, horseback riding, and Nordic walking, which are all aimed at the responsible use of the territory with respect for the natural environments without altering the delicate balance.

The flow of tourism in the northern part of the Reserve, which coincides with Lake Maggiore, the Lombard Verbano, Ossola and the Val Grande National Park is of a different connotation and quantification.

With over 3.5 million visitors per year (2016), over 70% foreign, the area of the Lakes Tourist District (the Piedmont shore of Lago Maggiore) is the most important international tourist destination in Piedmont, and third in Italy for "tourist intensity" after Trentino Alto Adige and Valle d'Aosta. Added to this data, is the share of tourists to the ATV of Novara (392,781 in 2015) and to the Lombard lakes and province of Varese (2,226,192 in 2016).

Tourism is mainly boating and bathing, practiced from April to September. This sector also includes the area's boatyards, and of course the public beaches which are especially popular in summer. Tourist-accommodation facilities as a whole were built in the past to the detriment of traditionally agricultural environments and original natural habitats, such as forests and wetlands. It should be noted that in recent years, boating has been more effectively controlled through the enforcement of navigation regulations as well as at the protection of the coastal natural environments, especially the wetlands. In the Fondo Toce area, the Borromeo Gulf is one of the most important tourist areas of Lake Maggiore (in

the 5 campsites located there, a total of over 250,000 arrivals is reached annually).

Despite the underdeveloped touristic infrastructure, (with the exception of the centers of the Vigezzo Valley), the entire Val Grande National Park is an important point of reference for tourism in the Verbano Cusio Ossola Province, especially in July and August, The park is mainly a destination for nature lovers and hikers, most of whom congregate around the village of Cicogna, the only center in the Park area accessible via a paved road open to vehicles. There are no public transport facilities within the park

There are 10 unmanned, continually open bivouacs in the park, the only exception being the Pian Vada bivouac (keys must be picked up at the Park Authority) and all are equipped with a wood-burning stove for heating and cooking. There are also 4 managed shelters.

The main Ossola valley, compared to other Italian mountainous regions, is poorly developed from a tourist point of view, with only a few hotels and restaurants and the typical local cuisine is rarely offered.

The protected areas of the Lagoni di Mercurago Natural Park and the Bosco Solivo Natural Reserve are distinguished by tourist fruition that does not involve any particular problematic issues as use is regulated, especially for walking/hiking, sports activities (eg cross-country running), biking and horse riding excursions

With respect to a type of tourist flow linked to religious devotion, of particularly importance are three population centers located in the Reserve – the town of Arona, with its Sacro Monte (of San Carlo) and the villages of Boca and Re, with their two Sanctuaries. All are the destinations of excursions and daily pilgrimages on the order of a few tens of thousands of visitors every year. Religious tourism is also important in Lombardy and is linked to the the Sacro Monte di Varese, a place of faith and Marian worship, but also of other important sites, including the Hermitage of Santa Caterina del Sasso on Lake Maggiore.

> Types of tourist activities

The main tourist activities practiced in the reserve are listed below:

- hotel stays
- recreational activities
- birdwatching
- camping
- boating
- cycling
- training courses / seminars
- ecotourism
- riding

- geotourism
- trips / excursions / holiday stays
- visiting historic centers
- visiting centers of art
- visit botanical gardens
- lake excursions (public navigation)
- fishing and hunting
- study of flora and fauna
- underwater tourism
- > Tourist facilities and locations

Tourist facilities in:	
Core area	• none

7

Tourist facilities in: <i>Buffer</i> areas	 tourist centers info points cycle paths equipped thematic trails and paths services / facilities for refreshments hotel facilities alternative accommdation facilities (campsites, bivouacs) facilities for the disabled (hiking trails with wheelchair access, etc.)
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	• farmstays / B & B
	 conference / seminar / workshop faciities
	• tour guides
	• info points
	 information panels in Braille
	• bike paths
	 paths and trails
	 translation services
Tourist facilities in: <i>Transition</i> areas	 Services / facilities for refreshments
	• audio tools
	hotel facilities
	 facilities for the disabled (hiking trails, etc.)
	 bathing establishments and campsites
	• equipped areas (campers)
	convention centers
	• theaters
	• harbors and ports
	Removal areas
	• Canyoning services
	• Bike rental

> Benefits and Income for local comunities



Beneficiaries of the results of tourist activities (direct or indirect income	 agricultural / artisan craftsmen / manufacturers tourism companies residents in the Reserve (all three areas concerned) stakeholders.
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15.2.2. How many visitors come to the proposed biosphere reserve each year? (Distinguish between single-day visitors and overnight guests, visitors only visiting the proposed biosphere reserve or only passing on the way to another place). Is there an upward or downward trend, or a particular target?

The table below shows the tourist flows for hotel accommodation and alternative guest facilities divided by uniformly / or partially within areas of the Reserve area in the year 2015:

Tab. 10 Tourist flows

		Italiani		Foreigners		ТОТАЦ	
		Arrivals	Attractions	Arrivals	Attractions	Arrivals	Attractions
Distretto turistico de	i Laghi	325.202	835.721	682.885	2.515.322	1.008.087	3.351.043
Provincia Novara (es	dusa città)	200.497	402.699	165.246	487.975	365.743	890.674
Lago Varese		62.669	148.266	70.864	189.838	133.533	338.104
Varese		52.169	113.739	62.817	149.807	114.986	263.546
Lago Maggiore (Lon	ibardia)	28.774	58.377	43.750	136.232	72.524	194.609
Malpensa		267.271	417.966	474.593	666.612	741.864	1.084.578
Parco Ticino (13 com	uni lombardi)	235.819	352.927	443.062	603.805	678.881	956.732
TO TALE RISERVA		1.172.401	2.329.695	1.943.217	4.749.591	3.115.618	7.079.286

Comparing the most recent data (2015 and 2016) with past years reveals that there is generally a growing trend in park tourism, especially the foreign component, and in particular visitors from northern Europe.

Today, however, there is no data regarding "daytrippers", tourists who overnight outside the candidate area, but arrive and conclude their visit in a single day, attracted on recreational grounds to places of natural beauty (lakes, river and islands), as well as by interest in the cultural and artistic features of the territory. However, from various internal and external observers to the parks (eg access points to places of interest and the use of Lake Maggiore public navigation), a certain amount of significant data has been gathered which focuses mainly on the metropolitan basin user, during official "long weekend" holiday periods, occurring mainly in spring and summer.

In the case of the Ticino Park, since the use of hiking trails and cycling routes is free and unregulated, data cannot be collected regarding the total number of people visiting the Reserve, but there have been surveys on a few national holidays (Easter Monday, 25 April, May 1), which has allowed for the number of visitors to a portion of the reserve to be estimated at around 800,000 mostly concentrated on the river beaches, in the natural reserves or cultural and art cities such as Pavia and Vigevano.

15.2.3. How are tourism activities currently managed?

Tourist activities are governed by programming, direction, coordination and control by regional governments with a decentralized observatory role assigned to the Provinces, and operational articulation for subregional homogeneous tourist areas (districts) mainly linked to established dynamics of tourism in historically vocated areas. In Lombardy, districts of territorial attractiveness, for the purposes of the regional tourism law, arise from regional agreements with municipalities and other stakeholders for the implementation of integrated initiatives and initiatives for territorial, tourist and commercial attractiveness.

In general, info points and tourist facilities provide information and services and implement specific projects promoting tourism.

Regional actions, in both Piedmont and Lombardy, operate with specific programming tools with the aim of enhancing a sector considered strategic for the economic weight represented.

Starting from specific diagnostic frameworks, goals are set for growth of regional tourism on national and international markets, by attracting visitors and enhancing hospitality structures and tourism products and services, with the definition of the operational tools essential to implement the initiatives and achieve the desired goals.

Within this framework, are the specific actions of the parks, both in terms of promotion and fruition, with the Parks being used, in a manner, especially for recreational, hiking, sports, and educational activities.

Specific experience in managing tourism activities in the protected area is found in the European Charter for Sustainable Tourism (CETS), with EUROPARC certification assigned to the Val Grande National Park to support a participatory and sustainable action plan.

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)?

As illustrated in the previous paragraphs, tourism plays an important role in the candidate area from a quantitative point of view, especially in some areas at risk for flow and concentration of fruition. This does not mean that the amplitude and the articulation of the natural and landscape assets of the candidate territory cannot offer occasions and alternative opportunities for fruition, if well directed and governed.

The daily flows from the metropolitan area are the critical target of tourist use on which not only appropriate impact observers must be built, but also the load capacity of some particularly congested natural areas must be considered.

At the same time, the growing interest in Reserve's most polarized natural areas, or in the parks in general, can only offer a valuable occasion for cultural, social

and economic development of internal and often marginal areas of the territory as well as a tool for spreading the underlying principles of the Canditature not only to the resident population but also to visitors.

7

15.2.5. How will these impacts be managed, and by whom?

As already mentioned, there are already institutional structures on a supra-local homogeneous scale targeting potential tourist markets, which not only monitor flows and take account of the data collected through the publication of ad hoc reports and studies, but also manage, valorise and promote touristic activities. From this dual institutional role of the structures in charge, the Reserve will have to draw on the information regarding flow dynamics and impact thresholds, in order to create an organic and sustainable vision of activities in the integrated system of fruition within transition and buffer areas of the 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).

GENERAL DESCRIPTION

Agriculture and forestry in the area of the Candidate Reserve features a extremely varied and articulated as it ranges from the Po Valley to the peaks of the Lepontine Alps, covering different bands of altitude and climatic conditions.

This can be simplified by distinguishing two main zones, with anthropization declining from south to north:

the southernmost part of the reserve is characterized by extensive and intensive (arable) cultivated areas, with smaller, but still significant, areas of more extensive herbaceous crops (permanent meadows) as well as residual forest formations, fragmented and concentrated above all along the course of the Ticino river; the northernmost part of Lake Maggiore is characterized by a predominantly forested area, with limited crops, including vineyards and hortifloriculture and larger areas of mown fields and grassland meadow; higher altitude grasslands are also relevant.

Agriculture is an important economic activity, both in the plains areas of the Reserve, with a high agricultural vocation and extension of the cultivated areas, as well as in the hilly and mountainous areas with specialized production (vineyards, floriculture). But agriculture, in addition to its economic value, plays a key role in the protection of the land: in the plains it serves in the maintenance of semi-natural areas, acts as a brake on the urbanization while conserving the traditional agricultural landscape still partially recoverable; in contrast to the hills and mountain ranges, the importance of agricultural acitivity lies in land management and landscape conservation, thanks to the maintenance of alternating areas of grazing pastures and woodland areas, fundamental for dairy



production and also for tourism.

Fig. 36 Grazing cattle in low Ticino Valley



Forest cover ranges from 16% on the plain to 77% in the Val Grande area, also in relation to the forestal expansion of the last decades, which mainly affected the most disadvantaged areas; arable land represents an important segment of the plain territory, reaching as high as 66% in the Novarese plain to drastically reduction in the Verbano area; the urban areas represent approximately 10% of the area.



Fig. 37 In Ticino Valley

AGRICULTURE

Regarding agricultural crops, the crop cultivation of rice (whose ecological and landscape value is recognized in the province of Pavia by means of the protection of the Natura 2000 network (SPA), is supported by specific measures of Rural Development Plans as a biodiversity-rich habitat , especially for the presence of bird populations such as ardeids, mollusks, anatidis and ralidas, using resting pads for break and feed), among other cereals (in particular corn); the vineyards (especially in the Novarese hills of Ghemme, Sizzano, Fara Novarese); the water meadow (in the Lombard plain area) with a very limited area, but elements of an ancient agriculture, of environmental importance (amphibians and reptiles) as well as cultural; Among the other agricultural uses are the woody arboriculture plants (tannins, conifers, etc.) and the stable, fragmented and limited range of meadows but important for landscaping and environmental aspects, many of which are located within the protected areas around the river Ticino.



Fig. 38 Rice paddies, agricultural areas rich in biodiversity

An underlining in itself deserve the "terraces", "minor" elements typical of the rural landscape of historical value that together with baths, fountains, votive chapels, stone paths, piedritti, etc. represent not just a component of the agrarian landscape, but structure agronomic functions with return traditional crops such as rye, potatoes, etc. and new experiments like that saffron, olive cultivation and officinal herbs, together with their ecological functions of habitats and species related to the drywall in the Natura 2000 network.



In hills and mountain ranges, crops represent a quota that decreases in altitude and latitude. Extensive activities increase even if the total agricultural land is reduced by physical and climatic limitations Intensive cultivations are represented by corn crops and specialized crops of acidophilic plants mainly in the area of Lake Maggiore. Increases the extension of pastoral surfaces, where the anthropic impact is reduced considerably, though by influencing the animal loads and the bred species characteristics of vegetation. Forage systems integrate lawns bottom valleys and medium-sized (intended to produce hay stocks for the winter period), with the pondolive resources of the middle - high quotas, available from spring to autumn and used according to an altitude gradient. From to remember the pastoral activities of the transumaning sheep flocks, which are of interest to them marginal areas, and allow conservation of some habitats hindering the evolution of some herbaceous or shrubby cenosis towards forest cenosis.

Fig. 40 Grazing sheep in Val Grande



Below is a summary of typical products (PDO, PGI, TRADITIONAL) linked to the Reserve area.

LOCAL PRODUCTS

COMMUNITY DOC NAMES			
Formaggella del Luinese	D.O.P.	Cheeses	Lombardia
Gorgonzola	D.O.P.	Cheeses	Piemonte,
			Lombardia
Grana Padano	D.O.P.	Cheeses	Lombardia,
			Piemonte
Miele Varesino	D.O.P.	Other products of	Lombardia
		animal origin	
Nocciola del Piemonte o Nocciola	I.G.P. Fruit and		Piemonte
Piemonte		vegetables and	
		cereals	
Quartirolo Lombardo	D.O.P.	Cheeses	Lombardia
Salame di Varzi	D.O.P.	Meat-based	Lombardia
		products	
Taleggio	D.O.P.	Cheeses	Lombardia,
			Piemonte
Toma Piemontese	D.O.P.	Cheeses	Piemonte
Vitelloni Piemontesi della coscia	I.G.P.	Fresh meat (and	Piemonte
		offal)	
LOCAL WINES			
Ghemme	DOCG	Wine	Piemonte
Воса	DOC	Wine	Piemonte
Colline novaresi	DOC	Wine	Piemonte
Fara	DOC	Wine	Piemonte
Sizzano	DOC	Wine	Piemonte
Valli ossolane	DOC	Wine	Piemonte
Vini Varesini	IGT	Wine	Lombardia
Oltrepò Pavese	DOC - DOCG	Wine	Lombardia
TRADITIONAL PIEMONTE and LOMBA	RDIA FOOD PRO	DUCTS	
Zincarlin de Vares	Varese	Cheeses	Lombardia
Pesche allo sciroppo del Lago di			
Monate	Varese	Fruit	Lombardia
Salame nostrano di Stradella	Pavia	Meats	Lombardia
Amaretti di Gallarate	Varese	Pastries	Lombardia
Asparago di Cilavegna	Pavia	Vegetables	Lombardia
Fagiolo Borlotto di Gambolò	Pavia	Vegetables	Lombardia
Cipolla Rossa di Breme	Pavia	Vegetables	Lombardia
Cipolla dorata di Voghera	Pavia	Vegetables	Lombardia
Pisello di Miradolo Terme	Pavia	Vegetables	Lombardia
Panettone di Milano	Milano	Pastries	Lombardia
···· · · · · ·	Verbano		
Bresaola della Val d'Ossola	Cusio Ossola	Meats	Piemonte
Coppa cotta bieleisa	Biella	Meats	Piemonte
Mortadella di fegato cotta			1
(Mortadella d'Orta)	Novara	Meats	Piemonte
Pane di San Gaudenzio	Novara	Bread	Piemonte
	Verbano		1
Pane nero di Coimo	Cusio Ossola	Bread	Piemonte
CONSERVED PRODUCTS			-
Fagiolo Borlotto di Gambolò	Pavia	Vegetables	Lombardia
SLOW FOOD CENTRES			

	Pavia and		
Carne di Razza Bovina Varzese	Milano	Meats	Lombardia
Cipolla Bionda di Cureggio e			
Fontaneto	Novara	Vegetables	Piemonte

Other products of quality within the MAB Reserve include buffalo mozzarella and meat; rice, saffron and ancient varieties of corn; beer, rabbit meat and honey.

In the present reserve, the borlotto bean, cultivated for centuries in the area of Gambolò (PV) and in its immediate surroundings (the most significant historical evidence dates back to the beginning of the 19th century), was the primary source of protein for all those who could not afford frequent consumption of meat. Following a decline in production in recent decades, a revival of its cultivation has been initiated, with plans for the reproduction of pure variety seeds and supplying producers concerned. In 2006, the Gambolò Borlotto Bean was recognized as a traditional Lombard product. Today, this product is cultivated in strict disciplinary compliance with traditional methods of cultivation and harvesting.

Fig. 41 Typical products (Parco Ticino)



Included in the expanded reserve are: typical dairy products - goat's cheese from Val Vigezzo, Ossolano, Furmagina de Vares, Sancarlin, Toma, Frumagit of Curiglia with Monteviasco cheeses and grass-fed mountain butter; meat and preserved derivatives - Val Vigezzo kid, Bresaola of the Val d'Ossola (producers Consortium), the Ossolan moccetta and mortadella (Slow food presidium), the raw ham of Val Vigezzo, the dried goat's "violin", goat salamini; crops - Beura corn ground for the production of polenta flour, the Cuzzago potato, saffron of Trontano and Angera; fruit crops - Trontano chestnuts. The following three consortia of protection and guarantee, promoted by the Chamber of Commerce, group and endorse their products of local excellence: "Mieli del Verbano Cusio

Ossola", "Crava" for goat cheese, and "Brisaula" for the bresaola of the Val d'Ossola.

In recent years, the PROALPI Interreg project "Valorization of some traditional industries and typical products of the Verbano Cusio Ossola and Canton Ticino" has affected both the territory of the Val Grande National Park and, more generally, the provincial territory of the VCO, with the aim of defining the characteristics (chemical, microbiological, health and nutritional) that best qualify the products, identifying parameters and indicators of typicity and quality; identifying tools and ways of enhancing the particular characteristics of certain agro-food products taken as models of industry to be revitalized and optimized, which here are those of goat's milk, meat, honey and officinal plants.



FORESTS

Types of woodlands also vary depending on altitude; in the plains robinia abounds, followed by the oak-hornbeam, encroaching woodland shrub and forest coverage typical of the riparian areas or of soils with high humidity (such as willows, poppies and alders) along the course of the Ticino River; there are also chestnuts and pine forests.

Proceeding north, chestnuts, followed by robinia and oak-hornbeam, become more prevalent as the land rises from the plains to higher altitudes, while in the mountainous areas formations such as beech, oak, beech, maple-linden-ash, alders, subalpine shrubs, larches, thus expanding the Reserve's forest formations.

Most of the area of woodland habitats is privately owned. In the past, forestry interventions were carried out solely for the purpose of economic exploitation, resulting in serious structural imbalances in the existing forests.

With the advent of the parks, a more sustainable management of the environment began. Specifically, the recent Forest Management Plans prepared by the park bodies, have given a precise indications to the use of forest formations.

If the threats to species and environments are analyzed it can be observed that the most commonly occurring factors are the transformation and modification of the natural habitat, mainly due to human activity. The construction of new infrastructures, reclamation, the introduction of pollutants, and in general all changes in the territory reflect heavily, both directly and indirectly, on the survival of many populations. It should also be remembered that only 22% of the factors affecting the conservation of species included in the red list and the annexes of Community directives and international conventions, are attributable to natural causes, while 77% of the threats are of anthropic nature. Specifically, the improper management of forest resources has led to the "pathological" spread of invasive species that have often supplanted endemic species, simplifying plant and animal biodiversity, and preventing the regeneration of the semi-natural forest.

The extensive coppicing that occurred in the past, which was highy encouraged in some cases, had a serious impact on the fauna, causing habitat alteration with adverse effects on local microclimates (increased soil instability and hence increased xericity), reduction in refuge areas, increased fragmentation, reduced humus layer, extensive invasion of non-native species. It should also be remembered that habitat alterations lead to various species moving around the territory in search of better conditions with the subsequent risk of investment, predation and the isolation of small nuclei.

Appropriate forest management and, in particular, in the SCI, SPS and MAB areas, must be capable of examining the various ecosystems present in the territory and aim to maintain high values of biodiversity through the diversification of habitats while allowing for a sustainable use of natural resources.

It should be remembered that in the Piedmont Region, forestry interventions are managed according to the new forest regulations, through the Forestry offices which are concerned with providing information on the rules and procedures for logging and disseminating information and educational material; receiving logging requests; and manageing the procedures for enrollment in the Register of Forestry companies. There is also forestry regulation in the Lombardy Region that defines administrative procedures, and technical standards for "good forest management". In the Natura 2000 network sites, reference must also be made to general conservation or site-specific conservation measures where available.

15.3.2. Indicate the possible positive and/or negative impacts of these activities on biosphere reserve objectives (section 14).

Agricultural, animal husbandry, pastoral and forestry activities can have both positive and negative impacts on the objectives of the Biosphere Reserve and are crucial to the conservation of biodiversity and environmental and landscape characteristics, given their territorial extension.

As already mentioned in chap. 14 intensive forms of farming and breeding using high-yielding species and varieties, the use of chemicals that interfere with the useful agricultural fauna (pollinators, predators, etc.), the destruction or

degradation of natural habitats, simplification of agro-ecosystems, the abandonment of traditional cultivation operations, pollution of water, air and soil through greenhouse gas emissions, livestock waste, fertilizer and fertilizer use, soil waterproofing (protected crops and farming structures), all determine potential negative impacts.

On the other hand, agro-silvo-pastoral activities allow soil conservation, mitigation of climate change, carbon storage, reduction of the greenhouse effect, conservation of genetic resources, biodiversity conservation linked, for example, to naturalistic herbivore interventions, to the management of extensive herbaceous formations using traditional cultivation practices and even intensive crops such as rice paddies, that offer shelter and feeding sites for numerous animal and plant species, (the habitat of rice paddies in particular is favored by bird populations such as *Ardeidae*, *limicololous*, *Anatidiae* and *rallidae*, for resting and feeding), the raising of local breeds and cultivation of locaò cultivars at risk of extinction, and the establishment of germplasm banks.

15.3.3. Which indicators are, or will be used to assess the state and its trends?

The Regional ARPAs regularly present an Environmental Status Report, a document that encapsulates and summarizes all the information on environmental conditions and their evolution over time. This document, which Arpa publishes annually, presents the synthesis of environmental knowledge obtained through monitoring, control, analytical activity and data processing.

Indicator
Agricultural businesses (number)
Agricultural area used (hectares)
Cultivated area (hectares)
Use of phytosanitary products (Kg, Kg/ha SAU)
Use of fertilizing products (quintals, kg/ha SAU)
Agricultural machiery (number and KW (power))
Sustainable agriculture (number of businesses involved in biological agriculture)
Livestock (numbers of animals raised)
Pesticides in fruit and vegetables (number, % of contaminated samples)
Micotoxins in food (number, % of contaminated samples)
Forested area (hectares)

The following indicators are used:

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 following are the principal actions and measures actuated and possible to improve positive and reduce negative impacts:

- Support for native fauna with particular attention to endangered species
- Control of allochthonous species
- Eradication and/or containment of invasive species: containment of the

coypu (*Myocaster coypus*); containment of the wild boar (Sus scrofa)

- Monitoring of the species of particular conservation interest and implementation of knowledge of particular fauna groups:
 - Ringing of avifauna
 - Census-taking of avifauna dedicated above all to wintering species
 - Investigation of flora, vegetation and fauna (fish, birds, bats, amphibians, reptiles, insects and spiders)
- Census of prestige flowering plants and trees
- Realisation and/or maintenance of ecological corridors and passes to avoid fragmentation of habitats and the isolation of populations (fauna underpasses, green bridges, fish elevators)
- Development of educational and awareness-raising activities among the local population and specialist associations through:
 - Environmental education activities conducted by the park bodies' wardens and technical staff or by specialist external operators prevalently aimed at schools (from infants through to university students) and the users of the protected area, designed to promote awareness of the environmental, naturalistic and historical values associated with the habitats found in the reserve. The aforementioned activities take the form of simple guided tours or more complex teaching projects with field trips and discussions.
 - Training activities in the environmental field and management of the territory in a broad sense, conducted by park staff or specialist external operators and aimed at high school and university students, those enrolled in professional training courses, Civil Service projects, environmental association volunteers and staff and subjects followed by
 - The social services of the municipalities falling within the reserve.
- Realisation of reforesting and forest improvement projects
- Undergrowth clearance
- Reconstruction of the natural vegetation: planting of native tree and shrub species (*Alnus glutinosa, Cornus sanguinea, Viburnum opulus*, etc)
- Control of exotic species (*Robinia pseudoacacia, Ailanthus altissima, Prunus serotina, Acer negundo, Lonicera japonica, Parthenocissus quinquefolia, Buddleja davidii, Apios americana, Pueraria lobata, Bidens frondosa...*)
- Recovery and realisation of wet areas
- Monitoring of the phytosanitary status of the vegetation
- Realisation of hedges and windbreaks
- Mowing of meadows
- Regulation of cuts
- Valorization of the forests as carbon sinks

- Maintenance of the water meadows and promotion of forms of biological agriculture.
- 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).

The Candidate Reserve is characterized by a vast territory of diverse nature comprising bodies with different competences and hierarchies: Regional Park Bodies (Lombardy and Piedmont) and national, municipal, provincial and regional, Ministerial and associations of various kinds (environmental, cultural, agricultural, social, hunting, fishing, etc.).

The territory is characterized by areas of high and natural value (core areas) where access is prohibited, except for researchers and contractors; prevalently agricultural and woodland areas; and highly anthropized areas with elevated tourist fruition and density (transition areas).

Having Lake Maggiore, the Ticino and Toce Rivers and the Val Grande National Park in the Resereve means there are numerous activities dedicated to tourism in general, and especially in recent years, there has been a marked increase in sustainable use and mobility trekking, hiking, Nordic walking, biking, canoeing, kayaking, rafting, boating, horseback riding, bird watching, didactic farms and tasting of typical products) that have a positive impact on the sustainable development of the area.



Fig. 43 Bikers in Verbano Valley woods

There are activities and infrastructures that, without tight control and prudent management, could have negative impacts on sustainable development, such as Malpensa Airport, with the prospect of airport expansion, railway lines (e.g. the Torino-Milano high-capacity railway line perpendicularly traverses the Ticino Valley), highways, industrial activities, and continued intensive farming.

Hunting (in transition areas) and fishing (in core, buffer, transition areas) in the Reserve are managed in particular by the Regions and Provinces.

The aforementioned activities do not involve men and women differently but highlight integration without gender discrimination.

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?

As mentioned above, the reserve includes protected areas and Natura 2000 sites, and is therefore subject to a number of sectoral constraints and regulations that protect and enable sustainable management.

First of all, existing planning and landscape planning tools and conservation measures for SCI, SPA and SAC sites allow the governing bodies to regulate the activities and interventions admitted in protected areas, to direct transformations and to prevent the implementation of interventions and / or actions that could have a strong environmental impact (e.g. the Switzerland-Italy Interconnector Pallanzeno-Baggio water route) or to propose / discuss implementing solutions that mitigate / reduce potential impacts.

This is supported by the various instruments for evaluating rigorous impact (Environmental Impact Assessment, Strategic Environmental Assessment, Ecological Impact Assessment, etc.) and with the formal participation of interested institutions in the expression of opinion, to which are added procedures and tools for control and monitoring carried out by the Protected Areas and the Public Administrations concerned with the environment.

Therefore, the legislative instruments, the current planning programs, the interdisciplinary and inter-institutional round-table discussions to confer and compare experience, in which Park Entities participate as active subjects, and a strong consultation and awareness campaign targeting the local population enable the management of the Reserve to be in line with the principles of the MAB Program.

Consequently, no adverse impacts are likely to affect the achievement of the objectives set for the Reserve Candidate. On the contrary, the sustainable management of human activities and the increasing attention to the environment that characterize the candidate territory can only guarantee satisfactory results.

15.4.3. What indicators are, or will be used to assess the state and its trends?

The complex and widespread nature of the other economic and development activities places an integrated centrality of the same in terms of the overall governance of the Reserve area, covering not only on the protected areas but also the superordinate regional and / or state institutions of control.

In general, indicators already used by other bodies will be adopted, thanks to their expertise in the area, in particular the indicators used by the regional ARPA for the Environment Status Report, a document that encapsulates and sums up all the information on environmental conditions and their evolution over time, according to a pressure-state response model that guarantees, under the profile of dynamics, of the elements for knowing the state and trends of the activities.

Following are the environmental issues addressed by ARPA: some immediately identifiable with the environment such as Air, Water or Soil, others more specific but equally indispensable for the protection and prevention of environmental pollution. Environmental themes with specific indicators described according to the DEPSIR model: over 150 indicators represent the environmental situation in a synthetic and effective way by interpreting and making known a great deal of related data.

Water	Energy	Waste
Integrated Environmental	Geology and instability	Noise and vibration
authorzations	Hydrology and snow	Seismology
Environment and health	Meteorology and climate	Soil
Asbestos	Micropollutants	Environmental Assessments
Air	Radioactivity	Plant inspections
Contaminated sites	Optical radiation	
Electromagnetic fields	Industrial risk	
Ecogestion and sustainability		
Ecosystems and biodiversity		

Complementary to the indicators listed above will be those provided for in the future by the Reserve's Management Plan for the Monitoring Axis, where a monitoring plan will be set up with indicators useful for the qualitative or quantitative assessment of both environmental and socio-economic conditions.

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?

The Reserve will have an action plan to ensure proper territorial management, together with the conservation of the ecosystem and its biodiversity through the sustainable use of natural resources for the benefit of local communities: through research, control, education and training activities consistent with the functions assigned by UNESCO (conservation, development, logistics and support).

The Reserve, with a partnership that sees nonprofit institutions and associations,

is pursuing projects designed to implement and export the best environmental, natural and forestry management experiences that have been developed and studied over the years in the Parks, and in the area of the BR with biodiversityintensive and innovative interventions, to enhance its territorial value and extend and reinforce the ecological connection. The Reserve, the geographical and institutional leader of the project, becomes a center for the expansion of good ecological practices which, thanks to a strategy for communication and involvement of the community, will favor broader perception and awareness of the meaning and value of a "Biosphere Reserve", within the territory.

The planning quality and the projects described are activated in the most widespread sharing of tasks and consultation involving the local population in implementing good practices.

Provision of funding through European Banking and / or European Foundations (PSR, Interreg) for the aforementioned projects would allow good enforcement practitioners to receive compensation. This would guarantee the expected results, which will be monitored through plans prepared with specific indicators.

15.5.Benefits of economic activities to local people:

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?

The territory proposed for the enlargement of the Reserve, especially as far as the transition area is concerned, is characterized by the presence of numerous economic activities that generate income for the entire population that lives and works therein; as seen above, these are, in particular, activities related to secondary and tertiary sectors with mostly urban-metropolitan locations.

In the tertiary sector alone, new activities related to tourism and education can be envisaged, which would support the MAB area as a whole. These would be namely recreational, educational, training and research services provided by the existing protected area system and areas of natural interest, as a result of strong identification associated with the acquisition of the UNESCO MAB name and brand.

The activities in the agricultural sector are more complex and pervasive, both in terms of their more intense role in the plain areas, as well as the new activities and new professional figures related to the issue of agro-diversity and the processes for the qualification of local products, for example, "quality" brands (the Ticino Park and Ticino Valley brands) and organic, ecologically compatible production.

In this context, it will be the policies and actions supporting the green infrastructure of the Reserve, the productive reconversions, and above all, those actions aimed at the recovery of marginal and currently non-productive areas, which are mainly located in the buffer zones, that constitute the economic

sectors of greatest opportunity and development.

15.5.2. What indicators are used to measure such income or other benefits?

In the context of the State of the Environment report, socio-economic conditions are measured with reference to the "state" and "pressures" of the DPSIR model, ie for the first using demographic indicators of the index of fertility and ageing, for the second with indicators reporting resident population and employment trends.

To these may be added specific indicators of variations in per capita income usually elaborated at the municipal level by private banking research institutes.

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 reserve, as mentioned above, is characterized by a vast territory (2 Regions and 5 Provinces) and a multiethnic population with consequent religious and cultural pluralism.

The most widespread religion is Christianity, including several denominations: Orthodox, Protestant, Methodist, Waldensian, Jehovah's Witnesses, Mormons, along with a Jewish community.

The spread of other non-Christian religions has been largely determined by the migratory phenomena of recent decades. The main immigrant countries are Romania, Morocco, Albania, and the People's Republic of China. As a result, the most widely spoken foreign languages are Romanian, Arabic, Albanian, Chinese, and other eastern European languages, languages and dialects from various Asian and African countries, as well as English, French and Spanish.

The diverse composition of the main provenece of foreign resident is also reflected in their religious affiliation, with a predominance of Islamists, Buddhists and Hindus

It is however difficult to quantify the perosns belonging to each religious belief.

15.6.2. Indicate activities aimed at identifying, safeguarding, promoting and/or revitalising such values and practices.

The reserve, the activities and actions of which are secular, promotes encounters and conferences dedicated to dialogue, integration and social interaction.

It pursues goals for informing and educating about sustainable development, territorial enhancement, restoration of traditions and promotion of typical products, organizing community events and initiatives. These events for the

consultation and involvement of the population must be understood, in accordance with the *principles of the UNESCO Universal Declaration on Cultural Diversity*, as moments that promote social cohesion and a spirit of civil society and peace. "*Cultural pluralism promotes cultural exchanges and the development of creative skills that feed public life*".

15.6.3. How should cultural values be integrated in the development process: elements of identity, traditional knowledge, social organizations, etc.?

As described above, the Reserve has included meetings, seminars and awareness-raising events in the planning of its activities, which also aim to create dynamics of cultural exchange and social cohesion.

A specific declaration will refer to the nature-culture relationship, to the interrelations and interaction between Natural and Cultural Capital. This will take into account the objectives of the Charter of Rome, which aims to strengthen policies on nature and biodiversity, and to improve their integration with other policies related to the territory and the economy. The overall objective is to draw from both of these Capitals to generate economic benefits, job opportunities and support for key areas such as tourism, or the Green Infrastructure Strategy (COM 2013/249).

In accordance with the Charter of Rome, Cultural Capital includes the capacity of human populations to be responsible for Natural Capital. Cultural Capital is linked to three main characteristics of individuals and groups in each specific geographic and socio-economic context: knowledge, including both scientific and that relating to tradition; the ability to maintain, increase, and develop knowledge and awareness; practices that correspond to all activities that generate material and immaterial flows of goods and services.

15.6.4. Specify whether any indicators are used to evaluate these activities. If yes, which ones and give details.

Within the monitoring plan, indicators will be introduced to measure the number of events, the number of communication / disclosure activities, the number of public meetings held, and the number of citizens involved.

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).

Active monitoring and research on various environmental components within the territory of the Reserve Candidate has been carried out for decades and today allow for a set of data and indicators that characterize the biotic and abiotic components of the Reserve, and which will form the basis and the foundation for the development of the Reserve Management Plan itself.

These studies have been conducted, and continue to be carried out, not only by the Parks within each protected area, but also by numerous universities, research centers (JRC of Ispra and CNR of Verbania), and ARPA, as well as being promoted by other institutional entities present on the territory, (Agenda 21 Lakes, Provinces, mountain communities, as the managing bodies in charge of reserves and the Natura 2000 sites). Numerous collaborative projects have already been activated by these different players.

This plurality of participants with their various fact-finding, analysis and monitoring activities can, therefore, constitute an active logistic network, if they are not already involved, to support the management of the Reserve. In fact, their work especially focuses on Core and Buffer areas, since they are the territories of major biodiversity interest.

For a more detailed description of the management aspects and the related monitoring indicators, see Chapter 14.1.4 where scope and content have been described starting from activities carried out in the past and/or in progress.

The aim of the Reserve Candidate is therefore to create a network and systemize this base of knowledge and information in order to promote an integrated and balanced management of environmental resources, by also involving stakeholders in the area, each bringing to the table their own experiences and expertise, and with more diffused and effective forms of communication.

Most of these study and research projects are concentrated in the park's core and buffer areas, but interesting research is also being conducted outside these areas, which is extremely important and functional for an overall view of the issues, and for the elaboration of 'large-scale strategy (for example, wide-scale surveys on air quality and the characterization of aquatic ecosystems).

Many of the past, present and future monitoring activities will allow for the progressive implementation of a cognitive framework for flora and fauna biodiversity within the reserve, in order to better target the management and

conservation policies of Protected Areas and Natura 2000, sites and, in particular, to monitor and safeguard the conservation status of habitats and species listed in the Habitats Directive 92/43 / EEC and the Birds Directive 79/409 / EEC, by adopting specific targeted actions.

To this end, the LIFE BIOSOURCE Project is an example of a project which has as its target species those with a high conservation value which are threatened to varying degrees by extinction, in the Po basin or globally.

The LIFE BIOSOURCE project, has targeted species of high conservation value, threatened to various degrees of extinction in the Padana basin or globally: *Aythya nyroca, Casmerodius albus, Egretta garzetta, Circus cyaneus, Himantopus himantopus, Ixobrychus minutes, Lullula arborea, Alcedo atthis, Lycaena Dispar, Acipenser naccarii, Huso huso, Cobitis bilineata; Letentheron zanandreai; Cottus gobio, Rana dalmatina, Rana Lataste, Hyla arborea.*

Fig. 44 Aythya nyroca



Studies conducted so far in the Reserve on the theme of ecological connections were fundamental for the construction of a supralocal ecological network. These studies provided the necessary information and knowledge to develop and implement the network which, starting from the areas institutionally recognized as Protected Areas, facilitates the creation and/or maintenance of those connections necessary for a proper ecosystemic equilibrium, as well as for a more effective response to the effects of climate change and human impacts (e.g. new infrastructures).

Since the area plays a key role in bird migration routes from the Alps to the Apennines, and from Europe to Africa, continuous monitoring activities are also carried out here thanks to the bird-ringing centers in the reserve.

Equally important are studies and research on the water sector, for which a great deal of data is already available, along with large scale projects on water defragmentation, experimentation of the minimum vital outflow, and regulation of water levels (for the protection of river and lake ecosystems).

Reserve Entities are currently involved in two important LIFE projects in this

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sector that entail a series of monitoring and research activities on the ecological continuity of the main watercourses, the characterization of the present fish communities and the effectiveness of the various projects (defragmentation, repopulation of species of conservation interest, contrast with invasive, non-indigenous species):

CONFLUPO LIFE 11 NAT/11/188 "Restoring connectivity in Po river basin opening migratory route for Acipenser naccarii and 10 fish species in Annex II" - <u>http://www.life-conflupo.eu/prj2013/index.php?lang=it</u>

Progetto IdroLIFE LIFE15 NAT/IT/000823 IdroLIFE - https://idrolife.eu/

16.1.2. Summarize past research and monitoring activities related to biosphere reserve management (please refer to variables in Annex I).

Surveys of the Valley del Ticino and its main environmental components (in particular fauna and vegetation studies), in addition to those on the Val Grande and Campo dei Fiori, were, in part, conducted prior to the date of the establishment of the relative parks. However, the designation of the Protected Areas undoubtedly determined an increase in the realization of these studies and greater coordination between them. From their birth to today, the Parks have actively pursued and carried out numerous research and monitoring campaigns, often multi-year, in collaboration with universities, other Parks and public bodies.

Due to the geo-environmental features of the proposed Reserve, study and research have spread to highly diversified, composite and diffused fields and sectors of the territory and the environment, covering almost all of the biotic and abiotic parameters indicated in the UNESCO-Man and Biosphere (MAB) Program, Annex I, with addition of parameters for socio-economic and cultural components.

The box below shows a compendium of the research activities carried out within the Reserve Area by the bodies behind this application.

In addition to the informative results regarding numerous biotic and abiotic parameters of the reserve's naturalistic areas, the plethora of research activities has also made available approaches and methods useful in determining those strategic factors for a monitoring steps in line with environmental monitoring and reporting, as specified in Article 11 of the Habitats Directive.

In other words, starting from work completed and in progress, the acquired and / or ongoing research has produced a good deal of information and data regarding the following decisive factors for proper environmental reporting:

a) *Distribution*: Research has made available species-specific knowledge of breakdown areas, with first focusing on locations or known areas of presence, but also on areas of potential presence, based on previous reports (eg stations where the species was historically present but no

longer reconfirmed), or can be estimated on the basis of geography and the presence of ecologically suitable areas to accommodate the species;
b) *Population*: In terms of the numerical consistency of species populations, often with specific and detailed indications for the assessment of the populations of each taxon;

(c) Habitats for the species. Research has provided fundamental information on the current status of plant and animal species, the extent of the area occupied by the habitat and the degree of fragmentation, ecological conditions and possible future scenarios;

d) *Pressures and threats*: Some research has focused on analyses and insights into more relevant impacts and pressures, both in terms of present and predicted trends;

(e) *Conservation measures:* Some research activities have been carried out on measures and management plans for Protected Areas (Parks and / or Natura 2000 network sites), enabling specific conservation objectives to be defined, specifying whether to maintain / expand the current area, maintain / restores suitable habitats, increase population size, increase reproductive success, reduce loss / mortality.

In conclusion, the consistency and territorial coverage of the research conducted previously and currently in progress, and the results obtained, on the one hand cover almost all biotic and abiotic reference parameters and on the other allow for those methodological and applicative factors indispensable to a proper environmental reporting for major areas of the reserve.

Box – LIST OF THE MAIN RESEARCH PROJECTS CARRIED OUT WITHIN THE RESERVE

Air quality monitoring.

Assessment of air quality, through the use of discrete passive samplers in the Parco del Ticino.

Leaf damage: vegetation health monitoring by means of remote sensing and subsequent photo-interpretation.

Air quality map obtained by the bio-monitoring with lichens in the Regional Parks of the Ticino Valley.

Monitoring ozone concentration and effects on vegetation in the Lagoni di Mercurago Park

Concept of a transboundary protected area, subproject "Geomorphology, climate and Hydrogeology of Val Grande"

Concept of a transboundary protected area, subproject "Ecological aspects of small highaltitude wetlands"

Concept of a transboundary protected area, subproject "Insect fauna and vegetation of summit areas"

Ticino river and tributaries water quality monitoring

Application of the River Functionality Index ("Indice di Funzionalità Fluviale" - IFF) on the Ticino river hydrographical system

Monitoring water quality of Vevera stream using both "Extended biotic Index EBI and "Indice di Funzionalità Fluviale" - IFF

Pedological and hydrogeological studies of Ticino river

"Salmo Marmoratus and Rutilus Pigus Conservation in the Ticino River" Life-Nature Project.

"Acipenser Naccarii Conservation in the Ticino River and in the Po Middle Course" Life-Nature Project

LIFE project "Idrolife" Conservation and management of freshwater fauna of EU interest within the ecological corridors of Verbano-Cusio-Ossola. Action to preserve Salmo marmoratus, Rutilus pigus, Chondrostoma soetta, Cottus gobio, Leuciscus souffia and Austropotamobius pallipes in the Natura 2000 sites of VCO province.

Monitoring chemical composition and macroinvertebrate fauna in Valgrande, San Bernardino and Pogallo streams

Studies on the fish fauna of Val Grande National Park and management suggestions

Monitoring and management of autochthonous Alpine fish fauna in freshwater ecosystems

Evaluating and validating lake quality indicators to be used to optimize water use in lakes Ceresio and Verbano

Evaluation of possible biological methods for reducing he pollution in Lago Maggiore

Toxicological study of DDT pollution in Lake Maggiore and its consequences on indicator species

Study on the use of deep water table and optimization of hydrological network in the Val Grande National park

Evaluation on possible limitation of the selling of Lake Maggiore fish

Hydrological studies on the relationship between atmospheric input and chemical composition of Lake Maggiore water

Hydrogeological study aimed at recover and re-naturalization for the protection of wetland in the Lagoni di Mercurago Natural Prk

"Alluvial Forests Conservation in the Ticino Park" Life-Nature Project

Scientific ringing activities to study bird migration in the Ticino Park

Heron census

Monitoring the presence of the great bittern Botaurus stellaris

Conservation program concerning both white (Ciconia ciconia) and black stork (Ciconia nigra)

Wilderness e biodiversità: conoscere per gestire, sottoprogetto "L'avifauna nidificante negli ambienti aperti" (Val Grande)

Research on the Alpine Bioregion: deepening of the knowledge on nesting species of Community interest and on migrations

Research on animal biodiversity in the Ticino Park land environments

Biodiversity monitoring in Alpine environment.

Val Grande National park. Wilderness and biodiversity. Knowledge for management, subproject "Bat population"

Monitoring and studying snakes in the Val Grande National Park Check of reptilians and amphibians and study of the dispersal of the common viper

Research on mosquito and tick populations in the Ticino Park

Analysis of domestic animal health.

Knowledge, conservation and valuation of wild ungulates of the Val Grande National Park

Photo-trapping of mustelids, wild cat and wolf in the Val Grande National park

Monitoring of potentially dangerous and damaging flora and fauna species around Malpensa airport.

Monitoring, planning and experimentation (including remote sensing technologies) of forests around Malpensa airport aiming at the safeguard and enhancement of the forestry.

Research on Oak (Quercus robur) deterioration in the Ticino Valley woods.

Study of the effectiveness and faunal use of ecologic corridors resulted from defragmentation processes.

Val Grande National park. Wilderness and biodiversity. Knowledge for management, subproject "Habit at definition"

Studies and researches preparatory to the drawing up of SCIs/SPAs-management plans.

Caves in the Val Grande National Park and surrounding areas

Concept of a transboundary protected area, subproject "To act or not to act? Management strategies for the Val Grande National Park".

Concept of a transboundary protected area, subproject "Diffusal environment systems. From knowledge to the definition of models for recover, management and valuation of natural resources"

Oak Processionary (Thaumetopoea processionea) and Euproctis Chrysorrhoea monitoring campaign.

The challenge of changing landscape. Pilot action to study, monitor a manage habitats in the

Val Grande Natinal Park.

Study of a planning for a tourist offer system in the Lombardy Park of the Ticino Valley.

Conservation, botanical gardens and germplasm bank.

Identification and description of Geo-sites of touristic value in the Val Grande National Park -Unesco Sesia-Val Grande Geopark.

Studies for the knowledge and valuation of the geomorphological heritage of the Val Grande National Park

Improving socio-economic sustainable development of the Parco del Ticino through studies, research and geo-anthropological papers also aimed to promote tourism

Creation and registration of a brand for the farms working within the Reserve with a sustainable practice.

Annual census of guided tours and participation rate.

Monitoring of the carrying out of Agenda 21 initiatives in the Ticino Park.

Report on the Ticino Park environment state

Strategic Environmental Assessment of the development scenarios of the transportation system in the Ticino Park.

Ticino Park social balance

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 area of the reserve contains public research facilities, as well as research and/or monitoring stations covering protected areas.

The permanent research and/or monitoring observatories are:

- 1 scientific ringing centre in Vizzola Ticino: operational from spring until the end of summer autumn for migrating bird population monitoring;
- 1 fish hatchery in the "La Fagiana" managed reserve: focusing on the reproduction of fish species of conservatory value operational all year;
- 2 fish elevator monitoring centres near the Panperduto and Porto della Torre (Somma Lombardo) artificial dams;
- 2 ringing stations at Cascina Casone (Piomba) and Bosco Vedro (Cameri);
- 1 Fondo Toce "Centro Studi sulle Migrazioni" (overnight stay for ringing operators);
- 1 monitoring station for acid deposits at the Mulino Vecchio (Bellinzago Novarese).

The scientific ringing centre has an observatory tower; instruments belong to those professionals that take part in the study. The fish hatchery has four fibreglass tanks for eggs incubation and two external circular tanks that are used both for a brief fish-farming of breeders and an initial growth of reabsorbed-yolk sac larvae. A camera and computers are used for fish elevators monitoring.

The Scientific ringing centre of Vizzola Ticino is also arranged for scientists and researchers' housing and overnight stay. In Motta Visconti, the Geraci park centre is a further service station for researchers. Other accommodation facilities are available at the Centro Parco "Monte Diviso", Gallarate, at the Malesco lodge in the Val Grande National Park, and the Casa del Parco at Cicogna.

As mentioned above, there are also public research institutions operating within the area of the reserve toconduct studies and research, not only a national and international level, but also regarding issues and areas of local and territorial interest, in many cases through specific conventions and / or projects in partnership with the same Protected Areas inside the Reserve.

In particular, the presence and role of the following structures must be mentioned:

- 1) CNR Institute for the Study of Ecosystems (CNR-ISE) of Verbania Pallanza 2) Joint Research Center in Ispra (VA)
- 3) University of Insubria
- 4) Regional ARPA.

16.2.Education for sustainable development and public awareness:

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.

Since its inception, the Reserve has been committed to various levels and on several fronts to spread a culture capable of transforming behavioral models and actual conduct which are incapable of coping with existing environmental emergencies. Environmental education activities target a user base from infant school to university level.

The increasingly evident local problems running parallel and contributing to the most well-known global concerns are managed, or more often simply kept in check, by solutions based on scientific- technical knowledge, while often overlooking a seemingly irrelevant detail: those specific competencies and convictions of a few which are necessary for a positive outcome, must also insist on widespread, consolidated cultural change from many, in the form of modifying actual lifestyles and attitudes which are incompatible with a sustainable future.

Education regarding the environment and sustainability, in this sense, plays an important role in communicating the skills and values needed to trigger a virtuous circle of transformation, and represents a potential strategy for the prevention of further problems and issues in the future. Although these changes arise from the modification of individual behaviors, it is clear that only by working together will they have a significant impact on improving local, and eventually global, conditions.

In order to achieve this goal of ideological and cultural renewal, we believe that initiatives that result in extemporaneous actions of awareness, or information alone are not sufficient to ensure a reversal of the trend; better yet, is to focus on projects of environmental education and sustainability that give rise to longterm educational processes, with a verifiable impact and attentive to real-life practices. These cannot be mere scientific study, which gives an attractive, but substantially "fragile" image of our planet, nor the moving sensorial experiences or trails for the blind and hearing-impaired, designed to convey individual perception and a sense of security, can guarantee the dignified survival of present and future generations. There is a general tendency to delegate, demand, and avoid responsibility because of the uncertainty of the steps to take and their real potential to achieve actual results. Any action seems useless, a waste of time, in the face of issues that appear insurmountable and unmanageable. We often forget that achieving a long-term goal always starts from the first, single step, and that the community is made up of multiple individualities.

In this regard, the Reserve has agreed and intends to promote, assist and coparticipate in all of those initiatives and projects of environmental education and sustainability which tend to accompany the study and interpretation of the territory and the elaboration of possible concrete conclusive interventions. No individual exists in a vacuum, but only in relation to others. And understanding this concept is one of the main goals of the Educational and Teaching Programs of the Reserve.

To emphasize this profound commitment, mention must be made, for example, of the recognition of the Ticino Park as conforming to the **UNI EN ISO 9001-2008 Environmental Education Quality Certification** since 2 December 2014.

The actions of the Reserve are focused on models of action that can bring in and involve specialized practitioners (trainers, educators, facilitators...) and users (schools, associations, individuals...) regarding issues of environmental education and sustainability.

Pedagogical activities, guided tours, sport, play, art, convivial events and the publication of specialized guides and texts, have given impetus to an important process of transformation, instructing users to learn, rediscover, appreciate and actively protect the territory. Even the use of social networks, with the creation of Facebook pages (the Ticino Valley Reserve, and all the Park Authorities involved in the proposed BR each have their own page) allows information on events, initiatives and courses designed to increase knowledge of protected areas and their activities, to be divulged on a large scale.

Environmental education activities within the Reserve are provided either by its staff or by park guards or volunteer ecological guards, as well as by specialized operators, trained, licensed nature guides, and members of cultural associations, who accompany excursionists. Within the activities of the Val Grande National Park, the management of the "Acquamondo" CEA is carried out by a specialized firm that was awarded a specific service tender.

The expertise and competencies of above operators are mainly related to naturalistic and historical-cultural aspects of the Reserve's territory.

In addition to environmental education activities targeted at schools on all levels, the various bodies within the Reserve Candidate are active in organizing courses and seminars with their own staff or in collaboration with institutional and nongovernmental specialists and institutions. These courses are addressed in part to staff, to continuously update their skills and competencies (on legislative matters, monitoring and conservation activities, etc.), and in part addressed to professionals and scholars who work within the territory of the Reserve, or intend to be eventually be active therein (training courses for future nature guides, and volunteer forest-fighters, Volunteer Ecological Guards).

Fig. 45 Educational activity with schools



A new educational and training project, along with the participation of volunteers in wildlife census-taking, is *citizen science*. This practice is being implemented in the Reserve through various research activities such as the LIFE BioSource project (with butterfly monitoring planned that anyone can participate, even non-experts), the IdroLIFE project, the monitoring of biodiversity in the Alpine environment with unpublished data collected by members of the Società di Scienze Naturali del Verbano Cusio Ossola (SSNVCO), and the creation of an open "Facebook" social group called "Segnaliamo i mustelidi del Verbano-Cusio-Ossola", through which reports of marten sightings in the Province are gathered and verified.

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Courses are also organized to directly involve and raise awareness within the local population, for example in monitoring activities (the "BIOBLITZ : esploratori della Biodiversità per un giorno ").

There are numerous facilities for educational and training activities as well as visitor centers throughout the territory of the Candidate Reserve.

Strategic points of reference are the Park Centers, Visitor Centers and thematic museums that offer visitors a range of services including: equipped rest-areas; information centers, bookshops with Park publications and gadgets, documentary centers, projection halls, exhibitions and conferences, exhibition trails, didactic spaces. Conventions, courses, seminars, workshops and environmental education initiatives, eco-gastronomic promotional events, sports and scientific activities are held at these locations.

Each center is characterized by the naturalistic and environmental features of the area it is situated in and the activities that take place there. Some are hosted in historical buildings, bought and restored for public use. The promotion and management of these structures is entrusted to social cooperatives, small private companies, local groups and environmental associations, in line with the goals of promoting and developing the local economy and employment.

Throughout the territory are visitor centers / infopoints, specially equipped areas along paths and trails with notice boards and informative panels displaying the rules / prohibited actions in force, along with the main features of the sites. Observation huts, nature museums and sensorial paths are also at the disposal of visitors..

Collaborative relationships with private businesses and associations to promote knowledge of the natural environment are also important as centers of dissemination and information.

Agritourism, for holiday farmstays, and didactic farms that offer activities to learn about the world of local agriculture and traditional farming practices, are also very active within the BR candidate's territory.

16.2.2. What facilities and financial resources are (or will be) available for these activities?

In general, environmental education activities are poorly funded and can only be financed by funds available through participating in specific European Union or Bank Foundations calls for applicants.

Ordinary contributions are included in the budgeting of regional and national Protected Areas and are used to support dedicated infrastructure costs and the development of timely activities in CEAs and schools.

Many environmental education and dissemination activities, however, find greater opportunities within larger and more articulated projects, funded through public European and private calls for application (especially those

offered by banking foundations); others are implemented through looking directly for forms of collaboration with other public subjects (schools, research institutions, etc).

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?

Over the years the promoters of the MAB Ticino Reserve extension have established numerous relationships with other institutions, both public and private and have systematically expanded their skills and capability in networking and organizing knowledge and experience. Projects involving international cooperation have also been presented and carried out.

The Reserve Candidate aims to establish a network of relationships with other Biosphere Reserves and the World Network of Biosphere Reserves, in order to compare notes and share experience. Collaboration reports have already begun with the Monviso Reserve and the Po Delta for the preparation of common projects.

A representative of the reserve will take part in the World Youth Forum for Young MABs to be held at the Po Delta Reserve from September 18-23, 2017, which is an important event to give voice to young people involved in the MAB Reserves and to gather their feedback, concerns and needs.

The Reserve will also participate in the Workshop on Integrated Management of Web Sites Involved in the UNESCO WHL, scheduled in Turin in October 2017 and organized by the UNESCO Regional Office for Science and Culture in Europe, in collaboration with the Centro Studi Silvia Santagata in Turin. Focus will be on World Heritage and Biosphere Reserve MABs themes, on the creative network of UNESCO cities and the lists and register of the Convention for the Safeguarding of the Intangible Cultural Heritage as well as on the UNESCO Global Geopark Network. This will be an important opportunity to present, share and compare experiences, and to address important issues such as the role of UNESCO sites in achieving the United Nations Sustainable Development Goals with reference to the UN Agenda 2030, and the integrated management of cultural and natural resources, along with tools and good practices to support sustainable development.

In view of the synergistic role of the Reserve Candidate with the World Network of Biosphere Reserves, it should also be considered that there are a number of international sites in the territory, placing the proposed area among the Multi-Internationally Designated Areas (MIDAs, 2016 International Union for Conservation of Nature), one of the 3,331 IDAs (year 2015) that constitute a number of areas designated and recognized by international instruments such as the World Heritage Convention (Sacred Mountains and Paleontological Areas), UNESCO Man and the Biosphere (MAB), The UNESCO Global Geoparks as part of the UNESCO International Geoscience and Geoparks Program (IGGP) with the Sesia Val Grande Geopark.

16.3.2. What are the expected benefits of international cooperation for the biosphere reserve?

Since management at the national and regional level is already consolidated, only moving out of this sphere of expertise and confronting external and other realities, can lead to more effective results, in the long term as well. Thus, comparison and cooperation with Biosphere Reserves can add value to the work, action and activities of the Reserve Candidate.

From the exchange of experience and knowledge with other Biosphere Reserves, with experts, and public players working on common themes, hope for is the definition of good practices for better territorial resource management and more effective pursuit of the objectives of the ' Agenda 2030, that can be exported on a large-scale.

Establishing forms of communication and dissemination based on logic and common language can make them more effective.

16.4.Internal and external communication channels and media used by the biosphere reserve:

16.4.1. Is (will) there (be) a biosphere reserve website? If yes, what is its URL?

Currently, the Candidate Biosphere Reserve uses pre-existing thematic channels, in particular dedicated pages on the sites of two park bodies that manage the Riserva Valle del Ticino (Parco Lombardo della Valle del Ticino <u>www.parcoticino.it</u>; Ente di gestione delle aree protette del Ticino e del Lago Maggiore <u>http://www.parcoticinolagomaggiore.it/</u>).

The proposed promotion of the territory to reserve status, and the involvement of new institutional entities will be followed by the creation of a dedicated website at the positive outcome of the candidature.

16.4.2. Is (will) there (be) an electronic newsletter? If yes, how often will it be published?

At the moment an electronic newsletter is not available; information about the Reserve is communicated through other thematic channels (websites and Facebook pages where the main news (events, images/photos, notices/ announcements) of the Reserve's Parks are published.

16.4.3. Does (will) the biosphere reserve belong to a social network (Facebook, Twitter, etc.)?

The Ticino Valley Biosphere Reserve has its own page on Facebook @BiosferaValleTicino. Information about the Reserve, its activities, and in

general about the Parks involved, is also communicated via each park's own Facebook pages.

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This channel is also used to disseminate information about the existing Reserve and to provide updates on the current application.



17. GOVERNANCE, BIOSPHERE RESERVE MANAGEMENT

17.1 Management and coordination structure:

17.1.1 What is the legal status of the biosphere reserve?

The Management Authorities of the present "Valle del Ticino" Biosphere Reserve were defined on the basis of a 2013 Memorandum of Understanding between the Piedmont and Lombardy Ticino Parks, which was a joint commitment to coordinate planning and programming (governance). The two Park Bodies went on to draft guidelines and axis of action for the reserve.

The reserve's current management and coordination structures are defined as follows:

<u>Assemblea Consultiva</u> (Consultative/Advisory Assembly): is the body entrusted with scheduling annual activities and approving the Plan of Activities as prepared by the Executive Committee. The Chairman and the Deputy Chairman of the Assembly are elected by the mayors of the municipalities located within the MAB area. Members are representatives of the territory: the directors and chairmen of the two Parks, councilors and mayors representing the various areas that fall within the reserve, representatives of the Piedmont and Lombardy Regions and representatives of the Provinces of Novara, Verbano Cusio Ossola, Milano, Varese, Pavia.

The Assembly is governed by specific regulations.

<u>**Comitato Esecutivo**</u>: the Executive Committee is responsible for the implementation of the programs and activities of the reserve.

For the technical-operational management a third structure is planned:

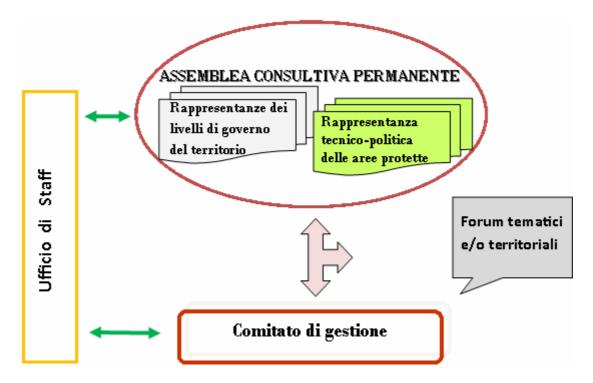
The MAB office, reference and secretariat of the Valley Ticino BR, consists of two coordinators / secretaries representing the Piedmontese and Lombard areas, in close contact with the needs and opportunities of the whole Reserve. This is the operational core of the Reserve, and also receives proposals, initiatives and projects, which can be developed by thematic working groups made up of technicians from the institutions involved.

Adding value to the reserve's structure of governance is, albeit indirectly, participation in the work of the NATIONAL MAB COMMITTEE, together with the other Italian MAB Areas and by special invitation.

The Reserve Candidate is to be considered as an extension of the Valle del Ticino Biosphere Reserve, and includes the total involvement of no. 133 municipalities. Considering the management experience gained with the current reserve, it is thought best to maintain a "light" governance, with the two decision-making levels (advisory and management), supported by the technical-operational structure (MAB Office) and, when the occasiona rises, thematic forums, as support for decision-making and planning strategies.

Because of the new territorial configuration of the Reserve, which involves a greater number management entities of Protected Areas, ie uniformly distributed entities having direct responsibility and management of the areas covered by MAB's "core" and "buffer" zoning, the Management Committee (corresponding to the current Executive Committee), with prevalent competencies and functions on issues related to environmental protection, education, sustainable development, research, rural development, tradition and culture, will be more directly represented through the Directors of those same Protected Areas.

The degree and modalities used by the Commitee to adopt implement the Assemblea's guidelines are assurred, in the model proposed, by the co-presence and role of the various bodies of the Parco Enti in the Assembly itself, as is the current situation, by the presence of political bodies - the President of the Park and that of the Comunità del Parco - and technical, in the figure of the director, as the Park's "Management Body".



The following figure shows the framework of the management model:

The constitutive process is a bottom-up structure which, in contrast with the current <u>governance</u>, facilitates the participatory process of local territorial entities, through their adhesion to sopraordinate entities; on the one hand by the reorganization of local representation (Unione dei comuni), on the other by the Parks related structures.

The new Ticino Val Grande Verbano Reserve will therefore have functional governance of wide-ranging participation and territorial and representation, with the following composition of management bodies:

PERMANENT ADVISORY ASSEMBLY *Role of consultation and control of the committee's operations*

Regione Piemonte Regione Lombardia Province di Varese, Verbania, Novara, Pavia e Città Metropolitana di Milano Ente Parco Nazionale Val Grande Ente di gestione delle aree protette del Ticino e del Lago Maggiore Ente Parco Lombardo della Valle del Ticino Ente Parco Campo dei Fiori Ente di gestione dei Sacri Monti Local authorities Higher territorial bodies: Presidents of the Comunità Montane/Unioni di Comuni/ Comunità aree protette (examples: Comunità dei Parchi, Colline Novaresi, Comunità delle Valli del Verbano, Agenda 21, Unione Comuni Alto Vergante, etc)

MANAGEMENT COMMITTEE: competences and themes related to environmental protection, education, sustainable development, research, rural development, tradition and culture

Composed of the Directors of the following: Ente Parco Nazionale Val Grande Ente di gestione delle aree protette del Ticino e del Lago Maggiore Ente Parco Lombardo della Valle del Ticino Ente Parco Campo dei Fiori Ente di gestione dei Sacri Monti

MAB OFFICE

Technical and administrative staff of the Park entities.

Active participation and sharing will be reinforced through the activation of forums and thematic meetings to compare and confronte, and through a campaign to raise awareness of the MAB Program and the Reserve's courses of action.

17.1.2 What is the legal status of the core area(s) and the buffer zone(s)?

The core and buffer areas are included within the boundaries of national and regional Protected Areas and are already subject to an existing Protection Regime and planning schedule aimed at conserving and protecting the wealth and natural value of said areas. They are also regulated by territorial, landscaping and urban planning aimed at safeguarding and improving the natural environment, as well as reducing the loss of biodiversity. As a number of Rete Natura 2000 sites are located in the Core areas of the Reserve, these are further disciplined by SCI-SAC-SPA specific site policy protection policies.

The Transition areas of the Reserve comprise the territories outside the national and regional Protected Areas, and the areas subject to municipal planning, and where the presence of more human activities are allowed in the Ticino and Campo dei Fiori Lombard parks, involving no. 216 municipalities. The specific planning tool in these areas is the Piano Regolatore Comunale (Municipal Regulatory Plan) or the Governo del Territorio in addition to Provincial planning tools. These areas have been included in the transition zone (co-operation) since an incentive policy for environmental sustainability and good practices is being set up through current and / or future projects involving all local authorities and stakeholders.

17.1.3 Which administrative authorities have competence for each zone of the biosphere reserve (core area(s), buffer zone(s), transition area(s))?

As indicated in the previous paragraph, and explained in detail in chap. 4.5, as far as the legal status of the proposed MAB zoning is concerned, the Regional and National Protected Areas are the administrative authorities with expertise in core and buffer areas, having higher level cogency than the local authorities; those relating to transition areas outside the PAs are subject to various legal systems due to the government of the territory as a whole, and / or in resources and thematic sectors.

MANAGEMENT	Core Area	Buffer Area	Transition Area
INSTRUMENTS			
Park Plans	Parco Nazionale	Parco Nazionale Val	
(Adoption and	Val Grande	Grande	Parco Ticino
Management)	Parco Ticino	Parco Ticino	Lombardo
	Lombardo	Lombardo	Parco Campo dei
	Parco Ticino	Parco Ticino	Fiori
	Piemontese	Piemontese	
	Parco Campo dei	Parco Campo dei	
	Fiori	Fiori	
Piano/piani dei	Regione Lombardia	Regione Lombardia	Regione Lombardia
parchi (Approval)	Regione Piemonte	Regione Piemonte	
Management	Parco Nazionale	Parco Nazionale Val	Provincia del
SCI/SPA/SAC	Val Grande	Grande	Verbano Cusio
	Parco Ticino	Parco Ticino	Ossola
	Lombardo	Lombardo	Provincia di Varese
	Parco Ticino	Parco Ticino	Comunità Montana
	Piemontese	Piemontese	Valli del Verbano
	Parco Campo dei	Parco Campo dei	
	Fiori	Fiori	
	Enti Gestione	Comunità Montana	
		Valli del Verbano	

The following table shows a summary of the authorities involved in MAB zoning and management-scheduling competence.

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Conservation	Parco Nazionale	Parco Nazionale Val	Provincia del
Measures	Val Grande	Grande	Verbano Cusio
(Adoption and	Parco Ticino	Parco Ticino	Ossola
Management)	Lombardo	Lombardo	Provincia di Varese
	Parco Ticino	Parco Ticino	Comunità Montana
	Piemontese	Piemontese	Valli del Verbano
	Parco Campo dei	Parco Campo dei	
	Fiori	Fiori	
Misure di	Ministero	Ministero	Provincia del
Conservazione	dell'Ambiente	dell'Ambiente	Verbano Cusio
(Approval)	Regione Lombardia	Regione Lombardia	Ossola
	Regione Piemonte	Regione Piemonte	Provincia di Varese
	negione rienonice	Regione Flemonte	Comunità Montana
			Valli del Verbano
Special	Ministero	Ministero	Provincia di Varese
Conservation	dell'Ambiente	dell'Ambiente	i i ovinciu ul vulese
Zones(SAC)	Regione Lombardia	Regione Lombardia	
Zones(SAC)	-	Regione Piemonte	
	Regione Piemonte	5	
	Parco Ticino	Parco Ticino	
	Lombardo	Lombardo	
	Parco Campo dei	Parco Campo dei	
	Fiori	Fiori	
Surveillance	Carabinieri	Carabinieri	
	Forestali	Forestali	
	Enti Parco Regionali	Enti Parco Regionali	
Municipal planning			Comuni
(PGT and PRG)			Dogiana Diamonta
Municipal planning			Regione Piemonte
/Approval (PGT e			Regione Lombardia
and PRG)			
Territorial			Provincia di Varese
/Provincial			Provincia di Pavia
Coordination			Provincia di Novara
			Provincia del VCO
			Città Metropolitana
			di Milano
Plans by sector:	Regione Piemonte	Regione Piemonte	Regione Piemonte
Regional Landsape	Regione Lombardia	Regione Lombardia	Regione Lombardia
			Ministero per i Beni
			Culturali e del
			Paesaggio
	Autorità di Bacino	Autorità di Bacino	Autorità di Bacino
Plans by sector: Po	del Fiume Po	del Fiume Po	del Fiume Po
Basin	Agenzia	Agenzia	Agenzia
	interregionale per il	interregionale per il	interregionale per il
	Fiume Po (AIPO)	Fiume Po (AIPO)	Fiume Po (AIPO)
	FIUTTIE PU (AIPU)	FIUTTIE PU (AIPU)	FIUTTIE PU (AIPU)

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.

The **European Commission**, the EU advisory and monitoring board for Rete Natura 2000 sites, whose guidelines and directives evaluate the work of Rete

Natura 2000 sites included in the Reserve.

The **Ministry for the Environment and the Protection of Lands and Seas** has direct competency over the Val Grande Natural Park and over all the interventions in the reserve that may have environmental impact and that concern water, air, energy, nature and territory.

The **Ministry for Cultural and Landscape Heritage** (Superintendency) has competence over all the territory of theProtected Areas and on all areas covered by the Codice dei Beni culturali e del Paesaggio D.lgs. n. 42/2004 e smi

The **Ministry for Agricultural and Forestry Policies** has competence in Agriculture, Forestry, Agri-Food and Fishing in the Reserve.

The **former State Forestry Force** (Arma dei Carabinieri) has competence in forest management and supervision.

The **Park Bodies** are responsible for the protection and enhancement of their own territories and are entrusted with the management of Rete Natura 2000 sites.

The **Regions** have competence in defining general policies and planning guidelines for their territory with legislative powers.

The **Provinces and metropolitan cities** have competence in defining policies and guidelines on territorial planning; protection and enhancement of the environment, transport, schools, economic development and the labor market. The **Comunità montane** are bodies for consultation regarding the territories represented.

The **Municipalities** have competence in the implementation and supervision of the urban planning measures of the Piano Regolatore and the Piano di Governo del Territorio Territorial Government Plan.

Unioni Comunità montane di comuni jointly exercise functions or services of municipal competence.

Consorzi di Bonifica e Autorità di Bacino del Fiume Po (River Reclamation Consortiums and Po River Basin Authority) have water management expertise.

17.1.5 Indicate the main land tenure (ownership) for each zone.

Valuations of the property covered in the MAB Reserve candidate are possible, in Piedmont thanks to cognitive analyzes carried out within the Piani Territoriali Forestali della Regione Piemonte Territorial, aimed at the multifunctional valorisation of forests, and pastures within individual forest areas identified by the Regional forestry plan; while for Lombardy, with no similar data, the evaluations are based on partial information, derived from various sources (Lombardy Region, Ticino Park, Campo dei Fiori Park).

In generale, la maggior parte del territorio lombardo della Riserva esistente è di proprietà privata, mentre non sono disponibili dati ufficiali e completi della proprietà pubblica. Si riporta, come dato di riferimento, la superficie delle aree di proprietà dei Parchi presenti nella Riserva.

In general, most of the Lombard Park territory of the existing Reserve is privately owned, while no official and complete data is available on public property. The information given here is based on the area under ownership of the Parks in the

Reserve.

The Lombardy Park of the Ticino Valley has an area of about 1115 hectares, mostly concentrated in the core area and in buffer zones, and is represented in particular by wooded areas and wetlands. The Campo dei Fiori Regional Park has about 50 hectares of land, mostly grassland and woodland; it also has in concession, through an agreement with ERSAF, the use of land purchased by this body in the name of and on behalf of the Lombardy Region, for an area of approximately 34 hectares. Finally, within the Campo dei Fiori Park, there are about 530 hectares of municipal property woodland, which is divided between core and buffer areas. Based on available data, it can be estimated that about 14% of Lombard Core areas are public property.

As far as Piedmont territory is concerned, most of the land in the Reserve in the Padana plains and the lower pre-Alpine offshoots, is privately owned, with the exception of a few public State properties bordering on river of the Ticino River, and certain municipal and regional properties; to note is a property owned by the Aree Protette del Ticino e del Lago Maggiore of 428 hectares, mainly in areas adjacent to the Ticino River. The whole core area of the proposed expansion is public property (State and Municipal). Based on the available data, it can be estimated that 68% of the CORE areas in Piedmont territory are public property.

Overall, it is estimated that 40% of the total CORE areas within the MAB Reserve candidate are publically-owned.

With regard to buffer and transition areas, private properties prevail in the the plain and hilly areas of the existing Reserve and the proposed extension, while in the mountain area of the expansion more land is public property, and predominant in the Piedmont region (Municipality, Regional or State).

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)?

This application is submitted by:

- Piedmont Region Ticino Park and Lake Maggiore
- Lombard Park of the Ticino Valley
- Val Grande National Park

Signatories on April 10, 2017, of a Memorandum of Understanding - "UNESCO Biosphere Reserve MAB" Valley of the Ticino"... towards a Transboundary Reserve, a collective territorial laboratory of strategies for cross-border sustainable development..." aimed at establishing cooperation and co-ordination of a working group for the proposal of the Reserve candidate and its future management.

A working group with the co-ordination of the parks involved, defined a proposal for governance of the Reserve, described in paragraph n. 17.1.1.

In particular, in the proposed governance, the technical management is headed by a Management Committee, consisting of the coordination of the respective directors of the five Parks of the Reserve. The directors are responsible for the tecnical governance of each Park.

The Committee will receive guidelines from the Advisory Assembly on how to designate a coordinator of the Committee during the start-up phase of the new Reserve.

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?

If yes, describe their composition, role and competence, and the frequency of their meetings.

The territory of the Reserve Candidate includes a large and extensive territorial area. The Protected Areas are, by statute, are equipped with advisory bodies such as the Comunità delle aree protette (Protected Areas Community), and the Consulta per la Promozione (Promotional Council); each province and each municipality has its own Board of Directors assisted by specialized consultative committees (agriculture, environment, culture, town planning). Beyond these existing organs, the reserve has in place a dense network of collaboration with local associations, research institutes, universities, and schools.

The Ticino Valley Reserve has its own governance, consisting of the following bodies: the Advisory Assembly, with the task of planning annual activities, and an Executive Committee, responsible for implementing the programs and activities of the Reserve.

In addition, a MAB office is the technical reference and secretariat of the Ticino Valley BR. It consists of two coordinators / secretaries representing the Piedmont and Lombardy, which constitute the operative core of the Reserve as well as the recipient of proposals, initiatives and projects, the development of which can be carried out by thematic working groups comprised of technicians of the institutions involved.

The Advisory Assembly, whose operation is governed by a specific Regulation, is responsible for programming and controlling measures and meets about 3 times a year. The Executive Committee has a purely operational and executive role. As illustrated in chap. 17.1.1, a management model similar to the one existing is proposed and extended to include the new institutional and territorial components. The Permanent Advisory Assembly will guarantee coverage of MAB areas due to the presence of all the managing bodies of the Protected Areas in the Assembly, and by territorial extension, to the presence of local authorities.

Thus, in the management model, the Permanent Advisory Assembly functions as the focal point of participation and linkage with the territory, and with thematic forums – open, and offering the eventual presence of external technical-scientific support – give further support to decision-making and programmatic strategies.

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?

The coordination and management structure of the current Ticino Valley Reserve has demonstrated the effectiveness of a "light" governance that can represent the Biosphere Reserve, both in relation to its territorial zoning, as well as in consideration of the composite framework of the present institutions, though not all of these are in charge of the direct management of the natural patrimony, for institutional purposes.

The combination of the Permanent Advisory Assembly and the Management Committee, both being the direct expression of the local and supra-local governmental network, will function formally and effectively in autonomy, to coordinate all of the concerning the territory.

The substantial and profitable process of wide-spread and itinerant consultation, launched for the proposed enlargement and the eventual adhesion of new Parks and Municipalities, has proved the importance of a bottom-up approach. It also confirms the prospects of the effectiveness of a model for the involvement of local realities, starting with the network of Parks and the assumption of direct management responsibility through their role in the Management Board's "control room".

17.1.9 How is the management/coordination adapted to the local situation?

The governance described above is adapted to the existing situation through, as explained previously, the existing collaboration between the various bodies, institutions, stakeholders and partnerships for large-scale ITA-CH European projects or participation in bank funding application bids.

With the proposed management structure, the co-ordination and collaboration between the various actors within the territory will be improved, placing them all under a single cental "control room", thus optimizing actions for the protection, conservation, enhancement and promotion of the Reserve.

17.1.10 Is there a procedure for evaluating and monitoring the effectiveness of the management?

In the reserve's future Plan of Action, an appropriate monitoring system will be provided for each Core, Buffer, and Transition area.

For the Core and Buffer areas the active monitoring plans of the Parks are currently valid, and will be integrated, while monitoring instruments from the good environmental, agricultural, tourism and production practices will be used in the Transition areas. The indicators cover quantitative, qualitative and economic data.

17.2 Conflicts within the biosphere reserve:

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.

In the reserve - here intended as a single area comprising the existing terriory and its enlargement - access to resources and / or their use does not present any particular conflicts, either between the various stakeholders, or in integral reserve areas where access is denied.

The consolidated local and supra-local planning process, in addition to sectorial planning has, in fact, sestablished a braod and stable equilibrium between the different areas so as to avoid the creation of any significant environmental and / or social conflicts.

The proposed territory is also a highly anthropized area, with several open issues (Malpensa Airport, Turin - Milan high capacity railway line, motorways, production activities, forms of intensive agriculture, forms of tourism that are not always properly disciplined, hydrogeological management, water scarcity, water pollution, diffusion of invasive allocthonous species), which can already utilize sustainable approaches and scenarios gained from past experience.

The most complex issues, and the various conflicts emerging over the years in favor of prudent and sustainable management of resources, have been resolved and / or addressed through roundtable discussions, meetings, and confrontations.

The reserve comprises territories of two Regions, Piedmont and Lombardy: in general the management takes place in harmony and in a coordinated manner; occasionally however, strategies of action and / or use of natural resources have resulted in conflict. The Biosphere Reserve has definitely led to the sharing of common actions and the improvement of dialogue between the institutions. The reserve's application for territorial expansion up to the Swiss border will certainly bring benefits of dialogue, and possible resolutions with the Swiss area, mainly as regards the management of the lacunal and fluvial waters and the safeguard of the two ecosystems.

17.2.2 If there are any conflicts in competence among the different administrative authorities in the management of the biosphere reserve, describe these.

There are no conflicts of competence between the different institutions and administrative authorities, as each actor constituting the governance of the Reserve has specific (superordinate and / or sectorial) competences deriving from national, regional and sectoral regulations.

17.2.3 Explain the means used to resolve these conflicts, and their effectiveness.

The measures used to resolve conflicts include confrontation, dialogue and, above all, participation in consultation roundtables for the preparation of new programs (PSR, INTERREG, LIFE), new territorial and / or local plans, and participation in co-planning conferences. The presence of the Reserve on the planning tables of structural funding would ensure the assessment of the planned actions consistent with the MAB Program.

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 application for the Reserve enlargement is the result of a series of consultations and awareness-raising programs aimed at and involving institutions, relevant associations and stakeholders, organized over the past 4 years. These activities were initiated at the end of the periodical review of the Ticino Valley Biosphere Reserve, and following the recommendations urging the Reserve to start the preparatory activities for the creation of the Riserva Transfrontaliera Italia - Svizzera (Italy-Switzerland Cross-border Reserve), made when MAB recognition was confirmed.

Consultation, participation, awareness raising 2014

January 2014 Abbiategrasso (MI): MAB Assembly: involvement and participation of the mayors

July 2014: Expanded enhancement of typical products

September 2014: Experimenting, territorial marketing initiative, water mobility from RB Ticino Valley to RB Delta del Po.

October 2014: MINIEXPLORANDO ACQUA-1° Water and land tour E (x) by plowing the protected areas of Lake Maggiore and Ticino

November 2014 Cameri(NO): MAB Assembly: involvement and participation of the mayors

2015

May 2015: presentation enlargement community of the Val Grande National Park

May 2015: presentation extension Board of Directors National Park Authority Val Grande

June 2015: partecipazione al convegno EXPO 2015 il 'Parco della Biodiversita''. July 2015: EXPO Swiss Pavilion

July 2015: Experimentando: from Locarno to Milan, sailing

September 2015: Castelletto Ticino-Magenta: Castelletto Ticino-Magenta: MAB meeting in videoconferencing

2016

March-April 2016 Enlarged consultation for INTERREG ALPINE SPACE project including Swiss partners

June 2016: Common consultation VCO Province

July 2016: Consultation with the Ministry of the Environment on the proposed extension of the Reserve to the Swiss border.

Agosto 2016: Information meeting city of Domodossola

September 2016: Participation at the Round Table UNESCO PiedmonteseOctober 2016: Rassegna Montagna e d'intorni, Vogogna

2017

January 2017: Participation in the submission of the RB MAB nomination proposal Unesco CR-PR-RE-MN

Participation in the Seminar "RURAL DEVELOPMENT 2014/2020 AND UN PROGRAM" MAN AND BIOSPHERE "Experiences, Good Practices and Opportunities - January 19, 2017

February 2017: Launch negotiated Italy-Switzerland, Rome7

March 2017: Awareness raising meeting in San Nazzaro Sesia (NO)

March 2017: Informative meeting Municipalities of Arizzano, Bée, Vignone, Premeno

April 2017: Castelletto Ticino-Magenta: MAB Assembly in videoconference with the involvement of the Municipalities already attached to the proposed enlargement

May 2017: Consultation meeting Fontaneto d'Agogna (NO)

June 2017: Summer Solstice Festival Villa Annoni (MI)

June 2017: Consultation Campo dei Fiori Park and Montana Valley Verbano Mountains

July 2017: Big Jump in Ticino, sweet canoeing.

July 2017: Informative meeting Municipal Union Valle Vigezzo

July 2017: Expansion Presentation Community of the Campo dei Fiori Park

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).

In the Italian State in general, women are fairly represented in all political administrations, from National and Regional to Municipal levels and women are present in force in the administrative bodies and in the operational staff of the

Parks and Municipalities, as well as in the management bodies of the Reserve: the Consultative Assembly, Executive Committee and the MAB Office.

The Reserve Candidate is the result of consultation tables and events involvoing stakeholders, institutions, associations, and other interested parties.

Contained in the Reserve's program are projects and actions aimed precisely at raising the awareness of the local community through social networks, consultation forums, and a calendar of itinerant meetings.

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).

The Reserve Candidate is actively targeting the younger section of the population by actively proposing educational activities and events for the enjoyment of the Reserve involving primary, secondary schools, and universities.

The involvement of young people in the management of the Reserve will be through the creation of a Youth Council in order to encourage long-term strategic choices and to raise awareness of the existing natural capital and preserving it for future generations, through promoting the sustainable use of natural resources and 360° eco-friendly economic development.

Every year, the Reserve welcomes young people through the Progetto Nazionale di Servizio Civile (National Civil Service Project) and work-study programs, and has stipulated several collaborative conventions with universities, technical high schools and professional institutes.

As already described above, the Reserve's Logo was conceived by students of a graphic lab course through a free convention earlier this year (2017).

In September, 2 delegates of the Reserve will participate in the 2017 World Youth Forum, organized by the Po Delta BR, where a few hundred young people, aged 18 to 35 from 120 countries around the world and representing the 669 BRs, will discuss and compare their experiences regarding sustainable development. The meeting will be held from 18 to 23 September. The main site of the event will be Adria (Rovigo), but will involve many of the other Delta's municipalities: Polesano, Porto Viro, Taglio di Po, Rosolina, Ariano in Polesine, Corbola (Rovigo), Mesola, Comacchio, Argenta, Codigoro (Ferrara).

Finally, the Reserve's Action Plan includes a series of training seminars for teachers, nature assistants and trainers.

17.3.4 What form does this representation take (e.g., companies, associations, environmental associations, trade unions)?

As mentioned in the previous paragraph, the instruments for youth involvement

are summarized in:

- Targeted educational programs
- Conventions with schools
- University conventions
- Hosting work-study training courses
- Hosting young people for National Civil Service
- Organization of training seminars for teachers, nature guides, trainers

Lastly, the **Youth Council** for Reserve actions the constitution within the Permanent Advisory Assembly plans to hold a series of training seminars for teachers, nature guides and trainers.

17.3.5 Are there procedures for integrating the representative body of local communities (e.g., financial, election of representatives, traditional authorities)?

Both the proposed Governance, as well as the permanent management bodies of the Advisory Assembly and the Executive Committee, have provisions for the temporary or permanent establishment of tables and / or thematic groups for integrating the representative body of local communities at any time.

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?

The management bodies for the governance of the Reserve are valid for an indefinite period, as long as the Reserve is in existence. The Assemblea consultiva has the role of programming and sharing activities and actions, and overseeing the work of the Executive Committee. Depending on the topic in debate, it is foreseen, if necessary, the establishment of thematic groups and broader consultation.

At present, a statute governing the operation of the Ticino Valley Reserve and its management bodies is in force, and this will be updated and adapted with the recognition of the Reserve Candidate.

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)?

The consultation process has mainly used the network of existing relationships with Park structures, and networks connected with the local authorities involved in the management of the Reserve.

Consultations held so far have been decisive in the Ticino Valley Advisory Assembly which approved the BR Plan of Action, including this application, information and consultation in the context of youth training sessions, planning for European and bank foundation funding, and the membership of various institutions (Provinces, Municipalities, Territorial Authorities) to the MAB Program.

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 and men participate equally in meetings and management decisions of the Reserve without discrimination. Although it does not consider it necessary for the Italian State to plan a "gender impact assessment", the Reserve reserves the right to conduct informative surveys on the representative percentages of females and males within the monitoring provided for in the National Guidelines.

17.4. The management/cooperation plan/policy:

17.4.1 Is there a management/cooperation plan/policy for the biosphere reserve as a whole?

On 21 February 2017 the Advisory Assembly of the Ticino Valley Reserve approved the **Piano degli obiettivi e delle attività** – its objectives and activities for the two-year period 2017-2018, as proposed by the Executive Committee, which provides for the following:

• Presentation of the Biosphere Reserve Ticino Val Grande Verbano application dossier

• Disclosure and promotion of the Reserve. In the course of 2017/2018, a number of initiatives aimed at the presentation and promotion of the Reserve are planned, some of which can already be started with the resources available, along with developing the MAB theme existing in other proposals already provided by the Parks; others will be included as actions within project proposals for funding applications

- Provision of an informational brochure
- Development of a trail linking the existing networks of the two Parks
- Provision for updated cartography
- Placement of information panels and notice boards
- Development of an environmental education and sustainable development program for schools centered on the MAB Reserve

• Promotion of branded products: a number of already existing initiatives involving Reserve products could be officially implemented, ("Recovery of farming traditions through the cultivation of vegetable and herbs", sale of a broader range of products, not only those specific to the Lombard Park, from the MAB area in the Ex.Customs outlet shop). Tasting events are also planned.

• Qualification of the receptive structures of the Reserve for the purpose of enhancing and promoting existing realities based on specific criteria (eg use of branded products in menus, attention to resource saving, use of renewable energy, etc.) on par with ongoing projects in Lombardy ("Germoglio del Ticino").

• Organization of itinerant exhibitions on the value and appreciation of the territory and landscape, on sustainable development (concrete experiences) within the Reserve

- Participation in Community and Foundation calls for funding application
- Participation in the Cariplo "Natural Capital" bid

• Memorandum of Understanding with the AndinoNorpatagónis Biosphere Reserve Adding to the signing of a Memorandum of Understanding between the Ticino Valley Reserve and the AndinoNorpatagónica Reserve, visited in 2016 for cultural exchanges regarding experience on common themes (education of the MAB Program, youth involvement, governance, otter replenishment, etc.)

• Participation in the UNESCO World Youth Forum for Young People in the Po Delta Reserve, September 18-23, 2017.

With the recognition of the Reserve Candidate, the lines of action of the future Reserve Management Plan will be redefined, outlined and shared with the new management bodies, with a comprehensive phase of consultation.

17.4.2 Which actors are involved in preparing the management/cooperation plan? How are they involved?

All of the actors in the area who are already represented in the Assemblea Consultiva are involved in the Reserve Management Plan: Regions, Parks, Provinces, Municipalities, specialized association of categories, and various stakeholders, subject to the consent of the Ministero dell'Ambiente e della tutela del territorio e del Mare, the Ministero per i Beni Culturali e del Paesaggio and del Ministero per le Politiche Agricole e Forestali (Ministry for the Environment and the Protection of the Territory and the Sea, Ministry of Culture and Landscape and the Ministry of Agriculture and Forestry).

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 authorities are aware of the guidelines of the Reserve Management Plan, some aspects of which are taken into consideration during the co-planning process.

In order to raise awareness among local authorities, the Reserve intends to organize training events for local administrators and officials of theEnti involved in the territory.

17.4.4 What is the duration of the management/cooperation plan? How often is it revised or renegotiated?

A long-term five-year term is foreseen for the Management Plan, with the possibility of yearly updating, ie with phases of self-analysis and revision as set out in the Italian Biosphere Reserve National Guidelines

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? (Enclose a copy).

The Reserve Candidate Management Plan will constitute the strategic orientation and programming document to be adopted over the above five-year period.

The Plan is structured on 5 different axis of action:

1. Governance strategies (environmental, agricultural, social, educational policies)

2. Integrated planning (objectives shared with local authorities, from planning strategies to large-scale, integrated projects)

3. Communication and territorial promotion (forms of communication aimed at stimulating the local population to action and and awareness-raising events and programs)

4. Education (educational for sustainable development) program 5. Monitoring (monitoring plan with indicators useful for qualitative or quantitative assessment of environmental and socio-economic conditions).

17.4.6 Indicate how this management/cooperation addresses the objectives of the proposed biosphere reserve (as described in section 13.1).

The objectives set out in paragraph 13.1. are directly addressed through the Management Plan's aforementioned axis of action.

The objectives that the Reserve intends to pursue are summarized in three main actions:

- capitalize on past mistakes and experience, focus on acquired skills, invent new roles, improve communication, educate;

-experiment: make the Reserve a driving force of sustainability, to introduce new areas and research into agri-ecology, green economy, circular economies, mobility and sustainable tourism, sustainable urban water management, renewable energies to sustainably develop its territory so as to export sustainability models elsewhere;

- manage: network and export its own models, become a reference point for communities and actors operating in the territory.

17.4.7 Is the plan binding? Is it based on a consensus?

The Management Plan will be shared and adopted by the Reserve with the consent of all the authorities and stakeholders involved, in particular by the mayors, along wth the agricultural, environmental and tourism associations. The same will be signed by the representatives of the Enti and / or associations concerned.

especially in the buffer zone(s) and the transition area(s)? Please provide evidence of the role of these authorities.

Within the core and buffer zones of the Reserve Candidate, various authorities are responsible for the management and control of the areas of their competence: territories within the boundaries of Protected Areas and sites belonging to the Rete Natura 2000 are under the management entities as well as the authorities (Provinces, Regions, Ministries, European Commission)

The transition zones of the Reserve include a number of Rete Natura 2000 sites and Protected Areas, in addition to the rest of the Reserve which is subject to government and territorial planning. The territories within the boundaries of Protected Areas and sites belonging to the Rete Natura 2000 are responsible to the managing bodies as well as to the Municipalities and the authorities in charge (Provinces, Regions, Ministry, European Commission).

The other territories are governed, based on the principle of subsidiarity, by a more sovraordinated system of instruments; first of these being the local government, through the urban planning of the pertinent municipalirities. In Italy, Municipalities are the basic territorial authorities with a certain degree of administrative autonomy, and are in close contact with citizens, in addition to the other relevant bodies (Provinces, Regions, Ministry, European Commission).

The hierarchical system involves at least two levels of authority: Provincial (Novara, Verbano Cusio Ossola and Varese) and the Piedmont and Lombardy Regions. The former covers Provincial planning and the management of the Provincial ecological network; the latter Regional territorial and landscape planning.

17.4.9 Which factors impede or help its implementation (e.g.: reluctance of local people, conflicts between different levels of decision-making).

During the consultation and stakeholder involvement phases, a few associations (agricultural and hunting) were reluctant to support the adherence of municipalities to the MAB Program, for fear of having additional constraints imposed on the territory.

This type of problem is easily resolved by the recognition of the Reserve Candidate, which proposes, in its Action Plan, a strong awareness campaign aimed at the local population and enlarging the stakeholder network, thus enabling a broader, more systematic vision.

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 UNESCO Heritage, including the Biosphere Reserve, is integrated into the most recent Regional territorial planning tools, such as the Piedmont Regional Landscape Plan.

Through the co-planning procedural tool, the municipal regulatory or governmental plans are also updated by taking into consideration the Reserve's observations on environmental sustainability.

17.4.11 Indicate the main source of the funding and the estimated yearly budget.

The funds used for the management and candidacy of the Reserve are Regional and State funding belonging to the Budgets of the Management Bodies of the protected areas of the Ticino and Lake Maggiore, of the Parco del Ticino Lombardo and the Parco Nazionale della Val Grande. Pursuant to the Memorandum of Understanding signed between the entities on April, 10 2017 they have agreed to jointly set up a cash fund based on a work program. All of the Enti are committed to: finding financial resources through European INTERREG and / or banking foundation for the promotion of the Reserve; to the drafting of its management plan and to the creation of jointly-agreed and shared tourism packages. Another available fundraising program is the PSR (a rural development program), especially as regards good agricultural practice and sustainable use

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.

The governance proposed for the Reserve candidate can ensure the optimal execution of the functions dictated by the MAB Program. Given the presence of representatives of the Park Bodies on the Executive Committee, pursuing the goals of biodiversity conservation will be fully met. The dense territorial network will ensure that the preparation of of programming, territorial planning, and designsfor sustainable economic development takes place. The plans of action relative to communication, promotion and education of sustainable development, and the signing of collaboration agreements with schools, research institutes and associations, will increase the logistics function of the Reserve and, at the same time, the active participation of the local community.

18. SPECIAL DESIGNATIONS:

There are numerous special designations that recognize the importance of special sites for carrying out the functions of the Biosphere Reserve.

1) List of UNESCO World Heritage sites

Sacri Monti (Sacred Mountains) of Piedmont and Lombardy

- Sacro Monte della S.S. Trinità di Ghiffa,
- Sacro Monte Calvario di Domodossola,
- Sacro Monte d'Orta,
- Sacro Monte di Varese.

The "Sacri Monti" or "Sacred Mountains of Piedmont and Lombardy" is a site composed of a series of nine distinct complexes located in the mountains of northern Italy, of which four are included in the candidate MAB Reserve (Varese, Orta, Ghiffa, Domodossola). Each complex includes a series of chapels and other architectural elements, created in the 16th and 17th centuries and devoted to various aspects of the Christian faith. In addition to their symbolic spiritual meaning, they are of great beauty thanks to the way they have been integrated into the natural landscape of hills, forests and lakes. They also host a very important artistic heritage represented by frescoes and statues

Sites of prehistoric pile dwellings in the Alpine region

- Isolino Virginia Camilla Isola di San Biagio (Biandronno VA)
- Lagozza (Besnate VA)
- Il Sabbione o Settentrionale (Cadrezzate VA)
- Mercurago (Arona NO)

These include the remains of prehistoric settlements in the Alps and around the Alps, realized in the period 5000-500 BC on the shores of lakes, rivers or wetlands.

Site of the UNESCO Geopark world network, "Sesia-Val Grande Geopark".

This is part of the Val Grande, the geographic location of which coincides geologically with the so-called Lake Massif, a very important geostructural field in alpine orogenesis and the implications of geostructural features that present in the park important geographies of international interest, which in 2013 the UNESCO Global Geopark Network has been officially recognized, along with the territories of Valsesia, Val Cannobina and Val Strona, of "Sesia-Val Grande Geopark" in the network of the geopark world, since November 2015 UNESCO Global Geopark Network.

2) A RAMSAR site ("Wetland of International Importance" according to the Ramsar Convention), denominated "Palude Brabbia", instituted in 1984.

7

Characteristics:

459 ha; 45°44'N 008°40'E. Special Protection Area EC Directive; Regional Natural Reserve. The site is situated in a valley of glacial origins and includes areas of marsh, open water, and wet meadows dissected by channels. It is fed by the Brabbia canal and surrounded by heavily built-up hills. The marsh vegetation consists of various species of aquatic plants that include a number of rare species. The area is important for diverse species of breeding wetland birds. Birdwatching and conservation education facilities are available. The wetland depends on an elaborate system of water management. Ramsar site no. 296. Most recent RIS information: 1998

(Fonte http://www.ramsar.org/wetland/italy).

3) Five important areas for avifauna (IBA - Important Birds Areas):

Val d'Ossola (IBA 207)

Ticino River (IBA 018)

Novarese Heron/Egret colony (IBA017)

Palude Brabbia marsh of Lake Varese and Lake Biandronno (IBA 014)

Val Grande (IBA 005)

4) Forty-eight Rete Natura2000 sites listed below:

CODICE	DENOMINAZIONE	REGIONE BIOGEOGRAFICA	TIPOLOGIA
IT1120003	Monte Fenera	Alpina	SCI
IT1140001	Fondo Toce	Continentale	SPA e SCI coincidenti
IT1140006	Greto T.te Toce tra Domodossola e Villadossola	Alpina	SCI
IT1140011	Parco Nazionale Val Grande	Alpina	SPA e SCI coincidenti
IT1140013	Lago di Mergozzo e Mont'Orfano	Continentale	SPA
IT1140017	Fiume Toce	Alpina	SPA
IT1140018	Alte Valli Anzasca, Antrona, Bognanco	Alpina	SPA
IT1140020	Alta Val Strona e Val Segnara	Alpina	SPA
IT1140021	Val Formazza	Alpina	SPA
IT1150001	Valle del Ticino	Continentale	SPA e SCI coincidenti
IT1150002	Lagoni di Mercurago	Continentale	SCI
IT1150004	Canneti di Dormelletto	Continentale	SPA e SCI coincidenti
IT1150007	Baraggia di Pian del Rosa	Continentale	SCI
IT1150008	Baraggia di Bellinzago	Continentale	SCI
IT1150010	Garzaie novaresi	Continentale	SPA
IT2010001	Lago di Ganna	Alpina	SAC
IT2010002	Monte Legnone e Chiusarella	Alpina	SAC
IT2010003	Versante Nord del Campo dei Fiori	Alpina	SAC
IT2010004	Grotte del Campo dei Fiori	Alpina	SAC

IT2010005	Monte Martica	Alpina	SAC
IT2010006	Lago di Biandronno	Continentale	SAC
IT2010007	Palude Brabbia	Continentale	SAC
IT2010008	Lago di Comabbio	Continentale	SAC
IT2010009	Sorgenti del Rio Capricciosa	Continentale	SAC
IT2010010	Brughiera del Vigano	Continentale	SAC
IT2010011	Paludi di Arsago	Continentale	SAC
IT2010012	Brughiera del Dosso	Continentale	SAC
IT2010013	Ansa di Castelnovate	Continentale	SAC
IT2010014	Turbigaccio, Boschi di Castelletto e Lanca di Bemate	Continentale	SAC
IT2010015	Palude Bruschera	Continentale	SAC
IT2010016	Val Veddasca	Alpina	SAC
IT2010017	Palude Bozza-Monvallina	Continentale	SAC
IT2010018	Monte Sangiano	Alpina	SAC
IT2010019	Monti della Valcuvia	Alpina	SAC
IT2010021	Sabbie d'oro	Continentale	SAC
IT2010022	Alnete del Lago di Varese	Continentale	SAC
IT2010401	Parco Regionale Campo dei Fiori	Alpina	SPA in parziale sovrapp. con siti SAC
IT2010501	Lago di Varese	Alpina	SPA
IT2010502	Canneti del Lago Maggiore	Alpina	SPA che contiene un sito SAC
IT2050005	Boschi della Fagiana	Continentale	SAC
IT2080002	Basso Corso e Sponde del Ticino	Continentale	SAC
IT2080013	Garzaia della Cascina Portalupa	Continentale	SAC
IT2080014	Boschi Siro Negri e Moriano	Continentale	SAC
IT2080015	San Massimo	Continentale	SAC
IT2080016	Boschi del Vignolo	Continentale	SAC
IT2080019	Boschi di Vaccarizza	Continentale	SAC
IT2080301	Boschi del Ticino	Continentale	SPA in parziale sovrapp. con sito SAC
IT2080701	Po da Albaredo Arnaboldi ad Arena Po	Continentale	SPA se nza relazioni con un altro sito NATURA 2000

5) Long-term monitoring sites, including the Fondotoce ringing station, the Fonfotoce Migration Studies Centre, active since 2001, thanks to the realisation of a floating platform within the reedbed on which the capture equipment is positioned (a single, 300-metre transept of mist nets) for monitoring the bird populations of the reedbed, with particular attention paid to the early spring and autumn periods.

Furthermore, in the Italian wetlands, the wintering acquatic avifauna is surveyed within the ambit of a project (International Waterbird Census) that covers all European and Mediterranean countries, in which the ISPRA acts as the national coordinator for Italy.

- 6) Two Long Term Ecological Research (LTER) sites
- Lago d'Orta (Macrosito IT08, LTER_EU_IT_042) internal waters.

Lake Orta (Macrosito IT08, LTER_EU_EN_042) internal waters. Main research topics: Eutrophication, Climate Change, Biological Communities and Trophic Networks, Paleolithology, Ecotoxicology, Ecological Quality, Remote Sensing. • Lago Maggiore (Macrosito IT08, LTER_EU_IT_045) internal waters.

Lake Maggiore (Macrosito IT08, LTER_EU_EN_045) internal waters. Main research topics: Eutrophication, Climate Change, Biological Communities and Trophic Networks, Paleolithology, Ecotoxicology, Ecological Quality, Remote Sensing.

7

It should also be remembered that many protected areas are included in the Biosphere Reserve, as shown in the following table:

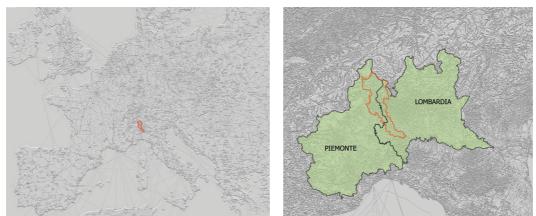
DENOMINAZIONE	REGIONE
Parco lombardo della Valle del Ticino	Lombardia
Parco Naturale Regionale Campo dei Fiori	Lombardia
Riserva naturale integrale Siro Negri	Lombardia
Riserva Naturale del Lago di Ganna	Lombardia
Riserva Naturale del Lago di Biandronno	Lombardia
Riserva Naturale Palude Brabbia	Lombardia
Parco naturale del Ticino	Piemonte
Parco Nazionale della Val Grande	Piemonte
Parco naturale del Monte Fenera	Piemonte
Parco Naturale dei Lagoni di Mercurago	Piemonte
Riserva dei Canneti di Dormelletto	Piemonte
Riserva Naturale Bosco Solivo	Piemonte
Riserva Naturale di Fondo Toce	Piemonte
Riserva naturale delle Baragge	Piemonte
Riserva naturale del Monte Mesma	Piemonte
Riserve naturale del Colle di Buccione	Piemonte
Riserva speciale del Sacro Monte di Orta	Piemonte
Riserva speciale del Sacro Monte di Ghiffa	Piemonte
Riserva speciale del Sacro Monte di Domodossola	Piemonte

19. SUPPORTING DOCUMENTS (to be submitted with nomination form):

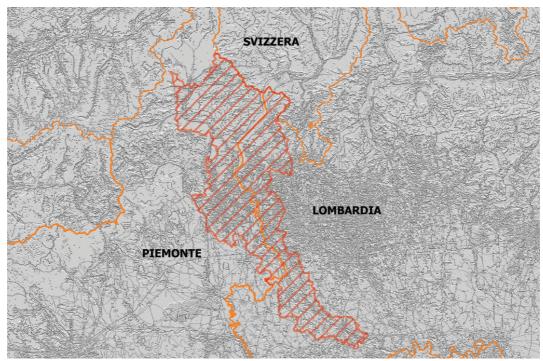
19.1. Location and zonation map with coordinates

Here below the geographical coordinates of individual protected areas included in the Candidate Reserve are specified in the WGS84 UTM Reference Zone 32N Reference System.

Cardinal points:	Latitude (decimal degrees)	Longitude (decimal degrees)
Most central point:	45.73072	8.65439
Northemmost point:	46.24947	8.44428
Southern most point:	45.10614	9.21883
Westernmost point:	46.17831	8.19631
Easternmost point:	45.15816	9.28855



Cartographic basis: Openstreetm

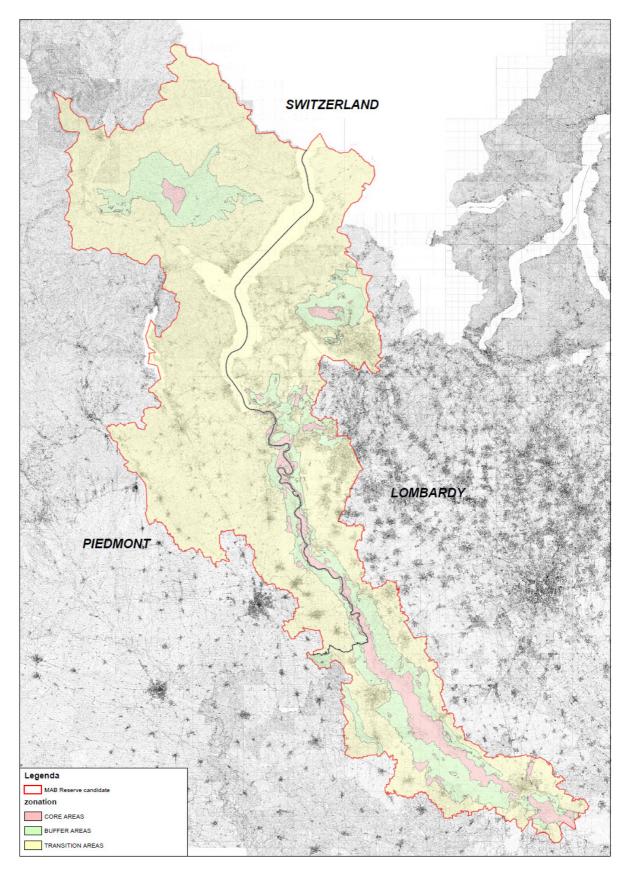


Cartographic basis: Openstreetmap

O Location of MAB Reserve candidate

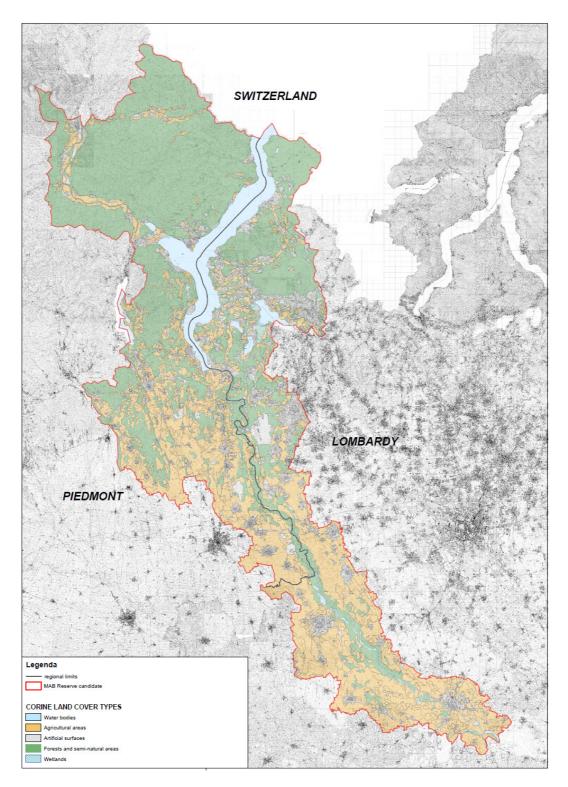
The following map represents the location and delimitation of the three zones (Core, Buffer and Transition) of the Biosphere Reserve.

7



La mappa seguente rappresenta le principali tipologie di copertura del suolo (Corine Land Cover 2012).

7



19.3. List of legal documents (if possible with English, French or Spanish synthesis of its contents and a translation of its most relevant provisions)

The Valley del Ticino Reserve has through its Advisory Assembly has approved the candidature in question that provides for the extension of the current reservethrough to the Swiss border.

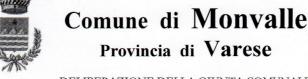
The Val Grande National Park has given its approval by signing the memorandum of understanding "Towards a Trans-frontier Reserve, collective territorial laboratoryfor strategies for sustainable trans-frontier development" with the two Ticino parksand to this end has approved a policy document.

The Campo dei Fiori Park has approved through its Park Community a policy for participation in the process of the extension of the reserve.

The municipalities involved in the candidature process have approved with a resolution their adhesion to the proposal for extending the transition zone affecting municipal territories.

The bodies involved have ratified this proposal through the signing of this dossier.

There follows an example of the resolution adhering to the proposal passed by the municipalities.



DELIBERAZIONE DELLA GIUNTA COMUNALE

COPIA

N. 43/G.C. del Registro delle Deliberazioni in data 19-09-2015

OGGETTO: RISERVA MONDIALE DELLA BIOSFERA, PROGRAMMA MAB UNESCO "VALLE DEL TICINO" - ADESIONE ALLA PROPOSTA DI ESTENSIONE A ZONA TRANSITION DEL TERRITORIO COMUNALE

L'anno duemilaquindici addì diciannove del mese di settembre alle ore 11:30, nella sede comunale si è riunita la Giunta Comunale.

Risultano:

Oregioni Franco	Sindaco	Р
Mariotto Gianni	Assessore	Р
Timperanza Serena	Assessore	Р

Partecipa il Segretario Comunale Scognamiglio Dott.ssa Maria.

Il Signor Oregioni Franco, Sindaco, assunta la Presidenza e constatata la legalità dell'adunanza, dichiara aperta la seduta e pone in discussione l'argomento segnato all'ordine del giorno.

OGGETTO: RISERVA MONDIALE DELLA BIOSFERA, PROGRAMMA MAB UNESCO "VALLE DEL TICINO" - ADESIONE ALLA PROPOSTA DI ESTENSIONE A ZONA TRANSITION DEL TERRITORIO COMUNALE

LA GIUNTA COMUNALE

<u>Premesso</u> che l'UNESCO ha costituito una rete mondiale di Riserve della biosfera che comprende (ad aprile 2015) 631 Riserve della Biosfera in 119 paesi, di cui 10 in Italia. Ognuna di queste aree garantisce tre funzioni nel coordinamento nella programmazione economica: la prima, è la conservazione dei paesaggi, degli habitat, degli ecosistemi, delle specie, delle diversità; altro aspetto è quello dello sviluppo, in un'ottica di piena sostenibilità; infine, la funzione logistica di supporto ad attività di ricerca e di formazione perché la Riserva di biosfera divenga un modello di buone pratiche da emulare oltre i suoi confini geografici;

<u>Considerato</u> che nel 2002 la Valle del Ticino nel suo insieme (Parco Ticino Piemontese e Parco Ticino Lombardo) è stata riconosciuta Riserva della Biosfera MAB e che nel 2013, a conclusione della procedura di revisione periodica, è stata ampliata, interessando oggi una superficie di 150.000 ha circa, e così ritenuta pienamente soddisfacente i requisiti della Rete Mondiale del Programma MAB/Unesco;

<u>Vista</u> la proposta presentata dal Parco Lombardo della Valle del Ticino e dall'Ente di Gestione del Parco Ticino-Lago Maggiore, quali Enti gestori della Riserva, che prevede l'estensione della stessa con le seguenti modalità:

• Inserire i territori esterni alle aree protette come transition area della Riserva della Biosfera, coinvolgedo i Comuni dell'intero bacino del Lago Maggiore, sino al confine svizzero;

<u>Visto</u> che la proposta presentata dai due Enti gestori di estensione della Riserva della Biosfera al Comitato dei Sindaci di Agenda21Laghi dell'11 aprile 2015, è stata valutata positivamente e che il Comitato stesso l'ha approvata ed ha invitato ogni Comune di Agenda21Laghi a deliberare l'adesione all'area MAB, giacché la stessa non comporta alcun vincolo ambientale e configura il territorio comunale come area di sperimentazione della sostenibilità e di dimostrazione della fattibilità di corrette programmazioni economiche orientate allo sviluppo, a beneficio dei territori e delle comunità locali, conformemente ai principi ispiratori di Agenda21Laghi e riconosciuti nel suo protocollo d'intesa istitutivo;

Evidenziato che:

- 1. le zone di transizione esterne sono quelle aree dove si svolgono attività economiche per il miglioramento del benessere delle comunità locali. Sono quindi presenti insediamenti abitativi, industriali, attività agricole e turistiche;
- 2. tale zona non comporta assolutamente l'applicazione di norme e/o vincoli di tipo giuridico e/o urbanistico, ma solo l'applicazione della pianificazione urbanistica vigente a livello comunale, provinciale e regionale;
- 3. è possibile recedere dalla proposta in qualsiasi momento;

<u>Rilevato</u> che al fine di presentare la "Proposta di estensione della Riserva della Biosfera Valle del Ticino" è necessario formalizzare una dichiarazione d'intenti degli Enti coinvolti;

Evidenziato che un tale importante ed ambizioso Progetto non può prescindere dal coinvolgimento di tutti i portatori d'interesse diffuso dell'area (enti locali, rappresentanze economiche ecc.) per una pianificazione operativa condivisa da gestire a livello sovracomunale;

<u>Ritenuto</u>, pertanto, certamente meritevole di accoglimento quanto proposto, attesa la condivisione delle finalità ed anche perché l'iniziativa riguarda un territorio dalle straordinarie ricchezze paesaggistiche,

Delibera di Giunta Comunale n.43 del 19-09-2015 - COMUNE DI MONVALLE (VA)

ambientali, eno-agroalimentari, architettoniche, archeologiche, che, attraverso questa candidatura di rilievo internazionale, può essere maggiormente conosciuto al di fuori dei confini regionali e nazionali con maggiori potenzialità di visita naturalistiche e turistiche;

Dato atto che la presente determina non necessita del visto di regolarità contabile in quanto non comporta riflessi diretti o indiretti sulla situazione economico-finanziaria o sul patrimonio dell'Ente e non necessita di pareri tecnici in quanto mero atto di indirizzo politico.

Con voti unanimi favorevoli;

DELIBERA

- 1. di ADERIRE alla "Proposta di estensione della Riserva della Biosfera Valle del Ticino" con le modalità espresse in premessa;
- 2. di DISPORRE la pubblicazione del presente atto sul sito istituzionale dell'Ente, a valere anche quale invito alla presentazione delle manifestazioni di interesse all'Idea-Progetto da parte dei Soggetti portatori di interesse diffuso impegnati nell'area in questione;
- 3. di RENDERE il presente atto immediatamente eseguibile ex art. 134, 4[^] comma, del D. Leg.vo 267/2000.

19.4. List of land use and management/cooperation plans

There follows a list of the most important and principal planning and management instruments in force in the area of the candidate reserve:

- Regional territorial plans
- Regional Landscape Plans
- Coordinated Provincial territorial Plans
- Water Safeguarding Plans
- Coordinated Parks Territorial Plans
- Reserve Management Plans
- Natura 2000 Site Management and Conservation Plans
- Forestry Policy Plans and Forestry Adaptation Plans.

7

FAUNA

INVERTEBRATES

Species (Latin name)	Species (Italian common name)
Abax continuus	species (italian common hame)
Acupalpus dubius	
Aeshna affinis	
Aeshna cyanea	
Aeshna isosceles	
Aeshna mixta	
Agabus paludosus	
Aglais urticae	
Agonum livens	
Agonum lugens	
Agonum versutum	
Agriades glandon	
Aiolopus strepens	
Amara aenea	
Anax imperator	
Anax parthenope	
Anonchus mirabilis	
Anthocaris cardamine	
Apatura ilia	
Apatura iris	
Aporia crataegi	
Austropotamobius pallipes	Gambero di fiume
Bidessus grossepunctatus	
Bidessus minutissimus	
Boloria napaea	
Brenthis daphne	
Brenthis daphne Brenthis hecate	
Brenthis daphne Brenthis hecate Callistus lunatus	
Brenthis daphne Brenthis hecate	
Brenthis daphne Brenthis hecate Callistus lunatus Calopterix virgo padana Calopteryx splendens	
Brenthis daphne Brenthis hecate Callistus lunatus Calopterix virgo padana Calopteryx splendens Calopteryx virgo	
Brenthis daphne Brenthis hecate Callistus lunatus Calopterix virgo padana Calopteryx splendens	
Brenthis daphne Brenthis hecate Callistus lunatus Calopterix virgo padana Calopteryx splendens Calopteryx virgo Calosoma sycophanta Carabus convexus	
Brenthis daphne Brenthis hecate Callistus lunatus Calopterix virgo padana Calopteryx splendens Calopteryx virgo Calosoma sycophanta Carabus convexus Carabus intricatus	
Brenthis daphne Brenthis hecate Callistus lunatus Calopterix virgo padana Calopteryx splendens Calopteryx virgo Calosoma sycophanta Carabus convexus	
Brenthis daphne Brenthis hecate Callistus lunatus Calopterix virgo padana Calopteryx splendens Calopteryx virgo Calosoma sycophanta Carabus convexus Carabus intricatus	
Brenthis daphne Brenthis hecate Callistus lunatus Calopterix virgo padana Calopteryx splendens Calopteryx virgo Calosoma sycophanta Carabus convexus Carabus intricatus Carcharodus flocciferus	
Brenthis daphne Brenthis hecate Callistus lunatus Calopterix virgo padana Calopteryx splendens Calopteryx virgo Calosoma sycophanta Carabus convexus Carabus intricatus Carcharodus flocciferus Carterocephalus palaemon	
Brenthis daphne Brenthis hecate Callistus lunatus Calopterix virgo padana Calopteryx splendens Calopteryx virgo Calosoma sycophanta Carabus convexus Carabus intricatus Carabus fibcciferus Carterocephalus palaemon Celastrina argiolus	
Brenthis daphne Brenthis hecate Callistus lunatus Calopterix virgo padana Calopteryx splendens Calopteryx virgo Calosoma sycophanta Carabus convexus Carabus intricatus Carcharodus fibcciferus Carterocephalus palaemon Celastrina argiolus Cerambyx cerdo	
Brenthis daphne Brenthis hecate Callistus lunatus Calopterix virgo padana Calopteryx splendens Calopteryx virgo Calosoma sycophanta Carabus convexus Carabus intricatus Carabus intricatus Carcharodus flocciferus Carterocephalus palaemon Celastrina argiolus Cerambyx cerdo Ceriagrion tenellu m	
Brenthis daphne Brenthis hecate Callistus lunatus Calopterix virgo padana Calopteryx splendens Calopteryx virgo Calosoma sycophanta Carabus convexus Carabus intricatus Carabus intricatus Carterocephalus palaemon Celastrina argiolus Cerambyx cerdo Ceriagrion tenellu m Chlaenius sulcicollis	
Brenthis daphne Brenthis hecate Callistus lunatus Calopterix virgo padana Calopteryx splendens Calopteryx virgo Calosoma sycophanta Carabus convexus Carabus intricatus Carcharodus flocciferus Carterocephalus palaemon Celastrina argiolus Cerambyx cerdo Ceriagrion tenellu m Chlaenius sulcicollis Clossiana selene	
Brenthis daphne Brenthis hecate Callistus lunatus Calopterix virgo padana Calopteryx splendens Calopteryx virgo Calosoma sycophanta Carabus convexus Carabus intricatus Carcharodus fbcciferus Carterocephalus palaemon Celastrina argiolus Cerambyx cerdo Ceriagrion tenellu m Chlaenius sulcicollis Clossiana selene Clossiana titania	
Brenthis daphne Brenthis hecate Callistus lunatus Calopterix virgo padana Calopteryx splendens Calopteryx virgo Calosoma sycophanta Carabus convexus Carabus intricatus Carabus intricatus Carterocephalus palaemon Celastrina argiolus Cerambyx cerdo Ceriagrion tenellu m Chlaenius sulcicollis Clossiana selene Clossiana titania Coenagrion puella	
Brenthis daphne Brenthis hecate Callistus lunatus Calopterix virgo padana Calopteryx splendens Calopteryx virgo Calosoma sycophanta Carabus convexus Carabus intricatus Carcharodus fbcciferus Carterocephalus palaemon Celastrina argiolus Cerambyx cerdo Ceriagrion tenellum Chlaenius sulcicollis Clossiana selene Clossiana titania Coenagrion puella Coenonympha oedippus	

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Colias palaeno	
Colias phicomone	
Cordulegaster boltonii	
Crocothemis erythraea	
Cupido argiades	
Cybister laterali marginalis	
Cychrus caraboides	
Cymindis axillaris	
Cynthia cardui	
Demetrias imperialis	
Dendrophilus punctatus	
Dryops anglicanus	
Duvalius ghidinii	
Dytiscus marginalis	
Erebia christi	
Erebia epiphron	
Erebia gorge	
Euphydryas aurinia	
Euphydryas cynthia	
Euplagia quadripunctaria	
Ever es argiades	
Gnatonchus schmidtii	
Gomphus flavipes	
Gomphus vulgatissimus	
Gonepteryx rhamni	
Graphoderus bilineatus	
Graphoderus cinereus	
Graptodytes pictus	
Gryllus campestris	Grillo camp estre
Halalaimus stammeri	
Helix pomatia	Chiocciola
Heteropterus morpheus	
Hirudo medicinalis	Sanguisuga
Hydaticus trasversalis	
Hydroporus angustatus	
Inachis io	
Iphiclides podalirium	
Ischnura elegans	
Ischnura pumilio	
Ithytrichia lamellaris	
Lasiommata achine	
Leptophyes punctatissima	
Lestes sponsa	
Lestes virens vestalis	
Lestes viridis	
Libellula fulva	
Limenitis camilla	
Lucanus cervus	
Lucanus tetraodon	
Lycaeides argyrognomon	
Lycaeides idas	
Lycaena dispar	
Lycaena phleas	

	l
Maculinea alcon	
Maculinea arion	
Masoreus wetterhallii	
Melitaea didyma	
Mellicta britomart is	
Minois dryas	
Nehalennia speciosa	
Neptis rivularis	
Nymphalis polychloros	
Ochlodes venatus	
Oedipoda caerulescens	
Oeneis glacialis	
Oiceoptoma thoracicum	
Omocestus ventralis	
Onychogomphus forcipatus	
Oodes helipioides	
Ophiogomphus cecilia	
Orthetrum albistylum	
Orthetrum cancellatu m	
Orthetrum coerulescens	
Osmoderma er emita	
Oxygastra curtisii	
Papilio machaon	
Parapleurus alliaceus	
Pararge aegeria	
Parnassius apollo	
Parnassius mnemosyne	
Parnassius phoebus	
Peltodytes caesus	
Phaneroptera nana	
Pholidoptera littoralis insubrica	
Pieris brassicae	
Pieris rapae	
Platycnemis pennipes	
Poecilus cupreus	
Polygonia c-album	
Polyommatus icarus	
Procambarus clarkii	
Proserpinus proserpina	
Pyronia tithonus	
Pyrrhosoma nymphula	
Rosalia alpina	
Ruspolia nitidula	
Satyrium pruni	
Scolitantides orion	
Somatochlora flavomaculata	
Somatochlora metallica	
Staphylinus erytropterus	
Stethophyma grossum	
Strymonidia pruni	
Strymonidia pruni Stylurus flavipes	

Sympetru m depressiusculum	
Sympetru m fonscolombii	
Sympetru m pede montanum	
Sympetru m sanguineum	
Syntomus foveatus	
Tachyta nana	
Unio elongatulus	
Vacciniina optilete	
Vanessa atalanta	
Vertigo angustior	Vertigo sinistrorso minore
Vertigo moulinsiana	Vertigo di Demoulins
Xiphidion discolor	
Xiphidion dorsalis	
Xystichus robustus	
Zerynthia polyxena	
Zygaena exulans	

FISH

Species (Latin name)Species (Italian common name)Acipenser naccariiStorione cobiceAcipenser sturioStorioneAlburnus alburnusImage: StorioneAlburnus alburnus alborellaImage: StorioneAlosa fallaxCheppiaAnguilla anguillaAnguillaBarbus meridionalisBarbo caninoBarbus plebejusBarbo comun eCarassius carassiusImage: StorioneChondrostoma geneiLascaChondrostoma soettaSavettaCobiteImage: Storione
Acipenser sturio Storione Alburnus alburnus Image: Complexity of the start of t
Alburnus alburnus Alburnus alburnus alborella Alosa fallax Cheppia Anguilla anguilla Anguilla Barbus meridionalis Barbo canino Barbus plebejus Barbo comun e Carassius carassius Lasca Chondrostoma genei Lasca Cobitis bilineata Cobite
Alburnus alburnus alborella Alosa fallax Cheppia Anguilla anguilla Anguilla Barbus meridionalis Barbo canino Barbus plebejus Barbo comun e Carassius carassius E Chondrostoma genei Lasca Chondrostoma soetta Savetta Cobitis bilineata Cobite
Alosa fallax Cheppia Anguilla anguilla Anguilla Barbus meridionalis Barbo canino Barbus plebejus Barbo comun e Carassius carassius Chondrostoma genei Lasca Chondrostoma soetta Savetta Cobitis bilineata Cobite
Anguilla anguilla Anguilla Barbus meridionalis Barbo canino Barbus plebejus Barbo comun e Carassius carassius Chondrostoma genei Lasca Chondrostoma soetta Savetta Cobitis bilineata Cobite
Barbus meridionalis Barbo canino Barbus plebejus Barbo comun e Carassius carassius Chondrostoma genei Lasca Chondrostoma soetta Savetta Cobitis bilineata Cobite
Barbus plebejus Barbo comune Carassius carassius
Carassius carassius Chondrostoma genei Lasca Chondrostoma soetta Savetta Cobitis bilineata Cobite
Chondrostoma genei Lasca Chondrostoma soetta Savetta Cobitis bilineata Cobite
Chondrostoma soetta Savetta Cobitis bilineata Cobite
Cobitis bilineata Cobite
Cobitis taenia Cobite
Coregonus lavaretus Coregon e
Coregonus oxyrhynchus Bondella
Cottus gobio Scazzone
Cyprinus carpio Carpa
Esox lucius Luccio
Gasterosteus aculeatus Spinar ello
Gobio gobio Gobione
Knipowitschia punctatissima Panzarolo
Lampetra zanandreai Lampreda padana
Lepomis gibbosus Persico sole
Lethenteron zanandreai Lampreda di ruscello
Leuciscus cephalus Caved ano
Leuciscus souffia Vairon e
Misgurnus anguillicaudatus Cobite di stagno orientale
Padogobius martensii Ghiozzo padano
Padogobius martensii Ghiozzo padano Perca fluviatilis Persico reale
Perca fluviatilis Persico reale
Perca fluviatilis Persico reale Petromyzon marinus Lampreda di mare
Perca fluviatilis Persico reale Petromyzon marinus Lampreda di mare Phoxinus phoxinus Sanguin erola europ ea

7

Rutilus aula	Triotto
Rutilus erythrophtalmus	Triotto
Rutilus pigus	Pigo
Sabanejewia larvata	Cobite mascherato
Salaria fluviatilis	Cagnetta
Salmo gairdneri	Trota irid ea
Salmo marmoratus	Trota marmorata
Salmo trutta	Trota atlantica
Salmo trutta x marmoratus	
Scardinius erythrophthalmus	
Silurus glanis	Siluro
Stiziostedion lucioperca	Lucioperca
Telestes muticellus	Vairon e
Thymallus thymallus	Temolo
Tinca tinca	Tinca

AMPHIBIANS

Species (Latin name)	Species (Italian common name)
Bufo bufo	Rospo comune
Bufo viridis	Rospo smeraldino
Hyla arborea	Ragan ell a comun e
Hyla intermedia	Ragan ell a it alian a
Hyla meridionalis	Ragan ella mediterranea
Lissotriton vulgaris	Triton e punteggi ato
Lissotriton vulgaris meridionalis	
Pelobates fuscus insubricus	Pelobat e fosco
Pelophylax synklepton esculentus	Rana verd e
Rana dalmatina	Rana agile
Rana latastei	Rana di Lataste
Rana lessonae	Rana di Lessona
Rana temporaria	Rana temporaria
Salamandra salamandra	Sala mandra p ezzata
Triturus alpestris	Triton e alpino
Triturus carnifex	Triton e crestato it aliano
Triturus vulgaris	Triton e punteggi ato

REPTILES

Species (Latin name)	Species (Italian common name)
Anguis fragilis	Orbettino
Coluber viridiflavus	Віассо
Coronella austriaca	Colubro liscio
Coronella girondica	Colubro dai riccioli
Elaphe longissima	Saettone
Emys orbicularis	Testuggine d'acqua
Hierophis viridiflavus	Biacco
Lacerta bilineata	Ramarro occid ental e
Lacerta viridis	Ramarro
Natrix natrix	Natric e dal col lar e
Natrix tessellata	Natric e tassel lat a
Podarcis muralis	Lucertola muraiola
Podarcis sicula	Lucertola c amp estr e
Podarcis sicula campestris	

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Vipera aspis	Viper a comun e
Zamenis longissimus	Saettone comune
Zootoca vivipara	Lucertola vivipara

BIRDS

Species (Latin name)Species (Italian common name)Accipiter gentilisAstoreAccipiter nisusSparviereAcrocephalus arundinaceusCannareccioneAcrocephalus melanopogonForapaglie castagnoloAcrocephalus paludicolaPagliaroloAcrocephalus palustrisCannaiola verdognolaAcrocephalus schoenobaenusForapaglieAcrocephalus schoenobaenusForapaglieAcrocephalus schoenobaenusCodibugnoloAcgithalos caudatusCodibugnoloAcgithalos caudatusCodibugnoloActitis hypoleucosPiro piro piccoloAegalus funereusCivetta capogrossoAlauda arvensisAllodolaAlceda atthisMartin pescatoreAlactoris graeca saxatilisCodoneAnas acutaCodoneAnas creccaAlzavolaAnas paelopeFischioneAnas querquedulaMarzaiolaAnas rereperaCaanajigliaAnser anserOca selvaticaAnser anserCalandroAnthus campestrisCalandroAnthus rativialisPrispoloneApus opusRondone maggioreAquila chrisa etaAirone rossoArdea cinereaAirone rossoAnthus prinelaGuro etaAnthus trivialisSigarz a ciuffettoAnthus campestrisSigarz a ciuffettoAnthus canyaestGuro eta etaApus opusGuro eta etaApus opusGuro eta etaApus opusSigarz a ciuffettoAnthus canyaest	BIRDS	
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Ardea purpureaAirone rossoArdeola ralloidesSgarz a ciuffettoAsio flammeusGufo di paludeAsio otusGufo comuneAthene noctuaCivett aAythya ferinaMoriglioneAythya fuligulaMorett aAythya marilaMorett a grigiaAythya nyrocaMorett a tab accat aBonasa bonasiaFrancolino di monteBotaurus stellarisTarabusoBubu buboGufo realeBubulcus ibisAirone guard abuoi	Aquila clanga	Aquila anatraia maggio re
Ardeola ralloidesSgarz a ciuffettoAsio flammeusGufo di paludeAsio otusGufo comuneAthene noctuaCivett aAythya ferinaMoriglioneAythya fuligulaMorett aAythya marilaMorett a grigiaAythya nyrocaMorett a tab accat aBonasa bonasiaFrancolino di monteBotaurus stellarisTar abusoBubo buboGufo realeBubulcus ibisAirone guard abuoi	Ardea cinerea	Airone c en erino
Asio flammeus Gufo di palude Asio otus Gufo comune Athene noctua Civett a Aythya ferina Moriglione Aythya fuligula Morett a Aythya narila Morett a grigia Aythya nyroca Morett a tab accat a Bonasa bonasia Francolino di monte Botaurus stellaris Tarabuso Bubo bubo Gufo reale Bubulcus ibis Airone guard abuoi	Ardea purpurea	Airone rosso
Asio otusGufo comuneAthene noctuaCivett aAythya ferinaMoriglioneAythya fuligulaMorett aAythya marilaMorett a grigiaAythya nyrocaMorett a tab accat aBonasa bonasiaFrancolino di monteBotaurus stellarisTarabusoBubo buboGufo realeBubulcus ibisAirone guard abuoi	Ardeola ralloides	Sgarz a ciuffetto
Athene noctuaCivett aAythya ferinaMoriglioneAythya fuligulaMorett aAythya marilaMorett a grigiaAythya nyrocaMorett a tab accat aBonasa bonasiaFrancolino di monteBotaurus stellarisTar abusoBubo buboGufo realeBubulcus ibisAirone guard abuoi	Asio flammeus	Gufo di palude
Aythya ferinaMoriglioneAythya fuligulaMorett aAythya nurilaMorett a grigiaAythya nyrocaMorett a tab accat aBonasa bonasiaFrancolino di monteBotaurus stellarisTarabusoBubo buboGufo realeBubulcus ibisAirone guard abuoi	Asio otus	Gufo comune
Aythya fuligulaMorett aAythya marilaMorett a grigiaAythya nyrocaMorett a tab accat aBonasa bonasiaFrancolino di monteBotaurus stellarisTarabusoBubo buboGufo realeBubulcus ibisAirone guard abuoi	Athene noctua	Civetta
Aythya marila Morett a grigia Aythya nyroca Morett a tab accat a Bonasa bonasia Francolino di monte Botaurus stellaris Tar abuso Bubo bubo Gufo real e Bubulcus ibis Airone guard abuoi	Aythya ferina	Moriglione
Aythya nyroca Morett a tab accat a Bonasa bonasia Francolino di monte Botaurus stellaris Tar abuso Bubo bubo Gufo real e Bubulcus ibis Airone guard abuoi	Aythya fuligula	Moretta
Bonasa bonasia Francolino di monte Botaurus stellaris Tarabuso Bubo bubo Gufo reale Bubulcus ibis Airone guard abuoi	Aythya marila	Morett a grigia
Botaurus stellaris Tarabuso Bubo bubo Gufo real e Bubulcus ibis Airone guard abuoi	Aythya nyroca	Morett a tab accat a
Bubo bubo Gufo reale Bubulcus ibis Airone guard abuoi	Bonasa bonasia	Francolino di monte
Bubulcus ibis Airone guard abuoi	Botaurus stellaris	Tarabuso
	Bubo bubo	Gufo reale
Bucenhala clanaula Quattrocchi	Bubulcus ibis	Airone guard abuoi
Quality Quality Quality Com	Bucephala clangula	Quattrocchi

Burhinus oedicnemus	Occhione
Buteo buteo	Poiana
Calandrella brachydactyla	Calandrella
Calidris alpina	Piovanello p ancian er a
Calidris canutus	Piovanello maggiore
Calidris ferruginea	Piovanello
Calidris minuta	Gambecchio
Calidris temmincki i	Gambecchio nano
Caprimulgus europaeus	Succiacapre
Carduelis cannabina	Fanello
Carduelis carduelis	Cardellino
Carduelis chloris	Verdon e
Carduelis flammea	Organ etto
Carduelis spinus	Lucarino
Carpodacus erythrinus	Ciuffolotto scarlatto
Casmerodius albus	
Certhia brachydactyla	Rampichino
Cettia cetti	Usignolo di fiume
Charadrius dubius	Corrier e piccolo
Charadrius hiaticula	Corriere grosso
Chlidonias hybridus	Mignattino pio mbato
Chlidonias leucopterus	Mignattino alibianche
Chlidonias niger	Mignattino
Ciconia ciconia	Cicogna bianca
Ciconia nigra	Cicogna nera
Cinclus cinclus	Merlo acquaiolo
Circaetus gallicus	Biancone
Circus aeruginosus	Falco di palude
Circus cyaneus	Albanella reale
Circus pygargus	Albanella minore
Cisticola juncidis	Beccamoschino
Coccothraustes coccothraustes	Frosone
Columba oenas	Colombella
Columba palumbus	Colombaccio
Coracias garrulus	Ghiandaia marina
Corvus corax	Corvo imperiale
Corvus cornix	Cornacchia grigia
Corvus corone	Cornacchia n era
Corvus frugilegus	Corvo
Corvus monedula	Taccola
Coturnix coturnix	Quaglia
Crex crex	Re di quagli e
Cuculus canorus	Cuculo
Cygnus olor	Cigno real e
Delichon urbica	Balestruccio
Dendrocopos major	
Dendrocopos minor	Picchio rosso maggio re
Dryocopus martius	Picchio rosso maggio re Picchio rosso minore
Egretta alba	Picchio rosso minore
Egretta alba Egretta garzetta	Picchio rosso minore Picchio nero
	Picchio rosso minore Picchio nero Airone bianco maggiore
Egretta garzetta	Picchio rosso minore Picchio nero Airone bianco maggiore Garzetta

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Emberiza hortulana	Ortolano
Emberiza schoeniclus	Migliarino di palud e
Erithacus rubecula	Pettirosso
Falco columbarius	Smeriglio
Falco naumanni	Grillaio
Falco peregrinus	Pellegrino
Falco subbuteo	Lodolaio
Falco tinnunculus	Gheppio
Falco vespertinus	Falco cuculo
Ficedula albicollis	Balia d al collare
Ficedula hypoleuca	Balia n era
Ficedula semitorquata	Balia caucasica
Fringilla coelebs	Fringu ello
Fringilla montifringilla	Peppola
Fulica atra	Folaga
Galerida cristata	Cappell accia
Gallinago gallinago	Beccaccino
Gallinago media	Croccolone
Gallinula chloropus	Gallinel la d'acqua
Garrulus glandarius	Ghiandaia
Gavia arctica	Strolaga mezzan a
Gavia immer	Strolaga maggiore
Gavia stellata	Strolaga minore
Glaucidium passerinum	Civett a nan a
Grus grus	Gru
Gypaetus barbatus	Gipeto
Haematopus ostralegus	Beccaccia di mare
Hieraaetus pennatus	Aquila minore
Himantopus himantopus	Cavaliere d'Italia
Hippolais icterina	Canapino maggiore
Hippolais polyglotta	Canapino
Hirundo rustica	Rondine
Ixobrychus minutus	Tarabusino
Jynx torquilla	Torcicollo
Lagopus mutus helveticus	Pernice bianca
Lanius collurio	Averla piccol a
Lanius excubitor	Averla maggiore
Lanius minor	Averla cenerina
Lanius senator	Averla capirossa
Larus cachinnans	Gabbiano reale
Larus canus	Gavina
Larus fuscus	Zafferano
Larus melanocephalus	Gabbiano coral lino
Larus michahellis	Gabbiano real e za mpegiall e
Larus minutus	Gabbianello
Larus ridibundus	Gabbiano comun e
Limosa lapponica	Pittima minore
Limosa limosa	Pittima reale
Locustella luscinioides	Salciaiola
Locustella naevia	Forapaglie macchiet tato
Loxia curvirostra	Crocier e
Lullula arborea	Tottavilla
Luscinia luscinia	Usignolo maggiore

Luscinia megarhynchos	Usignolo
Luscinia svecica	
	Pettazzurro Frullino
Lymnocryptes minimus Melanitta fusca	Orco marino
Melanitta nigra	Orchetto marino Pesciaiola
Mergus albellus	
Mergus merganser	Smergo maggiore
Mergus serrator	Smergo minore
Merops apiaster	Gruccione
Miliaria calandra	Strillozzo
Milvus migrans	Nibbio bruno
Milvus milvus	Nibbio reale
Monticola saxatilis	Codirossone
Monticola solitarius	Passero solitario
Montifringilla nivalis	Fringu ello alp ino
Motacilla alba	Ballerina bianca
Motacilla alba alba	
Motacilla cinerea	Ballerina gialla
Motacilla flava	Cutrettola
Muscicapa striata	Pigliamosche
Netta rufina	Fistione turco
Numenius arquata	Chiurlo
Numenius phaeopus	Chiurlo piccolo
Nycticorax nycticorax	Nitticora
Oenanthe oenanthe	Culbianco
Oriolus oriolus	Rigogolo
Otus scops	Assiolo
Pandion haliaetus	Falco pescatore
Panurus biarmicus	Basettino
Parus ater	Cincia mora
Parus caeruleus	Cinciarella
Parus cristatus	Cincia dal ciuffo
Parus major	Cinciallegra
Parus montanus	Cincia bigia alpestre
Parus palustris	Cincia bigi a
Passer domesticus	Passera olt remontana
Passer montanus	Passera mattugia
Pernis apivorus	Falco pecchiaiolo
Phalacrocorax carbo	Cormorano
Phalacrocorax carbo sinensis	Cormorano
Phalaropus lobatus	Falaropo becco sottil e
Phasianus colchicus	Fagiano comun e
Philomachus pugnax	Combattente
Phoenicurus ochruros	Codirosso spazzacamino
Phoenicurus phoenicurus	Codirosso
Phylloscopus bonelli	Luì bianco
Phylloscopus collybita	Luì piccolo
Phylloscopus sibilatrix	Luì verd e
Phylloscopus trochilus	Luì grosso
Pica pica	Gazza
Picoides major	Picchio rosso maggio re
Picoides minor	Picchio rosso minore
Picus viridis	Picchio verd e

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Platalea leucorodia	Spatola
Pluvialis apricaria	Piviere dorato
Pluvialis squatarola	Pivier essa
Podiceps auritus	Svasso cornuto
Podiceps cristatus	Svasso maggiore
Podiceps grisegena	Svasso collorosso
Podiceps nigricollis	Svasso piccolo
Porzana parva	Schiribilla
Porzana porzana	Voltolino
Porzana pusilla	Schiribilla grigiata
Prunella collaris	Sordone
Prunella modularis	Passera scopaiola
Ptyonoprogne rupestris	Rondine mont ana
Pyrrhocorax graculus	Gracchio alpino
Pyrrhocorax pyrrhocorax	Gracchio corallino
Pyrrhula pyrrhula	Ciuffolotto
Rallus aquaticus	Porciglione
Regulus ignicapillus	Fiorrancino
Regulus regulus	Regolo
Remiz pendulinus	Pendolino
Riparia riparia	Topino
Saxicola rubetra	Stiaccino
Saxicola torquata	Saltimpalo
Scolopax rusticola	Beccaccia
Serinus citrinella	Venturon e
Serinus serinus	Verz ellino
Sitta europaea	Picchio murator e
Sterna albifrons	Fratic ello
Sterna hirundo	Stern a comun e
Streptopelia decaocto	Tortor a dal collare orientale
Streptopelia turtur	Tortor a selvatica
Strix aluco	Allocco
Sturnus vulgaris	Storno
Sylvia atricapilla	Capinera
Sylvia borin	Beccafico
Sylvia cantillans	Sterp azzolina
Sylvia communis	Sterp azzola
Sylvia curruca	Bigiar ell a
Sylvia hortensis	Bigia grossa
Sylvia nisoria	Bigia p adovan a
Sylvia undata	Magnanin a
Tachybaptus ruficollis	Tuffetto
Tadorna tadorna	Volpoca
Tetrao tetrix tetrix	Fagiano di monte
Tichodroma muraria	Picchio muraiolo
Tringa erythropus	Totano mo ro
Tringa glareola	Piro piro boschereccio
Tringa nebularia	Pantana
Tringa ochropus	Piro piro culbianco
Tringa stagnatilis Tringa totanus	Albastrello
Tringa totanus	Pettegola
Troglodytes troglodytes	Scricciolo
Turdus iliacus	Tordo sassello

Turdus merula	Merlo
Turdus philomelos	Tordo bottaccio
Turdus pilaris	Cesena
Turdus torquatus alpestris	Merlo dal collare meridionale
Turdus viscivorus	Tordela
Tyto alba	Barbagianni
Upupa epops	Upupa
Vanellus vanellus	Pavoncella

MAMMALS

Species (Latin name)	Species (Italian common name)
Apodemus agrarius	
Apodemus sylvaticus	
Arvicola ter restris	
Barbastella barbastellus	Barbastello
Canis lupus	Lupo
Capra ibex	Stamb ecco
Capreolus capreolus	Capriolo
Cervus dama	
Cervus elaphus	Cervo nobile
Clethrionomys glareolus	
Crocidura leucodon	Crocidura ventre bianco
Crocidura suaveolens	Crocidura minore
Dama dama	Daino
Eliomys quercinus	Quercino
Eptesicus serotinus	Serotino co mune
Erinaceus europaeus	Riccio
Glis glis	Ghiro
Hypsugo savii	Pipistrello di Savi
Hystrix cristata	Istrice
Lepus europaeus	Lepre co mune
Lepus timidus	Lepre bianca
Lutra lutra	Lontra comun e
Lynx lynx	Lince
Marmota marmota	Marmotta
Martes foina	Faina
Martes martes	Martora
Meles meles	Tasso
Micromys minutus	Topolino delle risaie
Microtus arvalis	Arvicol a camp estr e
Microtus nivalis	Arvicola delle n evi
Microtus savii	Arvicola di Savi
Microtus subterraneus	Arvicola sotter ran ea
Miniopterus schreibersii	Miniottero di Schreiber
Mus domesticus	Topo domestico
Muscardinus avellanarius	Moscardino
Mustela ermin ea	Ermellino
Mustela nivalis	Donnola
	Puzzola
Mustela putorius	
Mustela putorius Myocastor coypus	Nutria
	Nutria Vespertilio di Bechstein
Myocastor coypus	

Myotis capaccinii	Vespertilio di Capaccini
Myotis daubentoni	Vespertilio di Daubenton
Myotis emarginatus	Vesper tilio smargin ato
Myotis myotis	Vespertilio maggiore
Myotis mystacinus	Vespertilio mustacchino
Myotis nattereri	Vespertilio di Natterer
Myotis spp.	
Myoxus glis	Ghiro
Neomys anomalus	Toporagno d'acqua di Miller
Neomys fodiens	Toporagno d'acqua
Nyctalus leisleri	Nottola di Leisler
Nyctalus noctula	Nottola comun e
Oryctolagus cuniculus	Coniglio selvatico
Pipistrellus kuhli	Pipistrello a lbolimb ato
Pipistrellus nathusii	Pipistrello di Nathusius
Pipistrellus pipistrellus	Pipistrello nano
Pipistrellus pygmaeus	Pipistrello pigmeo
Pipistrellus savii	Pipistrello di Savi
Plecotus auritus	Orecchion e comune
Plecotus austriacus	Orecchion e meridionale
Plecotus macrobullaris	Orecchion e alpino
Plecotus sp.	
Rattus norvegicus	Ratto delle chi avich e
Rhinolophus euryale	Ferro d i cavallo euriale
Rhinolophus ferrumequinum	Ferro di cavallo maggiore
Rhinolophus hipposideros	Ferro d i cavallo minore
Rupicapra rupicapra	Camoscio alpino
Sciurus vulgaris	Scoiattolo
Sorex araneus	Toporagno comune
Sorex minutus	Toporagno nano
Sus scrofa	Cinghial e
Sylvilagus floridanus	Silvilago
Tadarida teniotis	Molosso di Cestoni
Talpa europaea	Talp a europ ea
Vulpes vulpes	Volpe

FLORA

Species (Latin name)	Species (Italian common name)
Acorus calamus	
Adiantum capillus-veneris	
Agrostis gigantea Roth	
Alisma lanceolatum	
Allium angulosum	
Alopecurus geniculatus L.	
Amaranthus cruentus	
Anarrhinum bellidifolium	
Androsace vandellii	
Anemone narcissiflora narcissiflora	
Anemone ne morosa	
Anemone ranunculoides	
Anthriscus nitida	

Aphyllanthes monspeliensis	
Apium nodiflorum nodiflorum	
Aquilegia alpina	Aquilegia maggiore
Aquilegia atrata	
Aquilegia vulgaris	
Armeria arenaria arenaria	
Arnica montana	Arnica
Artemisia genipi	Assenzio gen epì a spiga
Aruncus dioicus	
Asarum europaeum	
Asparagus tenuifolius	
Asphodelus albus delphinensis	
Asplenium adulterinum	
Asplenium seelosii seelosii	
Atropa bella-donna	
Bidens cernua	
Bryum rubens	
Bunias erucago	
Butomus umbellatus	
Calamagrostis canescens	
Callicladium haldanianum	
Callitriche hamulata Kütz.	
Callitriche obtusangula	
Callitriche palustris	
Callitriche stagnalis	
Caltha palustris	
Campanula barbata	
Campanula glomerata	
Campanula latifolia Campanula persicifolia	
persicifolia	
Campanula ranunculoides rapunculoides	
Campanula rapunculus	
Campanula rotundifolia	
rotundifolia Campanula scheuchzeri	
scheuchzeri	
Campanula trachelium	
Campanula trachelium trachelium	
Campylopus oerstedianus	
Cardamine kitaibeli i	
Cardamine matthioli	
Carex appropinquata	
Carex brizoides	
Carex elata	
Carex elongata	
Carex ferruginea austroalpina	
Carex fusca All.	
Carex lasiocarpa	
Carex liparocarpos	
Carex pauciflora	
Carex pendula Hudson	
Carex remota	
Carex riparia	
Carex vesicaria	
Carek residunu	

Centaurea deusta splendens	
Cephalanthera longifolia	Cefalantera maggiore
Cephalanthera rubra	Cefal anter a rossa
Ceratophyllum demersum	
Chara gracilis	
Cladium mariscus	
Convallaria majalis	
Corydalis cava cava	
Corynephorus canescens Cyclamen purpurascens	
purpurascens	
Cyperus michelianus (L.) Delile	
Dactylorhiza incarnata incarnata	
Dactylorhiza maculata	
Daphne cneorum	
Daphne laureola	
Daphne mezereum	
Dianthus carthusianorum	
Dianthus monspessulanus	
Dianthus seguieri seguieri	
Dianthus superbus	
Dianthus sylvestris sylvestris	
Dicranodontium denudatum	
Dicranum fulvum	
Dicranum montanum	
Dicranum scoparium	
Dicranum tauricum	
Dicranum viride	
Didymodon cordatus	
Diphasium tristachyum	
Ditrichum cylindricum	
Ditrichum lineare	
Draba hoppeana Rchb.	
Drosera anglica	
Drosera intermedia	
Drosera intermedia Hayne	
Drosera rotundifolia	
Drosera x obovata	
Dryopteris carthusiana	
Elatine alsinastrum	
Eleocharis carniolica	Giunchina della Carniola
Eleocharis palustris (L.) R. et S.	
Epilobium parviflorum Schreber	
Epipactis atropurpurea	Ellebo rine violac ea
Epipactis palustris	Ellebo rine p alustre
Equisetum fluviatil e	
Equisetum hye male	
Eriophorum angustifolium	
Eriophorum latifolium	
Eriophorum vaginatum	
Erythronium dens-canis	
Euphorbia carniolica Jacq.	
Festuca acuminata	
Fissidens rivularis	

Face and the state of the second state of the	l
Fossombronia wondraczekii	
Fragaria vesca vesca	
Gagea pratensis (Pers.) Dumort.	Ducancua
Galanthus nivalis	Bucaneve
Galium tendae	
Gentiana acaulis	
Gentiana asclepiadea	
Gentiana cruciata cruciata	Constant stalls
Gentiana lutea	Genziana gialla
Gentiana pneumonanthe	
Gentiana punctata	
Gentiana purpurea	
Gentianella germanica	
Gentianopsis ciliata	
Gladiolus imbricatus	
Gladiolus palustris	
Globularia cordifolia	
Glyceria maxima	
Gratiola officinalis	
Grimmia elatior	
Groenlandia densa	
Gymnadenia conopsea	Manina rosea
Haplohymenium triste	
Helleborus niger	
Hepatica nobilis	
Hippuris vulgaris	
Homalia trichomanoides	
Hottonia palustris	
Hydrocharis morsus-ranae	
Hygrohypnum luridum	
Hypericum humifusum	
Hypericum tet rapterum	
Hypnum pallescens	
llex aquifolium	
Iris pseudacorus	
Iris sibirica L.	
Isoetes malinverniana	Cala mari a malinverni ana
Juncus bulbosus	
Juncus subnodulosus Schrank	
Juncus tenageja Ehrh. Kobresia simpliciuscula	
(Wahlenb.) Mack.	
Laserpitium krapfii gaudinii	
Lemna minor	
Lemna trisulca	
Leontodon incanus tenuiflorus	
Leontopodium alpinum	
Leucobryum juniperoideum	
Leucojum aestivum aestivu m	
Leucojum vernum	
Lilium bulbiferum croceu m	
Lilium martagon	
Limodorum abortivum	
	Fior di legna

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Lindernia palustris	
Lindernia procumbens	Vandel lia palustre
Liparis loeselii	Liparide
Listera ovata	Listera maggiore
Lotus pedunculatus	
Ludwigia palustris	
Lycopodium annotinum	Licopodio annotino
Lycopodium clavatum	
Mannia fragrans	
Marsilea quadrifolia	Trifoglio acquatico comune
Matteuccia struthiopteris	
Metzgeria furcata Molopospermum peloponnesiacum (L.) Koch	
Muscari botryoides	
Myosotis scorpioides scorpioides	
Myricaria germanica	
Myriophyllum alternifloru m DC	
Myriophyllum spicatum	
Myriophyllum verticillatum	
Najas marina marina	
Narcissus poeticus	
Narcissus radiiflorus Salisb.	
Nasturtium officinale officinale	
Nelumbo nucifera	
Nigritella rh ellicani	
Nuphar lutea	
Nymphaea alba	
Nymphoides peltata	
Ophrys apifera	Ofride fior di Api; Vesparia
Ophrys insectifera	Ofride insettifera
Oplismenus hirtellus	
Oplismenus undulatifolius	
Orchis maculata	Orchide macchiata
Orchis mascula	Orchide maschia
Orchis militaris	Orchide militare
Orchis morio	Orchide minore
Orchis sambucina	Orchide sambucina
Orchis tridentata	Orchide screziat a
Orchis ustulata	Orchide bruci acchiat a
Orthotrichum obtusifolium	
Osmunda regalis	
Paeonia officinalis	
Paraleucobryum longifolium	
Peplis portula	
Persicaria amphibia	
Persicaria hydropiper	
Peucedanum palustre	
Phyllitis scolopendrium scolopendrium	
Physcomitrium pyriforme	
Physospermum cornubiense	
Phyteuma humile	
Phyteuma scheuchzeri	
Plagiothecium ruthei	
, agioticeium rutilei	

Plagiothecium succulentum	
Platanthera bifolia	Platantera comune
Platanthera chlorantha	Platantera verdastra
Pleuridium acuminatum	
Poa palustris L.	
Pohlia proligera Polystichum braunii (Spenner)	
Fée	
Populus canescens (Aiton) Sm.	
Potamogeton crispus	
Potamogeton filiformis	
Potamogeton lucens	
Potamogeton natans	
Potamogeton nodosus	
Potamogeton obtusifolius	
Potentilla grammopetala	
Potentilla palustris	
Pottia intermedia	
Primula auricula ciliata	
Primula hirsuta	
Primula vulgaris	
Prunus padus L.	
Pseudolysimachion spicatum	
Pteris cretica	
Ptycomitrium incurvum	
Pulsatilla alpina apiifolia	
Pulsatilla montana montana	
Racomitrium aquaticum	
Ranunculus flammula L.	
Ranunculus fluitans	
Ranunculus lingua	
Ranunculus reptans	
Ranunculus sceleratus L.	
Ranunculus serpens serpens	
Ranunculus trichophyllus	
Rhamnus saxatilis saxatilis	
Rhodobryum roseum	
Rhynchospora alba Rhynchospora fusca	
Riccia beyrichiana	
Riccia ciliata	
Riccia fluitans	
Riccia ligula	
Rorippa amphibia	
Rosa gallica	
Rumex hydrolapathum	
Ruscus aculeatus	Ruscolo pungitopo
Saelenia glaucescens	
Sagittaria sagittifolia	
Salix cinerea L.	
Salvinia natans	Erba p esce
Saponaria lutea	
Saxifraga aspera	
Saxifraga bulbifera	
<u> </u>	

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Saxifraga cotyledon	
Saxifraga cuneifolia cuneifolia	
Saxifraga exarata moschata Saxifraga rotundifolia	
rotundifolia	
Saxifraga seguieri	
Saxifraga tridactyles	
Saxifraga tridactylites	
Saxifraga vandellii	
Scheuchzeria palustris	
Schistostega pennata	
Schoenoplectus lacustris	
Schoenoplectus supinus	
Schoenoplectus triqueter	
Schoenus nigricans	
Scutellaria galericulata	
Sematophyllum de missum	
Sempervivum grandiflorum	
Sempervivum montanum montanum	
Sempe rvivum t ectorum	
Senecio halleri	
Senecio paludosus	
Sparganium angustifolium	
Sparganium erectum	
Sphagnum angustifolium Sphagnum centrale	
Sphagnum cuspidatum Ehrh. ex	
Hoffm.	
Sphagnum denticulatum	
Sphagnum fimbriatum	
Sphagnum flexuosum	
Sphagnum palustre	
Sphagnum papillosum	
Spiranthes aestivalis	Viticcini estivi
Spirodela polyrrhiza	
Stachys palustris	
Stachys pradica	
Stellaria alsine	
Stellaria holostea holostea	
Stratiotes aloides	
Streptopus amplexifolius	
Teesdalia nudicaulis Thalictrum aquilegifolium	
aquilegifolium	
Thelypteris palustris	
Thlaspi sylvium	
Tofieldia pusilla	
Trapa natans	Castagna d'acqua
Trapa natans L.	
Tulipa australis Link	
Typha angustifolia	
Typha latifolia	
Utricularia australis	
Utricularia bremii Heer	
Utricularia intermedia	

Utricularia minor L.	
Vaccinium myrtillus	
Valeriana dioica L.	
Vallisneria spiralis	
Veronica scutellata	
Viburnum opulus L.	
Vinca minor	
Viola palustris	
Viola thomasiana	
Woodsia alpina	
Woodsia ilvensis	

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.]

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20.3. Administering entity of the buffer zone(s):

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20.4. Administering entity of the transition area(s):

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ANNEXES

