Sito Unesco
Monte Etna

World Heritage
Mount Etna

UNESCO SITE “MOUNT ETNA”

VOLUME 1
Management Plan

Ente Parco dell'Etna

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Volume 1
Management Plan

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Acronyms and abbreviations

PA	Protected Areas
CS	Component Site
ECST	European Charter for Sustainable Tourism
RCPNH	Regional Council for the Protection of Natural Heritage
TSC	Park's Technical-Scientific Committee
GMD	General Manager Decree
INGV	Istituto Nazionale di Geofisica e Vulcanologia
IUCN	International Union for Conservation of Nature
MaB	UNESCO's Man and Biosphere Program
MATTM	Ministero dell'Ambiente e della Tutela del Territorio
MiBACT	Ministero dei Beni e le Attività Culturali e per il Turismo
OUV	Outstanding Universal Value
MP	Mount Etna UNESCO Site Management Plan
TCP	Park's Territorial Coordination Plan
OMS	Overall Management Strategy
ST	Tourism Strategy
ACU	Adult Cattle Unit
UNEP	United Nations Environment Program
UNESCO	United Nations Educational Scientific and Cultural Organization
WCPA	World Commission on Protected Areas
WHS	World Heritage Site
WTO	World Tourism Organization
SPZ	Special Protection Zone
SCZ	Special Conservation Zone

1 Structure of the Management Plan

The UNESCO Management Plan provides a Knowledge framework of the Mount Etna area (Volume 1) and a management strategy of the Mount Etna Site (Volume 2). The knowledge framework for the drafting of the Management Plan (MP=PdG) aims to collect, systematize and synthesize the information and data necessary for the definition of the management strategy, and it is structured in phases and sub-phases. As part of the knowledge framework, a preparatory analysis was carried out, aiming at outlining the reference frame, the thematic areas, and identifying the macro-needs for the WHS Monte Etna area. The plan proposes several strategic action points, including strengthening the organization and planning of the network composed of management organizations and partners from the private sector for the correct use of the UNESCO site. In particular, the plan aims to monitor and control the values of tourist and excursion pressure, outlining thresholds of sustainability, greater safety and maintenance of the value of the experience. The monitoring of visit routes avoids uncontrolled use, causing possible damage, abandonment of waste, disturbance to bird nesting sites and reduction of environmental risks and dangers to people or goods deriving from volcanic activity. In addition to monitoring and control, the identification of values is foreseen, both regarding geological and volcanological aspects. This activity is also associated with of the attempt to encourage the exchange of management experiences and the promotion of scientific and educational opportunities between the WHS of Etna and that of the Aeolian Islands. The plan foresees the set-up of an active collaboration to increase the visitor experience by including training courses for environmental education and to encourage the widespread presence of ecotourism facilities in the buffer zones. The plan suggests the adoption of the UNESCO Man and Biosphere program.

In light of these considerations, the Management Plan (PdG) identifies ten macro-actions:

1. Organization of the various forms of use of the Site according to protection conservation objectives.
2. Maintain a high value of the visitor experience under safe conditions.
3. Increase research and monitoring of protected values by obtaining technical and scientific indications.
4. Strengthen the structure of the Park Authority with technical staff (geologist, volcanologist).
5. Promote the exchange of management experiences and collaboration with other WHS.
6. Promote environmental education and strengthen infrastructure for ecotourism.
7. Integrate the management of the Site into that of the Park and its reference area.
8. Promote education, awareness, participation, monitoring, research and training activities.
9. Promote the sustainable development of the territory, as a tool for involving the local community.
10. Increase valorization actions, including by making use of the UNESCO Man and Biosphere program.

The PdG included in the WHS targets a territory wider than Natura 2000 sites although smaller than the limits of the Etna Park itself. This shall not only ensure the environmental continuity that exists between and within the territories and their surroundings (for example in some sites of the Natura 2000 network), but it shall also to make the protection and enhancement strategy concrete through a conscious involvement of the local community, for which otherwise the UNESCO site would remain a close but alien entity.

From the strategic framework, the PdG consists of a knowledge analysis of the resources of the territory and of a territorial and socio-economic framework.

The knowledge analysis shows that Etna, as an active volcano, represents the most important physical environmental asset of the WHS, which has determined its recognition. It is, moreover, the highest (3,335 m a.s.l.) and largest active volcano of Europe.

The volcano is made up of several structures that have grown up around the different volcanic axes, which in time have characterized the eruptive activity of Etna during the approximately 500,000 years of its history, changing its shape, height and size. Its intense and persistent eruptive activity has generated myths, legends and naturalistic observations since the classical Greek and Roman times. Since then, Etna has been known, studied and visited by countless scientists and tourists from all over the world. Due to its fame, scientific importance, cultural and educational value this is considered an iconic volcanic site. Mount Etna, located above the collisional belt between the African and European tectonic plates, has been, and still is, studied by a research center of international importance, in which volcanological, geological and geomorphological studies are carried out.

Finally, the entire natural history of the Etna region is linked to the eruptions of the volcano and the succession of its activity, with the change in the chemistry of magmas and eruptive styles. Etna is a unique example of a natural scientific laboratory on emerged volcanic areas for the study of colonization processes on new surfaces by plants and animals in Europe and in general in the Mediterranean biogeographical area.

Like many other volcanoes in the world of its kind, Etna includes a network of over 250 caves of different origins (lava tubes and eruptive fracture caves). Within the UNESCO site there are more than 100 natural cavities, some of which are of considerable touristic and naturalistic interest.

From the landscape point of view, in the area of an active volcano the layers of soil undergo continuous changes due to eruptions, which considerably alter every aspect of the ecosystems. The landscape resulting from all these factors is therefore singular; alongside the forests and more recent natural vegetation you can find cultivated fields or fields of black lava, where plant life is forced to restart its slow but tenacious colonization, only to be destroyed and once again to begin colonization in a process without end.

The flora of Etna is quite rich and of great interest. It is made up of little more than 1,400 species, of which 160 are found in the high mountain area. Twenty-two of these are limited to altitudes between 2,100 and 3,000-3,050 m a.s.l. Finally, 11 sites belonging to the Natura 2000 Network are included in the WHS territory, which recognition procedure as Special Conservation Areas (SACs) has been completed by decree of the Ministry of the Environment of 31-03-2017. Four of these sites are also Special Protection Areas (SPAs).

The PdG defines the so-called Local Landscapes, portions of the territory characterized by specific systems of ecological, perceptive, historical, cultural and functional relationships, between heterogeneous components that give an image of distinct and recognizable identities. The Local Landscapes identified as required by paragraph 2 of art. 135 of Legislative Decree 42/2004 and subsequent amendments "Codes of Cultural Heritage and Landscape", therefore, constitute landscape areas in which ecological and cultural factors interact.

With reference to historical, cultural and landscape assets, the PdG includes the complete inventory of the assets falling within the UNESCO site of Mount Etna, both tangible and intangible, foreseen in the Legislative Decree no. 42/2004 and subsequent amendments, in order to provide an exhaustive knowledge tool for the understanding of the existing heritage, as well as for the planning of the necessary interventions on the aforementioned assets. It identifies buildings, isolated assets, religious architecture, residential architecture, productive architecture, drinking troughs, cisterns and fountains, etc., and equipment and services. In addition, the PdG lists other assets that are not bound but fall within the area of interest, such as sanctuaries and chapels, characteristic rural buildings, ruins, panoramic points, shelters, paths, plant monuments, botanical gardens and observatories. To these are added the anthropic structures for use by the local population and tourists such as: ski facilities, wells, quarries, existing buildings.

With reference to the heritage within the Etna Park, in zone D, near the Buffer zone of the UNESCO site, there are two important assets: the headquarters of the Etna Park, located in the former the Monastery of San Nicolò all'Arena (Nicolosi), and Villa Manganelli in Zafferana Etnea, both owned by the Park Authority.

Furthermore, among the rural buildings of the traditional heritage worthy of note, there are also Case Caldarera in Randazzo, Case Cicirello (today Casa della Capinera) in Trecastagni, the complex of Case Bevacqua in Piedimonte Etneo, which have been recovered with EU funds, and Case Pietracannone in Milo, all owned by the Park Authority and destined to Base Points for hiking by the Park's Establishment Decree and therefore falling into zone C.

After the analysis of the patrimonial resources, the MP includes a complete review of the physical and environmental resources, describing Mount Etna and going into detail on its geography and morphology, tectonics, volcanology and volcanic morphologies. Besides this the document includes detailed descriptions of the caves that house minerals and represent unique ecosystems and vegetation resources. The latter are divided into zones: Mediterranean basal; mountain Mediterranean and high Mediterranean. Regarding floristic resources, the same are listed over 32 species, described and analyzed in relation to altitude. Regarding the fauna resources, the reptiles, amphibians, birds, vertebrates and mammals that inhabit the area are listed and represent its richness and uniqueness.

The PdG reports a list and a description of the Natura 2000 sites present within the area identified and included in the WHS.
In particular:

1. ZSC ITA070009 - Fascia altomontana dell'Etna
2. ZSC ITA070010 - Dammusi
3. ZSC ITA070012 - Pineta di Adrano and Biancavilla
4. ZSC ITA070013 - Pineta di Linguaglossa
5. ZSC ITA070014 - Monte Baracca, Contrada Giarrita
6. ZPS-ZSC ITA070015 - Canalone del Tripodo
7. ZPS-ZSC ITA070016 - Valle Del Bove
8. ZPS-ZSC ITA070018 - Piano dei Grilli
9. ZPS-ZSC ITA070017 - Sciare di Roccazzo della Bandiera
10. ZSC ITA070019 - Lago Gurrida e Sciare di S. Venera
11. ZSC ITA070023 - Monte Minardo
12. ZSC ITA070024 – Monte Arso

For the landscape-perceptive resources, it must be said that within the WHS territory there are 7 Local Landscapes, as defined in the Landscape Plan of the province of Catania for Area 1 and which include the entire park. The historical-cultural and landscape resources are listed, described and geolocated in the different areas of the park and the WHL area, such as view points, shelters, ruins, paths, plants, crops and agricultural productions (oil, wine, pistachios, prickly pears, pears, apples, cheeses, etc.).

The definition of the existing regulatory framework and the planning framework in place at various levels, ranging from the one of the Etna Park to the one of the municipal level, was carried out with the aim to verifying their functionality in order to ensure the protection of the heritage itself. In particular, there are various hydrogeological and landscape constraints in the area according to the Legislative Decree 42/2004 and subsequent amendments "Codes of Cultural Heritage and Landscape", as well as the law establishing the Etna Park.

A definition of the risk factors has been necessary taking into consideration the volcanic activity, ie the seismic risk, the volcanic risk and the hydrogeological risk are analyzed with reference to the geography of the Volcano and the areas located at different altitudes.

The Core zone and the Buffer zones are clearly delimited areas, useful for territorial and strategic planning and programming, and where specific action are envisaged. This sub-phase ends with the identification of the attractors of the territory and with the summary mapping of the state of the heritage.

The second part of the PdG is dedicated to the definition of the territorial and socio-economic framework. These are of fundamental importance both for the identification of the pressure that the anthropogenic presence and economic activities exert on the WHS assets, and for the identification of how they can potentially contribute to the implementation of the site protection and enhancement strategies. A socio-economic assessment was therefore carried out, using both of a static analysis (identification of the settlement-infrastructural system, socio-demographic characteristics and tourism system) and of a dynamic one (supply of current and potential demand of the supply chains connected with the heritage and with the users of the heritage).

The results of the analyzes carried out in Phases 1, 2a and 2b were summarized with the SWOT analysis method of the WHS area in relation to its sustainable management, identifying the weaknesses (real criticalities), the strengths, the opportunities and threats (potential criticalities), in order to identify management objectives and strategies that, starting from the strengths, solve the weaknesses by seizing opportunities and reducing threats. Finally, the segmentation of demand and identification of possible targets for the WHS area were carried out, also defining the current positioning of its overall offer.

The territorial and socio-economic framework highlights the analysis of the territory, essential for the implementation of the management plan, and is carried out on two levels: static and dynamic analysis. The static type is functional to the framing of the economic and socio-demographic characteristics, while the dynamic analysis refers to an evolutionary vision and offers possible scenarios.

The static analysis of the territory in the Monte Etna site presents the following critical elements: insufficient infrastructural equipment, low equipment in terms of quantity or quality of the commercial offer. Furthermore, the element of territorial marginality that is inevitably present in mountain areas generates difficulties in the growth of all economic sectors, determining unique conditions such as: isolation from the main markets, lack of competitiveness, loss of specialized human capital, the management of limited resources and the strong dependence on imports and the strict subordination to investments outside the area.

The presence of these characteristics leads to some conditioning both in the socio-economic analysis and in the formulation of suitable policies, in fact in these contexts it happens that: tourism tends to become the only viable economy, difficult accessibility causes the economy to depend excessively on the regional market, a lack or insufficient development of the tourist activity generates social dissatisfaction and also the need and also the obligation to defend and preserve a unique and fragile environment.

In general, with reference to companies in the Etna area, the prevalence of widespread micro-enterprises is highlighted. The small size of the companies on the one hand allows greater flexibility during market changes, but on the other hand it causes a series of weaknesses: lack of financial means or difficulties in accessing credit, insufficient skills in terms of marketing to face the new market challenges, the impossibility of implementing scale economies and economies of scope, scarce participation in associations and excessive individualism in facing external challenges. To deepen the objective of the static analysis, the assessment in the PdG focuses on the components of the territory that contribute to defining its main characteristics, namely the infrastructural-settlement system, socio-demographic characteristics and economic activities.
The identification of the settlement-infrastructural system is given by its territorial conformation, characterized by wonderful woods, paths, views, as well as the typical products and historic centers of its municipalities; the park is, in

every season of the year, a destination for travelers and lovers of nature, food and wine, and of outdoor sports with unique scenarios.

Specifically, as set down by the legislation implementing the Territorial Plan of the Etna Park, the territory has been divided into "Differentiated areas". Each area has different levels of protection and the possibility of practicing different activities:

1. the "integral reserve" area (area "A"), or the WHS core area.
2. the general reserve area (zone "B"), or Buffer Zone of the WHL.
3. Differentiated area or area "N" for the protection of volcanological emergencies and ecosystems of significant interest.
4. Scope or differentiated area "N1" for the protection of valuable natural environments; Differentiated area or zone "N1" for the protection of valuable natural environments.
5. Scope or differentiated area "P" of the agricultural landscape.
6. Scope or differentiated area "R" of environmental and landscape remediation.
7. Area of "controlled development protection" (pre-Park) consisting of zones "C" and "D", considerably anthropized in which economic development compatible with respect for the landscape is pursued.

For the static analysis it is sufficient to describe below the areas A B C and D, which are crucial to understand what the Park has to offer in economic, social and tourist terms.

Zone A: it is necessary to distinguish the geomorphological and biological characteristics. This area, in fact, includes the presence of the summit vents (central crater and NE and SE craters).
From a biological point of view, however, there are endemic plant and animal species (that is, exclusive to Etna).
According to the Park regulations (Art. 6.1) specifically in this area it is possible to practice:

a) hiking both on foot and on horseback.
b) ski mountaineering.
c) ski touring.

Zone B: In this area, agro-zootechnical operations are possible. The area is taken into account for the development of activities, services and experiences aimed at diversifying the production of farms. These agricultural areas, in addition to contributing to the definition of the traditional Etna agricultural landscape, play an irreplaceable role from an economic point of view, for the income that farming allows families to obtain. The climatic characteristics of these agricultural areas provides the agricultural and livestock products with valuable organoleptic requisites; however the products have not yet received adequate recognition on the commerce level due to lack of agri marketing-mix policies, especially due to the great breakdown of the offer. This emphasizes even more how food and wine and experiential tourism can also be implemented within the Etna Park.

In this area there are also buildings of historical and cultural interest that testify the traditional agricultural and pastoral context of the Etna. In this context, therefore, it is possible to enhance a type of sporting tourist activity, besides the natural and agri-food aspects.

Zone C / I: in Buffer Zone, agricultural lands are of volcanic nature and play an important role from a landscape and economic point of view.
Salient features are the fragmentation of the local economic companies, the pluri-activity of the families of the owners of the production units, which, however, do not find a satisfactory response on the economic level due to shortcomings of the marketing activities.

Zone C: it is also possible to create the infrastructures for the following intended uses:

1. Environmental Education.
2. To support sports preparation reserved for the stay and retreat of athletes and sportsmen.
3. For artistic and cultural events.
4. Tourist accommodation.
5. commercial and artisanal.

Zone D: in this zone there are very heterogeneous and fragmented areas, which are not part of the WHL. In many abandoned areas secondary successions are underway tending to the reconstitution of the natural vegetation cover.

The dynamic analysis of the territory refers to two supply chains:

1. supply chains directly connected with assets.
2. supply chains connected with the users of the heritage (Communication, Tourism, Agriculture and Crafts).

The supply chains directly connected with the heritage can be divided into three:

1. Offer of the reference area for which the following must be analyzed and described: the type of business operating, usable resources, active products / services, etc.
2. Current demand for which the following must be analyzed and described: the interventions already activated, plans and programs in progress, the progress of initiatives and interventions, etc.
3. Potential demand for which the interventions that can be activated in the light of the planned plans and programs must be analyzed and described, etc.

The supply chains directly connected with the users of the resources examine the offer of the reference area through a qualitative analysis of the offer, in order to identify the real attractors of the area in the various supply chains and their potential on which to base the actions of enhancement.

The analysis was carried out considering separately:

i. Communication or multimedia products.
ii. Tourism or hotel facilities by type, non-hotel facilities by type, catering facilities, cultural services (museums, fairs, exhibitions, etc.), urban and extra-urban transport services.
iii. Agriculture or quality brand products (DOC, DOP, IGT, etc.).
iv. Handicraft.

An important aspect is the analysis of socio-demographic characteristics, in fact the statistical data on the resident population in the municipalities of the site show a positive average annual variation of the population in the five-year period 2012/2017, equal to + 0.22%, a very relevant figure that makes it clear how the UNESCO site can also contribute in this area.

The economic and tourist system strictly depends on the natural and / or cultural resources existing in the area. In fact, in these smaller contexts, in recent decades, structural changes have occurred that have allowed the transition from economies based mainly on agriculture to economies that are based on the tourism system for income and employment. In addition to the interest generated by the volcano as a natural resource, it is also necessary to consider the attractiveness carried out by the activities proposed by the local operators which, in fact, represent the main economic system and the territorial offer in general. It is possible to identify the types of tourists that you can generally meet in volcanic environments: Group and individual tours (domestic and international visitors), couples, families and retirees, scientists and students, hikers, climbers and skiers and geo tourists and ecotourists.

Among the reasons that push these people to visit volcanic areas we can find: tourist trips, leisure activities and parts of travel programs, mountaineering, information gathering and field research and scientific interests, study and education.

In the view of an economic and touristic development of the area other, not only economic, effects must also be evaluated, deriving from an uncontrolled influx of tourists We refer to the environmental and cultural impacts and to a series of consequent economic misbalances. The tourism sector, therefore, will be able to achieve the desired effects only if it is able to guarantee environmental protection and the survival of the authenticity of the local culture.

The total of arrivals and presences in 2016 in the Park area were approximately 323 thousand, a substantial increase compared to 2015, and the trend has increased in the following years. Another very important aspect is the number of tourist arrivals in the municipality of Linguaglossa, which increased by more than 39% between 2015 and 2016, thanks to the proximity to the UNESCO site. In addition, it can be noted that the site has a stronger international visibility, in fact the difference in terms of arrivals between Italians and foreigners decreased by more than 30% from 2011 to 2016, highlighting a significant push towards the internationalization of the site.

Furthermore, by analyzing the average stay (PM = Presence / Arrivals) of tourists, it can be seen that it is reduced over time, passing from 3 days in the period 2011 - 2014 to 2 days in 2015-2016, precisely because foreign tourists tend to visit whole Sicily, which implies a lower average stay in the Etna area. Despite the sharp reduction, over time, of the gap between national and international visitors, tourism on Etna remains mainly domestic. In fact, most of the registered visitors are Italians, especially Sicilians. International visitors are mainly Europeans, especially from France and Germany. The accommodation offer of the Municipalities of the Etna Park is mainly characterized by small non-hotel facilities. Among the hotels, 3-star hotels prevail, accounting for more than 60% in the category. Among non-hotel businesses, B&Bs represent almost 70% of the offer.

EU funding sources are essential for the the ongoing work planning in the reference area. In detail, therefore, the following sources of financing for the target area of the Management Plan may be useful:

i. Regional and Urban Development Fund (ERDF).
ii. European Agricultural Fund for Rural Development (EAFRD): the EAFRD contributes to the realization of the Europe 2020 strategy by promoting sustainable rural development.

iii. Social Fund and Good Governance (ESF): The objective of the ESF should be to promote employment and improve access to the labor market.
iv. Development and Cohesion Fund (FSC formerly FAS funds): The objective, to be implemented through inter-institutional agreements, is to finance strategic projects, both of an infrastructural and intangible nature, of national, interregional and regional importance, in which signatories undertake to jointly achieve some strategic priority objectives within set times, through a single administrative and planning act.
v. The Program for the Environment and Climate Action (LIFE); this program has the following general objectives: to contribute to the transition to a resource efficient economy, with lower carbon emissions and resilient to climate change, to contribute to the protection and improvement of the environment and to the disruption and reversal the process of biodiversity loss.

Through these tools, the European Union contributes to reducing the delay of the most disadvantaged regions by promoting economic and tourist development and the protection of the environment.

The present PdG analyzes the main threats deriving from tourism. A first aspect concerns the competition from similar destinations, in which the tourism sector has a greater organization with regard to services and accommodation, both in quantitative and qualitative terms.

A second aspect concerns the instability of tourism demand. Tourism is in fact subject to changes and fluctuations over time, depending on hardly controllable exogenous forces.
Thanks to the great tourist potential of the Etna Park area, the supply chain connected to the use of the local resources is of great importance. Overall, 6,392 companies belonging to the aforementioned supply chain operate in the area. In relation to the type of ATECO activity, most (7.9%) provide food, 7.8% are made up of bars and other similar establishments.

Regarding the accommodation sector, the offer has shown an increase over time in non-hotel accommodation facilities (+ 17% in 2016 compared to 2011), while the increase recorded in the hotel sector is much more limited (+ 5%). In the period 2011-2016, the number of beds increased by 7% in hotels, whereas they decreased by -5% in the non-hotel sector.
Regarding the companies that offer products and / or services related to recreational or similar activities, the survey carried out on the companies operating in the municipalities of the Park highlighted the presence of 408 companies operating in the "Retail trade of cultural and recreational items in specialized businesses ", 63 companies active in the" Creative, artistic and entertainment activities "sector, 10 engaged in" Libraries, archives, museums and other cultural activities "and 173 in" Recreational and entertainment activities ". In total, they represent about 10% of the companies active in the area. On the other hand, 170 companies (2.7% of total companies) operate in the sector of processing glass, ceramic, metal, stone and goldsmith products. There are also several events (festivals, parties, exhibitions) organized by the municipalities of the park during the year.

Through the SWOT analysis, the most evident strengths and weaknesses of the UNESCO site Etna were found. The strengths are:
i. Specialization in tertiary activities Environmental and landscape constraints.
ii. Existence of valuable natural resources of particular value (volcanoes, flora and fauna etc.).
iii. Existence of cultural resources.
iv. Typical and local food and wine products.
v. Existence of traditional architecture.
Weaknesses are:
i. transport.
ii. Seasonality of tertiary activities.
iii. Submerged tourism.
iv. Fragmentation in manufacturing and agriculture.
v. Lack of adequate communication tools for the promotion of the area.

Considering the overall offer, the Etna area is mainly a hiking destination where domestic tourism is of great importance. One of the major problems of tourism on Etna undoubtedly concerns the quantity and quality of the services offered, being still below international standards, but at the same time a great potential for development emerges.

The management strategy of WHS Monte Etna follows from the contents of Volume 1 and is divided into an introductory part and the subsequent management and strategic ones.

The introductory part consists of a physical, territorial, administrative and financial assessment, of a Vision that reflects the management objectives identified in the long term and its Mission, or the long-term strategy necessary to achieve its ultimate goal. The first part also foresees the use of the so-called SMART approach, based on the identification of

specific, measurable, achievable, result-oriented and time-bound objectives, such as to allow effective operational management and to measure the progress of the implementation of the Plan.

The PdG details and presents the strategy and the action plan. It is aimed at defining the structure of the executive program and, taking into account the different territorial units that make up the reference area, identifies its objectives, strategies and actions. Objectives and strategies have been defined according to the medium / long-term and short-term implementation times.

The actions were identified according to the functions of the territorial units which specific features require specific intervention methods. By objective we mean "what" to achieve by channeling the available human, instrumental, technological and financial resources; by Strategy we mean "how" to manage the relationships between resources and the internal and external context to achieve the defined objectives. Finally, for the planned, Operational Cards have been prepared and an overall time schedule has been defined.

Objectives and strategies have been defined according to the SWOT analysis and the current placement of the site. In this respect, the Team had to select the objectives achievable in the relevant timespan and shared by the relevant stakeholders, allowing the enhancement of those (qualitative and quantitative) attractive features for which the territory already enjoys "competitive advantages".
Such objectives take into account compliance and sustainability obligations on the one hand, and programme-related consistency with national and local plans on the other.

In order to ensure the achievement of such objectives, the Strategic Plan shall:

- Consider all cultural dimensions (cultural-historical, physical-environmental, social, symbolic, landscape perception-related) and integrate them with the territory's socio-economic dimensions.
- Be holistic, i.e., it shall involve local communities and – more generally speaking - all the territory's stakeholders.
- Be integrated vertically (i.e., with national/regional plans as well as with TCP, local strategic plans and other development programmes such as the PIT, PSL, etc. prepared at the local level) and horizontally (i.e., with specific sectoral programmes).
- establish rules for the governance and management of the local cultural system.
- define monitoring instruments and feedback processing systems.

Objectives and strategies for the prescribed timeframe have been defined according to the above-mentioned approach. These are here summarised in the integrated strategic plan for the UNESCO site, including:

- Protection and preservation Plan.
- Cultural and Economic Enhancement Plan.
- Knowledge Plan.
- Communication Plan.

Also, in line with the WHC's requests, these define the grounds for intervention planning on the relevant territory, and include:

1. **STRATEGY "A"** – Promoting the protection and preservation of the WHS's assets and supporting environmental protection as well as the ecological connections with the neighbouring naturalistic areas.
2. **STRATEGY "B"** – Promoting the enhancement of the WHS through actions and interventions aimed at fostering approaches to the enjoyment of cultural heritage that are compliant with its preservation and protection.
3. **STRATEGY "C"** – Promoting knowledge of the WHS.
4. **STRATEGY "D"** – Supporting WHS management through adequate communication and participation mechanisms targeting a diverse range of WHS end-users.

The document ends with the reference to the materials used for the construction of the knowledge framework (Territorial Plan of the Park, Management Plans of Natura 2000 Areas, Landscape Plan, etc. and in-depth analyses with original elaborations) and the studies analysed for the definition of consistency of the WHS UNESCO-Etna, in addition to its interpretative model.

The PdG defines the WHS interpretative model and is divided into Tables of strategic lines for Heritage (Conservation), Experience (Enhancement), Knowledge, Communication and Participation.

The *Heritage* strategic line identifies actions and strategies for the conservation of those assets and resources contributing to the OUV of a specific WHS. The *Experience* strategic line identifies an enjoyment model ensuring an added value for residential areas located outside the WHS but within the relevant area, in full compliance with environmental, social and economic sustainability and in line with the protection and enhancement objectives set in the MP's *Vision*. The *Knowledge* strategic line defines actions for ensuring the accurate management of scientific

research. The *Communication and Participation* strategic line aims at ensuring participation from the local, national and international community in the management of the WHS and the implementation of the relevant MP.

Finally, the PdG defines the management and implementation tools by describing the guidelines and tools that are the basis of the definition of the PdG and its implementation, as follows:

- Reference studies and guidelines.
- WHS interpreting model.
- Functional connections.
- Classification of areas.
- Types of connection.
- Instruments of adaptive management.
- Evaluation procedures.
- Peer review.
- Standards and indicators.
- Thematic areas.
- List of indicators.
- Verification of standards.
- Evaluation of transformations.

In addition to the analysis of the Etna site, the PdG considers the importance of creating a regional strategy among UNESCO assets. In fact, according to the Convention, UNESCO has so far recognized a total of 1121 sites (869 cultural sites, 213 natural and 39 mixed) present in 167 countries around the world. Currently, Italy and China are the nations that hold the largest number of sites included in the list of world heritage sites. In Italy, of its 55 sites, 5 are natural sites, including the Aeolian Islands and Mount Etna itself, and, within the remaining 50 World Heritage sites, 8 are cultural landscapes. Among the Italian regions, Sicily is the richest in World Heritage Sites (WHL) with:

1) Archaeological Area of Agrigento since 1997.
2) Piazza Armerina, the Roman villa of Casale since 1997.
3) Aeolian Islands since 2000.
4) The late Baroque cities of the Val di Noto (south-eastern Sicily) since 2002.
5) Syracuse and the rock necropolis of Pantalica since 2005.
6) Mount Etna since 2013.
7) Arab-Norman Palermo and the cathedrals of Cefalù and Monreale since 2015.

A strong and authoritative testimony of the great geological heritage of our country is represented by the Geoparks recognized in the European Network and in the Global Network under the aegis of UNESCO. A prestigious recognition that the ten Italian Geoparks have achieved by building innovative management strategies in their territories, in which geo-conservation, together with the consequent educational, informative and fruitive activities, are able to activate a virtuous path for sustainable development, a process of requalification and territorial enhancement attentive to respect for local cultures, but synergistically projected towards a new model of use of the territory itself. There are two geoparks present in Sicily:

- Madonie Geopark.
- Rocca di Cerere Geopark.

The set of these sites could constitute a network capable of promoting the offer of the landscape, cultural, food and wine resources of the territories, in a more effective way. Today there is already a project in this regard, called "UNESCO Sites Network", developed by the UNESCO Southern Italy Provinces Association and which involves 14 sites of the South, World Heritage Sites, including Arab-Norman Palermo and the cathedrals of Cefalù and Monreale, Syracuse and the rock necropolis of Pantalica, the late Baroque cities of the Val di Noto, the Roman villa of the Casale in Piazza Armerina. The project was co-financed by the Ministry for Cultural Heritage and promoted by the Union of Italian Provinces (UPI).

2 Phase 1 – Preparatory Analysis

2.1 Identification of the reference area and its key needs

This phase aims at identifying the WHS's key needs and issues in terms of knowledge, preservation, protection and enhancement, on which the MP will be grounded. These will allow the further identification of issues and open problems that go beyond the specific boundaries of the site and extend over to the neighbouring areas (reference area).

2.1.1 Identification of the MP key needs

Some of the territory's key needs can be inferred from Decision 37 COM 8B.15, which includes Mount Etna in the WHL. In highlighting them, the Commission has expressed its wish for a consistent revision and update of the MP.

The Commission specifically highlights the following key needs:

- Strengthening the harmonisation between the different managing organisations and private sector partners in the use of the UNESCO site, with a view to preserve its exceptional geological features from any negative impact that tourism-related pressure might cause. **Threats and detriments caused by tourism-related pressure:** path erosion, damages to vegetation and initial erosion of the mount's sides due to improvised off-track hiking trails and threads, littering, potential nuisance to nesting sites, uncontrolled access to caves hosting chiropterans (to be monitored).

- Strengthening existing mechanisms to monitor the enjoyment of the site, so to reconcile protection for natural heritage with an improved visiting experience and safety. Among the environmental risks and dangers for properties and individuals, it is worth mentioning: eruptions with summit explosions, fires; accidents in caves and on the hiking trails and threads on the Valley's sides; ice on the sides in winter.

- Encouraging the overall improvement of research on and monitoring of the protected values, through recruitment of technicians and expert staff (geologists, geomorphologists, and volcanologists) in the site managing team. Whereas the Commission underscores the need to improve geological research and monitoring on the one side, the need to improve them in the domain of biology shall not be underestimated.

- Encouraging the exchange of managing experiences and the promotion of scientific and educational opportunities between Mount Etna and Aeolian Islands WHSs.

- The Commission also recommends that the Park as well as the regional and national authorities cooperate with the main technical and financial partners with a view to improve the visiting experience of the Park's end-users. Such actions should include improving environmental education, the ecotourism structures available on the Site as well as the tourism structures located in the buffer zone and in the wider Park area.

- Finally, the Commission encourages the Partner State to improve the overall integration of the Site and its buffer zone into a broader landscape context, so to identify and promote current educational, monitoring, research and training activities and improve the area's development perspectives, through – among other things – the possible implementation of lessons learnt from the UNESCO Man and Biosphere Programme.

Against the backdrop of the abovementioned Commission's requests and of the findings from the MP drafting preliminary analyses, the following key needs for the correct management of the Site can be identified:

- Rationalise the different approaches to the use and enjoyment of the Site, so to make them compatible with the need to protect and preserve it and improve the visitors' safety and overall experience.

- Increase research on and monitoring of the protected values as well as on the enjoyment of the Site by the visitors, so to identify technical-scientific strategies for monitoring the Site.

- Strengthen the Park Authority's operational structure by recruiting additional technicians and expert staff (geologist, geomorphologist, volcanologist).

- Promote exchange of managing experiences and cooperation with other WHSs, and the Aeolian Islands WHS in particular.

- Promote environmental education and the overall strengthening of ecotourism infrastructures within the Site area and the buffer zone, integrating them into the wider area of the Park.

- Integrate the Site management into that of the Park and its reference area, by promoting educational, awareness-raising, participatory, monitoring, research and training activities.

- Promote the sustainable development of the territory as an instrument to increase participation of local communities in the protection and promotion management strategies, taking stock of lesions learnt from the UNESCO Man and Biosphere Programme.

These key needs shall be further articulated into the MP objectives, to be pursued through *ad hoc* strategies and the related implementing actions.

The MP shall identify the solutions to tackle the different key needs in a holistic and consistent manner, in line with the main needs relating to the protection and preservation of the Site.

2.1.2 Identification of the borders of the WHL area and of the wider neighbouring area

The identification of a reference area including the man-inhabited neighbouring territories is of paramount importance in order to integrate the wide but largely uninhabited WHS's territory with the broader territory surrounding it.

Here are located those human activities both triggering the pressure factors affecting the WHS originate and representing those socio-economic resources that shall be sustainably integrated to achieve a correct management and enhancement of the site.

The creation of a protection and promotion system that includes the whole WHS may only be achieved through the identification of a reference area covering all the relevant municipalities and the participation of the local administration and communities.

Therefore, the Management Strategy outlined in the MP shall cover a wider area than that of the WHS and the Mount Etna Park. This is not only necessary because of the internal and external territorial continuity (as it is e.g., with reference to some Rete Natura 2000 sites). It is also of paramount importance in order to tailor the protection and enhancement strategy through the informed participation of the local community, who would otherwise perceive the UNESCO site as a geographically close but substantially "detached" entity.

2.1.3 Identification of homogeneous territorial units within the reference area

The MP N2000 mentioned by the above-recalled Commission document restates the Territorial Plan subdivision into homogeneous territorial units (see CTP map).

"*In compliance with art. 18 of Regional Law 98/81 and subsequent modification and amendments, the area covered by the Plan is subdivided into "Differentiated zones" according to their specific features – in line with the specialised evaluation performed by the members of the design group, based on analyses conducted with reference to specific naturalistic, landscape- agriculture- and forestry-related aspects in all Park areas and to action methodologies aiming at achieving a landscape-related and environmentally sustainable development.*"

Within the Areas "A" and "B", the Plan envisages the following differentiated zones:

- Differentiated Zone "N": it complies with the prescriptions enshrined in art. 17 lett. d of Regional Law no. 14/88 amending the establishing act and restated in art. 8 of the Regulation implementing the Park Territorial Plan. It includes areas characterized by the presence of particularly valuable elements and natural phenomena - almost all listed among the Special Conservation Zones (SACs) - which must therefore be preserved for their natural distinctiveness. In this context, maximum protection must be ensured by preparing every action necessary for the preservation of such natural phenomena and processes. This may also be pursued by subordinating access to the zone to the mentioned protection-related priorities, and by favouring the acquisition of privately-owned areas (irrespectively of which Park area they belong to) to state property or the establishment of joint Park-privately run partnerships for their management (46 Areas of various extension).

- Differentiated Zone "N1": it complies with the prescriptions enshrined in art. 17 lett. d of Regional Law no. 14/88 amending the establishing act and restated in art. 9 of the Regulation implementing the Park Territorial Plan. With reference to its resources, the conservation of the soil, volcanological and geomorphological emergencies, as well as the morphology of places, biocoenoses, ecosystems and all the elements (even if isolated) of flora and fauna, must be ensured in these areas.

- Differentiated Zone "P": it complies with the prescriptions enshrined in art. 17 lett. d of Regional Law no. 14/88 amending the establishing act and restated in art. 10 of the Regulation implementing the Park Territorial Plan. These areas are characterised by the typical elements of the agricultural landscape of Mount Etna, which are associated with substantial phenomena of biodiversity conservation, admirable rural engineering works and the preservation of the jagged, fragile and vulnerable orographic shape due primarily to the volcano's effusive activity. The agricultural-zootechnical activities carried out there have prominent economic consequences, with specific reference to the

organoleptic, sensorial and nutritional qualities of the products, enhancing the value of food and which would result in higher price levels and profits for the producers (if the market were transparent enough and not characterised by detrimental information asymmetries).

Other noteworthy areas include panoramic/observation points; the hiking trails leading to them shall be consistently protected. Attention shall be focused on phenomena such as degradation due to erosion detectable on the ridges, paths and slopes of the Valle del Bove.

The rocky lava fields shall be left to their undisturbed evolution and the high-altitude lava deserts, subject to continuous natural modifications due to eruptive activity, do not seem to require particular protection.

Further territorial units can be identified based on environmental features such as: chestnut woods, pine forests, woods of other broad-leaved trees, lava fields, summit area, Valle del Bove and flanks, the humid areas of Sciare di S. Venera and Lago Gurrida, the lava flow caves.

2.2 Regulatory Framework

This section identifies the EU, national and regional regulatory framework relevant to the UNESCO and the protection of natural heritage, and the legal obligations they entail. Here we provide a summary of the key pieces of legislation that are currently in place, so to highlight the potential scope of the Management Plan and of its Action Plans in particular. References specifically include:

- Primary sources: (EU regulations, EU directives, “framework” laws, national and regional laws, delegated decrees).
- Secondary sources (national and regional regulations, Decrees of the President of the Republic).
- Other regulatory sources (regional authorities meeting decision [It., “Conferenza dei servizi”], memoranda of understanding).

Additionally, with reference to cultural heritage, implications for the sector as deriving from the "Code of cultural heritage" (Legislative Decree no. 42 of 2004) shall be taken into account. This was enacted against the backdrop of the recently amended Title V of the Constitution (introduced with constitutional law no. 3/2001), regulating the distribution of regulatory powers between the State and the Regions and allocating exclusive legislative power on the protection of cultural heritage to the State. At the same time, Title V lists "the enhancement of cultural and environmental heritage and promotion and organization of cultural activities" among those subject matters upon which the State and the Regions exercise concurrent legislative powers. Key novelties in this respect are brought by art. 111 and 112 of the Code. In describing different methods for implementing enhancement-related functions, these envisage the possibility for private owners to enhance the value of their assets independently (art.111). At the same time, the mentioned articles identify agreements as the preferred instrument for the enhancement of assets in the availability of public subjects, against the backdrop of interinstitutional cooperation between the various levels of government.

Table no. 1 **– Regulatory framework relevant to the reference area**

Source	Title	Reference	Subject matter
(National) Law	Entrustment of Public Services to third parties	L. no. 142/90	
(National) Law	Changes to the participation of local authorities	L. no. 498/92	
(National) Law	Licensing of complementary services management to private subjects	L. no. 4/1993 (*“Legge Ronchey”*)	
(National) Law	Establishment of a Ltd. Company for the management of cultural services of Local Authorities	L. no.127/1997	
(National) Law	Enabling museums private management through Global service complementary services. Enabling the institution of local authority-established or subsidiary Foundations or Associations for cultural and recreational services	L. no. 448/2001 (Budget Law 2002), arts. 33 e 35	
Delegated decree	Integrated management of services provided to the public by archaeological and museum sites of the Sicily Region as defined by art. 117 d.lgs. 42/2004	d.lgs. 42/2004	
(National) Law	art.1 del D.L. 31.5.2014, n. 83, “Urgent measures for protecting cultural heritage, developing cultural services and boosting tourism”, converted into law with modifications.	L. no. 106 of 29/07/2014 e s.m.i.	Introducing a tax credit for charitable donations supporting cultural and entertainment activities
Regional Law	Regulatory framework for the establishment of parks and natural reserves in the Sicily Region	L.R. 6 May 1981, no. 98	G.U.R.S. n. 23 del 9/05/1981 - S.O.
Regional Law	Modifications and amendments to regional law 6 May 1981 no. 98	L.R. 9 August 1988, no. 14	G.U.R.S. n. 35 del 13/08/1988,

Source	Title	Reference	Subject matter
Regional Law	Urgent measures concerning territory and environment (Modifications and amendments to r.l. 98/81 and r.l. 14/88)	L.R. 3 October 1995, n. 71	G.U.R.S. n. 51 del 5/10/1995
President of the Sicily Region Decree	Establishment of the Mount Etna Park	D.P.R.S. 17/03/1987	G.U.R.S. n. 14 del 17/03/1987 - S.O.
Territory and Environment Regional Commissioner Decree	Establishment of the Mount Etna Park Authority	D.A. 5/05/1987	G.U.R.S. n. 36 del 14/08/1987
Territory and Environment Regional Commissioner Decree	Regulation organising the Mount Etna Park Authority (in compliance with art. 1, para. 3, of R.L 15 May 2000, n. 10)	D.A. 12/04/2005	G.U.R.S. n. 23 of 27 May 2005
Agriculture and Forestry Commissioner Decree	General and forest policing for forests and lands under hydrogeological restrictions within the Province of Catania	D.A. n. 11 of 20 January 2006	
Regulation	Rules concerning silvicultural activities and the relative granting of compensation for the reduction of forestry incomes		
Regulation	Rules for the enjoyment of the Park's activities	Park Council Decision no.21 of 30/10/2003	
Regional Managerial Decree	Management Plan (MP) "Mount Etna"	D.D.G. no. 783 of 24/10/2016	
Ministry of Environment Decree	Denomination as special conservation zones (SCZ) of the 13 "Mount Etna" sites (D.R.S. n. 398 of 27-05-2009)	D.M. MATTM of 31/03/2017	
Regional Managerial Decree	Appropriate assessment of implication of the Territorial Plan on Natura 2000 Sites D.A. n.031/GAB D.A. nos. 45/GAB of 16.11.2018, 53/GAB of 27.12.2018 and 062/GAB of 12/06/2019	D.R.S. no. 398 of 27/05/2009	
Cultural heritage and Sicilian identity Commissioner Decree	Landscape protection and management Plan for Regional Areas nos. 8, 11, 12, 13, 14, 16 e 17 falling within the Province of Catania	D.A. no. 031/GAB of 3 October 2018; D.A. December 2018	Adoption
Regional Managerial Decree	Register of Monument Plants	D.D.G. no. 7538 of 29/09/2005	Establishment of the Register
Regional Observatory for Landscape Quality Act	Register of Monument Plants	O.R.Q.P. 8/02/2006	Definition of a first list of 60 plants
Ministry of Agriculture and Forestry Decree	Register of Monument Plants of Italy	D.M. n. 5450 of 19/12/2017	Establishment + Approval of the list (Annex A - Section 1)
President of the Sicily Region Decree	Millenary Olive Trees	D.P.R.S. 6193 of 04/07/01	
Territory and Environment Regional Commissioner Decree	List of sites of geological interest	D.A. no. 238 of 28/06/2018	
Memorandum of Understanding	Memoranda of Understanding between Mount Etna Park Authority, ENEL Distribution S.p.A. and TERNA S.p.A., aimed at improving services to citizens, the protection of Mount Etna Park's natural features, improving current electricity networks, simplifying licensing and authorisation procedures.	Memorandum of Understanding signed with Terna on 16/02/2010. Memorandum of Understanding signed with ENEL on 16/02/2010	
Agreement	Agreement for the realisation of the purposes envisaged in art. 7 of regional law 10 April 27, 1999 as amended by art. 28 of the regional law 9 August 2002 no. 9 and paragraph 32 of art. 127 of regional law no. 17 of 28 December 2004 and supplemented by art. 8 of regional law no. 15 of 14 April 200	23 September 2008	Signed between the Regional Cultural Heritage and Sicilian Identity Department and municipalities and aiming at integrating services provided to the public
Memorandum of Understanding	Memorandum of Understanding for the streamlining and simplification of procedures relating to interventions aimed at the prevention of fires and the hydraulic forestry and forestry restoration in the territorial scope of Mount Etna Park		Between Mount Etna Park Authority and UPA Catania

Source	Title	Reference	Subject matter
Memorandum of Understanding	Memorandum of Understanding with the National Institute of Geophysics and Volcanology - section of Catania, signed on 25 October 2002	25 October 2002	Between Mount Etna Park Authority and INGV Catania
	The memoranda of understanding aim at establishing an INGV-CT and INGV-PA - Park Authority relationship, in order to achieve a more effective monitoring of the volcanic activity of Etna as well as an active and more scientifically correct collaboration for the protection of the territory and its natural heritage. They also aim at preventing and mitigating volcanic risks and consistently minimise the environmental impact, as well as at raising awareness on scientific volcanological research by promoting direct involvement of school-age children and local communities of the Etna region and the Municipality of Catania. Collaboration with schools in the Etna area and in the province of Catania in general will be fostered at all levels; courses and internships involving both institutions will be promoted. The mentioned Memoranda of Understanding aim at favouring the optimal use of professional and instrumental resources, as well as structures and assets belonging to both institutions. They also favour necessary authorisations for volcanic surveillance activities relating to the ordinary and extraordinary maintenance of the equipment and instruments owned by the INGV of Catania and Palermo and located in the protected area. Finally, the Memoranda of Understanding encourage the development and implementation of new technologies contributing to scientific investigation concerning the Etna volcano.		
Memorandum of Understanding	Memorandum of Understanding with the National Institute of Geophysics and Volcanology - section of Palermo, signed on 17 March 2003 to lay the foundations for deep scientific and educational cooperation between the two institutions.	17 March 2003	Between Mount Etna Park Authority and INGV Palermo
	The Memoranda of Understanding also allow the coordination of common actions of volcanological interest and relevance between the Park Authority and the INGV-CT and INGV-PA, as well as the dissemination and scientific research in the volcanological sector with specific reference to the Etna area. They encourage, where possible, the exchange of data, information, experiences and collaboration, with a view to disseminate successful or future field experiences among school institutions and produce educational materials and publications.		

2.3 Current programmes and plans

No plan is currently being implemented in the WHS that can override the existing ones.

Table no. 2 lists all the current Plans under implementation in the relevant area.

Table no. 2 **– Plans relevant to the reference area**

Plan	Reference area	Managing Authority
Regional Landscape Plan Guidelines		
Hydrogeological system Plan		
Regional Forestry Plan		
Regional Plan for the forecasting, prevention and active fight against forest fires		
Sicily Water Protection Plan		
Regional plans for quarry and valuable stone materials		
Regional Transport and Mobility Plan – Update – Infrastructures and Mobility Integrated Plan		
Sicily Wildlife Hunting Plan 2013-2018		
Landscape Plan for Areas 8, 11, 12, 13, 14, 16, 17 of the Catania Province		
Catania Province Territorial Plan		
Etna Park Territorial Plan		
Natura 2000 sites "Mount Etna" Management Plan		
European Wild Cat preservation Plan for the Etna Park (*Felis silvestris silvestris* Schreber, 1775)		

Table no. 3 lists Programmes relevant to the reference area.

Table no. 3 - **Programmes relevant to the reference area**

Programme	Area of interest	Implementing period	Expected budget	Key actions
MiBAC - L.77/2006	All Municipalities within the UNESCO Site area	yearly	140.000	1) Strengthening the Mount Etna UNESCO site management capacities 2) Enhancing accessibility of the Mount Etna UNESCO site communication through its website
POR FESR	All Municipalities within the UNESCO Site area	2014-20	983.974,87	Actions to support the Golden Eagle, protection and enhancement of forest biodiversity, adaptation and mitigation of impacts from infrastructures or anthropogenic activities in the Milo Forest; Actions to protect the underground habitats and the relevant populations of chiropterans.

Programme	Area of interest	Implementing period	Expected budget	Key actions
PSR		2014-20		
PON Attrattori culturali		2014-20		
PSR		2014-20		
POR FSE		2014-20		
Patto per lo sviluppo della Sicilia		2014-20		
Patto per lo sviluppo della Città Metropolitana di Catania		2014-20		
Programma per l'Ambiente e l'azione per il clima (LIFE)		2014-20		
Interreg ADRION (Adriatic Ionian)		2014-20		
Interreg ITALY-MALTA		2014-20		
Interreg MEDITERRANEAN		2014-20		
Interreg EUROPE		2014-20		

The Three-Year Public Works Program 2019/2021 of the Etna Park Authority Administration also includes the following projects funded by 2014-2020 regional, state and / or community funds:

1) Actions for the protection and support of golden eagle in the Etna Park territory. Budget: € 256.237,42.
2) Protection and enhancement of deadwood necromass-related forestry biodiversity. Budget: € 186.663,70.
3) Mitigation of the impact deriving from anthropogenic activities in the Milo Forest. Budget: € 354.916,39.
4) Actions for the protection of hypogean habitats and support to the relevant chiroptera populations. Budget: € 186.157,36.
5) Restoration of the Case Bevacqua access road – Piedimonte Etneo. Budget: € 1.698.804,36.
6) Identification and restoration of walking and walking-cycling hiking trails within the Etna Park (South). Budget: € 500.000,00.
7) Identification and restoration of walking and walking-cycling hiking trails within the Etna Park (North). Budget: € 500.000,00.
8) SIC ITA 070014 Monte Baracca C.da Giarrita – Realisation of a reception area, path restoration, charting and removal of selected portions of asphalt. Budget: € 400.000,00.
9) SIC ITA 070012 Pineta di Adrano e Biancavilla – Environmental promotion and enhancement actions, path restoration and informational charting. Budget: € 972.000,00.
10) Removal of degradation factors and enhancement of natural heritage in an area of high environmental value to be acquired under the SIC ITA 070020 Milo Forest. Budget: € 524.000,00.
11) SIC ITA 070020 Milo Forest – Realisation of ecoducts for the protection and preservation of amphibia. Budget: € 1.101.000,00.
12) Restoration and expansion of the real estate classified as P.B. n. 2 "Case Piano Mirio" in the Municipality of Biancavilla. Budget: € 461.000,00.
13) SIC ITA 070013 Pineta di Linguaglossa - Removal of environmental degradation factors – path tacking and charting – Restoration of the Conti Lodge. Budget: € 1.124.000,00.
14) Restoration of the Monte Zoccolaro trail in the "B" zone of the Etna Park (Municipality of Zafferana Etnea). Budget: € 125.000,00.
15) Finalisation of external renovation works of the "Grande Albergo dell'Etna" - Ragalna. Budget: € 500.000,00.
16) Finalisation of external renovation works of the "Villa Manganelli" - Zafferana Etnea. Budget: € 588.580,00.
17) Acquisition and environmental restoration of the "Ilice di Carlino" and its neighbouring areas. Budget: € 350.000,00.
18) Renovation of the Caselle in Milo-Ilice di Pantano trail. Budget: € 200.000,00.
19) Renovation of the municipal road "Bosco o Insinga" (Municipality of Biancavilla). Budget: € 1.343.080,00.

The two-year supply and services acquisition programme 2019/2020 of the Etna Park Authority Administration includes the following acquisitions, which are/will be funded by regional, State or EU funds:

1) Strengthening the management capacities of the Mount Etna UNESCO Site. Initial budget allocated by MiBACT with L. 77/2006 funds: € 100.000,00.
2) Enhancement of the Mount Etna UNESCO site accessibility of communication. Initial budget allocated by MiBACT with L. 77/2006 funds: € 40.000,00.
3) Enhancement of the territory's information system. Budget: € 360.000,00.
4) Monitoring and indicators of the UNESCO candidacy. Budget: € 40.000,00.
5) Census and monitoring of wildlife causing damages to cultivations and to the species and habitats of EU interest; experimental measures for damage prevention. Budget: € 100.000,00.
6) Census of livestock, characterisation of Aetnean grazing land and interventions for resources optimisation. Budget: € 200.000,00.
7) Environmental quality supplier brand for typical products, support to marketing activities for Park-branded products and tourism. Budget: € 103.000,00.
8) UNI EN ISO 14001- and EMAS certification-compliant Etna Park environmental management system. Budget: € 406.000,00.
9) Park Authority Environmental Budgeting. Budget: € 50.000,00.
10) Environmental education, strategies and action plans for citizens participation and information desk. Budget: € 833.340,00.
11) New businesses fostered by environmentally compliant management strategies. Budget: € 315.000,00.
12) Park Information System. Budget: € 632.080,00.
13) "Mad'E'" Etna open museum. Budget: € 2.500.000,00.
14) Grants for the restoration of traditional heritage. Budget: € 200.000,00.

2.4 Identification of the Site management structures.

The Institution entrusted with the management of the Site is the Etna Park Authority, a regional body with its own statute and internal regulation. The Etna Park Authority manages the territory of the Park (Park Plan and Park Regulations).

The Sicily Region, the Province of Catania and the relevant municipal administrations are responsible for the management of the sections of the reference area located outside the Etna Park.

2.5 Knowledge, protection, preservation and promotion of the heritage

The body of knowledge concerning the area is currently collected and developed by responsible institutions acting in their own fields, through the promotion of surveys, studies and research and the implementation of monitoring plans.

Preparing a conservation, protection and enhancement plan involves the identification of the conservation status of the specific resources on the one hand, and the evaluation of possible interferences on the other hand.

Detecting the interaction between resources and interferences is necessary to identify the areas (problem areas) in need of specific conservation projects, whose structure depends on the size and specific features of those areas.

The knowledge system, the identification of strengths and weaknesses, opportunities and threats become of paramount importance to support the definition of the conservation, protection and enhancement plan.

The data collection process shall aim at a systematic retrieval of specific information relevant to each area of interest on the Site. The "Risk mapping" methodology and the creation and enhancement of a territorial information system supporting the conservation of the WHS, its sustainable development, enhancement and, above all, the monitoring of the Etna system shall be also taken into account.

The following institutions and bodies store and manage the mentioned body of knowledge:

- CAI Club Alpino Italiano Sezione Etna
  Via Messina 593 - 95126 - Catania
- Centro Speleologico Etneo
  Via Valdisavoia 3 - 95123 - Catania
- Dipartimento Protezione Civile

Via Leopoldo Nobili, 16 - 95122 - Catania
- Ente Parco dell'Etna
  Via del Convento, 45 - 95030 Nicolosi (CT)
- Genio Civile di Catania
  Via Lago di Nicito 89 - 95124 - Catania
- INGV - Istituto Nazionale Geofisica e Vulcanologia
  Piazza Roma 2 - 95125 - Catania
- INGV - Istituto Nazionale Geofisica e Vulcanologia
  Via Ugo La Malfa 153 - 90146 - Palermo
- IRF - via Don Alberione n.4 - 95121 - Catania
- ISPRA Istituto Superiore per la Protezione e la Ricerca Ambientale
  Via Salvatore Puglisi 9 - 90143 – Palermo
- Regione Siciliana - Protezione Civile
  Via Lago di Nicito 89 - 95124 - Catania
- Regione Siciliana - Assessorato Territorio e Ambiente
  Via Ugo La Malfa 169 - 90146 - Palermo
- Università di Catania
  Dipartimento di Scienze Biologiche, Geologiche e Ambientali
  Sezione di Biologia Animale
  Via Androne 81 - 95124 - Catania
- Università di Catania
  Dipartimento di Scienze Biologiche, Geologiche e Ambientali
  Sezione di Scienze della Terra
  Corso Italia 55 - 95129 - Catania
- Università di Catania
  Dipartimento di Scienze Biologiche, Geologiche e Ambientali
  Sezione di Biologia Vegetale
  Via Etnea 397 - 95125 - Catania
- Università di Catania
  Dipartimento di Agricoltura Alimentazione e Ambiente
  Via S. Sofia 100 - 95123 - Catania

2.5.1 Knowledge management system

The above-listed structures store and manage autonomously collected information and data. In order to map a knowledge management system, it is necessary to identify information archiving, dissemination and updating methods for each of the following aspects: assets, current planning, commitments and obligations, risk factors, catalysts.
It is particularly relevant to identify:

- The managed information.
- The system features and instruments.
- The relationships between the different parts of such system.
- Access and updating methods.
- The system's external sources (feeding).
- The subjects in charge of managing the system.

A table describing the knowledge management system shall be subsequently developped. It is very important to map how the current system interfaces with external data and with other systems used as sources to feed it. The available tools are the recognition of the current system, the documentary investigation and the interviews with the involved subjects (knowledge managers and information systems managers of the area, municipalities, provinces, superintendencies, other bodies). The expected result is a document containing the description of the knowledge management system.
It is also essential to increase the state of knowledge of the site's typical heritage, operating to strengthen the current management programs and effective planning of potential future interventions on the site (including through strengthening dissemination). In this respect, the following actions could be implemented:

- further studies conducted through the activation of laboratories or collaborations for graduation theses concerning volcanoes (and Etna in particular), and in any case aimed at the production of promotional and dissemination-oriented publications.

- systematic surveying campaigns, in order to build a map of the diachronic trend of the state of conservation of the site's specificities. This could constitute a reliable reference base for the planning and execution of any future management interventions, especially if complemented with investigations aimed at identifying possible sources of risks deriving from improper use of the territory.

3 Phase 2a – Context analysisof the territory's assets and resources

3.1 Inventory of assets

3.1.1 Physical-environmental assets

3.1.1.1 Mount Etna

As an active volcano, Etna represents the most significant environmental physical asset of the WHS, which determined its recognition. Moreover, it is the highest (3,335 m a.s.l.) and largest active volcano in Europe and the entire Mediterranean area, and the landscapes of its summit areas, characterised by craters, lava flows and volcanic desert, are impressively beautiful.

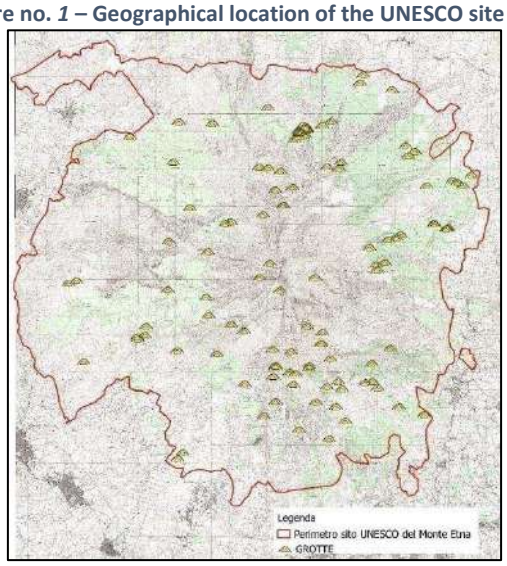
The volcano is composed of several buildings that have grown around the different volcanic axes characterising Etna's eruptive activity of Etna throughits (approximately) 500,000-year history, and changing its shape, height and size. Its intense and persistent eruptive activity generated myths, legends and naturalistic observations since the classical Greek and Roman times. Since then, countless scientists and tourists from all over the world have visited Etna. Due to its fame, scientific importance, cultural and educational value this is considered an iconic volcanic site.
Located above the collisional belt between the African and European tectonic plates, Etna has been - and is still being - studied by a research centre of international importance carrying out volcanological, geological and geomorphological studies.
The entire natural history of the Etna region is connected to the eruptions of the volcano and its activity, causing changes in the chemism of magmas and eruptive styles. Etna is a unique example of a natural scientific laboratory on emerged volcanic areas. It is specifically known for the study of colonisation processes on new surfaces by plants and animals in Europe and the Mediterranean biogeographical area in general.
Etna's ecology is related to its frequent eruptions and geo-diversity, featuring a large variety of habitats and biotic communities made up of plants and animals that live in extreme conditions, some of which are endemic.
Therefore, Etna represents a unique environment where it is possible to study and investigate the processes of ecological colonisation of ever-evolving volcanic soils.

3.1.1.2 Caves

Like many other volcanoes of the same kind across the world, Etna has a network of over 250 caves of different origins (lava tubes and eruptive fracture caves). Some of these might feature interesting recast speleothems or ephemeral mineralisations. *Grotta del Gelo*, *Grotta degli Archi*, *Grotta delle Palombe*, *Grotta dei Tre Livelli*, *Abisso Profondo Nero*are just some of the best-known caves.

More than 100 natural caves are located within the UNESCO site, some of which possess considerable tourist and naturalistic interest. Some examples are: *Grotta della Neve*, *Grotta della Giumenta*, *Grotta Pitagora*, *Grotta Schadlish*, *Grotta di Aci*, *Grotta dei Lamponi*, *Grotta delle Palombe*, *Grotta del Burrò*, the three *Grotte dell'Angelo*, *Grotta delle Angelo Vanette*, *Grotta delle Vanelle*, *Grotta di Santa Barbara.* The picture below shows the caves located on the Mount Etna UNESCO site.

Picture no. *1* – Geographical location of the UNESCO site caves



3.1.1.3 Geosites

The table below lists the two geosites located on the territory of the Mount Etna UNESCO Site.

***Table no. 4* - Geosites located on the territory of the Mount Etna UNESCO Site**

ID Number	Name	Municipality	Location	Level of interest	Shape of the geosite	Elements constituting the geosite	Inventory Classification
NAT-3AD-2831	Mount Etna summits craters	Adrano	Summit craters	Worldwide	Arch-shaped	Similar element	Proposed
NAT-3ZA-0637	Grotta dei Tre Livelli	Zafferana Etnea	Contrada Casa del Vescovo	National	Peak-shaped	Single element	Segnalato

3.1.2 Naturalistic assets

3.1.2.1 Vegetation

The vegetation of Etna is a complex set of species that have diversified according to factors such as volcanic soil, climate and human presence.

In the area of an active volcano, the soil layers undergo constant changes due to eruptions, which significantly alter every aspect of the relevant ecosystems. Local climate – though Mediterranean in principle - varies according to altitude and affects vegetation consistently.

The resulting landscape is therefore peculiar. The neighboring communities may strikingly contrast with one another: alongside forests and the most recent vegetation, are cultivated fields or fields of black lava, where plantsare forced to restart their slow but tenacious colonisation, in an endless colonisation-destruction-recolonisation cycle.

Altitude-affected changes in the composition of plant species are mainly due to climate and allow us to recognise specifically characterised vegetation belts ecosystems on the volcanic slopes.

At higher altitudes, the vegetation's identity is more precisely defined, as it features endemic communities of the Etna territory.

Different altitude zones can be identified, reflecting the volcano's Mediterranean location. As for the abovementioned property and the relevant buffer zone, the following can be identified:

- A basal-Mediterranean Zone – Supra-Mediterranean Belt (between 1.000-1.100 m a.s.l. and 1.400-1.450 m a.s.l.).
- A mountain-Mediterranean Zone (between 1.400-1.450 m a.s.l. and 1.800-2.000 m a.s.l., up to 2.200-2.250 m a.s.l. in the North-Western area).
- A high Mediterranean Zone (from 2.200-2.250 m a.s.l. up to the limit of pioneer vegetation)

3.1.2.2 Flora

Flora on Mount Etna originated from the pre-existing vegetation blanket in the surrounding area. However, it has its own specific features determined by both the volcanic nature and the altitude of the area. The area located above 1900-2000

m a.s.l. is no longer dominated by forest vegetation andrepresents a very specific area, absent from the other Sicilian mountain regions, which, in fact, do not exceed 2,000 m of altitude.
Flora on Mount Etna is quite rich and particularly interesting. It counts just over 1,400 species, out of which 160 are located in the high mountain area (22 of themare located at altitudes ranging between 2,100 and 3,000-3,050 m a.s.l.).

Table no. 5 – Endemic species exclusively pertaining to the Aetnean District

SCIENTIFIC NAME
Acinos aetnensis
Adenocarpus bivonei
Anthemis aetnensis
Astragalus siculus
Bellardiochloa variegata subsp. aetnensis
Betula aetnensis
Buglossoides incrassata subsp. splitbergeri
Centaurea giardinae
Cerastium tomentosum var. aetnaeum
Erysimum etnense
Hieracium aetnense
Hieracium pallidum
Kali basalticum
Linaria multicaulis var. aetnensis
Rumex aetnensis
Scleranthus aetnensis
Scleranthus perennis L. subsp. vulcanicus
Sedum aetnense
Senecio aethnensis
Senecio ambiguus
Tillaea basaltica
Viola aethnensissubsp. aethnensis

Table no. 6 – Other endemic species

SCIENTIFIC NAME
Arabis rosea
Aristolochia sicula
Arrhenatherum nebrodense
Berberis aetnensis
Carlina nebrodensis
Epipactis meridionalis
Euphorbia ceratocarpa
Galium aetnicum
Genista aetnensis
Linaria purpurea
Pinus nigra subsp. calabrica
Quercus congesta
Rosa pouzinii
Saponaria sicula subsp. sicula

SCIENTIFIC NAME
Senecio chrysanthemifolius
Senecio siculus
Silene sicula
Teucrium siculum
Thalictrum calabricum

Table no. 7 – Species protected by international covenants

SCIENTIFIC NAME
Aceras anthropophorum
Cephalanthera longifolia
Dactylorhiza romana
Epipactis microphylla
Epipactis placentina
Orchis quadripunctata

Table no. 8 - Phytogeographical and rare species

SCIENTIFIC NAME
Acer opalus subsp. obtusatum
Alisma lanceolatum
Anthemis cotula
Arabis turrita
Bombycilaena erecta
Cardamine glauca
Carex otrubae
Celtis tournefortii
Coronopus squamatus
Daphne laureola
Eleocharis palustris
Euphorbia rigida
Hieracium crinitum
Molineriella minuta
Monotropa hypopitys
Myosotis incrassata
Myriophyllum spicatum
Robertia taraxacoides
Senecio erraticus
Sternbergia colchiciflora subsp. aetnensis
Teucrium divaricatum
Viburnum tinus
Vicia cassubica

3.1.2.3 Fauna

Across Europe and the Mediterranean area, the Etna territory is a unique example of a mosaic of habitats with a remarkable variety of environments ranging from wetl□and, to forests, grasslands, to rocky areas. Consequently, the

relevant fauna is extremely rich and diverse, and its components show result from multiple ecological adaptations. The drastic and sudden environmental changes caused by the volcano's eruptive activity increase its importance. This also systematically interferes with the vegetation as well as with the fauna, thus forcing them to specifically evolve and adapt in time.

Tables no. 12 and 13 list the "core zone" (i.e., Mount Etna "A" Zone) endemic animal species. The name of each of the species listed below is followed by letters:

"E" = endemic of Mount Etna.

"S" = endemic of Sicily.

"M" = endemic of Southern Italy.

Table no. 9 – Species of endemic vertebrates

Amphibia
Discoglossus pictus Otth., 1837 – S
Reptilia
Podarcis wagleriana (Gist.) – S
Aves
Aegithalos caudatus siculus (L.) – S

Table no. 10 – Species of endemic invertebrates

Diplopoda
Brachyiulus aetnensis Verh. – E
Buchneria sicula Strasser – E
Cylindroiulus aetnensis Verh. – E
Insecta
Blattaria
Ectobius lagrecai Failla & Messina, 1981 – E
Phyllodromica tyrrhenica (Ramme, 1927) – S
Orthoptera
Eucorthippus albolineatus siculus (Ramme, 1927) – S
Eugryllodes brunneri (Riggio, 1888) – S
Eupholidoptera chabrieri bimucronata (Ramme, 1927) – S
Glyptobothrus brunnus raggei La Greca et al., 2000 – S
Glyptobothrus messinai La Greca et al., 2000 – S
Odontura stenoxhpha stenoxypha (Fieber, 1853) – S
Oedipoda fuscocincta sicula Fieber, 1853 – S
Platycleis ragusai Ramme, 1927 – S
Uromenus riggioi La Greca, 1964 – S
Heteroptera
Alloeotomus aetneus (Costa A) – E
Atractomus marcoi Carap. – E
Dionconotus neglectus sellatus Lind – S
Lygaeus equestris sicilianus Wagner – S
Oxycarenus longiceps Wagner – S
Phyllomorpha laciniata (Vill.) – E
Psallus aetnicola Wagner – E
Sciocoris cursitans pallidicornis Wagner – S
Tuponia hartigi Wagner – E
Homoptera

Adarrus messinicus Dlabola, 1980 – S
Anoplotettix etnensis Wagner, 1959 – S
Arocephalus punctus siculus D'Urso, 1978 – S
Jassargus lagrecai D'Urso, 1982 – S
Kybos aetnicola Wagner, 1959 – E
Rhytistylus proceps lavicus D'Urso, 1978 – E
Zyginidia serpentina (Matsumura, 1908) – S
Coleoptera
Acanthocinus henschi Ritter, 1900 – S
Agrilus albomarginatus Fiori, 1906 – S
Anisoplia monticola marginata Kraats, 1883 – E
Anthaxia giorgioi Sparacio, 2002 – E
Anthaxia nereis Schaefer, 1938 – S
Asida goryi Solier, 1836 – S
Attalus aetnensis Abeille, 1891 – E
Buprestis aetnensis Baviera & Sparacio, 2002 – E
Calathus testudinarius Gautier des Cottes, 1867 – S
Carabus (Chaetocarabus) lefebvrei lefebvrei Dejean, 1826 – S
Cardiophorus aetnensis Baviera & Platia, 2006 – E
Chlaenius borgiai Dejean, 1828 – S
Clytus clavicornis Reiche, 1860 – S
Chrysanthia vividissima (Linnaeus, 1758) S
Dichillus subtilis Kraats, 1862 - S
Euplectus bonvouloiri siculus Raffray, 1910 - S
Euphalerum sicanum Zanetti, 1980 – S
Faronus siculus Fiori, 1913 – S
Gerandrius aetnensis (Rottenberger, 1870) – S
Idiotarmon quadrivittatus (Ragusa, 1893) – E
Haplidia villigera Burmeister, 1855 – S
Hymenoplia sicula Blanchard, 1850 – S
Leptobium siculum (Gridelli, 1926) – S
Lionychus fleischeri focarilei Barajon, 1964 – E
Lomechusa sicula (Rottenberg, 1870) – S
Lomechusoides strumosa sicula (Fiori, 1914) – S
Lucanus tetraodon siculus Placet, 1899 – S
Megalinus sabellai Ciceroni & Zanetti, 1993 – S
Megathous ficuzzensis Buysson, 1912 – S
Medon perniger fraudulentum Coiffait, 1978 – E
Mimela junii miksici Sparacio, 2003 – S
Neopicella sicula (Ganglbauer, 1885) – S
Otiorhynchus catinensis Magnano, 1993 S
Otyorhynchus ferdinandi Reitter, 1913 – S
Pachypus Caesus Erichson, 1840 – S
Pedinus siculus Seidlits, 1893 – S
Platyderus canaliculatus Chaudoir, 1843 – S
Pselaphogenius peloritanus (Holdhaus, 1910) – S

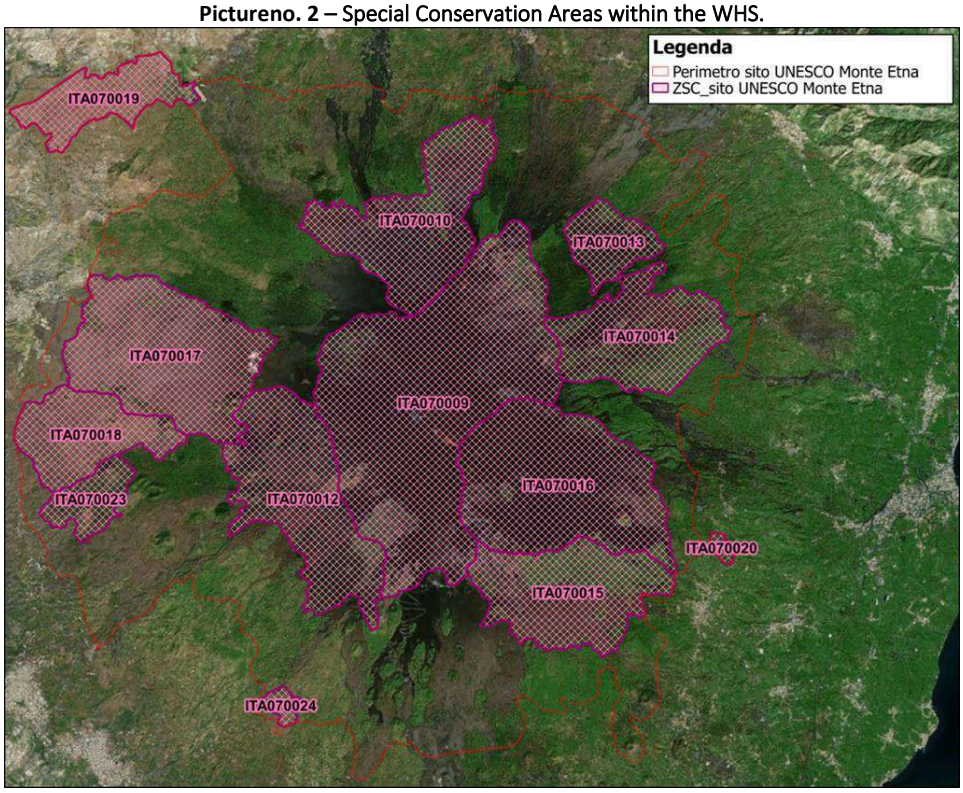
Quedius coelebs Rottenberg, 1870 – S
Rhizotrogus tarsalis Reiche, 1862 – S
Scarabaeus typhon Fischer von Waldheim, 1823 – S
Spondylis buprestoides (L., 1758) – S
Stenus leonhardi Bernhauer, 1914 – S
Sunius martinarum (Adorno & Zanetti, 2003) - S
Trachys apristoides Rottbrg. 83 – S
Hymenoptera
Aphaenogaster crocea sicula Emery, 1908 – S
Aphaenogaster ionia Emery, 1915 – S
Criptopone ochraceum siculum Emery, 1909 – S
Diplorhoptrum siculum (Emery, 1915) – S
Sphecodes aetnensis Nobile, 1996 – E
Sphecodes iosephi Nobile & Turrisi, 2004 – E
Sphecodes marcellinoi Nobile & Turrisi, 2004 – E
Sphecodes tomarchioi Nobile & Turrisi, 2004 – E
Sphecodes walteri Nobile & Turrisi, 2004 – E
Nematoda
Longidorus aetneus Roca et al., 1986 – M
Tobrilus siculus Vinciguerra & Zullini, 1991 – E
Tardigrada
Carphania fluviatilis Binda, 1978 – E
Diphascon serratum Pilato, Binda, Bertolaini & Lisi, 2005 – E
Doryphoribius zappalai Pilato, 1971 – E
Isohypsibius reticulatus Pilato, 1973 – M
Isohypsibius verae Pilato & Catanzaro, 1989 – E
Isohypsibius tubereticulatus Pilato & Catanzaro, 1989 – E
Macroversum mirum Pilato & Catanzaro, 1988 – E
Pseudobiotus matici (Pilato, 1971) – E

See para. 3.2.4.5 for an in-depth explanation on the Park's fauna.

3.1.2.4 Rete Natura 2000

The WHS territory includes 13 Rete Natura 2000 sites, whose recognition as Special Conservation Areas (SCAs) has been completed by Ministry of Environment decree of 31.03.2017. Four of these sites are also Special Protection Area (SPAs).

Pictureno. 2 – Special Conservation Areas within the WHS.



These sites and their area within the WHS are listed in the table below.

Table no. 11 – List of Natura 2000 sites within the WHS

	Code	Name	Area (ha)	Area within WHS (ha)	% within WHS
1	ITA070009	Fascia altomontana dell'Etna	5.951,0	5.951,0	100
2	ITA070010	Dammusi	2.051,0	2.051,0	100
3	ITA070012	Pineta di Adrano e Biancavilla	2.378,0	2.378,0	100
4	ITA070013	Pineta di Linguaglossa	605,0	605,0	100
5	ITA070014	Monte Baracca, Contrada Giarrita	1.716,0	1.716,0	100
6	ITA070015	Canalone del Tripodo	1.946,0	1.912,0	98
7	ITA070016	Valle del Bove	3.101,0	3.101,0	100
8	ITA070017	Sciare di Roccazzo della Bandiera	2.760,0	2.760,0	100
9	ITA070018	Piano dei Grilli	1.239,0	1.239,0	100
10	ITA070019	Lago Gurrida e Sciare di S. Venera	1.519,0	912,0	60
11	ITA070020	Bosco di Milo	82,0	0,0	0
12	ITA070023	Monte Minardo	501,0	501,0	100
13	ITA070024	Monte Arso	124,0	117,0	94
Total			**23.973,0**	**23.243,0**	**97**

3.1.3 Landscape and landscape perception-related assets

The Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17 of the Catania Province represents the key landscape planning instrument for the Mount Etna UNESCO site, in line with delegated decree no. 42/04 and subsequent amendments and modifications. The Plan defines the so-called "local landscapes", i.e., parts of the relevant territory characterised by specific ecological, perceptive, historical, cultural and functional relation systems involving various typical and well-recognisable components. Consistently, local landscapes identified according to art. 135 para. 2 of delegated decree 42/2004 and subsequent amendments and modifications ("Code of Cultural Heritage and Landscape") are characterised by their own specific identity featuring interconnected ecological and cultural aspects as well as values, priorities and needs. More specifically, local landscape within the Mount Etna UNESCO site is:

- Local landscape 2 "Aree coltivate delle pianure alluvionali dei Nebrodi meridionali" (art. 22 Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17).

- Local landscape 3 “Aree delle sciare di Santa Venera” (art. 23 Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17).
- Local landscape 8 “Territori di Nord-Ovest del Parco dell’Etna” (art. 28 Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17).
- Local landscape 9 “Area dei crateri sommitali e della valle del Bove” (art. 29 Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17).
- Local landscape 10 “Territori di Nord-Est del Parco dell’Etna” (art. 30 Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17).
- Local landscape 13 “Area dei centri abitati di sud-ovest” (art. 33 Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17).
- Local landscape 14 “Area dei boschi e dei frutteti d’alta quota fra Adrano e Zafferana” (art. 34 Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17).

3.1.4 Cultural-historical and landscape assets

Here below is the complete inventory of the tangible and and intangible assets within the Mount Etna UNESCO site, protected under the delegated decree n. 42/2004 and subsequent amendments. The inventory represents a tool for the exhaustive knowledge of the existing heritage, as well as for the planning of the required interventions concerning the aforementioned assets.

Areas of archaeological interest, as defined in art. 142 lett.m) of delegated decree 42/04:

- Grotta S. Nicolò Politi
- Contrade Edera; Sciare di Santa Venera e Balze
- Grotta delle Femmine

Buildings

Within the borders of the Etna Park, in the “D” zone close to the buffer zones of the UNESCO site, two important listed buildings, the former Monastery of San Nicolò all'Arena in the Municipality of Nicolosi, now the seat of the Etna Park, and Villa Manganelli in theMunicipality of Zafferana Etnea, both owned by the Park authority.

Isolated assets

The isolated buildings (either military, religious, residential or productive, as well as equipment and services) represent acrucialevidence of the historical events that occurred in the area. When they maintain functional and visual relationships with the site and the surrounding area, they are also retained as primary elements in the perception of the landscape. When not already falling within the protected areas according to articles 136 and 142 of Delegated Decree 42/2004 and subsequent amendments ("Code of Cultural Heritage and Landscape”), they are classified as landscape assets pursuant to art. 134 lett. c), in case their specific relevance is recognised, together with any perceptual annexesthat might be considered as a landscape and environmental complement essential for understanding the asset-landscape relationship. The isolated assets falling within the area of the Mount Etna UNESCO site are listed below:

B – Religious architecture

B1 –Chapels, churches

- Magazzeni Chapel (Art. 134 lett. a) and b) of delegated decree 42/2004).

C – Residential architecture

C1 – Small houses, cottages, mansions, small buildings, palazzi, villas, chalets, detached houses

- Villetta Platania (art. 134 lett. a) e b) of delegated decree 42/2004).
- Villa Milia (Art. 134 lettere a), b) of delegated decree 42/2004).

D – Agricultural production-related architecture

D1 - Farms, courtyard buildingds, farmhouses, yards, plots, farmsteads, rural buildings/annexes

- Santa Venera Farmstead (Art. 134 lett. b) of delegated decree 42/2004).
- Pietralonga Farmstead (Art. 134 lett. b) of delegated decree 42/2004).
- Edera Farmstead (Art. 134 lett. b) of delegated decree 42/2004).
- Sorge Farmstead (Art. 134 lett. b) of delegated decree 42/2004).

- Casitta Farmstead (Art. 134 lett. a), b) of delegated decree 42/2004).
- Rural complex "Magazzeni dell'ex Feudo delle Cerrite" (Art. 134 lett. a) and b) of delegated decree 42/2004).
- Ardizzone Farmstead (Art. 134 lett. a), b) of delegated decree 42/2004).
- Montesanto Farmstead
- Battiati Villa (art. 134 lett. a) and b) of delegated decree 42/2004).
- Prato Fiorito Farmstead (art. 134 lett. a) and b) of delegated decree 42/2004).

D5 - Drinking troughs, cisterns, fountains, traditional hydropowered water lifters, wells, tanks

- Cisternazza (Art. 134 lett. a) and b) of delegated decree 42/2004).

E – Equipment and services

E4 - Hotels, marine settlements, sea bottoms, inns, lodges, resta urants, taverns

- Caserma Pitarrone (Art. 134 lett. a) and b) of delegated decree 42/2004).

3.1.5 Other non-listed assets

Other non-listed assets within the WHS territory are:

Sanctuaries and chapels

- Shrine, Madonna dell'Annunziata, Municipality of Bronte.
- Shrine, Casa Santa Barbara, Municipality of Ragalna.
- Shrine, Grotta di San Nicolò Politi, Municipality of Adrano.
- Chapel of St.M. Annunziata, Municipality of S.M. di Licodia.
- Chapel of Magazzeni dei SS.MM. Alfio Filadelfo e Cirino, Municipality of Sant'Alfio.
- Chapel of the Madonna della Neve - Monte Vetore, Municipality of Ragalna.
- Chapel of St. Alfio, Monte Ilice, Municipality of Trecastagni.
- Votive chapels erected as a sign of thanksgiving for the ceasing of lava flows (these are located, e.g., at Piano Pernicana, Fornazzo, Linguaglossa, etc.).

Typical rural buildings

- Must fermentation tank of Rosano, Dagala Vecchia, Municipality of Adrano.
- Cristaldi Mansion-Warehouse, Mirio, Municipality of Biancavilla.
- Typical rural building, C. da Dieci Salme, Municipality of Biancavilla.
- Furnitto Mansion, Nave, Municipality of Bronte.
- Must fermentation tank, C.da Difesa, Municipality of Bronte.
- Musmeci Mansion, C. da Pitarrone, Municipality of Castiglione di Sicilia.
- Di Bella Mansion, Salto del Bue, Municipality of Linguaglossa.
- Currenti Mansion, Fontana Murata, Municipality of Maletto.
- Tenant's mansion, Feudo Soprano, Municipality of Maletto.
- Warehouse, Feudo Soprano, Municipality of Maletto.
- Building inC. da Catesse, Municipality of Maletto.
- Building, Sciarone – Rustica, Municipality of Maletto.
- Warehouse, C.da Fontana Murata, Municipality of Maletto.
- Burello Shelter, Parcheria, Municipality of Maletto.
- Pietracannone Houses, Pietra Cannone, Municipality of Milo.
- Sheep pen, Contrada della Cubania, Municipality of Milo.
- Warehouse, Sambuco, Municipality of Milo.
- Complexof Bevacqua Houses, Municipality of Piedimonte Etneo.
- Gemellaro building, Milia, Municipality of Ragalna.
- Pulvirenti building, C.da Milia, Municipality of Ragalna.
- Warehouse, C.da Monte Mazzo,Municipality of Ragalna.
- Typical rural building, Casa Santa Barbara, Municipality of Ragalna.
- Matano rural mansion, C.da Pomazzo, Municipality of Sant'Alfio.
- Nucifora must fermentation tank, C.da Naca,Municipality of Sant'Alfio.
- Monte Cicirello base point, C.da Monte Cicirello, Municipality of Trecastagni.
- Torrisi warehouse, C.da Grotta comune, Municipality of Trecastagni.
- Pappalardo must fermentation tank, Monte Perillo, Municipality of Trecastagni.
- Via Macello warehouse, Municipality of Zafferana Etnea.
- Pistorio warehouse, Monte Pomiciaro, Municipality of Zafferana Etnea.

Moreover, among notable rural building, are Caldarera a Randazzo Mansion, Cicirello Mansion (today known as Capinera Mansion) in Trecastagni, the complex of Bevacqua Houses in Piedimonte Etneo, whose restoration was funded by EU funds, and the Pietracannone Houses in Milo, all of which are property of the Park Authority and now functioning asHiking Base Points according to the Park's Instituting Act.

Ruins

Within the WHS are two ruins sites, located close to Etna's crater.

Panoramic points

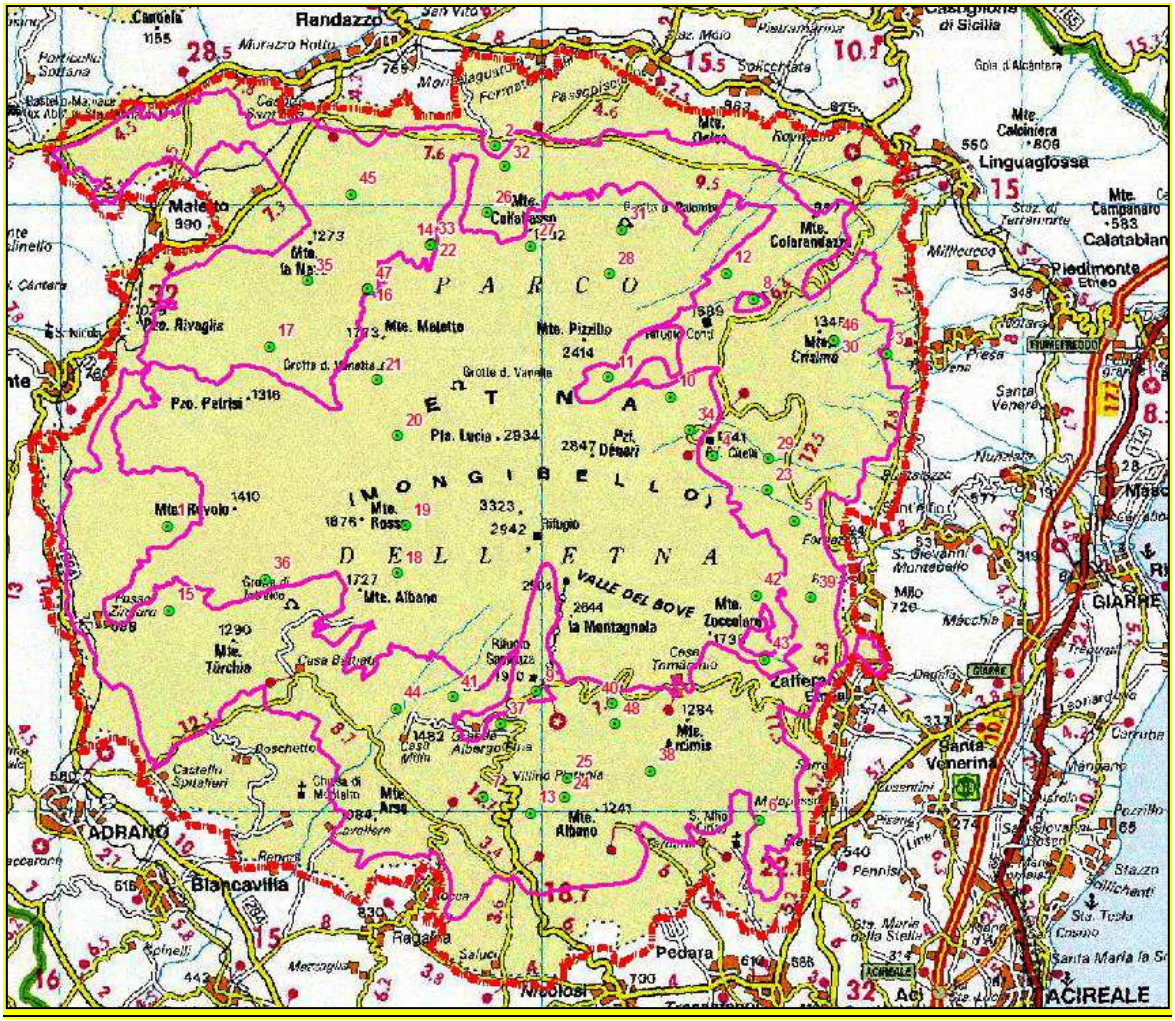
Due to the position of the UNESCO site and the area surrounding it, several panoramic points are also located in the area, including along traditional trails. A prominent example is the panoramic point located on top of the Schiena dell'Asino. This is one of the most noteworthy points of the Etna area, providing the observer with a complete view on the craters and the entire Valle del Bove. Another prominent panoramic point is located on the Pineta Ragabo-Passo Dammusi trail, overlooking the button-shaped craters resulting from the 1923 eruption, the village of Linguaglossa and the Ionian coast. Other examples are the panoramic points located in Piano dei Grilli, Pizzi Deneri, Serracozzo, Acqua Rocca, Poggio La Caccia, Monte Pomiciaro and Monte Zoccolaro.

Lodges

The territory in the scope of the UNESCO site features a wide number of hospitality structures, ranging from guarded lodges, unguarded structures, bivouacsto the other structures listed here below.

Description	Notes	Current conditions of use
1 – Base point 6 Piano dei Grilli 33S 488631 4177613 1157		overnight stay not allowed
2 - Base point 9 Case Caldarera 33S 498614 4189203 1004		Not yet in operation
3 - Base point 13 Case Bevacqua 33S 510527 4182873 1013		Partially in operation – contactthe manager
4 - Base point 15 Citelli Lodge 33S 505253 4179758 1750	ALWAYS OPEN	Contact the manager
5 - Base point 16 Pietracannone 33S 507738 4177790 1148		Closed – under renovation
6 - Base point 20 Casa della Capinare Cicirello 33S 506648 4168653 900		overnight stay not allowed
7 –Manfrè Lodge 33S 498232 4169350 1350		Contact the manager
8 - Brunek Lodge33S 506476 4184551 1418	ALWAYS OPEN	Contact the manager
9 - G. Sapienza Lodge 33S 499857 4172584 1910	ALWAYS OPEN	Contact he manager
10 - Monte Baracca Lodge 33S 503936 4181568 1767		Entrusted to CAI Linguaglossa
11 - Capanna Linguaglossa Lodge 33S 502061 4182170 2090		Entrusted to CAI Linguaglossa
12 - Caserma Pitarrone Lodge 33S 505645 4185336 1481		Contact the Municipality of Castiglione
13 - Monte Concilio Lodge 33S 499699 4168877 1265		Contact the Municipality of Nicolosi
14 - Casermetta Monte Spagnolo Lodge 33S 496656 4186185 1440		Contact the Municipality of Randazzo
15 - Forestale Prato Fiorito Lodge 33S 488645 4175059 1070 unguarded – key pick-up required	UNGUARDED	Currently not available
16 – Forestale Nave Lodge 33S 494688 4184824 1445 unguarded – key pick-up required	UNGUARDED	available upon reservation at UST Catania - tel: 0916391100
17 - Forestale Case Bosco Chiuso Lodge 33S 491734 4183102 1232 unguarded – key pick-up required	UNGUARDED	available upon reservation at UST Catania - tel: 0916391100
18 - Forest bivouac Galvarina 33S 495621 4176184 1878	BIVOUAC	ALWAYS OPEN
19 - Forest bivouac Monte Palestra 33S 495860 4177635 1918	BIVOUAC	ALWAYS OPEN
20 - Forest bivouac Monte Scavo 33S 495631 4180374 1740	BIVOUAC	ALWAYS OPEN
21 - Forest bivouac Monte Maletto 33S 495012 4182075 1698	BIVOUAC	ALWAYS OPEN
22 - Forest bivouac Monte Spagnolo 33S 496666 4186221 1440	BIVOUAC	ALWAYS OPEN
23 - Case Paterno' Hut 33S 506883 4178716 1344 unguarded – key pick-up required	UNGUARDED	available upon reservation at UST Catania - tel: 0916391100
24 - Monte Grosso Hut 33S 500739 4169372 1342 unguarded – key pick-up required	UNGUARDED	available upon reservation at UST Catania - tel: 0916391100
25 - Forest bivouac Gemmellaro 33S 500803 4169945 1425	BIVOUAC	ALWAYS OPEN
26 - Forest bivouac Saletti 33S 498348 4187175 1380	BIVOUAC	ALWAYS OPEN
27 - Forest bivouac Santa Maria 33S 499662 4186164 1630	BIVOUAC	ALWAYS OPEN

Description	Notes	Current conditions of use
28 - Forest bivouac Timparossa 33S 502095 4185310 1840	BIVOUAC	ALWAYS OPEN
29 - Monte Zappino Hut 33S 506932 4179683 1430 unguarded – key pick-up required	UNGUARDED	available upon reservation at UST Catania - tel: 0916391100
30 - Monte Crisimo Hut 33S 508930 4183238 1196 unguarded – key pick-up required	UNGUARDED	available upon reservation at UST Catania - tel: 0916391100
31 - Palomba di Castiglione di Sic. Hut 33S 502461 4186664 1570 unguarded – key pick-up required	UNGUARDED	available upon reservation at UST Catania - tel: 0916391100
32 - Case Pirao Hut 33S 498912 4188594 1139 unguarded – key pick-up required	UNGUARDED	available upon reservation at UST Catania - tel: 0916391100
33 - Monte Spagnolo Hut 33S 496621 4186209 1440 unguarded – key pick-up required	UNGUARDED	available upon reservation at UST Catania - tel: 0916391100
34 - SES Hut 33S 504537 4180535 1738 unguarded – key pick-up required	UNGUARDED	available upon reservation at UST Catania - tel: 0916391100
35 – Trentasalme Hut 33S 492879 4185095 1213 unguarded – key pick-up required	UNGUARDED	available upon reservation at UST Catania - tel: 0916391100
36 - Case Zampini Hut 33S 491605 4176006 1350 unguarded – key pick-up required	UNGUARDED	available upon reservation at UST Catania - tel: 0916391100
37 - Monte Vetore Hut 33S 498763 4171592 1745 unguarded – key pick-up required	UNGUARDED	available upon reservation at UST Catania - tel: 0916391100
38 - Salto del Cane Hut 33S 503311 4170155 1422 unguarded – key pick-up required	UNGUARDED	available upon reservation at UST Catania - tel: 0916391100
39 - Piano Bello Hut 33S 508218 4175435 1058 unguarded – key pick-up required	UNGUARDED	available upon reservation at UST Catania - tel: 0916391100
40 - Case del Vescovo Hut 33S 502180 4172212 1680 unguarded – key pick-up required	UNGUARDED	available upon reservation at UST Catania - tel: 0916391100
41 - Case Carpentieri Hut 33S 497334 4172422 1731 unguarded – key pick-up required	UNGUARDED	Currently not available
42 - Dagala del Picchio Bivouac 33S 506558 4175511 1247 Etna Park – Always Parco dell'Etna – Always open	ALWAYS OPEN	ALWAYS OPEN
43 - Capanna del Ghiro Bivouac 33S 506828 4173554 1150 Etna Park – Always Parco dell'Etna – Always open	ALWAYS OPEN	ALWAYS OPEN
44 - Milia Lodge 33S 495591 4172067 1540		Keys available at Etna Park
45 - Case Giusa Lodge 33S 494202 4187747 1075		Entrusted to CAI Randazzo
46 - Monte Crisimo Forest bivouac 33S 508937 4183287 1195	BIVOUAC	ALWAYS OPEN
47 - Nave Forest bivouac 33S 494686 4184851 1445	BIVOUAC	ALWAYS OPEN
48 - Serra Pizzuta Galvarina Forest bivouac 33S 502242 4171590 1685	BIVOUAC	ALWAYS OPEN



Picture no. *3* – Distribution of Lodges and Bivouacs on Mount Etna

Hiking trails

Given the naturalistic interest of the area, several hiking trails shall be mentioned that are available for excursions during the most favourable seasons.There are also some forest tracks, whose access is forbidden to motor vehicles and mule tracks that are still in use today.Prominent hiking trails include the Piano dei Grilli trail, Pizzi Deneri trail, Rocca della Valle trail, Sarracozzo trail, Crateri 2002 trail, Ilice di Carinu trail, Giumenta trail, Ragabo-Passo Dammusi pine forest trail, Acqua Rocca trail, Schiena dell'Asino trail, Grotta dei Lamponi-Grotta delle Aci trail, Shadlish-Pirao trail, Burò trail, Gavarina 2 trail, Monte Egypt-Grotte dell'Angelo trail, Monte Guardirazzi trail, Monte Capre-Monte Rosso trail, Monte Nero degli Zappini trail. Etna's hiking trail, identified with a three-digit code, are listed below.

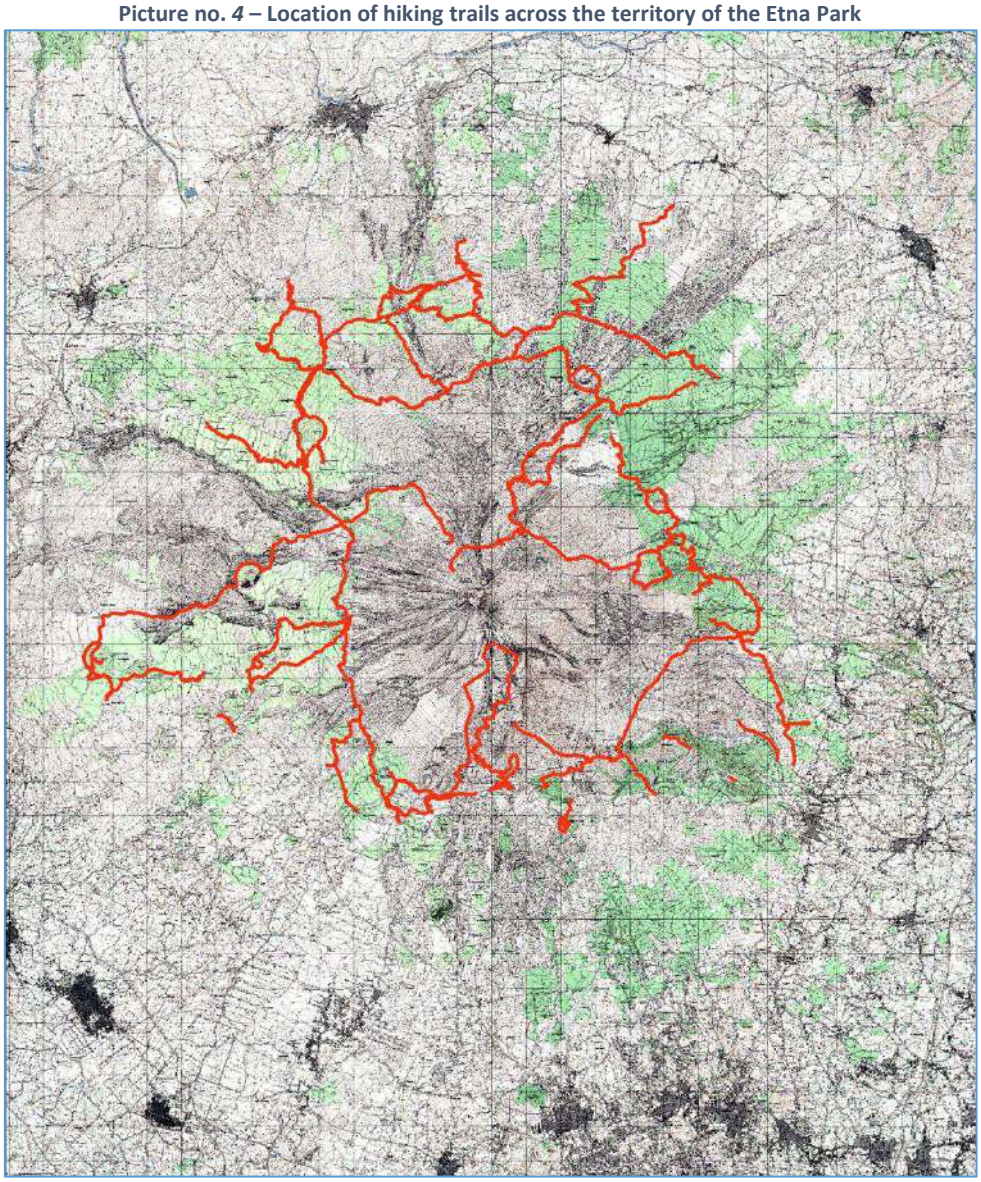
It is worth mentioning that the Etna Park has recently completed an ad hoc intervention focused on strengthening the capacities of the Site for the management of hiking trails. Results are available in the Annex to this report and will be soon uploaded on the UNESCO Site website.

***Table no. 12* - Etna Hiking Trails**

Hiking trail	Description	Extension
701	*From Piano Vetore to Piana Pernicana – Pista altomontana*	
702	Sapienza Lodge - Torre del Filosofo – Summit areas - Pizzi Deneri - Piano Provenzana	
703	Piano del Lago - Canalone della Montagnola - Canalone dei Faggi - Serra del Salifizio	
704	*Piano Vetore - Sapienza Lodge - Piano dei Pompieri - Schiena dell'Asino - M. Zoccolaro - Scalazza - Piano dell'Acqua - Ballo*	
705	Piano Mirio - Pista Altomontana	
707	Piano Fiera - Rif. Calvarina	
708	Case Bosco Prato Fiorito - Case Zampini - M. Nespole - M. Leporello - Poggio La Caccia Lodge	
708A and 708B	*Connecting trail between trails nos. 707 and 70S*	

Hiking trail	Description	Extension
710	*Piano dei Grilli - Monte Egitto - Monte Scavo Lodge*	
710 and 710B	*Connecting trail between trails nos.* 70S and 710	
710C	Monte Ruvolo	
711	*Monte Scavo Lodge neighbouring area - M. Guardirazzi - Punta Lucia*	
712	Case Boscochiuso - Pista Altomontana	
713	Monte La Nave - Pista Altomontana	
714	Pista Altomontana - Rif. Monte Maletto	
716 and 716A	Rocca Mandorla - Pista Altomontana	
717 e 717A	*Case Caldarera - Casermetta di Monte Spagnolo (or Saletti Lodge)*	
717B	2nd Connecting trail between trails nos. 717 and 718	
718 and 719	*Case Caldarera - Cistemazza – Saletti Lodge - Pista Altomontana*	
720	S.S. 120 (km 195,300) - S.P. Quota Mille - Passo Stiletta - Grotta delle Palombe - Altomontana	
721	*"Golfo della Monaca" – From Piano Pernicana to Piano Provenzana*	
722	*"Tagara dei Leone" – Trail no. 724 departing to Pizzi Deneri*	
723 e 723A	Citelli Lodge - Serracozzo	
724 e 724A	*Ballo - Ilice di Carrinu - C. Pietracannone - Citelli Lodge neighbouring area- Piano Provenzana - Timparossa Lodge - Passo dei Dammusi*	
725	*S.P. "Mareneve di Fornazzo" (km 22,500) - Case Paterno*	
726	Dammusi Pass - Grotta del Gelo	
727	*Piano del Vescovo - Acqua Rocca degli Zappini - Serra del Salifizio*	
728	*Case Bevacqua - Case Bevacqua - Salto del Bue - S.P. "Mareneve di Linguaglossa"*	
728A	*72S trail branch Contrada Mandra del Re - S.P. "Mareneve di Linguaglossa"*	
729	Case Bevacqua - M. Stornello - C.da Giarrita	
730	San Giovanni Gualberto Lodge - Monte Scavo (q. 1918) - M. Frumento Supino –Summit area	
731 and 732	"Sentiero delle Ginestre" - Nicolosi –Park Headquartes - Zafferana Etnea (1ststage) - Case Magazzeni (2ndstage) - Case Pietracannone - Pineta Ragabo (3rdstage) - Linguaglossa (4th stage)	
734	Casermetta di M. Spagnola - Grotta del Celo	
735	*Pista Altomontana - Dagala dell'Orso - Grotta del Gelo*	
736	*Case Bosco Prato Fiorito - Monte Miliardo - Piano dei Grilli*	
737	*Trail no. 704 branch from Malerba stone to Montagnola*	
738	M. Timparossa Lodge - Grotta del Gelo	
739	*Crossroads close to Grotta delle Palombe - Monte Timparossa Lodge*	
740	*Monte Cicirello - Sciammuru do' lupu - Piano del Vescovo*	
741 and 741A	Caserma Pitarrone - Passo Silletta	
742	Piano dell'Acqua - M. Calanna	
751	"Sciare di S. Venera"	
763	Case del Vescovo - Serra Pizzuta Gavarina	
782	Monte Nero degli Zappini	
786	From Belpasso to M. Manfrè	
786B	*Monte Manfrè Lodge - Filiciusa Milia State Property Gate*	

Picture no. *4* – Location of hiking trails across the territory of the Etna Park



Hiking trail no. 701 - *From Piano Vetore to Piana Pernicana: Pista Altomontana*

The 34.400-km route develops almost entirely along a ring-shaped wide road covering about 60% of the volcano's perimeter, located at an altitude between a minimum of 1,435 m on the north side to a maximum of 1,917 on the west side. The only exception is represented by a short pass stretching through a narrow lava path resulting from the 1981 eruption, which spilled onto the north flank threatening the town of Randazzo.
The ring it outlines is not a closed one, due to the chasm of the Valle del Bove, not impossible though difficult to cross.
Though curved in shape, the length and conformation of the Pista Altomontana make it a sort of backbone of the Etna trail network, as it is accessible from almost all the villages surrounding Etna through some paths featuring a roughly radial track. Subsequently, it is possible to proceed towards the summit areas from some of its junctions, following other paths through large radial lines.
The Pista Altomontana could be defined as the "hub" of the Etna trails, as it allows reaching the medium altitudes of the Volcano from one side and descend from another one.
It also allows crossing and enjoying almost all the landscapes that Mount Etna can offer, ranging from different types of tall trees forests and - in particular - pine woods with larch pine and beech woods, to harsh lava flows characterised by very diverse shapes and appeareance. The Pista Altomontanta roughly marks the border between the second and third of the three circular belts into which the ancient authors used to divide Etna, that is, the downstream wooded belt and the upstream volcanic desert belt.
Finally, it allows admiring an hourly changing panorama overlooking the two underlying valleys of the Simeto and Alcantara rivers, the mountainous complexes of Nebrodi and Peloritani and the villages scattered across them. Along it,

or at short distance, there are a dozen small buildings, generally owned by the former State Forestry Company, some of which are available as emergency shelter or a basic overnight stay for adequately equipped hikers.
The two ends of the route can be both reached by private motor vehicles and constitute Hiking Base Points.

Hiking trail no. 702 – *Sapienza Lodge - Torre del Filosofo – Summit areas - Pizzi Deneri -Piano Provenzana*
It consists of a dirt road built several decades ago by the licensed companies in charge of trasporting tourists by off-road minibuses. It departs from the two ski resorts and ends at the authorised quotas, which have varied through the years according to the risk arising from volcanic activity. The road starts on the south side, at an altitude of 1,910 m, next to the Funivia Doli Fina station and encircles the summit area at an altitude of around 3,000 m a.s.l., keeping the distance from the complex of terminal and sub-terminal craters, thus ensuring a reasonable level of security. It then descends to Piano Provenzana (about 1,800 m) where there is an additional ski resort.
Its track is shared between hikers and motor vehicles. On the south side, it has been modified or even completely remade a number times in the 1970s, 1980s and early 2000s, when the new *Escrivà de Balaguer* and *Vincenzino Barbagallo* craters appeared along it and large lava flows crossed its south-descending ridge.
From this side, short detours allows hikers to overlook the underlying Valle del Bove in several points, over most of the lava has flowed from the South-East Crater in recent years. The path also allows visiting the aforementioned recently appeared craters and observing, from a relatively close distance, the complex consisting of the two summit chasms, one of which retains the name of Central Crater, and the older 1968 complex of Bocca Nuova and the two sub-terminal North-East and Southeast craters. On the North side, the track has faced much less changes and, with short detour, allows hikers to reach Pizzi Deneri (2,847 m) and the underlying Rocca della Valle (2,738 m). These are extraordinary terraces allowing enjoying a wide panorama that stretches above Valle del Bove and Valle del Leone, both located on the slopes of the volcano. The two ends of the route can be reached by private vehicles and constitute Hiking Base Points.

Hiking Trail no. 703 - *Piano del Lago - Canalone della Montagnola - Canalone dei Faggi - Serra del Salifizio*
The trail consists of a very light trace. It departs from the small road called Hiking Trail no. 702 and reaches the edge of the Valle del Bove at an altitude of 2,500 m. The track then makes a 120° turn on top of Montagnola (2,638 m) and takes the Canalone della Montagnola, consisting of subtle, almost rock-free volcanic sand, to descend quickly along its steep slope to reach the bottom of the valley at an altitude of 1,700 m, where the slope becomes much less pronounced. This allows overcoming a difference in altitude of about 800 meters.
While descending, it is possible to enjoy the rugged secondary valleys located along the two major sierras (Salifice and Concazze), respectively enclosing Valle del Bove from South and North, the volcanic phenomenon of the dykes, evidence of ancient, decaying volcanic structures, as well as wide panorama overlooking the Ionian coast. The unstable trail located on the bottom of the valley heads to the base of a not particularly interesting ravine. This follows the uphill-bound Canalone dei Faggi, gaining about fifty meters in altitude to reach the edge of the Serra delle Concazze. Hence it is possible to proceed down to the paved road (SP 92) via Hiking Trail no. 727. Alternatively, you can take Hiking Trail no. 704 from both sides. Due to the slope of the Canalone della Montagnola and its sandy bottom, the trail must be considered as one-way. The Park Authority retains the right to forbid access to this trail in case it is overused.

Hiking Trail no. 704 - *Piano Vetore - Rif. Sapienza - Piano dei Pompieri - Schiena dell'Asino - M. Zoccolaro - Scalazza - Piano dell'Acqua – Ballo*
This 15-km-long hiking trail is part of the “Sentiero Italia” surrounding Etna on the southern side. The need to ensure its continuity made it necessary to allow it to cross some segments of the paved S.P. 92 road.
The route formally begins at Piano Vetore, where it joins hiking trail no. 701 and, through S.P. 92, proceeds slightly uphill towards the area constituting the core of the "Etna Sud" ski resort, where the Sapienza Lodge, the Etna cableway station and various other buildings are located. Then, the trail continues on the paved road between the Mounts Silvestri Superior and Silvestri Inferior, to subsequently proceed downhill towards Zafferana for slightly less then one kilometre, until it gets wider (q. 1,832 m) and meets a crossroads, from which an unpaved small road closed by a bar departs. Once past it, the trail climbs towards the edge of Valle del Bove and reaches it at the Lapide Malerba (2,040 m a.s.l.), a stone plaque placed in memory of a hiker here fallen to his death. Here the descent begins and the trail unfolds for a few kilometers until M. Zoccolaro or its forepart M. Pomiciaro.
Where possible, this segment proceeds along the edge of the Serra del Salifizio and then facing Valle del Bove, thus allowing a broad view, while departing to where the vegetation, generally consisting of Ginestra dell'Etna, grows so thick that it must be bypassed in order to get past it. About halfway through the segment between Lapide Malerba and M. Zoccolaro, hikers meet first the upper entrance to the Canalone dei Faggi and then the other one (1,751 m) leading out of Valle del Bove to Acqua Rocca degli Zappini. Hiking trail no. 704 is in turn Eastbound and, after merging with a 950-meters section marked as Sentiero Natura, meets a paved road called "Cassone - M. Pomiciaro" departing from S.P. 92.

The route then unfolds down towards Zafferana by touching the hairpin turns of the road three more times, until it takes an ancient but suggestive path featuring rough steps (and hence called "la Scalazza", i.e., the “Bad Staircase”). Its base is located along the entrance of Valle ai S. Giacomo, precious for the water it supplies to the underlying village.

From this area, not surprisingly called "Piano dell'Acqua" (i.e., “Water Plain”), and thorugh 380 m of paved road, it is possible to reach the village of Ballo, where Hiking Trail no. 704 formally ends and merges Hiking Trail no. 724. However, the centre of Zafferana can be reached from Ballo for an overnight stay.

Hiking Trail no. 705 - *Piano Mirio - Pista Altomontana*

Piano Mirio, Hiking Base Point located at 1,360 meters a.s.l. in the municipal area of Biancavilla, is a border area between the orchards facing South-West and the pine forest areas of Pino Iaricio now part of the State Property. The 3,270-meters long trail unfolds on a small road. Hence the Pista Altomontana can be reached at an altitude of about 1,700 m, near the S. Giovanni Gualberto refuge, after a roughly one-hour walk in the shade of the "Pineta di Biancavilla".

Hiking Trail no. 707 - *Piano Fiera - Rif. Calvarina*

The end of the paved road unfolding uphill from Adrano, where the bar marking the border of the State Property is located, is a wide area located in a particularly pleasant plateau at an altitude of 1,525 m. This is half-crowned by lateral craters covered with thick pine forest. The recently renamed “Piano Fiera" plateau was crossed by ancient, undated, lava flows intermingled with tall pine trees that managed to take root among the rough rocks. The trail is 3,940 m long. It mostly unfolds under the pine forest and allows reaching the Pista Altomontana at the Galvarina Lodge (1,878 m) after less than an hour and a half walk, a hospitable bivouac always open for hikers by the State Forestry Company that built it.

Hiking Trail no. 708 - *Case Bosco Prato Fiorito - Case Zampini - M. Nespole - M. Leporello - Rif. Poggio la Caccia*

A long and sunny block located at 1,077 m in the municipal area of Adrano, in the past Case Bosco Prato Fiorito was a structure allocated to the limited agricultural activity that could be carried out at such a high altitude and that was affected by snowfalls in winter. They can be reached after passing the bar that marks the beginning of the State Property close to slightly ascending flat areas characterised by the absence of forests and the presence of some lateral craters, among which M. Minardo dominates on the left.
The trail unfolds on a non-paved road, which, after passing M. Peloso, bends sharply towards East, thus gaining altitude (865 m overall) and crossing large portions of pine forest and undated lava fields.
Along the 10.7 km route is located a State Forestry Corps building retaining its original name of Case Zampini (1,345 m). The trail subsequently goes deeper between M. Nespole, Leporello, Capre and Fornello, to reach the Pista Altomontana near the Poggio la Caccia Refuge, a bivouac with a door, always open to provide hikers with basic shelter. Traversing the whole route takes slightly less than 4 hours.

Hiking Trails nos 708A and 708B – *Connecting Trails between Hiking Trail nos. 707 and 70S*

The short connecting trail called Hiking Trail no. 708A is just 360 meters long and connects Hiking Trail no. 708 to Piano Fiera, thus providing multiple walking routes. Connecting Hiking Trail no. 708B is located downstream and allows moving from Hiking Trail no. 707 to no. 708 between M. Leporello and the Galvarina Lodge.

Hiking Trail no. 710 - *Piano dei Grilli - Monte Egitto - Rif. Monte Scavo*

Piano dei Grilli is Etna Park Hiking Base Point no. 6. It can be directly reached from the village of Bronte through a lava stone cobbled road, on whose end is a gate marking the beginning of State Property land restricted to motor vehicles. On the wide area before the gate (1.156 m) is located a small barrack owned by the Municipality of Bronte.
It is a 9,8 kilometer-long, classic radial-shape trail, running uphill to the volcano’s high mountain area, meeting the track of the same name at 1,703 m in front of the M. Scavo Lodge. It takes about 3 hours to get past the 552 m of altitude difference though a landscape alternating ancient lava flows and luxuriant pine woods. The trail segment between M. Egitto and M. Scavo Lodge runs along the "Grotte dell'Angelo" (i.e., “Angel’s Caves”), a wide and deep ravine resulting from the collapse of a cave generated by lava flows.

Hiking Trails nos. 710A and 710B – *Connecting Trails between Hiking Trail nos. 70S and 710*

The territory located between Hiking Trails nos. 708 and 710, both going from the volcano’s low to medium altitudes, are of great landscape and scientific interest due to the high number of lateral craters scattered around it.
Hiking Trail no. 710A allows enjoying some recently formed craters (M. Nuovo and M. Mezzaluna, dating back to 1763, M. De Fiore dating back to 1974). By climbing on their peaks, generally few tens of meters high, it is possible to observe the neat boundaries between the lava flows and the surviving strips of forest. The connecting trail is 3,860 meters long and unfolds between 1,550 and 1,800 m of altitude.
Hiking Trail no. 710B features a length of 2,140 m and a 67 m altitude difference. At a lower altitude, it connects the base of M. Ruvolo to Case Zampini through M. Tre Frati.

Hiking Trail no. 710C - Monte Ruvolo

The hiking trail is one of the three connecting trails departing from the route of hiking trail no. 710. It unfolds on a dirt track at a crossroads located near the Piano delle Ginestre plateau and allows hikers to get around the impressive mass of Monte Ruvolo (1410 m a.s.l.) on the North-Northeast side. From this link, about 250 meters from the start of the route,

an unmarked secondary trail leads off to the State Forestry-owned Monte Ruvolo Lodge (1260 m a.s.l.), around which it is possible to observe peculiar examples of lava rocks. Along the trail is also located an example of "Pagghiaro", i.e., the typical shepherds' shakes, and a large "dagala" - facing northwest and known as "Le Mandre Vecchie" - set on the 1651 flows and characterized by typical examples of rope-shaped lava. The connecting trail finally merges with with the main hiking trail no. 710, where the track from Monte Ruvolo leads to Monte Arso (1517 m a.s.l.) and Monte Lepre (1562 m a.s.l.) by crossing the 1764 flows. Here the second connecting trail no. 710B leads from Monte Ruvolo to Case Zampini Lodge (1350 m a.s.l.).

Hiking Trail no. 711 - *Monte Scavo Lodge Neighbouring Area- M. Guardirazzi - Punta Lucia*
This hiking trail unfolds upstream of the Pista Altomontana and climbs up to the summit areas of the Volcano. A now abandoned small track for forest use climbs uphill and then continues on a path to finally merge with a very lightly-traced track. For this reason, when poor visibility does not allow orientation by pointing at the unmistakable Punta Lucia, the use of GPS is recommended. As the altitude increases, the unfolding of the trail allows perceiving the progressive disappearance of tall trees, which are gradually replaced by prostrate and smaller vegetation. This is not only due to lava flows but, above all, to the difficulties faced by vegetation at higher altitudes.
Along the trail are M. Guardirazzi. Subsequently, the trail unfolds along the button-shaped 1949 eruption to finally get to Punta Lucia, from which it is possible to joint Hiking Trail no. 702 after an additional short walk.

Hiking Trail no. 712 - *Case Boscochiuso - Pista Altomontana*
The State Forestry-owned Case Bosco Chiuso are located in the municipal area of Maletto at an altitude of 1218 m a.s.l., immediately after the entrance gate to the Bosco Chiuso State Forestry Property. A Hiking Base Point, they can be reached from km 8 of the S.S. 284 road, following the rapidly ascending municipal cart track turning South-East.
With an additional 4,3-km walk and overcoming a 408 metres difference of altitude, from Case Bosco Chiuso it is possible to reach the Pista Altomontana at an altitude of 1626 m and then hike along either North- or Southbound. The route consists of a small track for forest use, unfolding across a territory which remains unscathed by recent lava flows and therefore entirely covered with tall trees, featuring different species of oaks in the lower, warmer, part, and the increasing presence of splendid beech trees in the upper part.

Hiking Trail no. 713 - *Monte La Nave - Pista Altomontana*
Again, from Maletto and S.S. 284 road, it is possible to climb up to the Volcano's middle zones by walking along M. La Nave to meet the State Forestry Property border. Hiking Trail no. 713 starts here and leads to the Pista Altamontana, through a 2,3-km route and a 250-m difference of altitude. Just before their junction, the State Forestry Company-owned La Nave Lodge is located at an altitude of 1438 m. This can provide hikers with an emergency shelter. The route largely benefits from the shade of different species of oak trees.

Hiking Trail no. 714 - *Pista Altomontana - Monte Maletto Lodge*
The Monte Maletto Lodge is located at an altitude of 1701 m in an area unscathed by recent lava flows and therefore covered by a fine forest blanket. The lodge is owned by State Forestry Company, that operates it as an emergency shelter. The small bulding is named after the near lateral crater famous for its dimensions and for its perfectly regular cone base shape. It can be reached via a small 880-m forest track departing from the Pista Altomontana at an altitude of 1620 m.

Hiking Trail nos. 716 and 716A - *Rocca Mandorla - Pista Altomontana*
Hiking Trail no. 716 serves as a connection with the Sentiero Italia departing from the Nebrodi and climbing the slopes of Mount Etna after getting past Randazzo (where an overnight stay is available). The trail's official starting point is located shortly South of Rocca di Mandorla, where the State Forestry Property border is. This cannot be trespassed by motor vehicles. From there, a 2500 metres route gaining an altitude of 230 m reaches the Pista Altomontana. The alternative trail no. 716A allows passing from Grotta del Burò through Case Giusa, a structure providing the possiblity of an overnight stay, and observing several "mannere" (sheep pens) and "pagghiari 'npetra" (rock shaks), all made of dry lava stone walls.

Hiking Trails nos. 717 and 717A - *Case Caldarera - Casermetta di Monte Spagnolo (or Saletti Lodge)*
Just like the following Hiking Trails nos. 718 and 719, these trails are specifically for those approaching the Volcano from the large municipal area of Randazzo, where all the mentioned trails unfold. A Hiking Base Point, Case Caldarera is located at an altitude of 1,004 m, but those approaching it with motor vehicles may get up to the bar marking the border of the State Property at 1150 m. Hence the route consists of a small track of forest use and, in about one and a half hour, allows reaching the Casermetta di M. Spagnolo (currently a dilapidated building) at 1437 m, subsequently to unfold towards other targets. Three-quarters through the route, a detour to the left leads to Saletti Lodge (1373 m a.s.l.), which provides hikers with an emergency shelter.

Hiking Trails nos. 717B – *2nd Connecting trail between Trails nos. 717 and 718*
Alternative trail no. 717B represents a 700- m-long connecting trail between hiking trails nos. 717 and 718 close to the Saletti Lodge. It starts from the forest segment on the main trail no. 717 and is intended for those who want to reach the Pista Altomontana as quickly as possible.

Hiking Trails nos. 718 and 719 - *Case Caldarera - Cistemazza - SalettiLodge - Pista Altomontana*

Following the same directions described for Hiking Trail no. 717, from Case Caldarera it is possible to reach the Pista Altomontana in two additional points, both located eastern of the Casermetta di M. Spagnolo. Trail no. 718 touches the Saletti Lodge (1,373 m) and ends on the aforementioned Pista at an altitude of 1,444 m, thus completing a route of 4,540 m and marking an increase of 94 m in altitude. The Pista Altomontana can be reached even further to the east, at an altitude of 1,615 m, near the M. S. Maria Lodge, through trail no. 719 departing halfway through hiking trail no. 718. A little earlier, a detour to the left allows hikers to visit Cisternazza, a cylindrical artifact with an octagonal roof that collects rainwater from the gutters of its roof and from that of a small nearby building.

Hiking Trails nos. 720 - *S.S. 120 (km 195,300) - S.P. Quota Mille - Passo Stiletta - Grotta delle Palombe - Altomontana*

Thi is the path that a hiker wishing to travel the "Sentiero Italia" from East to West through Mount Etna must walk. After descending from Malvagna and passing through the tiny and orderly village of Verzella, we approach the volcanic massif by crossing the S.S. 120 in the first place and subsequently, after entering the perimeter of the Etna Park, the "Quota 1000" S.P. West of M. Dolce.

The route overlaps with a notable ancient mule track, and through it goes up to an altitude of 1,235 m, where it meets a forest road. Once entered the latter, hikers pass through a flat area, called Passo Sii Iella, at an altitude of 1,370 m. Here are two groups of sheepfolds divided into numerous chambers separated by walls built with dry lava stone. Finally, the route heads South again a forest road passing through the State Forestry Property-owned Casermetta di Grotta delle Palombe, to eventually join the Pista Altomontana at an altitude of 1,620 m.

Hiking Trail no. 721 - *"Golfo della Monaca" - From Piano Pernicana to Piano Provenzana*

The trail is approximately 3 km in length and was used in the early 1900s by the first skiers from Linguaglossa and Catania, as well as by amateur mountaineers who managed to transform a modest shack that used to serve as an accommodation for the workers who mounted the cableway, into a mountain lodge. This was first called SUCAI and named after Attilio Conti. The trail starts in front of the "Clan of the boys" Chalet located along the S.P. Mareneve at 1,462 m of altitude, passes through the ruins of the Conti Lodge and ends at Piano Provenzana, joining the small track that leads hikers and off-road minibuses to the summit areas of the Volcano.

Hiking Trail no. 722 - "Valle del Leone" – Branch of Hiking Trail no. 724 to Pizzi Deneri

The route unfolds on a cart track built by private initiative around 1972 to facilitate the transport of tourists to the high altitudes of the Volcano with motorized vehicles, an activity that was never carried out. Subsequently, the whole area became part of the State Property, which forbade the transit of these vehicles. Once abandoned, the cart track remained intact in some sections, while in others only a faint trace remains.

The trail begins South-West of Monte Baracca at an altitude of 1,715 8 m a.s.l., along Hiking Trail no. 724. Its surrounding environment is characterised by a notable rare scrub of Etna birch settled on volcanic substrata and develops for 6,900 m. Above 1,900 m of altitude. The trail's multiple hairpins turn overcome the steep slopes of the North-Eastern side of Pizzi Deneri and, after passing some impluvium, the track reaches Piano delle Concazze at an altitude of 2,791 m North-West of Pizzi Deneri, in the middle of the lava desert typical of the summit areas of Mount Etna. An average gradient of 15.5% with peaks of 20% makes the "Tagara del Leone" among the most difficult hiking trails of Mount Etna.

Hiking Trail no. 723 and 723A - Citelli Lodge - Serracozzo

The trail's entrance is located on the right, just 100 meters before the Citelli Lodge and marked by specific signs. After a roughly ten-minutes' walk, hikers come across a small sheepfold. Once they get past it, the trail heads to the left, offering an initial journey through the birches of Etna. Together with three/four channels consisting of large, thick formations of lava smoothed by the river flow, they represent an evidence of the cold climate and considerable presence of water that characterised the area in the past, as resulting from the melting of the glaciers after the glaciation.

After a twenty-minutes' walk through the woodland, the trail opens to a valley where hikers can observe the interesting phenomenon of a cave-shaped lava formation (it.: *ingrottamento*) known as the Grotta di Serracozzo, dating back to the 1971 eruption occurred along a fracture. The cave entrance is located upstream of the mouths and consists of a small passage requiring hikers to carefully bend down. Hikers equipped with protective helmets and flashlights may walk into it for about fifty meters.

In front of the mouths, the path regains altitude with a rather steep climb and reaches a panoramic view of the Valle del Bove at an altitude of 2095 m a.s.l. From there, it is possible to observe a series of magmatic dykes, which protect the valley itself from erosion, along a ridge known as Serracozzo following a fairly evident track. Return can be made more easily along the ridge up to 2150 m a.s.l., and then by starting to descend along a wide sandy expanse constituting the alternative trail no. 723A, which crosses the 1928 eruptive mouths, to finally rejoin the main trail at an altitude of 1865 m a.s.l. near the sheepfold. Alternatively, from an altitude of 2150 m a.s.l. it is possible to proceed further on to Rocca della Valle by taking a slight detour at a sandy formation located on the right at an altitude of 2738 m a.s.l. and a 1610-metres walk. It is also possible to reach Pizzi Deneri at an altitude of 2847 m a.s.l. through an additional 740-metres walk.

Along this segment, it is possible to observe prominent examples of the so-called “lava cicirara”, i.e., basaltic rocks characterised by large whitish plagioclase crystals. At Rocca della Valle, the rocky route features a particularly challenging average gradient of almost 50%.

Hiking Trails nos. 724 and 724A - *Ballo - Ilice di Carrinu - C. Pietracannone – near Citelli Lodge Area - Piano Provenzana - Timparossa Lodge- Passo dei Dammusi*

Located in the outskirts of Zafferana Etnea at an altitude of 657 m a.s.l., the village of Ballo marks the starting point of this trail. From the driveway in the initial segment, it gradually becomes more rustic to finally turn into a simple path alternating large stretches of rough lava fields from the 1852 and 1951 eruptions, with verdant areas spared by recent eruptions (Piano Bello). After 45 minutes, hikers get past the giant Ilice di Carrinu, which is believed to be 800 years old. Then, along the southern edge, after 6.7 km it is possible to reach a modest pass located under M. Fontane and overlooking the Valle del Bove, or alternatively head on to Case Pietracannone (1,150 m), Hiking Base Point located along the SP "Mareneve di Fornazzo".

From here, the route bends North-West to face a long, shaded, steep ascent along the Pineta della Cubania, to rejoin the aforementioned S.P. at an altitude of 1,675, from where hikers can proceed left to the Citelli Lodge for an additional 950 m and, after 200 m, take another entrance on the right into the State Forestry Property. For a few hundred meters now, the track is unfolding across a not very wide area featuring a colony of splendid birch trees. From here, the track becomes almost flat, going from 1,660 m (where the state property border bar is) to 1,800 m of Piano Provenzana, which can be reached after additional 5,6 km.

Along this segment, hikers immediately leave the Sarlorius Mountains, born in 1865 and featuring a specific Sentiero Natura, on their right. Further on the left, the very steep Hiking Trail no. 722 (see above) departs and even further along, with a detour of just 200 m to the left, it is possible to reach the M. Baracca Lodge, in whose already pleasant surroundings are a "pietracannone" as well as the bed of an ephemeral water course with a perfectly smooth lava bottom. After Piano Provenzana, the trail heads up north and runs into M. Nero di Linguaglossa, which can be passed either from the right via the main route (trail no. 724, touching an altitude of 1,920 m a.s.l.) or from the left, via the alternative trail no. 724A. The latter slightly exceeds an altitude of 2,000 m a.s.l. and allows passing near the M. Timparossa Lodge (1,838 m).

Once the two trails have rejoined, the route descends towards Passo dei Dammusi (1,709 m), where it connects to the Pista Altomontana (Hiking Trail no. 701). Just below the aforementioned refuge, a shortcut (Trail no. 739) allows reaching the Grotta delle Palombe area more quickly to continue on the Sentiero Italia towards the Valle dell’Alcantara.

The entire route is 26,250 km long, it crosses a difference in altitude of 1,375 m and is part of the Sentiero Italia.

Hiking Trail no. 725 - *S.P. "Mareneve di Fornazzo" (km 22,500) - Case Paterno*

A forest track departing on the mount side from km no. 22,5 of the S.P. “Mareneve di Fornazzo” at an altitude of 1216 m allows reaching Case Paterno through a 1150-metres walk. These are now part of the State Forestry Property and allow entering the Sentiero Italia (Hiking Trail no. 724).

Hiking Trail no. 726 - Passo dei Dammusi - Grotta del Gelo

Of the four paths available today, this is the classic route used by generations of hikers to reach the site of an almost unique natural phenomenon in the South of Italy, namely a cave featuring a perennial, though modest, amount of ice. The Grotta del Gelo (Eng.: *Ice Cave*) is located at an altitude of 2,030 m a.s.l., in the middle of a lava field produced by an epic eruption that, according to the chronicles, lasted ten years (1614-1624). It can be reached through a not always evident track departing from Passo dei Dammusi at an altitude of 1,707 along Hiking Trail no. 701. The difference in altitude is 323 m and its length approximately 3,800 metres.

Hiking Trail no. 727 - *Piano del Vescovo - Acqua Rocca degli Zappini- Serra del Salifizio*

On the mountain side of the S.P. 92, in Contrada Piano del Vescovo, a short plateau leads through the mountain asperities. The 2200-metres trail unfolds on a track that follows an impluvium on the left to quickly gaining altitude and passing near a small spring located near an old beech tree whose folded trunk resembles the back of a crouching lion. The site is called "Acqua Rocca degli Zappini" and is located at the top of a lava wall used as a climbing wall. The trail keeps rising until it reaches the ridge of the Serra del Salifizio overlooking the Valle del Bove. There it crosses trail no. 701, which can be taken in both directions. Hikers can also descend to Valle del Bove by the Canalone dei Faggi or one of the two adjacent rills.

Hiking Trail no. 728 - *Case Bevacqua - Salto del Bue - S.P. "Mareneve di Linguaglossa"*

From Case Bevacqua (1.013 s.l.m.) it is possible to take a sequence of old inter-farm tracks that facilitate agricultural activities carried out to date up to the border of the State Forestry Property, when the Etna orchards are superceded by larch pine wood. The trail then goes North for a total of 3,9 km on an almost flat route crossing in the final part the Vallone del Salto del Bue: this is an interesting hydro-geological phenomenon, dug by rainwater or by water resulting from melted snow. The trail then reaches the S.P. "Mareneve di Linguaglossa" road, at one sharp hairpin turn beyond which is Monte Fallacca.

Hiking Trail no. 728A – *Branch of Hiking Trail no. 72S. Contrada Mandra del Re - S.P. "Mareneve di Linguaglossa "*
Approximately 1,500 m into Hiking Trail no. 728, there is a junction on the left. From here, after 2,200 m on inter-provincial or forest roads, further upstream of the trail described above, it is possible to reach S.P. "Mareneve di Linguaglossa", after crossing the Contrada Mandra del Re. The difference in altitude is 353 m.

Hiking Trail no. 729 - *Case Bevacqua - M. Stornello - C.da Giarrita*
The passage from the noteworthy Etna orchards to larch pine woods, which takes place around 1,100 m a.s.l., is easily observed from this trail connecting Base Point no. 13 "Case Evacua" with Base Point no. 14 "C.da Giarrita" from East to West.
In this case, too, the trail first unfolds along inter-farm cart tracks which then give way to small roads for forestry use. Starting at Case Bevacqua (1,013 m) the route reaches 1,366 m at the access gate to Contrada Giarrita, located along the S.P. "Mareneve di Fornazzo". It touches Monte Stornello and crosses Hiking Trail no. 732 "Sentiero delle Ginestre", through a short stretch of which it is possible to visit the craters of 1928.

Hiking Trail no. 730 - *San Giovanni Gualberto Lodge- Monte Scavo (q. 1918) - M. Frumento Supino – Summit Area*
Together with the one passing through Mounts Guardirazzi and Punta Lucia (no. 711) and the one departing from the Citelli Lodge (no. 723), this trail is one of the few tracks that allows reaching the summit areas of the Volcano without having to share the route with motor vehicles. Although crossing areas of great landscape importance and characterised by absolute integrity, the trail is very little used.
It starts from the Pista Altomontana, a little south of the San Giovanni Gualberto Lodge. Its initial segments unfold along a forest road leading to Case Carpinteri, to bend north through road abruptly interrupted by a 60-meters wide branch of a recent lava flow, which must be climbed over. The trail then gains altitude along a seasonal impluvium with a water-smoothed lava bed and then reaches M. Scavo, whose modest peak (1,918 m) offers a wide panorama overlooking the summit area. The trail now continues on a faint trace, merging slightly north-west of Torre del Filosofo with Trail no. 702, having overall overcome a difference in altitude of about 1,300 m.

Hiking Trail nos. 731 and 732 - *"Sentiero delle Ginestre": Nicolosi – Park Headquarters- Zafferana Etnea (1st stage) - Case Magazzeni (2nd stage) - Case Pietracannone - Pineta Ragabo (3rd stage) - Linguaglossa (4th stage).*
From the center of Nicolosi, it is possible to reach the headquarters of the Etna Park. These are worth a visit, as they are located in an ancient monastery. The trail then goes up secondary roads and cart roads to Monte Arso, an impressive extinct volcanic cone that dominates the entire southern slope. Then it crosses partially built-up areas until it reaches the nice rural village of Tarderia, a hamlet of Pedara. Meanwhile, the track has entered the territory of Trecastagni and now touches Casa della Capinera, which was recently renovated to create a Park's reception centre featuring a restaurant and an exhibition area. A detour allows visiting Monte Ilice, a magnificent lateral crater dating back to the year 1000. The last part of the stage descends to the centre of Zafferana Etnea through small roads and paths in the areas where the wood has retaken over ancient, cultivated lands.
After leaving the town, which offers multiple possibilities for overnight stays, the track immediately climbs up on a paved road asphalted to Contrada Dagalone. Hence, a mule track begins that offers clear evidence of the activities that once characterised the medium slopes of the volcano, when lava fields were colonised to plant vineyards up to a thousand metres above sea level. Proceeding along the mule track, the trail meets a detour, which, in about ten minutes, allows hikers to observe one of the most fascinating natural monuments of Etna: the Ilice di Carrinu, an over 700-year-old holm oak with a vigorous crown that overlooks a now ruined house. Returning to the mule track, after getting past the pleasant town of Piano Bello and walking along the Valle del Bove it is possible to enjoy beautiful views of the summit area. At the height of Monte Fontane, there is a small road that in a short time leads to the Casolare di Pietracannone and then - after a short section of provincial road - to the Magazzeni area. Here are several accommodation facilities located in the middle of the hazel groves.
The route then passes through the craters of 1928. These generated the impetuous eruption that led to the destruction of the town of Mascali. The track then encounters a number of votive altars that remember the faith of those who, on that occasion, had their lands spared from the fury of the volcano. Those adequately equipped with a pocket lamp may also enter the eruptive fissure. Further on, the trail enters the State Forestry Property in an area mainly characterised by a vast Turkey oak wood. Entering the territory of Piedimonte Etneo, the trail continues on a moderate ascent up to Monte Crisimo and its panoramic forest that deserves a short stop. To finish the 3rd stage, it is possible to easily cross the lava fields until the trail meets the tall centuries-old Ragabo pine tree woods, where are several buildings available for overnight stay. In the final part of the day, the Sentiero delle Ginestre uses a part of the ancient, paved road used to transport timber.
From the almost 1,500 m of altitude of the Ragabo pinewood, the trail descends down to Linguaglossa (550 m) on dirt roads that initially touches M. Corruccio (the cave of the same name is a must-see) and then crosses a large area once cultivated and today fully taken over again by wild vegetation. In som sections there is also an old transhumance "trazzera" used by shepherds to transfer the flocks at the end of each season. Once down to the so-called "Quota Mille

road", hikers enter the lava field of 1923, which covered a large cultivated area, to walk out in the open until the track meets the S.S. 120 road near a small, disused station of the Circumetnea Railway. Hence, it turns to reach Linguaglossa.

Hiking Trail no. 734 - *Casermetta di M. Spagnolo - Grotta del Gelo*
This is the shortest of the trails reaching Grotta del Gelo (see above under Trail no. 726). It features a difference in altitude of 600 m and therefore, albeit its short course, (around 3.000 m) requires a one-and-a-half-hour walk, up to an altitude of around 1.800 m, along a strip of wood located across ancient lava rocks. It then unfolds out in the open upon a 4-century-old lava. It consists of an often easily noticeable track, which in turn becomes a faint trace in some cases.

Hiking Trail no. 735 - *Pista Altomontana - Dogala dell'Orso - Grotta del Gelo*
As for the trail described above, this, too, was created by the Etna mountaineers using a strip of territory, called Dagala dell'Orso, which remained unscathed from the lava flows for several centuries and on which, therefore, a splendid, wooded area could develop (mainly beech).
The trail starts shortly after the junction between the Pista Altomontana and the small road leading down into Contrada La Nave, and creeps into the beech forest between the Sciara del Follone and the Dammusi's lava. Inside the "dagala" it the trail is well preserved, while it becomes just a trace in the final section towards the cavity. It is 4,300 m long and has a difference in altitude of 605 m to reach the Grotta del Gelo.

Hiking Trail no. 736 -*Case Bosco Prato Fiorito - Monte Minardo - Piano dei Grilli*
Between the Base Points "Case Bosco Prato Fiorito" and "Piano dei Grilli" stands one of Etna's most impressive side craters, Monte Minardo, a giant with an 800 m diameter and a height of 200 compared to the plateau located in the South, and featuring the shape of a perfectly regular truncated cone. The trail unfolds on a forest road, touches the base from the east side with an almost flat connection of 2,700 m between Trails nos. 708 and 710. Halfway through is an interesting lava flow cave.

Hiking Trail no. 737 – *Branch of Trail no. 704 from the Malerba Plaque to Montagnola*
From the Malerba plaque (q. 2,040) located along the Serra del Salifizio, immediately close to the depression of the Valle del Bove, the trail catches a ridge much appropriately called "Schiena dell'Asino" ("donkey back") by the old mountaineers, for its perfect resemblance with the back of the animal.
The ridge ends on top of the Montagnola (2,637 m), a huge crater dating back to 1763, which can be reached by following an easily perceivable path and overcoming a difference in altitude of 637 m. The panorama opens out to the North-East on the slopes enclosing the Valle del Bove to the West, and to the South-West on the Southern slopes of the Etna massif. From here, the Gulf of Catania can be seen in the distance.

Hiking Trail no. 738 - *M. Timparossa Lodge - Grotta del Gelo*
A faint trace departs from Trail no. 724 just below the M. Timparossa Lodge and, after a little less than 2 km, joins Trail no. 726 from the Passo dei Dammusi and heading to Grotta del Gelo, whose extraordinary phenomenon of perennial ice has already been mentioned. From the junction with Trail no. 726, it still takes 3.5 km to reach the cave and this second section, too, is a faint trace across the Seventeenth-Century lava.

Hiking Trail no. 739 – *Crossroads close to Grotta delle Palombe - Monte Timparossa Lodge*
This is a "shortcut" trail that unfolds on a recently built forest road allowing a faster connection between Trail no. 701, near Grotta delle Palombe, and the M. Timparossa Lodge, to which it gets close by through a couple of hairpin turns located further down Trail no. 724. It is slightly longer than a kilometer long and quickly gains 166 m in altitude (from 1,622 m to 1,788 m).

Hiking Trail no. 740 - *Monte Cicirello - Sciammuru do' lupu - Piano del Vescovo*
This trail is the residual part of an ancient route that connected the town of Trecastagni with the wood belts, mainly coppice chestnut, and with Piano del Vescovo. Today, the part closest to the town being paved, it can be taken from from Contrada Cicirello, where the Base Point no. 20 (Casa della Capinera) is. Thus shortened, it overcomes a difference in altitude of 260 m, in a 5.2 km lenght. A long initial straight allows leaving the wood area and crossing the shrubs of Sciammuru do 'lupu, with reference to small pools of water in which the wolves, once present on Mount Etna, went to drink. As it crosses the Eighteenth-century lavas, the trail becomes less visible and turns into a small path that runs through the broom and small valleys in the middle of the lavas.

Hiking Trails nos. 741 and 741A – *Pitarrone Barrack - Passo Silletta*
The Pitarrone Forestry Barrack is located at an altitude of 1,480, close to Trail no. 701, 1,400 m away from its starting (or ending) point on the S.P. "Mareneve of Linguaglossa" road.
From the barrack, a path departs entirely on forest roads leading, after 3,550 meters, to a crossroads, located at an altitude of 1,325. The Sentiero Italia (Trail no. 720 in that section) passes through it, after having gone through Passo Silletta 1000 meters before (see description under Trail no. 720).
Trail no. 741A is an alternate track departing 340 m to the west along Trail no. 701.

Hiking Trail no. 742 - *Piano dell'Acqua - M. Calanna*

The route departs at an altitude of 747 m a.s.l. from Trail no. 704, less than 800 meters from its end located at the hamlet of Ballo di Zafferana. It is frequently undertaken from this town because it allows visiting the surrounding geographical which has supplied water over the centuries and permitted the cultivation of fertile orchards and the removal of timber from the coppice woods.

Unfortunately, following the eruption of 1991-93, one of the nicest areas of Etna (Val Calanna) was lost after being flooded by lava. It featured an ancient fountain which was crossed when entering or exiting the Valle del Bove. After passing the 1991-1993 lava flows, the trail, which initially consists of a lava stone-paved driveway, then becomes a path between the "sciare" and climbs up to the top of M. Calanna. This consists of the remains of a 1,325-metres high ancient volcanic structure that dominates the surrounding area. The route, just under 5 km long, overcomes a vertical drop of 578 m.

Hiking Trail no.751 - *"Sciare di S. Venera"*

This 3,900 metres-long trail unfolds in an area characterised by a rare hydrogeological phenomenon: the Flascio River and the Saracena Torrent, which descend from the Nebrodi Mountains to crash against the low slopes of Etna, in a flat area occupied by a considerably thick, strongly fractured and permeable ancient lava.

Thus, especially in springtime, stagnant water, streams, small waterfalls emerge here and there, while in dry areas yellow ferulae and white asphodels dominate. The trail develops in such a way as to allow perceiving the most significant natural aspects as well as some rustic shelters used in time by shepherds. At its end, a ring surrounds archaeological remains dating back to the VI-IX centuries A.D., i.e. referring to the Byzantine and Arab presence.

Hiking Trail no. 763 - Case del Vescovo - Serra Pizzuta Galvarina

It is a small trail starting from Casa del Vescovo, where a small hut available for hikers is located. The route passes through a series of caves (sinkholes) about fifteen meters deep, which, in the past, were used as snow depots. Further along the path are small stretches of poplar woods alternating with lava flows, until it reaches Monte Serra Pizzuta Galvarina (1704 m a.s.l.). Its path allows reaching the crater edge, which can be partially crossed on the left up to a stone cottage offering a beautiful and suggestive panorama. Going back up it is possible to go deeper inside the eruptive system to its base, and then go back along the western side.

Hiking Trail no. 782 - Monte Nero degli Zappini

This has been the first Sentiero Natura to ever be created in Sicily (in mid-1991) and today it remains one of the most popular hiking trails in the territory of the Etna Park. It is named after the Sicilian dialectal term for pine trees. The route is not particularly difficult. It unwinds from the plateau located West of Monte Vetore (1823 m a.s.l.) at a short distance from the Grande Albergo dell'Etna. It crosses ancient and recent lava fields (1985-2001), lava flow caves, hornitos, "cannon-shaped" stones (solidified sarcophaga of lava solidified around tree trunks), wooded formations, impressive pines of exceptional beauty, and finally reaches the Botanical Garden New Gussonea.

This was created by the University of Catania and the Regional Forestry Authority and represents a very important study place. Here all the main environments characterising the Etna area have been recreated and all the plant species of Etna can be observed. From here, along a stretch of paved road, the starting point is reached and the ring route completed. The trail develops entirely within the Forestry Property and offers several observation points, each with its specific features, constituting a significant cross-section of the natural environment of Mount Etna. It is advisable to walk the trail in spring and autumn, avoiding the hot summer climate and the sudden snowfalls that may occur in winter.

Hiking Trail no. 786 – From *Belpasso to Rifugio Manfrè*

Starting from the outskirts of the town of Belpasso at an altitude of 520, the route reaches the slopes of M. Manfrè, where a recently renovated municipally owned refuge at an altitude of 1,325 m a.s.l..

As it unfolds for about 16 km towards Etna's summit areas, it is possible to grasp the progressive transformation of the landscape. After leaving the urban area, through mule tracks and paths marked by the inevitable dry lava stone walls, it first crosses vineyards and orchards, accompanied by well-noticeable rows of prickly pears, and then enters the Etna area of medium mountain, characterised by oak woods and then by reforestation with larch pine. Many are the notable sites touched by the trail, including the Ampudda di Piscitello, evidence of a rivulet that existed before the lava flow of 1669, the Cisterna della Regina and the Grotta d'Angela. M. Manfrè surprises with a deep crack where a luxuriant colony of poplars grows.

Hiking Trail no. 786B - *Monte Manfrè Lodge- State Property Gate Filiciusa Milia*

The trail is a continuation of hiking trail no. 786, but it can be taken independently starting from the M. Manfrè Lodge near the S.P. 92 roads. It first turns west of M. Manfrè and runs deep in ist typical oak forest, then it crosses one of the lava branches generated by the eruption of 1983, which devastated most of the woods in the area. It then penetrates into a forest area first composed of chestnut trees, then, when altitude increases, of oaks and gorse, and finally, on the slopes of Monte Serra La Nave, by a splendid pine forest. The trail continues close to the Ariel Lodge and immediately after it reaches the State Property entrance gate of Filiciusa Milia, where the Pista Altomontana starts.

Signs available on the territory of the Etna Park

Since 2013, the Park Authority has placed a network of signposts all across the territory in order to raise awareness on the UNESCO site and its features. The network includes 25 border signposts that mark the boundaries of the UNESCO site and 10 boards describing the its environmental emergencies.
Additionally, the Park Authority distributed ceramised lava rock plaques to all the Municipalities falling within the territory of the Park, featuring the name of the Municipality and of the Mount Etna WHS, the UNESCO and WHL logos, to be displayed in the relevant town halls.

Monumental Trees and Plants

The presence of 55 plant monuments is another key feature of the Mount Etna UNESCO Site. These are mainly trees of considerable size as well as less eye-catching though equally notable and suggestive plants.

Table no. 5 lists the popular name by which the tree is traditionally known, the scientific and common name, the relevant Municipality, specific geographical location and Park and/or Propery area, in addition to the regulatory references that justify its degree of protection.

The first inventory of the Park's monumental trees

In the 1990s, the Park Authority carried out an inventory of "monument" tree specimens unique or rare to the Etna landscape, accompanied by complementary information on their size, site, habitat and state of the plants. Additionally, a collection of traditions and legends still rooted in the culture and conscience of the local populations has been compiled and subsequently published [Ente Parco dell'Etna, 1998, *Monument Plants of Etna,* A. Scaccianoce Editore].

This first survey was carried out in line with the Territorial Coordination Plan of the Park. It embraced an area set between the top of the volcano and the belt represented by the inhabited centres located on its slopes, up to about 600 m of altitude. The inventory included only specimens of native or naturalised specimens, leaving out man-implanted ones. The selection of the reported specimens was based on data such as total height, the circumference of the trunk, the diameter of the crown and the presumed age of the plants, to finally select those with extraordinary features.

The Register of Monument Plants

Article 143 of the Code, in its session of 10 June 2005, the Regional Landscape Observatory recalled the need to "start a reflection to define and understand the so-called historical landscapes, and, in the first place, on monumental trees, promoting the knowledge and enhancement of these assets. In facts, these are important not only for their naturalistic aspects, but also for the values connected to them, which pertain to popular culture". Consistently, the Observatory endorsed the establishment a Register of Monumental Plants. This shall be based on scientific and institutional data and be open to proposals submitted from different stakeholders, so to foster the enhancement of the naturalistic and traditional meaning that such arboreal and vegetational presence has for Sicily, its history and cultural traditions. These objectives shall be pursued by means of quality brand, signpost and tables, ad hoc studies and communication activities. Decree of the general manager of the Department of Cultural, Environmental and Permanent Education no. 7538 of 29 September 2005, instituted the Register of Monumental Plants. This shall be kept by the Regional Department of Cultural and Environmental Heritage for the purpose of identification, dissemination and promotion of trees of exceptional naturalistic interest, such as those that have witnessed several human generations and significant events, and deserve specific enhancement due to their outstanding aesthetic and naturalistic value and interest for local history and traditions.
The Register includes:

- Isolated trees or trees belonging to forest formations which - by age or size - can be considered as rare examples of majesty or longevity;
- Trees specifically relating to historically or culturally relevant events or memories;
- Tree rows and trees of particular landscape-related, monumental, historical or cultural relevance, including those located in urban areas;
- Plants of particular and rare botanical value having a high taxonomic and phytogeographic importance.

The first list of Monumental Plants of Sicily, consisting of 60 plants, was finalised after the screening performed by the Regional Observatory for Landscape Quality in its session of 8 February 2006.
Additional items reported by *Salvalarte Sicilia* up to 8 November 2010 and collected in a separate list were s subsequently submitted to the Superintendencies for Cultural and Environmental Heritage whose preliminary screening is a necessary step towards the possible inclusion in the Register in compliance with D.D.G. no.7538.

List of Monumental Trees of Italy

Ministerial Decree no.5450 of 19/12/2017 created the List of Monumental Trees of Italy, compiled in compliance with art. 7 of law 14 January 2013, no. 10 and relevant implementing decree of 23 October 2014. According to the current

Region- and province-based list, monumental trees in Sicily are distributed as follows: Catania (37), Palermo (26) Siracusa (13) and Ragusa (12). Only 12 out of the total number are located in the Property area (see Table no. 13).

Additional References

Volume I of "Grandi Alberi di Sicilia" (published in 2007 by Sicily's Region Forestry Property Company and authored by Schicchi et al.) features 100 plants' profiles printed in colours and grouped by provinces. Among these, 18 are relevant to the Province of Catania. Monumental trees in Sicily are actually many more, as an inventory included in the same volume lists 430 of them, among which 41 falling within the Property area (5). Hikers traversing five different trails have reported five more patriarchs of Mount Etna's nature. (https://www.etnanatura.it).

Table no. **13** – *Monumental Trees and Plants of the Mount Etna UNESCO Site*

N	COMMON NAME	MUNICIPALITY	LOCATION	WHS ZONE	TCPZONE	TCP (data sheet)	List of Monumental Trees of Italy (reference to regulatory framework)	List of Monumental Trees of Italy (data sheet)	Register of Monumental Trees (D.D.G. n. 7538 of 29/09/2005)	Additional references
1	La Betulla di Monte Santa Maria *The Birch Tree of Monte Santa Maria*	Randazzo	Monte Santa Maria - Contrada Annunziata	Core	A	11	Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	01/H175/CT/19	O.R.Q.P. 8/02/2006	I grandi alberi di Sicilia (2007)
2	I Faggi di Monte Spagnolo *The Beech Trees of Monte Spagnolo*	Randazzo	Monte Spagnolo	Buffer	B	16			updated 8/11/2010	I grandi alberi di Sicilia (2007)
3	I Faggi di Monte Santa Maria *The Beech Trees of Monte Santa Maria*	Randazzo	Monte Santa Maria	Buffer	B	15			updated 8/11/2010	I grandi alberi di Sicilia (2007)
4	"U Zappinazzu" della Pineta di Linguaglossa *"U Zappinazzu" of the Linguaglossa Pine Wood*	Linguaglossa	Pernicana (Pineta Ragabo)	Buffer	B	1	Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	01/E602/CT/19	updated 8/11/2010	I grandi alberi di Sicilia (2007)
5	Il Faggio dell'Acqua Rocca *The Beech Tree of Acqua Rocca*	Zafferana Etnea	Acquarocca degli Zappini	Core	A	17	Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	02/M139/CT/19	updated 8/11/2010	I grandi alberi di Sicilia (2007)
6	Il Faggio di Monte Pomiciaro *The Beech Tree of Monte Pomiciaro*	Zafferana Etnea	Monte Pomiciaro	Buffer	B	19			updated 8/11/2010	I grandi alberi di Sicilia (2007)
7	Il Pioppo di contrada Pusetta *The Poplar Tree of Contrada Pusetta*	Zafferana Etnea	Monte Monaco-Pusetta	Buffer	B	20			O.R.Q.P. 8/02/2006	I grandi alberi di Sicilia (2007)
8	"A Trofa du Camperi"	Milo	Cerrita Cubania	Buffer	B	13	Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	03/F214/CT/19	updated 8/11/2010	I grandi alberi di Sicilia (2007)
9	"U Fau di Sanareddu"	Milo	Cerrita Cubania	Buffer	B	14			updated 8/11/2010	I grandi alberi di Sicilia (2007)
10	I Castagni di Monte Fontane *The Chestnut Trees of Monte Fontane*	Milo	M. Fontane	Buffer	B	5			updated 8/11/2010	I grandi alberi di Sicilia (2007)

N	COMMON NAME	MUNICIPALITY	LOCATION	WHS ZONE	TCPZONE	TCP (data sheet)	List of Monumental Trees of Italy (reference to regulatory framework)	List of Monumental Trees of Italy (data sheet)	Register of Monumental Trees (D.D.G. n. 7538 of 29/09/2005)	Additional references
11	Il Cerro di Monte Fontane *The Turkey Oak of Monte Fontane*	Milo	M. Fontane	Buffer	B	31	Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	01/F214/CT/19	updated 8/11/2010	I grandi alberi di Sicilia (2007)
12	La Roverella di contrada Pomazzo *The Eastern white oak of Contrada Pomazzo*	Sant'Alfio	C.da Pomazzo	Buffer	B	29	Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	02/l216/CT/19	updated 8/11/2010	I grandi alberi di Sicilia (2007)
13	La Grande Quercia di Monte Crisimo *The Big Oak Tree of Monte Crisimo*	Linguaglossa	M. Crisimo	Buffer	B	27			updated 8/11/2010	I grandi alberi di Sicilia (2007)
14	"L'Ilice du Carrinu" or "Ilice du Pantano"	Zafferana Etnea	Ilice Carlino	Buffer	B	22	Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	01/M139/CT/19	O.R.Q.P. 8/02/2006	I grandi alberi di Sicilia (2007)
15	A Cerza di Algerazzi	Zafferana Etnea	Algerazzi	Buffer	B	30			updated 8/11/2010	I grandi alberi di Sicilia (2007)
16	La Ginestra di Milo *The Broom of Milo*	Milo	Abitato di Milo	External	External	34			O.R.Q.P. 8/02/2006	I grandi alberi di Sicilia (2007)
17	L'Acero grosso del bosco Nicolosi *The Big Maple Tree of Bosco Nicolosi*	Milo	Bosco di Nicolosi	Buffer	B	38	Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	04/F214/CT/19	O.R.Q.P. 8/02/2006	I grandi alberi di Sicilia (2007)
18	I Cerri di Nocille *The Turkey Oaks of Nocille*	Mascali	Nocille	Buffer	B	32			updated 8/11/2010	I grandi alberi di Sicilia (2007)
19	I Cerri di Sambuco *The Turkey Oaks of Sambuco*	Mascali	Sambuco	External	D	33			updated 8/11/2010	I grandi alberi di Sicilia (2007)
20	L' acero di contrada Nocille *The Maple Tree of Contrada Nocille*	Mascali	Nocille	External	D	37			updated 8/11/2010	I grandi alberi di Sicilia (2007)
21	Le "Cerze Gemelle" *The Twin Sessile Oaks*	Milo	Sciare Fornazzo	External	External	28			O.R.Q.P. 8/02/2006	I grandi alberi di Sicilia (2007)

N	COMMON NAME	MUNICIPALITY	LOCATION	WHS ZONE	TCPZONE	TCP (data sheet)	List of Monumental Trees of Italy (reference to regulatory framework)	List of Monumental Trees of Italy (data sheet)	Register of Monumental Trees (D.D.G. n. 7538 of 29/09/2005)	Additional references
22	Il Bagolaro di Montarsi *The European Nettle Tree of Montarsi*	Mascali	Montarsi	External	D	36			updated 8/11/2010	I grandi alberi di Sicilia (2007)
23	Il Castagno Sant'Agata o Castagno "Nave" *The Sant'Agata Chestnut Tree or the "Ship" Chestnut Tree*	Mascali	Taverna	External	External	8			updated 8/11/2010	I grandi alberi di Sicilia (2007)
24	Il "Castagno dei Cento cavalli" *The Hundred Horse Chestnut Tree*	Sant'Alfio	Nuciferi	External	External	7	Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	01/I216/CT/19	O.R.Q.P. 8/02/2006	I grandi alberi di Sicilia (2007)
25	I Castagni di bosco Chiuso *The Chestnut Trees of Bosco Chiuso*	Maletto	Bosco Chiuso - Poggio Monaco	Buffer	B	4			updated 8/11/2010	I grandi alberi di Sicilia (2007)
26	Le Roverelle di Monte Arso *TheDowny Oaks of Monte Arso*	Bronte	Monte Arso	Core	A	26			updated 8/11/2010	I grandi alberi di Sicilia (2007)
27	Lo "Zappino" della Galvarina	Adrano	Galvarina - Prato Fiorito	Core	A	2	Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	01/A056/CT/19	updated 8/11/2010	I grandi alberi di Sicilia (2007)
28	La Betulla di Poggio la Caccia *The Birch Tree of Poggio la Caccia*	Bronte	Poggio La Caccia	Core	A	10	Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	03/B202/CT/19	updated 8/11/2010	I grandi alberi di Sicilia (2007)
29	I Lecci di Conca Sottana *The Holm Oak of Conca Sottana*	Biancavilla	Conca Sottana	Buffer	B	21			updated 8/11/2010	I grandi alberi di Sicilia (2007)
30	"U Ruguru" di Monte Lepre	Bronte	Monte Lepre	Core	A	25	Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	02/B202/CT/19	updated 8/11/2010	I grandi alberi di Sicilia (2007)
31	"U Castagnu Vespa"	Zafferana Etnea	Tornante Fiorino	Buffer	B	9			updated 8/11/2010	I grandi alberi di Sicilia (2007)
32	"A Castagna ruossa di Serra Pizzuta"	Nicolosi	C.da Serra Pizzuta	External	C	6			O.R.Q.P. 8/02/2006	I grandi alberi di Sicilia (2007)

N	COMMON NAME	MUNICIPALITY	LOCATION	WHS ZONE	TCPZONE	TCP (data sheet)	List of Monumental Trees of Italy (reference to regulatory framework)	List of Monumental Trees of Italy (data sheet)	Register of Monumental Trees (D.D.G. n. 7538 of 29/09/2005)	Additional references
33	I Lecci di contrada Ilice *The Holm Oaks of Contrada Ilice*	Zafferana Etnea	C.da Ilice - Bosco Bonanno	External	C	23			updated 8/11/2010	I grandi alberi di Sicilia (2007)
34	I Castagni di Stagliata *The Chestnut Trees of Stagliata*	Biancavilla	Stagliata	External	C	3			updated 8/11/2010	I grandi alberi di Sicilia (2007)
35	Gli Ulivi di S. Maria di Licodia *The Olive Trees of S. Maria di Licodia*	S. Maria di Licodia	abitato di S.M. di Licodia	External	Esterno	39			O.R.Q.P. 8/02/2006	D.P.R.S. 6193 of 04/07/01 I grandi alberi di Sicilia (2007)
36	La Ginestra di Monte Parmentelli *The Broom of Monte Parmentelli*	Ragalna	Monte Parmentelli	Buffer	B	35			updated 8/11/2010	I grandi alberi di Sicilia (2007)
37	Il faggio di contrada Ilice *The Beech Tree of Contrada Ilice*	Zafferana Etnea	C.da Ilice-Piricoco	Buffer	B	18	Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	04/M139/CT/19	updated 8/11/2010	I grandi alberi di Sicilia (2007)
38	U Fau da Nave	Bronte	C.da Nave	Core	A	12				I grandi alberi di Sicilia (2007)
39	La Rovella di contrada Marina *The Eastern white oak of Contrada Marina*	Biancavilla	Marina	External	C	24			updated 8/11/2010	I grandi alberi di Sicilia (2007)
40	Le querce di Monte Egitto *The Oak Tree of Monte Egitto*	Bronte	Monte Egitto	Core	A		Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	01/B202/CT/19		
41	L'Acero napoletano *The Neapolitan Maple Tree*	Milo	Caselle - Via Guglielmo Marconi	External	External		Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	02/F214/CT/19		
42	Il bagolaro di Milo *The European Nettle Tree of Milo*	Milo	Piazza Sacro Cuore - Strada provinciale n. 59	External	External		Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	05/F214/CT/19		
43	La betulla dell'Etna *The Birch Tree of Etna*	Sant'Alfio	Magazzeni	Buffer	B		Annex 1 – Section 1 D.M. n. 5450	03/I216/CT/19		

N	COMMON NAME	MUNICIPALITY	LOCATION	WHS ZONE	TCPZONE	TCP (data sheet)	List of Monumental Trees of Italy (reference to regulatory framework)	List of Monumental Trees of Italy (data sheet)	Register of Monumental Trees (D.D.G. n. 7538 of 29/09/2005)	Additional references
							of 19/12/2017			
44	Il Castagno di Sant'Alfio *The Chestnut Tree of Sant'Alfio*	Sant'Alfio	Tramazzi	Buffer	B		Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	04/I216/CT/19		
45	La roverella di Carpene *The Eastern white oak of Carpene*	Trecastagni	Contrada da Carpene	Buffer	B		Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	02/L355/CT/19		
46	Il pioppo tremulo di Monte Pomiciaro *The Aspen Poplar of Monte Pomiciaro*	Zafferana Etnea	Strada Cassone - Monte Pomiciaro	Core	A		Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	03/M139/CT/19		I grandi alberi di Sicilia (2007)
47	La roverella di Trecastagni *The Eastern white oak of Trecastagni*	Trecastagni	Chiesa di Santa Maria dei Tremonti	External	External		Annex 1 – Section 1 D.M. n. 5450 of 19/12/2017	01/L355/CT/19		
49	Ulivo di Scannacavoli *The Olive Tree of Scannacavoli*	S. Maria di Licodia	Contrada Scannacavoli	External	External					D.P.R.S. 6193 of 04/07/01 I grandi alberi di Sicilia (2007)
50	Pioppo tremulo di Monte Monaco *The Aspen Poplar of Monte Monaco*	Zafferana Etnea	Monte Monaco	Buffer	B					I grandi alberi di Sicilia (2007)
51	A Cezza di Panzazza	Zafferana Etnea	Piano Bello	Buffer	B					www.etnanatura.it
52	Ilice di Portella Calanna *The Holm Oak of Portella Calanna*	Zafferana Etnea	Monte Fior di Cosimo	Buffer	B					www.etnanatura.it
53	Cerro di Monte Calanna *The Turkey Oak of Monte Calanna*	Zafferana Etnea	Monte Fior di Cosimo	Core	A					www.etnanatura.it
54	Roverella Cugnu di Mezzu *The Eastern white oak of Cugnu di Mezzu*	Zafferana Etnea	Valle San Giacomo - C.da Cugnu di Mezzu	Buffer	B					www.etnanatura.it
55	Castagno di Serruggeri *The Chestnut Tree of Serruggeri*	Pedara		Buffer	B					www.etnanatura.it

Botanical Gardens

The Garden of Nuova Gussonea dell'Etna was established in 1979 in agreement between the then Sicilian Region General Directorate for Forestry and the University of Catania.

It covers over 10 ha located on the volcano's southern slopes, at an altitude between 1700 and 1750 m a.s.l. It features a living collection of Etna's most relevant flora species.

Moreover, the Park's Headquarters host the collection field of the Seed Bank, realised for the purpose of characterisation and preservation of the genetic diversity of Etna's vegetation. It covers approximately 3 ha and features species of naturalistic and agricultural interest as well as species of aromatic and officinal plants from the Etna area.

Catania Astrophysical Observatory

The territory of Mount Etna UNESCO Site also includes the Catania Astrophysical Observatory, a National Astrophysics Institute (INA) research centre.

Monitoring of volcanological activity

The Park Authority constantly monitors Etna's volcanological, seismic and geo-chemical activity thanks to a wide monitoring network as well as joint research projects implemented in partnership with the University of Catania, Palermo and Florence, the INGV, the Etna Speleology Centre of Catania and other national and international research institutes

3.1.6 Anthropogenic structures

Ski resorts

Mount Etna features two ski resorts. One is located South, in Nicolosi, between 1910 and 2700 m a.s.l., while the other is in Piano Provenzana – Linguaglossa, on the north slope of Mount Etna between 1800 and 2317 m.

Wells

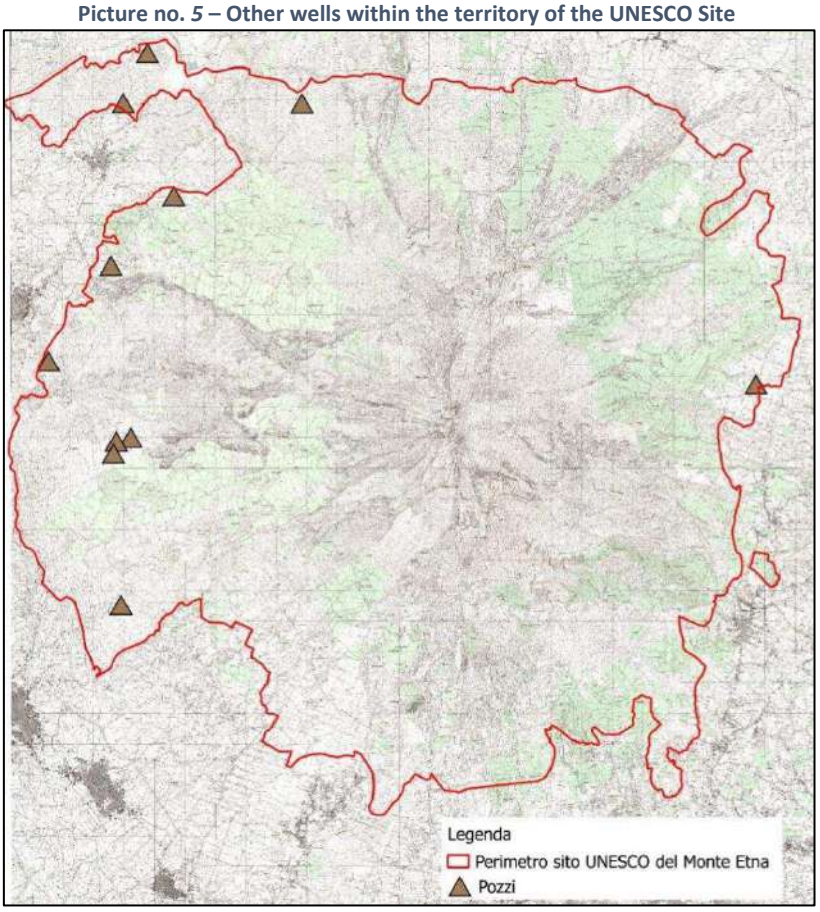
The area includes several recently authorised wells for residential (art.93 of R.D. 11 December 1933, n. 1775) and agricultural use (art.95 of R.D. 11 December 1933, n. 1775). The table below lists some of the main wells' location and use:

Table no. 14 – Wells in the area

Municipality	Contrada	Use
Maletto	Poggio Monaco	Potable
Zafferana	Piano dell'Acqua	Agricultural
Zafferana	Torre Archirafi	Agricultural
Randazzo	Sciambritta	Agricultural
Ragalna	Mazzo	N/A
Linguaglossa	Salto del Bue	Agricultural
Bronte	Ciapparazzo	N/A
Bronte	Madonna della Nunziata	Agricultural
Bronte	Madonna della Nunziata	N/A
Bronte		Agricultural
Bronte		Agricultural
Bronte		Agricultural
Bronte	Pappalardo	Potable
Bronte	Zucca	N/A
Adrano	Cotrone	N/A

There are also 11 additional wells located within the UNESCO Site territory, as shown in Picture no. 5.

Picture no. *5* – Other wells within the territory of the UNESCO Site



Caves and dumps

In the Park territory, quarries and abandoned dumps were mainly located in the foothill zones D and C (adjacent to the buffer zone), but also in the B area (i.e. *in* the buffer zones). The Park Territorial Plan marked them as neglected areas to be destined to recovery and re-naturalisation. As far as active quarries are concerned, the relevant areas within the territory of the park are located in zone D, therefore outside the UNESCO site. There are six quarries still in operation. These will be active only until the extraction activity is completed. Responsibility for recovery of the site is allocated to the private operator.

Between 2003 and 2006, thanks to EU POR FESR 2000-2006 funds, recovery and re-naturalisation interventions were carried out by the Park Authority on six disused quarries, one of which falling in zone B (today buffer zone), and eight municipal MSW dumps, three of which again fall under zone B (buffer zone).

Therefore, quarries and landfills have never been present in the UNESCO site core zone.

Unauthorised buildings

In the Park area adjacent to the UNESCO site (Park foothill zone C), there are about three thousand buildings targeted by amnesty procedures. For about a hundred of these, the state of the places was restored (initiative being private for 80% of cases and judicial decision-triggered restoration amounting to the remaining 20%). Finally, within Zone B of the Park (Buffer Zone of the UNESCO site) are a few hundred buildings - mainly built prior to the establishment of the Park Authority - for which amnesty procedures have been requested.

3.1.7 Assets/Events of social and cultural value relevance

Hundreds of cultural, religious, recreational, sporting and food and wine events take place in the twenty municipalities of the Park every year within an ancient and consolidated cultural and social tradition. Many of these activities have acquired a national - and sometimes even international - significance.

If falling within the territory of the protected area, such events are specifically authorised by the Etna Park Authority with an *ad hoc* provision.

Among the main examples of artisanship typical of the WHS territory are stonemasons, who work the lava stone to make it stone construction or ornamental elements, and the experts in the construction of dry stone walls.
If the analysis of the other assets provides significant data, then elements of the territory' resources of cultural and symbolic value can also be taken into consideration.

3.2 Asset analysis

The following paragraphs feature a detailed analysis of the above-mentioned assets. However, it should be considered that within zone D of the Etna Park, near the buffer zone of the UNESCO site, there are two important listed assets, the Etna Park Headquarters (formerly the San Nicolò all'Arena Monastery in Nicolosi) and Villa Manganelli in Zafferana Etnea, both owned by the Park authority.

Moreover, among the most note worthy rural buildings belonging to the traditional unmovable heritage, there are also Case Caldarera in Randazzo, Case Cicirello (today Casa della Capinera) in Trecastagni, the complex of Case Bevacqua in Piedimonte Etneo, which have been subject to recovery with funds UE, and Case Pietracannone in Milo, all owned by the Park authority and destined to Hiking Base Points by the Park Establishing Decree and therefore falling in zone C.

3.2.1 UNESCO Sites network in Sicily

According to the Convention, UNESCO has so far recognised a total of 1121 sites (869 cultural sites, 213 natural and 39 mixed sites) in 167 countries around the World. Italy and China are currently the nations that have the largest number of sites included in the list of World Heritage Sites (55 sites). As for Italy, 5 of these 55 sites are natural sites, including the Aeolian Islands and Mount Etna, and, out of the remaining 50 World Heritage sites, 8 are cultural landscapes. Among the Italian regions, Sicily is the richest in World Heritage Sites (WHL), as it features:

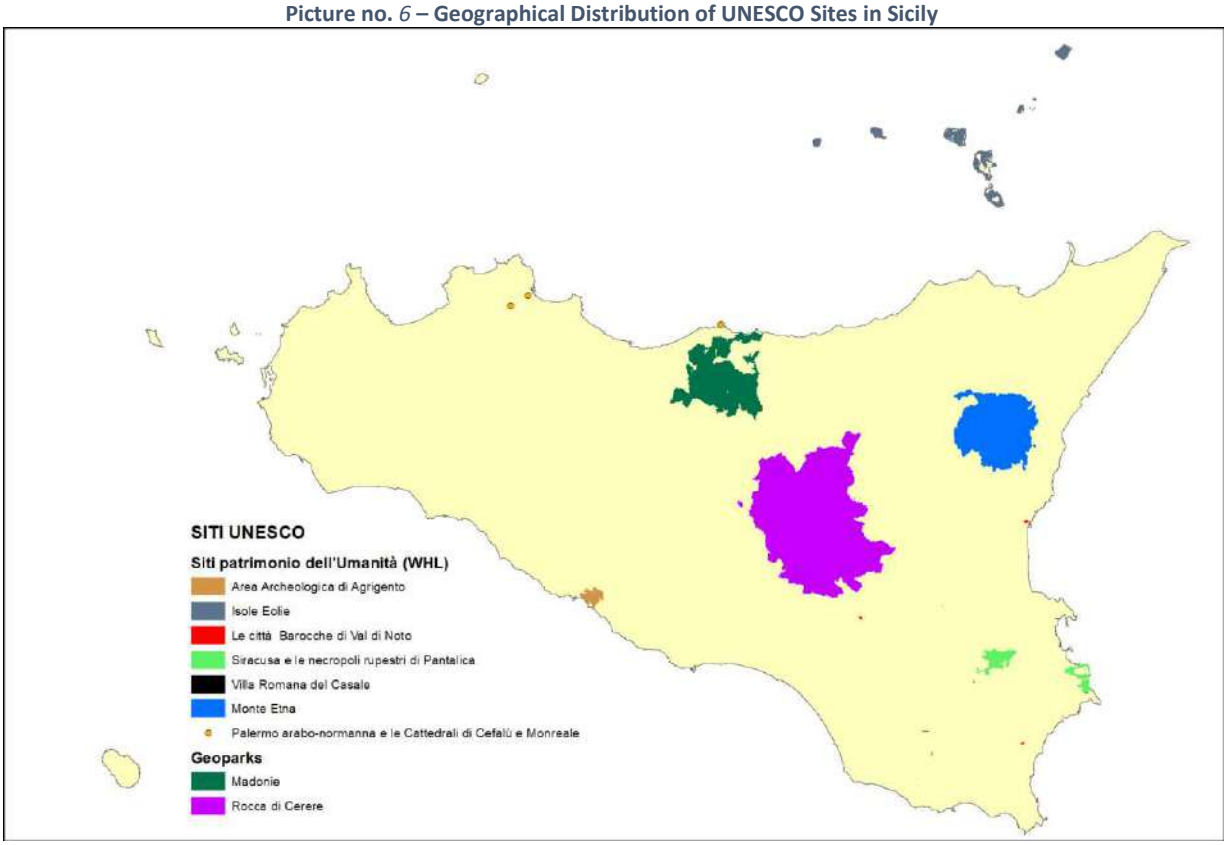
1) Archaeological Area of Agrigento since 1997
2) Piazza Armerina, Roman Villa del Casale since 1997
3) Aeolian Islands since 2000
4) The late-Baroque cities of Val di Noto (South-Eastern Sicily) since 2002
5) Siracusa and the Pantalica rocky necropolises since 2005
6) Mount Etna since 2013
7) Arab-Norman Palermo and the Cathedrals of Cefalù and Monreale since 2015.

A strong and authoritative evidence of the great geological heritage of our Country is represented by the Geoparks recognised in the European Network and in the Global Network under the auspices of UNESCO. This represents a prestigious recognition awarded to the ten Italian Geoparks, thanks to the innovative management strategies developed in their territories, in which geoconservation, together with the related educational and recreational activities trigger virtuous practices for sustainable development. Such requalification process and territorial enhancement constantly takes into account respect for local cultures, being at the same time synergically projected towards a new land use model itself. There are two geoparks in Sicily:

8) Madonie Geopark
9) Rocca di Cerere Geopark

All of these sites could constitute a more effective network capable of promoting the offer of landscape, cultural and food and wine resources of the relevant territories. An *ad hoc* "UNESCO Sites Network" project is currently being implemented by the Association of Southern Italy Unesco Provinces and involving 14 World Heritage Site sites in the South of Italy, including Arab-Norman Palermo and the cathedrals of Cefalù and Monreale, Syracuse and the rock necropolises of Pantalica, the late Baroque cities of the Val di Noto, the Roman Villa del Casale in Piazza Armerina. The project was co-financed by the Ministry for Cultural Heritage and promoted by the Union of Italian Provinces (UPI).

Picture no. *6* – Geographical Distribution of UNESCO Sites in Sicily



3.2.2 Physical-environmental Resources

3.2.2.1 Mount Etna

Etna is a complex composite volcano that resulted from the overlapping and juxtaposition of eruptive products emitted at different times through different magmatic ascent systems. The thousands of lava flows, the immense quantities of slag, gravel, sands, ashes, tuffs emitted during the incessant volcanic activity of Mount Etna have destroyed, and in some cases sealed or simply hidden through stratigraphic overlap, the remains of the various pre-existing eruptive centres. Etna cannot be considered a single large volcanic building. At least two buildings, Trifoglietto and Mongibello, have succeeded and overlapped over time, and through the patient work of geological survey and the analyses performed on rock samples, the information obtained from the earthquakes and volcanic eruptions, geologists have been able to write the history of the polygenic volcanic complex. However, much remains to be written.

Geography and Geomorphology

Etna is a specific stratovolcano of about 3,340 m of height located in the central-Northern part of the Eastern coast of Sicily, in the district of Catania. It is crossed by the 15th meridian (known as the Meridian of Etna: 2,517,600 E 4,179,925 N Gauss Boaga East zone Datum Roma 40). It covers an area of more than 1,250 km2, with a perimeter of over 135 km and is delimited by the Peloritani mountains in the North, the Nebrodi mountains in the North-West, the Simeto river and the alluvial plain (Piana di Catania) in the South and South-West. Etna is one of the largest polygenic volcanoes in the world with an impressive tectonic valley called Valle del Bove (a typical volcano-tectonic *caldera*). The construction of the volcanic building was interrupted by numerous calderic collapses (subsidence) in the area of the summit craters. The most recent collapse phase is associated with the formation of the Caldera del Piano.

Tectonic

Etna represents a special "asthenosphere window", in an area dominated by tectonic processes of lithospheric convergence, which probably developed during the Mesozoic era, due to the different opening speeds that occurred along the mid-Atlantic ridge. The higher opening speed along the Southern segment of the ridge compared to the speed of the Northern segment, has induced a relative acceleration of the African bloc compared to the Eurasian continental mass, thus giving Africa an anti-clockwise rotation and leading it to lock itself against Eurasia. This collision developed through a series of events that occurred at different (diachronic) times.

The evolution of the convergence process between Africa and Eurasia has undergone several phases of collisions resulting in extensive phenomena of subduction and relaxation in the oceanic crust (Tethys), which have led to an intense disarticulation and fragmentation of the original lithospheric structure, creating a mosaic of more or less stable micro-clods, in movement with respect to each other, as well as with respect to the larger African and Eurasian plates.
The complex evolution of volcanic activity as a tracer of geo-dynamic processes in the Mediterranean basin reflects the more general complexity characterising the neo-tectonic structure of the area. Magma rich in silica due to lithospheric convergence processes mainly represent the volcanic events that have taken place within the Mediterranean basin. Furthermore, situations of tectonic relaxation have developed locally which have favoured the opening of deep relaxing cracks in the crust that allow the ascent from the asthenosphere with the consequent placing of basaltic androgenic magmas coming from the upper mantle. One of these areas is precisely the Eastern edge of Sicily, where intense and continuous eruptive manifestations of basic nature have occurred since the end of the Miocene about 10 million years ago. These events affected a belt that extends inland up to 30-40 km from the Ionian coast and, moving towards increasingly northern positions, they reached the area where Etna is located today. The lithospheric discontinuity with NNO-SSE orientation, along which the islands of Vulcano, Lipari and Salina are located, extends southwards through North-Eastern Sicily from Capo Binari to Giardini on the Ionian coast.

This structural discontinuity, called the "Tindari - Letojanni line", together with the lithospheric fault system that borders Southern Sicily to the East and which is commonly designated as the "Iblean-Maltese escarpment", represents the site where earthquakes have most frequently hit Eastern Sicily. The tectonic structure of the region strongly affects the volcanic activity of Etna, which therefore represents a "response" to the complex process of lithospheric convergence between the African plate in the south and the Eurasian plate in the north, as well as the multiple geodynamic events that characterized the Mediterranean basin. The thousands of lava flows, the immense quantities of slag, gravel, sand, ash, and tuff emitted during the incessant volcanic activity of this extraordinary natural thermodynamic machine have destroyed and in some cases sealed or simply hidden by stratigraphic overlap, the remains of the various pre-existing eruptive centres.

Volcanology

The first eruptive manifestations occurred about 600,000 years ago, in the middle-lower Pleistocene between Acicastello, Acitrezza, Ficarazzi, Capo Mulini in an immense marine gulf. These were submarine eruptions that today constitute the basaltic prisms of the island Lachea and the stacks of Acitrezza as well as the imposing mass of volcanic glass breccias (Jaloclastiti) and pillow-lava on which the castle of Aci or the pentagonal heads of the port of Acitrezza stands. These eruptions helped to partially fill the pre-Etna gulf. The discovery of outcrops of pleistocene blue silty clays at about 700 m a.s.l. in the north-eastern side and the existence of marine and river terraces located at various heights on the South-Eastern and South-Western sides, demonstrate the overall elevation of the Ionian-Aetnean area by those tectonic forces that are still active today.

Between 350,000 and 200,000 years ago, it was possible to witness the formation - through enormous linear eruptive fissures - of imposing extremely fluid tabular lava banks. At various points, these reached over 50 m in thickness. Today we may find them in the form of large terraced surfaces positioned at different altitudes (from 600 to 300 m a.s.l.) in the geographical area where the villages of Valcorrente, S. Maria di Licodia, Biancavilla and Adrano are located. Both these volcanic products (underwater and subaerial) represent the so-called Basal Tholeitic Vulcanites and belong to the same geological period to which the isolated cliff of columnar lavas of Motta S. Anastasia (Neck di Motta).

These particular pre-Etna basalts anticipated the development of Etna proper. After a considerable period of time (Upper Pleistocene: 200,000÷100,000 years ago), following physical-chemical processes of magmatic differentiation and a North- and West-bound shift of the eruptive axes, changes in the mechanism of ascent and placement, as well as in the chemical composition of the magmas and in the type of activity, the "Timpe" volcanism began. This led to the emission of lavas with evident crystals and columnar morphology, with intercalated levels of yellowish ash and brown-reddish slag, originating from the activity of the first Etna volcanic apparatuses of central character (Calanna) or of fissure apparatuses located along the present coast (Timpe). Basaltic lavas represent the volcanic products of such phenomena. In the Northern suburbs of Catania they show a tabular shape and surround escarpments of marine palaeophalaeias of the Tyrrhenian age, while along the Timpa of Acireale, they are surmounted by volcanoclastic products (conglomerates and breches) in continental and marine facies (whitish fossiliferous tuffs). An even more radical change in the mechanisms of formation and magmatic rise, between the end of the upper Pleistocene and the beginning of the lower Holocene (100,000 ÷ 60,000 years ago), led to the emission of lava flows alternating with levels of slag, breccias and lapilli. Their supportive outcrops form the Western and Southern walls of the present-days Valle del Bove. Together with the sub-vertical bodies with sub-vertical position with massive texture and the development of columnar joints, these products generated from the activity of the eruption centers of Trifoglietto, Giannicola, Salifizio-Vavalaci and Cuvigghiuni and - further South - Tarderia. Lava and volcanoclastic products attributable to the effusive and explosive activity of the eruptive center of Ellittico, whose eruptive axis is located within the collapsing caldera of the same name ((60,000-18,000 years

ago), make up the streams and the slag and breach levels emerging along the Western and Northern walls of Valle del Bove. In the apical part of this unit, there are trachytes with domed facies and self-braced lavas (M. Calvario) and reddish and strongly vesiculated foam flows emerging in Punta Lucia. The area of Pizzi Deneri is characterised by pyroclastic fall deposits (sand, slag and scarcely welded reddish and yellow pumice, Benmoreitic type. The area between Giarre and Valverde also has the same volcanoclastic products, while between Biancavilla and Ragalna, deposits of debris flow and lava epiclastites emerge, which consist of heterogeneous blocks of various sizes, dispersed in a silitic-silty matrix. Deposits of fragments of lava with sharp edges, volcanoclastic breccias, lapilli, slags, sands and bombs of various sizes and arranged in no particular order, are found near Milo, Ragalna, Biancavilla, S. Maria di Licodia, Montalto. In this latter site, it is possible to observe a typical pyroclastic flow of the ignimbritic type (extremely acid). The dismantling of the units called "Trifoglietto" gave rise to a vast conoid, consisting of more or less cemented alluvial debris deposits irregularly stratified in banks, made of pebbles and lithologically heterogeneous volcanic blocks immersed in a sandy matrix as well as tuffs. These deposits are hundreds of meters thick, as the geophysical surveys and oceanographic campaigns carried out in recent years have best clarified. They extensively emerge on the lower Eastern side, between the inhabited areas of Giarre and Riposto and are locally known as "Chiancone". Violent explosive phenomena and mudslides must have occurred between the end of the eruptive manifestations of Calanna and the activities of the Trifoglietto units (Giannicola, Salifizio, Vavalaci Cuvigghiuni and Tarderia), which have left traces throughout the South-Eastern area of Etna. Here extensive deposits of tufaceous material and lahaars, originating following boiling mud flows ("tufiti and lower lahaars") emerge. Serra del Salifizio to the East and Serra delle Concazze to the West set the boundaries of the enormous natural amphitheater of Valle del Bove with its characteristic "horseshoe" shape (its perimeter is about 18 km, while its area is about 37 km^2), which represents one of the most fascinating and wild natural environments of Etna. The cauldron fence is made up of steep cliffs in the North and South, with heights between 400 and 1000 m. These sub-vertical walls have different gradients and include the heads of ancient lava banks, which plunge opposite to the Valley, and rocky ridges, known as Serre, made up of magmatic *dicchi* (i.e. intrusions of lavas along structural axes) highlighted by selective erosion. These cut the emerging geological-stratigraphic formations, and represent the ancient magmatic feeding systems. Sierras alternate with rills, valley incisions where the debris from the dismantling of the lava banks accumulates and which give rise to dejection cones downstream. While the edges of the northern and western walls incline gently towards the east and south respectively, the edge of the eastern wall features strong discontinuities, in the form of depressions, in correspondence with deep valley grooves affecting the external slope of the wall (Valle del Tripodo, Valle degli Zappini). These discontinuities are the result of both stratigraphic-structural limits of different eruptive complexes and volcano-tectonic "accidents". In very recent times from a geological point of view (medium-upper Holocene: 18,000 ÷ 10,000 years ago), conditions were in place conducive to the formation of the most imposing volcano that geological evidence has allowed us to reconstruct. Its maximum estimated height was 3880 m above sea level. Most of the volcanic formations present along the northern slope and in the upper Valle del Leone or the remarkable reddish tufaceous deposits higher than 10 m, which we can observe along the provincial road from Paternò to Adrano, in Montalto di Biancavilla, represent the products emitted by this volcano during extremely violent paroxysmal explosive activities. These gave rise to immense pyroclastic flows with mechanisms of burning clouds and flows of boiling mud (lahaars). A true cataclysm (14,000 years ago) had the top part of this immense volcanic building forming the so-called Caldera of the Elliptical Crater (4 km by 3 km) collapse. Pizzi Deneri to the northeast and Punta Lucia to the northwest represent the remains of the original edges of this volcanic depression. Only many hundreds of years after the end of the elliptical volcanism, in the southern part of the caldera, volcanic activity began to take place. This would have led to the construction of the recent Mongibello or Etna, whose flows and volcanoclastites featuring a superficial degraded morphology can be easily distinguished from the better-preserved ones. Repeated paroxysmal explosive events of great intensity occurred in 8140 BC; 7100 BC; 6100 BC; 5000 BC; 4280 BC; 2840 BC; 1280 BC; 122 BC, and characterised the early phases of this restless smoking mountain. Some of these paroxysms were not even dependent on the activity of the Central Crater, but they resulted from the last stages of the formation of the Valle del Bove through a repeated series of emptying of superficial magma chambers. Geological evidence, recently acquired by scholars through oceanographic campaigns off the Ionian sea, allowed to reconstruct the apocalyptic volcanic event that 6000 years b. C. had a large part of the terminal portion of Etna collapse towards the Ionian sea for structural reasons, causing pumice clouds and real lowland storms of boiling sands that charred large expanses of land. The products of these extreme events reached the sea through boiling mudflows (lahaars), and following intense instability phenomena due to the torrential activity of surface watercourses. This caused extensive volcanoclastic formations especially on the eastern side, which contributed to generate a huge tsunami in the Mediterranean. This was a real cataclysm resulting in the formation of gigantic waves that hit the coasts of Calabria, Albania and western Greece in a few hours, and then reached Egypt and Libya up to the Lebanese and Syrian coasts. Through the radio-chronological method of Carbon 14 it was possible to reconstruct another apocalyptic volcanic event occurred in 1280 BC. (violently explosive activities, today known as sub-Plinian activities and characterised by the deposit of extensive coulters of tuff materials, sometimes formed with "burning cloud" mechanisms or mud flows), of which an echo may have remained in Diodoro Siculo, who recounts the legend of the Sicani who would have left eastern Sicily following continuous eruptions of Etna. It is probable that the events so reported actually refer the complex phenomena

that led to the decrease of archaeological sites in the Middle Bronze Age and even more in the Recent Bronze Age (1270-1050 BC). Another significant event is occurred in 122 BC. C., which determined the foundation of the great Cratere del Piano. The well-know dynamism of Etna started has been going on for slightly less than 2000 years. In 1669 the last major eruption originated with the consequences that we now know well. The most recent eruptions (2001, 2002-03, 2004-05, 2006, 2007, 2008 and many volcanic paroxysms from the new southeast crater during 2011-2014), which occurred on the site, can be attributed to the latter type of explosive eruptions.

Volcanic Morphologies

Hundreds of cones and secondary apparatuses made of sand, gravel and volcanic slag, sometimes of stunning dimensions, isolated or aligned along eruptive fractures, represent the points of emission of pyroclastic products generated during an intense explosive activity of the peripheral mouths during a lateral eruption. These represent one of the peculiarities of the general physiography of Etna. On its slopes, countless generations have often come and gone, learning to live with the *Muntagna*, have shaped the environment to the point of creating new rural landscapes around agriculture and livestock, leaving a permanent mark through unmistakable and meaningful signs in the structure of the territory. The Etna lavas are mainly of the "aa" type (Hawaiian onomatopoeic term used to describe very harsh lavas, on which it is very difficult to walk barefoot), or of the "pahoehoe" type (Hawaiian onomatopoeic term used to describe rope-shaped lavas, on which it is easy to walk barefoot), or lavas with irregularly variously articulated slabs. On these lava fields, the geological conditions favoured the creation of lava flow tubes systems which, thanks to thermal insulation, allow the lava to flow over great distances, feeding lava fronts from the mouths up to 10 km or more, as well as volcanic caves originating from expansive activity or from fractures (over 250 are reported). Inside the caves, various peculiar and rare mineralogical concretions can be found: windows, streaks, shelves, lava rolls and lava stalactites. The Grotta del Gelo, the Grotta degli Archi, the Grotta delle Palombe, the Grotta dei Tre Livelli, the Grotta dell'Abisso del Profondo Nero, are some of Etna's most famous caves. Since ancient times, they have been used by the Aetneans as sacred or burial places, shelters and places to store snow in order to use it in summer, when refrigerators did not yet exist.

3.2.2.2 Caves

Lava caves of Etna host an exceptional variety of unique minerals and ecosystems.

The lava flow tubes form in the body of the lava flow by progressive cooling and solidification of the outermost portions of the flow section. Consequently, this forms a rocky crust, which isolates the central portion. Inside it, the molten lava can continue to flow, reaching the front of the flow without cooling down and thus increasing the distance it can manage during the eruption. The lava tubes show different peculiar morphologies: windows, streaks, shelves, lava rolls and lava stalactites. It is possible to find several overlapping levels (Grotta dei Tre Livelli) or galleries that fork in anastomosis (Grotta del Santo) or in parallel branches. The sections of the lava tubes can have different shapes, such as: Norman arch (Grotta di Serracozzo), pagoda (Grotta dei Tre Livelli), whale belly (Grotta Petralia). The presence of lava flows does not necessarily lead to the formation of caves, as their genesis depends on several physical and chemical factors: firstly, the lava flows must be fluid and secondly a continuously feeding flow is necessary to allow the lava to flow to the front. After a certain period (days, months, up to years), at the end of the eruption, variegated concretions, mainly formed by sodium salts, take shape inside lava tubes. These concretions are caused by the infiltration of water inside the cooling fractures of the lava flows, which takes the most soluble elements from the rock. When passing from the fracture into the lava tube, these elements finds the conditions for the precipitation in the form of salts. Generally, these crystalline formations - sometimes very articulated and coloured - are metastable and can disappear with the progressive cooling of the rock and the inside of the lava tube. More durable but not less fragile speleothems are generated in the caves of Etna by the recasting of the vault of the lava tube. As the lava river flows downstream, the gases trapped in the lava continue to escape through the surface of the stream. If an "air pocket" is formed above the lava river (e.g., due to variations in the flow rate or gradient), the gases continuously released by the lava generate an increase in temperatures, ultimately leading to the melting of the upper portion of the vault of the cave which is in contact with the internal parts of the lava tube. This partial recasting involves a dripping of the molten part of the vault with the formation of small lava stalactites several centimetres long, known on Etna as "dog teeth". It is not always possible to enter the lava flow caves. Sometimes a "window" remains open since the genesis of the lava tube, usually near the effusive mouth or in conjunction with ephemeral and skylight mouths along the lava flow axis, but the sliding channels remain very often hidden to man. If so, access can be provided only in case the vault collapses in some sections of the lava tube, or thanks to erosion and collapse on one of the sides, or again to anthropic action: many caves were actually discovered during excavations for the opening of new roads (such as Grotta Tre Livelli and Grotta Cassone).

Once the eruption is over, the cavity temperature can remain too high for humans to enter even for years, depending on the thickness and volume of the flow. Already in the cooling phase, however, thermal contraction fractures are formed which allow the rock mass to adapt its volume to the enormous variation in temperature. In case these discontinuities

isolate geometrically unsupported blocks, these very fractures can lead to the collapse of some portions of the vault. On the other hand, the existence of lava tubes in perfect conditions since prehistoric times underlines the notable structural solidity of these cavities, despite the very strong earthquakes that have affected this territory over the millennia. Specific attention must always be paid to the conditions of the cavities, especially where tourism and recreational use of these places will be encouraged and careful geo-structural investigations and constant monitoring must be carried out to identify any future collapses.

The eruptive fracture cavities originate at the mouths, along the same fractures through which the lava flows. These cavities form at the end of the eruption due to partial emptying of the eruptive duct, very often due to the presence - at a lower altitude - of a connection of a mouth from which the lava was emitted.

Along the eruptive fractures, the gas emissions transport and throw into the air shreds of lava, which, through welding together, can build small degassing cones, called "hornitos", while at lower altitudes the new lava flows out. At the end of the eruption, the lowering of the lava level leaves a more or less thick film on the walls of the fractures. Generally, this type of cavity shows a vertical development that can be over 100 m deep. Both because of the risk of falling from above and because of the instability of the walls unloading stones, it is very dangerous to enter these caves through the hornitos.

Etna's volcanic caves have been well known since immemorial time, so that they have become part of mythology.

Humans certainly used them during the Bronze Age (about 4,000 years ago), as a dwelling, animal shelters and burial places, as shown by the numerous evidences discovered in the lava flow caves located in prehistoric flows on the slopes of the volcano. Many Etna caves speak of enchanted treasures and bandits, others were allocated to meditation.

The Etna caves are completely integrated within the volcanic landscape.

In ancient times, some of these caves (mainly on the eastern side of Etna: Caves of Case del Vescovo and Grotta *della Neve* or *dei Ladri*) were used and are still used for sheep farming purposes. Some of the volcanic caves on the slopes of Etna were used as "niviera": in ancient times, the caves were used as natural freezers to store snow in winter and to market it in summer, a trade that extended to Malta.

In his painting, "Grotte à la neige" (on permanent display at the Hermitage Museum in Saint Petersburg, a copy is kept in the Etna Park headquarters), J. Houel depicted the main room of the so-called Grotta della Neve (snow) or dei Ladri (thieves) showing men carrying blocks of ice covered with leaves and jute bags.

3.2.2.3 Vegetation resources

Basal-Mediterranean Zone–*Supra Mediterranean* Belt (between 1.000-1.100 m a.s.l. and 1.400-1.450 ma.s.l.).
This belt mainly falls within the buffer zone and partly in the core area. It includes deciduous oak formations (*Quercetalia pubescenti-petraeaes*). Where an old lava substrate is in place, holm oak (*Quercus ilex*) can be found at much higher altitudes, almost touching the beech woods. An endemic Sicilian oak (*Quercus congesta*) dominates the forest vegetation composed of mesophilic communities.
As far as the forest vegetation of this belt is concerned, it is important to mention the larch pine forests, whose spread is sometimes favoured by man, and the chestnut woods introduced by man and left to spread in the holm oak belt, too. Both forest vegetations are not well defined floristically.

Mountain-Mediterranean Zone (between 1.400-1.450 and 1.800-2.000 m. a.s.l.; up to 2.200-2.250 m. a.s.l. in the north-west area).
The mountain area (mainly falling within the core area) is generally referred to as the "Beech belt", but on Mount Etna, where the beech is located at the extreme southern limit of its distribution range, it spreads in a very fragmented way.
The current beech forests on Etna can be actually considered relics of much larger formations that were widespread in the post-glacial period, when the climate was colder and more humid.
From a vegetation point of view, the beech forests of Etna are of great genetic, phytogeographical and ecological importance. Having evolved independently during the cold phases of the Würm stage, the Sicilian beech woods retain their own peculiarities and constitute a very different group in terms of both genetic diversity and synecology.
From a syntaxonomic point of view, these communities are to be referred to the *Doronic-Fagion*, a Mediterranean alliance represented in southern Italy and in the Balkans. Etna's beech forests are located on the oldest substrates of slopes with relatively low temperatures. They are mainly found on the north and north-east slopes, where both the climate and the soil are more favourable to the species. Some beech woods are found on the slopes facing south-east, in sites with specific characteristics, such as small valleys.
They reach their lower limit of 800 m in the S. Giacomo valley, and spread to the upper limits of forest vegetation (2,250 m). In fact, isolated plants that have a shrubby appearance can be found at altitudes of up to 2,400 m. These beech forests

of Etna reach the highest altitudes ever recorded in Europe, though being located at the southernmost latitude at the same time.
In areas with particularly difficult ecological conditions, such as those at higher altitudes or along the limits of forests, beech trees can be considered a particular ecological variant and show a low and intricate structure. Its horizontal branches bend to the ground, propagating the species agamically.
The natural tendency of beech is to form pure and closed forests with a uniform structure.
On Mount Etna, however, the beech woods are very diverse and fragmented for various reasons: anthropogenic (cutting and grazing), natural (lava flows) and ecological (they are replaced by Etna birch in the less mesophilic sites and by Calabrian larch pine in the more xeric ones).
Today, environmental changes caused by volcanic activity, human activity and climate change do not allow beech trees to occupy the distribution they once had. The beech forests of Etna have adapted to live on an active volcano in very difficult soil conditions and in a very hostile climate, where, like all active volcanoes, the flora is poor in species. Therefore, their situation is uncertain and their survival depends on future climate change.
In the lower part of the mountain-Mediterranean area, on irregular substrata and in the most xeric areas, the *Pinus laricio* species is well represented. It can be found in many plant communities, from the first pioneering stages on new lava substrata to the mature forest stages represented by the *Querco-Fagetea* communities.
The Calabrian larch pine woods play a very important role in the colonisation process of lavas and generally represent a dynamic state that evolves, according to the altitude, into deciduous oak forests at the lowest altitudes, and into beech forests at higher altitudes. Sometimes, however, specific ecological constraints do not allow the evolution of soils, and the pine forest becomes an edaphic climax that is stable over time, and therefore acquires great importance from both an ecological and a landscape-related point of view. Numerous factors have influenced the presence of pine trees. Eruptive events (such as those of 2002) and arsons have always influenced the spread of pine trees: on the one hand, by reducing the area covered by the pine tree, and on the other, by creating the conditions for a renewed expansion. Their fruiting is early and abundant. Natural regeneration takes over open areas again, but this does not happen often. The Greeks, Romans and Arabs probably exploited the pine forest since ancient times for shipbuilding purposes. The forest has always had the right of civic use for timber harvesting and grazing. Due to the continuous abuse, in 1908 a regulation for the protection of the forest was enacted, to few practical results. Introduced around 1000-1100, and carried out until the mid-1900s, the extraction of resin was one of the most important activities. Even today, there are very large trees with the characteristic "herringbone" engravings that testify to this ancient practice. The maintenance of the pine forest is due to human activities and both periodic and continuous cuts have created favourable conditions for its regeneration at the expense of broad-leaved trees. Through civic uses, the local population has selectively suppressed the pubescent oaks and beech trees. Due to its xerophilic nature and its ability to act as a colonising species, the larch pine is also well represented in the supra-Mediterranean belt, where it assumes a dynamic role analogous to that of *Quercetalia pubescenti-petraeae*.
In the less xeric and relatively cool places of the mountain plateau is the Etna birch (*Betula aetnensis Rafin.*). Formations of this species, considered endemic, are widespread on the eastern side of the volcano. The Etna birch tends to form open bushes rather than actual woods. This formation often contains other arboreal elements such as beech, Turkey oak, downy oak, Calabrian pine, which constitute pre-forest stages.
On some rocky crests and along the streams on the east side, birch trees reach their maximum altitude limit (2,100 m). Here, in contact with the vegetation of the high mountain, they form low shrub populations that can become perennial vegetation.
In the upper part of the mountain-Mediterranean area, forest vegetation disappeared long ago due to human activity, having been largely replaced by the typical vegetation of the high mountain area (*Astragaletum siculi*). Here *Genista aetnensis* is widespread. This species is particularly suitable for the colonisation of young lava substrata and therefore constitutes a primary vegetation. However, it maintains the role of secondary vegetation in areas that were once occupied by forests. *Genista aetnensis* is an endemic species of Sicily and Sardinia, it forms the typical broom bushes of Etna. These bushes are linked to the meso-Mediterranean or supra-Mediterranean bioclimatic conditions and settle on poorly developed, well-drained and rather xeric soils, often consisting of sand and volcanic lapilli.
The syntaxonomic grouping of Etna broom bushes is quite complex due to their poor floristic composition. They are generally included in the groupings of the *Rhamno-Prunetea* class, which include the shrub vegetation of the area potentially occupied by the mesophilous deciduous forests of *Querco-Fagetea.*

High-Mediterranean Zone (between 2.200-2.250 m a.s.l. up to the limit of pioneer vegetation)

In the high mountain areas of Etna (all falling within the central area), the Mediterranean climate has a strong influence, thus allowing us to recognise a high Mediterranean area. As human activity has led to the lowering of the upper forest limits, its lower limit is difficult to establish.
Etna's high-Mediterranean area is characterised by a discontinuous camephite vegetation dominated by a thorny endemic species: *Astragalus siculus Biv*. This vegetation (*Astragaletum siculi*), with its large pulviniform bushes, can fix lapilli and volcanic sands. Present at altitudes up to 2,400-2,450 m, it characterises the lower bands of the high mountain

area. The upper belt is characterised by an endemic community very poor in pioneer species. The rocky areas feature *Berberis aetnensis Presl* and *Juniperus hemisphaerica Presl* and, at a lower altitude, are *Genista aetnensis* and *Adenocarpus bivonei Presl*.
Beyond the climatic limit of the *Astragaletum siculi* (2,450 m a.s.l.), the vegetation is considerably poorer and progressively more sporadic. In the highest areas, the species (almost all endemic) form separate colonies. These include *Rumex aetnensis C. Presl* and *Anthemis aetnensis Schow*, which characterize the pioneering endemic community *Rumici Anthemidetum aetnensis*, which belongs to the endemic alliance *Rumici-Astragalion siculi* together with *Astragaletum siculi.*
At the upper limit of this pioneering vegetation (2,900-2,950 m), the few plants that manage to adapt to difficult conditions (*Robertia taraxoides* and the endemic *Anthemis aetnensis*, *Senecio aethnensis Jan*, *Rumex aetnensis*) are continuously exposed to the destructive action of the volcano, which often prevents them from surviving due to the discharge of material and the emission of gas. Above this area, the survival of any type of plant is impossible: it is the area of the terminal cone, from 3,000-3,050 m to the top (3,370 m). In this "volcanic desert", the forces of the volcano reign undisturbed.

FRAMEWORK OF SYNTAXA

Mediterranean forest vegetation

QUERCETEA ILICIS Br.-Bl. 1947
QUERCETALIA ILICIS Br.-Bl. ex Molinier 1934 em. Rivas Martinez 1975
QUERCION ILICIS Br.-Bl. ex Molinier 1934 em. Brullo, Di Martino & Marcenò 1977
Oleo-Quercetum virgilianae Brullo 1984
Celtido aetnensis-Quercetum virgilianae Brullo & Marcenò 1985
ERICO-QUERCION ILICIS Brullo, Di Martino & Marcenò 1977
QUERCENION DALECHAMPII Brullo 1984
Teucrio siculi-Quercetum ilicis Gentile 1969 em. Brullo & Marcenò 1985
Arabido-Quercetum congestae Brullo & Marcenò 1985
Aceri obtusati-Ostryetum carpinifoliae Brullo & Marcenò 1985
Festuco heterophyllae-Quercetum congestae Brullo & Marcenò 1985

Orophilous forest vegetation

PINO-JUNIPERETEA Rivas-Martínez 1964
JUNIPERETALIA HEMISPHAERICAE Rivas-Martínez & Molina in Rivas-Martínez et al. 1999
BERBERIDION AETNENSIS Brullo, Giusso & Guarino 2001
PINENION CALABRICAE Brullo, Giusso & Guarino 2001
Junipero hemisphaericae-Pinetum calabricae Brullo & Siracusa in Brullo et al. 2001
Bellardiochloo aetnensis-Juniperetum hemisphaericae Brullo & Siracusa in Brullo et al. 2001

Mesophilic forest vegetation

QUERCO-FAGETEA Br.-Bl. & Vlieger in Vlieger 1937
FAGETALIA SYLVATICAE Pawloski in Pawloski et al. 1928
DORONICO-FAGION (Gentile 1969) Ubaldi et al. 1990
Epipactido meridionalis-Fagetum sylvaticae Brullo et al. 1999
QUERCETALIA PUBESCENTI-PETRAEAE Klika 1933
PINO-QUERCION CONGESTAE Brullo et al. 1999
Agropyro panormitani-Quercetum congestae Brullo et al. 1999
Vicio cassubicae-Quercetum cerridis Brullo & Marcenò 1985
Aggr. a *Pinus nigra* ssp. *calabrica*
Aggr. a *Betula aetnensis*

Pulvinous vegetation of the Sicilian-Calabrian high mountains

RUMICI-ASTRAGALETEA SICULI Pignatti & Nimis in Pignatti et al. 1980 em. Mucina 1997
RUMICI-ASTRAGALETALIA SICULI Pignatti & Nimis in Pignatti et al. 1980
RUMICI-ASTRAGALION SICULI Poli 1965
Astragaletum siculi (Frei 1940) Gilli 1943
Senecioni-Anthemidetum aetnensis Frei 1940
Festuco circummediterraneae-Bellardiochloetum aetnensis Frei 1940
Cerastio-Hieracietum pallidi Brullo & Siracusa in Brullo et al. 2005

Glareicular camephite vegetation

SCROPHULARIO-HELICHRYSETEA ITALICI Brullo, Scelsi & Spampinato 1998
SCROPHULARIO-HELICHRYSETALIA ITALICI Brullo 1984
LINARION PURPUREAE Brullo 1984
Centrantho-Senecionetum ambigui Brullo & Marcenò in Brullo 1984

Chasmophytic vegetation of the rocky walls
ASPLENIETEA TRICHOMANIS (Br.-Bl. in Meier & Br.-Bl. 1934) Oberdorfer 1977
ANOMODONTO-POLYPODIETALIA O. Bolòs & Vives in O. Bolòs 1957
BARTRAMIO-POLYPODION SERRATI O. Bolòs & Vives in O. Bolòs 1957
Bartramio strictae-Polypodietum serrulati Brullo & Siracusa in Brullo et al.2004
POHLIO CRUDAE-ASPLENION SEPTENTRIONALIS Brullo & Siracusa in Brullo et al.2004
Pohlio crudae-Cystopteridetum dickieanae Brullo & Siracusa in Brullo et al. 2004
CHEILANTHETALIA MARANTO-MADERENSIS Saenz & Rivas Martinez 1979
PHAGNALO SAXATILE-CHEILANTHION MADERENSIS Loisel 1970 corr.
Phagnalo saxatilis-Cheilanthetum maderensis Loisel 1970 corr.

Perennial herbaceous vegetation of the mesophilic meadows
MOLINO-ARRHENATERETEA R. Tx. 1937
PLANTAGINETALIA MAJORIS R. Tx. & Preising in R. Tx. 1950
AGROPYRON-RUMICION CRISPI Nordhagen 1940
Carici otrubae-Juncetum inflexi Minissale & Spampinato 1987
Epilobio hirsuti-Agropyretum repentis Minissale & Spampinato 1987

Ephemeral vegetation of temporary ponds
ISOETO-NANOJUNCETEA Br.-Bl. & R.Tx. ex Westhoff et al. 1956
NANOCYPERETALIA FUSCI Klika 1935
VERBENION SUPINAE Slavnic 1951
Coronopo-Sisymbrielletum dentatae Minissale & Spampinato 1987

Vegetation of freshwater submerged hydrophytes
POTAMETEA Klika in Klika & Novak 1941
POTAMETALIA Koch 1926
NINPHAEION ALBAE Oberdorfer 1957
Myriophylletum spicati Soò 1927

Vegetation infesting cultivated land
STELLARIETEA MEDIAE R. Tx., Lohmeyer & Preising ex v. Rochow 1951
SOLANO-POLYGONETALIA CONVOLVULI (Sissingh in Westhoff et al. 1946) O. Bolòs 1962
DIGITARIO ISCHAEMI-SETARION VIRIDIS Sissingh in Westhoff et al.1946 corr.
CHENOPODION BOTRYOS Brullo & Marcenò 1980
Heliotropietum bocconei Brullo & Marcenò 1980
URTICO-SCROPHULARIETALIA PEREGRINAE Brullo in Brullo & Marcenò 1985
VERONICO-URTICION URENTIS Brullo in Brullo & Marcenò 1985
Fumario-Stellarietum neglectae Maugeri ex Brullo & Marcenò 1985
GERANIO-CARDAMINETALIA HIRSUTAE Brullo in Brullo & Marcenò 1985
VALANTIO-GALION MURALIS Brullo in Brullo & Marcenò 1985
Galio muralis-Sedetum cepaeae Brullo & Marcenò 1985
Cruciato-Buglossoidetum splitgerberi Brullo & Marcenò 1985

3.2.2.4 Floristic resources

The plants that populated Etna after its formation had to adapt to the difficult conditions they found there: a great variety of new lava substrata at altitudes that had never existed before in Sicily. This created considerable selective pressures on the flora, especially on that which conquered the highest slopes. Here the intense volcanic activity and harsh climate provided the least hospitable conditions. On these slopes, plant life is represented by few species, all highly specialised and to some extent differentiated from the original form.
The ongoing differentiation of new forms of life has led to the formation of new entities, i.e., endemic species. Their differentiation from the original forms is often not very evident, due to the relatively young age of the volcano.
Another noteworthy feature of Etna is the presence of rare and / or uncommon species (such as *Pistacia lentiscus*, *Notholena vellea, Scilla bifolia, Acer platanoides, Erica arborea, Carex otrubae*, etc.), locally endangered species and species that “sheltered” in and adapted to the particular volcanic habitat.

These precious elements of Etna's flora, which continues to grow in oftentimes extremely harsh conditions, require particular attention.
Etna's flora is quite rich, being composed of just over 1,400 species, out of which 160 are located in the high mountain area, with 22 growing at altitudes between 2,100 m and 3,000-3,050 m a.s.l. In order to highlight its value, it is important to mention some records of species observed at the highest altitudes of the volcano, between 2,110 and 3,050 m a.s.l. In the following table, Etna's endemic species are marked with an asterisk (*).

***Table no.* 15 - Floristic species of Etna's high altitudes**

	Species	m a.s.l.
*	*Anthemis aetnensis*	3.050
*	*Senecio aethnensis*	3.050
*	*Rumex aetnensis*	3.000
	Robertia taraxoides	3.000
*	*Cerastium tomentosum ssp. aetneum*	2.800
*	*Viola aethnensis*	2.800
*	*Scleranthus vulcanicus*	2.680
*	*Poa aetnensis*	2.675
	Festuca circummediterranea	2.600
*	*Astracantha sicula*	2.550
	Saponaria sicula	2.525
	Tanacetum siculum	2.500
	Sagina subulata	2.475
*	*Scleranthus aetnensis*	2.450
	Bromus tectorum	2.450
	Juniperus hemispherica	2.450
	Galium aetnicum	2.350
	Pinus nigra ssp. *calabrica*	2.350
	Poa bulbosa	2.330
	Populus tremula	2.300
	Potentilla calabra	2.300
	Cuscuta epythimum ssp. *kotschyi*	2.300
	Secale strictum	2.300
	Epilobium angustifolium	2.300
	Berberis aetnensis	2.260
	Fagus sylvatica	2.250
	Trifolium semipurpureum	2.200
	Phleum ambiguum	2.160
	Jasione echinata	2.150
	Satureja meridionalis	2.150
	Calamagrostis epigejos	2.140
*	*Betula aetnensis*	2.110

3.2.2.5 Faunistic resources

The wealth of Etna's fauna is widely documented and was partly the basis for the establishment of the Park and the identification of the numerous Natura 2000 sites present in its territory (for a detailed description, refer to Annex 7 Nomination document and to the fauna-related content of the N2000 Management Plan).

The composition of the animal communities reflects the great variety of habitats featured on the volcano. The geological evolution of Etna is relatively recent. Species from the Peloritani and Nebrodi mountains initiated the process of animal colonisation. However, in Sicily, the particular, altitude-related, ecological conditions allow the presence of unique species. Generally, Etna hosts endemisms derived from European and Alpine populations isolated during the Quaternary era glaciations. In general, no paleoendemisms can be found, except for those that migrated from neighbouring territories in the last million years. In turn, it is possible to find numerous neo-endemic taxa, originating from the isolation of populations of European, or Apennine species, forced to move to Sicily by the Quaternary glaciations. These populations, which subsequently remained isolated, were therefore able to differentiate at a specific or sub-specific level.

Many Vertebrates species of conservation value are present in the territory. It is here worth to highlight the following: among Mammals,the wild cat (*Felis silvestris*), a vulnerable carnivorous whose presence is marked by an important population, the Italian hare (*Lepus corsicanus*), the porcupine (*Hystrix cristata*), the garden dormouse (*Eliomys quercinus*), the dormouse (*Glis glis*), the greater rhinolophus (*Rhinolophus ferrumequinum*), a species of bat included in Annex II of the Habitats Directive, which, like 7 other species of Chiroptera, takes shelter in the numerous lava caves. Among the Birds, the Golden Eagle (*Aquila chrysaetos*), the Lanner Falcon (*Falco biarmicus*), the Rock of Sicily (*Alectoris graeca Withakeri*), the Codibugnolo of Sicily (*Aegithalos caudatus siculus*), the Cruises (*Loxia curvirostra*) a localised species that nests in the natural woods of *Pinus laricio*.

Overall, however, there are more than seventy bird species protected by international laws. Numerous species related to aquatic environments can be spotted during the migration period in the Gurrida area. Amphibians are also mainly concentrated in this area; these include the Italian tree frog (*Hyla intermedia*) and the painted frog (*Discoglossus pictus*). Among the reptiles, the Sicilian marsh tortoise (*Emys trinacris*), only present in Lake Gurrida, while the rarer Hermann's tortoise (*Testudo hermanni*) is reported inside the UNESCO site in two wooded sites on the western side. Both species are prioritised under the “Habitat Directive”.

Additional in-depth studies are necessary to draft an all-encompassing checklist of invertebrate species. However, zoo-geographical regions are adequately characterised by the species already reported.

Mount Etna’s specifically endemic invertebrate species mainly belong to the class of Diplopods (*Brachyiulus aetnensis, Cylindroiulus aetnensis* and *Buchneria sicula*). Insects feature the largest number of other endemic species such as *Ectobius lagrecai* (Blattoidea), several Heteroptera (*Alloeotomus aetneus, Psallus aetnicola* and *Scioris cursitans pallidicornis*) and Homoptera (*Anoplotettix aetnensis*, *Anoplocephalus punctum sicus* and *Rhytistylus proceps lavicus*). Among the Coleoptera, there are many species with different levels of adaptation to rocky environments, such as *Lionychus fleischeri focarilei* (Carabidae), which lives in the summit areas of the volcano inside gullies where rainwater flows, the *Staphylinidae Medon perniger fraudulentum* (Staphylinidae), a subspecies local Apennine, forest-based and essentially thermophilic, *Buprestis aetnensis* (Buprestidae), typical of the *Pinus laricio* and *Attalus aetnensis* (Melyridae) woods that are common in open hilly and mountainous environments. There are many Sicilian endemic species that have limited distribution to the mountainous areas of north-eastern Sicily, such as the *Phyllodromica tyrrhenica* (Blattoidea), the *Platyderus canaliculatus* (Carabidae) typical of the litterfloor of the Nebrodi and Etna woods, and the *Chlaenius borgiai*, also present on the Madonie.Some European species, at the southern limit of their range, increase the biodiversity of the Etna’s animal communities, including the *Orthoptera Leptophyes punctatissima* and the *Stenobothrus lineatus* up to 1,500 m a.s.l., and *Poecilimon laevissimus*, present in Italy only in some Etna sites. Among the Rincoti, the heteropteran *Cyrtopeltis geniculate*, only living in the area of the Alps and Mount Etna, and the homopteran *Oncopsis subangulata*, a Euro-Sibirica species that lives and feeds on birches. Lepidoptera featurethe *Anthocaris damonae*, whose only Sicilian population can be found here. Several European coleopterans are here located, such as A*braeus parvulus* (Histeridae), *Ampedus coenebita* (Elateridae), *Exomala leonii* (Rutelidae), *Anthaxia gìorgioi* and *Agrilus albomarginatus* (Buprestidae). The pine forests, the only available in Sicily, host some species of Cerambycidae such as *Spondylis buprestoides*, *Ergates faber*, *Acanthocinus henschi*.

Such variety in animal life is certainly of great cultural and scientific relevant and deserves to be protected as a precious heritage for future generations, together with the habitats connected to it. Particularly important fauna habitats are the volcanic caves from prehistoric and more recent periods. Many studies conducted in the 1970sfocused on the creation of a list of animals dwelling in Etna’s numerous caves thanks to incredible physiological and morphological adaptations. The investigations conducted on 36 caves led to the discovery of 65 species, 35 of which live perennially inside the caves. Most of them are relics of species that are extinct outside the caves and their presence is a precious heritage that needs active conservation.

Perspectives for the WHS plan

Though being also nominated for the value of its biological communities, Mount Etna was recognised as a World Heritage Site only for its exceptional geological values (criterion no. VIII). In fact, although the IUCN Commission acknowledged that "Etna retains important ecosystems and terrestrial communities" and that "Etna’s frequent and intense volcanic activity makes it a natural laboratory for the study of ecological and biological processes", it considered these values "secondary to Mount Etna’s iconic values for geosciences". For this reason, the protection of fauna is not among UNESCO’s primary objective. However, it undoubtedly represents one of the site’s key added values, an important tourism attractor and a source of pride for the Park and local communities.

As always, the preservation of fauna is achieved through the protection and enhancement of those species that are capable to raise the awareness of a large audience, i.e., the so-called "flag" species. Basic studies, monitoring and particular protection actions are concentrated on these, thus fostering positive consequences for the protection of entire animal communities.

The most representative species on which studies and monitoring have recently focused on the Etna Park are the wild cat, the golden eagle and the Sicilian rock partridge.

As for the wild cat, studies highlighted the importance of the Sicilian population as its isolation, with consequent genetic divergence, made it a distinct "conservation unit" compared to the peninsular population. In addition, its density on Mount Etna was among the highest to be recorded in literature, which indicates that the protection given by the establishment of the Park has proved very beneficial to this species, as it finds here both suitable habitats and abundant preys. Therefore, it would be necessary to implement the "Conservation Plan" created by the Department of Biological, Chemical and Pharmaceutical Sciences and Technologies of the University of Palermo in collaboration with the Park Authority and the Wildlife&Hunting Division of Catania, and consistently monitor the population and further reduce the (few) risks it runs (mainly from genetic pollution and fires).

Closely related to studies on wild cats and golden eagles is the monitoring of the wild rabbit population, which is the main source of food for these species, but also a source of conflict with the owners of productive agricultural areas located within the Park.

Other animal groups could draw public attention in addition to being of preservation interest.

Among vertebrates, particularly “fascinating” and relevant for preservation are Chiroptera (bats). Scientific knowledge on this group is still scarce and additional research should be consequently carried out; in fact, due to the great abundance of shelters, the site easily hosts numerous bats populations.

Butterflies are certainly among the most “attractive” invertebrates; among the lepidoptera, it is worth mentioning the *Euplagia quadripunctaria*, the only invertebrate species from among those listed in Annex II of the “Habitat directive” that is actually present on Mount Etna.

Other groups of invertebrates are less visible to the eyes of a large audience but are nonetheless relevant for their biological value. The composition of invertebrate communities is an important indicator of the health status of habitats.

A research on saproxilic invertebrate fauna – particularly on coleopterans (among which are also very eye-catching species) - would be of great interest both from a conservation and ecological point of view, due to the role it plays in forests. A study by the IUCN (Nieto, A. and Alexander, KNA 2010, *European Red List of Saproxylic Beetles*), also funded by the EU, shows that almost 11% of saproxyl beetles are endangered and almost 14% of the beetles evaluated (60 species) are thought to have significantly declining populations. Unfortunately, conditions contributing to this decline are far from being removed. The loss and decline of their habitat, associated with deforestation and timber harvesting in forests, or the general decline of old trees all across the landscape represent the main threats.

In general, deadwood constitutes an important and irreplaceable source of biodiversity, which contributes to increasing the complexity and the stability of forest ecosystems. In deadwood, mosses and fungi covering it, a rich and complex community is concentrated, which in a modest volume can give rise to an entire trophic chain comprising decomposers, fungivorous and primary (on mosses and algal patinas) as well as secondary consumers (predators or parasites). This complexity results from the high diversification of deadwood types and of the ecological niches therein created. Deadwood also plays other important roles: it contributes to the supply of nutrients to the soil; it favours the ground’s stability; it provides a useful substrate for seed germination and a shelter for many animals.

The ecological and functional importance of deadwood and of the relevant organisms suggests that its conservation and monitoring fall within the good management practices of all forest areas.

The invertebrate fauna is also particularly relevant for environmental education activities, as demonstrated by the experience of the "Butterfly House" in Viagrande, but above all, they can enrich the tourist experience through the dissemination of studies by means of brochures, information boards or websites.

3.2.2.6 *Features of the Rete Natura 2000 Sites*

Here are described the key features of all the Natura 2000 sites falling within the WHS, with specific reference to their territorial and landscape physiography, as reported in the relevant Natura 2000 Standard Handbook.

SCZ ITA070009 – High mountain belt of Etna

It covers a total area of about 5,951.0 ha, touching the territories of the municipalities of Adrano, Belpasso, Biancavilla, Bronte, Castiglione di Sicilia, Linguaglossa, Maletto, Nicolosi, Piedimonte Etneo, Ragalna, Randazzo, S. Alfio and Zafferana Etnea.

The cacuminal part of Etna falls on this site. The area is located at 1,800-3,300 m and it features an oromediterranean or cryo-oromediterranean bioclimate with an ombrotype between lower and upper humid, according to altitudes. Furthermore, between the first half of the autumn period and the first half of the spring period, a thick snow layer covers the slopes of the volcanic building. In the highest area, the volcanic desert can be observed, due to the almost total absence of vegetation. This is due to both the harsh climate and the volcanic activity. Between 2,000 and 2,700 m on the surfaces not affected by recent lava flows, a pulvinous orophilous vegetation is established, characterised by by a more reduced and bare aspect, dominated by *Anthemis aetnensis* and *Rumex aetnensis*, or, in stations located at lower altitudes, from formations of *Astragalus siculus*. Mixed with astragalets, in the rockiest stations, dwarf shrubs ad *Juniperus hemisphaerica* and *Berberis aetnensis* can be found. Under 2000 m there are forest formations represented by beech woods, limited to more mature soils, pine forests of *Pinus nigra ssp. calabrica* in the rockiest stations, and birch groves of *Betula aetnensis* in the sandier parts.

This area is characterised difficult conditions of extreme summer dryness, cold winter temperatures accompanied by long periods of snow, frequent volcanic eruptions that represent a strong disturbance to animal communities.

The following list shows the habitats of EU relevance (as listed in Annex I of Directive 42/93 EEC) that can be found on the Site. The symbol (*) indicates the "priority" areas (i.e., the types of natural habitats that risk disappearing across the EU) and for the conservation of which the EU is responsible due to their relevance.

- 4090 – Endemic oro-Mediterranean heaths with gorse
- 6220* - Pseudo-steppe with grasses and annual of the *Thero-Brachypodietea*
- 8130 - Western Mediterranean and thermophilous scree
- 8220 - Siliceous rocky slopes with chasmophytic vegetation
- 8320 – Fields of lava and natural excavations
- 9210* - Apennine beech forests with Taxus and Ilex
- 9530* - (Sub-)Mediterranean pine forests of endemic black pines

The following list includes the plant species featured in the Site and shown in table no. 3.3 of the handbook. This are sometimes of great importance even if not included in Annex II of Directive 42/93 EEC, because they constitute endemisms or belong to the national and regional “red lists”.

- *Acinos aetnensis*
- *Anthemis aetnensis*
- *Arabis rosea*
- *Asplenium septentrionale*
- *Astracantha sicula*
- *Bellardiochloa variegata* ssp. *aetnensis*
- *Berberis aetnensis*
- *Carlina nebrodensis*
- *Centaurea giardinae*
- *Cerastium tomentosum var. aetnaeum*
- *Epipactis meridionalis*
- *Erysimum aetnicum*
- *Galium aetnicum*
- *Juniperus hemisphaerica*
- *Linaria purpurea*
- *Myosotis incrassata*
- *Pinus nigra* ssp. *calabrica*
- *Robertia taraxacoides*
- *Rumex aetnensis*
- *Saponaria sicula* ssp. *sicula*
- *Scleranthus aetnensis*

- *Scleranthus perennis subsp. vulcanicus*
- *Senecio aetnensis*
- *Viola aethnensis* ssp. *aethnensis*
- *Viola parvula*

The Site features the following species of Annex I of the "Birds Directive" and Annex II of the "Habitats Directive":

Name	Scientific name	Group
Sicilian Partridge	*Alectoris graeca whitakeri*	Birds
Woodlark	*Lullula arborea*	Birds

SCZ ITA070010 - Dammusi

The site covers an area of approximately 2,051.0 ha within the territories of the municipalities of Bronte, Castiglione di Sicilia and Randazzo.

The site is located on the northern slope of Etna, with surfaces placed at altitudes between 1,500 and 2,400 m. It features areas characterised by rocky extrusions interpolated with stations with very mature and evolved soils. It is particularly worth mentioning the flowing lava caves, some of which are very deep and spectacular. The bioclimate is between the supra-Mediterranean and the oro-Mediterranean with an ombrotype between the lower and the upper subhumid.

At higher altitudes, above 1,800-2,000 m, pulvinous vegetation prevails, with *Astragalus siculus* or *Anthemis aetnensis*, while at lower altitudes we find flaps of beech woods on more mature soils or pine forests of *Pinus nigra ssp*. *Calabrica* in the most rocky stations. Lava fields with pioneer vegetation are frequent.

The following list shows the habitats of EU relevance (as listed in Annex I of Directive 42/93 EEC) that can be found on the Site.

- 4090 - Endemic oro-Mediterranean heaths with gorse
- 6220* - Pseudo-steppe with grasses and annual of the Thero-Brachypodietea
- 8130 - Western Mediterranean and thermophilous scree
- 8220 - Siliceous rocky slopes with chasmophytic vegetation
- 8320 - Fields of lava and natural excavations
- 91AA*- Eastern white oak woods
- 9210* - Apennine beech forests with Taxus and Ilex
- 9260 - Castanea sativa woods
- 9530* - (Sub-)Mediterranean pine forests with endemic black

The following list includes the plant species featured in the Site and shown in table no. 3.3 of the handbook. This are sometimes of great importance even if not included in Annex II of Directive 42/93 EEC, because they constitute endemisms or belong to the national and regional "red lists".

- *Acinos aetnensis*
- *Anthemis aetnensis*
- *Arabis rosea*
- *Asplenium septentrionale*
- *Astracantha sicula*
- *Bellardiochloa variegata ssp. aetnensis*
- *Berberis aetnensis*
- *Cardamine glauca*
- *Carlina nebrodensis*
- *Centaurea giardinae*
- *Cephalantera longifolia*
- *Cerastium tomentosum var. aetnaeum*
- *Dactylorhiza romana*
- *Epipactis meridionalis*
- *Epipactis microfilla*
- *Erysimum aetnicum*
- *Galium aetnicum*
- *Juniperus hemisphaerica*
- *Linaria purpurea*
- *Myosotis incrassata*
- *Pinus nigra* ssp. *calabrica*
- *Robertia taraxacoides*

- *Rumex aetnensis*
- *Saponaria sicula* ssp. *sicula*
- *Scleranthus aetnensis*
- *Scleranthus perennis* subsp. *vulcanicus*
- *Senecio aetnensis*
- *Viola aethnensis* ssp. *aethnensis*
- *Viola parvula*

The Site features the following species of Annex I of the "Birds Directive" and Annex II of the "Habitats Directive":

Name	Scientific Name	Group
Sicilian partridge	*Alectoris graeca whitakeri*	Birds
Woodlarker	*Lullula arborea*	Birds

SCZ ITA070012 - Pineta di Adrano e Biancavilla

The area covers approximately 2,378.0 ha across the municipalities of Adrano, Belpasso, Biancavilla, Bronte, Ragalna. The site is located in the mid-western and south-eastern side of Etna, at altitudes between 1,300 and 1,900 m a.s.l.

The area is affected by a succession of dated and undated lava flows generally with a leathery surface, among which are eruptive cones consisting of pyroclastic products isolated or aligned along eruptive fractures distributed across the territory. The morphology is gently degrading with a slight and constant slope towards the valley; the slopes are characterised by valley incisions alternating with ridges and gullies. These are moderately engraved by the erosive action of the flowing waters.

The "Nuova Gussonea" Botanical Garden is located within the site area. Here it is possible to observe a slightly steep morphological trend, with "pahoehoe" and mound type surface morphologies lava flows, upon which ephemeral mouths are aligned with Hawaiian morphology lavas.

In the northeast area, it is worth mentioning the cave of St. Barbara, a typical lava flow cavity consisting of a well-shaped opening several tens of metres deep.

From a hydrographic point of view, there are several incisions channelling the flowing waters from upstream areas; there are no perennial springs, nor water stagnation areas.

The climate is Mediterranean, but greatly influenced by altitude: during colder months, the average monthly temperature is around 0 ° C or below, while the average annual temperature is slightly above 7° C. Precipitations follow the typical Mediterranean trend and are overall very high (897 mm Serra La Nave - 1,250 m a.s.l.). The bio-climate falls within the lower sub-humid supra-Mediterranean type and partly within the upper sub-humid oro-Mediterranean. The surfaces are mainly covered by *Pinus nigra ssp. calabrica* pine forests, sometimes mixed with small areas of poplar trees. At lower altitudes, formations of *Quercus congesta* can be found. Thinned bushes and ephemeral meadows settle in the more open and rocky stations.

The SCZ features the following habitats of Annex I of Directive 42/93 / EEC (the asterisk indicates "priority" ones):

- 4090 - Endemic oro-Mediterranean heaths with gorse
- 6220* - Pseudo-steppe with grasses and annual of the Thero-Brachypodietea
- 8130 - Western Mediterranean and thermophilous scree
- 8320 - Fields of lava and natural excavations
- 91AA* - Eastern white oak woods of Southern Italy and Sicily
- 9210* - Apennine beech forests with Taxus and Ilex
- 9260 - Castanea sativa woods
- 9340 - Quercus ilex and Quercus rotundifolia forests
- 9530* - (Sub-)Mediterranean pine forests with endemic black

The following list includes the plant species featured in the Site and shown in table no. 3.3 of the handbook. This are sometimes of great importance even if not included in Annex II of Directive 42/93 EEC, because they constitute endemisms or belong to the national and regional "red lists".

- *Anthemis aetnensis*
- *Astracantha sicula*
- *Carlina nebrodensis*
- *Centaurea giardinae*
- *Cephalanthera longifolia*
- *Cyclamen neapolitanum*

- *Cyclamen repandum*
- *Dactylorhiza romana*
- *Epipactis meridionalis*
- *Epipactis microfilla*
- *Erysimum aetnicum*
- *Genista aetnensis*
- *Pinus nigra* ssp. *calabrica*
- *Populus tremula*
- *Robertia taraxacoides*
- *Ruscus aculeatus*
- *Senecio siculus*
- *Silene sicula*

The Site features the following species of Annex I of the "Birds Directive" and Annex II of the "Habitats Directive":

Name	Scientific name	Group
Golden eagle	*Aquila chrysaetos*	Birds
Collared flycatcher	*Ficedula albicollis*	Birds
Hermann's tortoise	*Testudo hermanni*	Reptiles

SCZ ITA070013 - Pineta di Linguaglossa

It includes a modest area covering about 605.0 ha across the municipalities of Castiglione di Sicilia and Linguaglossa. The site is located on the north-eastern side of Etna at altitudes between 1,300 and 1,600 m, in a unique landscape dominated by the volcano's looming presence and characterised by very ancient lava flows. These are essentially colonised by majestic of *Pinus nigra ssp. Calabrica* forests, mixed with small strips of deciduous oak woods of *Quercus congesta* and *Quercus dalechampii* and beech woods. The few lava fields are related to fairly recent flows and are colonised by a sparse vegetation with small cameaphites and hemicryptophytes.

In particular, the majestic *Pinus nigra ssp. Calabrica* wood is composed of very mature pine forests with a remarkable historical value, as they have been known as the "pine forest of Linguaglossa" since centuries ago. The extensive pine forests have been intensively exploited as coppice and satin cut since the most remote ages. However, they retain interesting, highly natural areas.

The climate is Mediterranean with an average annual temperature of 14.3 ° C and high annual average precipitation (1,130 mm). The area falls within the upper humid supramediterranean bioclimatic belt.

The SCZ features the following habitats as listed in Annex I of Directive 42/93/CEE (asterisk marks the "priority ones):

- 4090 - Endemic oro-Mediterranean heaths with gorse
- 8320 - Fields of lava and natural excavations
- 91AA* - Eastern white oak woods of Southern Italy and Sicily
- 9210* - Apennine beech forests with Taxus and Ilex
- 9260 - Castanea sativa woods
- 9530* - (Sub-)Mediterranean pine forests with endemic black

The following list includes the plant species featured in the Site and shown in table no. 3.3 of the handbook. This are sometimes of great importance even if not included in Annex II of Directive 42/93 EEC, because they constitute endemisms or belong to the national and regional "red lists".

- *Cephalanthera longifolia*
- *Daphne laureola*
- *Genista aetnensis*
- *Juniperus hamisphaerica*
- *Linaria purpurea*
- *Pinus nigra ssp. calabrica*
- *Quercus congesta*
- *Quercus dalechampii*
- *Senecio ambiguus*

The Site features the following species of Annex I of the "Birds Directive" and Annex II of the "Habitats Directive":

Name	Scientific name	Group
Greater horseshoe bat	*Rhinolophus ferrumequinum*	mammals

SCZ ITA070014 - M. Baracca, Contrada Giarrita

It covers a total area of about 1,716.0 ha across the municipalities of Linguaglossa, Piedimonte Etneo and S. Alfio.

The site is located on the north-eastern side of Etna, at altitudes between 1,000 and 1,900 m, and is essentially characterised by ancient lava flows crossed by more recent flows in some places. The climate is Mediterranean with an average annual temperature of 14.3 ° C, while the average annual rainfall is high (1130 mm) even if in line with the typical Mediterranean trend. Based on climatic, altimetric and slope exposure data, the SCZ presents a bioclimate between the upper sub-humid Mediterranean and the upper humid supra-Mediterranean belt.

As for the vegetative aspects, the orophilous woods of *Betula aetnensis* are quite widespread and well represented on inconsistent substrata, while woods of *Pinus nigra ssp. calabrica* can be found on rocky outcrops. Extra-zonal beech forests and formations of *Populus tremula* are less frequent. At lower altitudes, deciduous forests of *Quercus cerris* or *Quercus congesta* are located. On volcanic "sciaras" and in lava fields, aspects of pioneer vegetation with small shrubs or thickets of *Genista aetnensis* can be observed.

The SCZ features the following habitats as listed in Annex I of Directive 42/93/CEE (asterisk marks the "priority ones):

- 4090 - Endemic oro-Mediterranean heaths with gorse
- 6220* - Pseudo-steppe with grasses and annual of the Thero-Brachypodietea
- 8130 - Western Mediterranean and thermophilous scree
- 8320 - Fields of lava and natural excavations
- 91AA* - Eastern white oak woods of Southern Italy and Sicily
- 91M0 – Pannonian-Balkanic turkey oak- sessile oak forests
- 9210* - Apennine beech forests with Taxus and Ilex
- 9260 - Castanea sativa woods
- 92A0 - Salix alba and Populus alba galleries
- 9340 - Quercus ilex and Quercus rotundifolia forests
- 9530*- (Sub-)Mediterranean pine forests with endemic black

The following list includes the plant species featured in the Site and shown in table no. 3.3 of the handbook. This are sometimes of great importance even if not included in Annex II of Directive 42/93 EEC, because they constitute endemisms or belong to the national and regional "red lists".

- *Adenocarpus bivonei*
- *Anthemis aetnensis*
- *Asplenium septentrionalis*
- *Astracantha sicula*
- *Betula aetnensis*
- *Carlina nebrodensis*
- *Centaurea giardinae*
- *Cephalanthera longifolia*
- *Cyclamen neapolitanum*
- *Cyclamen repandum*
- *Dactylorhiza romana*
- *Epipactis meridionalis*
- *Epipactis microfilla*
- *Epipactis placentina*
- *Erysimum aetnicum*
- *Genista aetnensis*
- *Hieracium crinitum*
- *Pinus nigra* ssp. *calabrica*
- *Populus tremula*
- *Quercus cerris*
- *Robertia taraxacoides*
- *Ruscus aculeatus*
- *Senecio siculus*
- *Silene sicula*
- *Vicia cassubica*

The Site features the following species of Annex I of the "Birds Directive" and Annex II of the "Habitats Directive":

Name	Scientific name	Group
Woodlark	*Lullula arborea*	birds

SPZ-SCZ ITA070015 - Canalone del Tripodo

The SCZ covers approximately 1,946.0 ha across the municipalities of Nicolosi, Pedara, Trecastagni and Zafferana Etna. It is located in the mountain and high mountain belt of the south-eastern side of Etna at altitudes between 1,000 and 2,500 m. The volcanic substrata are very ancient and host mature and well-differentiated vegetation.

As for wood formations, beech forests can be found in the north-eastern part, while in the central and southern parts are chestnut groves, deciduous oaks (*Quercus congesta*), holm oaks, mixed oak woods, Calabrian pine forests, woods *Juniperus hemisphaerica* woods. In the oldest lava flows, the broom bushes of Etna are well represented, while in the more recent ones, *Helichrysum italicum* and *Senecio ambiguus* bushes can be found.

The highest stations (above 1,800 m) on the north-western side are instead colonised by thorny pulvinous bushes of *Astragalus siculus*, which are replaced by discontinuous vegetation of *Anthemis aetnensis* above 2000-2200 m. The bioclimate of the site in relation to the altitude ranges from the humid sub-Mediterranean to the humid Mediterranean.

The SCZ features the following habitats as listed in Annex I of Directive 42/93/CEE (asterisk marks the "priority ones):

- 4090 - Endemic oro-Mediterranean heaths with gorse
- 6220* - Pseudo-steppe with grasses and annual of the Thero-Brachypodietea
- 8130 - Western Mediterranean and thermophilous scree
- 8220 - Siliceous rocky slopes with chasmophytic vegetation
- 8320 - Fields of lava and natural excavations
- 91AA* - Eastern white oak woods of Southern Italy and Sicily
- 9210* - Apennine beech forests with Taxus and Ilex
- 9260 - Castanea sativa woods
- 9340 - Quercus ilex and Quercus rotundifolia forests
- 9530* - (Sub-)Mediterranean pine forests with endemic black

The following list includes the plant species that are found on the Site and shown in table no. 3.3 of the handbook. This are sometimes of great importance even if not included in Annex II of Directive 42/93 EEC, because they constitute endemisms or belong to the national and regional "red lists".

- *Asplenium septentrionale*
- *Erysimum etnense*
- *Galium aetnicum*
- *Genista aetnensis*
- *Hieracium pallidum*
- *Pinus nigra* ssp. *calabrica*

The Site features the following species of Annex I of the "Birds Directive" and Annex II of the "Habitats Directive":

Name	Scientific name	Group
Sicilian Partridge	*Alectoris graeca whitakeri*	Birds
Tawny pipit	*Anthus campestris*	Birds
Golden eagle	*Aquila chrysaetos*	Birds
Goatsucker	*Caprimulgus europaeus*	Birds
Western marsh harrier	*Circus aeruginosus*	Birds
Common wood pigeon	*Columba palumbus*	Birds
Peregrine falcon	*Falco peregrinus*	Birds
Woodlark	*Lullula arborea*	Birds
Egyptian vulture	*Neophron percnopterus*	Birds
European honey buzzard	*Pernis apivorus*	Birds

Name	Scientific name	Group
Eurasian woodcock	*Scolopax rusticola*	Birds
Corsican nuthatch	*Sitta whiteheadi*	Birds
Common blackbird	*Turdus merula*	Birds
Mistle thrush	*Turdus viscivorus*	Birds

SPZ-SCZ ITA070016 - Valle Del Bove

The site covers an area of approximately 3,101.0 ha across the municipalities of Milo, S. Alfio and Zafferana Etna.
It is a spectacular and huge valley. Its genesis is linked to particularly intense erosive processes during a phase of highly explosive eruptive activity of considerable volcanological interest, due to the spectacular lava coulters covering the area and the steep ridges delimiting it. Here the eroded volcano's layers emerge, cut by some lava dykes, which constituted the ducts or magmas' fractures of ascent.
The area is located at altitudes between 1,000 and 2,800 m. Lava flows into it coming from the summit eruptive cones and channelled along the eastern side. Where the extensive lava fields (covering about 70% of the area) are located, vegetation is absent, while on the highest spikes and along the edges of the valley there are plant formations. In the highest part, there are pulvinous bushes with *Astragalus siculus* or *Anthemis aetnensis*, while at lower altitudes we find flaps of glareic vegetation with *Helichrysum italicum* and shrubs of *Genista aetnensis*. The forest formations are rather rare and located in the higher parts where very mature soils are. Among these are beech woods, pine forests and deciduous woods. The climate of this area ranges from the supra-Mediterranean to the cryo-oro-Mediterranean with an ombrotype between the upper sub-humid and the lower humid.
The SCZ features the following habitats as listed in Annex I of Directive 42/93/CEE (asterisk marks the "priority ones):

- 4090 - Endemic oro-Mediterranean heaths with gorse
- 8130 - Western Mediterranean and thermophilous scree
- 8220 - Siliceous rocky slopes with chasmophytic vegetation
- 8320 - Fields of lava and natural excavations
- 91AA* - Eastern white oak woods of Southern Italy and Sicily
- 9210* - Apennine beech forests with Taxus and Ilex
- 9260 - Castanea sativa woods
- 9340 - Quercus ilex and Quercus rotundifolia forests
- 9530* - (Sub-)Mediterranean pine forests with endemic black

The following list includes the plant species featured in the Site and shown in table no. 3.3 of the handbook. This are sometimes of great importance even if not included in Annex II of Directive 42/93 EEC, because they constitute endemisms or belong to the national and regional "red lists".

- *Anthemis aetnensis*
- *Asplenium septentrionale*
- *Astracantha sicula*
- *Erysimum etnense*
- *Galium aetnicum*
- *Genista aetnensis*
- *Hieracium pallidum*
- *Juniperus hemisphaerica*
- *Pinus nigra* ssp. *calabrica*
- *Quercus congesta*
- *Rumex aetnensis*
- *Saponaria sicula* ssp. *sicula*
- *Scleranthus perennis subsp. vulcanicus*
- *Senecio aethnensis*
- *Senecio ambiguus*
- *Viola aethnensis* ssp. *aethnensis*

The Site features the following species of Annex I of the "Birds Directive" and Annex II of the "Habitats Directive":

Name	Scientific name	Group
Sicilian partridge	*Alectoris graeca whitakeri*	birds
Golden eagle	*Aquila chrysaetos*	birds
Western marsh harrier	*Circus aeruginosus*	birds
Peregrine falcon	*Falco peregrinus*	birds
Woodlark	*Lullula arborea*	birds
Egyptian vulture	*Neophron percnopterus*	birds
European honey buzzard	*Pernis apivorus*	birds

SPZ-SCZ ITA070017 - Sciare di Roccazzo della Bandiera

The site falls within the municipalities of Bronte and Maletto. It covers an area of approximately 2,760.0 ha and is located on the western side of Etna between 900 and 1,600 m. This area is characterised by clearly visible lava flows, most of which date back to the eruption of 1843. In particular, lava fields alternate with very interesting formations of ropes and hypogeums of varying depth. There are also numerous cones scattered over the entire surface.

The vegetation is mainly characterised by glareic or semi-rocky aspects with discontinuous coverage. It is dominated by *Helichrysum italicum*, *Centranthus ruber* and *Senecio ambiguus*. At the edge of the area, there are brushwoods of *Genista aetnensis* and evergreen forest formations of *Quercus ilex* or deciduous trees (*Quercus congesta*). Formations with small shrubs characterised by the presence of *Euphorbia rigida* can also be found in some sections. The bioclimate of the site is between mid-Mediterranean and sub-humid sub-Mediterranean.

The SCZ features the following habitats as listed in Annex I of Directive 42/93/CEE (asterisk marks the "priority ones):

- 4090 - Endemic oro-Mediterranean heaths with gorse
- 6220* - Pseudo-steppe with grasses and annual of the Thero-Brachypodietea
- 8220 - Siliceous rocky slopes with chasmophytic vegetation
- 8320 - Fields of lava and natural excavations
- 91AA* - Eastern white oak woods of Southern Italy and Sicily
- 9210* - Apennine beech forests with Taxus and Ilex
- 9340 - Quercus ilex and Quercus rotundifolia forests
- 9530* - (Sub-)Mediterranean pine forests with endemic black

The following list includes the plant species that are found on the Site and shown in table no. 3.3 of the handbook. This are sometimes of great importance even if not included in Annex II of Directive 42/93 EEC, because they constitute endemisms or belong to the national and regional "red lists".

- *Aceras anthropophorum*
- *Centaurea giardinae*
- *Euphorbia rigida*
- *Genista aetnensis*
- *Linaria purpurea*
- *Orchis quadripunctata*
- *Quercus congesta*
- *Senecio ambiguus*
- *Senecio chrysanthemifolius*

The Site features the following species of Annex I of the "Birds Directive" and Annex II of the "Habitats Directive":

Name	Scientific name	Group
Sicilian Partridge	Alectoris graeca whitakeri	Birds
Golden eagle	Aquila chrysaetos	Birds
Goatsucker	Caprimulgus europaeus	Birds
Western marsh harrier	Circus aeruginosus	Birds
Peregrine Falcon	Falco peregrinus	Birds
Woodlark	Lullula arborea	Birds
Black kite	Milvus migrans	Birds

Moon orchid	Ophrys lunulata	Plants
European honey buzzard	Pernis apivorus	Birds

SPZ-SCZ ITA070018 - Piano dei Grilli

It falls exclusively within the municipality of Bronte. It covers an area of approximately 1,239.0 ha located on the western side of Etna, at altitudes between 700 and 1400 m. The area is characterised by ancient flows currently covered by extensive deciduous oak and holm oak woods. On the rockier substrata represented by more recent flows, ther are small shrubs with a more or less discontinuous covering dominated by *Helichrysum italicum* and *Centranthus ruber*, or *Euphorbia rigida*. In flatter areas, or where soils are shallower, there are ephemeral steppe meadows dominated by terophytes and geophytes. The stations at lower altitudes feature cultivated or formerly cultivated lands. The bio-climate is comprised between the meso-Mediterranean and the supra-Mediterranean type with an ombrotype ranging from the lower to the upper subhumid.

The SCZ features the following habitats as listed in Annex I of Directive 42/93/CEE (asterisk marks the "priority ones):

- 4090 - Endemic oro-Mediterranean heaths with gorse
- 6220* - Pseudo-steppe with grasses and annual of the Thero-Brachypodietea
- 8130 - Western Mediterranean and thermophilous scree
- 8320 - Fields of lava and natural excavations
- 91AA* - Eastern white oak woods of Southern Italy and Sicily
- 9260 - Castanea sativa woods
- 9340 - Quercus ilex and Quercus rotundifolia forests
- 9530* - (Sub-)Mediterranean pine forests with endemic black

The following list includes the plant species featured in the Site and shown in table no. 3.3 of the handbook. This are sometimes of great importance even if not included in Annex II of Directive 42/93 EEC, because they constitute endemisms or belong to the national and regional "red lists".

- *Arrhenatherum nebrodense*
- *Centaurea giardinae*
- *Euphorbia rigida*
- *Genista aetnensis*
- *Linaria purpurea*
- *Molineriella minuta*
- *Quercus congesta*
- *Senecio ambiguus*

The Site features the following species of Annex I of the "Birds Directive" and Annex II of the "Habitats Directive":

Name	Scientific name	Group
Sicilian partridge	*Alectoris graeca whitakeri*	Birds
Tawny pipit	*Anthus campestris*	Birds
Golden eagle	*Aquila chrysaetos*	Birds
Goatsucker	*Caprimulgus europaeus*	Birds
Wester marsh harrier	*Circus aeruginosus*	Birds
Montagu's harrier	*Circus pygargus*	Birds
Lanner falcon	*Falco biarmicus*	Birds
Peregrine falcon	*Falco peregrinus*	Birds
Woodlark	*Lullula arborea*	Birds
Black kite	*Milvus migrans*	Birds
European honey buzzard	*Pernis apivorus*	Birds
Eurasian woodcock	*Scolopax rusticola*	Birds
Common blackbird	*Turdus merula*	Birds

SCZITA070019 - Lago Gurrida e Sciare di S. Venera

This SCZ falls within the Municipalities of Bronte, Maletto and Randazzo. It covers approximately 1,519.0 ha and is located in the northwestern side foothills of Etna at altitudes between 800 and 900 m. The territory is characterised by a 10 km^2 lava plateau. Its morphology ranges from slightly undulating to sub-flat. These are ancient lava flows that blocked some waterways flowing from the nearby Nebrodi chain. In addition to extensive rocky lava fields, there is also a peculiar wet area called "Gurrida Lake" which is periodically swamped by the waters coming from the Flascio river, among the few currently observable swamps in the Etna area.

The bio-climate is essentially sub-humid Meso-Mediterranean. The most significant vegetation aspects are located near Lake Gurrida. These are mostly annual and perennial hygrophilous formations. The terophytic associations refer to *Isoeto-Nanojuncetea* and reach their peak in the late spring-summer period; they host particularly rare species in Sicily, such as *Sisymbriella dentata, Teucrium divaricatum, Eryngium barrelieri*, etc. Enophitic perennial formations - such as *Phragmito-Magnocaricetea*, characterised by the dominance of *Alisma lanceolatum, Eloacaris palustris, Carex otrubae,* etc. - are quite widespread, as well as hemicryptophytes, among which various grasses and rushes predominate. Shrub aspects dominated by willows or spinescent species such as hawthorne and thorny plum can be also found here. The lava fields are covered discontinuously by ephemeral meadows of micro-phytes and by hemicripto-camephitic glareicular formations.

In the SCZ, there are the following habitats of Annex I of Directive 42/93/EEC (the asterisk indicates "priority" ones):

- 3130 - Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea
- 3150 - Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation
- 3170* - Mediterranean temporary ponds
- 3280 - Constantly flowing Mediterranean rivers with PaspaloAgrostidion species and hanging curtains of Salix and Populus alba
- 6220* - Pseudo-steppe with grasses and annual of the *Thero-Brachypodietea*
- 6420 – Mediterranean tall humid grasslands of the Molinio-Holoschoenion
- 91AA* - Eastern white oak woods of Southern Italy and Sicily
- 92A0 - Salix alba and Populus alba galleries
- 9340 - *Quercus ilex* and *Quercus rotundifolia* forests

The following list includes the plant species featured in the Site and shown in table no. 3.3 of the handbook. This are sometimes of great importance even if not included in Annex II of Directive 42/93 EEC, because they constitute endemisms or belong to the national and regional “red lists”.

- *Alisma lanceolatum*
- *Anthemis cotula*
- *Carex otrubae*
- *Coronopus squamatus*
- *Eleocharis palustris*
- *Eryngium barrelieri*
- *Euphorbia ceratocarpa*
- *Euphorbia rigida*
- *Myriophyllum spicatum*
- *Ranunculus trichophyllus*
- *Rosa pouzinii*
- *Senecio erraticus*
- *Sisymbriella dentata*
- *Tanacetum siculum*
- *Teucrium divaricatum*

The Site features the following species of Annex I of the “Birds Directive” and Annex II of the “Habitats Directive”:

Name	Scientific name	Group
Sicilian Partridge	*Alectoris graeca whitakeri*	Birds
Gadwall	*Anas strepera*	Birds

Name	Scientific name	Group
Purple heron	*Ardea purpurea*	Birds
Ferruginous duck	*Aythya nyroca*	Birds
Black tern	*Chlidonias niger*	Birds
White stork	*Ciconia ciconia*	Birds
Sicilian swamp tortoise	*Emys trinacris*	Reptiles
Collared flycatcher	*Ficedula albicollis*	Birds
Coot	*Fulica atra*	Birds
Common snipe	*Gallinago gallinago*	Birds
Little bittern	*Ixobrychus minutus*	Birds
Lesser grey shrike	*Lanius minor*	Birds
Black-crowned night heron	*Nycticorax nycticorax*	Birds
Fieldfare	*Turdus pilaris*	Birds

SCZ ITA070020 - Bosco di Milo

The site covers an area of approximately 82.0 ha shared between the municipalities of Giarre, Milo and Zafferana Etnea, located in the medium-low eastern side of Etna, at altitudes between 570 and 750 m a.s.l. It features two different morphological zones. One includes the areas located at higher altitudes (between 750 m and 625 m) and has a slightly sloping morphology with large steps leading down to the sea and crossed by weak valley incisions. The other is located upstream and downstream of the S.P. Zafferana-Milo road (between 625 m and 570 m) and is characterised by high slopes with alternating ridges and gullies deeply engraved by the erosive action of the flowing waters.

The substrata are essentially basaltic volcanites with extensive rocky protrusions. Natural vegetation is essentially composed of woods with various types of forest vegetation. The deciduous forests dominated by *Quercus congesta* are more widespread, as well as mesophilic woods of *Ostrya carpinifolia* and *Acer opalus ssp. obtusatum*, located in more or less deep valleys. *Quercus ilex* and *Teucrium siculum* evergreen woods are rather rare. Scattered in the more open and degraded areas are *Spartium junceum* and *Genista aetnensis* bushes.

Here, too, the climate is Mediterranean with an average annual temperature of 15.7 ° C. The rainfall as well as the climate follow a Mediterranean trend with average annual rainfall of 1,354 mm, among the highest in the Sicilian territory.

From a bioclimatic point of view, the SCZ falls within the meso-Mediterranean belt with a higher humid ombrotype, one of the most humid bioclimate in Sicily.

In the SCZ, there are the following habitats of Annex I of Directive 42/93 / EEC (the asterisk indicates "priority" ones):

- 9180*- *Tilio-Acerion* forests of slopes, screes and valleys
- 91AA* - Eastern white oak woods of Southern Italy and Sicily
- 9260 - *Castanea sativa* forests
- 9340 - *Quercus ilex* and *Quercus rotundifolia* forests
- 9530* - Sub-Mediterranean endemic black pine woods

The following list includes the plant species featured in the Site and shown in table no. 3.3 of the handbook. This are sometimes of great importance even if not included in Annex II of Directive 42/93 EEC, because they constitute endemisms or belong to the national and regional “red lists”.

- *Acer opalus* ssp. *obtusatum*
- *Arabis turrita*
- *Aristolochia rotunda*
- *Arstolochia sicula*
- *Cyclamen hederipholium*
- *Cyclamen repandum*
- *Fraxinus ornus*
- *Genista aetnensis*
- *Ostrya carpinifolia*
- *Quercus congesta*
- *Quercus dalechampii*
- *Ruscus aculeatus*
- *Teucrium siculum*

- *Thalictrum calabricum*
- *Viburnum tinus*

The Site features the following species of Annex I of the "Birds Directive" and Annex II of the "Habitats Directive":

Name	Scientific name	Group
Jersey tiger	*Euplagia quadripunctaria*	Invertebrates
Eurasian jay	*Garrulus glandarius*	Birds

SCZ ITA070023 - Monte Minardo

The site is located in the municipal areas of Adrano and Bronte, covering an area of about 501.0 ha on the western side of Etna at altitudes between 800 and 1,300 m affected by old lava flows.

The bio-climate ranges between the meso-Mediterranean and the supra-Mediterranean ones, with lower subhumid ombrotype. The natural vegetation is mainly represented by acidophilic holm oaks of the mesophilic type, while the deciduous oak woods of *Quercus virgiliana* are rather rare. Among the degradation aspects, there are scrubs of *Genista aetnensis* and low bushes limited to the more rocky stations.

In the SCZ, there are the following habitats of Annex I of Directive 42/93 / EEC (the asterisk indicates "priority" ones):

- 4090 - Endemic oro-Mediterranean heaths with gorse
- 6220* - Pseudo-steppe with grasses and annual of the *Thero-Brachypodietea*
- 8130 - Western Mediterranean and thermophilous scree
- 8320 - Fields of lava and natural excavations
- 91AA* - Eastern white oak woods of Southern Italy and Sicily
- 9340 - *Quercus ilex* and *Quercus rotundifolia* forests

The following list includes the plant species featured in the Site and shown in table no. 3.3 of the handbook. This are sometimes of great importance even if not included in Annex II of Directive 42/93 EEC, because they constitute endemisms or belong to the national and regional "red lists".

- *Cyclamen hederipholium*
- *Cyclamen repandum*
- *Genista aetnensis*
- *Linarea purpurea*
- *Quercus ilex*
- *Ruscus aculeatus*
- *Senecio ambiguus*
- *Teucrium siculum*

The Site features the following species of Annex I of the "Birds Directive" and Annex II of the "Habitats Directive":

Name	Scientific Name	Group
Sicilian Partridge	*Alectoris graeca whitakeri*	Birds
Golden Eagle	*Aquila chrysaetos*	Birds
Goatsucker	*Caprimulgus europaeus*	Birds
Woodlard	*Lullula arborea*	Birds
Hermann's tortoise	*Testudo hermanni*	Reptiles

SCZ ITA070024 – Monte Arso

This SCZ extends across the municipalities of Ragalna and S. Maria di Licodia for an area of about 124.0 ha, which falls on the western side of Etna at altitudes between 900 and 1,100 m. It is characterised by ancient lava flows. The bio-climate is of the lower subhumid meso-Mediterranean type. The forest formations are well represented and include mixed deciduous oaks with predominance of *Quercus virgiliana*, often mixed with *Quercus ilex* woods. There is a significant presence of *Celtis tournefortii*, especially widespread in the forest formations. In addition, bushes of *Genista aetnensis* can also be found in this area.

In the SCZ are the following habitats of Annex I of Directive 42/93 / EEC (the asterisk indicates "priority" ones):

- 6220* - Pseudo-steppe with grasses and annual of the *Thero-Brachypodietea*
- 91AA* - Eastern white oak woods of Southern Italy and Sicily

- 9340 - Quercus ilex and Quercus rotundifolia forests

The following list includes the plant species that are found on the Site and shown in table no. 3.3 of the handbook. This are sometimes of great importance even if not included in Annex II of Directive 42/93 EEC, because they constitute endemisms or belong to the national and regional "red lists".

- *Celtis tournefortii (Celtis aetnensis)*
- *Cyclamen hederifolium*
- *Cyclamen repandum*
- *Dactylorhiza romana*
- *Genista aetnensis*
- *Quercus ilex*
- *Ruscus aculeatus*
- *Silene sicula*
- *Teucrium siculum*

The Site features the following species of Annex I of the "Birds Directive" and Annex II of the "Habitats Directive":

Name	Scientific Name	Group
Sicilian Partridge	*Alectoris graeca whitakeri*	Birds
Golden Eagle	*Aquila chrysaetos*	Birds
Woodlark	*Lullula arborea*	Birds

3.2.3 Landscape perception-related resources and assets

Seven local landscapes, as defined in the Province of Catania Landscape Plan for Area no. 13, fall within the WHS territory.

Local Landscape no. 3 (outside the property area) "Aree delle sciare di Santa Venera" (art. 23 of the Province of Catania Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17). Local Landscape 3 falls within the Bronte and Maletto territories. It is surrounded to the north and west by the borders of the volcanic cone (the course of the Simeto river and its original tributaries), to the south and east by the S.S. 284 road. It is a heterogeneous Local Landscape, alternating arable areas, orchards, natural areas near the waterways and the volcanic desert of the "sciare" of Santa Venera. The latter is a large lava field of slags originating from very fluid flows that has remained so far almost untouched by plant species. Its interesting geological structures have remained therefore well visible to date. The cultural and historical heritage features a number of prominent archaeological sites (C.da Tartaraci, C.de Edera, Santa Venera and Balze). Finally, the Circumetnea railway is also of considerable importance for the locallandscape, as it allows reading its main features by crossing it.

Local Landscape no. 8 "Territori di Nord-Ovest del Parco dell'Etna" (art. 28 of the Province of Catania Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17). Local Landscape no. 8 falls within the Municipalities of Randazzo, Maletto, Bronte, Adrano and Biancavilla. It encompasses territories characterised by a very high naturalness, a morphology rich in volcanic cones and untouched lava fields. The areas invaded by recent flows and colonised by pioneering vegetation alternate large woods to some open areas. The entire territory of the Local Landscape falls within the boundaries of the Etna Park. There are no inhabited centres and widespread construction is almost absent.

Local Landscape no. 9 "Area dei crateri sommitali e della valle del Bove" (art. 29 of the Province of Catania Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17). Local Landscape 9 includes the summit craters of Europe's highest volcano, the huge depression called Valle del Bove resulting from erosive and collapsing processes, and the volcanic buildings prior to the recent Mongibello (i.e., present-days Etna) which today constitute the base and are largely buried by the most recent flows. All the municipalities extending on the medium-high slopes of the volcano have their outermost border on the crater. This Local Landscape is shared between severala dozen (Adrano, Bronte, Maletto, Randazzo, Castiglione, Linguaglossa, Piedimonte E., Sant'Alfio, Milo, Zafferana E., Belpasso, Nicolosi, Biancavilla) with the largest portion belonging to the Municipality of Zafferana.

Local Landscape no. 10 "Territori di Nord-Est del Parco dell'Etna" (art. 30 Province of Catania Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17). Local Landscape no. 10 falls within the Municipalities of Randazzo, Castiglione di Sicilia, Linguaglossa, Piedimonte Etneo, Sant'Alfio, Mascali and Milo and is entirely part of the Etna Park. It is characterised by an extensive naturalness, with the presence of large wooded areas and lava fields, both desert and colonised by the

thorny shrubs typical of spontaneous Etna vegetation. The human settlement of Local Landscape no. 10 includes the settlements close to the Milo forest, the Fornazzo-Citelli cycling route, part of the ski lifts located in the area, the Magazzeni district and the C areas of Linguaglossa.

Local Landscape no. 13 "Area dei centri abitati di sud-ovest" (art. 33 Province of Catania Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17). It falls within the territories of the municipalities of Adrano, Biancavilla, Santa Maria di Licodia, Ragalna, Paternò and Belpasso. The areas of naturalistic interest are concentrated along the course of the Simeto River, whose floodplain has extremely noteworthy features. Another area of high naturalistic interest is that of the lava fields recolonised by pioneering vegetation within the municipal territory of Ragalna. The historical and cultural heritage is represented primarily by the three main historical centres (Adriano, Bianca villa and Santa Maria di Laconia), all of high morphological-perceptual impact, as they are located on a terrace. The landscape heritage is enriched by the system of isolated properties that dot the entire terraced and cultivated slope as well as the archaeological areas along the Simeto River and near the three main inhabited centres.

Local Landscape no. 14 "Area dei boschi e dei frutteti d'alta quota fra Adrano e Zafferana" (art. 34 Province of Catania Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17). Local Landscape no. 14 falls within the municipal areas of Adrano, Biancavilla, Santa Maria di Licodia, Ragalna, Belpasso, Nicolosi, Pedara, Zafferana Etnea and Trecastagni. Its altitude ranges from 800 m to over 2000 m a.s.l. At higher altitudes, nature predominates with wooded surfaces and lava fields occupying the central area of this Local Landscape up to the summit craters. The presence of orchards at a high altitude is a distinguishing feature of this Local Landscape. The geomorphological features of caves and volcanic cones that form the natural heritage of Local Landscape no. 14 adds to a historical and cultural heritage mainly consisting of isolated properties scattered across the territory, high mountain lodges and buildings for agricultural purposes.

3.2.4 Cultural-historical and landscape resources.

Etna Park Authority Headquarters (formerly Monastery of San Nicolò all'Arena)

In the spring of 2005, the Etna Park Authority moved to the new headquarters, the former Benedictine Monastery of San Nicolò La Rena, an ancient and prestigious building of great historical and architectural value around which the community of Nicolosi was born and developed. The Monastery returned to the community after long years of abandonment and a complex work of conservative restoration. To the people of Etna but also to all those visiting the Park, it represents a newly regainedspace for culture, nature and the promotion of typical products. Furthermore, it came to represents a key structure for welcoming guests and host significant cultural, scientific, and educational events.

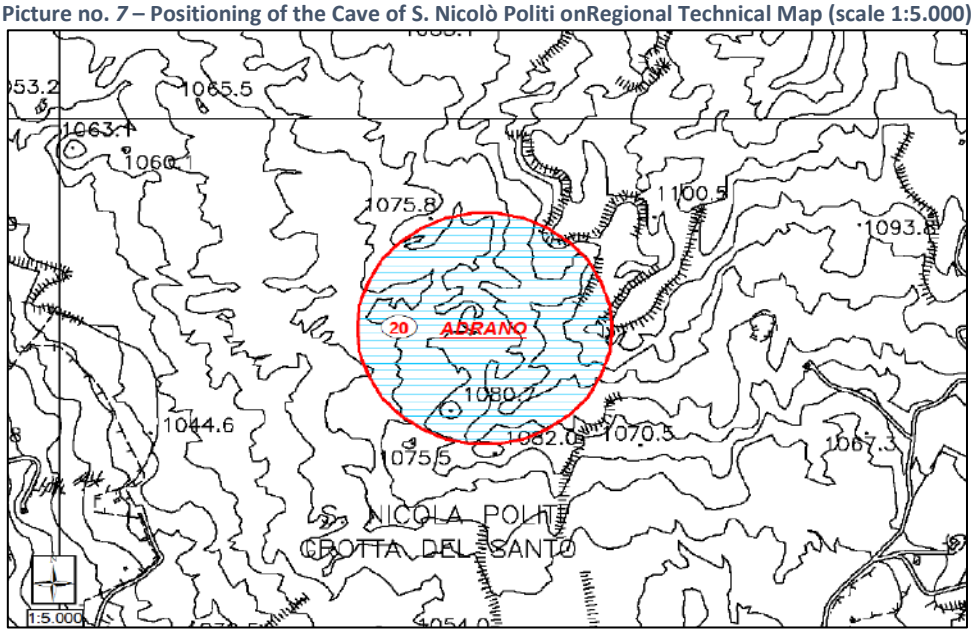
Villa Manganelli

Villa Manganelli is an ancient noble mansion located in the municipality of Zafferana Etnea. Built around the first decade of the 20th century by the Paternò - Manganelli family, the villa has a neoclassical style. For several years, the building was in a state of neglect, until the Etna Park Authority acquired the property and started a complex restoration work that returned Villa Manganelli to its original magnificence.

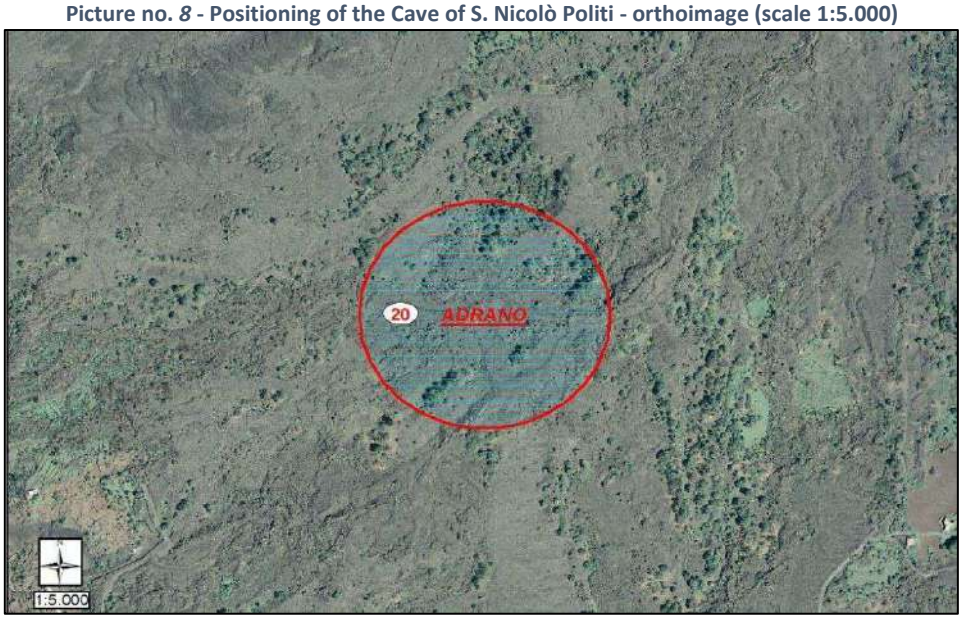
Cave of San Nicolò Politi.

The cave is located in the municipality of Adrano (CT) at an altitude of 1,030 m a.s.l. It is a sliding cave with a particularly complex shape, divided into several galleries with different slopes for a total length of over 800 m. A considerable dripping is present throughout the cavity. In the Cave of San Nicolò Politi, ceramic fragments have been found that are attributable to the culture of Castelluccio, dating back to the classical and medieval ages. Furthermore, at the cave's entrance, an altar was erected in memory of the Saint Nicola Politi, patron saint of Adrano, who - according to tradition - lived in this place from 1134 to 1137. Given its valuable historical and landscape nature, the cave is currently considered a hiking destination of significant interest and is connected to various routes including a multi-day trek that crosses and connects the territories of the Etna and the Nebrodi Parks.

Picture no. *7* – Positioning of the Cave of S. Nicolò Politi onRegional Technical Map (scale 1:5.000)



Picture no. *8* - Positioning of the Cave of S. Nicolò Politi - orthoimage (scale 1:5.000)

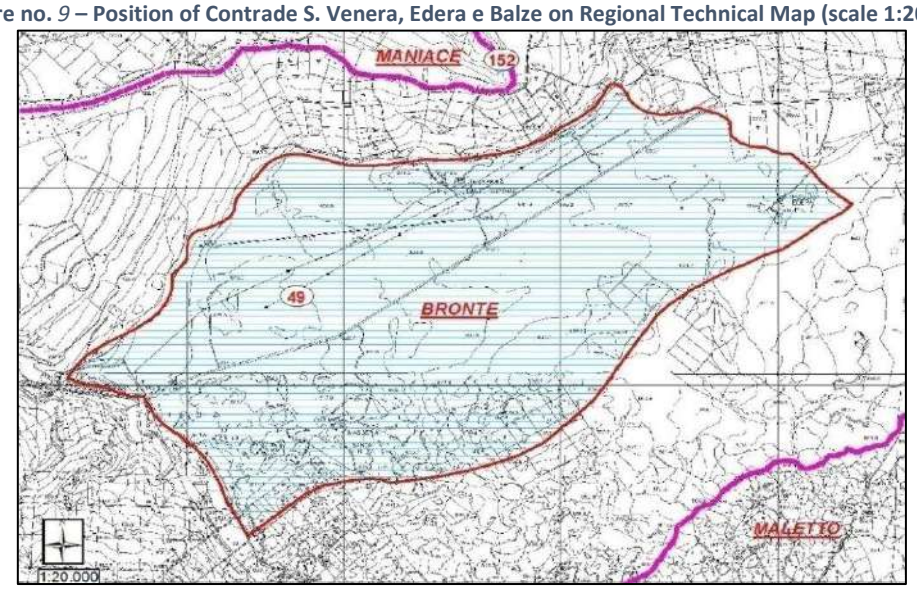


Contrade S. Venera, Edera and Balze

The Contrade S. Venera, Edera and Balze are located in the Municipality of Bronte. They are characterised by the complexity deriving from evidences of different historical periods. In 1986, the remains of a large city wall were found: this consist of a 2.5 km-long, robust wall structure made of lava blocks about 3 m wide. Subsequent excavations and explorations revealed that the whole strip of territory crossed by the State road no. 120, including the districts Balze, S. Venera and Edera hides countless testimonies of past ages. These would testify human presence on site from prehistoric to late Roman times, up to – in some cases - the Byzantine age, as in the case of the S. Venera farmhouse. In the Balze Soprane district, moreover, a building featuring the typical spiral-shaped plan was found: it consists of large slabs in lava stone, probably connected to another building through a wall, according to a compositional scheme that recalls the Castelluccio tomb decorations. From 2013 to 2015, the Etna Park Authority, together with the Catania Superintendency, carried out an important EU-funded intervention in State-owned areas for the reduction of degradation factors, and the enhancement of archaeological, geological and naturalistic emergencies. In agreement with the Regional Department of Local and Territorial Development, that owns the mentioned areas, archaeological excavations, the recovery of rural

houses and the creation of an archaeological naturalistic path were carried out. The intervention and the results of the excavation are described in the publication of the Etna Park Authority "*L'acqua, la roccia e l'uomo*".

Picture no. *9* – Position of Contrade S. Venera, Edera e Balze on Regional Technical Map (scale 1:20.000)

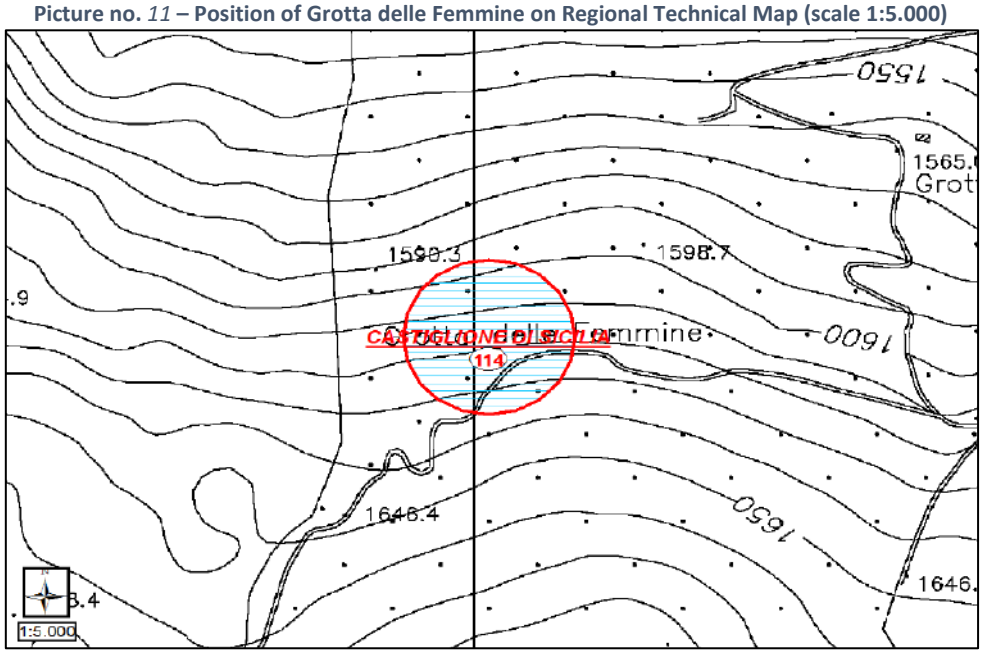


***Picture no. 10* – Position of Contrade S. Venera, Edera e Balze - orthoimage (scale 1:20.000)**

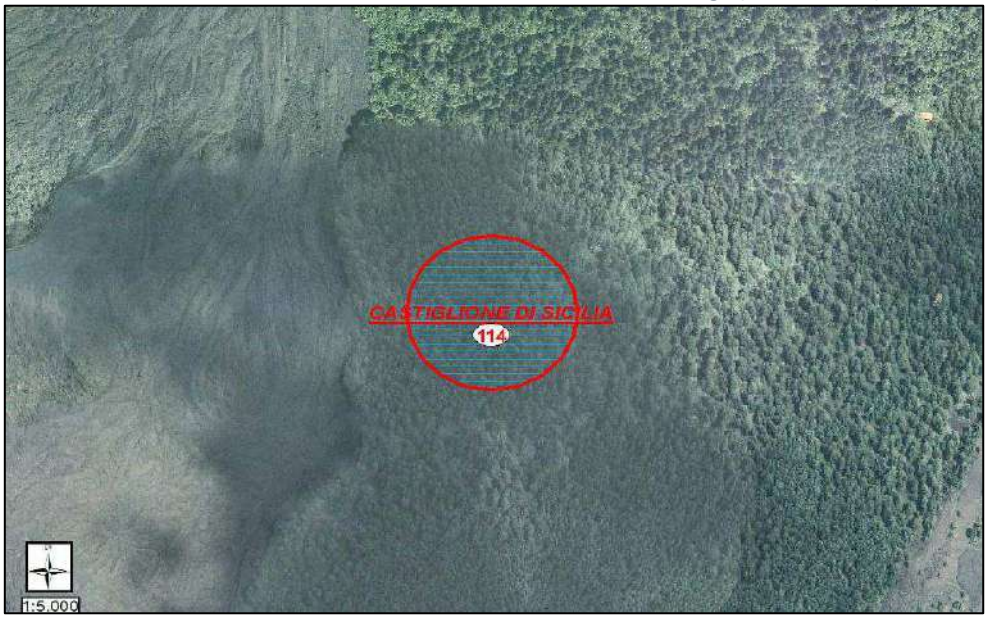
Grotta delle Femmine (Women's Cave)

The cave is located in the municipality of Castiglione di Sicilia at an altitude of 1610 m a.s.l. It takes the shape of a sliding tunnel accessible through a 4-metre well. Curved lava sheets can be observed on the walls. Through a narrow passage that requires bending down, a slope of a few metres reaches down to the lowest point of the cave. The tunnel, constantly and lightly rising, is 4.5 metres high and 2.5 metres wide. At the foot of the walls lie slabs: these are the only evidence of collapse in this cavity, which in fact is very well preserved. Furthermore, in the cave there is an almost 2-metres high lava fall. A notable dripping is present throughout the cavity. Ceramic fragments attributable to the culture of Castelluccio have been found in the cave.

Picture no. *11* – Position of Grotta delle Femmine on Regional Technical Map (scale 1:5.000)



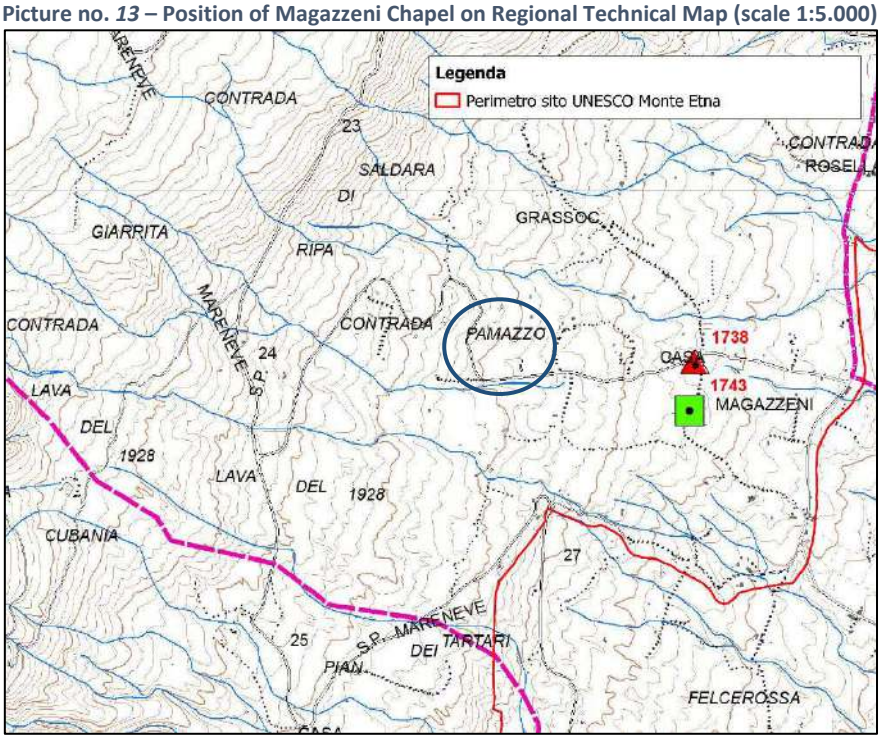
Picture no. *12* – Position of Grotta delle Femmine - orthoimage (scale 1:5.000)



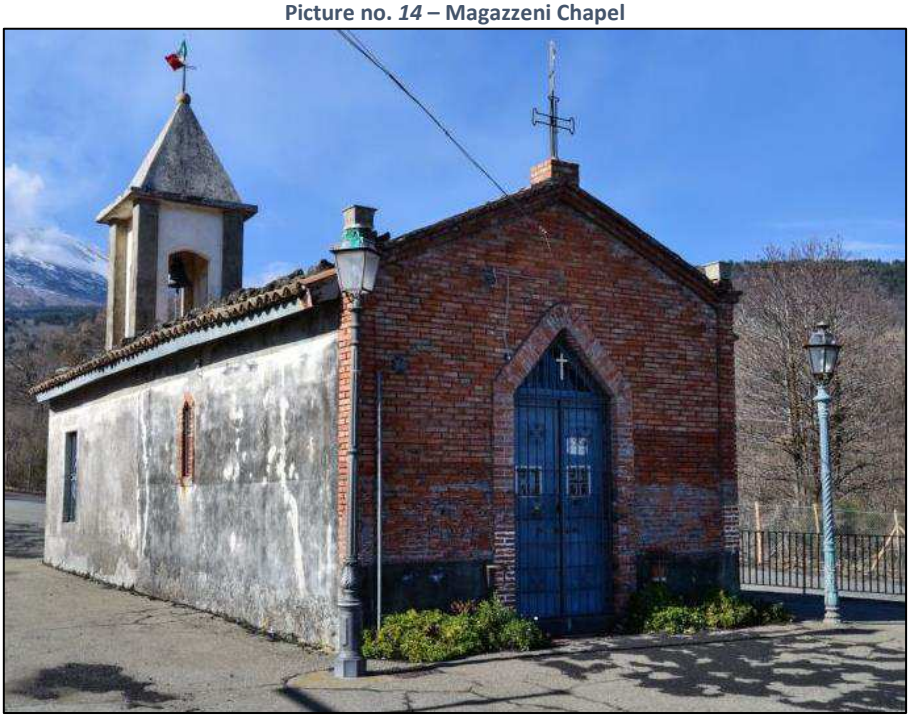
Magazzeni Chapel

The Magazzeni Chapelis located about 6 km from the town of Sant'Alfio. It was built in 1958 to commemorate the fact that the town and the countryside surrounding it remained unscathed by the eruptions occurred on 3 November 1928. The site is fairly well preserved.

Picture no. *13* – Position of Magazzeni Chapel on Regional Technical Map (scale 1:5.000)



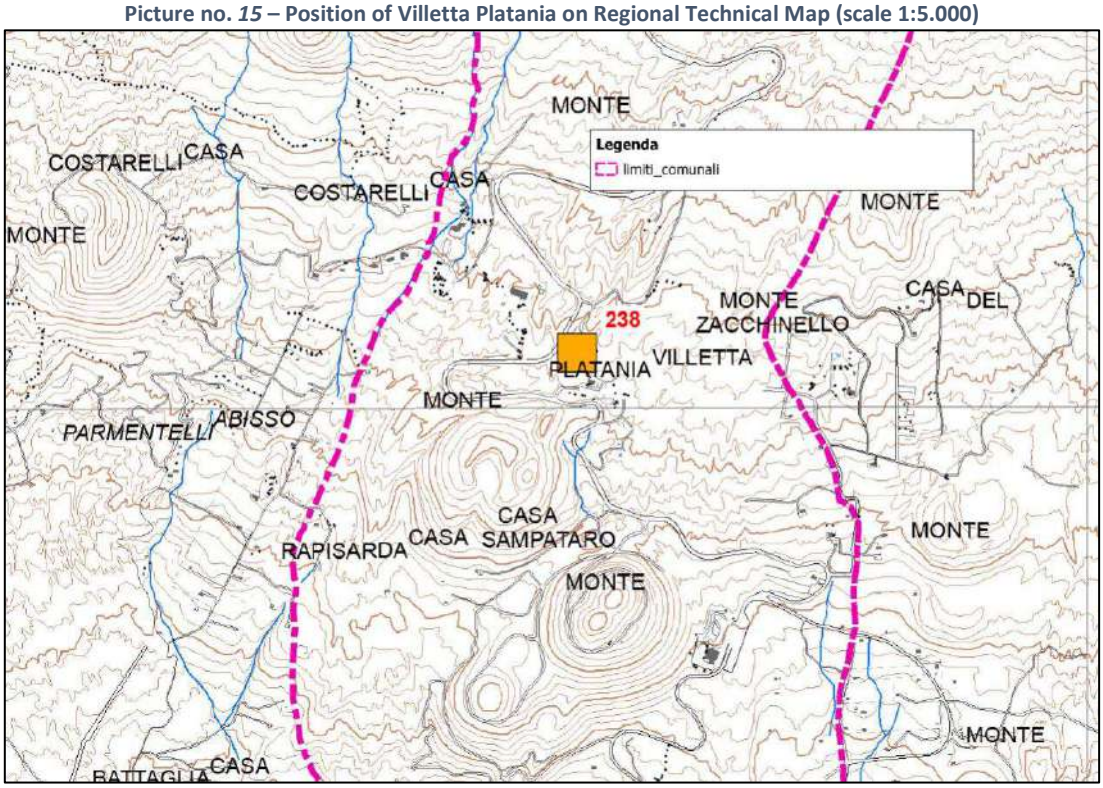
Picture no. *14* – Magazzeni Chapel



<u>Villetta Platania</u>

Located in the Municipality of Belpasso, it is classified as a residential building by the Superintendency of Cultural and Environmental Heritage of Catania.

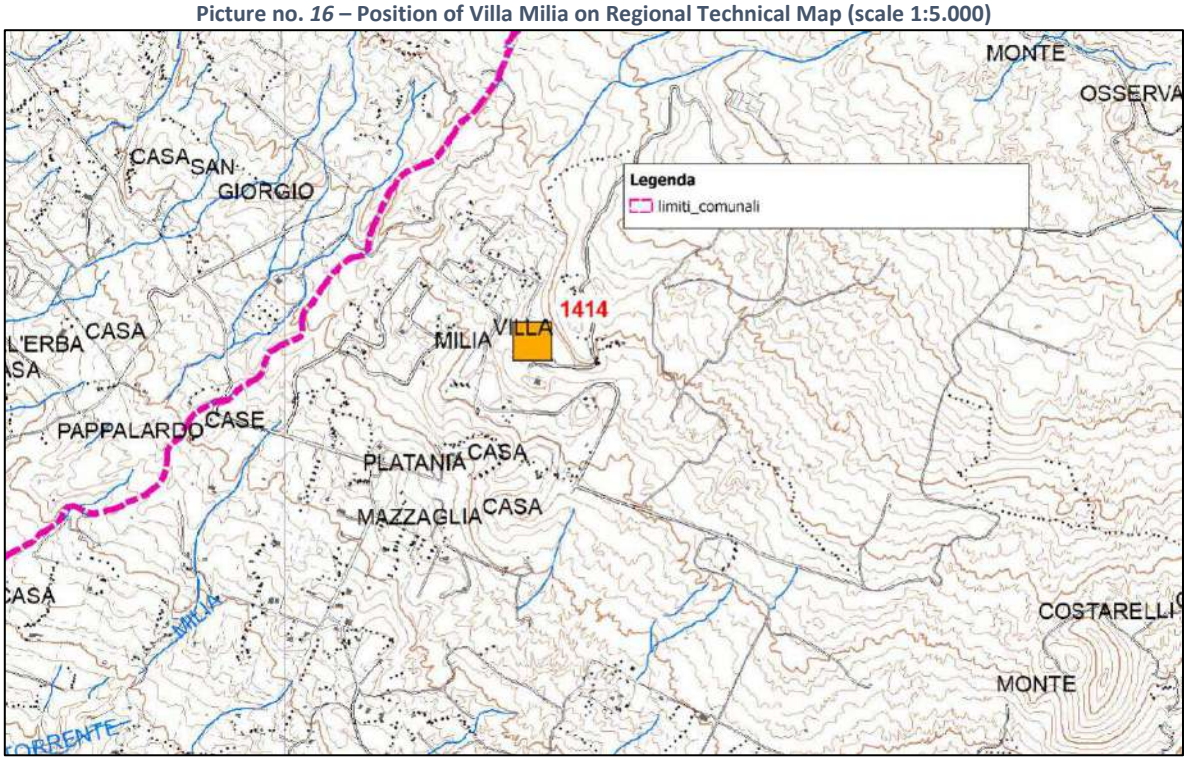
Picture no. *15* – Position of Villetta Platania on Regional Technical Map (scale 1:5.000)



Villa Milia

Located in Principato (Municipality of Ragalna), it is classified as a residential building by the Superintendency of Cultural and Environmental Heritage of Catania.

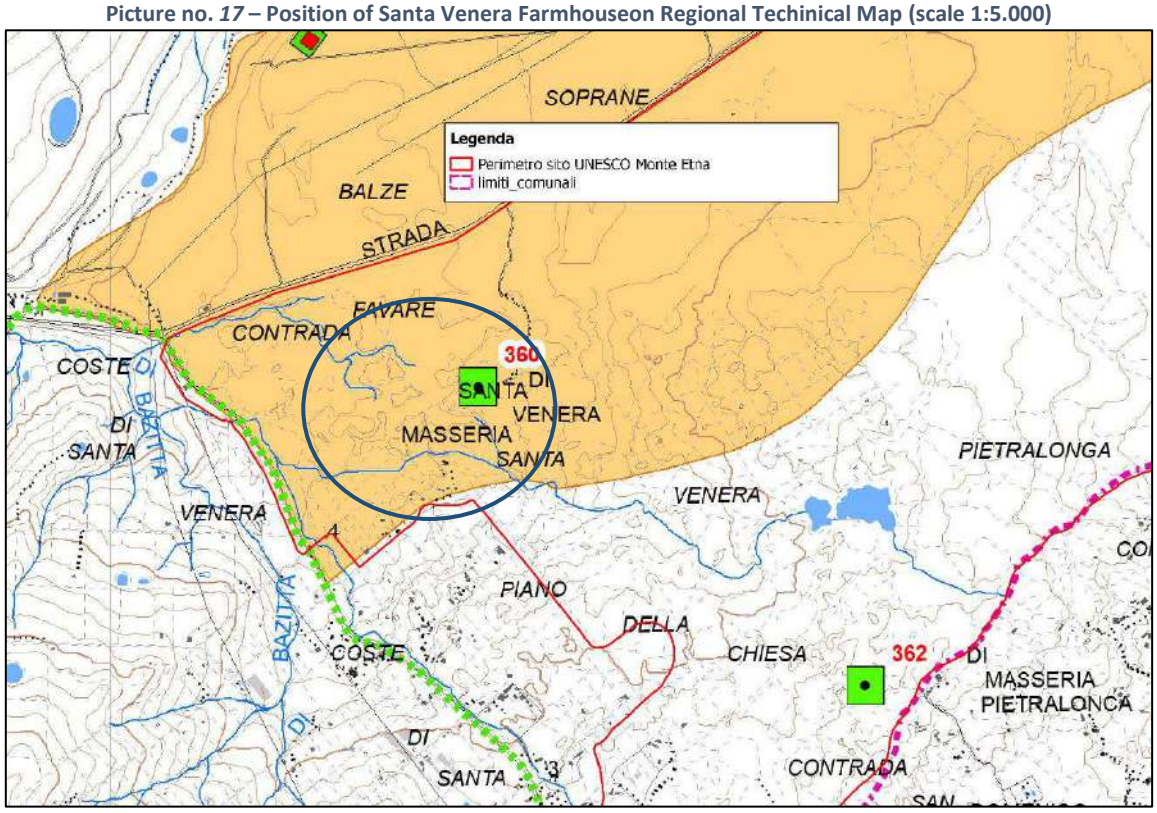
Picture no. *16* – Position of Villa Milia on Regional Technical Map (scale 1:5.000)



Masseria Santa Venera (Santa Venera farmhouse)

Located in Contrada di Santa Venera (Municipality of Bronte), it is classified as production-related building by the Superintendency of Cultural and Environmental Heritage of Catania.

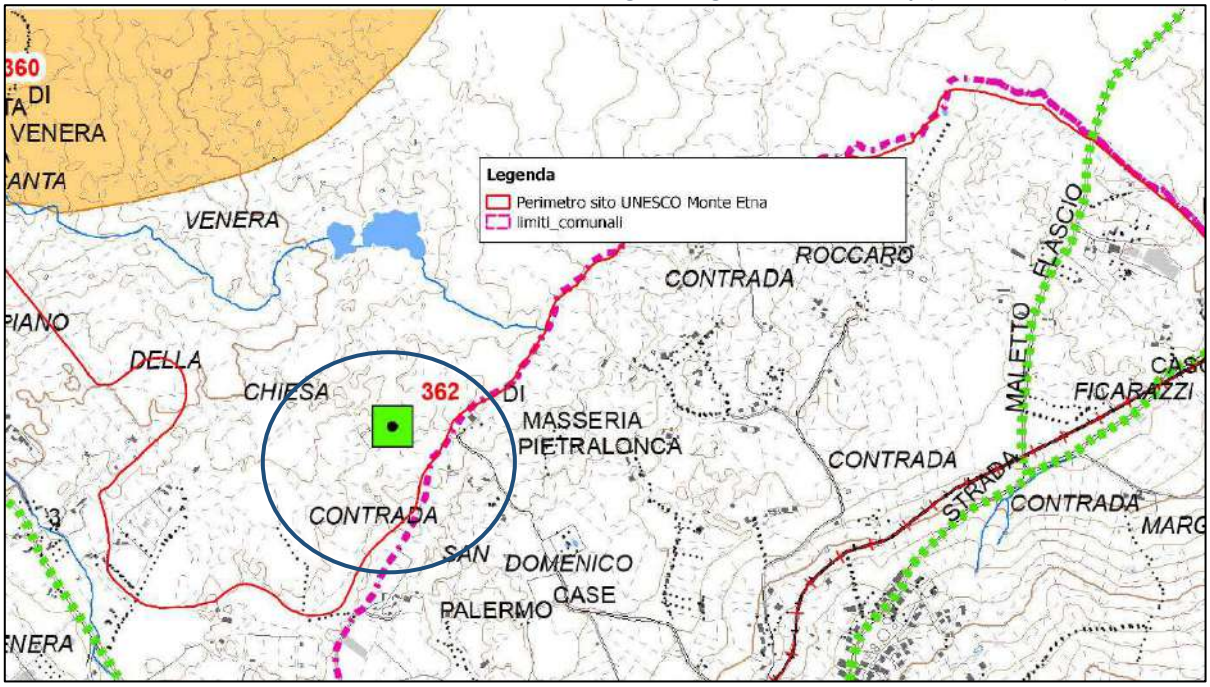
Picture no. *17* – Position of Santa Venera Farmhouseon Regional Techinical Map (scale 1:5.000)



Masseria di Pietralonga (Pietralonga Farmhouse)

Located in Contrada Pietralonga (Municipality of Bronte), it is classified as a production-related building by the Superintendency of Cultural and Environmental Heritage of Catania.

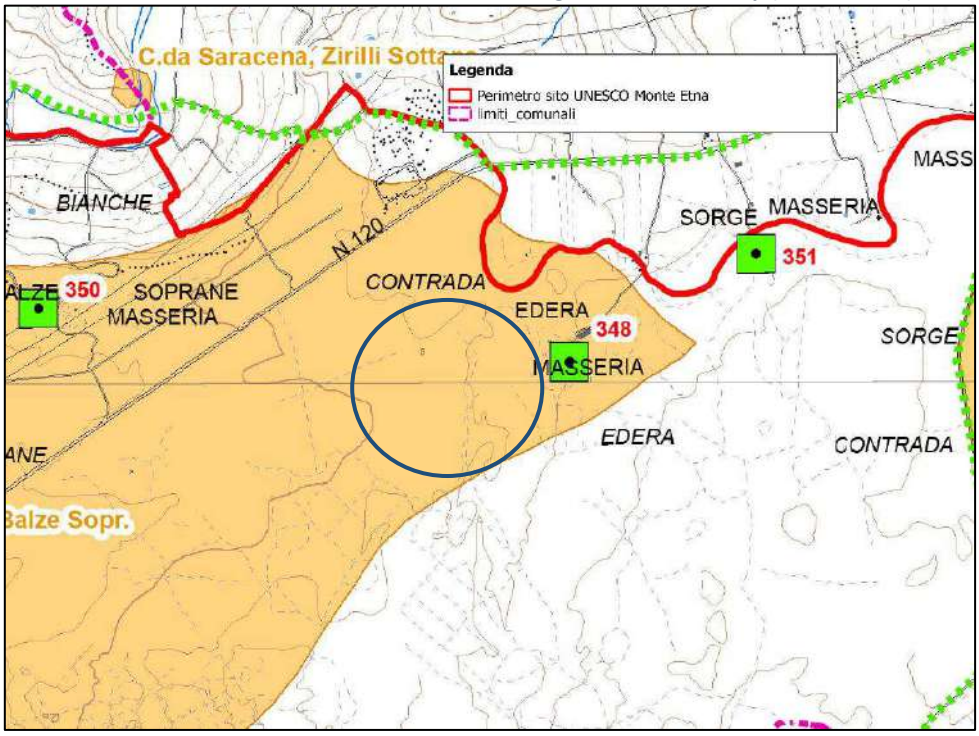
Picture no. *18* – Position of Masseria di Pietralonga on Regional Technical Map (scale 1:5.000)



Masseria Edera (Edera Farmhouse)

Located in Contrada Edera (Municipality of Bronte), it is classified as a production-related building by the Superintendency of Cultural and Environmental Heritage of Catania.

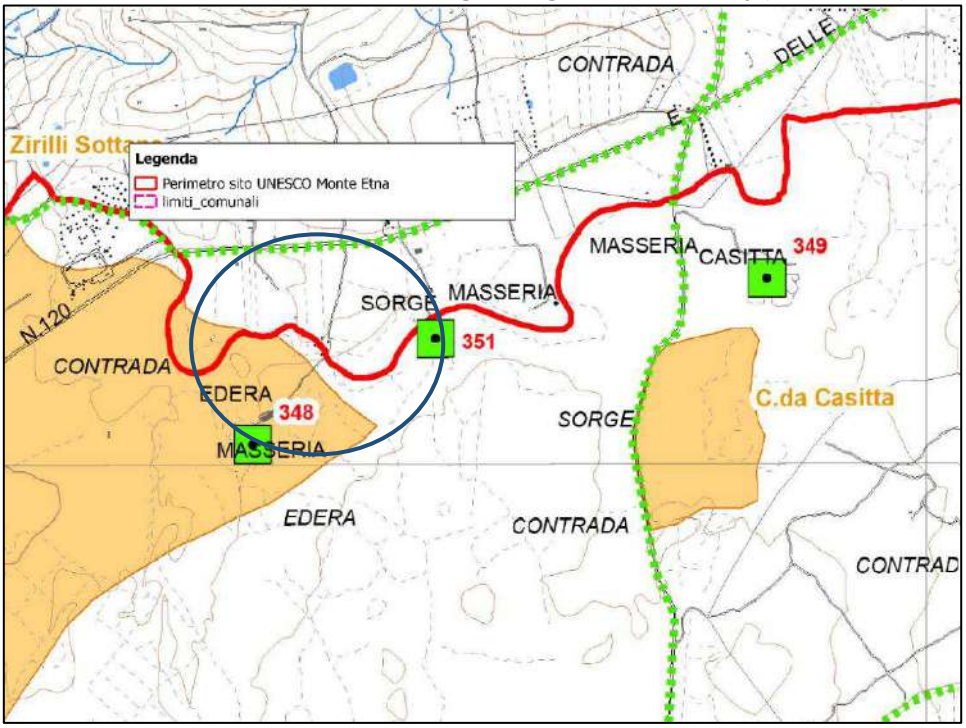
Picture no. *19* – Position of Masseria Edera on Regional Technical Map (scale 1:5.000)



Masseria Sorge (Sorge Farmhouse)

Located in Contrada Sorge (Municipality of Bronte), it is classified as a production-related building by the Superintendency of Cultural and Environmental Heritage of Catania. It is currently a ruined building.

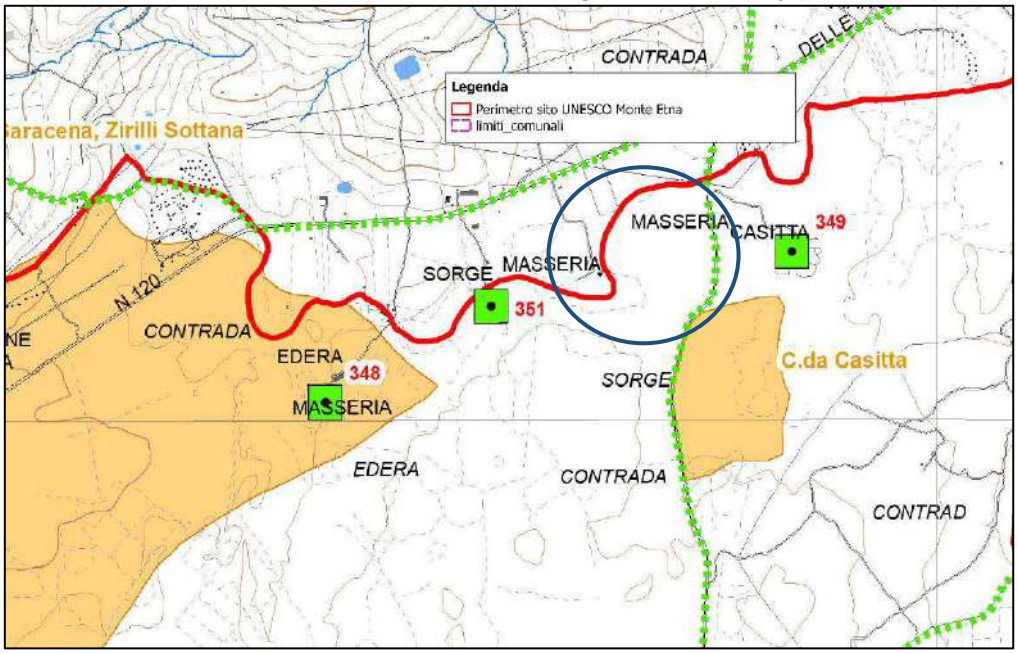
Picture no. *20* – Position of Masseria Sorge on Regional Technical Map (scale 1:5.000)



Masseria Casitta (Casitta Farmhouse)

Located in Contrada Casitta (Municipality of Bronte), it is classified as a production-related building by the Superintendency of Cultural and Environmental Heritage of Catania.

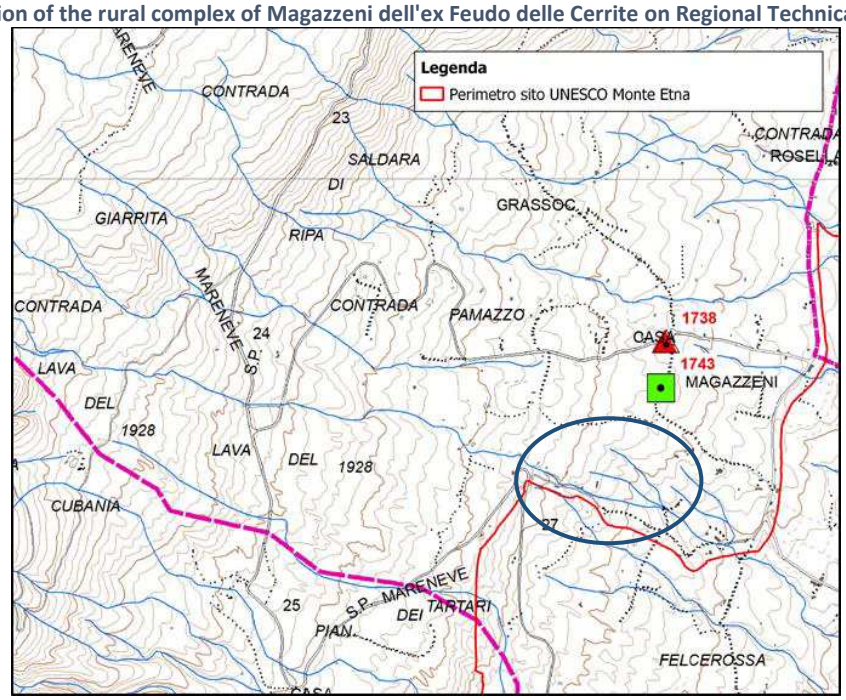
Picture no. *21* – Position of Masseria Casitta on Regional Technical Map (scale 1:5.000)



Rural complex of Magazzeni dell'ex Feudo delle Cerrite

Located in Contrada Magazzeni (Municipality of Sant'Alfio), the complex was built from the Feudo delle Cerrite 1700s wharehouses. It gained considerable importance for the storage of produce and for its chapel, popular since the early XX century. It is classified as a production-related building by the Superintendency of Cultural and Environmental Heritage of Catania. The site is currently poorly preserved.

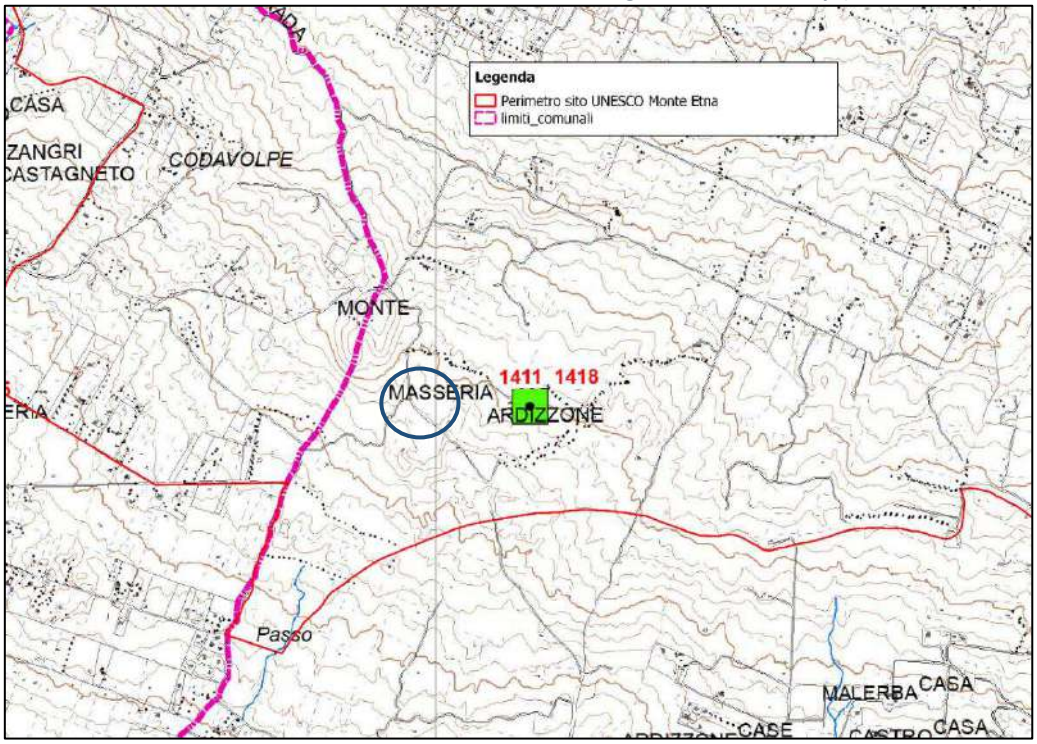
Picture no. *22* – Position of the rural complex of Magazzeni dell'ex Feudo delle Cerrite on Regional Technical Map (scale 1:5.000)



Masseria Ardizzone (Ardizzone Farmhouse)

Located in Perciata (Municipality of Ragalna), it is classified as a production-related building by the Superintendency of Cultural and Environmental Heritage of Catania.

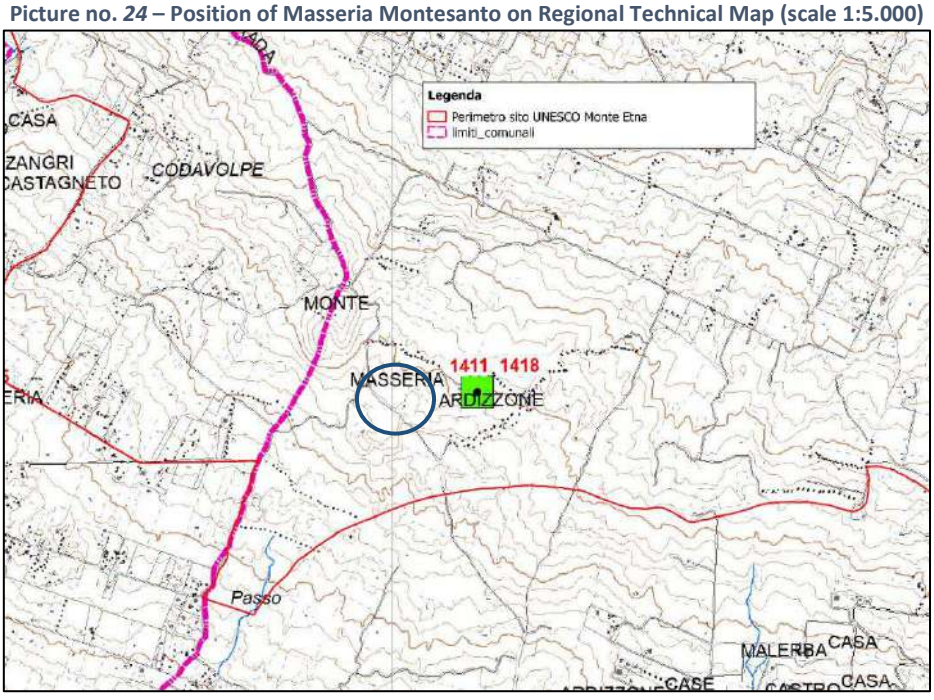
Picture no. *23* – Position of the Masseria Ardizzone on Regional Technical Map (scale 1:5.000)



Masseria Montesanto

Located in Mancusa (Municipality of Ragalna), it is classified as a production-related building by the Superintendency of Cultural and Environmental Heritage of Catania. Currently, the site is very badly preserved.

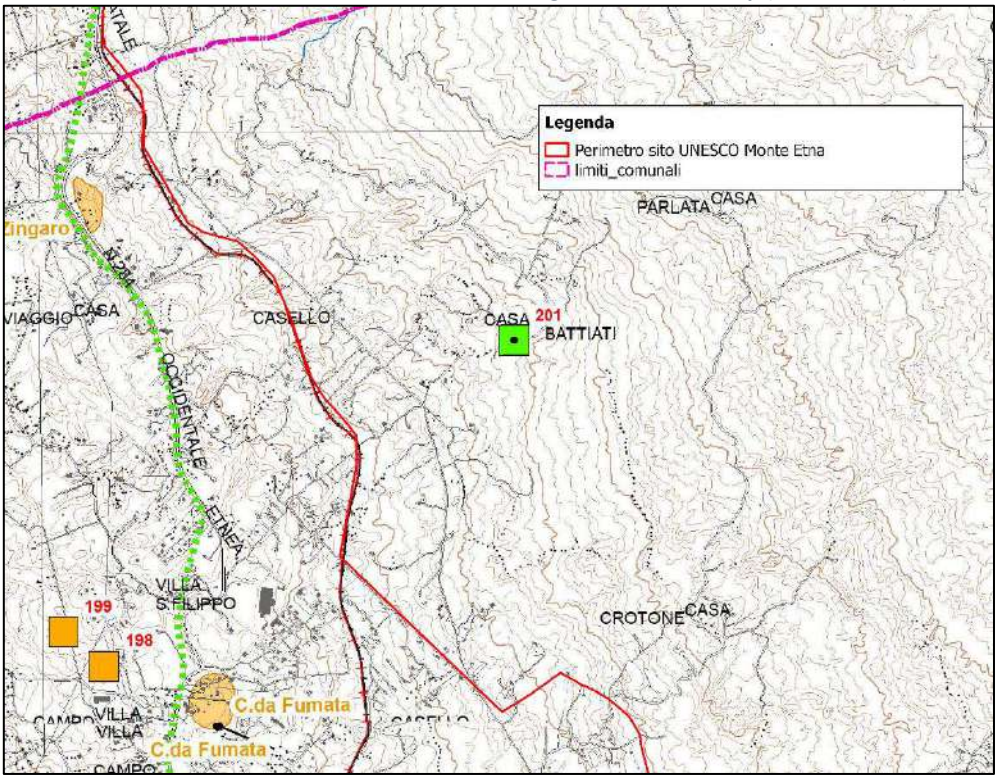
Picture no. *24* – Position of Masseria Montesanto on Regional Technical Map (scale 1:5.000)



Casa Battiati

This rural mansion is located in the Municipality of Adrano. It is classified as a production-related building by the Superintendency of Cultural and Environmental Heritage of Catania.

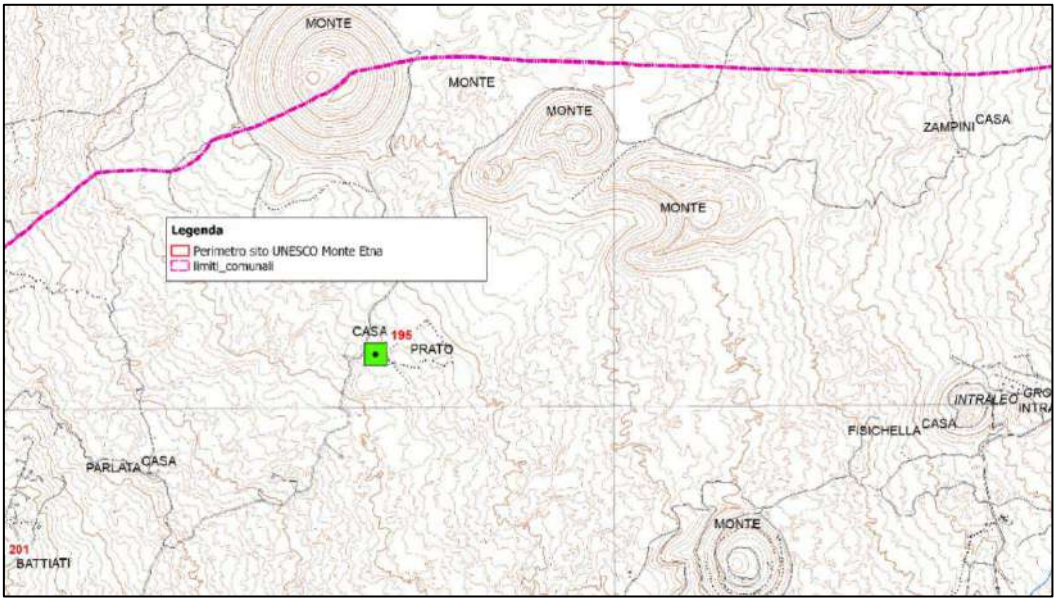
Picture no. 25 – Position of Casa Battiati on Regional Technical Map (scale 1:5.000)



Masseria Prato fiorito (Prato fiorito Farmhouse)

Located in the Municipality of Adrano, it is one of the structures allocated to the enhancement of hiking and recreational activities in the area. It is a currently fairly well preserved, XIX century building, classified as a production-related building by the Superintendency of Cultural and Environmental Heritage of Catania.

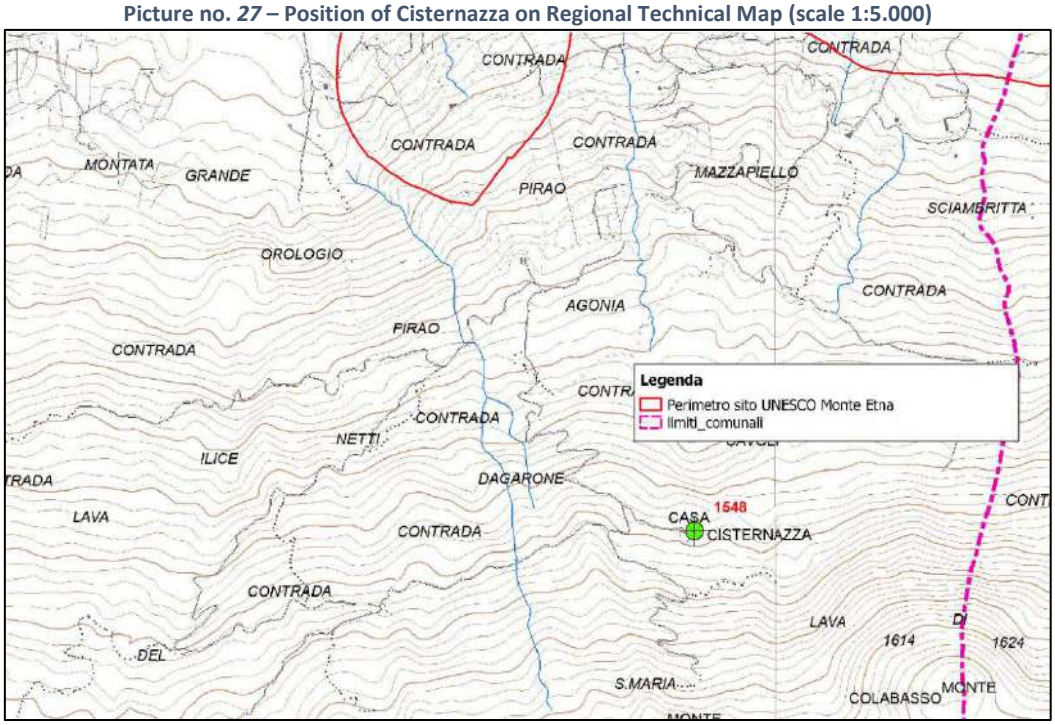
Picture no. 26 – Position of Masseria Prato fiorito on Regional Technical Map (scale 1:5.000)



Cisternazza

Located in the Municipality of Randazzo, Cisternazza is a fairly well preserved, round-shaped plan building hosting a rainwater cistern. It is classified as a production-related building by the Superintendency of Cultural and Environmental Heritage of Catania.

Picture no. *27* – Position of Cisternazza on Regional Technical Map (scale 1:5.000)

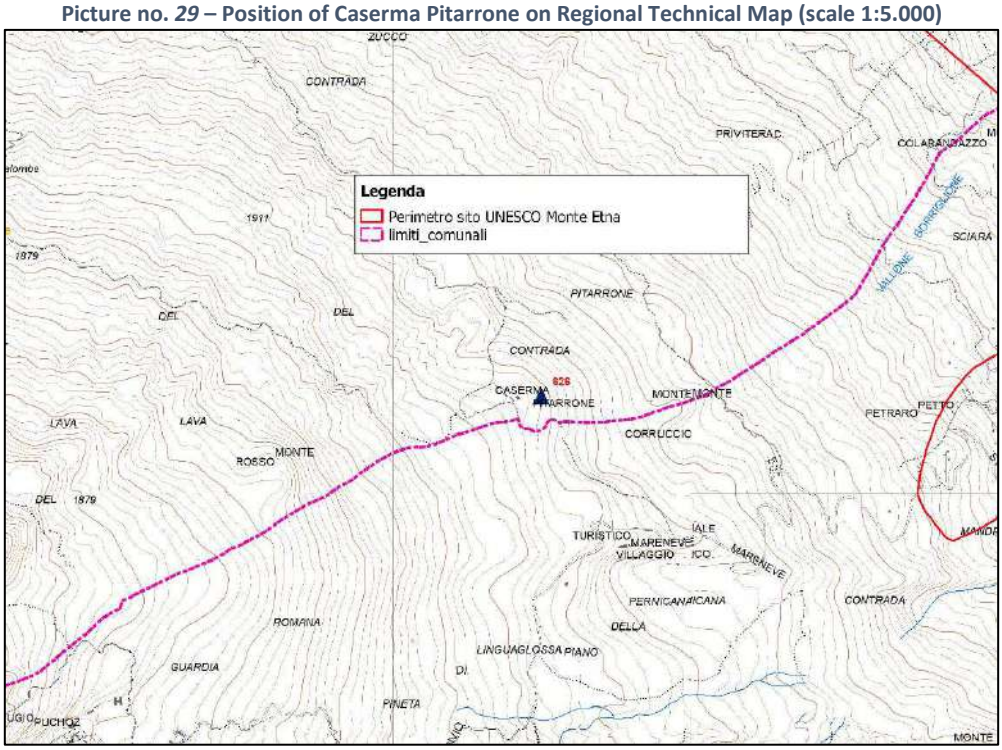


Picture no. *28* - Cisternazza

Caserma Pitarrone (Pitarrone Barracks)

This is an overnight stay structure allocated to the enhancement of hiking and recreational activities in the area. It is located in Contrada Pitarrone (Municipality of Castiglione di Sicilia). Recently restored, it is well preserved. The Superintendency of Cultural and Environmental Heritage of Catania classified it as "equipment and services".

Picture no. *29* – Position of Caserma Pitarrone on Regional Technical Map (scale 1:5.000)

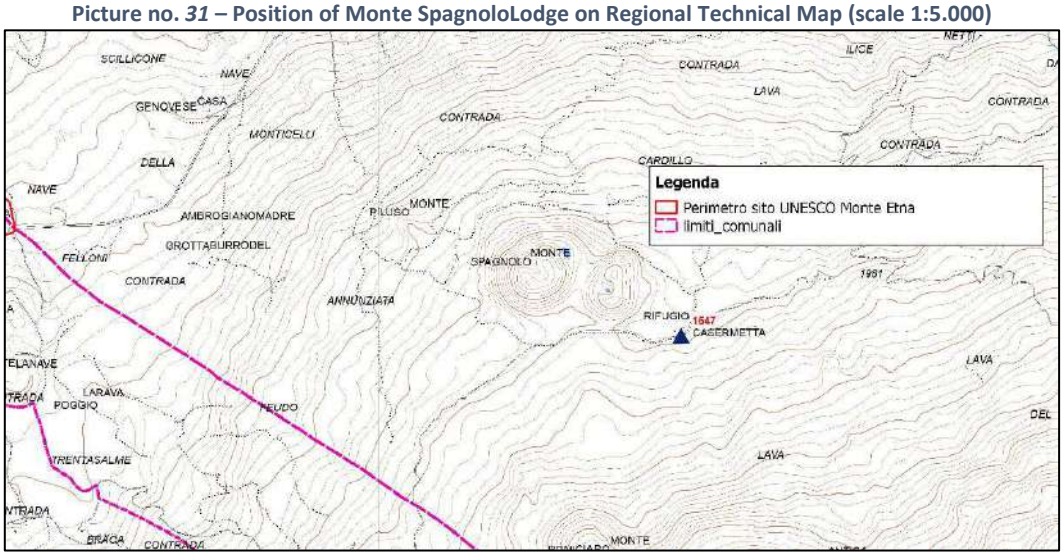


Picture no. *30* - Caserma Pitarronebefore and after the restoration process

Rifugio Monte Spagnolo (Monte Spagnolo Lodge)

Overnight stay structure located in the Municipality of Randazzo close to Monte Spagnolo, after which the Lodge is named. Recently restored, it is currently well preserved. The Superintendency of Cultural and Environmental Heritage of Catania classified it as "equipment and services".

Picture no. *31* – Position of Monte SpagnoloLodge on Regional Technical Map (scale 1:5.000)



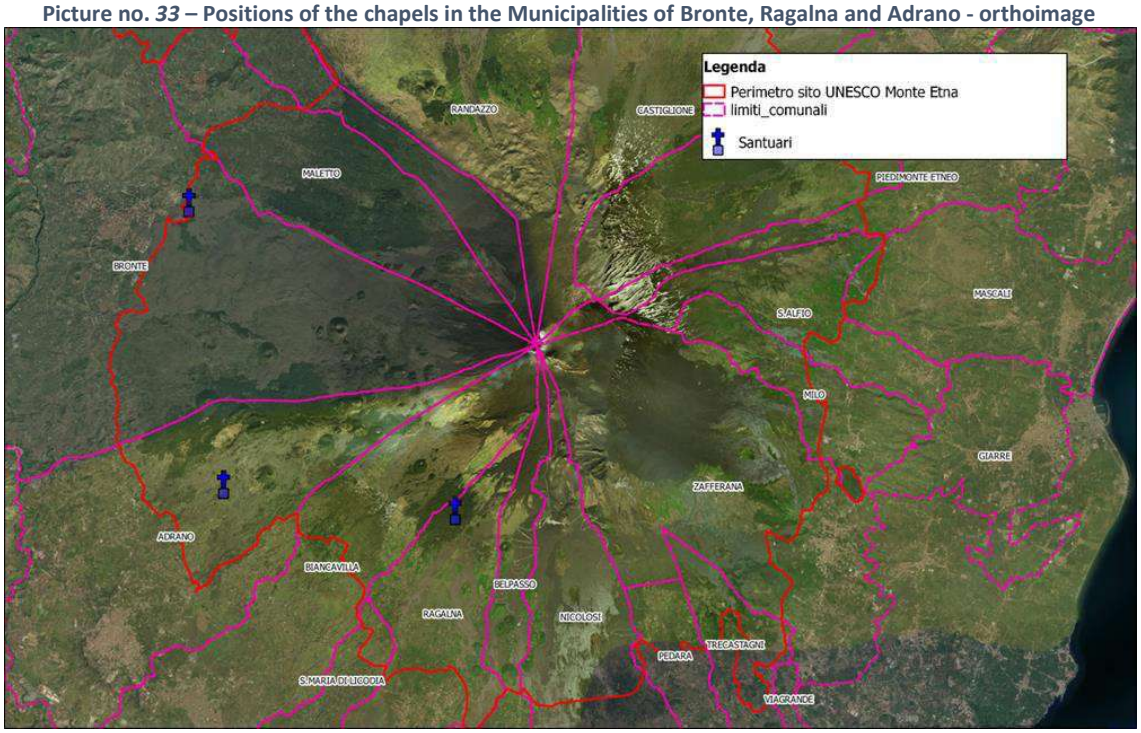
Picture no. *32* – Partial view of the Monte Spagnolo Lodge

3.2.5 Other non-listed assets.

Chapels and Shrines

Mount Etna has always been a place of worship for local people. In honor of the patron saints, who - according to people's beliefs - protect the inhabited centres from the eruptions of the volcano, some small chapels have been erected across the territory. The picture below shows the chapels located in the Municipalities of Bronte (Madonna dell'Annunziata), Ragalna (Casa Santa Barbara) and Adrano (near the Cave of San Nicolò Politi). Particularly noteworthy are the Via dei tre Santi (Alfio, Filadelfo and Cirino) chapels, one of which is the Magazzeni church in the municipality of Sant'Alfio; the Chapel of S.M. Annunziata in the Municipality of S.M. di Licodia; the Church of Madonna della Neve located in the municipality of Ragalna; the Church of S. Alfio in the Municipality of Trecastagni; and the many votive chapels as a sign of faith and thanksgiving for the cease of the lava flows (e.g. Piano Pernicana, Fornazzo, Linguaglossa etc.).

Picture no. *33* – Positions of the chapels in the Municipalities of Bronte, Ragalna and Adrano - orthoimage

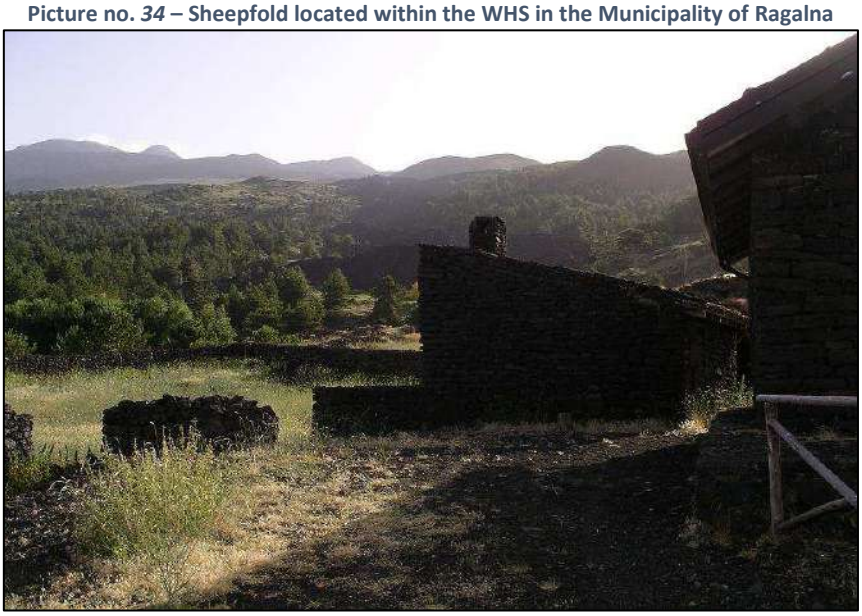


Typical rural buildings

In the past, the WHS territory has witnessed an intense agricultural activity. The various rural buildings in the area testify it. Among these, it is worth mentioning the two typical rural buildings located in the municipality of Milo (near Contrada della Cubania) and in the Municipality of Ragalna, where the well-know sheepfold is. The latter is an ancient renovated building typically used for grazing the flock in the summer in the high mountain areas of Etna. Among the most valuable elements are the fences built with dry stone walls. However, the identity of the entire area of the park is characterized by rural buildings, turrets, dry stone walls, sunflowers, etc. Historically, across Sicily the specificity of the physical conformations determined the presence of buildings with particular economic functions (transhumance, forestry, coal production, etc.) in unique contexts, such as those that current culture has felt the need to highlight and preserve as areas of particular value. Within the Etna Park, the existence of many anthropic elements, both in Zone A and in Zone B, is particularly relevant, for these – more than others - shall be adequately protected (according to the laws of institution of the park).

The area's rural heritage has been the subject of a study conducted by the University of Catania. The study aimed at compiling an inventory and classification of anthropogenic artefacts located on the territory and representing traditional construction techniques, and whose state of degradation highlights the need for urgent intervention. The study aimed at identifying specific operational reference techniques for the various actors involved in the construction process (technicians, protection officers, workers, etc.).
The importance that rural construction and the related construction techniques have for the territory is also testified by the decree establishing the Etna Park. This requires even if advanced technologies and architectural concepts are used, when new buildings are under construction, the connection with the traditional architectural culture of the nearby areas characterised by ancient anthropisation, shall be highlighted, especially through the use of traditional Etna and circumaetneans materials and plasters (such as: "stazzune" bricks).

Picture no. *34* – Sheepfold located within the WHS in the Municipality of Ragalna



Ruins

Within the WHS territory are two nuclei of ruins located near the crater of Mount Etna.

The now-disappeared ruins that existed on the small hill called Torre del Filosofo ("Philosopher's Tower"), at an altitude of 2,920, right at the base of the summit crater, never confirmed whether this was really the shelter of the philosopher Empedocles or an altar from Roman times or again something else.

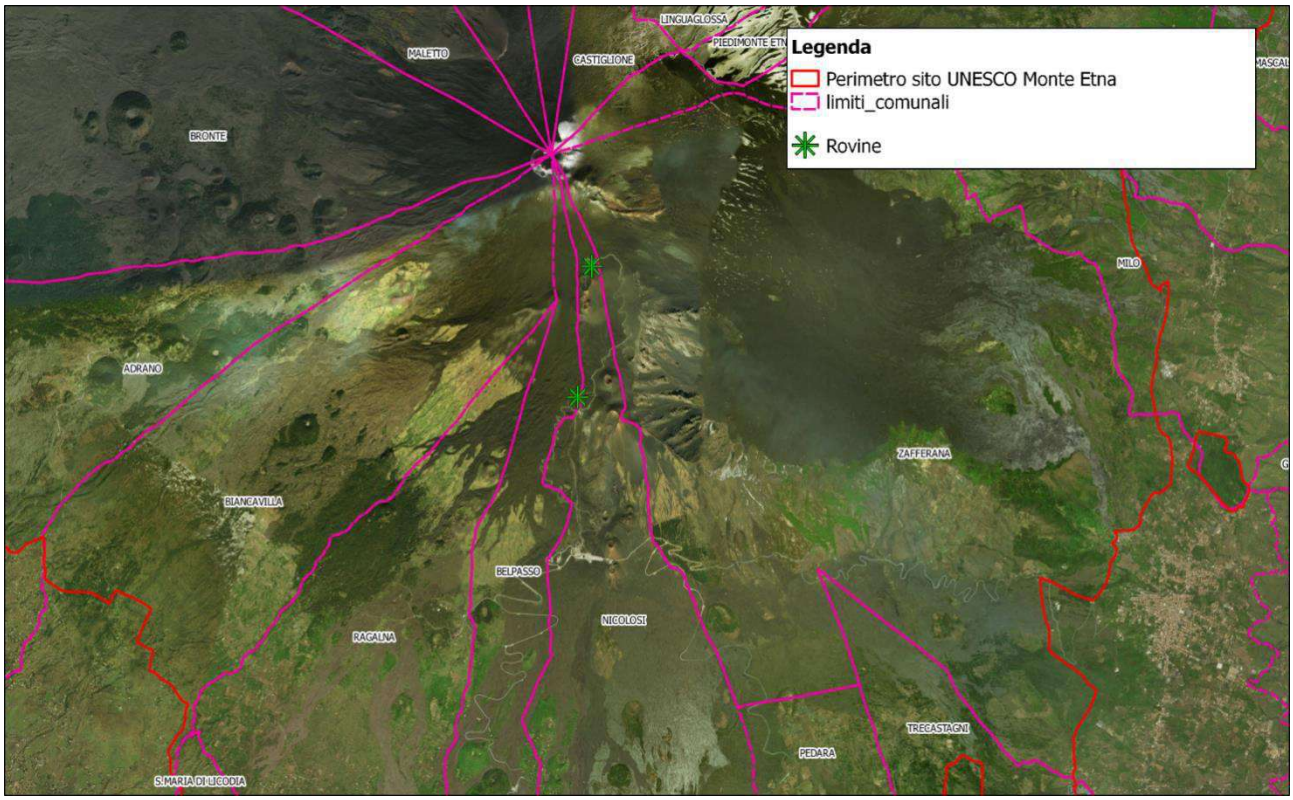
In 1903, a lodge was built at 2,504 meters consisting of a single compartment measuring 3x4 metres. It was named after the Gemmellaro family, but then it took the name "Piccolo Rifugio" ("Small Lodge"). In the event of bad weather, it was an emergency shelter, that– however - lacked any comfort. In its place, in the 1960s, one of the Sicilian Region lodges was built and retained the name. The Sicilian Region laid the foundations for a mountain lodge building plan, which, after heated discussions on their location, led to the construction of four beautiful lodges, including the Piccolo Rifugio (at an altitude of 2,458 m) and the Torre del Filosofo Lodge (at an altitude of 2,915 m).

In 1983, an eruptive fissure opened right next to the Piccolo Rifugio, which suffered extensive structural damage.

In the meantime, the Torre del Filosofo Lodge was entrusted to the company that owns the Etna cableway, until, in the early 1990s, the Sicilian Region transferred ownership of these refuges to the Province of Catania.

The eruption of 2001 and especially that of 2002, whose mouths opened respectively near the two shelters, almost completely covered the two structures under a blanket of lava and pyroclastic fall products. Until recently, the roof of the Torre del Filosofo Lodge was still visible, buried under several meters of sand, bombs and lapilli.

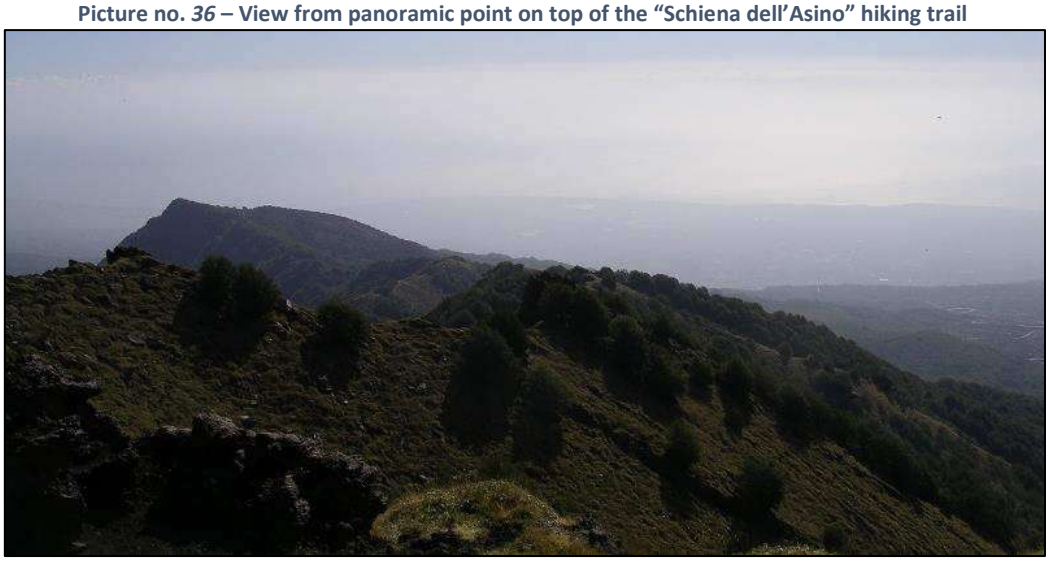
Picture no. *35* – Position on ruins in the WHS



Panoramic Points

One of the most evocative panoramic points of the whole Etna area is located at 2010 m a.s.l., on top of the "Schiena dell'Asino" hiking trail. Upon getting on the top, it is possible to enjoy a comprehensive view of the summit's craters and of the South-East and the New South-East craters, as well as of the entire Valle del Bove. Moreover, looking towards the sea, the view embraces the whole Aci zone and the Ionian Coast.

Picture no. *36* – View from panoramic point on top of the "Schiena dell'Asino" hiking trail

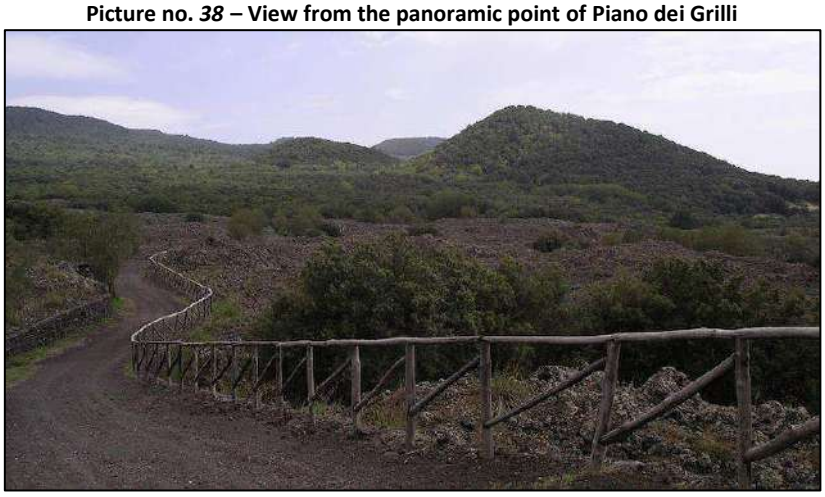


Another noteworthy panoramic point is located at 1500 m a.s.l., on the Pineta Ragabo-Passo Dammusi hiking trail, from which it is possible to see the button-shaped craters dating back to 1923 and enjoy the view on the town of Linguaglossa and the Ionian Coast.

Picture no. 37 – View from the panoramic point on the Pineta Ragabo-Passo Dammusi hiking trail

Another panoramic point is located at 1280 m in Piano dei Grilli, close to Monte Ruvolo at a junction between different trails heading to Monte Egitto or Monte Tre Frati. Located at a higher level than Piano dei Grilli, it is an excellent panoramic point in the area.

Picture no. *38* – View from the panoramic point of Piano dei Grilli



Located at an altitude of 2720 m, the Pizzi Deneri panoramic point is the closest observation point to the fissures featured on the 2014 north-east crater's base and the summit craters. The view encompasses the whole Etna area and the magnificent Valle del Bove.

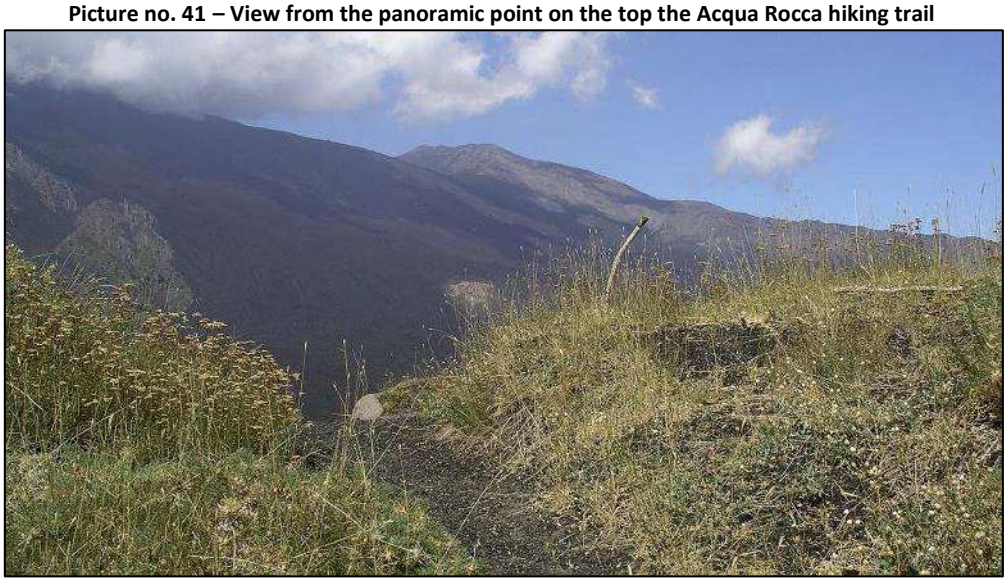
Picture no. *39* – View from the Pizzi Deneri observation point

From the Serracozzo panoramic point (2035 m), it is possible to admire the Ionian coast up to Taormina as well as a wide view of the summit craters, and the South-East and the new South-East craters in particular.

Picture no. *40* – View from the Serracozzo panoramic point

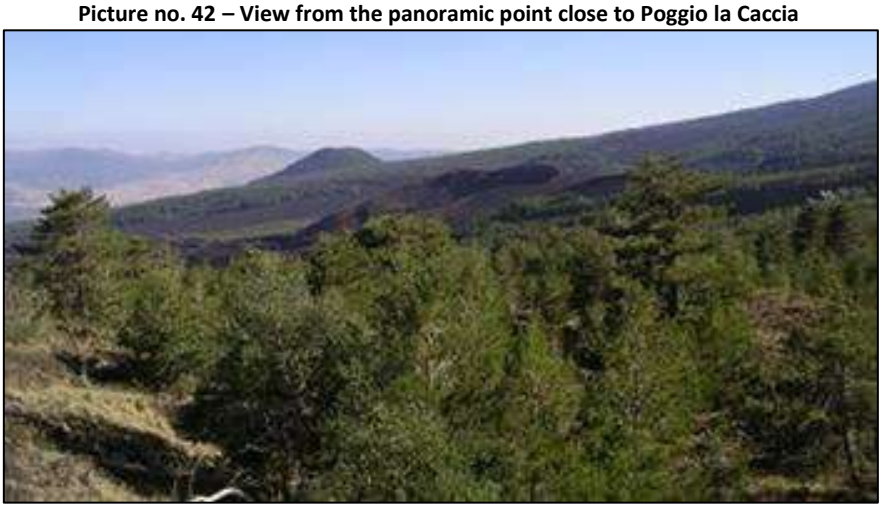
The panoramic point on top of the Acqua Rocca hiking trail (1720 m a.s.l.) overlooks the summit craters and the new South-East crater and the Valle del Bove in particular.

Picture no. 41 – View from the panoramic point on the top the Acqua Rocca hiking trail



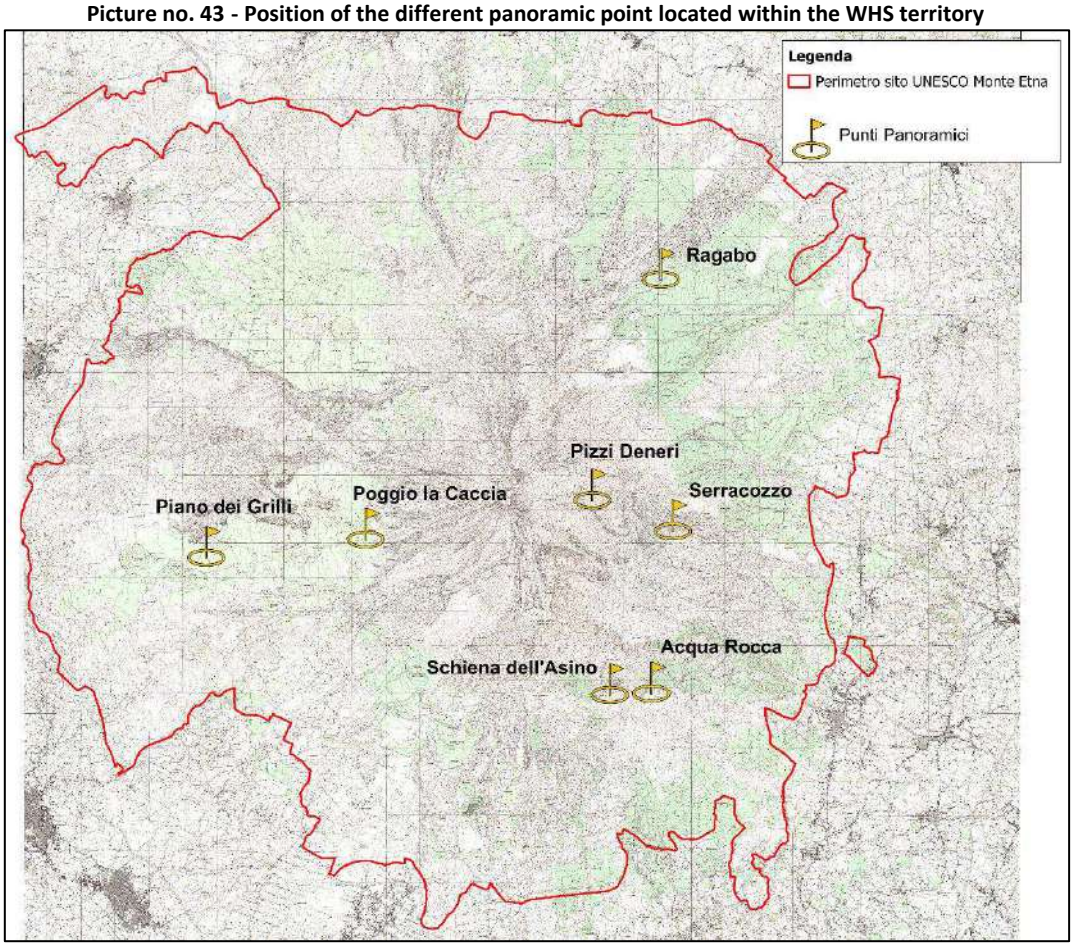
Finally, from the panoramic point located close to Poggio la Caccia (1865 m a.s.l.), it is possible to enjoy a very broad view of the whole Bronte and Maletto valleys, as well as of some old craters.

Picture no. 42 – View from the panoramic point close to Poggio la Caccia



The following picture shows the position of the different panoramic point located within the WHS territory.

Picture no. 43 - Position of the different panoramic point located within the WHS territory



Mountain Lodges

The Park Authority adopted an *ad hoc* plan aiming at granting the full enjoyment of the Park for naturalistic, scientific and cultural as well as recreational purposes. The Plan regulates the access to Park territory according to an integrated information system for hikers. Furthermore, it defines the Park's road infrastructures and accommodation facilities. The Plan was the result of a consultation between the Park Authority and the various stakeholders operating in the area, following which the Park has identified dozens of Hiking Base Points. Such equipped lodges (identified as Zone "C" Park Areas) are functional to the network of hiking trails.

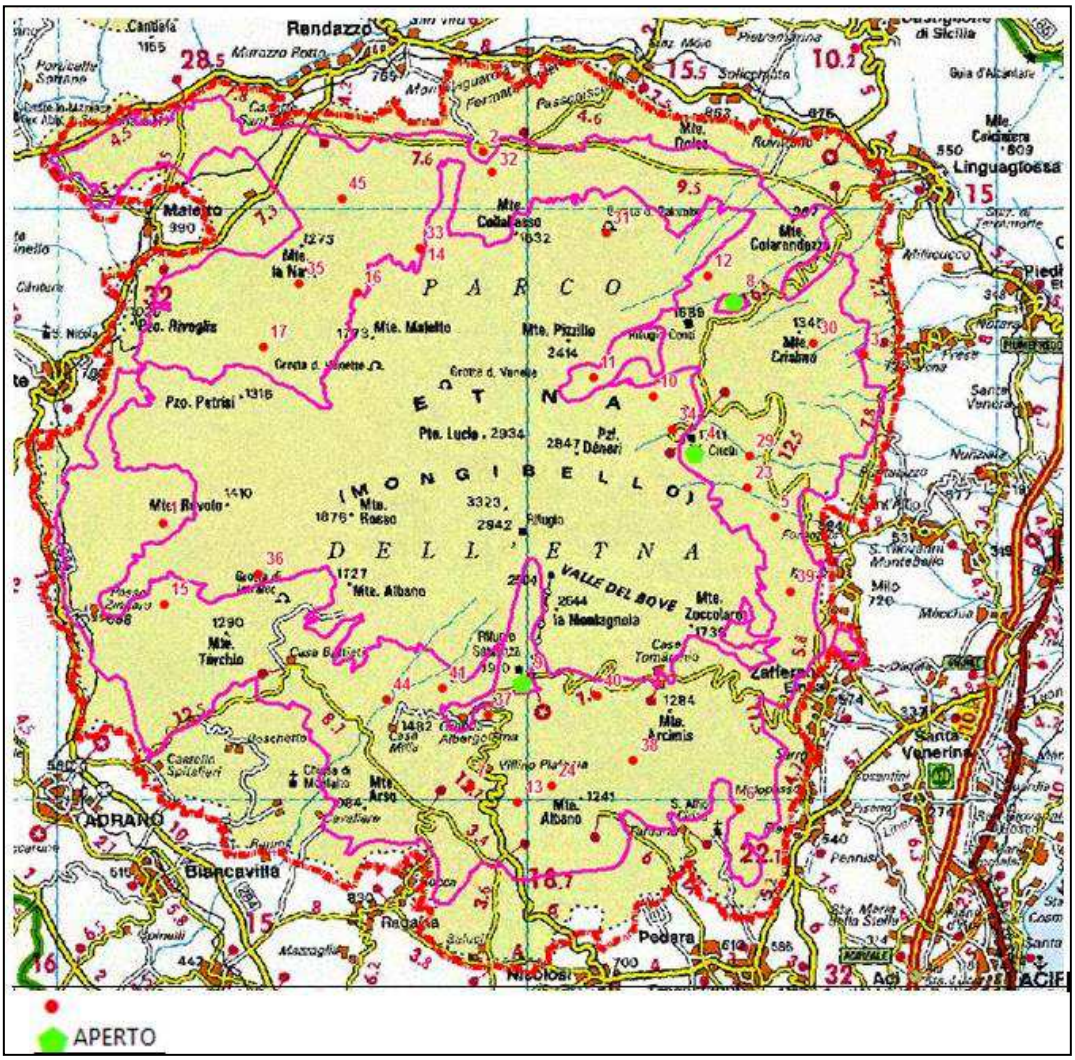
The lodges located inside the WHS are different and only a few are guarded. All the others are free and open, without toilets and operating as a bivouac during multi-day excursions; some have fireplaces with an available wood supply.

Among the guarded lodges, the best known is the Sapienza Lodge, located at an altitude of 1,900 m a.s.l., on the southern slope of Etna in the territory of the Municipality of Nicolosi. It is the station of the Etna Sud ski resort. The Italian Alpine Club-Section of Catania built it after WWII. Today it is used as a small hotel.

Another guarded lodge is the Salvatore Citelli lodge, operating as an Etna Park Hiking Base Point. It was built in 1934 in the north-east area of Etna at 1740 m a.s.l. on an old crater on top of Monte Concazze dating back to ancient eruptions of more than 3000 years ago. Another guarded lodge is the Brunek Lodge, located at 1400 m a.s.l., along the Mareneve road in Pineta Ragabo, few kilometres away from Piano Provenzana. Another guarded lodge is the small Manfrè Lodge, located at an altitude of 1350 m a.s.l. in the Monte Manfrè wood. The latter developed within an extinct crater and is characterised by chestnut groves, hazelnut and oak trees. The wood is located along the CAI hiking trail no. 786 starting from the town of Belpasso to reach the southern Etna side through the Pista Altomontana.

Finally, among Etna's guarded lodges are the Piano dei Grilli lodge; the Case Caldarera lodge; the Case Bevacqua lodge; the Citelli lodge; the Pietracannone lodge and the Casa della Capinera-Cicirello lodge. Together with the aforementioned Citelli lodge, these are some of the Park's Hiking Base Points.

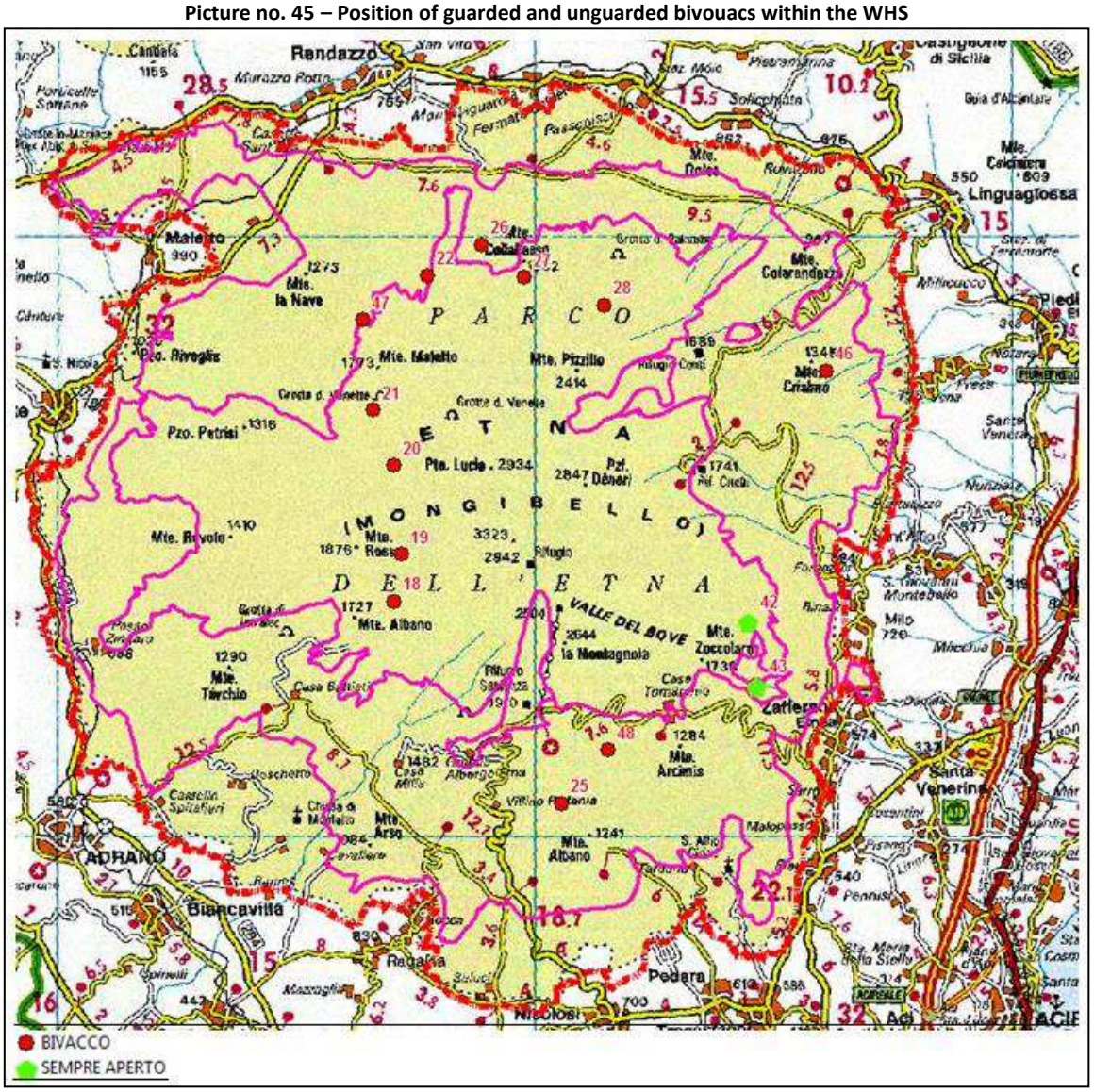
***Picture no.* 44 – Position of guarded and unguarded lodges within the WHS**



Among the unguarded lodges are the Palomba lodge at an altitude of 1560 m a.s.l., mostly serving State Forestry operators, which is located along the main trail near the Palombe cave, in the northern area of the Park. The Bivacco Saletti, located within the territory of the Municipality of Randazzo along the trail for the Pirao forest house and the main high mountain trail, is another unguarded lodge. The Timparossa Lodge near Monte Nero in the Municipality of Linguaglossa is a bivouac.

Other bivouacs are the Santa Maria bivouac in the Municipality of Randazzo and the Monte Palestra bivouac, located in the Municipality of Belpasso near a volcanic formation of the crater of the same name. The Galvarina bivouac in the Municipality of Adrano features the typical structure of a mountain lodge that sheltered the shepherds from bad weather. Renovated in past years, this is certainly one of the best-known bivouacs in the area, as its strategic allows reaching different routes. Other notable unguarded lodges and bivouacs are: Monte Baracca Lodge; Linguaglossa hut; Pitarrone Lodge; Monte Concilio Lodge; Case Bosco Prato Fiorito Lodge; Monte La Nave Lodge; Case Bosco Chiuso Lodge; Galvarina bivouac; Monte Palestra bivouac; Monte Scavo bivouac; Monte Maletto bivouac; Monte Spagnolo bivouac; Case Paternò Lodge; Monte Grosso Lodge; Monte Gemmellaro bivouac; Saletti bivouac; Santa Maria bivouac; Timparossa bivouac; Monte Zappino Lodge; Monte Crisimo bivouac; Palomba Lodge; Case Pirao Lodge; Monte Spagnolo Lodge; Forestale SES Lodge; Trentasalme Lodge; Case Zampini Lodge; Monte Vetore Lodge; Salto del Cane Lodge; Piano Bello Lodge; Case del Vescovo Lodge; Case Carpentieri Lodge.

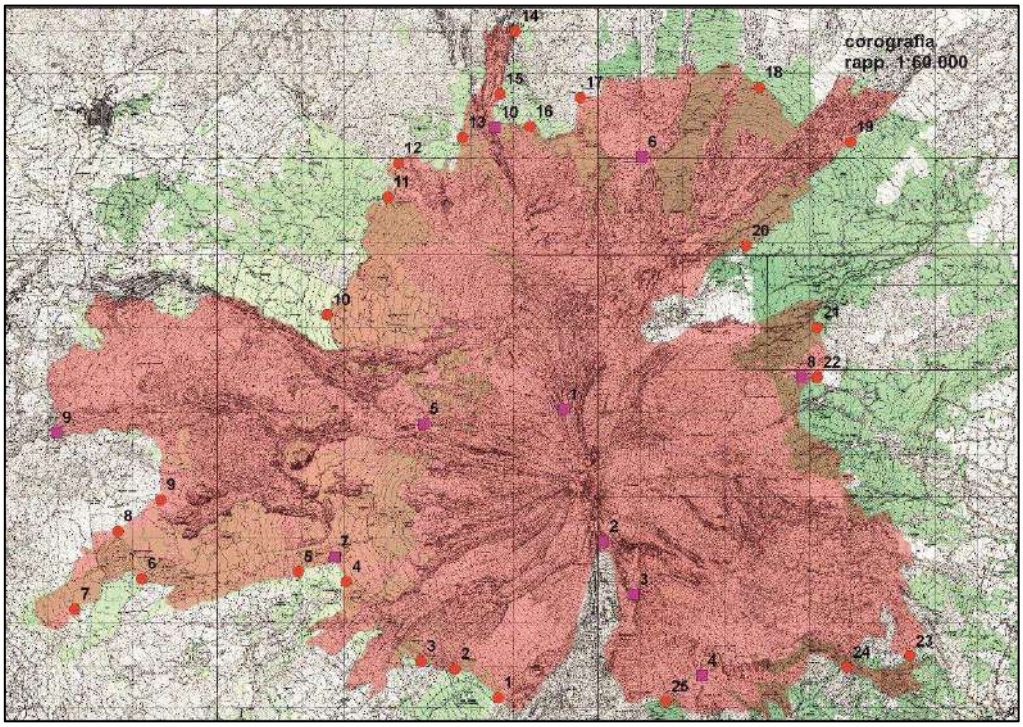
Picture no. 45 – Position of guarded and unguarded bivouacs within the WHS



Signposts and informational boards and notices within the Park territory

As mentioned above, the Park Authority placed *ad hoc* signs to mark the borders of the UNESCO Site territory, as well as a number of informational boards describing the main environmental emergencies and features of the site. These are described in the picture below.

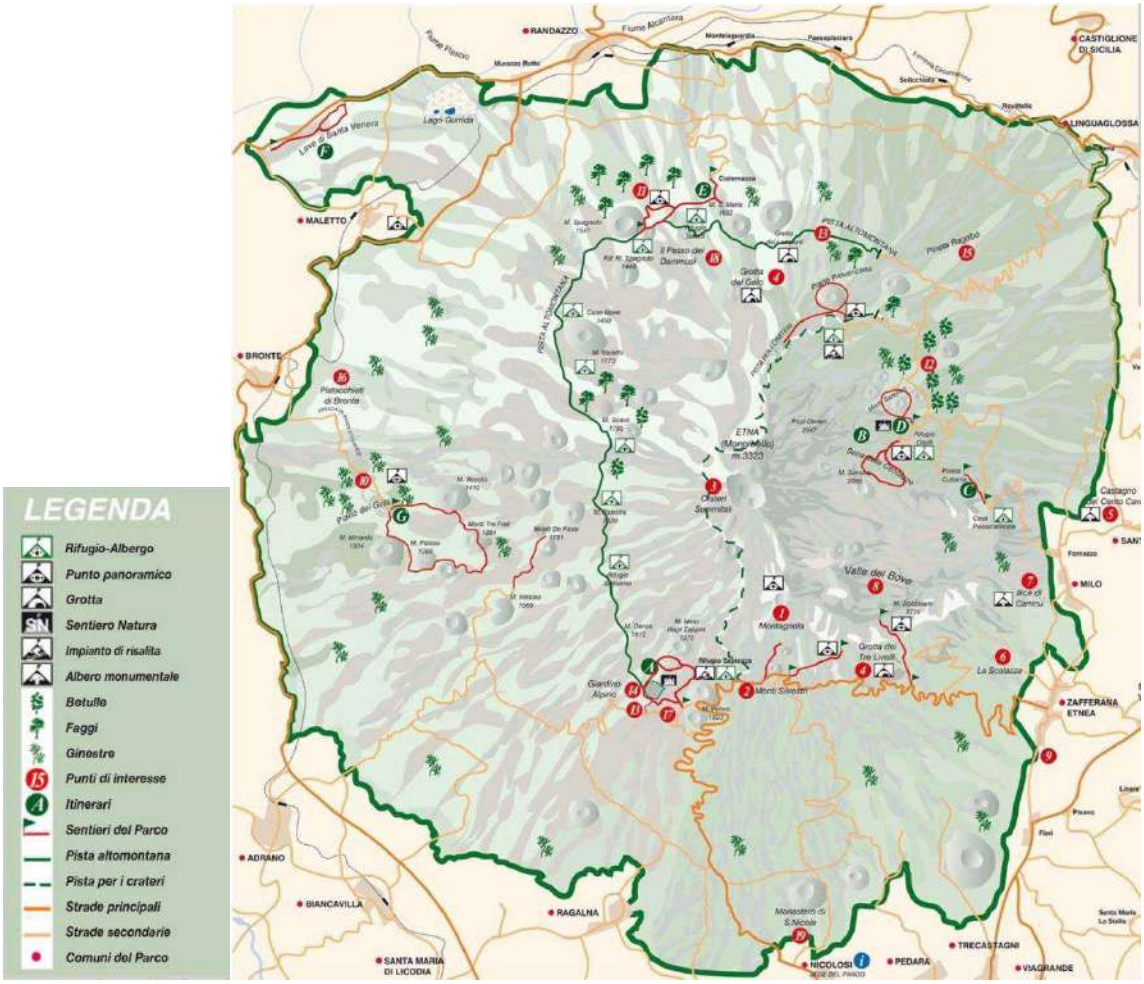
Picture no. 46 – Position of border signs (red dots) and description of environmental emergencies (purple square)



Hiking Trails

The above-described hiking trails are outlined in the Park's Hiking Trail Plan and factsheets are available on the Park's website for each of them. Hereafter the key points of interest are described as identified by the Park Authority.

Picture no. 47 – Map of the Park's points of interest (A short guide to the discovery of the Park) within the territory of Mount Etna



Vegetal monuments

The table below describes the vegetal monuments located within the WHS territory.

***Table no.* 16 – Description of the vegetal monuments located within the WHS territory**

NAME	SPECIES	NOTES
La Betulla di Monte Santa Maria *The Birch Tree of Monte Santa Maria*	*Betula aetnensis*	It is a stump with 5 large root sprouts, the largest of which has a circumference of 2 meters. It is probably the largest birch tree in Etna.
I Faggi di Monte Spagnolo *The Beech Trees of Monte Spagnolo*	*Fagus sylvatica*	They are the evidence of the oldest beech forest of Etna, coppiced until the last post-war period, when most of the land in this area went from private to public property.
"U Zappinazzu" della Pineta di Linguaglossa *"U Zappinazzu" of the Linguaglossa Pine Wood*	*Pinus nigra* ssp. *calabrica*	The pine forest of Linguaglossa includes several specimens of secular Laricio pine. Among them, there is a specimen of more than 200 years of age.
Il Faggio dell'Acqua Rocca *The Beech Tree of Acqua Rocca*	*Fagus sylvatica*	Its peculiar root system develops on the surface with a remarkable intertwining to resist the slope. The name originates from the nearby waterfall.
Il Faggio di Monte Pomiciaro *The Beech Tree of Monte Pomiciaro*	*Fagus sylvatica*	Other specimens in the area are visible at observation point no. 2 of the Monte Pomiciaro-Monte Zoccolaro hiking trail. The specimen consists of a stump of five large trunks, each about 2m in circumference.
Il Pioppo di contrada Pusetta *The Poplar Tree of Contrada Pusetta*	*Populus tremula*	Its height makes it outstanding compared to the surrounding chestnut grove. It can be seen from the road that leads from Zafferana Etnea to the Sapienza Lodge.
"A Trofa du Camperi"	*Fagus sylvatica*	It consists of a 10-root sprout stump of different circumferences, with the most developed one being 2.25 m. It is named after a farmer (private guard of an agricultural estate) that was found killed at the base of the tree in the late 1800s.
"U Fau di Sanareddu"	*Fagus sylvatica*	Structurally, the plant consists of 4 large trunks joining to the base. It is estimated to be over 200 years of age.

NAME	SPECIES	NOTES
I Castagni di Monte Fontane *The Chestnut Trees of Monte Fontane*	*Castanea sativa*	It is a stump composed of 5 main trunks, the largest of which has a circumference of 2.50 m. Another remarkable specimen, with a trunk of 4.10 m in circumference, is located in the area, about a hundred meters in southeast direction.
Il Cerro di Monte Fontane *The Turkey Oak of Monte Fontane*	*Quercus cerris*	This is probably Etna's largest Turkey oak. The specimen developed on a ridge of Monte Fontane and has grown much in width, so to become not so slender as the typical characteristics of the species would appear.
La Roverella di contrada Pomazzo *The Eastern white oak Contrada Pomazzo*	*Quercus congesta*	Ultra centennial tree
La Grande Quercia di Monte Crisimo *The Big Oak Tree of Monte Crisimo*	*Quercus congesta*	The area where this plant is located features several other large downy oaks. The specimen is divided into two large trunks on the ground level, the main one measuring 3 m in circumference.
"L'Ilice du Carrinu" or "Ilice du Pantano"	*Quercus ilex*	It is without a doubt Etna's oldest and largest holm oak (it is assumed that it counts about 600 years). The popular denomination "Ilice du 'Pantanu" is due to the ancient presence of a wetland near the tree.
I Cerri di Nocille *The Turkey Oaks of Nocille*	*Quercus cerris*	In this district, as witnesses of the ancient vegetation cover, it is easy to find several specimens of Turkey oak more than a hundred years old. These are confined in sites that are not occupied by crops, such as the edges of ancient cart tracks.
L' acero di contrada Nocille *The Maple Tree of Contrada Nocille*	*Acer opalus* ssp. *obtusatum*	Together with some small specimens of Turkey oaks and Eastern white oaks, this tree testifies the ancient plant cover that existed before the cultivation of hazelnut trees.
I Castagni di bosco Chiuso *The Chestnut Trees of Bosco Chiuso*	*Castanea sativa*	It is a stump with two large sprouts, each of about 3.50 m in circumference. Among the other large chestnut trees in the area, it is worth mentioning a specimen located about 100 m west-south west.
Le Roverelle di Monte Arso *TheEastern white oaks of Monte Arso*	*Quercus congesta*	The steep slopes of Monte Arso preserve a wood featuring several other specimens with trunks with circumferences wider than 4 m. These plants have a short and stocky habitus resulting from adaptation to the steep slope.
Lo "Zappino" della Galvarina	*Pinus nigra* ssp. *calabrica*	The plant was struck by lightning and currently only two parts of its branches remain.
La Betulla di Poggio la Caccia *The Birch Tree of Poggio la Caccia*	*Betula aetnensis*	Other specimens are located in the area, but they are not of the same size as this one. Birch on Mount Etna mainly plays a pioneering role of colonisation that subsequently paves the way to more structured and mature types of vegetation.
I Lecci di Conca Sottana *The Holm Oak of Conca Sottana*	*Quercus ilex*	The plant is bifurcated almost to the base and has an almost impenetrable crown due to the presence of secondary branches at ground level. In the area, there are other specimens of almost the same size.
"U Castagnu Vespa"	*Castanea sativa*	The specimen is about 300 years old. Currently it is in poor vegetative conditions with various dry branches.
La Ginestra di Monte Parmentelli *The Broom of Monte Parmentelli*	*Genista aetnensis*	The plant was born in 1940. Its sixty years of age can be considered venerable for a broom. It is a single individual subdivided into three main branches about one meter from the base and features a large foliage.
Il faggio di contrada Ilice *The Beech Tree of Contrada Ilice*	*Fagus sylvatica*	This peculiar specimen of beech tree is located in an area occupied mainly by holm oak and therefore below the usual limit of beech trees on Mount Etna.
U Fau da Nave	*Fagus sylvatica*	This is the largest specimen of the "C.da La Nave" beech tree wood.
I Faggi di Monte Santa Maria *The Beech Trees of Monte Santa Maria*	*Fagus sylvatica*	Monte Santa Maria (Randazzo)
A Cerza di Algerazzi		Algerazzi (Zafferana Etnea)
L'Acero grosso del bosco Nicolosi *The Big Maple Tree of Bosco Nicolosi*	*Acer opalus* ssp. *obtusatum*	Bosco di Nicolosi (Milo)
"U Ruguru" di Monte Lepre	*Quercus congesta*	Monte Lepre (Bronte)
Le querce di Monte Egitto *The Oak Tree of Monte Egitto*	*Quercus congesta*	Monte Egitto (Bronte)
La betulla di Magazzeni *The birch tree of Magazzeni*	*Betula aetnensis*	Magazzeni (Sant'Alfio)
Il castagno di C.da Tramazzi *The Chestnut tree of C.da Tramazzi*	*Castanea sativa*	Tramazzi (Sant'Alfio)
La roverella di Carpene *The Eastern white oak of Carpene*	*Quercus congesta*	Contrada da Carpene (Trecastagni)
Il pioppo di Monte Pomiciaro *The Aspen Poplar of Monte Pomiciaro*	*Populus tremula*	Strada Cassone - Monte Pomiciaro (Zafferana Etnea)
Il pioppo tremulo di Monte Monaco *The Aspen poplar of Monte Monaco*	*Populus tremula*	Monte Monaco (Zafferana Etnea)
A Cezza di Panzazza	*Quercus congesta*	Piano Bello (Zafferana Etnea)
Ilice di Portella Calanna *The Holm Oak of Portella Calanna*	*Quercus ilex*	Monte Fior di Cosimo (Zafferana Etnea)
Cerro di Monte Calanna *The Turkey oak of Monte Calanna*	*Quercus cerris*	Monte Fior di Cosimo (Zafferana Etnea)
Roverella Cugnu di Mezzu *European white oak of Cugnu di Mezzu*	*Quercus congesta*	Valle San Giacomo - C.da Cugnu di Mezzu (Zafferana Etnea)
Castagno di Serruggeri	*Castanea sativa*	(Pedara)

NAME	SPECIES	NOTES
The Chestnut tree of Serruggeri		

Giardino Botanico Nuova Gussonea

The Nuova Gussonea dell'Etna Botanical Garden was established in 1979, through an agreement between the then General Directorate of Forests of the Sicilian Region and the University of Catania. The area extends for over 10 hectares on the southern slopes of the volcano, at an altitude between 1700 and 1750 m. It was named "Nuova Gussonea" to both remember the well-known scholar of Sicilian flora, Giovanni Gussone, and give continuity to a similar initiative dating back to the beginning of the century due to Fridiano Cavara, who founded the – unfortunately short-lived -"Gussonea" botanical garden in 1903, located along the southern slope of Etna. Access is possible through a carriage road that leads to the Valerio Giacomini Lodge, a logistical base for staff; a series of pedestrian paths branch off from it and connect it to the various sectors. Although similar to other comparable institutions (alpine and mountain gardens, botanical gardens), the Etna botanical garden substantially differs from them, not only inasmuch as it is located on a volcanic mountain in the middle of the Mediterranean region, but also in its structure and function. In fact, the garden is intended to host only Etna species and plant communities and is divided into various sectors, thus carrying out an important task in the field of environmental education. By allowing direct knowledge of the most significant species and plant communities of the Etna environment, in its diversification according to the variations of the climate and the lava substrate, it plays the role of a permanent centre for the promotion of ecological education.

Catania Astrophysical Observatory

In the heart of the Etna Park, in the Serra la Nave district, in the Piano Vetore area, there is the "Mario Girolamo Fracastoro" headquarters of the INAF (National Institute of Astrophysics) Catania Astrophysical Observatory. At an altitude of 1725 meters above sea level, the observatory hosts the telescopes for professional astrophysics located at the highest altitude on the national territory. The scientific tradition in the astronomical field at the foot of the volcano is dates back to 1788, when the "Siculorum Gimnasium" (University of Catania) established the Astronomy course. Among the most prominent scholars, it is worth mentioning Prof. Francesco Gambino.

Among the first in Europe to study stars with the tools of physics, the Astrophysics course was established in 1890 and chaired by Prof. Annibale Riccò. The history of the "Observatory dedicated to Physical Astronomy" on Etna began in 1880, when the construction of the first headquarters dedicated to composer Vincenzo Bellini and located at 2941 ma.s.l. was completed in the Montagnola area. Pietro Tacchini, an astronomer from Palermo whose project was supported by the Gioenia Academy in 1876, promoted its establishment. Thanks to additional contributions from the Municipality and the Province of Catania, the Ministries of the Education and Agriculture, Industry and Commerce, the Observatory was built shortly after under the direction of Prof. Riccò. The Bellini Observatory operated until 1925. Observation activity on Etna resumed in 1966 when the director Prof. Mario Girolamo Fracastoro and his collaborators inaugurated the new offices of the Astrophysical Observatory at the Cittadella Universitaria in Catania and at Serra la Nave. The latter was later on dedicated to Fracastoro himself.

Monitoring of Etna's volcanological activity

The Park Authority carries out continuous monitoring of the volcanological, seismic and geochemical activity of Etna. This activity is carried out through the extensive monitoring network present within the Park area, and thanks to the numerous research agreements that the Park Authority stipulated with the University of Catania, Palermo and Florence, INGV, the Etna Speleological Centre of Catania and other national and international research bodies.

3.2.6 Anthropogenic structures

Ski resorts

Mount Etna features two ski resorts: one located south in Nicolosi (1910-2700 m) and another in Piano di Provenzana – Linguaglossa, on the north side (1800-2317 m).

The Nicolosi ski resort is the bigger one, and extends from the town of Nicolosi (CT) up to Montagnola at an altitude of 2700 m. It includes a cableway, a two-seater chair lift and 3 skilifts on 3 alpine ski red and 1 blue runs. From the ski resort it is possible to reach the different runs located at different altitudes:

- By cable car it is possible to reach the "Piccolo Rifugio" ski run at an altitude of 2.500 m (length: 2.700 m – drop 580 m – red run).
- By chair lift, it is possible to reach the altitude of 2.142 m (ski run's length 865 m – red run).
- By Omino skilift, it is possible to reach the altitude of 2.294 m (ski run's length 1.992 m – red run).
- The*Montagnola*starts at an altitude of 2.500 m up to 2.604 m.

The second Etna ski resort (Linguaglossa-Piano Provenzana) features a quad-seater chair lift and 3 skilifts serving 4 red and 2 blu downhill runs. While in Nicoli the slope has no vegetation, Provenzana is covered with pine woods. From there it is possible to see the Ionian Sea.

On Mount Etna there are also Nordic ski sites, identified by the Etna Park Authority and the regional forestry authority in Piano Vetore (close to Nicolosi), Piano Provenzana and the ring located in the Maletto area.

3.2.7 Agricultural resources

Circumnavigating the volcano and crossing the twenty municipalities falling within the territory of the Etna Park, it is possible to find a delicious cocktail of flavours: from the apples of Etna, to the Zafferana Etnea honey, the Maletto strawberries, the Bronte pistachios, the Adrano salads, to the Ragalna olive oil. Then, worldwide-appreciated quality wine from the vineyards of the Etna DOC, whose growth is favoured by the extraordinary fertility of the lava soil. The Etna Park has already started an in-depth study aimed at enhancing the typical agro-food, food and wine, wine, integrated organic agriculture produce. With regard to the denominations of origin and geographical indications, Etna is placed in an excellent context with the Etna DOC label, the Monte Etna PDO label extra virgin olive oil, the PDO label Etna Prickly pear, Cherry and Sicilian Pecorino. Finally, other local products worthy of protection and promotion are becoming "Slow Food" presidium.

Vino Etna DOC

Quality label: Denominazione d'Origine Controllata
Label award type: D.P.R. 11.08.1968 (G.U. 244 – 25.09.1968); amended by D.M. 30.11.2011

Picture no. 48 - Vineyard with Etna in the background

The Etna Doc is the Province of Catania's trademark wine as well as the first Sicilian wine ever to obtain the DOC label in August 1968. It is available in the "Etna bianco", "Etna bianco superiore", "Etna rosso", "Etna Rosso Riserva","Etna rosato", "Etna sparkling wine" variations. All the vines used to produce it are autochthonous and are 80% Nerello mascalese, and Cappuccio for red wines; 60% Carricante and 40% Catarratto for white wines, 80% Carricante for the Etna bianco superiore. There are about 600 Doc Etna wine producers for a total production of about 15 thousand hl, almost 85% of which is red and rosé wines.

With a view to enhance the integration between environmental protection and the promotion of economic activities, the Park Authority protects and promotes Etna viticulture as a "priceless heritage" to be preserved, enhanced and disseminated, as well as an economic sector of primary importance. This can be achieved by safeguarding the Aetnean environmental and cultural heritage, encouraging the improvement and standardisation of the production quality parameters and promoting the image of the product linked to its territory.

Bronte Green Pistachio

Quality label: Denominazione d'Origine Protetta
Label award type: published in the Official Journal of the EU L. 8 of 13.01.10
Other quality labels: traditional Sicilian agri-food product
Additional legal framework: Ministry for Agricultural, Food and Forestry Policies list (updated: 14 August 2012)
Other quality labels: Slow Food presidium

Picture no. 49 - Pistachio

The Arabs brought pistachio to Sicily and from the Arabic "فستوق" comes the relevant name in the Sicilian dialect ("fastuca"). It owes its importance to its intense and captivating aroma and to its bright colour that turned it into the king of Sicilian pastry.

Whole, in grain or paste, pistachio is an important ingredient for the preparation of *cassate*, nougat, ice cream, cakes and pastries. It is interesting to note that the fruit transformation processes have been recently subject to considerable expansion and intensification (pesto, flour, creams, grains, pastes for ice cream, etc.).
The "Pistachio Verde di Bronte DOP" is a shelled or peeled product belonging to the botanical species *Pistacia vera*, cultivar "*Napoletana*", also called "*Bianca*" or "*Nostrale*", grafted on *Pistacia terebinthus*. Only a percentage of no more than 5% of plants of other varieties and / or of rootstocks other than *P. terebinthus* is allowed. The production area is located in the municipalities of Bronte, Adrano, Biancavilla. However, other municipalities such as Ragalna and Belpasso also produce it. Across these territories, almost 100% of the Italian pistachio is grown with about 3000 ha and a production of about 2.000 tons. The soil and climatic specificities and the special technique called “scozzolatura”, consisting in collecting the fruit buds belonging to an entire production batch, allow accentuating the natural alternation of the species to produce every other year and to take advantage of the phytosanitary defence, so to obtain greater yields and a higher quality product. These soil and climatic factors together with the man-introduced terebinth (*P. terebinthus*) give the fruit particular quality features (intense green colour typical of the territory, elongated shape, aromatic flavour and high content in monounsaturated fatty acids of the fruits) that are difficult to find in other production areas and in the same Etna massif. These features differentiate the *Pistacchio di Bronte DOP* from those of other geographical areas. Each phase of the production process is monitored by documenting the relevant inputs and outputs. Product traceability is also guaranteed by registering the cadastral parcels, on which the production and product conditioning take place, in special lists (managed by the control structure), as well as by reporting the quantity produced to the control structure, .
Enrolment in the list of *Pistacchio di Bronte DOP* producers entails the assignment of an ID code that identifies the land tenant and the pistachio lots associated with it. All natural or legal persons registered in the relevant lists are subject to control by the control structure, in accordance with the provisions of the production specification and the related control plan. In addition to the common quality standards, when released for consumption, the "Pistachio Verde di Bronte" DOP must respond possess the following physical and organoleptic features:

- cotyledons colour: deep green, chlorophyll a / b ratio of between 1.3 and 1.5.
- flavour: strong aromatic, with no inflection of mould or foreign flavours.
- moisture content between 4% and 6%.
- kernel length / width ratio between 1.5 and 1.9.
- high content of monounsaturated fats in fruits (predominant presence of oleic acid with 72%, followed by 15% of linoleic acid and 10% of palmitic acid).

Etna Cherry

Quality label: Denominazione d'Origine Protetta
Label award type: published in the Official Journal of the EU L. 341 of 22.12.11
Other quality labels: traditional Sicilian agri-food product
Additional legal framework: Ministry for Agricultural, Food and Forestry Policies list (updated: 14 August 2012)

Picture no. 50 - Mastrantoni Cherry

The Etna cherry is a very sweet fruit with a fresh and pleasant taste and is produced from the Ionian Sea up to altitudes of 1600 m a.sl. on the east and south-east slopes of Etna including the territory of the Municipalities of: Giarre, Riposto, Mascali, Fiume freddo di Sicilia, Piedimonte Etneo, Linguaglossa, Castiglione di Sicilia, Randazzo, Milo, Zafferana Etnea, S. Venerina, Sant'Alfio , Trecastagni, Pedara, Viagrande, Nicolosi, Ragalna, Adrano, Biancavilla, Santa Maria di Licodia, Belpasso, Aci S. Antonio, Acireale. This prized fruit represents an ancient typical produce of the Etna area, achieved by a remarkable multiplicity of cultivars, and the Mastrantoni above all.
The Ciliegia dell'Etna DOP label is awarded to the fruits of the sweet cherry Prunus avium L. Mastrantonio ecotype also known as Donnantonio. It is grown on about 500 hectares with a production that does not exceed 1000 tons (Giarre, S. Alfio, Milo and Trecastagni). It has a bright red colour, medium-large size, it is crisp on the outside and has a very compact pulp on the inside and a long peduncle. It is rich in vitamins A and C, calcium, iron, potassium, anthocyanins that protect the heart and antioxidants that slow down the aging of tissues and cells.
The Etna cherry can be considered an authentic "health fruit". In fact, this fruit is particularly rich in beneficial substances such as anthocyanins and flavonoids. Recent studies attribute them the ability to improve coronary health and decrease the risk of cardiovascular disease. Other interesting health-related effects linked to the consumption of Etna cherries are the improvement of microcirculation and of the functionality of the urinary tract and an increase of blood capillary strength, thanks to the presence of one of the most interesting health substances such as cyanidin-3-glucoside or 3-rutinoside. These beneficial effects help preventing various diseases such as cystitis, brain degenerative processes, benign prostatic hypertrophy and, as recently demonstrated, also biological processes leading to the formation of cancer. The morphological and soil-climatic characteristics of the production area determine the peculiarities of the Etna Cherry. In particular, the high degree of insolation, the sandy soils of volcanic origin, with a sub-acid reaction, and the tireless work of man have contributed to the creation of a unique product.

Etna prickly pear

Quality label: Denominazione d'Origine Protetta
Label award type: published in the Official Journal of the EU L. 214 of 26.08.03
Other quality labels: traditional Sicilian agri-food product
Additional legal framework: Ministry for Agricultural, Food and Forestry Policies list (updated: 14 August 2012)

Picture no. 51 – Etna pricky pear

The plant belongs to the *Cactaceae* family, *Opuntia ficus-indica* species and was imported from the north-western Americas (originally believed to be the Indies, hence the name) towards the end of the 16th century. It is resistant to arid and dry climates and grows in impervious areas with medium and coarse lava soils. The prickly pear plant has no trunk but only leaves, which climb up from the roots forming the so-called shovels at whose upper ends are the fruits. Its reproduction occurs through the branches, 2/3 of which are buried in the ground. In its cultivation, no pesticides and/or fungicides are used since the plant assumes its own defences against parasites. It does not need any treatments, as production is strictly biological. The prickly pear of Etna PDO is rich in fibre and vitamins and can be used as a supplement against fatigue and stress. It helps to regenerate cells and is effective for problems related to attention and lack of concentration. It helps relaxing the muscles (especially of in elderly people) and increases the body's defences. It helps psychic balance and is beneficial to the mood. Pricky pear types are various: *Surfarina* or *Nostrale*has an orange-yellow colour; the red-coloured *Sanguigna*; *Muscaredda* and *Sciannina*are white in colour. The production area is mainly the Province of Catania, in the areas of the Etna villages at the foot of the volcano, then in the areas of Adrano, Biancavilla, Belpasso, Paternò, Motta Sant'Anastasia, Santa Maria di Licodia. The fruit is produced according to ancient techniques applied to the plant. The first flowering occurs between May and June with the formation of green fruits. To obtain a higher quality product, a technique called "scozzolatura" is carried out in the same period according to the production areas and climate conditions. It consists in removing flowers, small fresh fruits and young cladodes. The second flowering takes place between September and December and produces fruits called *fioroni* (dialect word), which guarantee the ongoing production. Harvesting operations are also conducted according to production areas and climatic trends and take place from the second decade of August as for the first flowering fruits ("*Agostani*"), from September to December as for the second flowering fruits ("*Scozzolati*" or "*Bastardoni*"). The latter is considered the most typical product of the area and the most valuable from an organoleptic point of view. Following the harvest, the fruits must be stored in suitable ventilated and dry rooms. When released for consumption, the "Etna prickly pears" must meet common quality standards as well as to the following characteristics:

- fruit weight of not less than 95 g.
- pulp percentage of not less than 60% of the fresh weight of the whole fruit.
- flawless fruits.
- colour and shape, characteristic of the cultivar (fruits harvested during the veraison stage are allowed).
- refractometric degree of not less than 13%.
- traceability: to allow the certification bodies to control and supervise the product, D.O.P. products will be those of producers operating in the territory recognised by the specifications and registered in a special list.

The "Prickly Pear of Etna" can be released for consumption only with the DOP logo placed on each commercial packaging, in compliance with the general and metrological rules governing its trade. The packaging must contain, in clear, indelible characters and clearly distinguishable from any other writing, the name "Etna prickly pear". The use of the wording "Cactus Pear" is also permitted. The elements identifying the name, company name, address of the packer, gross weight at the origin, as well as the name of the producers from which the fruits come (where applicable) shall also appear. The indication of the harvest week and the terms "*Agostani*" or "*Latini*" and "*Scozzolati*" or "*Bastardoni*" are optional. The identification mark is represented by the D.O.P. label, the underlying representation of the Etna volcano, two cladodes with four fruits and the underlying "Etna prickly pear" and features the DOP EEC logo on the right.
The different cultivars of *Opuntia ficus-indica* take their name from the colour of the pulp and skin. To obtain the DOP mark, 95% of the productions must be yellow, red and white, the presence of other ecotypes must not exceed 5%. .

Mount Etna Olive Oil

Quality label: Denominazione d'Origine Protetta
Label award type: published in the Official Journal of the European Union L. 214 of 26.08.03

Picture no. 52 – Mount Etna Olive Oil

The "Monte Etna" olive oil is obtained from the *Nocellara etnea* variety for at least 65% and from other varieties from the same area (*Moresca*, *Brandofino*, *Biancolilla*, etc.). Extra-virgin olive oil is obtained from healthy olives, harvested between

the veraison of the drupes up to the second decade of January. This variation depends on the different altitude of the production territories. After the harvest, the olives are kept in ventilated containers until milling, for which only mechanical and physical processes are allowed, to obtain an oil that is as faithful as possible to the peculiar characteristics of the fruit. The production area of olives for the production of protected designation extra-virgin olive oil includes territories falling within several municipalities in the Provinces of Catania, Messina and Enna. The concerned municipalities within the Etna area are: Adrano, Belpasso, Biancavilla, Bronte, Maletto, Ragalna, Randazzo, Santa Maria di Licodia. EU legislation, which regulates the production of oils with a designation of origin, requires that these municipalities be subject to chemical and sensorial analysis so to ascertain compliance with the requirements established under the Production Regulations. Etna olive oil is appreciated by experts and consumers for its organoleptic profile. The DOP Monte Etna extra-virgin olive oil has a yellow colour with green reflections; the taste is herbaceous, fresh, with hints of artichoke, green tomato, sometimes with notes of fresh almond, light fruity flavour with a tendency to medium. The slight harmonic presence of bitter and spicy makes it pleasant to the palate.

Pecorino Siciliano DOP

Quality label: Denominazione d'Origine Protetta
Label award type: published in the Official Journal of the EU L. 148 of 21.06.96

Sicilian pecorino is the oldest cheese produced in Sicily and probably the oldest one produced in Europe. In an excerpt from the Odyssey, Homer (IX BC) writes: "He has half of the milk curdled and then places it in woven baskets". These are the words by which Ulysses recounts Polyphemus's art of cheese making, and by which we came to know the techniques used in the past. Subsequently Pliny the Elder (23-79 AD) wrote in his *Naturalis Historia:* "Rome, where the wealth of all people can be judged closely", and when classifying the different cheese types, he refers to the Sicilian cheese calling it one of the best of that time. Today, the Pecorino Siciliano DOP is characterised by long-experimented pastures and production processes, that have remained almost unchanged over time to date. The Pecorino Siciliano DOP features the typical cylindrical shape with flat or slightly concave faces. Its weight varies between 4 and 12 kg, and each wheel is about 10-18 cm thick. The rind is white-yellowish. The surface is very rough due to the mark left by the basket. The paste is compact, white or straw yellow in colour, with little holes.
The Pecorino Siciliano DOP has a slightly spicy taste, an inebriating flavour with a very intense aroma. The quality of the pecorino cheese depends on the breed and the type of feeding of the sheep. These factors determine the quantity of fats in the milk, while the pastures from which the flock feeds strongly mark the milk produced, since the feeding to spontaneous pasture transfers to the milk all the flavours and aromas of the area. This cheese is produced exclusively with whole sheep milk, fresh and coagulated with lamb rennet, coming from sheep raised on spontaneous pasture. The salting is applied manually on each shape. The seasoning period takes place in naturally ventilated rooms for a period of 4 to 8 months. Only in this way, the Pecorino Siciliano DOP acquires its own personality and retains in itself all the flavours of Sicily. The milk to be turned into cheese comes from morning or evening milking, it is collected in a wooden vat together with the lamb or kid rennet. The curd is broken with a wooden stick and reduced to pieces as large as a grain of rice; hot water at 70 ° is then added. Ten minutes after adding the water, the pasta is hand-purged in the *piddiaturi* and placed in the *fascedde*, the rattan baskets that give the Pecorino its traditional shape. After about twenty minutes, such pasta is scalded for about 2-3 hours. Subsequently, the curd is spread on an inclined plane (*tavoliere*) for one or two days. The shapes are turned over several times in the *fascedde* to give Pecorino Siciliano DOP the characteristic cylinder shape. The salting is done by hand the day after production and after ten days, the forms are put to a new treatment. An expert eye can determine the amount of fats present in each wheel: the greater the oily substance that comes out at the time of cutting, the greater the fat content, therefore, the stronger its flavour will be.

Pears

The pear tree certainly represents one of the most important fruit species in the Etna landscape. With regard to indigenous cultivars, some are still quite widespread and very well known (*Ucciardone*, *Spineddu*, etc.), but most are extremely sporadic and, often, at risk of disappearing. Overall, 34 autochthonous varieties have been identified so far, characterised by a very large harvest calendar, from late spring to late autumn, and several allochthonous species are more or less significantly present.
The warehouses (now refrigerators) are the rooms where processing, storage and seasoning take place.
These consist of rural buildings built with raw blocks of lava stone of different shape placed by expert craftsmen, the walls are not plastered, and the building sometimes lack of flooring or are paved in stone or cobbles. The roof is usually made of wood and covered with Sicilian tiles.
The *Annals of the Royal Experimental Fruit and Citrus Station, Acireale, Volume XVI - year 1941*, prove that these methodologies have been practiced in a homogeneous way and according to traditional rules for a period of not less than 25 years.

Pere Butirra d'estate - "Pira 'Mputiri"

Quality label: traditional Sicilian agri-food product

Label award type: Ministry for Agricultural, Food and Forestry Policies list (updated: 14 August 2012)

Picture no. 53 – "Butirra" pears

The production territory covers the entire Etna area, at an altitude between 600 and 1800 m a.s.l. The fruit has an elongated oval shape, a smooth regular and shiny surface, a short, medium-large peduncle, generally light green skin rarely with pink facets, juicy pulp, sometimes melting in sugar, without sclerenchymatic cells, and a size of about 100-150 gr. Ripening takes place from the second half of July to the end of August (depending on the altitude) and fruits are then kept in the fruit cellar for about thirty days. Subsequently the calibration is performed (manually) in the warehouse and fruits are then arranged in wooden boxes with single-layer placement.

Pere Spinelli - "Pira Spineddi"

Quality label: traditional Sicilian agri-food product
Label award type: Ministry for Agricultural, Food and Forestry Policies list (updated: 14 August 2012)
The production territory covers the entire Etna area, at an altitude between 600 and 1800 m a.s.l. The fruit has a stocky pyriform shape, with a long, sturdy, woody, pinkish-yellow peduncle, abundant punctuation, and has a compact, stony, sweet, slightly juicy, slightly tannic, pulp. Its size is about 150 gr. There are two sub-varieties, a large-fruit one ("*Spinello doppio*") and a smaller-fruit one but more delicate in flavour ("*Spinello*" flavour).
Fruits are collected when still not fully ripe, from October onwards, and are then preserved until March-April. It is preferable to cook them before eating. In the warehouse, the calibration is performed manually. The fruits are packaged by tying the pears two-by-two and then by placing them in rows or in "*pennule*" of 15-20 fruits.

Pere Ucciardona - "Pira Ucciarduna"

Quality label: traditional Sicilian agri-food product
Label award type: Ministry for Agricultural, Food and Forestry Policies list (updated: 14 August 2012)

Picture no. 54 - Ucciardone pears

The production territory covers the entire Etna area, at an altitude between 600 and 1800 m a.s.l. The fruit has a pyriform shape at the base and is wider towards the apex. It has a thick, sturdy, wooden peduncle placed off-centre. The surface of the fruit is irregular, lumpy, the peel is yellow when the fruit is ripe, with rusty punctuation, the pulp is dark yellow, juicy and aromatic. The size is around 250-350 gr.
The fruit is picked when still not fully ripe, in late October. Ripening is reached by November in the fruit cellar and can be preserved until March. In the warehouse, the calibration is carried out manually and fruits are packaged in single-layer (wooden) boxes.

Pere Virgolosa - "Pira Virgulusi"

Quality label: traditional Sicilian agri-food product
Label award type: Ministry for Agricultural, Food and Forestry Policies list (updated: 14 August 2012)
The production territory covers the entire Etna area, at an altitude between 600 and 1800 m a.s.l. The fruit is pyriform in shape, it has flattened poles, a smooth but regular surface, light green peel when picked, lemon yellow when ripe in the fruit cellar, rusty punctuation, its average weight is about 150-200 gr. Its pulp is yellowish white, dark, juicy, delicate and fragrant. The fruits are picked when still not fully ripe between September and October. Ripening occurs by November. In the warehouse, the calibration is carried out (manually) and fruits are packaged in single-layer (wooden) boxes.

Fragola di Maletto

Quality label: traditional Sicilian agri-food product
Label award type: Ministry for Agricultural, Food and Forestry Policies list (updated: 14 August 2012)

Picture no. 55 - Maletto strawberry

Maletto strawberries are produced across a mere 50 ha-wide land exclusively located in the Municipality of Maletto, where extremely prized strawberries are produced. These are however extremely perishable and are therefore destined exclusively to the local market.

Etna apple trees

A mountain cultivation “par excellence”, apple orchards are widespread across the Etna Park. Over the centuries, the wisdom of farmers has selected dozens of varieties suitable for Etna’s different environments. Today these ancient varieties are included in the "*Ancient Apples of Etna*" Slow Food® presidium. This includes 19 varieties historically cultivated on Etna, linked to local cultural, food and wine traditions, which offer a wide and surprising range of flavours and aromas. They range from "*Zuccareddu*", already ripe in early summer, to "*Turco*" which is harvested in late autumn. Some apple varieties are eaten freshly picked, such as the "*Cirino*", and others are to be kept in the fruit cellar or to be enjoyed after cooking such as the "*Romaneddu*". Some have a larger size such as the "Rotolo" while others are smaller in size, such as the "*Bondanza*". Among the 19 varieties are the “Gelato Cola” and the "Cola" apples, which owes its name to the Benedictine Monastery of San Nicola La Rena, today the Park Headquarters, where it was initially cultivated in the 1700s and then spread throughout Etna.

Etna “Cola” and “Gelato Cola” apples

Quality label: traditional Sicilian agri-food product
Label award type: Ministry for Agricultural, Food and Forestry Policies list (updated: 14 August 2012)

Picture no. 56 – "Cola" apples

Picture no. 57 – "Gelato" apples

Hazelnut paste

Quality label: traditional Sicilian agri-food product

Label award type: Ministry for Agricultural, Food and Forestry Policies list (updated: 14 August 2012)

The production territory extends from the Municipality of Sant'Alfio up to the Municipality of Castiglione di Sicilia, where the largest hazelnuts cultivated areas are concentrated.

From hazelnut paste, it is possible to obtain a soft oven-cooked biscuit made with honey, sugar and egg white, fruit of the crushing of hazelnuts, which mix up with the other ingredients.

Traditional processing does not require specific equipment and takes place in pastry shops, bakeries and domestic environments, according to the processing methods that have been passed on over time without substantial changes.

3.2.8 Social and symbolic resources

As mentioned above, hundreds of cultural, religious, recreational, sporting, food and wine events take place in the twenty municipalities of the Park every year within an ancient and consolidated cultural and social tradition. Many of these activities have acquired a national - and sometimes even international - importance. If falling within the territory of the protected area, such events are specifically authorised by the Etna Park Authority with an *ad hoc* provision.

3.3 Legal obligations and restrictions relevant to the Site

The territory falling within the Mount Etna WHS site is subject to the following legal constraints.

3.3.1 Restrictions for hydrogeological purposes

Pursuant to the Royal Decree-Law of 30 December 1923 no.3267, art. 1, lands of any type and destination "which, due to usage conflicting with articles 7, 8 and 9 (tillage, crop changes and grazing), can suffer denudations, lose stability or disturb the water regime, and therefore cause public damage" are subject to "restrictions for hydrogeological purposes".

The main aim of imposing restrictions for hydrogeological purposes is to preserve the physical environment and therefore ensure that any interventions on the relevant territory do not jeopardise its stability nor trigger erosion or similar phenomena, and subsequently cause public damage, especially on the hills or in mountain areas.

The restrictions for hydrogeological purposes fall on any land whatsoever, but mainly apply to hills and mountain areas, be they wooded or not. It is worth mentioning that such restrictions are not equivalent to those applying to forest or wood protection purposes, although they are all regulated by r.d.l. 3267/1923.

Mount Etna UNESCO site is almost all subject to restrictions for hydrogeological purposes.

3.3.2 Restrictions for landscape preservation purposes pursuant to delegated decree 42/2004 and subsequent amendments and modifications ("Code of Cultural Heritage and Landscape")

As for restrictions for landscape preservation purposes, the Sicilian Region, based on the Guidelines of the Regional Territory and Landscape Plan (approved by D.A. n. 6080 of 21.05.1999), implemented landscape planning pursuant to delegated decree 42/2004 and subsequent amendments and modifications. Province-based planning was conducted according to the regional areas as categorised by the above-mentioned Guidelines.

The area relevant to the Mount Etna UNESCO site Management Plan falls under the "Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17 of the Province of Catania". The current plan was drafted pursuant to delegated decree 22 January 2004 no. 42, as amended by delegated decree 24 March 2006, no. 157, delegated decree 26 March 2008 no. 63 and of its art. 143 in particular, in order to ensure adequate consideration to the territory's landscape and environmental values, by means of:

- the analysis and identification of historical, natural, aesthetic resources and their mutual connections according to areas categorised on grounds of type, relevance and integrity of the landscape values.
- prescriptions and guidelines for the protection, restoration, requalification and enhancement of these landscape values.
- the identification of urban planning lines compatible with the different levels of value identified.

Within the territory included in the area of the Mount Etna UNESCO Site are located landscape assets and resources as described in Article 134 letter a and letter b of delegated decree 42/2004 and subsequent amendments. In particular:

D.lgs. 42/2004 and subsequent amendments and modifications, art.134, lett. a):

- real estates and areas of relevant public interest subject to restrictions for landscape preservation purposes (art. 136, D.lgs. 42/2004 and subsequent amendments and modifications).

D.lgs. 42/2004 and subsequent amendments and modifications, art.134, lett. b) – areas identified according to art. 142:

- Rivers, streams and waterways and their banks for a strip of 150 m - paragraph 1, lett. c).
- Mountains for the part exceeding 1,200 m a.s.l. - paragraph 1, lett. d).
- Territories covered by woods or subject to reforestation restrictions - paragraph 1, lett. g).
- Volcanoes - paragraph 1, lett. l).
- Protected areas (Parks and Reserves) - paragraph 1, lett. f).
- Areas and sites of archaeological interest - paragraph 1, lett. m).

Art. 3 of the Landscape Plan identifies each local landscape through specific rules modelled on the cultural and environmental peculiarities of such landscapes, as well as on the ongoing human settlement dynamics and transformation processes.

The local landscapes falling within the territory of the Mount Etna UNESCO site are listed below and further divided as follows:

Local landscape 2 "Aree coltivate delle pianure alluvionali dei Nebrodi meridionali" (art. 22 Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17).

- 2e. Natural landscape of the Etna area (including zones B of the Etna Park and the areas above an altitude of 1200 m).
- 2f. Landscape of Lago Gurrida and the high naturalistic interest rivers, including areas of archaeological relevance (including the Simeto, Saracena, Flascio rivers and the areas of archaeological relevance of C.da Saracena, Zirilli Sottana).

Local landscape 3 "Aree delle sciare di Santa Venera" (art. 23 Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17).

- 3h. Natural landscape of the Etna area and fluvial landscape of the Simeto River, including areas of archaeological interest (including zones B of the Etna Park and the areas of archaeological relevance of C.da Casitta, C.de Edera, Balze Sopr.).

Local landscape 8 "Territori di Nord-Ovest del Parco dell'Etna" (art. 28 Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17).

- 8c. Landscape of Etna Park's north-west side natural areas, and its areas of archaeological relevance (including zones A and B of the Etna Park and the areas of archaeological relevance of Grotta di S. Nicolò Politi).
- 8e. Extractive areas and "Sciara di Sant'Antonino" and "Case Longhitano" areas.

Local landscape 9 "Area dei crateri sommitali e della valle del Bove" (art. 29 Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17).

- 9a. Landscape of Etna Park's semi-natural areas (including zones C of the Etna Park).
- 9b. Landscape of summit craters natural areas (including zones A and B of the Etna Park).
- 9c. Landscape of wooded areas and similar vegetation.

Local landscape 10 "Territori di Nord-Est del Parco dell'Etna" (art. 30 Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17).

- 10b. Landscape of Etna Park's north-eastern side semi-natural areas and cultivated hills (including zones C and D of the Etna Park).
- 10c. Landscape of Etna Park's north-eastern side natural areas, including ares of archaeological interest (including zones A and B of the Etna Park and the areas of archaeological interest of Grotta delle Femmine).
- 10d. Landscape of wooded areas and similar vegetation.

Local landscape 13 "Area dei centri abitati di sud-ovest" (art. 33 Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17).

- 13m. Landscape of the natural areas of the Etna Park (including zones B of the Etna Park).

Local landscape 14 "Area dei boschi e dei frutteti d'alta quota fra Adrano e Zafferana" (art. 34 Landscape Plan for Areas nos. 8, 11, 12, 13, 14, 16, 17).

- 14c. Landscape of Etna Park's orchards and semi-natural areas (including zones C and D of the Etna Park).
- 14d. Landscape of the natural areas of the Etna Park (including zones A and B of the Etna Park).
- 14e. Landscape of rivers of high naturalistic interest (including the San Filippo, Licodia, Mazzo, Demone, Cavagrande, Lavinaio, S. Lucia, Torrentello, Linera, Tra Monte, Fago rivers).
- 14f. Landscape of wooded areas and similar vegetation.

3.3.3 The Etna Park

In the regional regulatory framework, ten years before the national lawmakers took any step in this respect, the Sicilian Region, in the context of its regional policy aimed at territorial rebalancing, enacted its own legislation for the establishment of Parks and Natural Reserves (Regional Law 6 May 1981, n. 98, Rules for the establishment of Parks and Natural Reserves in the Sicilian Region, published on the Ordinary Supplement of the Official Journal of the Sicilian Region n. 23 of 9 May 1981). This was subsequently modified and integrated by the Regional Law 9 August 1988, n. 14 (Amendments and additions to the law reg. 6 May 1981, n. 98, published in the Official Gazette of the Sicilian Region n. 35 of 13 August 1988).

Pursuant to such fundamental piece of legislation, DPR 17 March 1987 (published on the Ordinary Supplement of the Official Journal of the Sicilian Region n. 14 of 4 April 1987) established the Etna Park. The Etna Park is a Regional Natural Park pursuant to law n. 394/91. The 6th updated version of the relevant list was approved by DM 27/04/2010 and published on the Ordinary Supplement of the Official Journal of the Sicilian Region of 31/05/2010.

3.4 Risk factors analysis

The pages below analyse the main risk factors applying to the Mount Etna UNESCO site.

3.4.1 Seismic risk

Seismic risk is determined by the combination of factors such as *hazard*, *vulnerability* and *exposure.* It measures the damages that can occur in a given time interval, based on the seismicity type, the resistance of buildings located in the area and its level of anthropisation.

The terms "seismic hazard" or "seismicity" define the frequency and strength of earthquakes that may affect a given territory. It is the probability that an earthquake of a specific intensity occurs in a given area and within a given time interval.

On the other hand, the term "seismic vulnerability" refers to the predisposition of a building to suffer damages as a consequence of a seismic event of a given intensity.

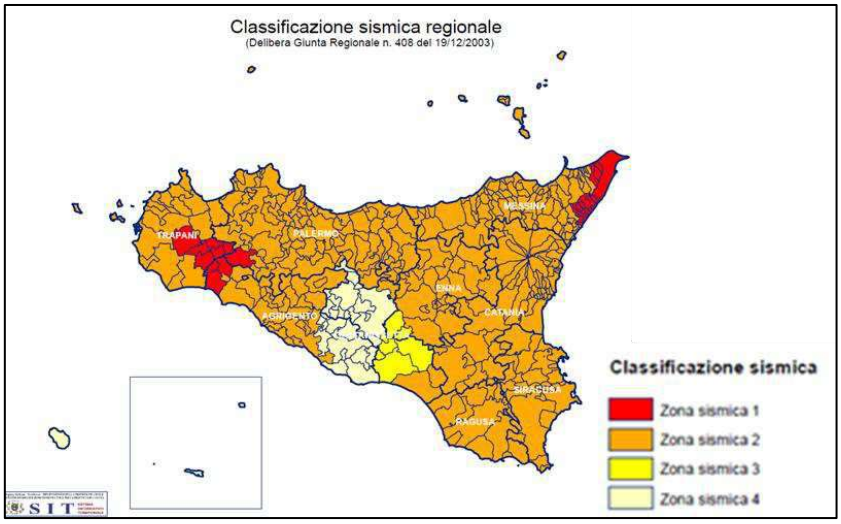
It is difficult to evaluate the "exposition" factor, as it tries to consider - first of all - the number of people who may be involved in a seismic event and - secondly - the potential damage to cultural heritage. It is therefore necessary to evaluate the population density, the timetable, the escape routes, the quantity and quality of accidents that people can incur during and after the earthquake.

Italy has been subject to categorisation based on the intensity and frequency of past earthquakes. Until 2003, special rules were applied to buildings located in seismic areas, which were classified into three categories according to different degrees of intensity. In 2003, new criteria for seismic classification were issued, based on the most recent studies and elaborations relating to the seismic hazard of the territory, i.e. on the analysis of the probability that the territory is affected in a certain interval of time by an event that exceeds a certain threshold of intensity or magnitude. These criteria are described in the Order of the President of the Council of Ministers no. 3274 of 20 March 2003 published in the Official Journal no. 105 of 8 May 2003. This order lays down the general principles based on which the list of municipalities and the relevant risk assessment classification has been compiled. The order identifies four areas and classifies them according to a decreasing range of risk. These are:

- Zone 1 –This is the most dangerous and risk-exposed area. The probability that a seismic event may occur is very high.
- Zone 2 –In this area, intense seismic events may occur.
- Zone 3 –In this area, intense seismic events are less probable than in zone 1 and 2.
- Zone 4 –It is the less risk-exposed zone: the probability of a seismic event is very low.

Additionally, in line with its own regulatory powers, by decision of the Regional Council no. 08 of 19/12/2003, the Sicilian Region updated the seismic zone categorisation as follows.

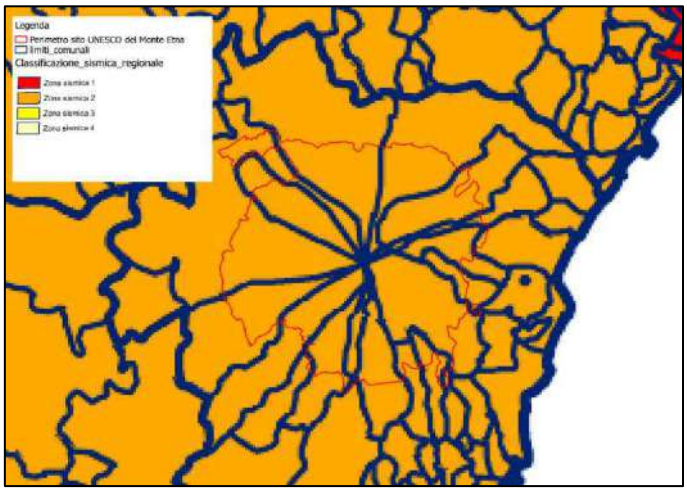
Picture no. 58 – Seismic zones in Sicily



Source: National Institute of Geophysics and Volcanology - INGV

The picture below shows that the whole Mount Etna UNESCO site area falls within Seismic Zone 2.

Picture no. 59 – Mount Etna UNESCO site seismic zones



Source: National Institute of Geophysics and Volcanology - INGV

Even if the entire Mount Etna UNESCO site falls within Seismic Zone 2 (where strong earthquakes are possible), it does not mean that seismic risk *per se* is high in this whole territory. In fact, this first subdivision identifies only one of the factors that contribute to the definition of seismic risk, i.e., *danger*. *Vulnerability* and *exposure* have yet to be assessed, although it is clear that the risk will be higher where infrastructures are unsuitable or poorly preserved, and where high or concentrated anthropogenic pressure exists.

3.4.2 Volcanological risk

Since 1 February 2016, in agreement with the Sicilian Region and with the support of the relevant specialised centres, the Civil Protection Department has introduced some changes to the structure of the national warning system for volcanic risk. In particular, for the Etna volcano, these changes aimed at improving the current responsibility and competence framework at the different institutional and territorial levels, with respect both to danger and risk assessment and operational response to local or national impact scenarios. The alert levels describing the state of activity of the volcano were established accordingly and identified based on the combination of monitoring parameters and data concerning possible ongoing events. Alert levels are represented through four colours - green, yellow, orange and red - indicating the possible evolution of the volcano's activity towards "national importance" scenarios.
The following table shows in detail the status of the volcano, the relevant phenomena and potential impact scenarios of each of the four above-mentioned classification levels.

Table no. 17 **– Status of the volcano, relevant phenomena and potential impact scenarios of the four classification levels**

ALERT LEVEL	STATUS OF THE VOLCANO	PHENOMENA	POTENTIAL IMPACT SCENARIOS
GREEN	**Stability**: Standard monitoring parameters and/or discontinuous explosive activity	Volcanic activity characterised by outgassing and/or discontinuous explosive activity from the central craters, with possible formation of rapidly dispersing ash clouds	Relapse of volcanic products, even large ones, near the eruptive vents. Accumulation of ash on the ground, with prevalent involvement of the summit area and the neighbouring anthropised areas.
YELLOW	**Potentialinstability:** Monitoring parameters repeatedly return abnormal values over time and/or frequent or persistent explosive activity also accompanied by effusive activity in the summit area	Persistent Strombolian activity (even for weeks) and/or paroxysmal explosive activity (so-called "lava fountains") from the central craters, persisting even for hours, with continuous ash emission.	Relapse of volcanic products, even of large dimensions, at a distance from the eruptive vents and, especially in the presence of strong wind, up to anthropised areas located far from the highest altitudes, but still in the Etna area. Accumulation of ash on the ground capable of causing widespread inconvenience in the inhabited centres of the Etna area and disturbances to the anthropic activities of restricted areas even at a distance from this area (e.g. explosive activity 2011-13).

ALERT LEVEL	STATUS OF THE VOLCANO	PHENOMENA	POTENTIAL IMPACT SCENARIOS
		Lava flows from central craters or summit eruptive fractures.	Lava flows limited to the summit area or developing in uninhabited areas, without imminent threat to populated areas and/or urban centres.
		Conditions of potential instability of top cones' portions with possible formation of avalanches of hot debris.	Avalanches of hot debris that do not touch anthropised areasand/orurban centres (e.g., February 2014).
ORANGE	**Instability**Monitoring parameters repeatedly returning high values and/or significant phenomena with possible involvement of anthropised areas	Intense and continuous Strombolian activity (ongoing for weeks or months) and repeated and frequent "lava fountains" from the central craters and/or eruptive summit fractures, persisting for days with continuous and intense ash emission.	Relapse of volcanic products, including large ones, at a distance from the eruptive vents and, especially in the presence of strong winds, up to anthropised areas. Accumulation of ash on the ground capable of causing significant inconvenience and damage even in inhabited centres outside the Etna area (e.g. explosive activity 2002-2003).
		Continuously feeding lava flows from central craters or eruptive fractures near the summit areas,	Continuously feeding lava flows, with evident progress, and possible involvement (even in a few days) of anthropised areas.
		Potential instability of the top cones with possible formation of large-scale avalanches of hot debris.	Avalanches of hot debris potentially involving anthropised areas.
RED	**High instability**Rapidly evolvingmonitoring parameters constantly returning very high values and/or macroscopic phenomena with possible involvement of inhabited centres	Strong and sustained explosive activity, formation of convective columns with continuous and intense emission of ashes and of persistent clouds, frequent relapses of bombs, lapilli and ashes ("Plinian" eruption).	Relapse of volcanic products, even large ones, at a distance from the eruptive vents and up to anthropised areas and/or inhabited centres. Accumulation of ash on the ground capable of causing significant inconvenience and extensive damage to populated areas and inhabited centres, even at a distance from the Etna area.
		Well-feeding and rapidly advancing lava flows from central craters or eruptive fractures close to the summit area. Magma intrusion-related phenomena on the volcano's sides, capable of opening lateral eruptive fractures in areas not close to the highest altitudes.	Well-feeding and rapidly advancing lava flows, with possible imminent involvement (even in a few hours) of inhabited centres. Opening of lateral eruptive fractures, even at altitudes close to anthropised areas or inhabited centres.
		Conditions of potential instability on the slopes, with possible collapses and formation of quickly propagating avalanches of hot debris, even on a large scale.	Large-scale hot debris avalanches involving inhabited centres.

Source: Civil Protection Department

Etna's volcanic activity may also affect the local level only, which may not necessarily evolve towards nationally relevant scenarios. In particular, some eruptions may introduce ash into the atmosphere, with consequent inconvenience for the population and - above all - risks for aircrafts.

Eruptions and lava flows have very often destroyed buildings and artefacts near the summit craters and, especially in the past, the lateral eruptions resulting from low-lying mouths, have caused serious inconvenience to inhabited centres. However, the eruptions of Etna have very rarely caused victims or injuries, except for the case of fearless or unsuspecting (when accompanied by the guides) visitors who found themselves near the summit craters or too close to a flow during an unexpected explosion of gas.

In the Etna area, institutions and bodies cooperate in order to define the potential volcanic risk-related alert levels and define criteria for accessing the summit area. In particular, in past years an information system on the geodynamic situation of the volcano has been consolidated. It now operates through specific weekly and / or daily and / or hourly bulletins prepared by INGV. These provide the basic information for assessing the instability status of the volcano. Based on that, the Regional Department of Civil Protection issues bulletins on potential impact scenarios, while the mayors of the municipalities affected by volcanic activity issue orders regulating the access to the volcanic area.

3.4.3 Hydrogeological risk

Hydrogeological risk indicates the effects produced on the territory (hydrogeological instability) when critical rainfall levels along the slopes, as well as hydrometric levels of the waterways pertaining to the minor hydrographic and rainwater disposal networks are exceeded. Therefore, a higher level of hydrogeological risk is attributed to areas where landslides and floods can cause significant damage to people or things.

With the ad hoc Plan for the Hydrogeological System, drafted in line with art. 17, para. 6 ter. of L. 183/89, art. 1, para. 1, of D.L. 180/98, converted with modifications into L. 267/98, and art. 1-bis of decree-law no. 279/2000, converted with modifications into L. 365/2000, with the aim of promoting an adequate use of the territory, the Department of Territory and Environment of the Sicilian Region identified the areas subject to hydraulic and geomorphological risk and classified them according to four different risk levels. These are determined according to the value of the items and properties exposed to such risks:

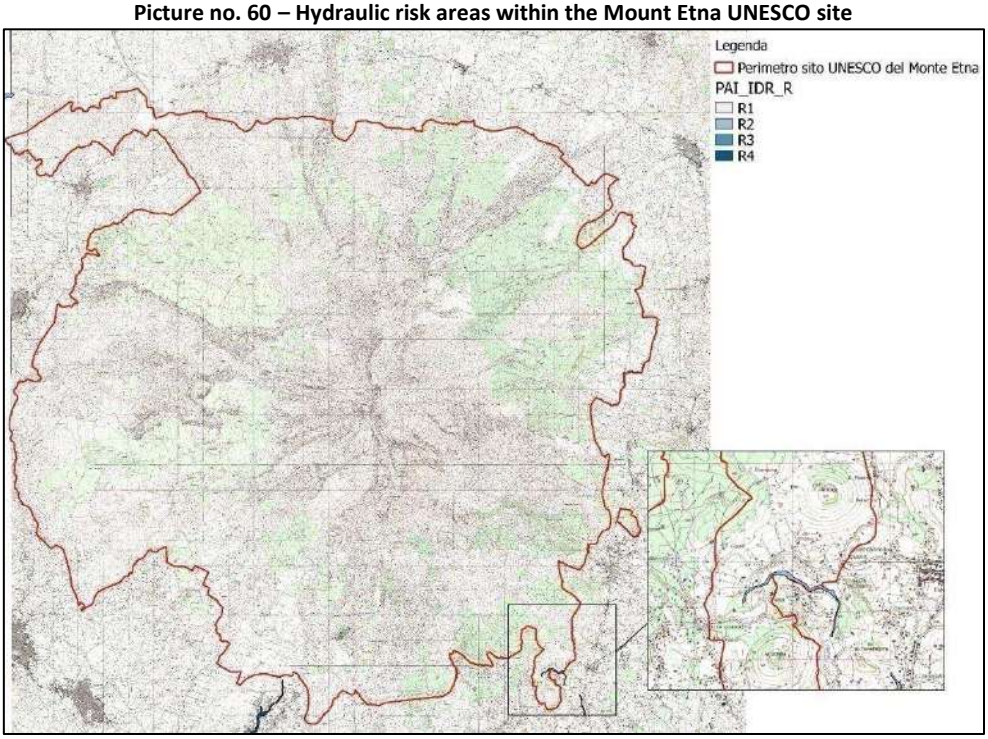
- R1. moderate risk: Social, economic and environmental damage are marginal.
- R2. Medium risk: minor damage to buildings, infrastructure and environmental assets are possible. Damages do not affect the safety of people, the practicability of the buildings and the functioning of economic activities.
- R3. High risk: problems to the safety of people, as well as functional damage to buildings and infrastructures which result not fit to use, the interruption of socio-economic activities and significant damage to the environmental heritage may occur.
- R4. Very high risk: casualties and serious injury to people, serious damage to buildings, infrastructure and environmental heritage, destruction of economic activities are possible.

As shown by the picture below, there are no areas subject to hydraulic risk within the territory of the Mount Etna UNESCO site except for an “R2” area located south-west. (Source: Ad hoc plan for the hydrogeological system of the Sicilian Region).

The latter is part of the catchment area of the Lavinaio-Platani stream and the hydrogeological instability was caused by the filling by a lava flow of an ancient impluvium, created by the waters in times of very high rainfall. That triggered strong erosive processes during particularly intense meteoric events.

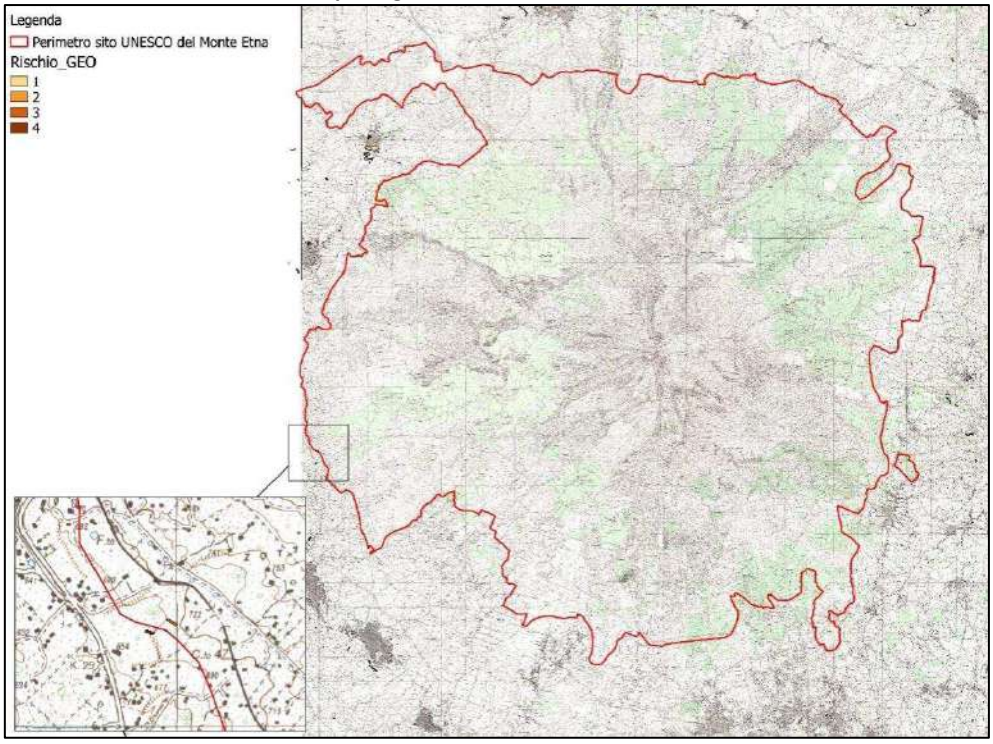
Similar situations can be detected with reference to other impluvia of the Etna area, such as the Cubania stream, located on the eastern slope of Etna, whose riverbed was repeatedly filled by lava flows (the last of which occurred in 1971).

Picture no. 60 – Hydraulic risk areas within the Mount Etna UNESCO site



Along the same line, there are no geomorphological risk areas within the Mount Etna UNESCO site, except for an"R3"area located south-west, as seen in the picture below.

Picture no. 61 – Geomorphological risk areas within the Mount Etna UNESCO site

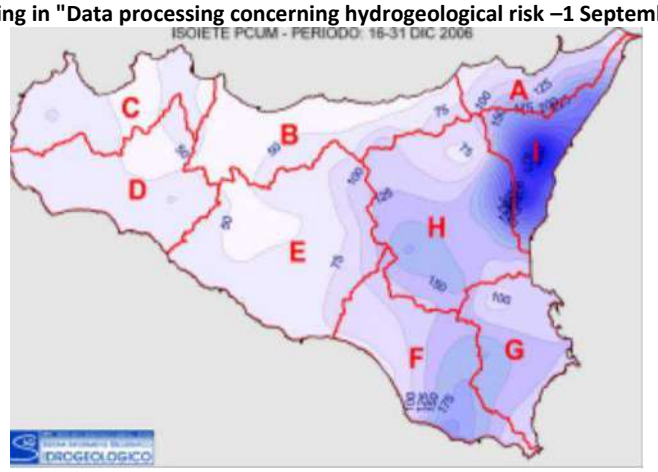


Source: Ad hoc plan for the hydrogeological system of the Sicilian Region.

In 2015, the Department of Territory and Environment of the Sicilian Region published a report on the Flood Risk Management Plan (delegated decree no. 152/2006, Directive 2007/60/EC, delegated decree 49/2010, delegated decree 219/2010). According to its Table no.3 on hydraulic hazard and geomorphological instabilities, there are no risk areas within the territory of the Mount Etna UNESCO Site.

However, it should be noted that in recent years the rain regime seems to have shifted towards more intense events. In particular, the increase in the amount of rain fallen over a narrow time interval, although giving overall a lower annual contribution, results in intense local instability. In this respect, criticalities could be detected in the north-eastern sector of Etna, as it is the rainiest of the areas concerned.

Picture no. 62 – Isohyets for the interval 16-31 December 2006
as appearing in "Data processing concerning hydrogeological risk –1 September 2007"



Source: Sicilian Region–Civil Protection Department

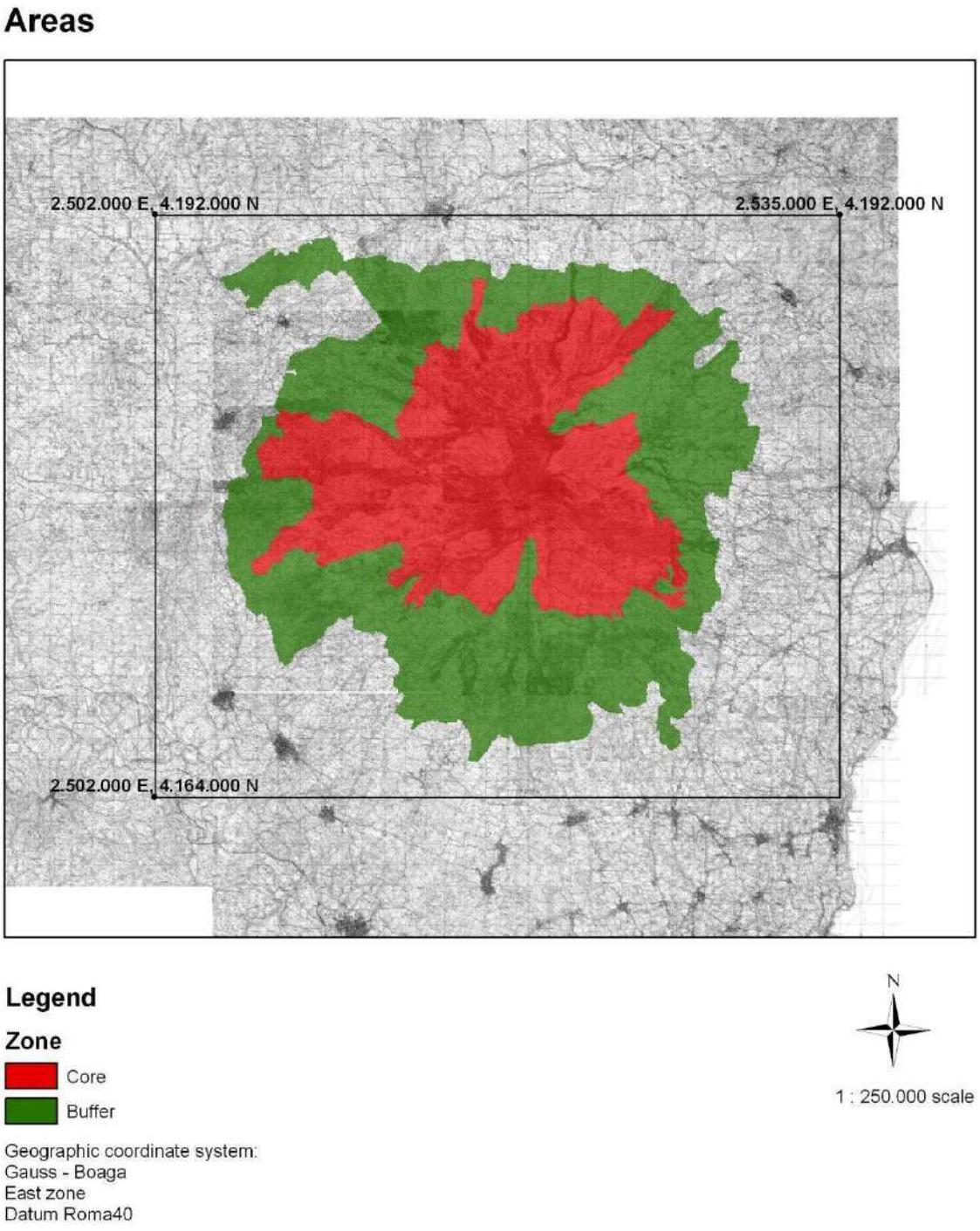
3.5 Analysis of current planning documents

The analysis of the current planning documents encompassed the Park Plan as well as the regional, provincial and municipal planning documents under implementation, as specified in the following sections.

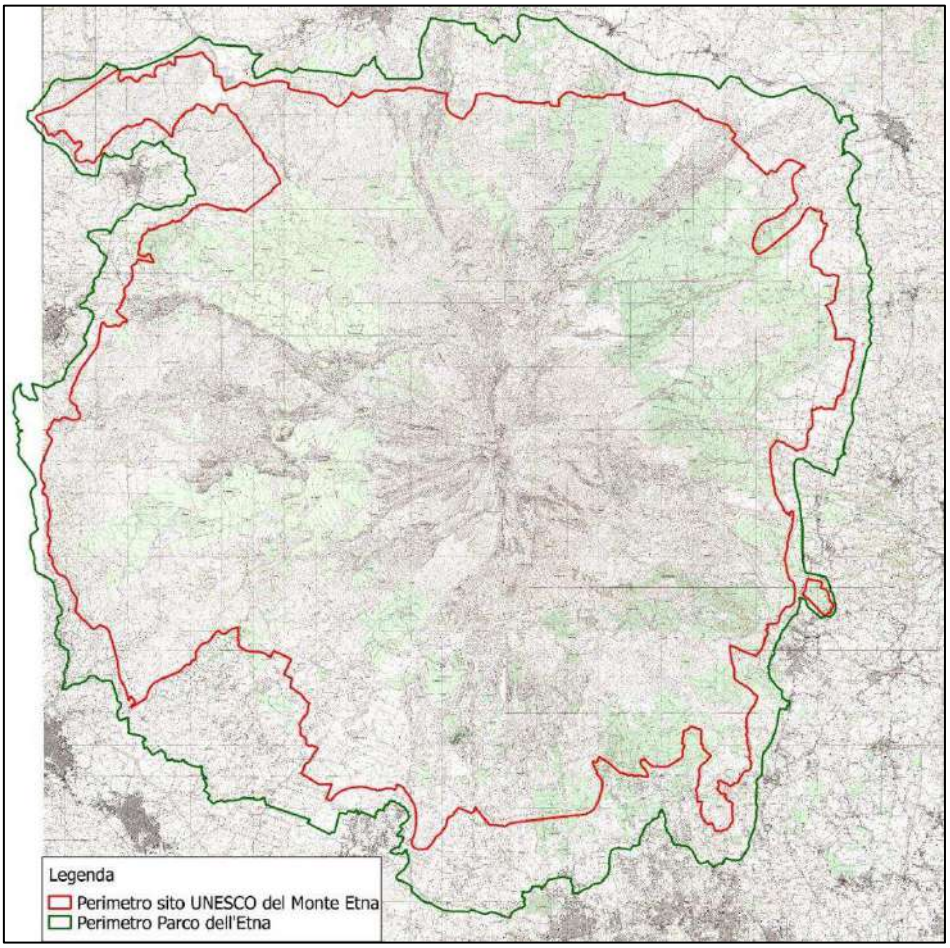
3.5.1 Etna Park Plan

The whole WHS included in the Mount Etna Management Plan is included in the perimeter of the Etna Park, the first natural park to be established in Sicily by President of the Region Decree of 17 March 1987.

Picture no. 63 – Mount Etna UNESCO site perimeter delimitation and subdivision into zone



Picture no. 64 – Definition of the Etna Park's and Mount Etna UNESCO Site's external borders



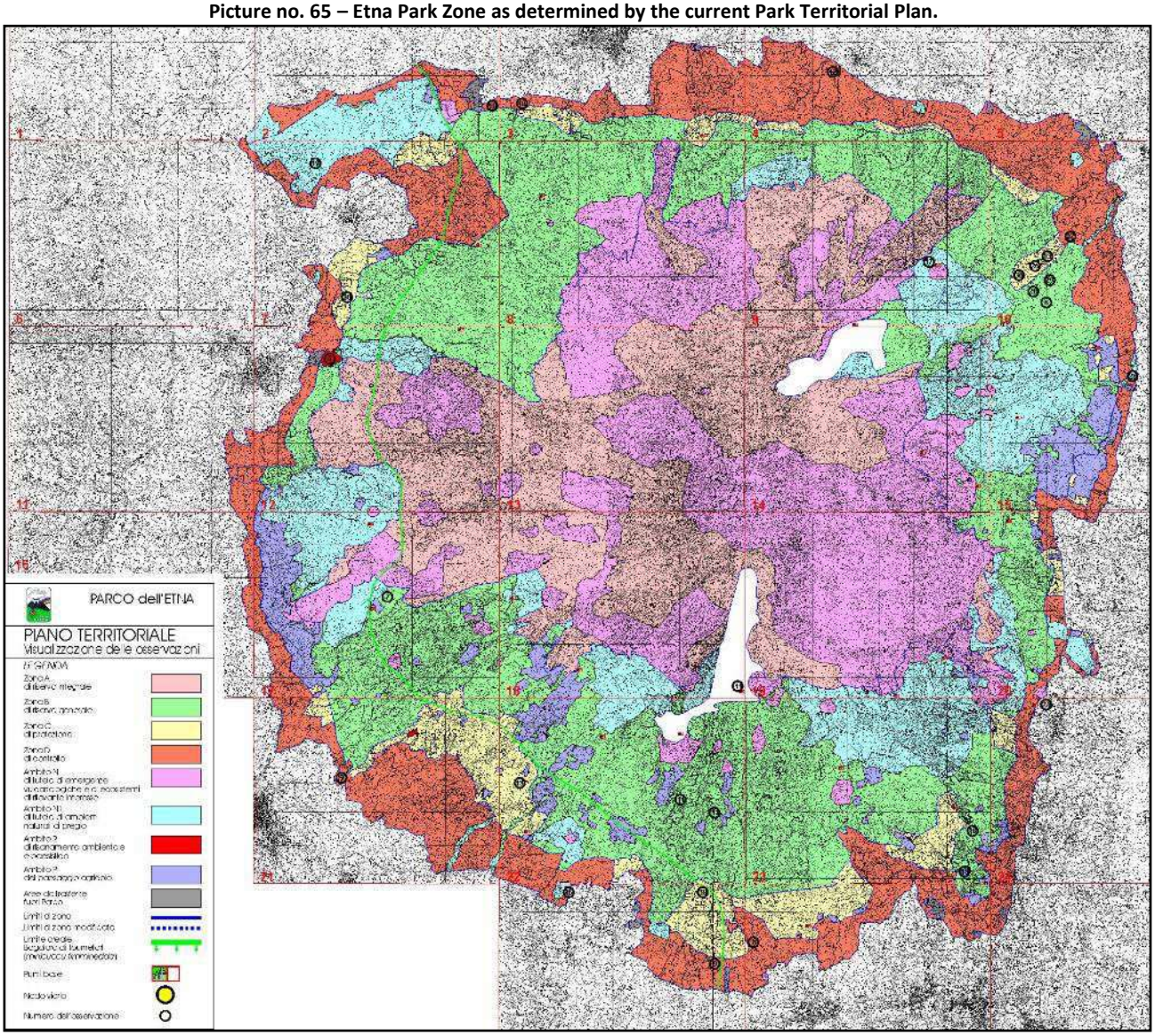
The Park is managed by the Park Authority, which ensures the preservation of biodiversity through the implementation of the Park's Plan, Rules and Economic and Social Development Plan.
Pursuant to Regional Law no. 98/81 and subsequent amendments and modifications, the Park Authority issues its own Park Plan, which divided the Park's territory into "Differentiates zones" subject to different types of constraints according to each zone's specificities, in line with art. 18 of the mentioned Regional Law no. 98/81.
The Park's Plan is now undergoing the relevant approval procedures. All the other regional and local planning instruments, except for the Landscape Protection Plan, shall comply with it. The Territorial Coordination Plan is therefore the key planning instrument for the whole Etna territory.
The subdivision into zones through the current plan, based on the analysis and evaluation of the naturalistic, landscape, environmental and forestry aspects for all the Park areas, aims not only at guaranteeing the protection of nature, but also of regulating its use through landscape- and environment-compatible development methods.
The Park territory is subdivided as follows:

- Zone "A": full reserve
- Zona "B": general reserve
- Area or Differentiated zone "N": protection of volcanological features and high relevance ecosystems (D.I. art.17 lett. d)
- Area or Differentiated zone "N1": protection of valuable natural environments (D.I. art.17 lett. f)
- Area or Differentiated zone "P": agricultural landscape (D.I. art.17 lett. f)
- Area or Differentiated zone "R": environmental and landscape restoration (D.I. art.17 lett. e)
- Zone "C": protected zone
- Zona "D": controlled zone

In the "full reserve" area (Zone "A"), nature is fully preserved.
In the "general reserve" area (Zone "B"), protection goes along with the development of traditional economic activities.
In the notably anthropised "controlled development protection" area (pre-Park area) represented by Zones "C" and "D", economic development is pursued compatibly with respect for landscape and environment.
Rules for preservation, development and definition of activities allowed in each zone are laid out in the Park Rules and in its implementing Technical Rules, amended in line with the Council decision approving the Park Plan.

42% of the WHS territory falls under Park Zone "A" (192,37 Km^2); 56% falls under Park Zone "B" (253,91 Km^2) and 2% under Park Zone "C" (8,29 Km^2).

Picture no. 65 – Etna Park Zone as determined by the current Park Territorial Plan.



Although fully aware that the territorial planning instrument for the WHS is the Park Plan, the following pages analyse the other sectorial planning instruments for the relevant territory.

3.5.2 Regional Level

Regional level planning instruments can be summarised as follows.

3.5.2.1 Territory and Landscape Regional Plan (Piano Territoriale Paesistico Regionale - PTPR)

Based on the Guidelines of the Regional Territorial and Landscape Plan (approved by D.A. no. 6080 of 21.05.1999), the Sicilian Region provided province-based landscape planning in compliance with delegated decree no. 42/04 and subsequent amendments and modifications, and in line with the regional areas identified by the above-mentioned Guidelines.

The WHS falls within Area no. 13. The Landscape Plan aims at ensuring adequate consideration to the territory's landscape and environmental values. Its purposes can be summarised as follows:

1. ecological stabilisation of the regional environmental context, soil protection and biodiversity, with particular attention to risk and critical situations.
2. enhancement of the identity and peculiarities of the regional landscape, both as a whole and in its specific configurations.
3. improvement of the social usability of the regional environmental heritage, both for current and future generations.

Such purposes can be reached through the following strategic lines:

1. consolidation and enhancement of agro-forestry assets and activities.
2. consolidation and enhancement of the naturalistic heritage.
3. consolidation and enhancement of the historical, archaeological, artistic, cultural and documentary heritage.
4. urban and territorial reorganisation.

3.5.2.2 Regional territorial urban plan

The Plan represents a reference document for all planning levels in the region. The Scientific Technical Committee preliminary documents prescribe as follows: "The Regional territorial urban plan recognises the need for coordination and assessment of territorial consistency..." and again "...the territory evolves in the form of an integrated system of resources and values requiring a change in the analysis and government instruments, and from this point of view, the Regional territorial urban plan calls for co-planning...". The Plan is not currently into force but represents a guiding and coordination document connecting the various territorial contexts. However, the drafting process has started about 20 years ago and have not yet come to an end.

3.5.2.3 Hydrogeological system plan

The Hydrogeological System Plan first started basin planning in Sicily. This is the key territorial planning policy instrument, as outlined by law 183/89, of which it constitute the first thematic and functional excerpt. The Ad hoc Plan for the Hydrogeological System (HSP) was drafted pursuant to art. 17, paragraph 6 ter of Law 183/89, art. 1, paragraph 1 of d.l. 180/98, converted with amendments in Law 267/98, and art. 1 bis of d.l. 279/2000, converted with modifications in Law 365/2000. It has the value of a Sector Territorial Plan and is the analytical, regulatory and technical-operational instrument through which actions, interventions and rules of use concerning the defence of the Sicilian territory against hydrogeological risk are planned and programmed. The Plan has three main functions:

- Knowledge-related, which includes the study of the physical environment and the anthropic system, as well as the collection of prescriptions established in urban planning tools and hydrogeological- and landscape-related constraints.
- regulation and prescriptive function, intended for activities ranging from the protection of the territory and its waters to the assessment of hydrogeological danger and risk and the consequent constraints in both extraordinary and ordinary conditions.
- programmatic function, which provides the possible intervention methodologies aimed at risk mitigation, determines the necessary financial commitment and the temporal distribution of the interventions.

In the Sicilian Region, the HSP sets the levels of danger and risk deriving from hydrogeological instability in relation to the dynamics of the slopes, the geomorphological hazard, the dynamics of the waterways and the hydraulic and flood hazard.

As for the areas within the Mount Etna UNESCO site territory, the HSP identifies high geomorphological risk areas (R3), i.e., areas for which possible problems can affect the people's safety of people, entail functional damage to buildings and infrastructures that consequently become unfit for use, the interruption of functionality of socio-economic activities and significant damage to the environmental heritage.

As for the hydraulic risk, medium risk areas (R2) are identified, i.e. areas where minor damage to buildings, infrastructures and environmental heritage is possible, which do not affect the safety of people, the usability of the buildings and the functionality of the economic activities.

The Plan also identified sites in need of specific attention. These are areas requiring additional in-depth analysis and research on the geomorphological and/or hydraulic conditions in relation to the potential hazard and risk, on which, however, any interventions must be preceded by adequate and thorough investigations.

3.5.2.4 Regional Forestry Plan

In the Sicilian Region, forestry planning is entrusted to the current Regional Forestry Plan 2009/2013 approved by Presidential Decree no. 158 / S.6 / S.G. of 10 April 2012. The Regional Forestry Plan is primarily a programmatic tool that allows panning and regulating forestry and mountain activities in order to pursue environmental protection through the safeguarding and improvement of forests, pre-forest environments (strongly degraded bushes, shrubs, scrubs and garrigues), the expansion of the current forest area, the effective management and use of mountain forests, pastures and marginal areas, the economic promotion of local products, the optimisation of social impact, etc.

The plan describes the forest resources and the available technical and financial instruments, as well as the territory, the main intervention areas, and the reasons pinpointing the relevant choices. On the one hand, it is a strategic, guiding regulatory tool that can be used for institutional and administrative purposes, on the other it is as a technical tool useful for the definition of methods for managing the forest heritage.

3.5.3 Provincial level

Drafted pursuant to art.12 of the regional law n. 9/86, the Province of Catania Territorial Plan is a planning and programming tool aimed at ensuring the coherently coordinated planning of the general purposes related to the structure and protection of the provincial territory, the promotion and enhancement of policies, strategies and partnership methodologies, joint actions and management criteria. The Territorial Plan of the province of Catania presents a structure divided into three planning sections: the Reference Framework with Structural Relevance, the Proposal Framework with Strategic Relevance and the Action Plan.

The drafting the Province of Catania Territorial Plan began in 1996. Its General Directives were approved with decision no. 45 of 28 May 1999 of the Provincial Council, while the relevant Draft Scheme was approved by Provincial Council Resolution no.620 of 20 August 2001 (updated in 2004 and re-approved as "Draft Scheme Summary updated to 2004"by Provincial Council Resolution no. 181 of 29 December 2004). In 2011, the process continued with the definition of the Reference Framework with Structural Relevance and the Proposal Framework with Strategic Relevance, approved by Provincial Council Resolution no.47 of 11 October 2011. Finally, Provincial Council Resolution no. 47 of 06/06/2013 adopted the Provincial Territorial Plan Action Plan.

The Province of Catania Territorial Plan features the following strategic lines:

- Assess the environmental sustainability of the initiatives to be undertaken.
- Increase connectivity and promote biodiversity.
- Prepare the provincial ecological network.
- Creation of a system of protected natural areas.
- Improve the usability of "ecological tourism".
- Promote social integration and social welfare services.
- Integrate the province into the international system.
- Promote the quality of the metropolitan area.
- Make the public road system competitive for regular travelling.
- Rationalise and improve the provincial road system.
- Strengthen public transport.
- Strengthen transport and accessibility policies.
- Reduce polluting emissions.

3.5.4 Municipal and local level

To date, few of Sicily's municipalities have an ad hoc urban development plan. Many are still undergoing the relevant approval procedures. Among the very few planning instruments currently in force there are some "Construction Plans" (introduced shortly after the 1968 earthquake in Valle del Belice by Regional Law no. 1/1968 and subsequently repealed by regional laws nos. 71/78 and 66/84, although incorrectly serving as municipal plans) and some 1980s General Master Plan, few of which are currently being updated.

The table below shows the approval years of General Master Plans and Construction Plans issued by the Municipalities covered by the WHS Management Plan (updated to Nov. 2018).

Table no. 18 – Approval years of General Master Plans and Construction Plans issued by the Municipalities covered by the WHS Management Plan (updated to Nov. 2018)

Municipality	Plan	Year of Approval	General Master Plan (*Piano Regolatore Generale, PRG*) Zones within the WHS
Adrano	PRG	1988	Etna Park – subzone A
Belpasso	PRG	1993	
Biancavilla	PRG	1993	
Bronte	PRG	2015	
Castiglione di Sicilia	PDF	1981	
Giarre	PRG	2005	
Linguaglossa	PRG	2004	
Maletto	PRG	2004	
Mascali	PDF	1990	

Municipality	Plan	Year of Approval	General Master Plan (*Piano Regolatore Generale, PRG*) Zones within the WHS
Milo	PRG	2009	
Nicolosi	PRG	2002	
Pedara	PRG	1999	Subzones CBSA (constructed areas on the border with Etna Park Zone "D") Zona E – Agricultural area (within the Etna Park) Zone F.3d – fully preserved green area
Piedimonte Etneo	PRG	1987	
Ragalna	PRG	2018	
Randazzo	PRG	1985	
Santa Maria di Licodia	PRG	2009	
Sant'Alfio	PRG	2008	
Trecastagni	PRG	2012	
Viagrande	PRG	1999	
Zafferana Etnea	PRG	2005	

Municipality Plan

PRG =*Piano Regolatore Generale* (General Master Plan)

PDF =*Programma di Fabbricazione* (Construction Programme)

According to the current regulatory framework, municipal urban planning instruments shall only apply to Park Zones "D". Consistently, urban planning instruments issued by municipal authorities shall not intervene on the WHS territory.

3.6 Territorial governance strategies

It should be noted that some of the UNESCO site's habitats and species are not related to those listed in the Habitats Directive 92/43 or Birds Directive 79/409. However, this does not hamper their naturalistic value, but underlines the need for the Management Plan to contain specific provisions about them. It is just worth mentioning here the relevance of features or situations that cannot be classified within the Natura 2000 system but are equally noteworthy at the local level.

In the same way, particular attention must be paid to species not included in Annex II, but possessing particular relevance, such as wild cats or saproxylic fauna. The Plan shall provide for the possible inclusion of such species in lists or attachments other than Annex II of the Habitats Directive. For these reasons, planning must also be extended to these situations.

It is also worth noting that the buffer zone includes some Rete Natura 2000 sites: specific regulations must be maintained for them, which obviously cannot be extended to the entire buffer zone. Similarly, it should be noted that small parts of some Natura 2000 sites also extend outside the buffer zone: it is clear that the Plan covers the entire extension of the Natura 2000 sites, including the small portions external to the buffer zones.

Forestation:

Core zone

1. Recognition and containment of exotic species, definition of relevant methodologies, definition of specific methods for locust and ailanthus.
2. Recognition of areas spoilt by previous anthropogenic interventions (reforestation ...) with the aim of restoring the original characteristics of the woods and definition of relevant intervention methods (examples: ResilForMed and intervention carried out on Monte Egitto).
3. Exclusion of the use of chestnut as per the Institutional Decree (instead envisaged in the TCP).
4. Exclusion of reforestation.

Buffer zone

As specified above under nos. 1 and 2 in public property areas.

1. Analysis and evaluation of the additional prescription envisaged in the regulation for silvicultural activities, according to the different potentialities for conversion to management methods other than the traditional coppice (compound coppice, aged coppice, high forest).
2. conservation of large trees or trees with cavities and determination of the extent of the deadwood quota to be released in productive and non-productive woods (see art. 6 delegated decree no. 227/01).

3. possible reforestation only with indigenous species suitable for the location's specific features shall be conducted only where agricultural crops are currently in place or were in place in the recent past.

Grazing lands:

Core zone

1. Exclusion of grazing lands in woods (as per TCP).
2. adapt and extend the load of livestock envisaged for the Natura 2000 sites (0.5 ACU per hectare) to all pastures located in the core zone as per RCPNH opinion to the TCP and GMD No. 36/2015 of the Regional Department for the Environment.
3. exclusion of grazing lands from all areas subject to fires (also different from woods, such as grazing areas, currently or abandoned cultivated lands) for a 10-year period (see law no. 353/2000).

Buffer zone

1. exclusion of grazing lands from all areas subject to fires (also different from woods, such as grazing areas, currently or abandoned cultivated lands) for a 10-year period (see law no. 353/2000).
2. adapt and extend the load of livestock envisaged for the Natura 2000 sites (0.5 ACU per hectare) to all pastures located in the core zone as per RCPNH opinion to the TCP and GMD No. 36/2015 of the Regional Department for the Environment.
3. define useful strategies to adapt the grazing intensity to the soil's different fertility levels and to different grazing pressures (for example: list of plants indicating the quality of the Aetnean grazing lands).

Collection of biological materials for scientific research purposes.

Core and buffer zone: in compliance with the Technical-Scientific Committee (TSC).

Agriculture:

Core zone: N/A

Buffer zone:

1. agricultural activity is allowed only in areas already subject to agricultural use, i.e., in areas that meet the requirements for the continuation or restoration of agricultural cultivation. Therefore, agriculture-related interventions can only be designed on agricultural areas and can be carried out by safeguarding the land's current orography, all the existing terraces, any outcropping rock, any "lava stone towers" and all the vegetative forest plants (also isolated). No agriculture-related intervention can be authorised on forest and / or natural surfaces and, in accordance with law 353/2000, on grazing lands affected by fires for a 10-year period.
2. Exclude the construction of greenhouses.
3. Promote conversion into eco-sustainable forms of agricultural management (organic, biodynamic, regenerative, synergic agriculture ...).
4. Promote the use of local varieties and the maintenance or restoration of traditional agricultural landscapes.
5. Promote the creation of an environmental quality mark for the Park's productions.

Harvesting/Picking for commercial purposes:

Core and buffer zone:

1. Mushrooms: in compliance with the relevant general regulatory framework.
2. Parts of spontaneous vegetation: fine-tuning of regulatory baseline criteria.
3. List of (endemic and biogeographically relevant) species whose harvesting/picking is forbidden.

Prevention of fires:

Core e buffer zone:

1. with reference to the fire protection avenues, please refer to Annex 1 to the memorandum of understanding signed with the Regional Forestry Authority and the current national and regional legislation.
2. promote the realization of monitoring and control activities of the territory with the contribution of the voluntary associations in compliance with the current legislation (only for the buffer zone).

Management of fauna:

Core and buffer zone:

1. The Park Authority is currently carrying out research and monitoring activity on wildcat, partridge and golden eagle populations, whose results will be made available upon completion of the research. It is required to evaluate the state of conservation of other species and highlight those on which other research activities shall focus.
2. It is required to provide adequate measures aimed at limiting damages caused to birdlife and chiroptera by cable lines. Attachment "B" to the memorandum of understanding signed with ENEL is available as a baseline document.
3. Promote research and experimental activities aimed at identifying measures to prevent damage caused by wildlife to Etna crops.
4. It is requested to carry out research activities aimed at determining the state of conservation of the fauna of the hypogeal environments, and to identify adequate management measures for these cavities.

3.7 Identification of attractors

General interest for tourism in protected areas is constantly increasing: observing and enjoying nature, getting in contact with traditional cultures are among the foremost motivations behind the choice of a tourism destination – 3 out of 10 European citizens prefer nature-related locations (source Eurobarometer, *Preferences of Europeans towards Tourism*, 2014).

According to the report, the main reason behind tourism in protected natural destinations is the desire to "live in contact with nature" as a desire and / or need to escape from everyday life. The second reason is linked to the possibility of "practicing sports and outdoor activities". In particular, the demand of activities such as biking is increasing, confirming itself - for the second consecutive survey - as the real driving force of the sector (29% of preferences), followed by trekking (25%), hiking (24%), skiing (12%) and animal watching (8%).

Against this backdrop, it is therefore clear that the main attractor within the WHS in the scope of the "Mount Etna" Management Plan is the naturalistic component of the destination. In fact, the volcanic complex of Etna is an extraordinary example of geological and natural processes constituting a strong tourist attraction.

In the light of the previous paragraphs, the main attractors identified within the WHS in the scope of the "Mount Etna" Management Plan are listed below.

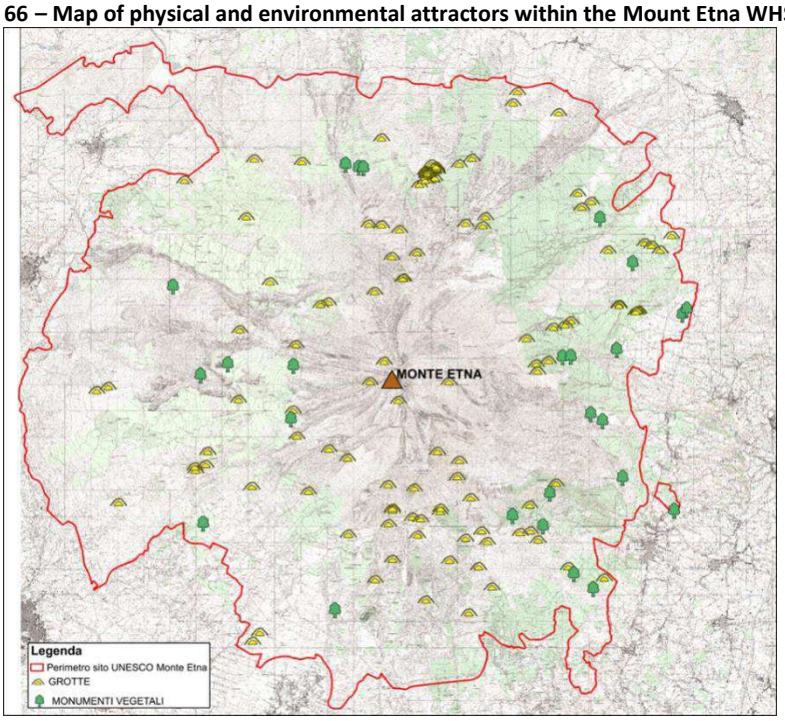
Due to its scientific and cultural importance, which make the volcano an extraordinary example of geological and natural processes, the territory's most important attractors is certainly the volcanic complex of Mount Etna (already described in paragraphs 3.1.4.1 and 3.2.4.1).

Other key attractors are vegetal monuments (as described in paras. 3.1.2 and 3.2.2), or specific examples of Aetnean endemic species, whose interest is closely related to their old age (*Betula aetnensis, Genista aetnensis, Quercus congesta*).

The numerous caves located in the UNESCO site (already described in paragraphs 3.1.4.2 and 3.2.4.2), are among the most fascinating attractions of the Etna volcano, as they have witnessed its activity since their formation through lava ripplings during the lava flows.

The map below summarises the physical and environmental attractors here described.

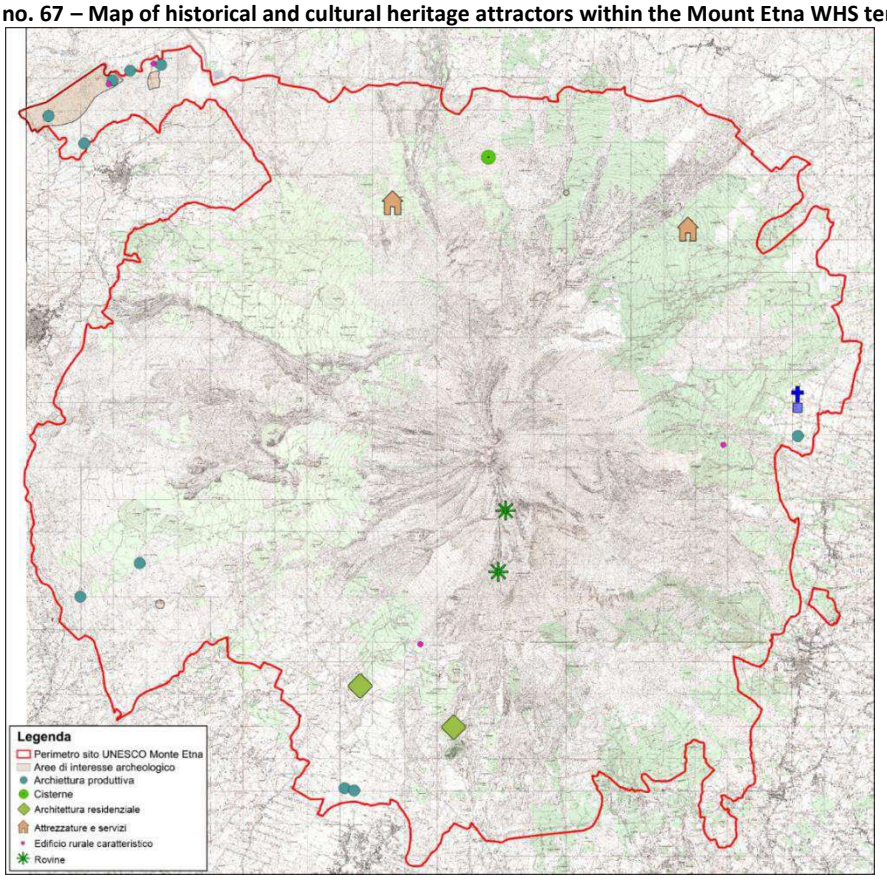
Picture no. 66 – Map of physical and environmental attractors within the Mount Etna WHS territory



Historical and cultural heritage (as described in paras. 3.1.1 and 3.2.1.) also represent an important attractor. These testify the territory's history and the relevant ancient traditions.

The map below summarises the key historical and cultural heritage attractors described in the paragraphs above (the map is not exhaustive).

Picture no. 67 – Map of historical and cultural heritage attractors within the Mount Etna WHS territory



Within the site, the presence of specific examples of flora and fauna (described in paragraphs 3.1.5; 3.2.4.3; 3.2.4.4 and 3.2.4.5), certainly represent one of the territory's key attractors. In fact, the vegetation of Etna is a complex set of species that have diversified through the ages according to the various factors, such as volcanic soil, climate and human presence, thus resulting in a peculiar landscape.

The fauna of Etna is also very rich and diverse, and its components show a multiplicity of ecological adaptations that make Etna a unique example in Europe.

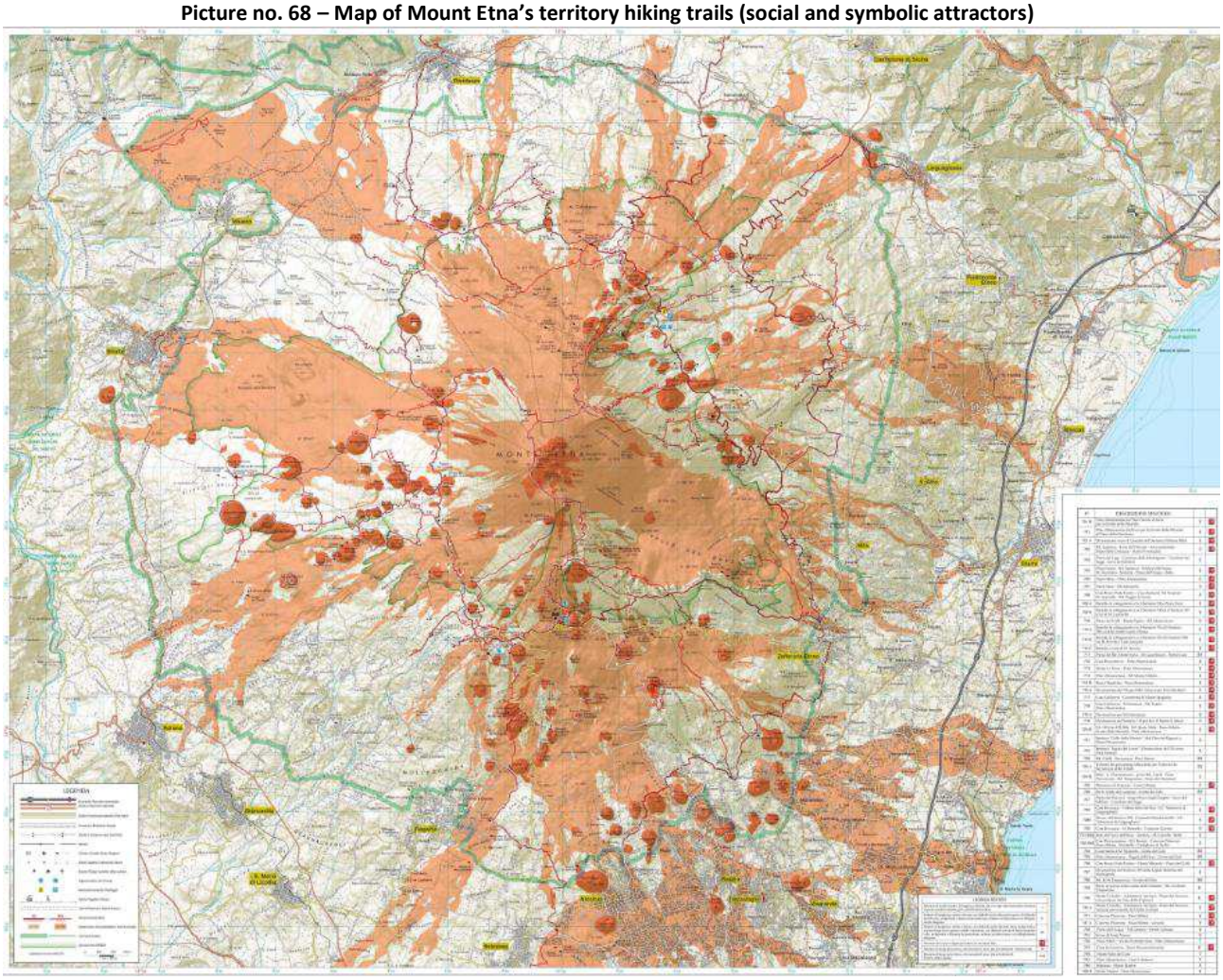
Specific winter and summer tourism attractors shall be also mentioned.

The winter tourism offer within the Mount Etna WHS territory consists of the two ski resorts described in paragraphs 3.1.3 and 3.2.3. Their privileged position with respect to the surrounding area and the possibility of using ski resorts located at an altitude of more than 2000 meters, make the winter tourist offer an important tourist attractor for the area.

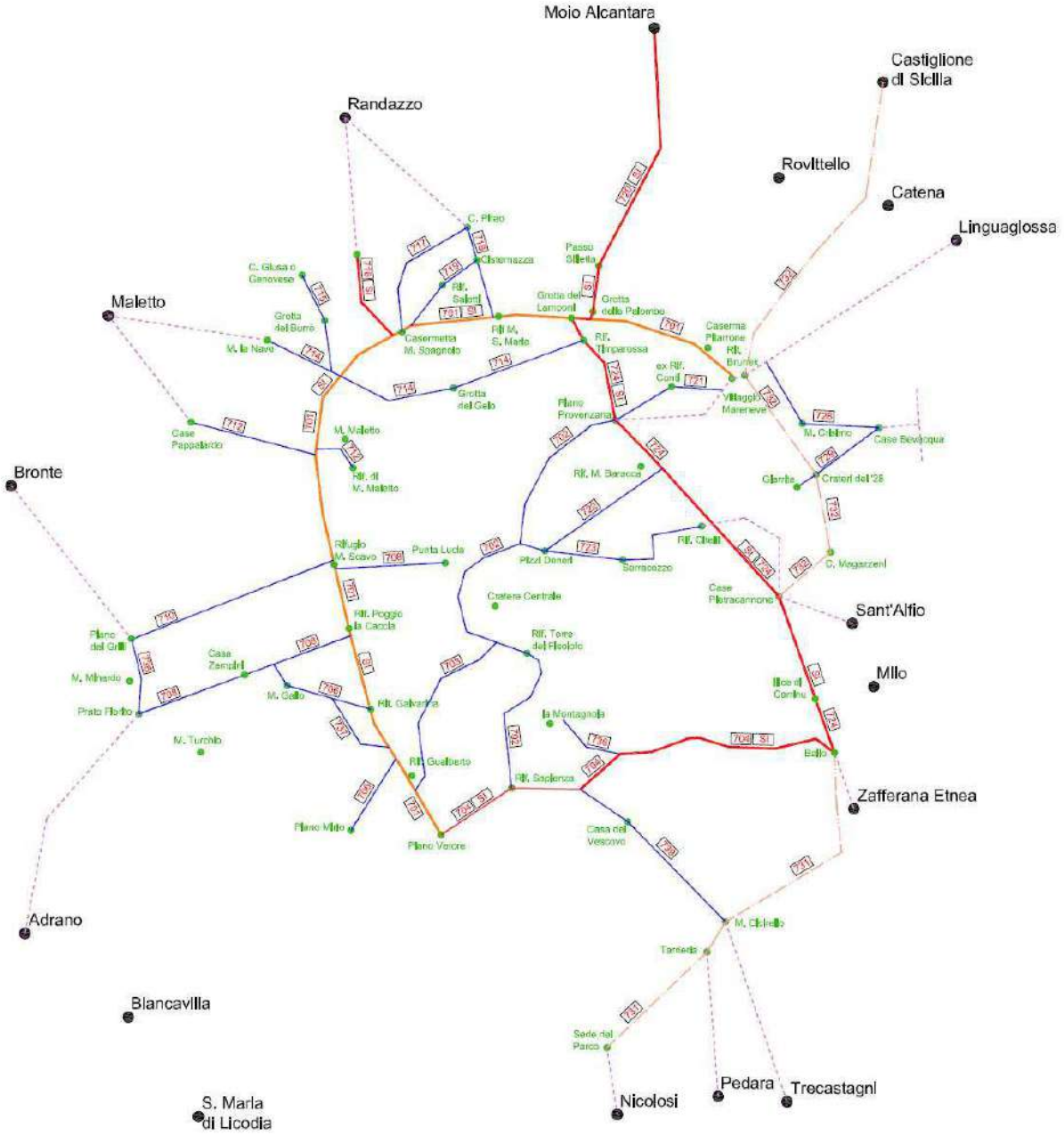
The summer tourist offer, on the other hand, is represented by the numerous routes, panoramic points, accommodation points, shelters and bivouacs (described in paragraphs 3.1.2 and 3.2.2), which allow admiring the WHS territory. Given the influx of tourists that every year enjoys the mentioned structures, summer tourism is certainly one of the most significant tourist attractors for the UNESCO site.

The map below shows the Etna Park's hiking trails as described by a short explanatory guide to the discovery of the Park and its most interesting features, in order to facilitate hiking within its territory.

Picture no. 68 – Map of Mount Etna's territory hiking trails (social and symbolic attractors)



Picture no. 69 – Mount Etna WHS local routes map



3.8 Summary mapping of the current status of assets and resources

The analyses carried out in the previous phases allowed to define a table summarising the assets and resources located within the "Mount Etna" WHS territory. Results are shown below.

Physical and environmental assets (SWOT analysis)

Strengths	Weaknesses
• The physical and environmental assets of the Mount Etna WHS are represented by (1) the Mount Etna itself, (2) a large number of caves and monumental trees and by (3) habitats of remarkable interest. • The geological characteristics of Mount Etna and some of the caves, provide the UNESCO site with peculiarities which increase its intrinsic value. • The characteristics of monumental trees provide the site with further elements of peculiarity attracting many visitors. • The presence of a vast trail system as well as relevant viewpoints, help attract a large number of visitors. • The presence of an adequate signboard network created by the Park Authority on the most relevant features of the UNESCO site, contributes to maintaining a high level of awareness. • The presence of endemism and highly relevant flora and fauna, increases the number of potential users. • The area has an adequate regulatory system. Typical local crops can have a strong pull effect on tourists and "gastronauts" in particular.	• Low level of safety in some caves: surveillance is necessary both for site conservation and visitors' protection. • Incomplete knowledge of the present conservation condition of most of the habitats. • Incomplete knowledge of flora and fauna. • Poor security control of the genetic heritage of endemic flora and fauna. • Uncontrolled herding. • Free-roaming dogs • Limited actions to disseminate Mount Etna features and characteristics at both national and international level. • Presence of solid waste spread in the area. • Low awareness of the UNESCO heritage and the existing management instruments.
Opportunities	**Threats**
• Habitat monitoring. • Monitoring of animal and plant species. • Caves' protection and management to prevent their excessive use. • Increasing national and international promotion of the UNESCO site "Mount Etna".	• The anthropogenic pressure threats the most vulnerable plant and animal species. • Seismicity and volcano's activity put under pressure the most vulnerable assets.

Historical and cultural heritage (SWOT analysis)

Strengths	Weaknesses
• Within the Mount Etna WHS there are several cultural assets of considerable value and different types. Examples are: (1) the Sanctuary of Magazzeni, (2) the Ruin of Cisternazza and (3) many old farmhouses ("masserie") located throughout the area, testifying the old agricultural tradition of the buffer zone. These assets are subject to a regulatory framework that guarantees their conservation.	• Poor conservation and maintenance of the existing historical and cultural heritage. • Poor information about the presence of relevant historical and cultural heritage assets in the park area.
Opportunities	**Threats**
• Restoration of historical and cultural assets in bad state of conservation. • Promotion of the existing historical and cultural heritage in order to develop cultural tourism and other related activities.	The risks related to the seismicity of the area and the volcano activity make the historical and the cultural assets of the park area particularly vulnerable, mainly those already affected by a high level of degradation.

Social and symbolic assets

Strengths	Weaknesses
• The social and symbolic assets of the Mount Etna WHS are mainly represented by tourist attractions characterised by the presence of (1) a trail network, (2) accommodation facilities and (3) two ski resorts located within the UNESCO site. The existence of these infrastructures and facilities entails a remarkable number of visitors throughout the year. • Other strong assets are represented by (1) the New Gussonea Botanical Garden, (2) the Astronomical Observatory and (3) the headquarters of the Etna Park Authority (in charge of the WHS management), located in the "zone D" of the Park, on the edge of the WHS buffer zone.	• The major point of weakness of the social and symbolic assets of the Mount Etna WHS is given by their state of degradation brought about by their inappropriate use. • Poor users' awareness about the UNESCO heritage and its protection. • Poor connecting infrastructures. • Poor awareness about the existing hospitality infrastructures and facilities.
Opportunities	**Threats**
• Rehabilitation and restoration of social and symbolic sites • Rehabilitation of the existing accommodation facilities • Increase in tourism promotional activities of the Mount Etna WHS.	• The anthropogenic pressure on the tourism sites • The risks related to the volcano make the social and symbolic assets of the park area particularly vulnerable, mainly those ones already affected by lava flows in the past.

4 Phase 2b – Territorial and socio-economic framework

Conducting a thorough analysis of the territory is a fundamental step towards the realization of the management plan. This was carried out on both a static and dynamic level. Specifically, static analysis is functional to the outline of economic and socio-demographic features, while dynamic analysis refers to an evolutionary vision and offers possible future scenarios.

4.1 Static analysis of the territory

The static analysis considers the overall characteristics of the territory, taking into account both those recognised by UNESCO and others in need of economic and social protection and enhancement.
From a general context analysis, Mount Etna site is located in a context (Sicily) characterised by the typical conditions of an island economy. The presence of structural disadvantages, the distance from the markets, the high supply costs, a static labour market with high levels of youth unemployment, the presence of non-aggregated and non-networked micro-enterprises, create the conditions for a territorial disparity which have a considerable impact on the local economy.
This condition of territorial marginality, which translates into social and therefore economic marginality, specifically affects (and is even more evident) in the island's inland territories, and in particular areas such as the Etna site.
More specifically, the area has the following critical elements:

i. infrastructures (from transport systems - roads, water, iron, air - to network services such as gas, electricity, water, data and voice connections; basic services - such as green and institutional buildings and sports equipment) are insufficient or require maintenance.
ii. considerably lower price level compared to other areas of the island and other regions.
iii. cost of private labour which in several cases turns out to be lower than in other areas of the country also due to the lower price level.
iv. low endowment in terms of quantity or quality of the commercial offer and in general of the service sector.
v. Inadequate training and capacity of the workforce, often lagging behind other territories.
vi. Social-cultural development is mainly linked to local traditions, identity and history, rather than being connected and linked to the external dynamics of the markets and enterprises.

Territorial marginality, which inevitably characterises mountain areas, entails the economic marginality of the area in comparison to other contexts within the same region.
Finding the most suitable solution to overcome these problems is even more complex, due to the impact that such territorial limits generates. These originate and accentuate difficulties in the economic growth of all sectors, determining very specific conditions such as isolation from the main markets, poor competitiveness, the loss of specialised human capital, the management of limited resources, the strong dependence on imports and the strict subordination to investments from outside the area.

The presence of these characteristics affects both the economic and social analysis and the formulation of policies suitable for the development of the area. In these contexts, the main consequences are:

- *tourism* tends to become the only viable economy but triggers a risky process, considering that in some cases it becomes the only reason why other "typical" economies are kept alive.
- *difficulties in accessing the area* can lead to unsatisfactory development or can cause the economy to depend excessively on the regional market.
- a *failure or insufficient development of tourism-related activities* generates social dissatisfaction and depopulation, which leads to the abandonment and loss of cultural specificity.
- the need and obligation to *protect and preserve a unique and fragile environment*. Natural resources represent the most relevant attractor for volcanic and naturalistic areas.

In general, with reference to business companies located in the Etna area, the prevalence of micro-enterprises is widespread. Many choose to establish business companies of this size not with a view to initiate a transition phase in the long process of starting an economic activity, but in order to conduct their business stably within the local economic fabric and in consideration of its structural peculiarities.
If on the one hand such small size allows greater flexibility in the face of market changes, on the other hand shows a number of weaknesses:

- lack of financial means or difficulties in accessing credit.
- insufficient marketing skills to face new market challenges.
- often inadequate technological skills.
- impossibility to implement economies of scale and economies of purpose.
- poor participation in association forms and individualism in facing external challenges.

Therefore, the critical issues in the network of companies characterising Etna's production system necessarily lead to system-supporting projects (as is the case of the UNESCO Management Plan), with the aim of strengthening cooperation by promoting a network that allows sharing knowledge and experiences, thus equipping companies with new content and a new systemic planning.
In order to conduct an in-depth static analysis, the following paragraphs will focus on the territory's components contributing to the definition of its main characteristics. In particular, the three dimensions listed below will be explored:

1. Infrastructure - settlement system.
2. Socio-demographic characteristics.
3. Economic activities.

4.1.1 Definition of the infrastructure-settlement system

The Park, the local community, the economic activities, the cultural resources and the services that make up the material and immaterial endowment of the area falling within the UNESCO area are particularly noteworthy.
The first of Sicilian parks to be instituted by President of the Region decree of 17 march 1987, the Etna Park (59.000 km^2) has the primary mission to preserve a unique environment and the extraordinary landscape surrounding Europe's highest volcano. Moreover, it is crucial for the promotion of the ecologically sustainable development of its population and local communities. At the core of the Etna Park is Mount Etna, featuring a lithological border of 250 km, an altitude of approximately 3350 m and an area of 1260 km^2. Twenty municipalities fall within the Park's territory (Adrano, Belpasso, Biancavilla, Bronte, Castiglione di Sicilia, Giarre, Linguaglossa, Maletto, Mascali, Milo, Nicolosi, Pedara, Piedimonte Etneo, Ragalna, Randazzo, Santa Maria di Licodia, Sant'Alfio, Trecastagni, Viagrande, Zafferana Etnea), with an overall population of approximately 250.000 in habitants.
Given its territorial structure, characterised by wonderful woods, trail, landscapes, as well as by typical products and the historical centres of its municipalities, in every season of the year the Park is a destination for travellers who love nature, food and wine and outdoor sports with breath-taking sceneries. A magnificent eastern-Sicily territory, the Park, which aims at enhancing and protect this unique environment, highlights on the one hand the strength of a powerful nature and on the other, the overflowing fertility of its land.
As for infrastructures, the index of infrastructure facilities relating to the municipalities of the Etna Park is reported below. This is a concise indicator resulting from the addition of the standardised values (Z-score) of the following variables as originally elaborated by the Polytechnic University of Milan:

a. km of state and provincial roads per km^2 of municipal area.
b. number of equivalent railway stations per municipality.
c. number of motorway junctions by municipality.
d. number of ports per municipality / 2.
e. number of airports by municipality / 2.

The result was reclassified over a range of values between 0 and 1000. It indicates each municipality's degree of overall infrastructure equipment (motorway, rail, airport and port). Data are taken from the DB Prin (PRIN database), ISTAT, Simplified street graph of OpenStreetMap.

Table no. 19 - ***Geo-demographic figures of the "Etna Park" (year 2017)***

Municipality	Area (Km²)	Total population	Density	Average annual variation (%) 2012/17	Geographic location
Adrano	83,22	35.633	428,2	0,17	33 km from Catania, south-west Etna
Belpasso	166,33	28.126	169,1	0,78	17 km from Catania, south Etna
Biancavilla	70,27	23.948	340,8	0,09	30 km from Catania, south-west Etna
Bronte	250,86	18.963	75,6	-0,27	49 km from Catania, west Etna
Castiglione di Sicilia	118,9	3.129	26,3	-1,03	59 km from Catania, north-east Etna
Giarre	27,35	27.546	1.007,00	-0,9	30 km from Catania, east Etna
Linguaglossa	60,25	5.337	88,6	-0,22	44 km from Catania, north-east Etna
Maletto	40,96	3.818	93,2	-1,01	58 km from Catania, north-west Etna
Mascali	37,85	14.301	377,9	0,62	34 km from Catania, east Etna
Milo	16,67	1.049	62,9	-0,32	26 km from Catania, east Etna
Nicolosi	42,65	7.528	176,5	0,71	13 km from Catania, south Etna
Pedara	19,24	14.613	759,5	2,16	14 km from Catania, south Etna
Piedimonte Etneo	26,54	3.966	149,4	-0,12	44 km from Catania, north-east Etna
Ragalina	39,53	3.960	100,2	1,47	21 km from Catania, south-east Etna
Randazzo	205,61	10.763	52,3	-0,48	69 km from Catania, north Etna
Santa Maria di Licodia	26,28	7.691	292,7	0,84	25 km from Catania, south-west Etna
Sant'Alfio	25,86	1.563	60,4	-0,49	30 km from Catania, east Etna
Trecastagni	19,16	11.074	578,1	0,88	12 km from Catania, south Etna
Viagrande	10,09	8.677	859,6	0,89	14 km from Catania, south-east Etna
Zafferana Etnea	76,87	9.607	125	0,76	20 km from Catania, west Etna
Total	**1.364,49**	**240.243**	**291,17**		

Table no. 20 - **Infrastructure equipment index of WHS Municipalities (2014)**

Municipality	Infrastructure equipment index (2014)
Adrano	7
Belpasso	16
Biancavilla	8
Bronte	7
Castiglione di Sicilia	8
Giarre	32
Linguaglossa	5
Maletto	4
Mascali	7
Milo	3
Nicolosi	10
Pedara	5
Piedimonte Etneo	6
Ragalna	6

Municipality	Infrastructure equipment index (2014)
Randazzo	7
S. Maria di Licodia	5
Sant'Alfio	8
Trecastagni	16
Viagrande	7
Zafferana Etnea	8

More in detail, as established by the legislator according to the Etna Park Plan's implementing regulation (drafted pursuant to article 18 of the LR 98/81 and subsequent amendments and modifications), the territory has been divided into "differentiated zones ", based on each area's specific features and the forms and methods of intervention ensuring landscape- and environment-compatible development. Each zone corresponds to different levels of protection and allows for the possibility of practicing different activities.
These are:

1. full reserve Zone "A", where nature is fully preserved and human activities and interventions are extremely limited (WHS core zone).
2. general reserve (Zone "B"), where protection goes along the development of traditional economic activities conducted on small plots, fine examples of ancient farms houses and rural architecture (WHS buffer zone).
3. Area or Differentiated zone "N": protection of volcanological features and high-relevance ecosystems.
4. Area or Differentiated zone "N1": protection of valuable natural environments.
5. Area or Differentiated zone "P": agricultural landscape.
6. Area or Differentiated zone "R": environmental and landscape restoration.
7. "Controlled development protection" area (pre-Park area) represented by Zones "C" and "D": economic development is pursued compatibly with respect for landscape and environment. These are external but nonetheless relevant areas where different activities are conducted.

For the purposes of a static analysis, it is worth here describing zones A, B, C and D, as they are of paramount importance to understand the Park' tourism-related and socioeconomic offer.

Zone A (regulated by art. 6 of the Etna Park Plan's implementing regulation)
It is worth here highlighting the geomorphological and biological features, representing and interesting attractor for nature-related tourism.
In this area, in fact, are located the top vents (central crater and NE and SE craters), whose chasms are almost constantly emitting gases and vapours frequently loaded with fragmentary materials of different grain size, from lava flows of various ages to lava flow caves, which are of significant interest also from a biological point of view. There are also areas affected by various types of escarpments and / or morphological crags, which are believed to have connections with the effects of particular structural tectonic phenomena (such as faults, repeated alignments of fractures, etc.), that are included in seismogenic areas or even in sectors of particular "tectonic-structural weakness".
As for the biological aspect, on the other hand, there are endemic (i.e. exclusive to Etna) plant species and animals, rare plant and animal species, relict species or species of significant biogeographical interest, interesting fauna elements accounting for the volcano population history. Among them, there are some Eurosibiric species - which arrived in the island during the last glaciation and survived with relict populations in the post-glacial period -, currently located at an altitude between 1600 and 2000 m.
In addition, there are endemic shrubby ecosystems (i.e. containing species exclusive to the Etna area) dominated by the Etna broom.
According to the Park' regulation, (art. 6.1.) in this area of the Park, the following activities can be carried out:

a) Hiking and horse hiking.
b) Ski mountaineering.
c) Ski hiking.

Zone B (regulated by art. 7 of the Etna Park Plan's implementing regulation)

In this area, agricultural and zootechnical activities are allowed on lands whose soils reveal a more or less inclined or undulating position, even if more or less limited plains are available, with superficial arrangement of the soils on terraces of extremely variable dimensions and different conformation. The terraces were made with "dry walls" (in more or less remote times), and they testify the commitment of the Aetnean populations to making otherwise inaccessible lands cultivable. These soils are of volcanic origin, rich in skeleton, stony and with outcropping rock, which reduce the portions of cultivable lands.

This area is considered for the development of activities, services and experiences aimed at diversifying the production of farms: from mere agricultural production to the offer of tourist experiences in line with market needs.

Alongside the aforementioned types of soils, more or less flat, sedimentary soils are also present, especially in the Maletto-Bronte areas.

These areas, intermingled with forest formations, shrubs, pastures, abandoned land in the process of afforestation, "prized" crops, colonised or recent lavas, are used for the cultivation of the various herbaceous and arboreal species present in the Etna massif (olive tree, vine, apple tree, pear tree, almond tree, prickly pear, forage, wheat, vegetables, etc.,). In addition, abandoned (generally less than 10 years ago) agricultural land is an integral part of these areas, a food base for sheep farming or potentially apt to be restored for agricultural purposes.

In addition to contributing to the definition of Etna's traditional agricultural landscape, these agricultural areas play an irreplaceable role from an economic point of view, as agricultural activities represent the main source of income for households, who base their budget on the implementation of multiple economic activity, given the widespread fragmentation of business enterprises.

The edaphic and climatic features of these agricultural areas (together with traditional cultivation and breeding techniques) confer to the agricultural and zootechnical products valuable organoleptic - sensorial characteristics that cannot be found in products obtained in other cultivation areas. So far, and especially due to a highly fragmented offer, these qualities have not been adequately recognised on markets, due to poor Agri marketing-mix policies. This again underlines how food and wine- and experience-related tourism can be developed within the Etna Park.

In this area, there are also buildings of historical and cultural interest that testify Etna's traditional agricultural and pastoral context. In particular, there are temporary shelters for herding and shelters in natural cavities, which have been equipped a long time ago for sheltering herds. These artefacts are located mainly at high altitudes and in traditional grazing areas. At lower altitudes, where crops are present, the typical Aetnean "casedde" can be spotted, featuring a rectangular plan and a double pitched roof, a brick mantle and walls in exposed lava stone, stuccoed or plastered with typical chromatic shades. In these same areas, the so-called "pagghiaru" are also frequent: made of lava stone, they represent an important evidence of agricultural - pastoral artifacts built with the "dry stone" technique.

The intricate network of old trails and ancient mule tracks, sometimes partially paved and surrounded by stone walls, which, in the past, constituted the main axes of the local agricultural - pastoral Aetnean economy, represents other important cultural evidence. Finally, the tanks, wells and water reserves are other significant evidence in some cases testifying a centuries-old presence: these often open almost on the ground, in contexts that are otherwise arid or particularly poor in water.

In line with the Park's regulation (art. 7.1) the following activities may be carried out:

a) Hiking, ski-mountaineering, ski hiking (as in Zone A), in compliance with the provisions in art. 6 lett. a.
b) Sports activities (except for those that might disrupt the integrity and quiet of the environment, such as motoring, motorcycling, motocross, trial, motorbike mountaineering, snowmobile, etc.) or those that might cause noise pollution.
c) Cycle-hiking with mountain bikes only on the existing roads and forest tracks.

The following activities are also allowed:

a) Mushroom picking in line with art. 6.1 lett. e.
b) Sheep, goat, cattle and horse farming up to 2 ACU.
c) Agricultural-zootechnical activities with a view to further develop them in compliance with the protection of the environment.

Against this backdrop, it is therefore possible to enhance tourism- and sports-related as well as agro-food activities.

Zone C/I (regulated by art. 12 of the Etna Park Plan's implementing regulation)
As in zone B, in this area agricultural lands are of volcanic nature, rich in skeleton, stony and with outcropping rock, soils have a more or less undulating position, sometimes with steep slopes, which in the past have been terraced with "dry walls". Plains of sedimentary origin are located in the Maletto-Bronte area in particular.
Agricultural species are those typical of the Etna massif (olive, vine, almond, pear, apple, cherry, peach, prickly pear, forage, wheat, vegetables, etc.).
Often seamlessly adjoining similar B zone areas, agricultural areas play an important role from a landscape and economic point of view.
Their key features are the widespread fragmentation of business enterprises, the multi-activity of the households conducting production units, the prized intrinsic qualities of products (nutritional content, organoleptic-sensorial features above all) which, however, do not find a satisfactory response on markets due to lack of targeted marketing activities.
There are also scattered buildings, some of which have a historical and testimonial interest, while others are more recent.
Particularly widespread are the "signs" of the Etna agricultural landscape, characterised by abandoned terraces, low walls, cisterns, cattle tracks (*trazzere*).
In zones C, next to the areas used for agriculture and urbanized areas, there are forests, shrubs, tree plants (isolated or in small groups), forest formations, hedges or dry-stone walls between crops or at their margins, *"dagale"* with various biocoenoses, some of which having a certain degree of maturity, as well as abandoned agricultural areas and lava surfaces with different evolutionary stages of pioneer vegetation.
In zones C it is allowed to:

a) carry out agricultural, forestry activities and farming, according to the criteria set out in lett. d), f) and g) of article 7.1 Park's regulation.
b) to carry out sports activities, according to the indications referred to in letter b) of Article 7.1.
c) bivouac and camping in the areas equipped to this purpose.
d) collect mushrooms in compliance with lett. e), art.6.1.
e) hiking, ski mountaineering, ski hiking in compliance with the procedures set out in art. 6.1 lett. a).
f) specific scientific research activities authorised by the Park Authority.

Inoltre, secondo la normativa di attuazione del Piano del Parco dell'Etna, all'art. 12.6 è specificato che, nella zona C, oltre alla destinazione agricola che va disciplinata nel rispetto del succitato art.7, è possibile anche la realizzazione di attrezzature relative alle seguenti destinazioni d'uso:

Furthermore, according to the regulation implementing the Etna Park Plan, art. 12.6 stipulates that in zone C, in addition to agricultural purposes, which must be regulated in compliance with the aforementioned art.7, it is also possible to establish equipment related to the following uses:

1. education/school/scientific research or professional training facilities (classrooms, laboratories, meeting rooms, including open-air ones, dining rooms, services, parking lots, etc.) hosting no more than 150 people each, whereas, for scientific research relevant to the Park's main themes, guesthouses hosting no more than 5 people, including the relevant services and any other facility necessary to carry out the mentioned research activity.
2. Support to sports training, accommodation for athletes and sportsmen; accommodation for no more than 50 people, services and spaces necessary for athletic preparation for sports activities. The construction of sports facilities is not allowed.

3. campsites for tents and campers / caravans, not exceeding a total number of 50 places / vehicle or tents, with all the related services and according to the standards of the regional legislation on campsites.
4. artistic and cultural events.
5. tourist accommodation with hotel equipment with an accommodation capacity of no more than 60 beds and catering activities with a maximum capacity of 70 seats.
6. trade of local traditional crafts, outlets for typical agricultural products and handicrafts from the Etna area.
7. artistic and cultural events, exhibitions, temporary events, festivals and outlets for typical products.
8. areas equipped for and specifically devoted to recreational purposes, rest and picnics.

Zone D (regulated by art. 15 of the Etna Park Plan's implementing regulation)

In this zone, there are very heterogeneous and fragmented areas, which are not part of the WHS, but where activities related to other zones are carried out.

In fact, some agricultural areas areas subject to discontinuation and/or abandonment processes. In many abandoned areas, secondary successions are underway that are reconstituting the natural plant cover. The agricultural landscape therefore often appears dotted with elements of natural vegetation: small or isolated forest bodies, shrubs, etc., enriching it with noteworthy features. There are also woods, woodland formations, shrubs, various herbaceous plants communities including grazing lands of different extension, lavas of various ages, with surface morphologies of great naturalistic value; these are the site of various plant colonisation processes, where primary successions of significant importance for the natural reconstitution of ecosystems are underway. Lava surfaces often include "*dagale*" of various sizes: these are important for the conservation of biodiversity and represent the starting point for spreading of elements of flora and fauna and for the spontaneous reorganisation of ecosystems on lava flows.

There are also numerous volcanic cones, as well as ravines, ridges, valleys and creek furrows. There are ecotonal and wet areas or areas subject to periodic flooding with hygrophilous and / or hydrophilic biocoenoses of particular relevance. Some of the agricultural areas, where agro-zootechnical activities are carried out, are particularly valuable as they play a strategic role in shaping the agricultural landscape with terraces and / or typical crops, in working as an irreplaceable "lung" especially against the chemical environmental pollution, and in favouring quality produces. For these areas, the conservation of agricultural greenery also has an irreplaceable economic purpose, offering employment and income to rural households in the perspective of the local multi-activity socio-economic system. There are also valuable buildings, scattered or in complexes, that are almost all dilapidated or abandoned.

4.1.2 Analysis of socio-demographic features

Population dynamics is a very significant indicator of the overall development of a given territory over a certain period. The statistical data on the population residing in the municipalities of the site show an overall positive yearly average variation of the population in the five-year period 2012/2017 (+ 0.22%), even if a more in-depthanalysis highlights negative values for some municipalities. However, the population in the Etna Park area is growing.

The table below shows the characteristics of the population residing in the WHS Municipalities with reference to the year 2017.

***Table no. 21* – Characteristics of the population residing in the WHS Municipalities (2017)**

Year 2017	Population				Resident population by age group											Foreigners	Families	
Municipality	Number of resident population	Man %	Women %	Density per Km²	< 2 years	3 to 5 years	6 to 11 years	12 to 17 years	18 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 to 74 years	< 75 years	Resident foreigners	Families (N.)	Average number of family members
Adrano	35.633	48,3	51,7	428	1.107	1.100	2.527	2.713	3.308	4.850	4.527	4.884	4.317	3.148	3.152	463	12.872	2,77
Belpasso	28.126	49,5	50,5	169	882	978	1995	1980	2238	3891	4411	4113	3395	2370	1873	657	10.335	2,72
Biancavilla	23.948	48,4	51,6	341	753	784	1664	1760	2065	3233	3242	3237	2884	2217	2109	597	9.324	2,57
Bronte	18.963	48	52	76	457	520	1136	1391	1619	2375	2424	2776	2428	1754	2083	486	7.605	2,49
Castiglione di Sicilia	3.129	48,4	51,6	26	76	82	141	147	210	390	410	451	434	318	470	130	1.407	2,22

Year 2017	Population				Resident population by age group											Foreigners	Families	
Giarre	27.546	48,2	51,8	1.007	672	654	1509	1510	2049	3421	3822	4144	3816	3046	2903	1.504	10.507	2,62
Linguaglossa	5.337	48,6	51,4	89	127	142	273	318	439	637	689	894	675	528	615	267	2.152	2,48
Maletto	3.818	48,4	51,6	93	88	87	224	278	306	471	498	517	521	421	407	98	1.520	2,51
Mascali	14.301	49,4	50,6	378	400	385	857	795	1135	1860	2146	2344	2078	1268	1033	543	6.193	2,31
Milo	1.049	49,9	50,1	63	26	22	40	45	73	132	125	171	158	125	132	38	509	2,06
Nicolosi	7.528	49,3	50,7	177	220	205	445	454	585	959	1083	1240	964	681	692	263	3.072	2,45
Pedara	14.613	49,8	50,2	760	458	500	972	939	1062	1909	2215	2384	1830	1275	1069	209	5.693	2,57
Piedimonte Etneo	3.966	50,3	49,7	149	98	95	231	222	276	451	517	647	586	408	435	145	1.790	2,22
Ragalna	3.960	51,2	48,8	100	120	110	220	225	286	568	542	613	554	399	323	67	1.816	2,18
Randazzo	10.763	47,6	52,4	52	235	251	521	633	835	1368	1349	1629	1515	1085	1342	301	4.571	2,35
S. Maria di Licodia	7.691	49	51	293	226	252	514	525	655	1044	1082	1094	967	703	629	288	2.970	2,59
Sant'Alfio	1.563	47,7	52,3	60	31	37	66	85	130	206	194	255	222	150	187	53	644	2,43
Trecastagni	11.074	49,4	50,6	578	307	328	747	753	825	1325	1636	1775	1506	1032	840	309	4.546	2,44
Viagrande	8.677	49,4	50,6	860	204	236	610	597	603	998	1257	1461	1144	870	697	225	3.371	2,57
Zafferana Etnea	9.607	49,7	50,3	125	265	267	564	646	729	1261	1376	1428	1316	918	837	453	3.904	2,46

4.1.3 The economic and tourism system

It is well known that tourism represents one of the most relevant economic sectors for the Sicilian economy in general and for the local economies in particular. The link between tourism and economic development of a given area is widely discussed in international literature and it is closely connected to the natural and / or cultural resources existing in the area. In fact, in recent decades, smaller contexts have experienced structural changes, which allowed the transition from mainly agriculture- and fishery-based economies to economies that place tourism at the core of their system thus making it the main source of income and occupation.

This resulted in a change in the use of economic and natural resources and an increase in the complexity of the relationship between man and the surrounding environment.

With reference to tourism in volcanic areas, it should be considered that there are over 1500 volcanoes currently classified as active all over the world attracting an increasing number of visitors, thanks to the worldwide popularity they have gained because of their eruptive events.

The tourism-related appeal of these areas depends on several factors. First, tourism in volcanic areas is closely connected with other forms of tourism such as spa tourism, ecotourism and adventure tourism. It embraces several recreational activities such as skiing, hiking, trekking, mountaineering and camping. The increasing physical and economic accessibility of these destinations to travellers, as well as the growing interest in the natural environment and the subsequent growth in the demand for visits to national parks, naturalistic sites recognised as UNESCO World Heritage Sites and geoparks are additional factors that makes these sites even more interesting.

Therefore, volcanoes represent natural attractors and in recent years increasing consideration has been given to their role as natural-landscape attractors. Although the volcano is not always the main reason for the trip / vacation, many tourists visit it incidentally or for a few hours, sometimes as a “detour” from their travel itinerary.

In addition to the interest generated by the volcano as a natural resource, it is also necessary to consider the attractiveness entailed by the activities proposed by local operators. These constitute the local economic fabric and provide for the territory’s economic offer in general.

Indeed, volcanoes attract very different visitors with different motivations. Apart from people with a general interest in nature and outdoor activities, these are the main types of tourists that can be generally found in volcanic environments:

- Group and individual tour (domestic and international visitors).
- Couples, families and pensioners.
- Adventurers and thrill-seekers.
- Scientists and students.
- Hikers, trekking enthusiasts, climbers and skiers.
- Regular visitors.
- Geotourists and ecotourists.
- Photographers and writers.

Among the main reasons for visiting volcanic areas, there are:

- Sightseeing tours, leisure activities and parts of travel itineraries.
- Mountaineering, excursions and outdoor activities.
- Ambition and curiosity, photography.
- Information gathering and field research.
- Scientific interests, study and education.
- Collection of rock fragments.

It is necessary to consider the tourism and economic development of the area in a broader perspective, also including categories of potential visitors that might not be interested in the volcano itself. This shall contribute to implement policies necessary to increase flows in a sustainable and controlled way, preventing an uncontrolled exploitation of the area and its natural resources.
As part of the area's economic-touristic development, the other effects, which are not only economic, deriving from an uncontrolled flow of tourists must be also assessed. Reference shall be made here to its environmental and cultural impacts and to possible subsequent economic imbalances. Therefore, the tourism sector will only be able to achieve the desired effects if it can guarantee environmental protection and the survival of the authenticity of the local culture.
All this will be more easily achievable if implemented systemically, as the tourist offer is not generated by a single subject, but by a series of interconnected social actors. In order to be able to quantify tourism, an analysis of supply and demand in the municipalities of the Etna Park will be carried out below.

Tourist flow: demand as resulting from data collected by official sources
Tourism demand in the Etna area is difficult to evaluate and the investigation of tourist flows is not easy to implement in both quantitative and qualitative terms. The only material available concerns some investigations on the accommodation facilities in the Municipalities of the Park area, which show the number of registered international and national guests.

ISTAT data for 2018 show slightly more than 2 million tourism-related presences in the whole Province of Catania.

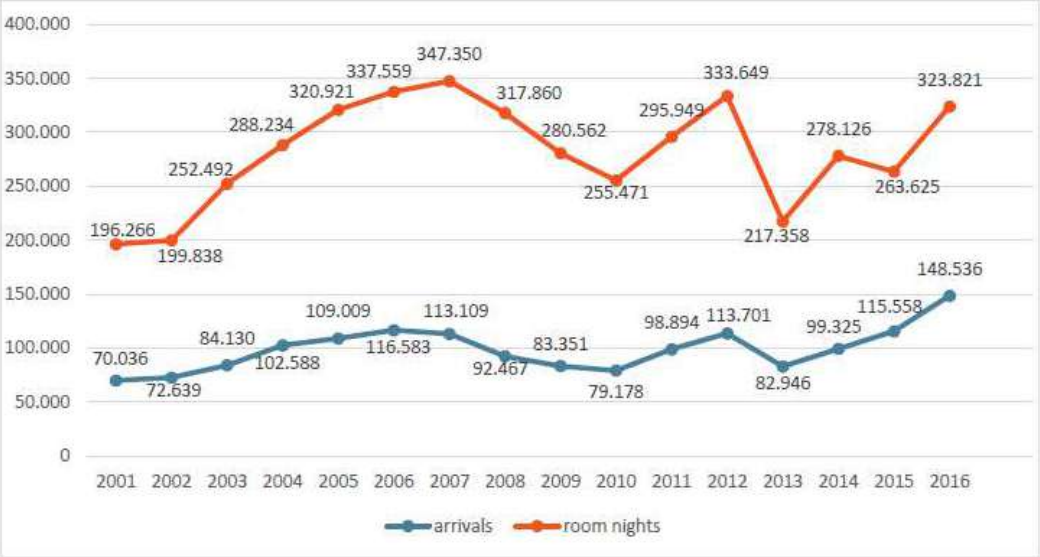
Tourism flow in Sicily Years 2017-2018*

Provinces	Arrivals			Presences		
	2017	2018*	Var.%	2017	2018*	Var.%
Agrigento	330.506	325.646	-1,5	1.036.316	1.021.719	-1,4
Caltanissetta	63.508	61.247	-3,6	260.756	248.949	-4,5
Catania	934.578	951.849	1,8	2.088.371	2.115.164	1,3
Enna	66.030	69.524	5,3	116.580	129.411	11,0
Messina	997.421	1.034.446	3,7	3.493.859	3.490.476	-0,1
Palermo	1.044.780	1.139.285	9,0	2.981.947	3.289.014	10,3
Ragusa	274.409	312.297	13,8	1.004.641	1.137.468	13,2
Syracuse	447.668	415.347	-7,2	1.395.901	1.330.106	-4,7
Trapani	698.642	688.395	-1,5	2.326.555	2.374.398	2,1
TOTAL	**4.857.542**	**4.998.036**	**2,9**	**14.704.926**	**15.136.705**	**2,9**

Source: Department of Tourism, Sport and Entertainment–elaborated from ISTAT data

Starting from ISTAT data, an elaboration of the University of Catania has defined the number of arrivals and presences that refer to the Etna Park area. In 2016, the attendance attributable to the Park area is around 323 thousand presences, showing an increase compared to 2015.

Table no. 22 – **Total number of arrivals and presences in the Etna Park area (2011-2016)**



In order to identify the tourist flows with exclusive reference to the Etna Park area, the analysis of arrivals and tourist presences was deemed necessary at municipal level.
The graph below shows figures related to the tourist arrivals in two of the main Municipalities that are part of the Etna Park Area. It should be noted that in the municipality of Linguaglossa the flows shows an increase of more than 39% between 2015 and 2016.

Table no. 23 – **Tourist arrivals in the Municipalities of Nicolosi and Linguaglossa (2011-2016)**

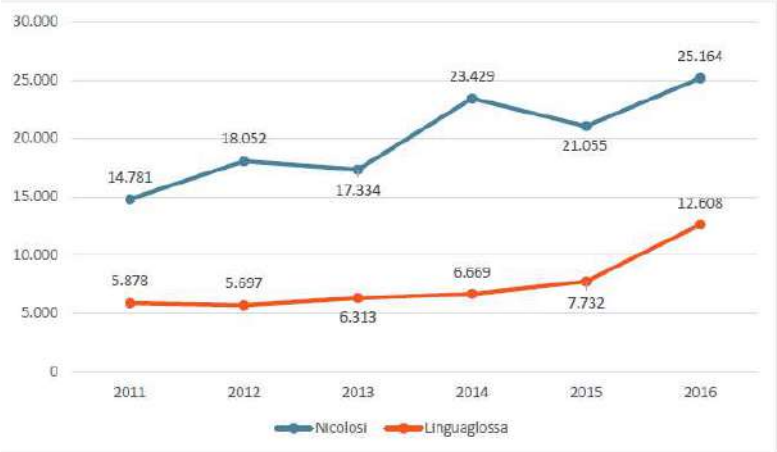
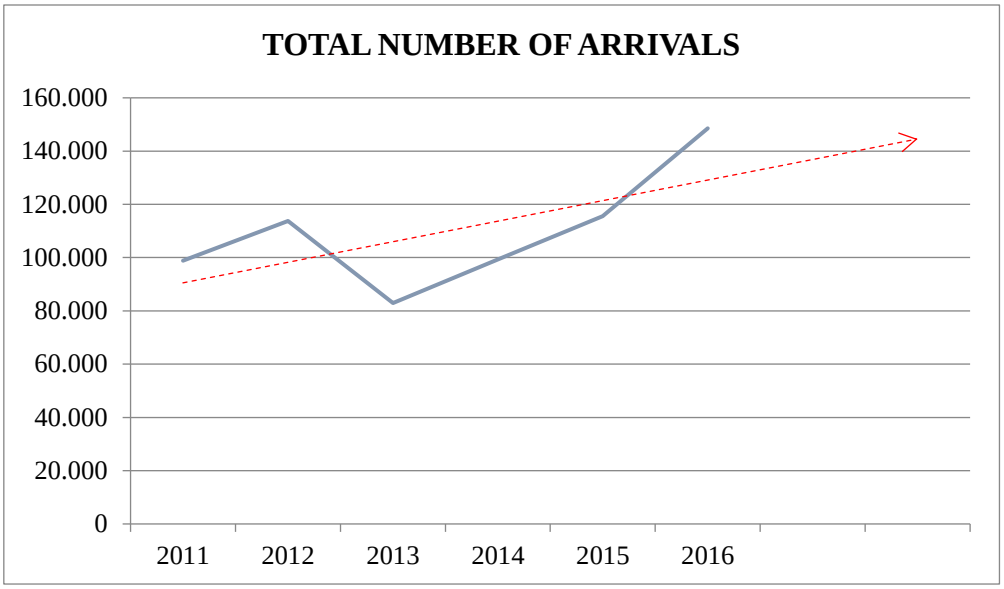


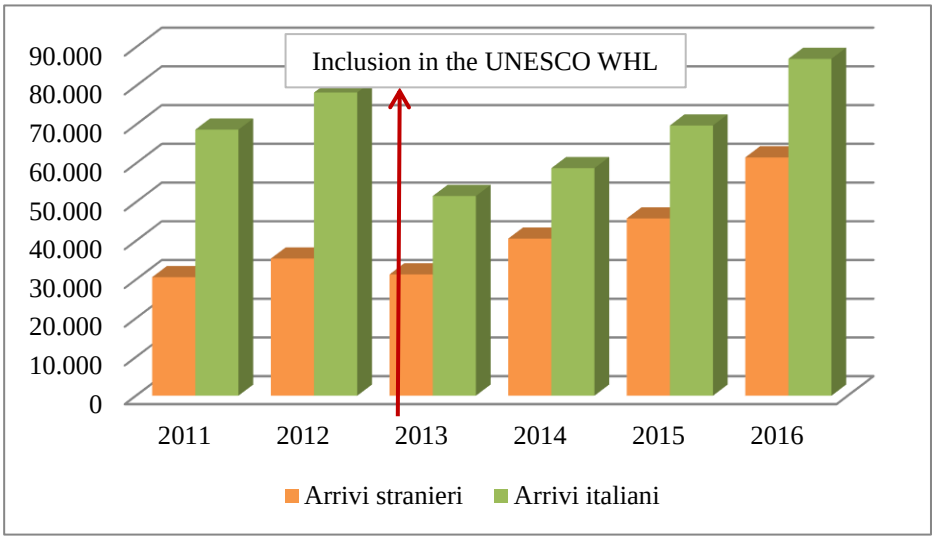
Table no. 24 – **Number of arrival in the 20 Park Municipalities (2011-2016)**



As can be seen from the previous figure with reference to the number of arrivals in the 20 Municipalities belonging to the Etna Park in the period 2011-2016, there is a positive trend ongoing. Since 2013, the number of arrivals has increased steadily and showed an even more marked growth between 2015 and 2016. Among other things, the three-year 2014 - 2016 period growth comes in the aftermath of the site's inclusion in the WHL and after a sharp decrease in the number of arrivals between 2012 and 2013.

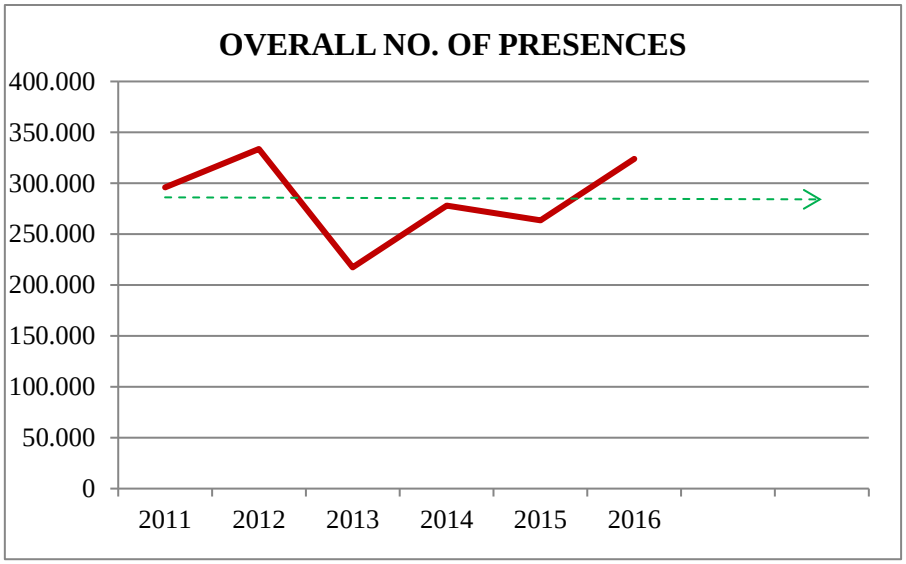
A look at the number of Italian and foreign tourists shows the following results:

Table no. 25 – **Italian and foreign arrivals in the Municipalities of the Etna Park (2011- 2016)**



The difference between arrivals from Italy and foreign arrivals has decreased more than 30% from 2011 to 2016, highlighting a significant increase towards the internationalisation of the site. An increasing number of foreign visitors are attracted to the Etna Park. A closer look at the decrease occurred between 2014 (first year after UNESCO recognition) and 2011, the difference between foreign and Italian tourists has reduced even more remarkably (52%).

Table no. 26 – **Presences in the Park's Municipalities (2011- 2016)**



The time series relating to presences in the same municipalities for the same period generally follows the trend of that of arrivals, highlighting a constant increase in the number of presences since 2013/2014 (+ 49%) but a fairly stable prospective trend. The analysis of the demand at the municipal level highlights significant differences between the locations in terms of both arrivals and presences. Most of the Municipalities show low tourist-related values, thus confirming the great potential of the tourism sector across the relevant territory. The recognition obtained by UNESCO must therefore represent a starting point for planning the sustainable tourism development of the destination.
Furthermore, by analysing the average length of stay (Pm = Presences / Arrivals) of tourists, it can be seen that it has decreased over time, from 3 days in the period 2011 - 2014 to 2 days in 2015-2016.

Table no. 27 – Average stay in the Municipalities of the Etna Park (2011-2016)

Year	2011	2012	2013	2014	2015	2016
Average stay	3,0	2,9	2,6	2,8	2,3	2,2

Despite the sharp reduction of the gap between national and international visitors over time, tourism on Etna remains mainly domestic. In facts, most of the registered visitors are Italian, especially Sicilians. International visitors are mainly European, especially from France and Germany

Features of the offer
Modest-sized facilities rather than hotels mainly characterise the accommodation offer of the Municipalities of the Etna Park, as highlighted in the tables below.

Table no. 28 – Number of accommodation facilities in the Municipalities of the Etna Park (2011-2016)

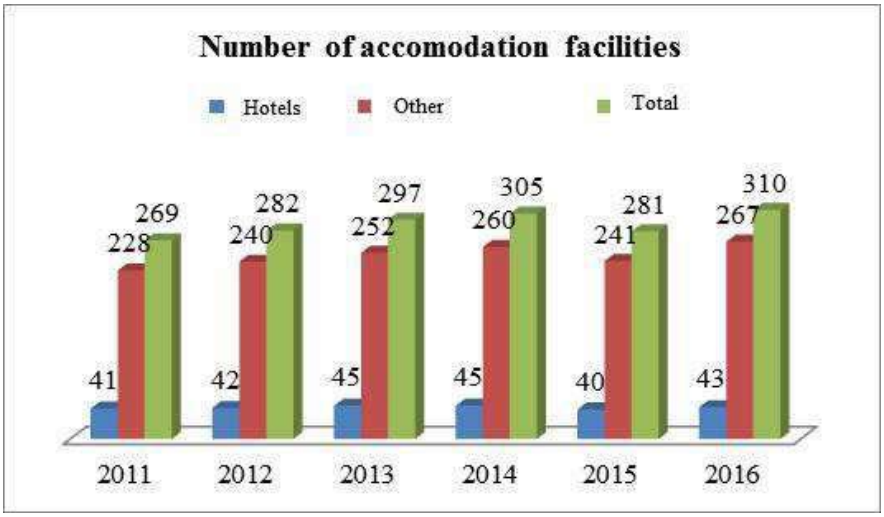
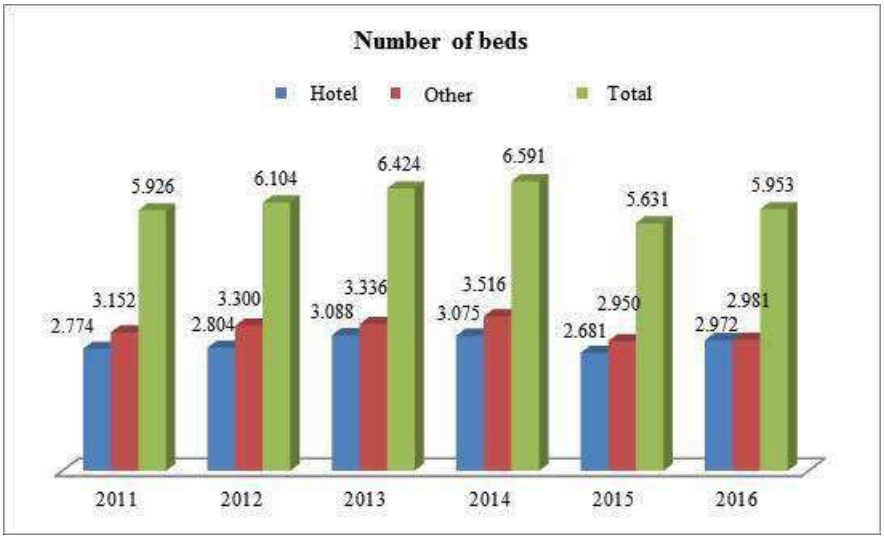


Table no. 29 – Number of beds in the Municipalities of the Etna Park (2011-2016)



Among the hotel facilities, 3-star hotels prevail, accounting for over 60% of the total number of accommodation facilities. Among non-hotel facilities, *B & B*'s represent almost 70% of the offer.

The first excursions on Etna date back to the 19th century but were characterised by considerable difficulties and long travel times. In the 1930s, when the first tourist infrastructures and the first paved road were built on the South side from Nicolosi up to 1930 m, hiking developed considerably. Since the 1950s, tourism on Mount Etna has experienced a strong growth, thanks to the construction of further access roads, hotels and accommodation, mountain huts, restaurants, souvenir shops and other tourist infrastructures essentially concentrated in two areas: Nicolosi North (NN) on the South side and Piano Provenzana (PP) on the north-east side. Certainly, Nicolosi Nord is the best-known area out of the two tourist resorts on Etna. It consists of an alpine lodge ("Rifugio Sapienza"), two hotels ("Corsaro" and "CAI"), restaurants and bars ("Cantoniera", "Esagonal", "Terrazza dell'Etna") and a cable car station.

As of 2017, 28 travel agencies and 7 tour operators operate in the 20 municipalities involved, mainly targeting the "outgoing" market. The graph below shows their geographical distribution.

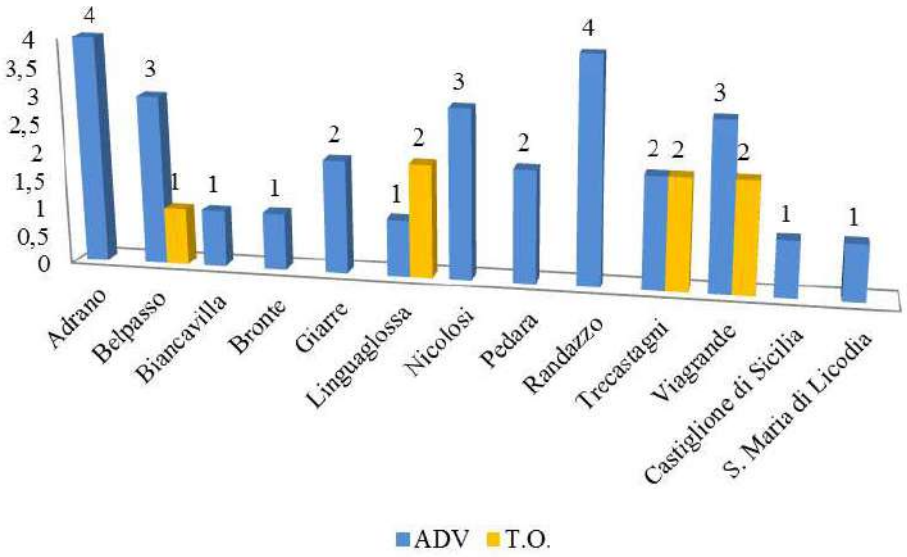


Table no. 30 – Source: Chamber of Commerce of Palermo (2017)

4.1.4 Economic and financial framework

Any planning exercise on the reference area will have to take into account both an economic and a financial point of view, in order to identify all the current and future sources of funding relevant to the area. This screening is of paramount importance, since adequate identification of the enhancement interventions to be included in the action plans will only be possible by knowing the available financial resources. It will be necessary to identify the EU, national, regional and private resources for the entire area, and assess their accessibility in relation to the planned interventions.

It should be borne in mind that many of these spending programs result in institutional, programme and framework agreements, which represent specifically negotiated programming tools. Therefore, specific attention must be paid to the analysis of programs that have an impact on the enhancement of the reference area, in order to highlight the expected effects and possible modifications to the Management Plan.

In this perspective, the ongoing programs and / or awareness actions targeting the local population that can facilitate the effective enhancement and sustainable management of resources shall also be taken into account. Among these, for example, the existence of economic promotion measures, financed by *Leader+* Local Development Plans or by Integrated Territorial Projects, ongoing training programs on topics such as environmental education, energy saving, bio-architecture, cultural heritage, etc. may be also relevant.

Among the most important resources that shall be taken into account in drafting the Management Plan, there are also direct and indirect EU loans.

The total budget of the Operational Program was reduced from € 2 billion to € 1.39 billion. This cause a decrease in the funds available under the ESF OP 2014/2020, which has been reduced from the initial € 2 billion of the ESF OP 2007/2013 to only € 820 million. Although Sicily has long benefited from EU economic policies aimed at reducing the gap between Europe's regions, it still has a high unemployment rate and a large gap (in comparison with the rest of Europe) in terms of infrastructure, innovation and research, employment, business enterprise network, training, management of natural resources and social inclusion. The lack of regional economic resources makes the careful, effective and adequate use of EU structural funds essential.

In planning structural funds, the Operational Plans take into account the problems of the territory in their interdependence with the local cultural, environmental and human resources.

The two ROP's common goal is to avoid discrepancies between cultural heritage protection policies and tourism enhancement policies, by unifying the relevant strategies and programs. It is therefore crucial to avoid underestimating the management aspects and the importance of services connected to the use of such resources, as well as the importance of infrastructures.

Investments in sectors in which Sicily could obtain considerable results (i.e., culture and tourism) should be privileged. Such investments should be also based on the need to make a better use of EU funds.

According to the data elaborated by *Open Coesione* (https://opencoesione.gov.it/it/), during the 2007-2013 programming period, only € 1.170.678.505 were invested in culture and tourism, which ranked fifth among the main EU investments in Sicily (infrastructure- and transport-related investments ranked first).
Therefore, the area relevant to the Management Plan could benefit from the following funds:

- Regional and Urban Development Fund (ERDF): Article 176 of the Treaty on the Functioning of the European Union (TFEU) stipulates that the European Regional Development Fund (ERDF) is intended to help correct the main regional imbalances existing in the EU. In accordance with this article and the second and third paragraph of Article 174 TFEU, the ERDF is intended to contribute to reduce the gap between the levels of development of the various regions and the delay of disadvantaged regions (special attention must be placed on those having serious and permanent natural or demographic disadvantages, such as the northern regions with very low population density, islands, cross-border and mountain regions, etc.); relevant financing instruments include the Regional Operational Program of Sicily and the integration programs between the INTERREG member states (ADRION, ITALY-MALTA, MEDITERRANEAN and EUROPE)
  *ref. EU Reg. no.1301/2013 of 17 December 2013
  *ref. EU Reg. no.1299/2013 of 17 December 2013
- European Agricultural Fund for Rural Development (EAFRD): The EAFRD contributes to the implementation of the Europe 2020 strategy by promoting sustainable rural development across the European Union as a complement to other instruments, such as CAP, cohesion policy and the common fisheries policy. It contributes to the development of an agricultural sector across the Union, characterised by a greater territorial and environmental balance, as well as more aware of themes such as climate, competitiveness and innovation. It also contributes to the development of rural territories; the main financing instrument is the Regional Development Program of Sicily.
  *ref. EU Reg. no. 1305/2013 of 17 December 2013
- Social Fund and Good Governance (ESF): The aim of the ESF is to promote employment and improve access to the labour market, with specific reference to those who experience difficulties in accessing it, and to support voluntary professional mobility. The ESF should also promote active and healthy aging, including through innovative forms of work organisation and improving employment. The main financing instrument is the Regional Operational Program of Sicily.
  * ref. EU Reg. no. 1304/2013 of 17 December 2013
- Development and Cohesion Fund (FSC, formerly FAS funds): The purpose, to be implemented through political interinstitutional agreements between the Government, the Regions and the metropolitan cities, the so-called Agreement for the Development of the South, is to finance strategic projects targeting both infrastructures and intangible values or assets, of national, interregional and regional significance. The signing parties undertake to jointly achieve some strategic priority objectives at set times, through a single administrative and planning act. Financing instruments include the Pact for the development of Sicily and the Pact for the development of the Metropolitan City of Catania.
- The Program for the Environment and Climate Action (LIFE); this program has the following general objectives: to contribute to the transition to a resource-efficient economy with lower carbon emissions and resilient to climate change, to contribute to the protection and improvement of the environment and to the interruption and inversion the biodiversity loss process; improve the development, implementation and application of the Union's environmental and climate policy and legislation, catalyse and promote the integration and inclusion of environmental and climate objectives in other policies and practices in the public and private sector, including through increasing their capacity; to better support environmental and climate governance at all levels; to support the implementation of the Seventh Environment Action Program;
  * ref. EU Reg. no. 1296/2013 of 17 December 2013
- Law 77/2006 on UNESCO Funding (MiBAC Resources): this law provides for special measures for the protection and use of Italian sites of cultural, landscape and environmental interest included in the World Heritage List. In particular, it provides for financial interventions to support activities aimed at enhancing the sites and to support communication and its implementation. To date, the Ministry has allocated € 15,368,249.60 for the budget years 2006/2011 and approximately € 4 million has been allocated for the development of management plans.

In terms of funding for research and sports facilities, it is worth mentioning the Erasmus + program (the European Union's program for Education, Training, Youth Sport 2014- 2020), whose contribution can be of paramount relevance.
Approved by EU Reg. no. 1288/2013, the program combines and integrates all the funding mechanisms implemented by the European Union until 2013 in this field.
The opportunities offered by the Erasmus + program mainly target students, trainees, apprentices, schoolchildren, adult learners, young people, volunteers, teachers, trainers, youth workers, professionals from organisations active in the fields of education, training and youth.
The program, however, does not provide for direct granting to individual participants but reaches individuals through organisations, institutes, bodies, universities, schools and groups (including groups of young people implementing socio-educational activities, youth organisations and even informal groups of young people) who can submit project proposals and apply for funds.
Participation is open to any body active in the fields of education, training, youth and sport. Some actions also involve the participation of other actors from the labour market. In particular, these activities shall aim to:

- Address cross-border threats to the integrity of sport.
- Promote and support good governance in sports and athletes' non-sport careers.
- Promote voluntary activities, social inclusion and equal opportunities in sport.
- Increase awareness of the benefits of physical activity for health.
- Increase participation in sport.

4.2 Dynamic analysis of the territory (current and potential demand/supply of supply chains connected with the heritage and its users)

Unlike the static type, the dynamic analysis allows to identify the potential of the economic supply chains in the area relevant to the management plan, taking into consideration the Etna Park's appeal as a cultural and touristic site. This aspect is key to the territory enhancement process, as it allows the restoration and protection of the environmental and cultural heritage as well as the creation of a multiplier effect capable of boosting the local economy through its attractive capacity.
This analysis is a preparatory and necessary step for the development of a promotion (and more specifically, of a marketing) plan for the territory. It is useful in order to obtain a picture of the dynamic elements of the territory. The goal of this phase is to perform a quantitative-qualitative analysis relating to:

1. Overall supply of the Etna Park area.
2. Current supply.
3. Potential supply.

In order to perform such analysis, it is necessary to start from what the area has to offer and from the relevant demand. This will allow the definition of the market segments of potential demand that should be considered as targets of enhancement and promotion actions. Based on this, it will be possible to define specific interventions in the light of the features of the current and potential demand analysed in this phase. The dynamic analysis takes the moves from two supply chains and in particular:

1. supply chains directly connected with the area's assets and resources.
2. supply chains connected with heritage end-users (communication, tourism, agriculture and handicrafts).

1. *Supply chains directly connected with the area's assets and resources*
   a) Supply of the reference area for which the following shall be analysed and described: type of operating companies, available resources, active products / services, type and level of available skills, level of interaction between the supply chains, accessibility to the products / services of the offer, etc.
   b) Current demand for which the following shall be analysed and described: interventions already activated, plans and programs in progress, progress of initiatives and interventions, possible impacts of the interventions on other supply chains, planned interventions and related impacts, etc.
   c) Potential demand for which the following shall be analysed and described: interventions that can be activated in the light of the plans and programs envisaged, new activities launched by interventions not yet foreseen, possible impacts not yet met by the four supply chains but potentially feasible, etc.

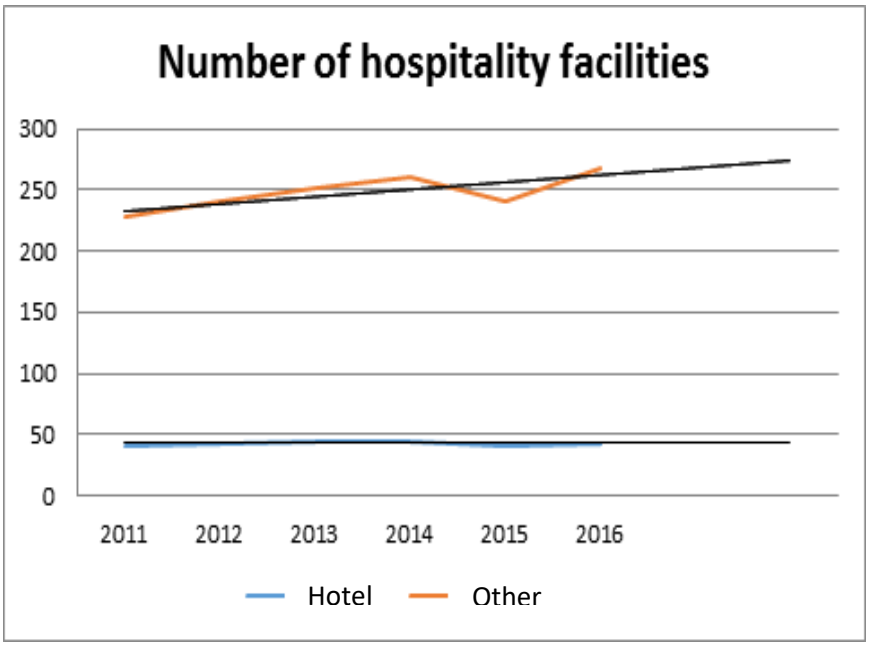
2. Supply chains connected with heritage end-users (communication, tourism, agriculture and handicrafts)

The supply of the reference area shall be examined through a qualitative analysis, in order to identify the real attractors of the area in the various supply chains (for example multimedia products, leisure facilities, hotels, food and wine products and craftsmanship, etc.) and the potential to implement enhancement actions. The analysis shall separately consider:

a) Ongoing communication or multimedia products, publications, promotional initiatives / actions, historical / artistic / cultural studies / publications, training activities aimed at raising awareness among the population of heritage / identity.
b) Tourism or hotel facilities by type, non-hotel facilities by type, catering facilities, cultural services (museums, fairs, exhibitions etc.), urban and suburban transport services.
c) Agriculture or quality label products (DOC, DOP, IGT, etc.) and % incidence with respect to the national data, typical agricultural / agro-food products recognised at regional level and% incidence with respect to the national data.
d) Crafts or typical and non-typical handicraft products.

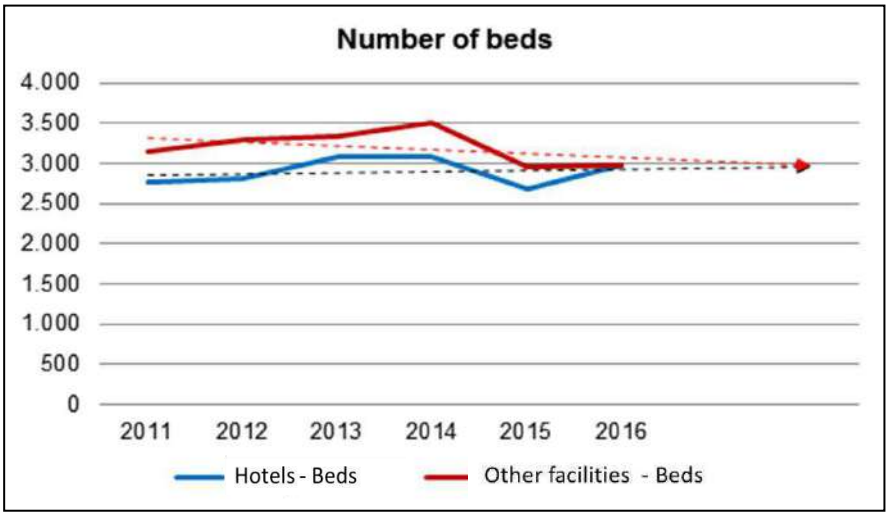
Thanks to the great touristic appeal of the Etna Park area, the chain connected to the enjoyment of the local heritage is of noteworthy relevance. This Plan takes into account the ATECO sectors consistent with the definition of the tourist - cultural chain according to the Ministry of Economic Development and the number of companies active in each municipality. The table in Annex I shows the list of activities and the related ATECO codes together with the number of active business enterprises by municipality and type of ATECO activity updated to the first half of 2018 (file attached).
Overall, 6,392 companies belonging to the aforementioned chain operate in the area. In relation to the type of ATECO activity, most of them (7.9%) carry out catering activities (ATECO 56.10.11), 7.8% consists of bars and other similar activities (ATECO 56.30.00).
As for the hospitality sector, the analysis of the relevant offer shows the following trend:

***Table no. 31** – Hospitality facilities trend in the Municipalities of the Etna Park (2011-2016)*



Non-hotel accommodation facilities prevail and indeed grow over time (+ 17% in 2016 compared to 2011). These are characterised by a low number of beds and more informal hospitality. The increase in the hotel sector, on the other hand, is much more contained (+ 5%). With reference to the total number of beds, in the period 2011-2016, this has increased by 7%, taking into account the hotel facilities, while the number of beds offered by the non-hotel sector decrease (-5%).

Table no. 32 – Number of beds trend in the Municipalities of the Etna Park (2011-2016)



With regard to companies offering products and/or services related to recreational or similar activities, the survey carried out on companies operating in the Park municipalities highlighted the presence of 408 companies operating in the sector "retail sale of cultural and recreational items in specialized businesses", 63 companies active in the "creative, artistic and entertainment activities" sector, 10 engaged in "libraries, archives, museums and other cultural activities" and 173 in "recreational and entertainment activities". In total, they represent about 10% of the companies active in the area. On the other hand, 170 companies (2.7% of total companies) operate in the glass, ceramic, metal, stone and goldsmith sector. There are also several events (festivals, parties, exhibitions) organised by the municipalities of the Park throughout the year.

Among the local products, the Etna DOC wine, the DOP olive oil from Mount Etna and, in the fruit and vegetable sector, the following DOP awards must be mentioned:

- Etna prickly pear.
- Etna cherry.
- Green pistachio of Bronte.

Further investments on these products could increase the number of visitors and tourists. Adequate management of their space-time dynamics could avoid pressure on touristic sites and the related negative effects from both an environmental and a socio-economic point of view. It is also desirable to turn to other demand segments (perhaps *niche* ones) that have not been sufficiently valued until now. The purpose is also that of extending the average stay, focusing precisely on recreational and cultural activities. In fact, while the number of tourist arrivals shows a growing trend and indicates a prospectively high attractiveness of the area, the reduction of attendance (and consequently of the average stay) highlights a difficulty in "entertaining" visitors with collateral activities and initiatives. This cannot be separated from the definition of specific targeted actions based on the segments associated with the types of visitors and the reasons highlighted in paragraph 4.1.3.

4.3 Overall SWOT analysis of the area

This phase aims at summarising all the analyses carried out up to this point and obtain a tool that allows getting an overall picture and guide the fine-tuning of future strategies and action plans. This tool is a SWOT matrix describing the overall status of the reference area from both the assets and resources and the socio-economic point of view. The SWOT matrix is a key instrument for a correct and effective planning of future interventions, as it takes into account the territory's actual needs and specificities.

The endogenous factors of the SWOT analysis summarise the set of internal variables that generate competitive strength or weakness. The following diagram summarises the most evident strengths and weaknesses of the Mount Etna UNESCO site.

Strengths

- Specialisation in the service industry.
- Environmental and landscape-related restrictions and obligations.
- Presence of particularly valuable natural resources (volcanoes, flora and fauna etc.), nature reserves, hiking trails.
- Presence of cultural resources.

- Typical and local food and wine products.
- Presence of traditional architecture.
- Proximity to Taormina.

Weaknesses

- Poor transport services and facilities.
- Seasonality of service industry activities.
- Undeclared tourism.
- High unemployment.
- Fragmentation in manufacturing activities and agriculture.
- Lack of adequate communication tools for the promotion of the area (websites, social networks etc.).

Tourism is the main engine of economic development; the local level seems to be getting more and more aware of this, too. However, the need for seasonal adjustment of flows and the identification of the main development options in environmental and cultural tourism shall be highlighted, as some forms of tourism more than others are suitable to the territory and its features.

From the point of view of tourist competitiveness, the area shows several weaknesses. Among the key aspects, it is worth mentioning accessibility, as oftentimes it is not adequately supported by an *ad hoc* transport and infrastructure network. Additionally, the supply of support services to the tourism sector is deeply unbalanced between the periods of considerable tourist flow and the rest of the year. Although the presence of the service industry has a positive impact on the local economy, these activities are nonetheless subject to high seasonal fluctuation, which can produce critical effects on the local hospitality systems and the relevant services.

Overcrowding in high season is another weakness caused by the undetected tourist flow.

A key strength is represented by the remarkable natural heritage characterising the site. In this sense, the environmental and landscape constraints represent a noteworthy strength of the area. At the same time, the existence of particularly important cultural resources could evidently affect the demand for cultural tourism. This may be favoured by the conservation and enhancement of the typical architectural features located in a valuable environmental context.

Therefore, the territory's assets and resources are extremely noteworthy, from both a naturalistic and a cultural level, but they lack adequate enhancement or integration between all its components.

The external factors include all those variables external to the economic and tourist system that can somehow influence and affect it. It is necessary to intervene on such opportunities and threats (or risks) by trying to maximise the system's opportunities, thus reducing risks and keeping emergencies under control.

The following list highlights the opportunities and threats relevant to the Mount Etna site from an economic and tourism-related point of view.

Threats

- Instability of tourist demand.
- Lack of control of tourist flows.
- Pressure in competing areas.
- Natural disasters related to volcanic activity.

Opportunities

- EU, national and regional funding.
- UNESCO certification.
- Natural resources (protected natural areas).
- Hiking trails.
- Demand for expanding nature tourism.
- Presence of quality productions.

Tourism has strong growth opportunities, deriving from a demand of holidays privileging nature and culture. Indeed, nature-related tourism, in its various forms, is becoming increasingly popular on the international and national scene. From a simple niche phenomenon involving only small groups of tourists in search of new forms of recreation, it is now becoming a more appealing, large-scale product. Given such specificity and variety of reasons pinpointing nature-related tourism, the Mount Etna site, formerly an area subject to standard restrictions and protection, now included in the Word Heritage List, can seize new opportunities for a broader development, starting from its natural and environmental resources.

Loans granted at national and EU level (i.e., direct EU funding and structural funds) represent another opportunity. Through these tools, the European Union contributes to reducing the delay of disadvantaged regions by promoting economy and tourism development and environmental protection.
However, tourism also faces several threats. Firstly, similar competing destinations, where tourism sector is more quantitatively and qualitatively organised in terms of services and accommodation. The territory is still not able to propose a specifically differentiated offer compared to that of other competing contexts, despite having a great attractor such as the volcano.
The instability of tourist demand is another threat. This is in fact subject to changes and fluctuations over time, depending on external factors that are difficult to control (e.g., alterations of the environmental balance, economic situation, etc.) and affect demand both directly, changing the socio-economic conditions of potential visitors, and indirectly, by introducing risks, altering the public image and appeal of the site. Permanent changes could redirect towards other destinations the demand flows that Mount Etna currently attracts.
Furthermore, tourism can conflict with other competing economic sectors such as agriculture, industrial and extractive activities in the use of available resources, when the development capacity of the local community is reduced, in terms of cost-opportunity.
Therefore, better planning and continuous monitoring of the tourism-related dynamics of demand and supply is necessary to follow the guidelines for sustainable tourism development policies, especially in fragile natural areas such as those where the Etna volcano is located.

4.4 Demand segmentation and identification of potential targets

For the purposes of demand analysis, the tourist stereotype is the middle-aged traveller interested in cultural and historical aspects, booking a round trip through a package that includes a guided group bus trip to Mount Etna. The main tourist flow usually takes place from April to October with a steady peak in August. Foreign visitors prefer spring or autumn half-day or one-day excursions organised by tour operators or by renting a car. The short distance to Taormina (30 km) contributes to a high daily number of visitors. It represents one of the most important *package-tourism* centres in Sicily.
Only a few visitors decide to spend their time on longer trips. They prefer to stay in the Etna area to have easier access to the volcano and rent cottages or stay in agro-tourism accommodation, alpine huts or campsites, and only a small number choose to stay in hotels. Local visitors, mainly from Catania and Messina, organise their trips individually by car during the weekends. This leads to negative consequences such as environmental pollution and a considerable increase in traffic. Individual travellers usually rent their cars.
The main problem in quantifying Etna's tourist flows consists in counting the actual number of daily visitors. In fact, a large number of domestic visitors make a day trip to the volcano. Thus, it is impossible to quantify how many tourists visit the volcano each year, because neither the cable car nor the off-road companies can be consulted.
Two macro-categories of visitors can be identified:

- "Functional tourists", who prefer the functionality of the structures, the accessibility of the site, the quality of the services and consider these aspects more important than the site's intrinsic value. They are very interested in the quality / price ratio.
- • "Enthusiast tourists", who have a high level of education, their top priority is the site's cultural / naturalistic value, for which they are willing to make both financial and logistical efforts. The love for nature and volcanoes is their almost exclusive driver.

4.5 Definition of the area's current overall supply

Etna is primarily a hiking destination of great importance for domestic tourism. The absence of targeted communication focused on the volcano as an attractor, as a place not only for visiting, but also for longer staying, entails a lower frequency of international tourism in the area. Action is required to develop the offer of tourism services related to volcanoes. Other destinations in other parts of the world have chosen to invest in their natural heritage: their efforts enhanced extraordinary scenarios, nature, parks, museums, gastronomic opportunities. In this respect, an example is provided by Alaska, which manages to convey a considerable number of visitors to geothermal locations by offering related services and activities such as cross-country skiing, camping and other open-air activities.

One of the main problems of tourism on Etna is undoubtedly related to the quantity and quality of the services offered: these are unfortunately still below international standards, but at the same time show great potential for further

development. It could be interesting, for example, to follow the Icelandic model, linked to the Eyjafjallajokull volcano, whose tourism sector has been expanding in recent years and which now records a constant number of presences throughout the year. In this case, this was made possible by the possibility to practice adventure-oriented cyclo-tourism, bird watching and whale watching in the milder months, and to go on winter tours that include skiing, ice-fishing and hiking on glaciers and/or snowmobiles.

However, Japan represents the main example in this respect, as it is characterised by high volcanic activity. Japan has always placed considerable attention on public safety within parks and geoparks, as well as on their accessibility and usability, and can be considered the world leader in the organisation of geotourism-related hospitality and services. The case of the Japanese volcano Aso (Kyushu) shows the attention paid to the available offer of activities, but also to family-friendliness and the needs of persons with disabilities: e.g., passages and routes have been made easily accessible to wheelchairs and strollers. A large number of sources of hot thermal water (*onsen*) is also connected to the volcano. One of the most popular *onsen* areas is located right near the volcano and this means that most visitors choose this destination for its many spas, especially during the spring or autumn season.

Among the activities available in this area, there are: activities related to thermal resorts, excursions, horseback riding, trekking and bird watching, souvenir shops, restaurants and a museum, accessible even when the summit is closed. There are also several reinforced concrete bunkers, in case of unexpected eruptions, and numerous viewing platforms. The park organisation has an English version website containing useful information for tourists who are novel to this kind of environment. In addition, maps and other information are available in English to increase the number of visitors to Kyushu. Finally, the walkways are well maintained and kept very clean. Each volcanic site should have a website with logistical information and notes on the available activities. For these and other reasons, Japan proves to be the world leader in the organisation of geotourism-related hospitality and services.

Against this backdrop, the development of geotourism could also represent a good “de-seasonalisation” strategy.

Compared to these international experiences, the Etna volcano could be particularly appealing to those in search of a high cultural and naturalistic experience and willing to invest in their leisure time.

ANNEXES

ANNEX I

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AnnexII: List of economic activities relevant to the area's supply chains

ATECO	Manufacture of other food products	Drinks Industry	Manufacture of products in wood, cork, straw and recycled materials	Printing and related services	Manufacture of glass and glass products	Manufacture of other porcelain and ceramic products	Cutting, shaping and finishing of stones	Manufacture of other metal products	Manufacture of jewellery, goldsmith's art and related articles	Manufacture of musical instruments	Repair and maintenance of metal products, machines and equipment	Retail sale in non-specialised stores	Retail sale of food, beverages and tobacco in specialised stores	Retail sale of other household products in specialised stores	Retail sale of cultural and recreational items in specialised stores	Retail sale of other products in specialised stores	Retail street vendors	Off--store retail sales	Rail passenger transport (intercity)	Other passengers terrestrial transport
ADRANO				4			3	8				44	43	29	40	131	36	14		2
BELPASSO	1	1	2	18	1	5	3	16				57	55	25	35	166	30	27		8
BIANCAVILLA		1	1	7				4				28	46	19	29	79	11	11		5
BRONTE	10		3	8		1	1	9				38	45	26	29	114	9	30		3
GIARRE	1	1	2	18		3	1	19	5	1	1	58	63	45	81	234	37	42		17
LINGUAGLOSSA				1				11				19	18	15	29	46	15	8		13
MALETTO						1	1	3				6	4	6	10	13	1	2		4
MASCALI	2							5				23	20	13	19	40	15	12		11
MILO								1				5	5							1
NICOLOSI			1	3		3	2	5	1			14	21	8	18	64	17	9		8
PEDARA		1		5		3	2	3				19	18	12	10	51	13	9		10
RAGALNA												7	10	2	5	16	2	2		1
RANDAZZO	1			5		1		6	1			30	29	20	29	85	5	12		4
SANT'ALFIO												3	2	0	1	1				1
TRECASTAGNI			1			2	1	6				16	28	13	16	40	12	11		3
VIAGRANDE				1			1	5				13	13	11	12	31	6	8		5
CASTIGLIONE DI SICILIA		3		1				4				16	10	2	5	14	4	3		2
PIEDIMONTE ETNEO			1			1	1	2	1			11	10	4	4	24	4	8		2
S. MARIA DI LICODIA				1		2		5	1			27	22	5	18	51	9	5	1	
ZAFFERANA ETNEA				2		2		7	1			25	22	3	18	55	7	6		10
TOTALE	**15**	**7**	**11**	**74**	**1**	**24**	**16**	**119**	**10**	**1**	**1**	**459**	**484**	**258**	**408**	**1255**	**233**	**219**	**1**	**110**

ATECO	Sea and coastal passenger water transport	Inland waterway passenger transport	Passenger air transport	Hotels and other tourism establishments	Holiday and other short-stay accommodations	Camping and picnic areas for campers and caravans	Restaurants and mobile food service activities	Catering and similar services	Bar and other similar exercises without kitchen	Books and magazines edition and other similar activities	Production, post-production and distribution of movies, video and television programmes, music and sound recordings	Sound and Music recording and edition	Radio broadcasting	TV broadcasting	Telecommunication	Other information services	Architecture, engineering and other technical consulting studios	Technical testing and analysis	Advertising	Design activities
ADRANO					2		33	3	45		1			1			3	1	5	1
BELPASSO				6	6		50	4	49		1	2	1			1	3	3	7	
BIANCAVILLA				2	4		38		47		2						2	3	2	
BRONTE				1	5		32	5	35	1			1				6	4	3	1
GIARRE				7	18		63	3	71		7	1	1			1	4	6	9	1
LINGUAGLOSSA				10	11	1	19	1	22		2	1					4			1
MALETTO							8		8										1	
MASCALI				7	9	1	33	8	29	1	1								1	
MILO				2	6		8		4										1	
NICOLOSI				7	4		74	1	34		1		1	1			4	1	4	
PEDARA				3	6		35	4	21	1	1	1					2	1	10	
RAGALNA				1	6		12	1	9								1			
RANDAZZO				3	3		29	2	23		2						1	1	2	
SANT'ALFIO					5		13	1	3											
TRECASTAGNI					9		39	3	20	1	2						3	3	3	1
VIAGRANDE				3	6		18	2	11	2							1		5	

CASTIGLIONE DI SICILIA				4	12		20		16	2	1						3	1		
PIEDIMONTE ETNEO				2	8		8		11									1		
S. MARIA DI LICODIA				1	2		19	4	21	1							1		2	
ZAFFERANA ETNEA				10	7		39		18	1								2	3	1
TOTALE	**0**	**0**	**0**	**69**	**129**	**2**	**590**	**42**	**497**	**10**	**21**	**5**	**4**	**2**	**0**	**2**	**38**	**27**	**58**	**6**

ATECO	Photography	Translation and interpreting	Vet services	Car rental	Rental of personal and household goods	Granting of rights to exploit intellectual property and similar products (excluding copyrighted works)	Travel agencies and tour operators	Booking services and related activities	Office support activities	Organisation of exhibitions and events	Other educational services	Medical, health and dentist services	Artistic and entertainment services	Libraries, archives, museums and other cultural activities	Sport activities	Recreational and entertainment activities	Maintenance and repair of items for personal and household use	Other personal services	TOTAL
ADRANO	9			5	4		4	3	3	4			3		7	12	1	51	555
BELPASSO	10			19	2		4	1	2	3	4	5	12	1	9	18	2	58	738
BIANCAVILLA	5		1	1	1		1						1		2	12		35	400
BRONTE	5		1	2	1		1	2	1	4			12		1	16	1	56	523
GIARRE	15	1		15	7		2	5	8	7	1	5	8	1	8	35	3	87	1030
LINGUAGLOSSA	3	1		8	16		3	4	1	1	2	1	3	2		3		15	310
MALETTO															2	2		8	80
MASCALI	3			8	7	1			1			1			1	24		24	320
MILO					1													1	35
NICOLOSI	1				5		3	3		1	1		3	2	3	12		23	363
PEDARA	4			5			2	3	1	2	1		3		6	4		22	294
RAGALNA				2				2		1	1		3		1	1		8	94
RANDAZZO	4			4	1		4	2		1	1	1	4		3	4	1	24	348
SANT'ALFIO				1	1			1		1						2		2	38
TRECASTAGNI	3	1	1	2	4		4	3	1			1	5	1	2	8		17	286
VIAGRANDE	2			1	1		5	1		4	1	1	3	2	1	3		15	194
CASTIGLIONE DI SICILIA				1	2	1	1					1	1	1	2		1	6	140
PIEDIMONTE ETNEO	1			3												3	1	9	120
S. MARIA DI LICODIA	3			6	1		1	2							3	8	1	17	240
ZAFFERANA ETNEA	3			3	3			5		2	1		2		1	6	1	18	284
TOTALE	**71**	**3**	**3**	**86**	**57**	**2**	**35**	**37**	**18**	**31**	**13**	**16**	**63**	**10**	**52**	**173**	**12**	**496**	**6392**

Regione Siciliana

Parco dell'ETNA

MINISTERO DELL'AMBIENTE E DELLA TUTELA DEL TERRITORIO E DEL MARE

MiBACT Ministero dei beni e delle attività culturali e del turismo

Project “Strengthening of management capacities of the UNESCO site “Monte Etna”, financed under Law 20 February 2006, n. 77 "Special protection measures and fruition of Italian sites of outstanding cultural, landscape and environmental value, included in the UNESCO " world heritage list”.